

Sheetlines

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For many CCS members, the opportunities to meet others to discuss and share their interest are very welcome but, alas, too rare. We have the AGM each May, we have visits and outings from time to time. On these occasions we enjoy talking about our studies and collections and learning from others' accounts. As our membership is widely (and mostly thinly) spread across the British Isles, the need to travel prevents many members from benefitting from such meetings.

John Fowler gives his thoughts about members' expectations on page 58, whilst the 'heat-map' on page 59 shows the spread and concentration of members' home locations.

We now invite those members who would like more opportunities to gather together to consider some possibilities and give us your thoughts.

First the AGM. In May 2015 this will be in Lincoln; recent years have seen it in Ludlow, Kingston-on-Thames and Southampton. Where for 2016? We'd like your suggestions, thinking not just about geographic location, but logistical and practical considerations such as availability of a meeting room accommodating about 120, catering for lunch and space for the map-market (not forgetting affordability). Ideas and suggestions to the editors, please.

Second, visits and outings. We recently visited organisations responsible for marine and air charts (story on page 57). We are planning trips to Essex County Records office at Chelmsford on 22 April and later to York (National Railway Museum and Network Rail) and Northern Ireland. Details of these visits are not yet confirmed, but anyone interested should register with Bernard Anderson, Visits co-ordinator, at address opposite. What about future visits? Again, ideas and suggestions of venues for visits are sought; replies to Bernard, please.

And what about the possibility of local meetings at various centres around the country? A few years ago there were thriving programmes of local meetings in London and the West Midlands, but these faded out over time. The heat-map shows several areas where a sufficient concentration of members may make for a viable series of evening or weekend meetings. These could feature invited speakers or 'show-and-tell' sessions for members to share their passions. The editors will be delighted to act as contact points to help local members reach each other and establish such programmes.

Reburial of the World War One dead

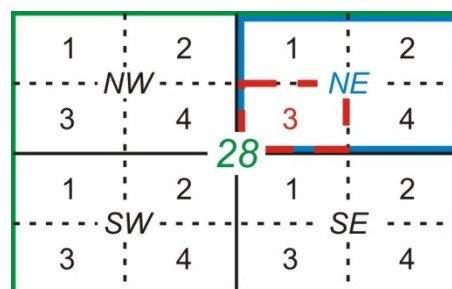
Chris Higley

Recent website developments by the Commonwealth War Graves Commission and the National Library of Scotland link to provide a poignant tool for the family historian.

In the 1920s the Imperial War Graves Commission undertook a major operation to retrieve the dead from small cemeteries and scattered battlefield graves in Belgium and France, and to rebury them in the large, well-kept cemeteries that we know today. Meticulous records were made of the process and these are now available, linked to the name of the casualty, at www.cwgc.org – the Commonwealth War Graves Commission website.

If we search for Private Elisha Andrews of the Devonshire Regiment we find that he died on 4 October 1917 and is now buried with nearly 12,000 others at Tyne Cot cemetery. In the linked burial return, we are also told that his body was recovered for reburial from map reference J.16.a.4.6 on Sheet 28.N.E.

As many readers will know, Ordnance Survey printed the GSGS 2743 series covering the Western Front. These maps retained the scale, sheet lines and sheet numbering of the pre-war 1:40,000 Belgian series on which they are based.¹ As shown in the diagram, the area of each 1:40,000 sheet may be divided into four 1:20,000 sheets of the GSGS 2742 series. The area of each of these may be further divided into four 1:10,000 detailed trench maps designated GSGS 3062.

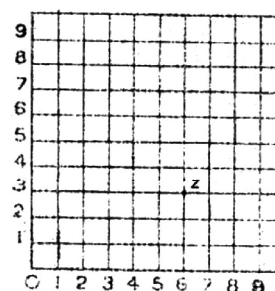


INSTRUCTIONS AS TO THE USE OF THE SQUARES.

1. The large rectangles on the map, lettered A. B. C. etc., are divided into squares of 1,000 yards side, which are numbered 1, 2, 3, etc. Each of these squares is sub-divided into four minor squares of 500 yards side. These minor squares are considered as lettered a, b, c, d. (See Square No. 6 in each rectangle.)

A point may thus be described as lying within Square B.6, M.5.b, etc.

2. To locate a point within a small square, consider the sides divided into tenths, and define the point by taking so many tenths from W. to E. along Southern side, and so many from S. to N. along Western side; the S.W. corner always being taken as origin, and the distance along the Southern side being always given by the first figure. Thus the point Z would be 63, i.e., 6 divisions East and 3 divisions North from origin.



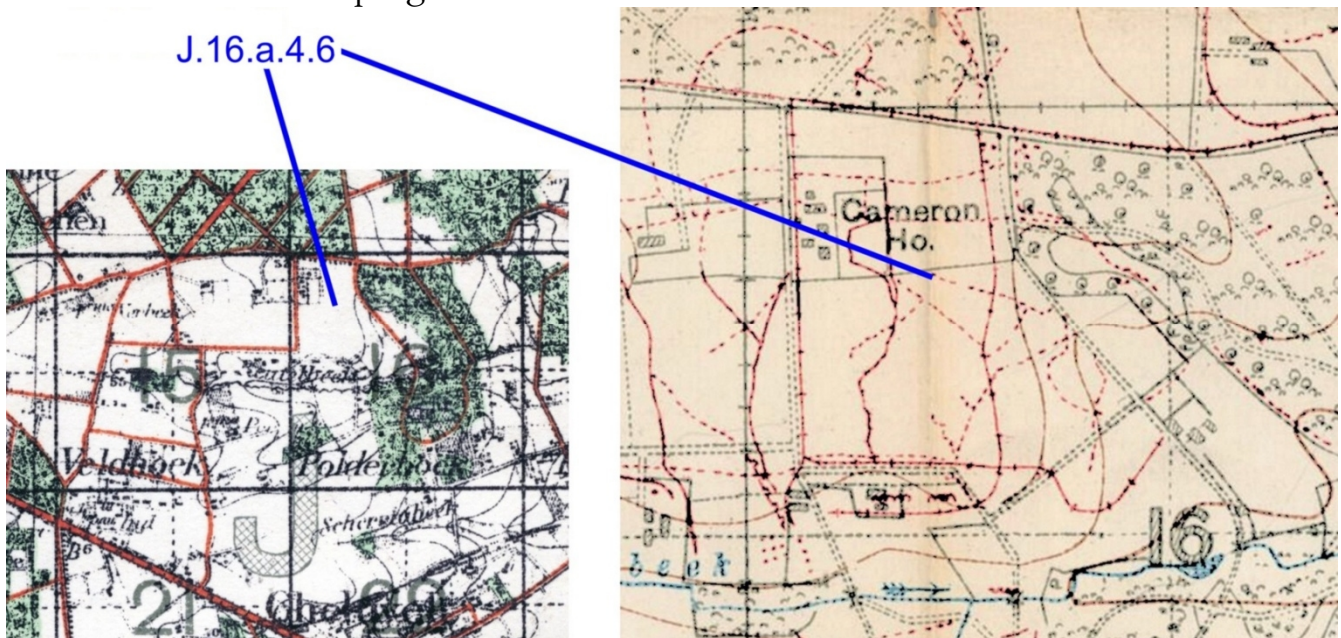
The face of each 1:40,000 sheet was divided into 1000 yard squares, whose use is explained in the above instructions. This is not a theatre grid; to interpret a map reference we need to know the number of the map sheet to which it refers.

¹ The rectangular sheet layout was extended into northern France, each new sheet number generally formed by taking the number of the first Belgian sheet to the east and adding a letter suffix. Sheets 44A and 44B were originally numbered 36C and 36B respectively.

However, the same squaring is then reproduced on the larger scale sheets into which that particular sheet is subdivided. So to find the original location of Elisha's body using the map reference given above, it does not matter whether we have 1:40,000 sheet 28, 1:20,000 sheet 28.NE or 1:10,000 sheet 28.NE.3. In each case we have the position of the body to an accuracy of 50 yards in each direction.

In our example, coupled with his date of death, the map reference shows us that Elisha was almost certainly killed during the battle of Broodseinde, one of the attacks in the enormously costly Passchendaele campaign.

And this is where the National Library of Scotland comes in. With over 300 maps of the Western Front now available online at <http://maps.nls.uk> you can normally see the very field in which your ancestor was originally buried – and since casualties usually lay where they fell or were buried close by, this will give you a pretty good idea of what he was doing when he was killed. I said the information could be poignant.



Extracts from GSGS 2743 1:40,000 sheet 28 and GSGS 3062 1:10,000 sheet 28.NE.3. The right hand extract is reproduced by permission of the National Library of Scotland.

Chris Fleet, Senior Map Curator, National Library of Scotland adds:

The *Great War British Trench Maps Coordinate Converter*² locates the position of trench map coordinates on a modern Google satellite or map base. Just type in as much or as little of the trench map reference (eg. '36c.' or '36c.N.11', etc) click 'Submit', and the map view shows the location, also providing latitude and longitude coordinates as decimal degrees. You can also copy and paste these into the 'NLS Explore Geo-referenced maps viewer'³ **Gazetteer / NG Ref:** box, ie. just as '50.2942, 2.7793' and the map will zoom to this location. This is rather clunky, but potentially useful, as from there you can view geo-referenced trench maps of the location directly.

² <http://rdf.muninn-project.org/TrenchCoordinates.html?q=50.379380,2.774023>

³ <http://maps.nls.uk/geo/explore>

Charting the aeronautical landscape

Part 2: depiction of airfields on OS one-inch and 1:50,000 maps from the onset of the Cold War to beyond the millennium

Ronald Blake



In a recent companion article¹ the depiction of airfields on the Ordnance Survey general-purpose maps was reviewed, series-by-series, up to the expiry of the New Popular Edition in the mid-1950s. Originally, it had been the writer's intention to span the whole of the twentieth-century in a single essay, but due to the topic's unfolding complexity it proved necessary to split the narrative into two parts, dealing respectively with aviation's 'piston' and 'jet' eras and pivoting on a step-change in the design and content of the nation's best-selling map.

This follow-up article extends the story over the past sixty years, focusing on the one-inch-to-one-mile (1:63,360) Seventh Series, its 1:50,000 *Landranger* successor, and the Northern Ireland (OSNI) counterparts of mainland mapping. The aims, scope and methodology remain broadly the same as for part 1 (qv), with two thematic sections added to explain post-war airfield morphology. To best portray detail, map extracts are at varying scales, but the kilometre grid squares will help comparison.

Components of airfield identity and classification

Cartographically, every airfield has a unique identity, comprising its official name, operational status and landscape footprint. As noted in part 1, prior to the Second World War (WW2) airfield locality names were rarely printed on one-inch maps, institutional titles being preferred in exceptional cases. After 1945 most New Popular sheets representing the Home Counties identified civil airports by name, but this refinement was not routinely extended to military air-bases or minor civil aerodromes till the early 1960s.²

Operational status is inherently difficult to express on general-purpose maps because standard generic terminology (Airfield, Aerodrome, Airport, Airstrip, etc) is incapable of integrating every dimension of public and professional interest (role, capacity, facilities, etc).³ Unsurprisingly, the OS has studiously avoided making an explicit distinction between 'military' and 'civil'

¹ Ronald Blake, 'Charting the aeronautical landscape part 1': *Sheetlines* 99, (2014), 19-39.

² In this respect the OS standard topographical map differs from statutory (1:500,000 and 1:250,000) Air Charts which print the names of all active and many disused airfields to assist pilots with flight planning, navigation and emergency touch-down.

³ The key variables of airfield 'status' are: aircraft category (aeroplane, microlight, floatplane, helicopter, glider, etc); type of operator (military, civil, joint-user); air traffic control zoning; customs and licensing arrangement; runway calibre (length, orientation, surface); number of based aircraft; traffic throughput (aircraft movements, passengers, freight); and field limits (shape and size of footprint).

sites and direct references to particular Service operators are rare.⁴ Since 1952 the umbrella term ‘Airfield’ has predominated and (despite also applying to some civil sites) now evokes military activity in the popular mind. Correspondingly, ‘Aerodrome’ has declined and (despite continued usage in statutory Air Charts and documentation) smacks increasingly of a bygone age.⁵ Disused airfields with intact runways are normally described as such, but the abandoned grass-only types have typically ceased to be identified in words.

As regards footprint, the conventional binary classification into ‘hard’ (paved-runway) and ‘soft’ (grass landing surface) remains a core tool of landscape impact analysis, although a third hybrid category of grass-surface airfields with perimeter tracking and significant built accommodation is recognized here (*figure 1*).⁶ Other diagnostic features include aircraft factories, dispersed wartime camps and tiny airstrips.

The 1:63,360 Seventh Series

As the most territorially inclusive and thoroughly revised series to date, the ‘Seventh’ was poised to reveal as much about airfields as peacetime security rules allowed. During the map’s 24-year life-span (1952-1976) a record 145 sheets (73%) carried some written or graphic evidence of recent flying activity. Aeronautically, Britain in the 1950s and 1960s saw a radical restructuring of its home defences to meet Soviet threats, a mass disposal of superfluous WW2 aerodromes, and the rise of regional airports to boost air transport both domestically and abroad. Thanks to the scale, durability and ubiquity of wartime infrastructure, no additional air-bases were needed on virgin sites after 1945⁷ and all commercial airports with one exception⁸ grew from sites with a war-effort pedigree.

Compiled from a combination of air-photograph mosaics and field work,⁹ the Seventh avoided the worst shortcomings of its predecessors, yet regional inequalities persisted due to the issue in phases of its first (‘A’-coded) sheets

⁴ Until quite recently the only OS popular-scale reference to the RAF was its college at Cranwell. Since the early 1950s the other Service airfield operators have comprised Fleet Air Arm (FAA), Army Air Corps (AAC), Ministry of Defence and agencies (eg RAE) and United States Air Force (as RAF ‘tenants’). Nowhere are ‘FAA’ and ‘AAC’ specified on the map, although the abbreviation ‘RNAS’ appears at two locations.

⁵ It is still unclear why ‘Aerodrome’ remains the term of choice on statutory Air Charts or why ‘Airfield’ was so readily adopted by the OS for its post-war standard topographical series.

⁶ A tentative physical typology of airfields can be found in Roger Hellyer and Richard Oliver, *A Guide to the Ordnance Survey 1:25,000 First Series*, London: Charles Close Society, 2003, 58-59, 72. Due to transfer of data from larger-scale (mainly the six-inch) series these diagnostic features have typically been portrayed somewhat inconsistently on ‘one-inch-type’ maps.

⁷ Culdrose, though commissioned in 1947, was under construction during WW2 and so not strictly a post-war land acquisition.

⁸ Lydd (Ferryfield) was the only early post-war airport built on an entirely new site, its initial purpose being to transport motor-cars to northern France.

⁹ Christopher Board, ‘Air photo mosaics’, *Sheetlines* 71, (2004), 24-38.

over a nine-year period.¹⁰ Because metropolitan England already enjoyed ample stocks of up-to-date New Popular sheets, release of the Seventh began in Wales, fanned out across the central-eastern body of the country and completed its first coverage in northern Scotland and the southernmost counties of England.¹¹

Hesitantly, pioneer sheet 142 *Hereford* (1952) concealed its sole WW2 airfield, Madley (415375), in old landscape ornament, possibly because a policy for aviation had yet to be decided.¹² Happily, adjoining 'A' sheet 129 identified (Shobdon) *Airfield* (395605) over blank space, this rudimentary signature being the provisional norm for air-bases everywhere. Civil airfields meanwhile continued to be marked more elaborately eg *Cardiff Airport* (154, 215770, 1952) and *Liverpool Airport* (100, 415835, 1952) which each bore runway layouts as well as their names. This emergent doctrine was displayed to perfection on overlapping sheets 138 and 151 (1952) where the label *Haverfordwest (Withybushe) Aerodrome* over runways (960190) stood aloof among six plain *Airfield* descriptions (all military) and a fairly obvious security blank highlighting the Pembroke Dock flying-boat station (960037).¹³

To understand a potentially more complex picture, it is helpful to consider the 'A' publication round (1952-1961) as comprising two phases each of five years duration. 'Early-A' sheets (those issued 1952-1956 inclusive) accounted for some 400 of OSGB's ever-to-be depicted WW2 sites, 85% of which bore a sparse 'Shobdon-style' *Airfield* label. 'Prolific' sheets (those containing eight or more airfields apiece) formed a coherent block across central-eastern England, the most packed being number 113 *Lincoln* with eighteen labelled sites.¹⁴ By previous (and later) standards this was a strikingly homogeneous picture, its obvious downside in retrospect being the absence of any distinction between active and disused sites.¹⁵

¹⁰ The genesis and composition of this quintessentially post-war map is fully explained (with a cartobibliography) by Richard Oliver: *A Guide to the Ordnance Survey One-inch Seventh Series*, London: The Charles Close Society, 2004.

¹¹ Bizarrely, several years after mass airfield placements had been appearing on midland and eastern counties sheets, 'aviation tinkering' was still taking place on New Popular sheets in the South (e.g. at Ford, 182, 1959) (see *Sheetlines* 99, 32).

¹² As well as sheet 142 being quasi-experimental, it is also possible that the suppression of Madley airfield had something to do with radio/radar experiments.

¹³ The Pembroke Dock 'blank' provides the only suggestion in the Seventh Series of the RAF's obsolescent flying-boat capability that was finally withdrawn in 1956.

¹⁴ The early block of so-called 'airfield-rich' sheets comprised numbers 96, 97, 99, 104, 113, 118, 122, 125, 134, 136, 144, 145, 146 and 148.

¹⁵ The great majority of one-inch 'Airfield' placements in the mid-1950s were classified as 'Care and Maintenance', i.e. vacant sites reserved for aircraft dispersal in case the Cold War hotted up. It is beyond the scope of this essay to probe which ones were earmarked for upgrading or imminent disposal.

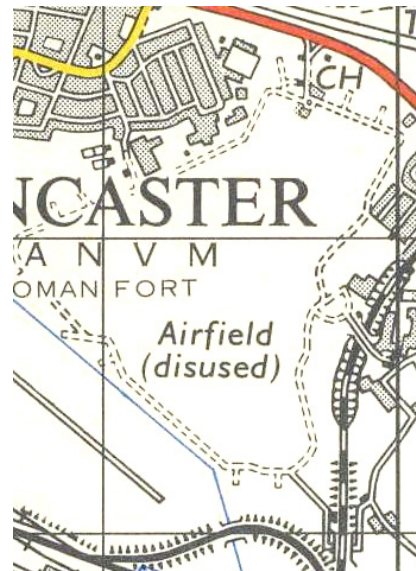
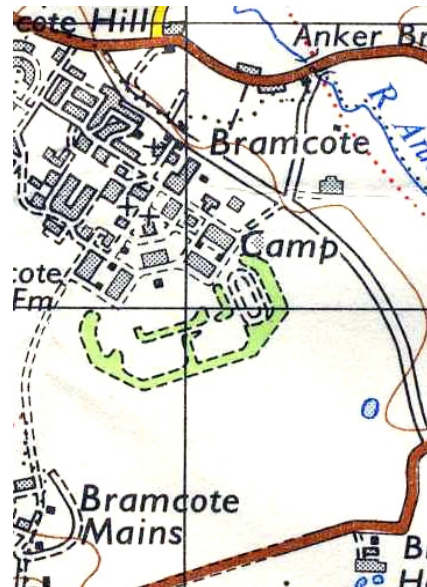
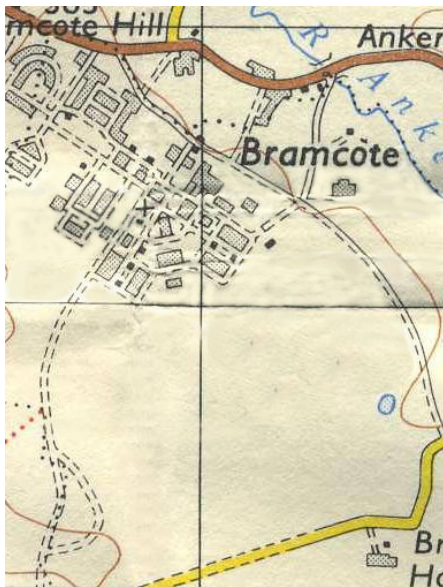


Figure 1A top left, Wroughton, Wilts, sheet 157, B, 1968 (140790)

1B top centre, Cranfield, Beds, sheet 146, B, 1968 (945420)



1C top right, Doncaster sheet 103, C, 1968 (595020)

1D far left, Bramcote, Warwicks, sheet 132, 1964 (410880)

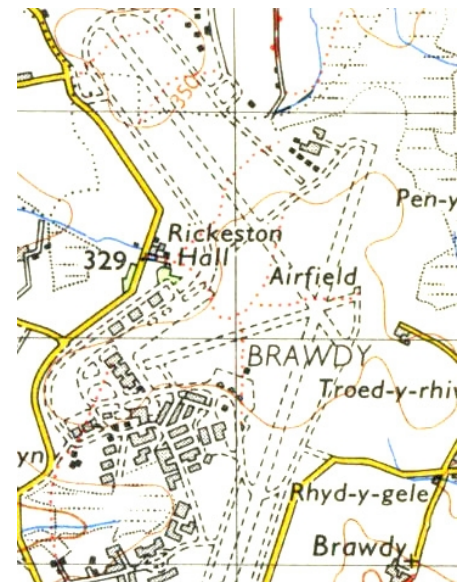
1E near left, Bramcote, Warwicks, sheet 132, 1967 (410880)

Above and left: Airfield types on Seventh Series maps

**Are they military or civil?
Answers on page 27**

Below: Figure 2 Brawdy airfield, Pembrokeshire (850250) on Seventh Series maps

2A left, sheet 151, A, 1952; 2B centre, sheet 151, A//, 1960; 2C right, sheet 138/151, C/ 1971



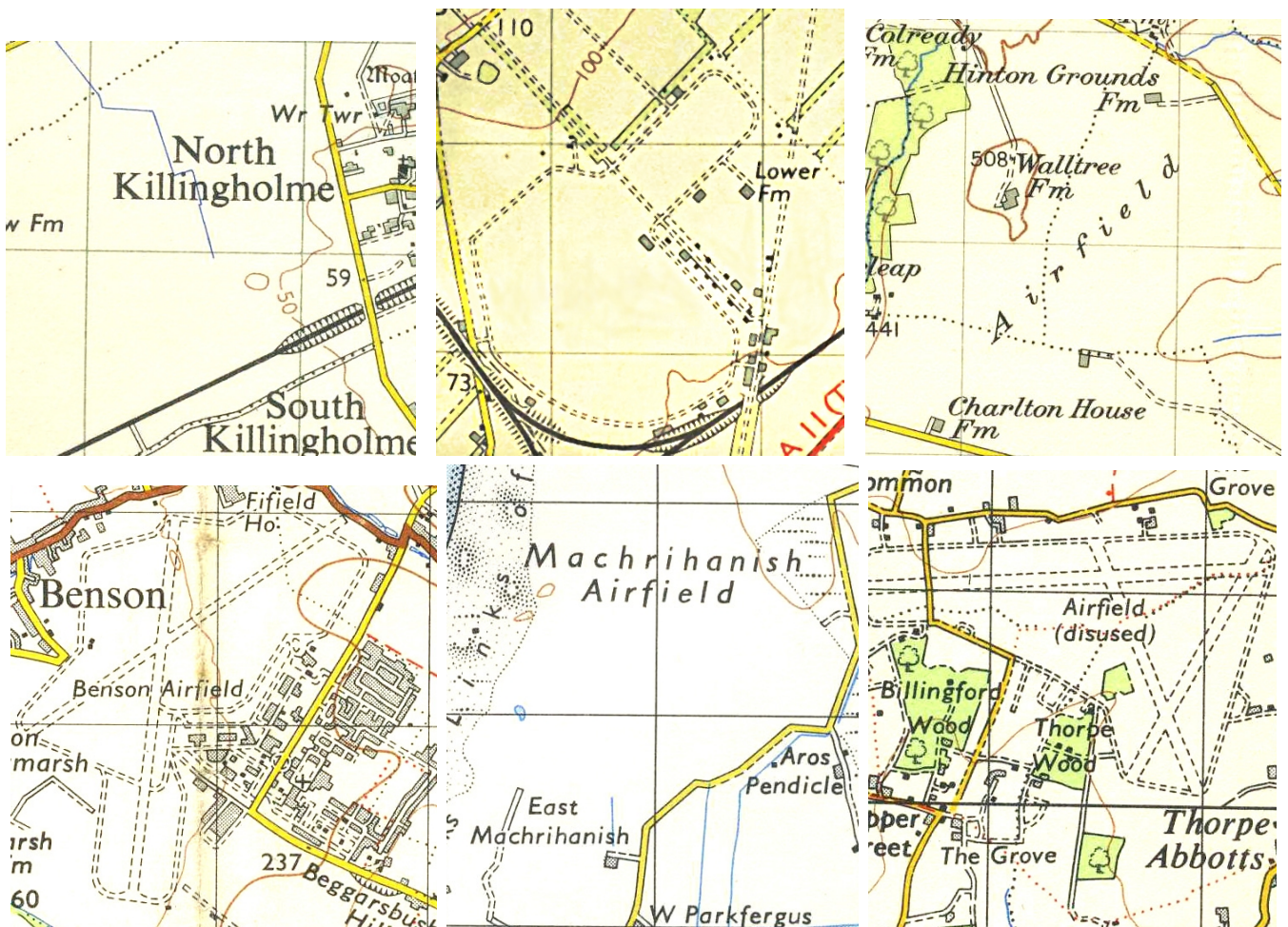


Figure 3. Military airfields on Seventh Series maps

3A top left, North Killingholme, Lincs, sheet 104, A, 1954 (135170)

3B top centre, Snailwell, Cambs, sheet 135, A, 1954 (655660)

3C top right, Hinton-in-the-Hedges, Northants, sheet 145, A, 1953 (545370)

3D lower left, Benson, Oxon, sheet 158, B, 1967 (630910)

3E lower centre, Machrihanish, Argyll, sheet 65, A/, 1960 (660225)

3F lower right, Thorpe Abbots, Norfolk, sheet 137, B, 1969 (185810)

The remaining 15 per cent (of early-A depictions) ranged from various civil airfields to a pair of prematurely named air-bases¹⁶ and a miscellany of partial and whole excisions. At Inskip (94, 450370, 1954) an eye-catching unlabelled runway pattern concealed naval radio apparatus. The RAF College at Cranwell and its 'South' aerodrome (113, 015490, 1954) were more predictable excisions, but the total blanks at North Killingholme (*figure 3A*) and Longtown (76, 4100680, 1955) can only be conjectured as hiding vulnerable storage sites.¹⁷ Across the eastern counties a number of abandoned grass fighter

¹⁶ Intriguingly, *Pershore (Airfield)* (144, 975495, 1953) and *Leconfield Aerodrome* (99, 030435, 1955) and were labelled thus several years ahead of general OS practice.

¹⁷ For some years after WW2 certain paved airfields were used as dumps for surplus vehicles and equipment, rendering their runways unusable for flying. It is possible that non-Air Ministry departments with stricter security rules wanted such premises denied.

airfields eg Snailwell (*figure 3B*) were unlabelled but still discernible by their perimeter tracks.¹⁸

A stylistic hallmark of early-A sheets was the oblique (sometimes curved and/or stretched) *A i r f i e l d* label, flamboyant examples being Colerne (156, 805715, 1953) and Hinton-in-the-Hedges (*figure 3C*). A less satisfactory placement was that at Brawdy (*figure 2A*) where legibility was inadvertently compromised by a near-vertical inscription echoing the orientation of the main runway. ‘Tilted’ descriptions, doubtless meant to avoid ‘collision’ with existing settlement names, were practically confined to a block of hand-lettered sheets covering Wales and west-central England, although the odd outlier eg Hunsdon (148, 425135, 1954) can be spotted on early photo-letterpress sheets.

By contrast, the 63 ‘late-A’ sheets with aviation content (issued 1957-1961) were characterised by three important mapping innovations: the general prefixing of locality names to active military air-bases; the suffixing of the status qualifier ‘(*disused*)’ where regular Service flying had ceased; and the adoption of Gill Sans (sans-serif) Italic font (in place of Times Roman).¹⁹

The first military air-base (other than the Leconfield anomaly) to be named and in modern typeface was *Leuchars Aerodrome* (56, 465205, 1957), its passé generic terminology influenced no doubt by a long operational history. Prolific naming of air-bases first took hold on Cotswolds sheet 157 (1958) eg *Aston Down Aerodrome* (910010) and *South Cerney Aerodrome* (055990) whose conservative description echoed their 1930s Expansion origins.

The first air-base to be mapped by name in tandem with post-war terminology was *Bovingdon Airfield* (159, 005040, 1959) in the Chilterns, its label redolent of a WW2 origin and USAF occupancy in peacetime.²⁰ Finally, as a consequence of geographically phased sheet issue, the last air-bases to make their popular cartographic débuts were *St Mawgan Airfield* (185, 870645) and *Culdrose Airfield* (189, 675255) on the Cornish peninsula in 1961.

Written affirmation of disuse was invariably accompanied by an infrastructure footprint, the first display of this quintessentially post-war combination being (Lulsgate) *Aerodrome (disused)* (165, 505650, 1958), shortly before the site’s revival as Bristol’s modern civic airport. Henstridge (also in Somerset) first appeared in an unusually florid manner as *Air Station (Admiralty) (Disused)* (166, 750205, 1959), while the New Forest ex-fighter base (officially called Holmsley South) was oddly marked *Plain Heath Airfield (Disused)* (179/210990, 1960), suggesting absence of an OS naming procedure.²¹ Additionally, south-west England contained a couple of

¹⁸ Other examples of unlabelled defunct grass airfields were Docking (125, 790390, 1954) and East Wretham (136, 905895, 1954) in west Norfolk.

¹⁹ A later adoption of this modern typeface can be seen at Brawdy in *figure 2B*.

²⁰ After its civil stint assisting with Heathrow’s expansion, Bovingdon returned to a military transport flying role from 1947-69.

²¹ Other airfields mapped later with ‘curious’ (i.e. non-Air Ministry) names were ‘Hodsow Field’ (for Pocklington, 98, B/*, 1967) and ‘Hemplands’ (for Millom, 88, 140790, B/, 1971).

unlabelled runway layouts: Keevil (166, 920570, 1959) had most likely been partially censored because it hosted some undisclosed government activity while Winkleigh (175, 620095, 1960) was by this stage already disposed of.²²

Similar nuances abounded on the late-A sheets in northern Scotland. Sheet 7 (1959) marked Castletown ex-fighter base as *Old Airfield* (215670), possibly echoing local parlance,²³ while sheet 30 (1959) drew a subtle distinction between (Banff) *Airfield (Disused)* (620645) and (Dallarchy) *Aerodrome (Disused)* (365635) possibly due to civilian gliding at the latter site. Common use of upper-case 'D' in Scotland (and on late-A sheets in southern England) suggests that OS revisers initially lacked specific guideline on how to label disused airfields.²⁴

As the Cold War intensified, the national set of late-A sheets together contained over 40 aeronautical excisions (ie twice the early-A count), this being part of a nationwide security tightening that also affected mines, factories and power utilities.²⁵ A prime target was 'airfield-rich' sheet 157 (1958) whose two most strategic air-bases, Fairford (155985) and Lyneham (005785), were both suppressed by the simple device of reproducing pre-war landscape detail.²⁶ Other 'southern' airfields denied in this security swoop included the RAF training school at Halton (159, 870110, 1959), a 'fall-back' base at Merryfield (177, 345185, 1960), the signals-mast array at St.Eval (185, 875685, 1961) and nuclear laboratories such as Culham (158, 535955, 1959) in the mid-Thames sub-region.²⁷

Thanks to 'intermediate revision', gross regional inequalities stemming from unsynchronized sheet correction began to be ironed out. By 1960 most 'early-A' sheets had been revised at least once, bringing them into line with their more modish 'late-A' counterparts²⁸ (see again figure 2B). A typical factual upgrade was *Acklington Airfield* (71, 230010, A/ 1960), a flying-training base first described (A, 1956) in plain generic terms but now distinguished from unnamed dormant neighbours. Insertion of station names could however be misleading eg *Melton Mowbray Airfield* (122, 750155, 1960) which belonged to

²² In 1959 Keevil was still required by the RAF and USAF as an exercise runway. Winkleigh had been transferred to the Ministry of Agriculture in 1948.

²³ Legend has it that new toponyms are decided upon by the OS after seeking a majority preference from local residents: did this apply to some airfields?

²⁴ During the 1960s the lower-case 'd' became practically ubiquitous for vacant abandoned, suggesting an eventual consistency ruling.

²⁵ An item on Cold War security can be found in: Chris Higley: *Old Series to Explorer: a field guide to the Ordnance map*, London: Charles Close Society, 2011, 123-125.

²⁶ When sheet 157 was being revised it is possible that Fairford and Lyneham were classified as 'inactive' due to runway and camp reconstruction work and therefore not strictly airfields in the land-use sense.

²⁷ Other defunct airfields blanked to conceal new laboratories at this time were Harwell (158, 480865) and Aldermaston (168, 595635).

²⁸ Richard Oliver, in 'Airfields on one-inch New Popular and Seventh Series mapping', *Sheetlines* 47, (1996), 66-68, has remarked on the way airfield revision tends to cut across the normal pattern on 'full' and 'partial' revision.

a group of 30 ground-based ballistic missile enclaves positioned on partially reclaimed wartime aerodromes.²⁹

Further complicating this evolving scene, the A/ revision round saw another 60 airfield excisions, these being 'outer ripples' of the swingeing Duncan Sandys cuts of RAF legend.³⁰ Blank spaces occurred across central and eastern England, chiefly on sheets corrected in 1957 and 1958 when V-bomber and missile deployments peaked. As well as strike bases such as Bruntingthorpe (132, 595885, 1957) and Finningley (103, 660990, 1958), several company aerodromes engaged in air-defence procurement eg Hawarden (109, 350650, 1957) and Bitteswell (132, 510845, 1957) were also blanked.³¹ On the other hand certain key combat bases eg Wittering (123, 040030, A, 1954) eluded censorship altogether, it clearly depending on the OS's sheet revision schedule which particular airfields got erased or left on the map. In any case, from 1959 onward most of the aforementioned excisions and others in the same security tranche were reversed.³²

While Cold War censorship generally targeted specific sites, sheet 97 (south of York) was atypically re-issued twice (A/ 1957 and B 1960) with mass excisions where 15 WW2 airfields had already been shown generically on the 'A' (1955) printing. This remarkable 'overkill' is doubly intriguing because several of the sites erased appeared normally on the overlap portion of sheet 98 (A/ 1960 and B 1962). Exactly why sheet 97 should have been so 'aeronautically cleansed' is mysterious, provoking speculation that 'adjacent' revisers or draughtsmen might have been working at cross purposes.³³ In due course (B/*, 1967) all the affected airfields in this locality were restored to the map, albeit with some descriptive variation in the overlap zone of the two sheets concerned.³⁴

The next pair of pertinent cartographic innovations were fruit of the 'B' revision round, namely: the routine insertion of ground-truth runway-and-camp layouts at active military air-bases, and the progressive 'thinning' of already abandoned footprints as demolition, land restoration and

²⁹ No missile enclave was ever marked as such at one-inch scale. Across the country the phenomenon was variously mapped by place-name, total void or normal airfield placement, each depending on sheet concerned and its correction date.

³⁰ White Paper, *Defence: an outline of future policy* (Cmd 124), London: HMSO, 1957.

³¹ Ironically, most of these censored industrial airfields had been indicated by label on the previous (A round) sheets, rendering the security measures somewhat pointless.

³² Other 'escapees' from censorship were Alconbury (134, 285745) and Wyton (134, 285750) because their sheet did not come up for revision during 1957 or 1958.

³³ There are sufficient small differences between sheets revised in the same year as to suggest some lack of coordination within either the Air Ministry or the OS.

³⁴ On sheet 98 (B/* 1967) Brighton and Full Sutton were both mapped 'Airfield' prefixed by their respective locality names (implying active status), whereas on overlapping sheet 97 (same state, same date) they were both labelled 'Airfield (disused)'. With similar inconsistency Elvington was named over a blank space on sheet 98 but labelled 'Airfield' over its runway footprint on sheet 97.

redevelopment took effect. Discounting the Leconfield prematurity,³⁵ the first Service layouts to appear as part of a general trend occurred on sheet 171 (B, 1964) at *Biggin Hill Airfield* (415605) and *West Malling Airfield* (680555), possibly because these venerable RAF fighter stations were by then predominantly used by civil flyers.³⁶ More importantly, the first cluster of truly strategic air-bases to be mapped by name and full infrastructure appeared on sheet 158 (B, 1967), including *Benson Airfield* (figure 3D) and *Brize Norton Airfield* (295060) in Oxfordshire.

As the Seventh Series coasted to maturity, the ‘name-plus-footprint’ combination became practically ubiquitous for active air-bases, but the national ‘exit’ picture was not quite uniform because certain sheets were last revised at a relatively early date. On sheet 118 *Shawbury Airfield* (118, 550225, C/*, 1965) never got its footprint, conceivably because there was a ‘sensitive’ storage depot at nearby High Ercall (118, 610180) that specially needed blanking.³⁷ Other footprints withheld throughout the series were those at *Machrihanish Airfield* (figure 3E) and *Milltown Airfield* (29, 2270660) in Morayshire.³⁸

In a coastal area of East Anglia the infrequency of revision had a noticeably collective effect. Sheet 137 (B, 1969) still showed all twelve of its WW2 airfields in footprint form, but only one site (Thorpe Abbots, 185810) was actually labelled ‘Airfield (disused)’. Three others were coyly overprinted ‘Airfield’, suggesting light aviation, but the remaining eight carried no explanatory wording whatsoever. Circumstantially, it seems that during 1968 OS officers decided to dispense with the ‘(disused)’ qualifier in cases of advanced abandonment, and skip directly instead from the bland initial ‘Airfield’ marking (as seen on 137, A//, 1962) to a wordless footprint.³⁹

To conclude the military discussion, there were some twenty aviation security blanks still on Seventh sheets when the series exited in the mid 1970s. Only two sites were in regular flying use, namely Llanbedr (116, 570260, B/* 1967) and West Freugh (79, 110545, B, 1963) where hazardous testing took place off-shore. In the English lowlands, Faldingworth (104, 035855, B/* 1969) stored atom bombs for the RAF while Welford (158, 415745, B 1967) did

³⁵ It is just conceivable that Leconfield’s prematurely elaborate depiction was related to the site’s potential as a civil airport for Hull.

³⁶ Fittingly, Biggin Hill and West Malling were both subsequently remapped ‘Aerodrome’ before progressing to various other descriptions.

³⁷ On overlapping sheet 119 (B/*/*, 1969) *Shawbury Airfield* and (High Ercall) *Airfield (disused)* both had their runways shown, suggesting a security relaxation sometime after 1965.

³⁸ Targeted excisions of the runways at Machrihanish and Milltown were probably motivated by munitions storage for NATO and RN forces.

³⁹ The ‘slimming down’ of airfields depictions on sheet 137 had parallels on other East Anglian sheets: see David Marris, ‘Norfolk airfields’, *Sheetlines* 78, (2006), 34-37. However, sheet 136 and others further inland seem to have had higher survival rates of ‘Airfield (disused)’ when the series ended.

likewise for the USAF.⁴⁰ Other denied airfield sites included a rocket propulsion facility at Westcott (159, 710170, B, 1968), a hill-top radio-telescope at Chilbolton (168, 390380, B/*, 1972)⁴¹ and the Portreath (or Nanceceuk) chemical factory in Cornwall (189, 670460, B, 1971).

As for civil aviation, some 120 non-military airfields were depicted during the Seventh's reign, over four-fifths having a WW2 pedigree, the rest comprising two revivals from the 1930s⁴² and about a dozen being *ab initio* sites. While most were mapped without change throughout the series, there were a few notable closures eg *West Hartlepool Civic Airport* (85, 505285, A, 1955).⁴³ In remote Scotland *Benbecula Airfield* (23, 785560, 1959) appeared initially over a plain background (doubtless to play down a reserve military role) but later (A/* 1970) the runways were inserted when 'social-service' flying assumed precedence.⁴⁴ Likewise, *Bournemouth (Hurn) Airport* (179, 115990, A, 1960) first appeared with all ground detail erased (presumably to conceal 'sensitive' factories) but on subsequent printings it was fully depicted.

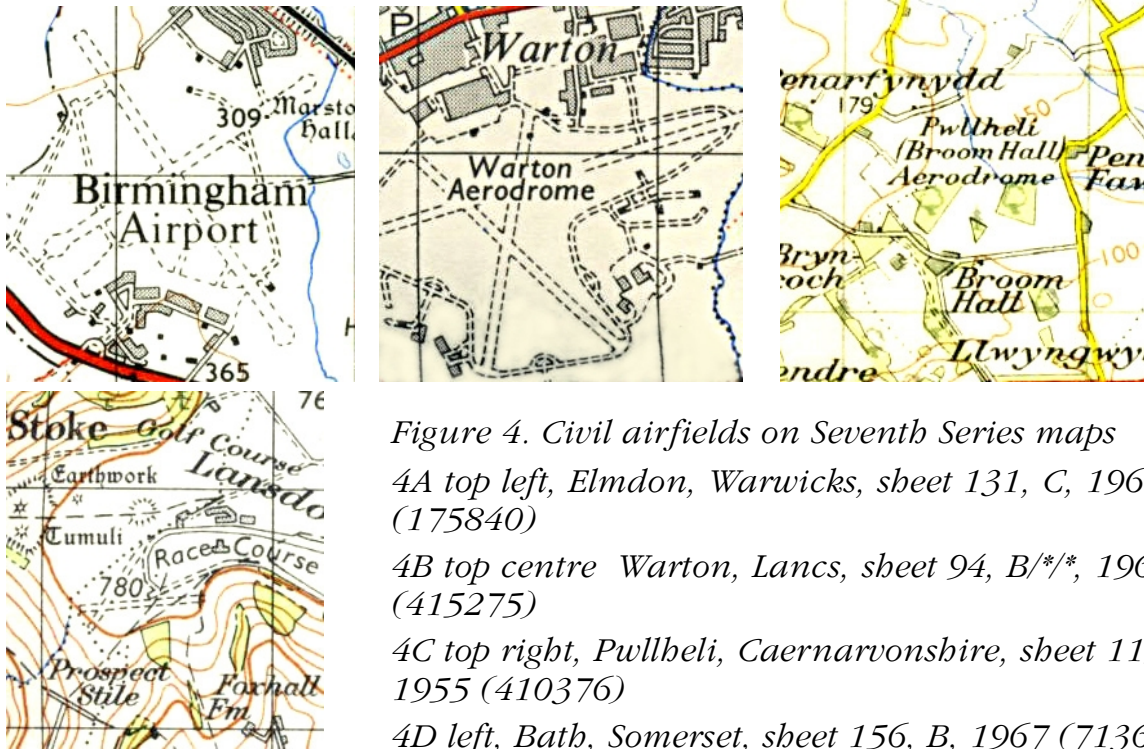


Figure 4. Civil airfields on Seventh Series maps

4A top left, Elmdon, Warwicks, sheet 131, C, 1967 (175840)

4B top centre Warton, Lancs, sheet 94, B/*, 1969 (415275)

4C top right, Pwllheli, Caernarvonshire, sheet 115, B, 1955 (410376)

4D left, Bath, Somerset, sheet 156, B, 1967 (713686)

⁴⁰ Faldingworth, like many Cold War excisions, had been marked as an airfield on the A edition of sheet 104 (1955), adding to the argument that excision in the age of spy satellites was futile: see Wayne Cocroft and Roger Thomas, *Cold War: building for nuclear confrontation 1946-1989*, Swindon: English Heritage, 2003.

⁴¹ Chilbolton is one of very few paved WW2 airfields never labelled as such. Jet combat planes were tested there from 1947-1961.

⁴² Bembridge and Sandown airports were staked off during WW2 to deter enemy glider landings.

⁴³ Other 'lost' airports caught in time by the Seventh Series are Hanworth (170, 115725, A//, 1960), Loughborough (121, 525215, A/, 1956) and Ramsgate (173, 375675, B, 1969).

⁴⁴ Other Scottish airports initially shown without runways were Dyce (40, 880125, A/, 1962) and Wick (16, 365525, A 1959). Both were graphically upgraded in the same manner as Benbecula.

During the 1960s several redundant air-bases were converted to regional airports, two slightly different cases being *Abbotsinch Airfield* (60, 480670, B, 1965) which seamlessly switched to 'Glasgow Airport' (B/* 1968), and (Castle Donington) *Airfield* which required a more laborious reconstruction as 'East Midlands Airport' (121, 450260, B/*/*, 1971) after 20 years under the plough.⁴⁵ To highlight such airports, a hallmark of the Seventh Series was the magnified Times Roman upright font, illustrated here by Birmingham Eldon (*figure 4A*). By 1970 nearly half of civil depictions were mapped 'Airport', the rest being divided about evenly between 'Airfield' and 'Aerodrome.'. Prevalent use of the latter term for factory airfields such as *Dunsfold Aerodrome* (170, 025365, B, 1965) and *Warton Aerodrome* (*figure 4B*) could have reflected aerospace industry tradition mixed with local habit.

Discounting the Lydd (Ferryfield) Airport exception (184, 065215), the earliest post-war *ab initio* sites tended to be associated with holiday camps, eg *Pwelli (Broom Hall) Aerodrome* (*figure 4C*) and *Skegness Aerodrome* (114, 565675, B, 1962), and manufacturing industry in the case of 'Huddersfield (Crosland Moor) Aerodrome' (102, 115140, B/*, 1966). Dundee's imaginative and successful shoreline *Aerodrome* (50, 380923, A//*, 1967) was rapidly remapped *Airfield* (B, 1969) doubtless for marketing reasons. Other civil initiatives on the map included a new gateway to the Scilly Isles at 'Penzance Heliport' (189, 487313, A/, 1966), a public strip for Glenrothes New Town (55, 245996, B/* 1972), and gliding clubs at Long Mynd (129, 407917, C, 1967) and Sutton Bank (92, 517817, B/*, 1970). Oddly, very few of the strips proliferating on Scottish islands were yet shown, pioneer exceptions being Baltasound (1, 625077, A/, 1971) and Glenforsa (45, 590429, A/*, 1971). In southern England, only two private strips gained one-inch placements, namely (Compton Abbas) *Aerodrome* (179, 890186, B, 1966) and Bath's Lansdowne race-course whose intersecting strips are faintly visible at the 870-foot spot height in *figure 4D*.

Taking joint stock of military and civil airfields, some 620 different sites were depicted at some point during the life of the Seventh Series, comprising (in round figures) 230 by individual locality name; 320 in generic terms only, and 70 as unmistakable footprints. Against the historic peak of 850 WW2 airfields, the crude series 'hit rate' was 75 per cent, ie about four times the combined achievement of the New Popular and Scottish Popular series.⁴⁶ By a wide margin, the most frequently mapped term was 'Airfield' (80%), followed by 'Aerodrome' (10%), 'Airport' (9%) and a tiny miscellaneous residuum. The status qualifier 'disused' (and synonyms) appeared on 230 sites.⁴⁷

⁴⁵ Other civic airports created from defunct RAF stations included Tees-side (Middleton St George, 85, 375130, B/*, 1965) and Norwich (Horsham St Faith, 126, 220135, B/, 1967).

⁴⁶ A separate calculation for just paved-runway aerodromes raises the success rate to 90 per cent.

⁴⁷ This figure applies largely to paved aerodromes, although some of the grass type were also labelled 'disused' on early Seventh sheets. Odd disused landing grounds, eg Merston (181, 885030) were cryptically marked by perimeter fragments, but scores of minor grass sites were never labelled at all.

Though 'Airfield' coupled with a locality name gave a strong hint of military status (80 cases), some 30 nameless 'Airfield' placements were also military, albeit mostly in 'support' (rather than 'regular') roles.⁴⁸ To further cloud the picture, a dozen of all 'Aerodrome' placements were military too, the only clues to that status being location, physique and name (where given). Surprisingly, some 'big hitters' such as Marham (124, 725085, B/*, 1969), Waddington (113, 965645, B/*, 1968) and Farnborough (169, 860540, B/*, 1972) were never place-named in the series.⁴⁹ Finally, while the labels 'Airport' and (to a lesser extent) 'Aerodrome' evoked civil flying, the loose employment of 'Airfield' for certain aircraft factories⁵⁰ and wartime runways frequented by light aircraft has frustrated map analysts.

To end this review of the last-ever mainstream map series at one-inch scale, a handful of enigmas are worth noting. Silverstone (145, 675430) failed to earn an aeronautical label due to its early (1949) conversion to motor-racing. Pulham (137, 195840), a WW1 airship base closed in 1920, was mistakenly re-mapped 'Airfield' after WW2 (1954 and 1958) because it still had an Air Ministry depot. Templeton (152, 095110, A, 1952) at one stage got an exceptionally large label. An oddity near Edinburgh had been recorded by the OS since its early days: a hamlet called Airfield, which had no aeronautical connection

The 1:50,000 (Landranger) series

This 40-years-old and enduring brand has witnessed the ending of the Cold War, deregulation of airport ownership and development, and a flowering of light aviation on vacant wartime runways and virgin airstrips. The improved scale of 1¼ inches to the mile and provision of grid values on the sheet faces have demonstrably assisted the portrayal and analysis of airfield detail. As with all previous popular series, there were initially some geographical inequalities in composition, happily confined and short-lived. Launched in 1974, all sheets south of Lancaster-York (apart from two covering London and one covering Snowdon) were 'First Series', being photographically enlarged from Seventh Series material with road and other selective changes. North of that line all sheets were published in 1976, roughly half in the conservative 'First' style and half in a revised and redrawn 'Second Series' style.⁵¹

⁴⁸ 'Support' roles include Service volunteer gliding, circuit-and-bump training, parachute dropping, Army barracks and various depots.

⁴⁹ Another 'big hitter' without a name was the famous 'Dam Buster' and V-bomber base at Scampton (104, 965795). RAE Farnborough did not get a generic 'Airfield' label or layout till the B printing (1971).

⁵⁰ Yeovil (177, 540155, B, 1970) and Hucknall (112, 525470, C/*, 1971) were industrial examples of this alternative description.

⁵¹ Richard Oliver, 'Twenty years of the Ordnance Survey 1:50,000 map (with a list of editions 1974-1994)', *Sheetlines* 39, (1994), 6-19. Apart from occasional publication updates and seminar reports in *Sheetlines* there is no detailed text on the evolution of the *Landranger* over the past two decades.

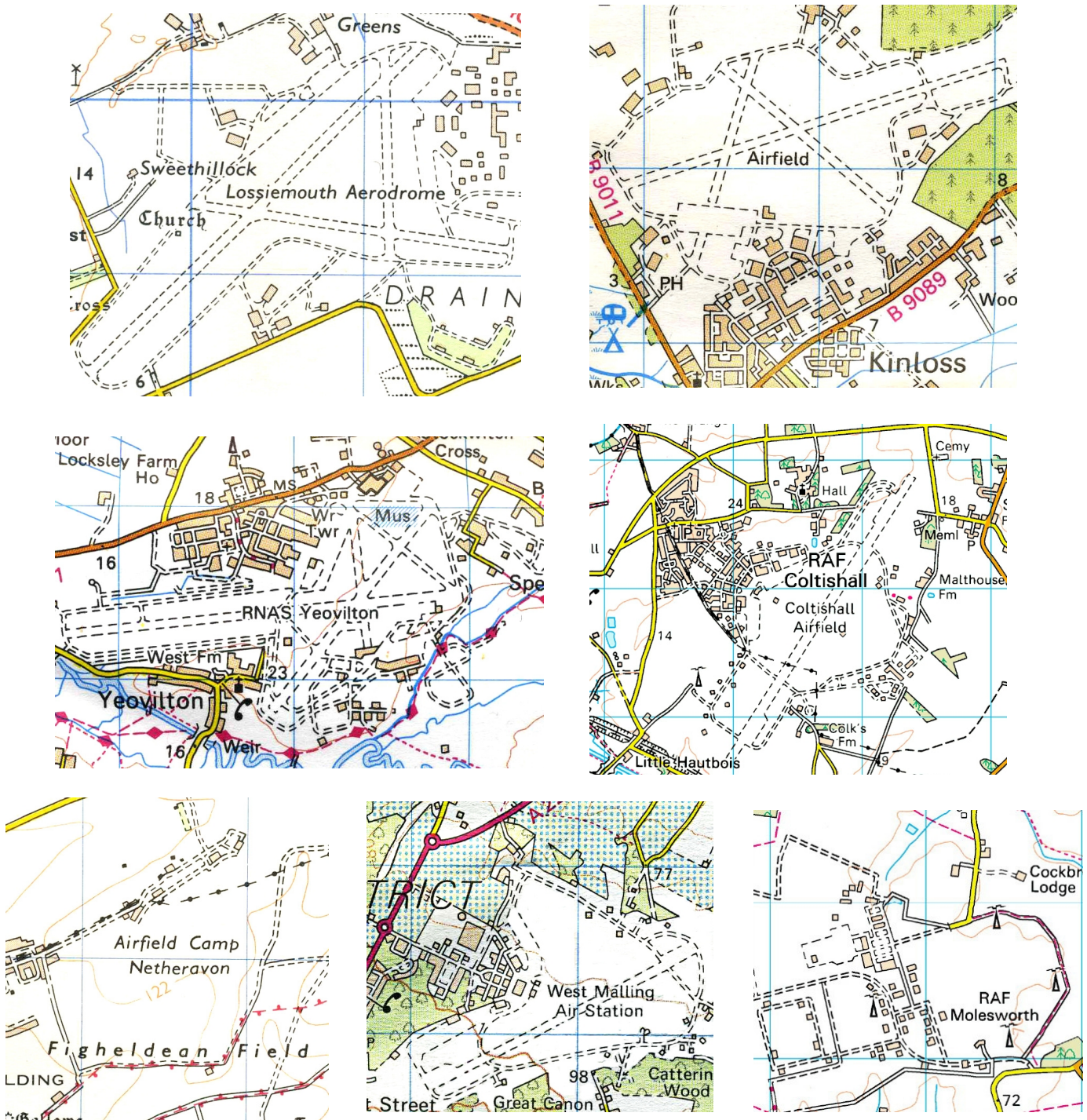


Figure 5 Military airfields on 1:50,000 / Landranger maps

5A top left, Lossiemouth, Grampian, 1st Series sheet 28, A, 1976 (210695)

5B top right, Kinloss, Grampian, 2nd Series sheet 27, B, 1996 (070630)

5C centre left, Yeovilton, Somerset, 2nd Series sheet 183, C, 1999 (550235)

5D centre right, Coltishall, Norfolk, 2nd Series sheet 133, D, 2009 (265225)

5E lower left, Netheravon, Wiltshire, 1st Series sheet 184, A/*/, 1979 (165490)

5F lower centre, West Malling, Kent, 2nd Series sheet 188, B, 1990 (680555)

5G lower right, Molesworth, Cambridgeshire, 2nd Series sheet 142, D2, 2001 (080775)

As 90 per cent of all WW2 airfield sites fell within 'First' (or 'provisional') sheet-lines, local style clashes were nationally few but nevertheless germane. Near London 'Fair Oaks Airport' (005620) appeared slightly differently on overlapping sheets 176 and 186 (1974) because of contrasting typesets. 'Prestwick Scotland Airport' (70, 365270, 1976) and 'Tees-side Airport' (93, 375130, 1976) contrasted typographically because they occupied different style blocks, as did the Yorkshire RAF stations (Church Fenton) *Airfield* (105, 530380, 1974) and (Catterick) *Airfield* (99, 250965, 1976).

Quite unrelated, an embryonic airport called *Leicester East Aerodrome* (141, 655015, A, 1974) was archaically labelled in Times Roman Italic, seemingly due to an uncritical re-cycling of obsolete Seventh material.

As many as 150 airfields were found to have experienced a change of image caused by the transition from last Seventh Series to first 1:50,000 printing. Although aviation was not specifically cited in sheet marginalia as a correction priority, this weight of change is compelling proof that airfields were appraised. Over 40 permutations of change have come to light, ranging from operational upgrades, via neutral switches of terminology, to various manifestations of downgrade.⁵² Numerically, the most common 'trans-series' effect was the loss of more than 60 'Airfield (disused)' placements.

A rare operational upgrade was *Fulbeck Airfield* (121, 900510, 1974), previously mapped as disused (Seventh Series sheet 113, B/*, 1968) but re-labelled in recognition of its re-activation to relieve overcrowding at Cranwell. By contrast, the belated acknowledgement of (Llanbedr) *Royal Aircraft Establishment* (124, 570260, 1974) was a mere 'paper' upgrade reversing the security blank mentioned earlier. In the case of (Deenethorpe) *Airfield* (141, 960905, 1974) erasure of the previous '(disused)' qualifier denoted re-use by British Steel at Corby.

Operational downgrades included (Elvington) *Airfield* (105/106, 670480, 1974), which lost its (Seventh Series) locality name on demotion from front-line duties, and (Rufforth) *Airfield (disused)* (105, 535550, 1974) which added that qualification on being decommissioned. Among pure switches of terminology, *Hullavington Airfield* (173, 905810, 1974) simply replaced its Cotswold-type 'Aerodrome' label of old (*compare* Seventh Series 157, B/*, 1971). In the civil domain *Booker Airfield* was remapped *Wycombe Air Park* (175, 825910, 1974) while 'Lympe Airport' became 'Ashford Airport' (189, 115355, 1974) with its new hard runway inserted.

In 1980 the whole 1:50,000 series was re-branded *Landranger* and by 1988 all First Series sheets had been fully revised and redrawn as Second Series, lettered in Univers.⁵³ Aeronautically, the 1980s turned out to be a relatively

⁵² 'Downgrades' and upgrades' can be either changes in operational status or mere changes of terminology and footprint. Extrication of the two need not detain us here.

⁵³ Richard Oliver, 'A few notes on map lettering', *Sheetlines* 95, (2012), 35-42. A separate study of airfield labels would be fruitful at some stage.

stable decade, in which only one front-line air-base was closed⁵⁴ and major civil airports were consolidated rather than expanded in number.⁵⁵ When the Cold War formally ended in 1989 there followed a cascade of air-base closure (part of the so-called ‘peace dividend’) which unleashed opportunities for new civil airports and urban expansion. In the years since the Millennium military closures have been reduced to a trickle, with stations such as Cottesmore (130, 910155), Kinloss and Lyneham converting to Army bases rather than being scheduled for disposal. Simultaneously, technical advances in data-capture and digital printing have enabled the OS to revise its popular map with greater frequency, offering unprecedented insights into changing airfield status and morphology.

When the 1:50,000 series first went on sale, Britain still contained 85 officially active air-bases, since when 40 have closed to regular flying, leaving only 45 on the current active list.⁵⁶ With these statistics in mind it is now opportune to name representative victims and survivors and consider how OS practice has reflected what is regularly published in independent sources.⁵⁷ On sheets as first published there were still half a dozen outmoded usages, one being *Lossiemouth Aerodrome* (*figure 6A*). However, on later corrected reprints most such anachronisms (including ‘Lossie’) were amended to ‘Airfield’, though in the case of neighbouring Kinloss (*figure 6B*) the locality name was for some reason dropped. For historical interest, the penultimate military base to eject ‘Aerodrome’ from its label was Manston (179, 335660, 1994), and today only RAF Northolt retains that dwindling term.⁵⁸

As on the Seventh Series, not all active air-bases marked on 1:50,000 maps have been graced with a locality name. In fact, the proportion has dropped slightly (from 80% to 70%) and today there are barely 30 named air-defence placements.⁵⁹ One dogged survivor is ‘RNAS Yeovilton’ (*figure 5C*) which merits praise for reintroducing the Service-operator tags to the modern map.⁶⁰ This openness was followed (on B edition sheets) by the re-labelling of the ‘Moray Firth Twins’ as RAF Kinloss and RAF Lossiemouth, although the move was not to be emulated nationwide. Barely a dozen other air-bases, all in

⁵⁴ RAF Binbrook (113, 190960) was closed in 1988 when the Lightning interceptor was retired.

⁵⁵ Leo Marriott, *British Airports: then and now*, Shepperton: Ian Allan, 1993.

⁵⁶ This process is analysed in: Ronald Blake, ‘Airfield closures and air defence reorientation in Britain during the Cold War and its immediate aftermath’, *Area*, 41 (2009), 285-299.

⁵⁷ The key independent sources for evaluating OS maps are: ICAO, *1: 250,000 Topographical Air Charts UK*, London: Civil Aviation Authority (annual) and No.1 AIDU, *En Route Supplement: British Isles and North Atlantic*, London: RAF Northolt (annual). A short essay by Chris Higley (*Sheetlines* 81, (2008), 13) is helpful in this regard.

⁵⁸ On departure of its last RAF unit Manston became ‘Kent International Airport’ (from C, 1998). Manston, incidentally, has never been labelled ‘Airfield’.

⁵⁹ Middle Wallop (185, 305385) and St Athan (170, 005685) are key air-bases still not named on the OS popular map.

⁶⁰ Since before WW1 the Navy has held the lead in *sui generis* aviation descriptions (see part 1 of this study).

lowland England, have subsequently added a Service tag, one being RAF Coltishall which recently closed (*figure 5D*).⁶¹

While 95 per cent of today's active air-bases are dubbed 'Airfield' by the OS, a miscellany of labels were deployed in the lead-up to greater consistency. The individualistic titles *Airfield Camp Netheravon* (*figure 5E*) and 'West Malling Air Station' (*figure 5F*) both resound to the past, doubtless reflecting in-Service and local community usages.⁶² Recently, a number of ex-Cold War 'super-bases' have adopted a label that combines locality with defunct status, a representative case being 'Upper Heyford Airfield (dis)' (164, 515265, D1, 2006). Beginning in the late 1990s, this tendency was probably engendered by the sheer size of Cold War bases, some eg 'RAF Molesworth / Airfield (disused)' having been without aircraft for several decades.⁶³ Other current curiosities include slanted labels aligned to the runway eg Mildenhall Airfield (143, 690770, D, 2002).

A growing number of historic air-bases with air museums (Mus) or roadside memorials (Meml) are now being marked, two examples occurring in *figures 5C* and *5D*.⁶⁴ Among the best-known museums are the 'Battle of Britain Flight' at Coningsby (122, 225565, C2, 2006) and the 'Museum of Flight' at East Fortune (66, 550785, 550783). In Sussex the previously unlabelled fighter landing ground at Coolham (198, 125225) is now sympathetically marked 'D-Day Airfield'.

Civil airfield depictions at 1:50,000 have displayed a similarly wide vocabulary (*figure 5*).⁶⁵ Since the mid-1970s the rolling count has risen from 120 to 320, although the latter figure is bloated by 140 *ab initio* airstrips.⁶⁶ Although the 'Airport' component is numerically larger than forty years ago, the fastest percentage increases have been in the 'Airfield' and 'Strip' categories. Of the 180 current civil placements with a WW2 past, a mere 16 are still labelled 'Aerodrome'.⁶⁷

⁶¹ Coltishall's flamboyant and informative OS label was acquired just before the base's closure (2006) when the Jaguar fighter was retired.

⁶² At the time of survey (1981) West Malling was 'quasi-military', having been disposed of by the government but still used by the RAF for volunteer gliding (till 1995).

⁶³ In the mid-1980s Molesworth was earmarked as a 'cruise missile' satellite of Greenham Common. It is still a USAF ground station.

⁶⁴ OS placements of 'Mus' and 'Meml' are often the only written indication today that an airfield ever existed. They are strongly associated with the USAAF in WW2, recent editions of sheet 141 containing three: 920808, 776777 and 938964.

⁶⁵ The key directory sources for civil airfields of all sizes are: *Pooley's Flight Guide UK*, Elstree Aerodrome: Pooley's Flight Equipment (annual), and *Lockyears Farm Strips and Private Airfields Flight Guide*, Stockport: Seaton Sands Ltd (occasional).

⁶⁶ Before the Civil Aviation Authority (CAA) was created (1972) most *ab initio* civil airfields shown on statutory Air Charts were ignored by the OS popular map. Excluding these 'newcomers' from present calculations, the rise in conventional WW2-vintage civil aerodromes has been a more modest 50 per cent.

⁶⁷ Since RAF Northolt is now effectively London's diplomatic and VIP airport, the term 'Aerodrome' has taken on an almost totally civil connotation.

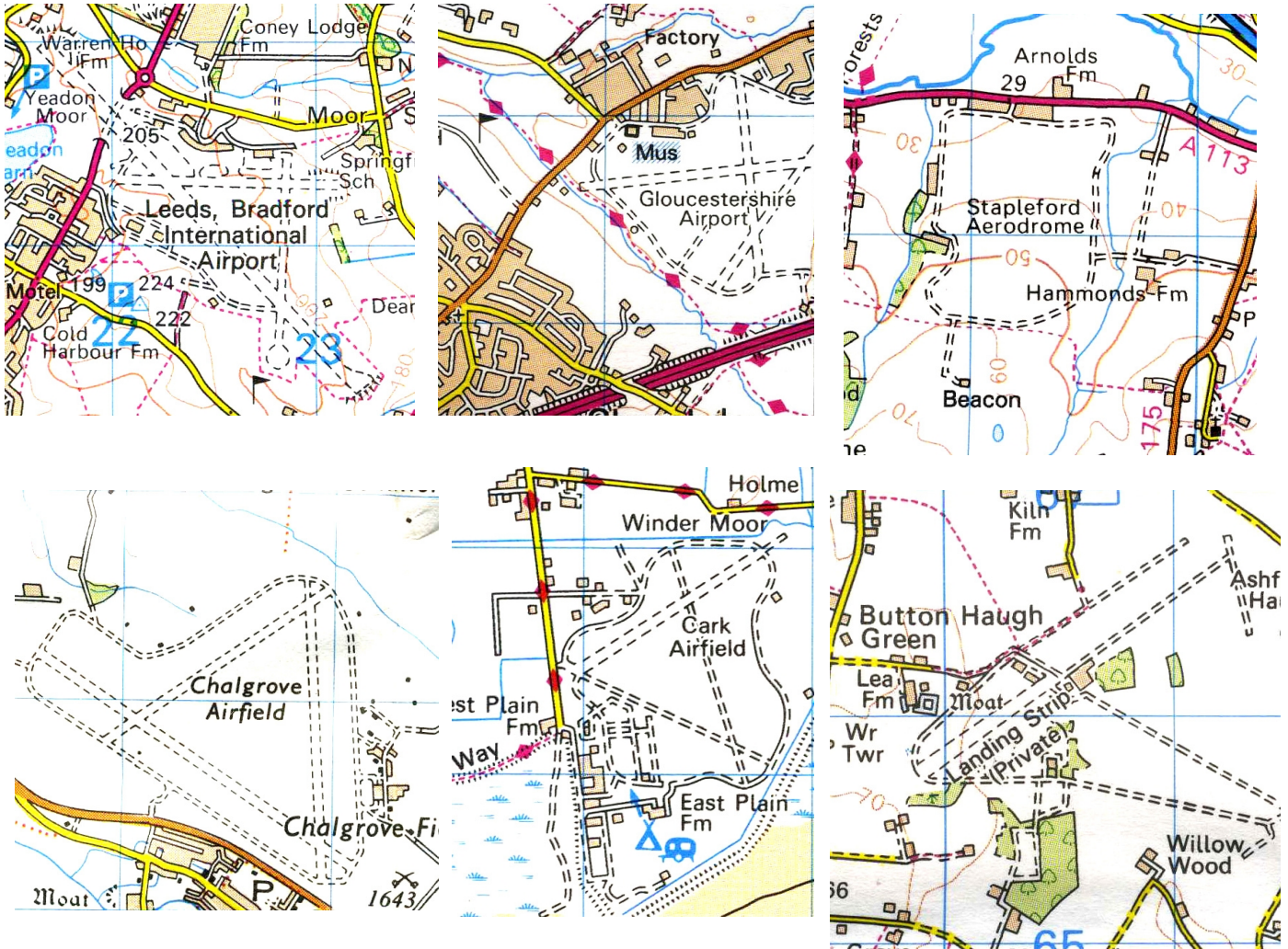


Figure 6 Civil airfields on 1:50,000 / Landranger maps

6A top left, Yeadon, West Yorkshire, 2nd Series sheet 104, C, 1998 (225415)

6B top centre, Staverton, Gloucestershire, 2nd Series sheet 162, C, 1998 (885215)

6C top right, Stapleford Tawney, Essex, 2nd Series sheet 177, E, 2001 (490970)

6D lower left, Chalgrove, Oxfordshire, 2nd Series sheet 164, A/*/*, 1979 (635980)

6E lower centre, Cark, Cumbria, 2nd Series Series 96, 1998 (375745)

6F lower right, Great Ashfield, Suffolk, 2nd Series sheet 155, D, 2001 (000660)

Notable innovations of the past 20 years have been the incorporation of 'International' into the titles of a dozen leading airports (*figure 6A*)⁶⁸ and as part of the same marketing drive 'London' has been tagged at Luton, Lydd, Manston and Oxford. OS cartography has also helped middle-ranking civic aerodromes aspire to sub-regional status eg 'Gloucestershire' (formerly Staverton, *figure 6B*) and 'West Wales' (formerly Aberporth, 145, 250495). Mercifully, Britain has not chosen to name any aerial gateway after a modern

⁶⁸ Marketing clearly influences the choice of airfield titles today and the OS plays some small part in this. One wonders whether a long-term OS placement actually cements local popular usage.

national leader or hero, although England now has two ‘celebrity’ airports, namely ‘John Lennon’ (Liverpool, 108, 425825) and ‘Robin Hood’ (formerly RAF Finningley serving South Yorkshire, 111, 660990, C2, 2006). At a more specialized level, Cambridge Airport (154, 485585) has recently added ‘Marshalls’ (an aerospace company) to its title, while Old Warden (153, 153447, 2011) is now called ‘Shuttleworth Airfield’ after the founder of its vintage aeroplane collection.

Regrettably, many civil airfields are mapped quite ambiguously, offering few clues to their role or importance. In an extreme case Thame (Haddenham) Airfield (165, 730090) has for the past decade been missing from the map while still shown active on the contemporary Air Chart. ‘Stapleford Aerodrome’ (*figure 6C*) is a typical ‘general aviation field’ with flying schools on the outskirts of Greater London.⁶⁹ ‘Chalgrove Airfield’ (*figure 6D*) was operated throughout and since the Cold War by a firm testing ejector sets and still resembles the military diversion facility it then was. ‘Cark Airfield’ (*figure 6E*) is typical of many partially reclaimed WW2 airfields licensed (in this case) by a parachute club, while ‘Great Ashfield’ (*figure 6F*) illustrates a phenomenon whereby a strip based on a fragment of wartime runway is labelled at the appropriate angle.

Confusingly, the term ‘Airfield’ as applied by the OS cuts across an important historical divide between ‘adaptive’ (WW2-vintage) and the *ab initio* (post-war) strips.⁷⁰ The term ‘strip’ does likewise, as will be explained in the next section.

Ab initio airstrips and gliding sites

Largely absent from Seventh Series and provisional 1:50,000 sheets, the *ab initio* airstrip reflects a growing demand for private, business and recreational flying not entirely satisfied by the WW2 airfield legacy. To date, at least 160 of these ‘greenfield’ sites have been mapped at popular scale, including 40 gliding fields and a handful of heliports. Over 20 different modes of depiction have been found on *Landranger* sheets, a selection of which is presented as *figure 7*. Using Air Charts as a robust yardstick, the OS ‘hit’ rate today is about 40 per cent.

Ab initio strips are rarely named on the OS popular map.⁷¹ About half are described as either ‘Landing Strip’ or ‘Airstrip’, but how this distinction is made and whether it correlates with roles is uncertain. Terminology apart, depiction ultimately depends on whether the label conforms to the strip’s orientation (*figure 7A*) or is placed horizontally (*figure 7F*), whether operator status is

⁶⁹ Most of the surviving ‘Aerodrome’ placements are clustered in the environs of Greater London and Manchester where aerospace companies and general aviation have the longest tradition. Perth (Scone) is an interesting outlier.

⁷⁰ ‘Strip’ is not however exclusive to sites of post-war origin. Some WW2-vintage runways are also described thus. By the same token, some new strips are blandly called ‘Airfield’, usually exaggerating their importance.

⁷¹ By contrast, statutory Air Charts name all pinpointed sites, thus providing an invaluable yardstick for assessing OS sheets.

suggested (*figure 7B*), whether there are multiple strips (*figures 7C*), whether a strip has a label at all (*figure 7D*), whether plural strips intersect or are tangential (*figure 7E*), whether a variant term is used (*figure 7F*) and whether the strip is straight!⁷² As with airfields in general, the popular map does not say whether a strip is grass, bare or clad.

Though ‘churning’ within this sub-genre has been limited, certain ephemeral depictions add value to the popular map as an air-historical source. Paull near Hull (107/113, 200247) appeared afresh in 1977 (A, Second Series) close to ‘Auster Grange’ and remained on the map till the 1990 (A5) printing of sheet 107. Another promising but temporary airstrip was that on the island of Jura (61, 548714, B2, 2007). Sheffield’s regenerative civic airstrip (110/111, 408888) closed after a brief life some years ago.⁷³

The only major *ab initio* airstrip created in recent decades is London’s Dockland City Airport (177, 425805) which has a minute label for want of space.⁷⁴

Airstrips (including gliding and helicopter facilities) have a deeper penetration into the countryside than conventional aerodromes because their small footprint and aerial approaches allow them to thrive in relatively hilly, forested, flood-prone and urbanised terrains (ie the classically ‘airfield-poor’ areas).⁷⁵ This flexibility has rendered certain sub-regions unexpectedly ‘airstrip-rich’, notably south Essex, the Weald, the Fens, Dorset-Devon, the Welsh marches, and Scotland’s highlands and islands. But why Orkney’s numerous strips are predominantly mapped ‘Airfield’ while those in the Shetlands are mostly called ‘Airstrip’ has yet to be investigated.

The ‘Gliding Club’ label (and its variants) is invariably placed horizontally (*figure 7G*). For reasons unknown, one of the oldest and best-known sites, Dunstable Downs (166, 004200) was not shown until the 1978 (A, Second Series) printing. Heliports are unique in having a (circular ‘H’) symbol (*figure 7H*), the best known OS depiction being Battersea (176, 266762).

⁷² A now defunct landing strip at Lydney (162, 627004, A 1980 to B2 1996) had a conspicuous bend in it.

⁷³ Sheffield’s attempt at providing a local airport on reclaimed industrial land was confounded by the ‘windfall’ of RAF Finningley’s closure in 1992.

⁷⁴ The City (of London) Airport has scheduled services and therefore is only a strip in the literal sense.

⁷⁵ Gliding is exceptional in being the only aeronautical activity widely specified on the popular map. For interest, about a dozen *ab initio* gliding sites stand above the normal aerodrome elevation of 750 feet AMSL.

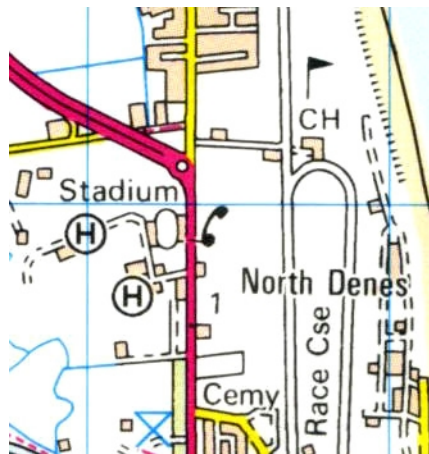
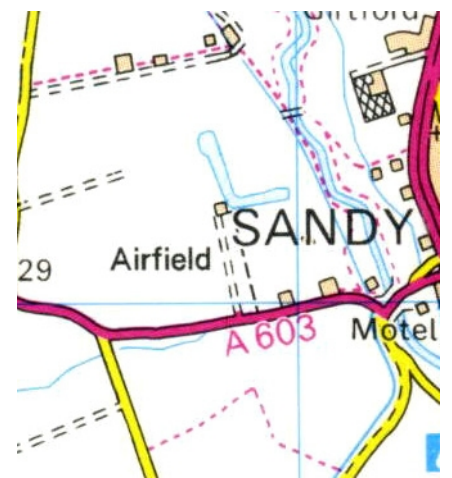
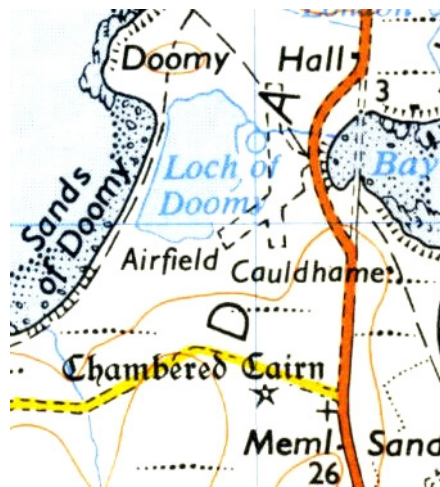
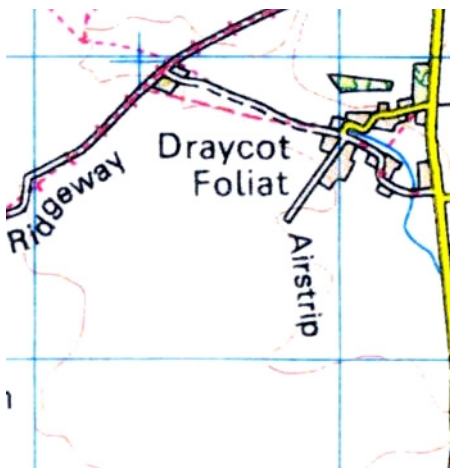


Figure 7 Ab initio airstrips on 1:50,000 / Landranger maps

7A top left, Swindon, Wilts, sheet 173, D, 2002 (179773)

7B top centre, Jura, Strathclyde, sheet 61, B2, 2007 (550714)

7C top right, Winsford, Cheshire, sheet 118, C, 1999 (623633)

7D centre row left, Rayne, Essex, sheet 167, C, 1998 (737237)

7E centre row centre, Eday, Orkney, sheet 6, A, 1976 (557339)

7F centre row right, Sandy, Bedfordshire, sheet 153, C, 1998 (155492)

7G bottom left, North Hill, Devon, sheet 192, C2, 2002 (105066)

7H bottom right, Great Yarmouth, Norfolk, sheet 134, C, 1997 (520108)

The OS Northern Ireland equivalent series

Between 1960 and 1964 Northern Ireland was covered by a Third Series one-inch map that remained on sale (with minimal and infrequent correction) until 1985.⁷⁶ During WW2 the Province had hosted 29 military air-bases, 19 with paved runways,⁷⁷ the rest comprising grass landing grounds and marine aircraft slipways. The Third Series only ever contained four active 'Airfield' placements, plus three security blanks, including the notorious Long Kesh or Maze prison (6, 225615), the solitary label (Cluntoe) *Airfield (disused)* (5, 945755, 1964) and traces of a dispersed wartime camp and road severance at Toome on Lough Neagh (*figure 8A*).

Between 1978 and 1985 this limited picture was clarified when the revised, redrawn and radically restyled 1:50,000 First Series (later branded 'Discoverer') was published. In addition to the continued suppression of two aerodrome-based prisons, eight other disused airfields have progressively been shown, including Bishop's Court (*figure 8B*) which perfectly illustrates the distinctive OSNI practice of plotting bold boundary fences around certain government holdings.⁷⁸ At Ballykelly (*figure 8C*) a projection of the runway fence across a main railway line curiously advertises likely use by Army helicopters.⁷⁹ Among the five remaining disused airfields, Mullaghmore (*figure 8D*) illustrates another commendable OSNI practice, namely the generous plotting of after-uses thanks to small lettering.

Finally, three additional licensed civil aerodromes have joined the map, including the former RAF coastal patrol base at Eglinton where Derry's civic airport now thrives (*figure 8E*). Curiously, however, the cluster of *ab initio* airstrips and gliding sites near Coleraine (shown on Topographical Air Chart 3) has yet to appear. If any stylistic criticism is to be made of the series, it is the use of hamlet-size lettering for the province's leading airports.

Summary, conclusions and recommendations

Over the past six decades the OS standard topographical map has depicted some 780 different UK airfields in words and/or footprints. Although their appearance *en masse* was delayed for between ten and twenty years after construction, a fair impression of where aircraft were based during WW2 had entered the public domain by the mid-1960s. According to a recent authoritative discourse on popular mapping,⁸⁰ few countries in the world enjoy such a frank public record of their air-defence and air transport infrastructure.

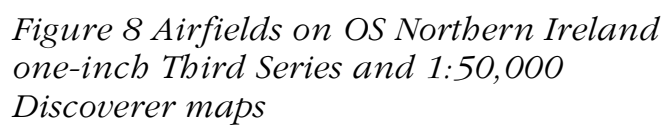
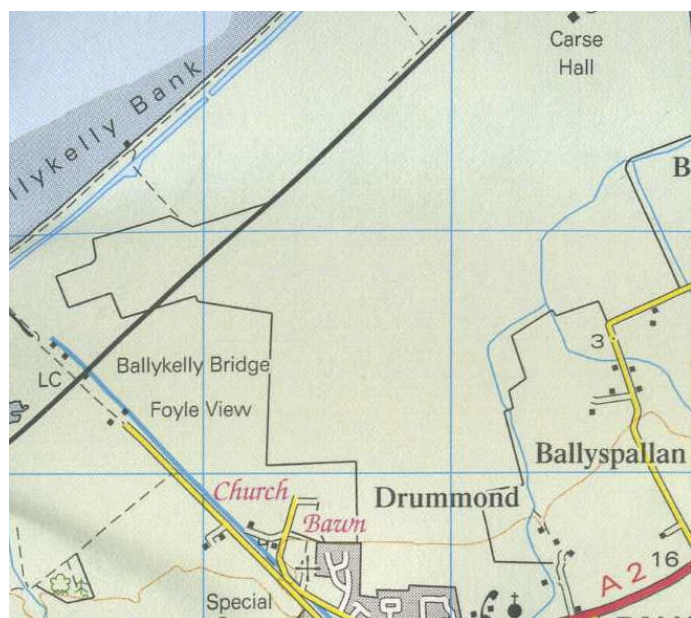
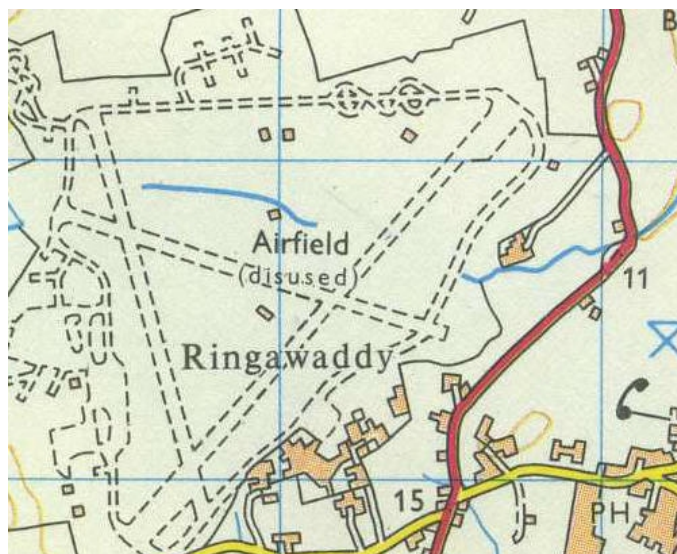
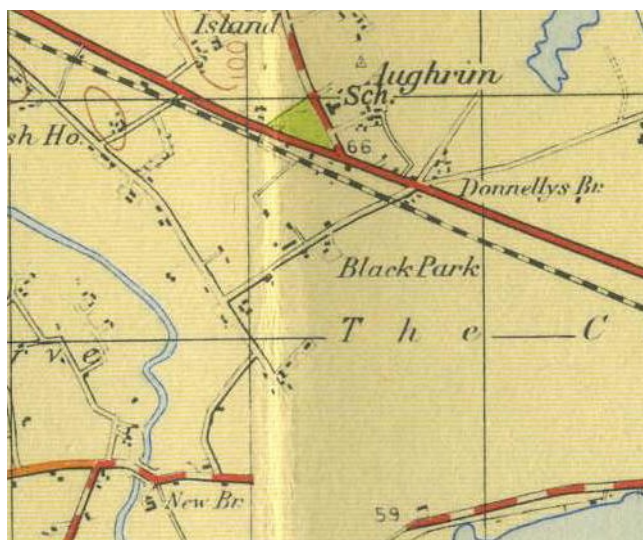
⁷⁶ Literature explaining the genesis and evolution of the Northern Ireland standard topographical map is fragmentary. Thanks are due to Richard Oliver for filling in the background and checking airfield placements.

⁷⁷ Northern Ireland accounts for barely 4 per cent of all the airfields appraised in this review, therefore any OSGB generalisations and statistics can be taken as applying to also to OSNI.

⁷⁸ Airfield boundaries are notably absent from OS maps, except for prisons and cemeteries.

⁷⁹ Ballykelly was closed as a conventional RAF base in 1969 largely through fear of terrorism. It is marked on current Air Charts as a 'government helicopter station'.

⁸⁰ Mike Parker, *Map Addict: A tale of obsession, fudge and the Ordnance Survey*, London: HarperCollins 2009.



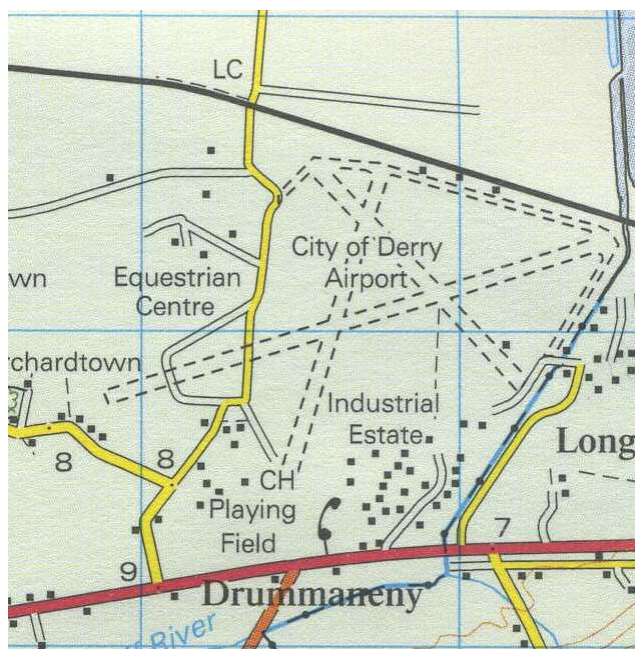
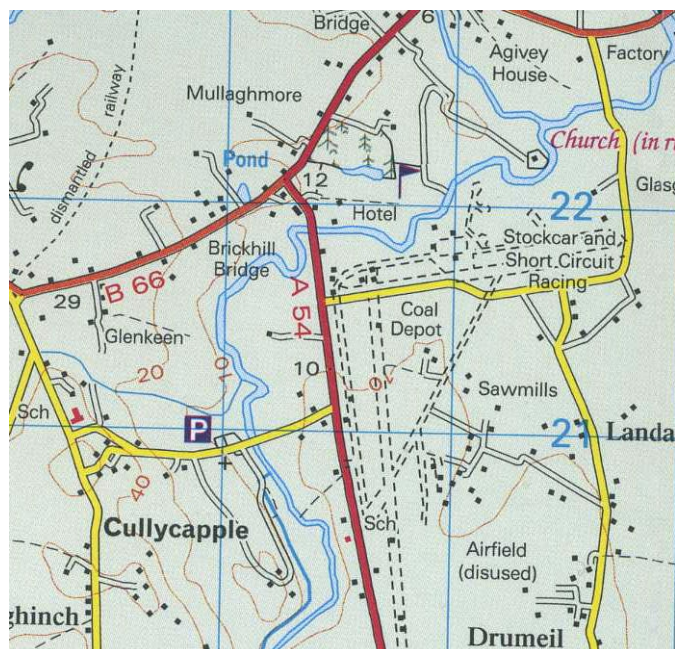
8A top left, Toome Co.Londonderry, Third Series sheet 3, 1960 (970905)

*8B top right, Bishops Court, Co.Down,
Discoverer sheet 21, 1989 (580425)*

8C left, Ballykelly, Co.Londonderry,
Discoverer sheet 4, B, 2001 (630240)

8D bottom left, Mullaghmore,
Co.Londonderry, Discoverer sheet 4, B, 2001
(900210)

8E bottom right, Eglinton, Co.Londonderry,
Discoverer sheet 7, B, 2001 (540220)



At the risks of over-simplification, the signal achievement of the Seventh Series was *quantitative*, in as much as it revealed the bulk of what the New Popular was obliged to suppress, while the outstanding contribution of the *Landranger* has been *qualitative*, nuancing a dynamic aeronautical landscape already sketched in outline.

However, almost every sheet with plural aviation sites has been found to contain some graphical or terminological inconsistency. Initially, censorship was the assumed culprit, but latterly the speed of aeronautical change has outpaced even the promptest sheet revision. The challenge for the OS reviser has always been to maximise new topographic detail while minimising clutter and, in the absence of a standard aviation symbology at popular scale, a perplexing multiplicity of written terms has resulted.⁸¹

The writer has frequently been asked whether this exercise could have been conducted more swiftly by electronic means. The short answer is a qualified 'no', simply because the vocabulary involved was not known until an exhaustive manual search had been completed. The catalogue of errors, omissions, exceptions and enigmas would certainly not have come to light without painstaking inspection of original OS sheets and checking findings against independent documentary sources.

A key strength of the standard-scale map has been the way it sets airfields in a wider landscape context.⁸² Regional and thematic aviation historians have made wise use of 'one-inch' inset maps to guide visitors to the correct sites.⁸³ From an academic standpoint, the faithful portrayal of the dimensions of Cold War air-bases and leading airports should not be underestimated. Though many *ab initio* airstrips do not yet have an OS presence, the *Landranger* has captured the overall diversity of airfields with aplomb.

Among the map's inevitable weaknesses are the persistence of vague terminology, paucity of informative symbols, and variable time-lags in sheet revision as compared with annually up-dated Air Charts and directories. The fact that only 55 'Airfield (disused)' labels survive could also be considered a shortcoming since many landscape traces are no longer explained. Topics for further research might therefore include a history of revision procedures,⁸⁴ data-flows from aviation organisations to the OS, a survey of airfield after-use

⁸¹ Appendices A and B give some idea of the permutations used to describe airfields on the popular map over the post-war decades.

⁸² Aeronautical symbology in the legend of 1:50,000 sheets is confined to 'heliport'. The only RAF airfield marked thus is Chetwynd (127, 725245), a relief landing ground for Shawbury. *Ab initio* Army helicopter sites (shown on Air Charts) do not appear on the popular OS map.

⁸³ Roger A Freeman, *Bases of Bomber Command: Then and Now*, London: After the Battle, 2001.

⁸⁴ Work by Jim Cooper, 'One-inch revision in the 1960s', *Sheetlines* 52, (1998), 30-40. provides a useful starting point for such an investigation.

based on OS evidence, and the equivalent mapping practices of advanced foreign countries.⁸⁵

Looking to the future, the following proposed adjustments to the popular map may be of interest to OS staff, other topographical map designers, and map-users generally:

1. clearer written indication of purpose eg 'Airfield (Mil)', 'Aerodrome (Civ)'.
2. greater use of small symbols to denote specific aeronautical activities and facilities
3. site curtilages at least for military air-bases and leading airports.
4. harmonised terminology and typography commensurate with airfield importance or impact.
5. wider acknowledgement of (active and disused) airfields with distinctive records and histories.

Acknowledgements

In addition to Richard Oliver and the other CCS colleagues named in part 1, special thanks are due to John Davies, Bill Henwood and Malcolm Kaus for their practical input to this complementary essay.

Answers to the question posed in Figure 1:

Map A: Wroughton was a military air-base built in the late 1930s with dispersed maintenance hangars.

Map B: Cranfield was built as a bomber base to Expansion standards and since WW2 has been a civil institutional aerodrome.

Map C: Doncaster originated in the 1930s as a municipal aerodrome and after WW2 was used sporadically for civil flying till closure.

Maps D and E: Bramcote was a grass-surface WW2 training airfield still active till the mid-1950s and subsequently converted to Army barracks and a motorway.

Appendix A

<i>UK airfields 1952-1973: generic descriptions on 7th Series maps</i>	<i>Year</i>	<i>Location and sheet number of first (or early) usage</i>
Airfield [unnamed]	1952	Shobdon (129, 395605)
[Named] Aerodrome	1952	Haverfordwest (151, 960190)
[Named] Airport	1952	Liverpool Speke, (100, 415835)
[Named] Airfield (generic brackets)	1953	Pershore (143/144, 975495)
[Named] Civic Airport	1955	West Hartlepool (85, 505285)
[Named] Municipal Airport	1957	Southend (162, 870895)
Airfield (Disused)	1958	Tain (22, 830820)
Aerodrome (Disused)	1959	Dallarchy (30, 365635)
Air Station (Admiralty) [unnamed]	1959	Henstridge (166, 750205)
Old Airfield	1959	Castletown (11, 215670)

⁸⁵ The author's cursory acquaintance with Dutch topographical maps suggests this aspect could bear fruit. A recent article by Alex Kent and Peter Vujakovic 'Stylistic diversity in European state 1:50,000 topographic maps', *The Cartographic Journal*, 46 (2009), 179-213, suggests that airfields have been under-researched as a landscape feature.

Airfield (dis) [abbreviated]	1960	Chipping Ongar (161, 585055)
[Named] City Airport	1960	Portsmouth (180/181, 670035)
Airfield (disused)	1962	Ashbourne (111, 195455)
[Named] Airfield (dis)	1962	Melton Mowbray (122, 750155)
Gliding Club House [unnamed]	1963	Sutton Bank (92, 515815)
RAF College	1963	Cranwell South (113, 015490)
[Named] Regional Airport	1965	Woolsington (78, 195715)
Aerodrome (disused)	1965	Charterhall (64, 765465)
[Named] Aerodrome (Private)	1965	Walney Island (88, 175710)
H [within circle]	1966	Penzance Heliport (189, 486313)
[Named] Gliding Club	1967	Long Mynd (129, 407917)
[Named] Airstrip	1971	Baltasound (1, 625077)

Appendix B

UK airfields 1974- 2013: generic descriptions found on 1:50,000 maps

	<i>Year</i>	<i>Location and sheet number of first usage</i>
RAE	1974	Llanbedr (124, 570260)
Royal Aircraft Establishment	1974	Farnborough (186, 860540)
[Named] Air Park	1974	Booker (175, 825910)
Airstrip	1976	Flotta (7, 341936)
Disused Airfield [note: inversion]	1978	Church Lawford (140, 445735)
Landing Strip [on a disused WW2 site]	1980	Ludham (133, 395195)
[Named] Air Station	1981	West Malling (188, 680555)
Airfield (Private)	1982	Lympne (189, 115355)
Aircraft Factory	1985	Hawarden (117, 350650)
Landing Strip (Private)	1993	Ashcroft (118, 620632)
International Airport	1991	Bournemouth Hurn (195, 115980)
RNAS [+ name]	1994	Yeovilton (183, 550235)
[unnamed]	1998	Shoreham (198, 205055)
Gliding Field	1999	Camphill (119, 180787)
[Named] Landing Strip	1999	Netherthorpe (120, 537803)
RAF [+ station name] Airfield (dis)	2001	Molesworth (142, 080775)
RAF [+ station name]	2002	Kinloss (27, 070630)
DERA	2002	Aberporth (145, 250495)
Air Terminal	2002	Barra (31, 705055)
Battle of Britain Flight	2006	Coningsby (122, 222565)
Glider Launching Site	2006	Kirton in Lindsey (112, 945970)
Airstrip (dis)	2010	Cherterhall (74, 765465)
[military] H	2010	Chetwynd (127, 725245)
Business Airport	2011	Peterborough Glatton (192, 190870)

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Adding to Addington

I was intrigued by Bill Henwood's remarks about the landing ground at Addington.¹ It prompted me to delve into the local history records to see if I could answer both his question and the doubt I had that the Addington landing ground was a touch-down field on the Croydon to Paris air route. (The route was out over Kenley; there would be no reason to touch down at Addington).

The most helpful commentary on the second subject was to be found in *Living History local guide No 2, Coombe Shirley & Addington*.²

"It is fairly well known that there was an airfield up here [at New Addington], but its location less so. The Air Ministry sanctioned its use from the spring of 1932. British Air Transport leased part of a large field on Fisher's Farm, its main purpose being for pilot training away from the very busy and developing Croydon Airport. It is not easy to locate accurately, as despite various Ordnance Survey revisions in various scales during its period of operation (1932 – 1944) it is not named. One that is helpful is the 1934 one- inch map with 'Landing ground' and a line drawn bisecting the large field that had stretched the length of Lodge Lane from the borough boundary back to the farm buildings.

Initial facilities were under canvas, but in the summer of 1932 a small wooden building was put up to house three trainers, and could be the building shown on the 1933 Ordnance Survey (though not named)... Flying usually involved landing from the East, as low as possible over Lodge Lane hedge. Taking off was best started from this same hedge, and heading west through a gap in the trees and out over Featherbed Lane. The steep drop of Hutchinson's bank below must have ensured that all became airborne."

Interestingly this makes clear that the specific purpose for this landing ground was more to do with the burgeoning of commercial transport than the passenger route to Paris.

I do not have a copy of the LPTB sheet covering Addington and so cannot answer Bill Henwood's question about the change in name from 'airfield' to 'landing ground'. However the site of the airfield in Addington was soon to be subsumed in the housing development that was first known as Addington Garden Village Estate, work on which began in 1935. This may explain why the notation of the airfield as a landing ground disappeared so quickly from OS mapping. Although the housing development stalled because of the war in 1939, by that date some thousand houses had been built.

Roger Byard

¹ *Sheetlines* 100, 45

² Brian J Salter (Second edition 1974), p40.

Seaplanes on Mersey

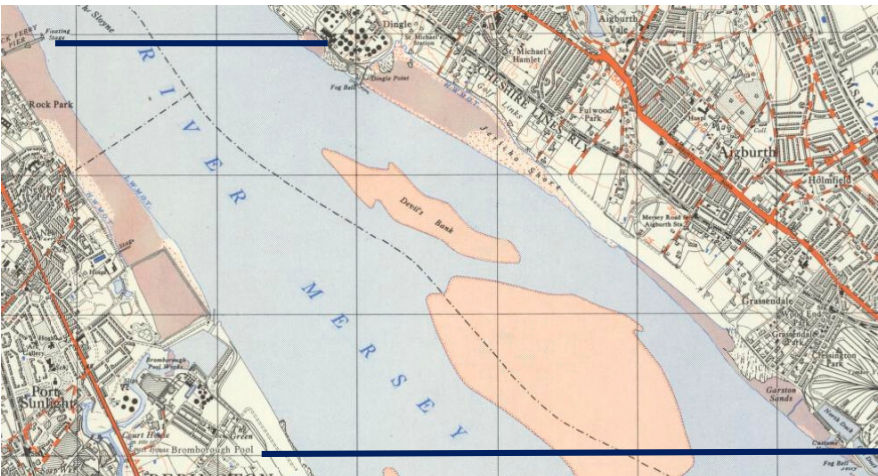
Having lived all my life on Merseyside and never having heard of Bromborough seaplane station, I was intrigued by the reference to it in *Sheetlines* 100.

I subsequently unearthed the mentions shown here. The text below is from Air Ministry Notices to Airmen in *Flight* dated 14 February 1930 (page 221). For ease of interpretation I have superimposed the approximate positions of the boundary lines described on to the 1951 edition of 1:25,000 SJ38 (which is reproduced by kind permission of National Library of Scotland).

Liverpool : Customs Port for Marine Aircraft. Manchester (Chat Moss) : Approval as Customs Aerodrome

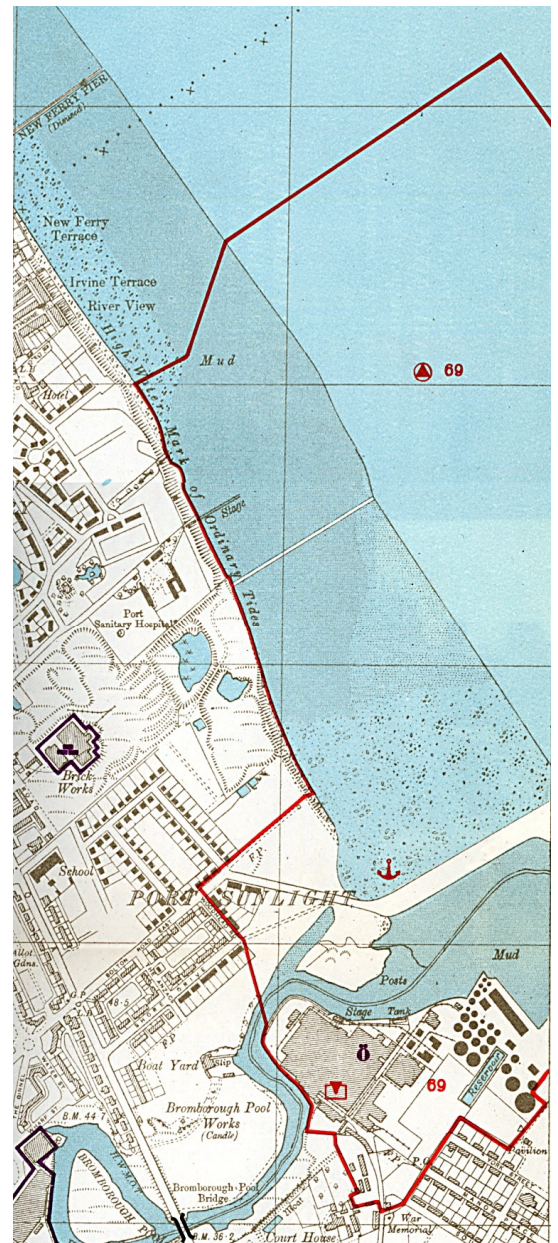
1. THE following area is, with the concurrence of the Commissioners of Customs and Excise, approved under paragraph 2 of Schedule VIII to the Air Navigation (Consolidation) Order, 1923, as a Customs aerodrome for marine aircraft carrying only passengers and light baggage :—

LIVERPOOL.—That portion of the River Mersey bounded on the North by Rock Ferry Pier (Latitude $53^{\circ} 22' 30''$ N., Longitude $2^{\circ} 59' 45''$ W.) on the west bank and by a line running true east from the eastern end of that Pier, and on the South by a line running true west from a position in Garston Docks (Latitude $53^{\circ} 21' 00''$ N., Longitude $2^{\circ} 54' 30''$ W.) on the east bank (Admiralty Chart 3477).



The map extract on the right is from the 1942 German 1:10,000 map BB12ai *Liverpool*, which is a photo-enlargement of OS six-inch Cheshire sheet XIII.SE with objects of military interest superimposed in red. Object number 69, shown in the River Mersey, is listed as Flughafen (airport). This may well be the source of the information on the Soviet sheet depicted in *Sheetlines* 100.

Tony Swarbrick



James Gardner – surveyor, computer, publisher and engraver 1808-1840

***David L Walker*¹**

Appointed to the Ordnance Survey in 1808, James Gardner played a very active role in the trigonometrical survey of Great Britain until 1822. In 1818 he observed and in 1820 he published a panorama of the Grampians² that invited this writer to question whether Gardner had himself calculated the distances and mountain heights shown in the key to this remarkable engraving. Helpful advice from Richard Oliver answered this by reference to Brian Harley's research into the minutes of the Ordnance Board, quoted below. This led the writer to find James Gardner in a recent study of pre-1850 map engravers,³ and as a result to seek out and record more of Gardner's talented and versatile career.

Surveyor 1808-1822

After his appointment by Colonel William Mudge in 1808, on the recommendation of the civil engineer John Rennie,⁴ James Gardner was soon engaged in the triangulation of northern England and the Scottish borders.⁵ Between 1813 and 1818 Gardner, sometimes with the then Captain Thomas Colby, triangulated from the Mull of Kintyre to the Moray Firth,⁶ and after this, was engaged on the secondary triangulation of English counties.

He was again observing with the 36-inch theodolite in 1821 and 1822 for the re-triangulation between Greenwich and Paris, for which Colby, now Superintendent of the Ordnance Survey, and Captain Henry Kater acted as Joint Commissioners (for Britain). Of Gardner's participation, Kater later wrote that 'to the talents, zeal, and exertions of that gentleman, on various occasions of difficulty, we were very much indebted.' One of these occasions was in October 1821, when the survey party in Boulogne was unable to observe the lamp at Fairlight in Sussex, and dispatched Gardner with M Matthieu (the Joint Commissioner for France) to put things right. 'On their arrival at Calais, finding no packet ready to depart, their anxiety led them to cross in an open boat, in weather so tempestuous that they were nearly lost' – after which they very soon

¹ The author is a retired civil engineer who for 25 years has been using the 1832 Reform Act map of Greenock for family history research without appreciating the significance of the note that it was engraved by James Gardner, Regent St.

² David L Walker, 'A view of the Grampians observed in 1818 and published in 1820', *Sheetlines* 100, 23-26 (2014).

³ Laurence Worms and Ashley Baynton-Williams, *British map engravers; a dictionary of engravers, lithographers and their principal employers to 1850*, London: Rare Book Society, 2011, 251-252.

⁴ *17th Report of Commissioners of Military Enquiry*, British Parliamentary Papers (House of Commons), 1812 (5) IV, 168-9.

⁵ Captain Alexander Ross Clarke, *Account of the observations and calculations of the principal triangulation etc*, 1858, vi.

⁶ David L Walker, 'The initial triangulation of Scotland from 1809 until 1822', *Sheetlines* 98, 9-11 (2013).

improvised a repair to the lamp at Fairlight and the observations were duly completed.⁷

Computer 1819-1834

After the sudden death in 1819 of Simon Woolcot, civilian observer and mathematician since joining the Ordnance Survey in 1799, James Gardner was appointed Colby's senior assistant in the Tower, and his salary increased from £105 to £205 per annum. Colby explained later that this required Gardner to tackle the greater than usual arrears of trigonometrical computations accrued from Woolcot's observations and Gardner's own⁸ (and probably, although Colby did not say so, from Colby's expeditions in 1819 and 1821). This confirms that Gardner had made himself perfectly capable of calculating the distances and mountain heights shown in the key to his panorama of the Grampians.

To succeed William Faden, Colby recommended that Gardner should be appointed official map-seller to the Ordnance Survey from 1 April 1823, and Colby sought to overcome the previous conflict of interest by contracting that Gardner would not sell maps which competed with Ordnance Survey maps. As the contract also required Gardner to find a dwelling and a 'handsome shop' in the West End, he was granted an allowance of £100 a year for three years. In addition, as two years' computations still remained, Colby obtained the Board's agreement that Gardner should remain on the Ordnance Survey establishment until these were finished.⁹

In 1824 Gardner's reputation remained such that he was invited with Colby and Kater to give evidence to the Spring Rice Committee on the best means of providing a general survey and valuation of Ireland.¹⁰ According to JH Andrews, Kater and Gardner as witnesses took up points of principle and left the details to Colby (although he was the one in charge!).

In 1825 Colby advised the Ordnance Board that Gardner was still needed, for laying down secondary trigonometrical points as well as computations, and so he was continued on the establishment at his original salary. Colby was 'desired to state how long he is of the opinion it may be necessary to retain Mr Gardner at that salary', but this request¹¹ apparently was overlooked until in 1834 an Ordnance Board committee, finding that he was paid £105 a year for occasional computations, 'considered the services performed by Mr Gardner for his salary to be nearly nominal and therefore proposed that it be discontinued.'¹²

⁷ Henry Kater, *An account of trigonometrical operations in the years 1821, 1822 and 1823, for determining the difference in longitude between the Royal Observatories of Paris and Greenwich*, Phil Trans R Soc. Lond, 1828, vol 118, 154-155.

⁸ *Board of Ordnance Minutes*, The National Archives, WO 47/1203, 29 March 1825, 2919.

⁹ *Board of Ordnance Minutes*, The National Archives, WO 47/1053, 26 February 1823, 1782-86.

¹⁰ JH Andrews, *A Paper Landscape: The Ordnance Survey in 19th century Ireland*, OUP, 1992 and 2005, 22-26.

¹¹ *Board of Ordnance Minutes*, The National Archives, WO 47/1203, 29 March 1825, f 2920.

¹² *Report of a Committee appointed by the Master General and the Board to examine into the whole English survey*, Ordnance Office and War Office Correspondence: Engineers 1842-1849, The National Archives, WO 44/614, 31 January 1834, 13.

Publisher 1823-1840

Gardner after 1823 combined three roles: Ordnance Survey ‘computer’; sole agent for the sale of Ordnance Survey maps; and map-seller and/or cartographer of non-competing maps. However Rob Wheeler’s analysis¹³ of the purchase of an Ordnance Survey map from the Gardner agency by the Town Clerk of Lincoln in 1825 suggests that this purchaser, at least, was confused over the agency’s relationship with the Ordnance Survey.

Over the 1820s and 1830s, maps of many different types came to be published by James Gardner from his premises in Regent Street, as listed recently by Worms and Baynton-Williams.¹⁴ Perhaps the first (in 1825) and certainly the most ambitious of his maps was that of the world ‘projected, compiled and drawn by James Gardner’ on Western and Eastern Hemispheres, each 48 inches in diameter. Presented in the same way as Aaron Arrowsmith’s earlier map published in 1808, but updated, corrected and enlarged, a careful comparison left this writer spell-bound both by the coverage of Arrowsmith’s map, and by the quality of Gardner’s modifications, including his notes documenting subsequent exploration.¹⁵

Fittingly, Gardner in 1830 was one of the founder members of the Royal Geographical Society, as was Colby. Francis Herbert¹⁶ describes how the Society at that time brought explorers and travellers together with the surveying professions (Royal Engineers, Admiralty hydrographers and civilian surveyors), and with cartographers, engravers, publishers and map-sellers, and he mentions James Gardner as one of the acknowledged expert cartographers and engravers who produced maps for the Society Journal.

Gardner remained as the Ordnance Board’s sole agent for the distribution of maps to the trade until in 1840 he asked to resign on leaving his residence in Regent Street, and was succeeded by John Arrowsmith in Soho Square and Grattan & Gilbert in Paternoster Row.¹⁷ Worms and Baynton-Williams record that James Gardner senior became semi-retired in 1840 and his son, also James Gardner, managed their map-selling business until 1850.

A curious episode took place in 1847. Professor Airy, the Astronomer-Royal, asked for copies to send to Otto Struve, the Russian astronomer and geodesist, of the best examples, in Airy’s opinion, of the depiction of relief by the Ordnance Survey. In response, Captain Yolland provided the Irish Railway Map, as

¹³ RC Wheeler, *Buying an Ordnance Map, 1825*, Sheetlines 69, 36-37 (2004).

¹⁴ Laurence Worms and Ashley Baynton-Williams, *British map engravers; a dictionary of engravers, lithographers and their principal employers to 1850*, London: Rare Book Society, 2011, 251-252.

¹⁵ [*The World in Hemispheres*], projected by James Gardner, dissected on 8 sheets each 630 mm square, 1825, British Library, Maps 920.(297.). This may be compared with Arrowsmith’s map by searching Arrowsmith 1808 and Gardner 1825 on the David Rumsey website www.davidrumsey.com/luna/servlet.

¹⁶ Francis Herbert, ‘The Royal Geographical Society’s Membership, The Map Trade and Geographical Publishing in Great Britain 1830 to ca 1930’, *Imago Mundi*, vol 35, 1983, 67.

¹⁷ WA Seymour (ed), *A history of the Ordnance Survey*, Folkestone: Dawson, 1980, 100.

requested and as referred to below, but said he was unable to provide ‘a specimen of relief shading of the north of Wales – as the plate belongs to, and is in the possession of Mr J Gardner, Map Seller, Regent Street.’¹⁸ Richard Oliver suggests that this was probably a specimen prepared by Gardner of hill shading/hachuring *only*, without other detail.

Engraver and Lithographer

Worms and Baynton-Williams describe Gardner as ‘Engraver, cartographer, lithographer, publisher, map and globe-seller’. Throughout the 1820s others are named as the engravers of his publications, but in the 1830s James Gardner himself was in many cases shown as the engraver. So had he added this skill to his other accomplishments, or had he put his name to the work of an employee (or his son James)? In 1838, as referred to below, the Royal Geographical Society recorded that ‘a curious statistical map of Ireland has been engraved by Mr Gardner’, which may suggest that Gardner himself was the engraver. The nineteenth century British Museum catalogue names James Gardner the Elder as engraver for five maps and James Gardner Junior only once. However, the question remains undecided, and in any case ‘his’ engravings are more notable for their usefulness than for their technical quality.

In the 1830s the Great Reform Act and the Municipal Corporations Act created a need for the definition of constituency boundaries, which was met by several Boundary Commissions in the various ways described by Richard Oliver.¹⁹ It was then that James Gardner was first named as a map engraver, perhaps under the patronage of his Ordnance Survey colleagues.

Lt Thomas Drummond, who had joined the Ordnance Survey in 1820, and was associated there with several scientific innovations, was nominated in 1831 to chair the boundary commission for England and Wales, charged with collecting statistics to determine which boroughs should survive, and with defining boundaries that contained sufficient electors. Lt RK Dawson, also from the Ordnance Survey, was ‘sent for on [his] recommendation’,²⁰ became a commissioner, and signed most of the borough maps published for England and Wales, many of which are attributed to the Ordnance Survey.

In the commission’s reports,²¹ ‘Engraved by J Gardner, 163 Regent Street’ appeared first on the map in volume two of the boundaries of metropolitan boroughs. Similar maps can be found on-line (via *Explore the British Library* on the British Library website) as the Reform Act map of the Metropolitan

¹⁸ Letter from Capt Yolland to Professor GB Airy, 24 September 1847, Cambridge University Library Manuscripts, RGO 6/417, item 13, f 121.

¹⁹ Richard Oliver, *The Ordnance Survey in the Nineteenth Century*, London: The Charles Close Society, 2014, 108-110.

²⁰ JF McLennan, *Memoir of Thomas Drummond*, Edinburgh, 1867, British Library, 10817.cc.16

²¹ Commissioners [appointed to inquire into the] proposed division of counties and boundaries of boroughs etc, Reports, BPP (HC) 1831-32 (141) XXXVIII-XLI [maps also available in British Library Maps 145.c.27.(1.)]

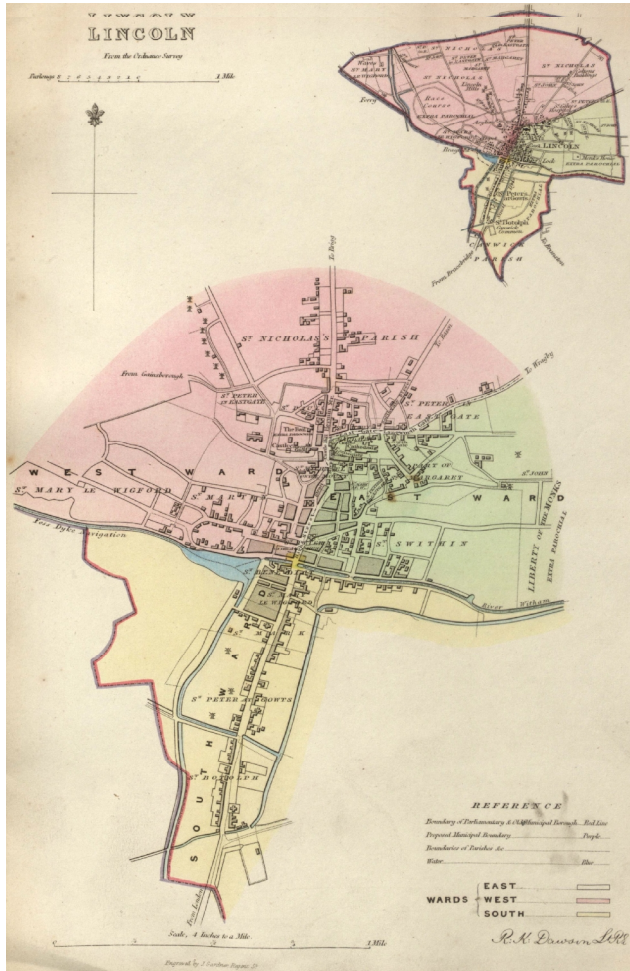
Boroughs,²² and (on the same plate re-used) as the map defining the jurisdiction of Robert Peel's Metropolitan Police.²³

By 1832, with Drummond heavily involved in controversy over his 'rotten

borough' statistics, determination of the boundaries of county constituencies was delegated to a group of commissioners supported by RK Dawson; and of cities, burghs and towns in Scotland to three commissioners including Captain Pringle, another Royal Engineer with Ordnance Survey experience. On four of the 26 county maps.²⁴ and on 29 out of the 71 plans of the Scottish towns²⁵ the engraving is attributed to J Gardner, Regent St.

In 1835-36 the Municipal Boundaries Commissioners for England and Wales commissioned a fresh set of maps, once again supervised by RK Dawson. Some of these, including the maps of Lincoln²⁶ (left), bear the imprint 'Engraved by James Gardner, Regent Street.'

In 1835 Thomas Drummond had become Under-Secretary (chief civil servant) for Ireland, where in 1837 he also chaired the Irish Railway Commission. This created more work for Gardner, who engraved four plates for the Commission's railway atlas (overleaf).



[by kind permission The National Archives]

²² *Metropolitan Boroughs*, Robt K Dawson Lieut RE, Engraved by J Gardner 163 Regent Street, 1832, British Library Maps Crace Port.1953, Collection subset Scanned maps and views.

²³ *Jurisdiction of the Metropolitan Police (Government Plan)*, Engraved by J Gardner 163 Regent Street, Robert Kearsley Dawson surveyor, Third edition 1837, British Library Maps Crace Port.1955, Collection subset Scanned maps and views.

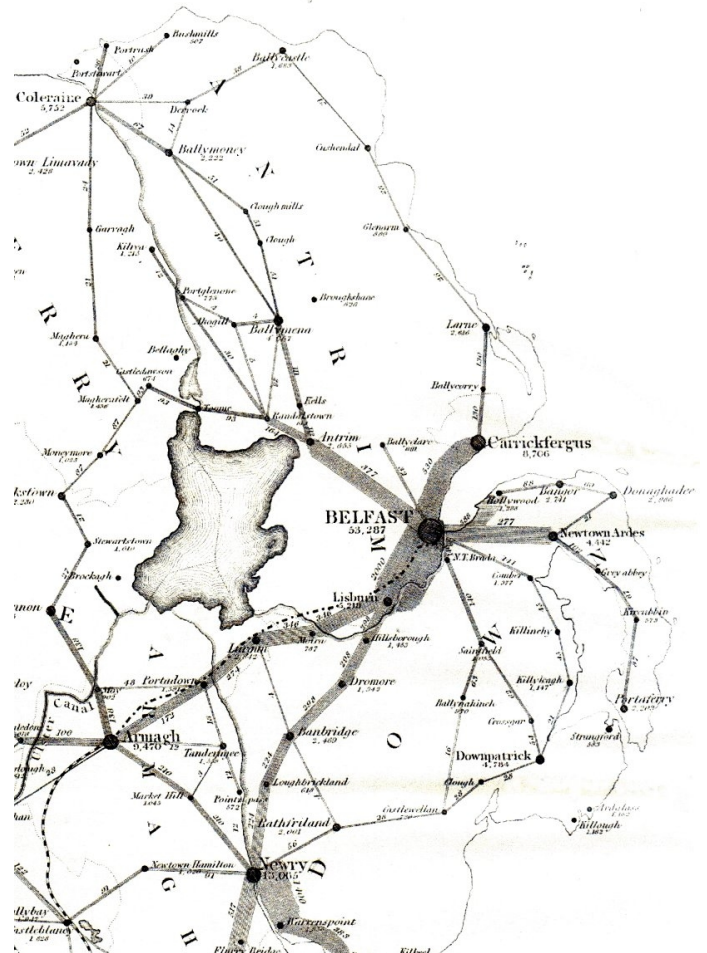
²⁴ Commissioners [appointed to inquire into the] proposed division of counties in schedule F of the Reform Bill etc, Report, BPP (HC) 1831-32 (357) XLI,337 [also in British Library Maps 145.c.27.(4.)].

²⁵ Commissioners [appointed to inquire into the] proposed boundaries of the several cities, burghs and towns in Scotland etc, Report, BPP (HC) 1831-32 (408) XLII [these plans are also available on-line in the maps section (maps.nls.uk) of the website of the National Library of Scotland].

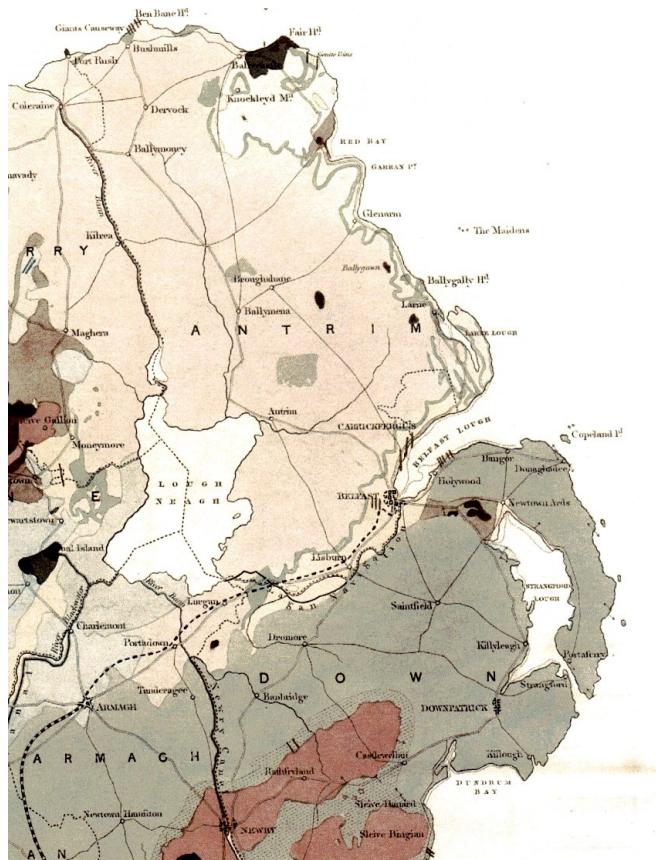
²⁶ *Lincoln*, Municipal and Parliamentary Boundaries Commission, The National Archives, Draft Maps and Plans, 1835-36, T 72/17/21 [Also published in Commission Report vol 2, BPP (HC) 1837 (238) XXVII; available in British Library Cartographic Items Maps 27.e.27; and reprinted in DR Mills and RC Wheeler (eds), *Historic Town Plans of Lincoln, 1610-1920*, Lincoln Record Society, 2004].



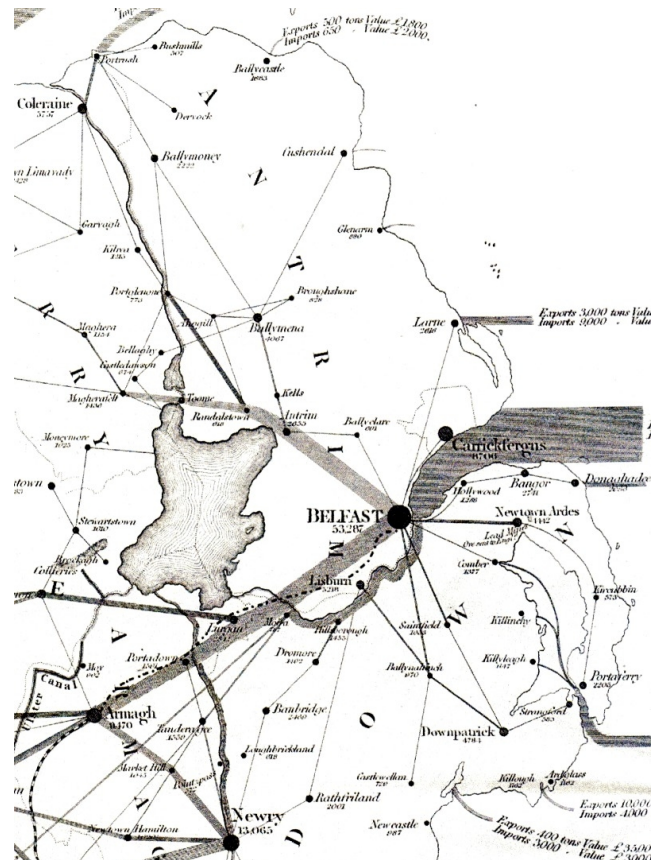
II Density of Population (by Lt Harness)



III Quantities of Traffic (by Lt Harness)



V Geological Map (by Richard Griffith)



IV Numbers of Passengers (by Lt Harness)

Extracts from plates engraved by James Gardner in Atlas to accompany the Second Report of the Commissioners appointed to consider and recommend a general system of railways for Ireland, HMSO, Dublin, 1838 © The British Library Board Maps 145.e 29 (also kept in The National Archives MPD 1/147)

Drummond, who was very familiar with the progress of the Ordnance Survey triangulation, had charged Thomas Larcom, the Ordnance Survey chief in Ireland, with compiling a quarter-inch map based on the recently completed triangulation. Although Colby had at first refused an Ordnance Survey imprint, because the topographical detail for southern Ireland came from unofficial sources, he had to accept its publication under the auspices of the Railway Commission and its subsequent adoption by the Board of Ordnance.²⁷

Drummond's Commission was, of course, promoting rather than recording the construction of Irish railways. With this in mind, at a reduced scale of ten miles to the inch, Larcom's map was adapted to provide the basis for three statistical maps and a geological map, all engraved by Gardner, for the Railway Atlas that, rather late in the day, accompanied the Commission's Second Report.²⁸ After the Atlas in 1838 was communicated to the Statistical Society of London, and mentioned in a report to the Royal Geographical Society,²⁹ these maps were forgotten until a discussion at a Royal Geographical Society symposium in 1934 and a more extensive study published by AH Robinson in 1955.³⁰ By reference to geographical sources, Robinson claimed that, notwithstanding their deficiencies, the maps of population density and traffic flows were notable as the first of their kind. This he attributed to an effective combination of the innovative and ingenious minds of Drummond, Larcom and Henry Harness, then a lieutenant in and eventually the colonel-commandant of the Royal Engineers.

The Irish Railway Atlas was by no means the only example of the effective visual display of quantitative information by James Gardner. The rich variety of maps and plans listed by Worms and Baynton-Williams as published by Gardner, and in some cases said to be engraved by him, include illustrative maps and plans for geographers, geologists, engineers and a meteorologist, and include some that have been judged worth republishing in recent years. A general chart showing the principal tracks of HMS Beagle 1831-6 was engraved by James Gardner on behalf of Darwin's Captain Fitzroy. This originally accompanied Robert Fitzroy's published narratives of his voyages and has appeared over subsequent years in several places, most recently in 2011.³¹ More complex and just as enduring, Bradshaw's *Map and Sections of the Railways of Great Britain*, another map that Gardner published in 1839, was reprinted as recently as 2013.³²

²⁷ JH Andrews, *A Paper Landscape: The Ordnance Survey in nineteenth century Ireland*, OUP 1992 and 2005, 184.

²⁸ Irish Railway Commission, *Atlas to accompany Second Report of Railway Commissioners*, HMSO, Dublin, 1838, British Library Cartographic Items Maps 145.e.29 and The National Archives MPD 1/147.

²⁹ Capt J Washington, *A sketch of the progress of geography ... [and of the Royal Geographical Society] in 1837-8*, Journal RGS, 1838, vol 8, 237. This made the statement referred to above that 'a curious statistical map of Ireland has been engraved by Mr Gardner'.

³⁰ Arthur H Robinson, *The 1837 maps of Henry Drury Harness*, Geographical Journal, vol CXXI, 1955, 440-450.

³¹ RD Keynes (ed), *The Beagle Record*, Cambridge University Press 1979 (paperback 2011), 22-23.

³² Julian Holland and David Spaven, *Mapping the Railways*, Collins, 2013, 36.

Conclusions

When James Gardner in 1823 applied to the East India Company to succeed Aaron Arrowsmith as its map-seller and geographer, he wrote of himself ³³ that his fifteen years of employment with the late General Mudge and Major Colby had provided ‘the amplest means of becoming acquainted with the scientific principles upon which maps should be constructed, [and] the manner in which they should be delineated’ and ‘that he [had] not suffered the opportunities presented by his situation to pass unimproved’. While he failed to secure the post with the East India Company, Gardner’s zeal for self-improvement demonstrably continued after 1823 to provide the basis for his remarkable career.

Although, after quoting from a few of Gardner’s letters to Colby, Charles Close³⁴ regretted that ‘That is almost all we know about James Gardner’, it is now apparent that Gardner enjoyed a much more varied career than other trigonometrical surveyors. He apparently earned the trust of a remarkable number of the most original minds of an enterprising age, and moreover remained on good terms with Thomas Colby for more years than other officers of the Ordnance Survey. His readiness to work at the same time for the Ordnance Survey, for various Government commissions, and on his own account, seems to be an example in the 1830s of the situation described by Richard Oliver ³⁵ as ‘an ill-defined area where official and commercial cartography interacted with each other.’

Acknowledgements

The writer thanks Laurence Worms and Ashley Baynton-Williams for their inspirational dictionary of British map engravers; Richard Oliver for his generous advice; and the librarians of the map rooms of the British Library, Cambridge University Library and the National Archives for their knowledge and their patience.

³³ Memorial by Mr James Gardner, 29 April 1823, British Library, IOR E/1/150, 477-479.

³⁴ Col Sir Charles Close, *The Early Years of the Ordnance Survey*, 1926, reprinted with a new introduction by JB Harley, David and Charles Reprints, 1969, 79.

³⁵ Richard Oliver, *The Ordnance Survey in the Nineteenth Century*, London: The Charles Close Society, 2014, 109.

Modern history on OS Maps

Rob Wheeler

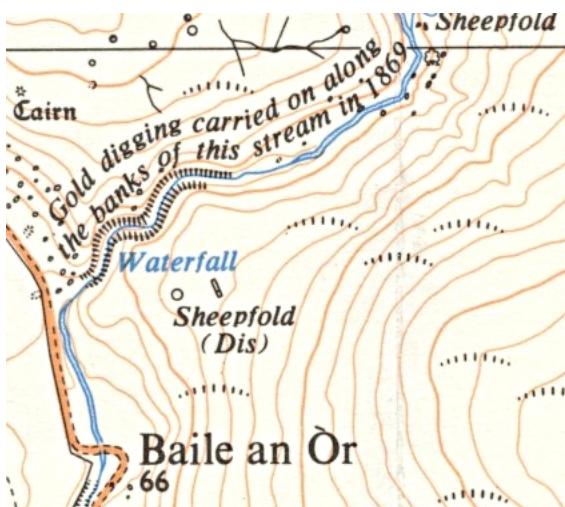


*Part of Bartholomew
Historical Map - Four Air
Battle symbols in East Kent*

For the purposes of this article let us take as the definition of 'history' a statement of the form 'such and such happened here in [date]'. The commonest example is provided by the well-known crossed-swords symbol, indicating a battlefield. The date on the one-inch (Seventh Series) key was 1066; most examples on the maps were medieval or from the English Civil War. John Bartholomew & Son produced a 'Historical Map of England and Wales', drawn and designed by LG Bullock, with a dozen 'Air Battle' symbols, with second world war dates, either '1940-1945' or a closer range, like '1942'. Even at the scale of 1:1M, it is doubtful that one can really represent the location of an air battle in this way: Bullock's enthusiasm for the (recent) achievements of the RAF seem to have triumphed over a more sober assessment of what a historical map can properly show. We do not

find any modern battles marked on OS maps.

What then is the most recent piece of 'history' on an OS map? To produce a definitive answer would require inspection of the Survey's entire output, so I can only suggest a candidate, and that appears on *Pathfinder* 86 (NC82/92) where three burns are annotated 'Gold digging carried on along the banks of this stream in 1869'.



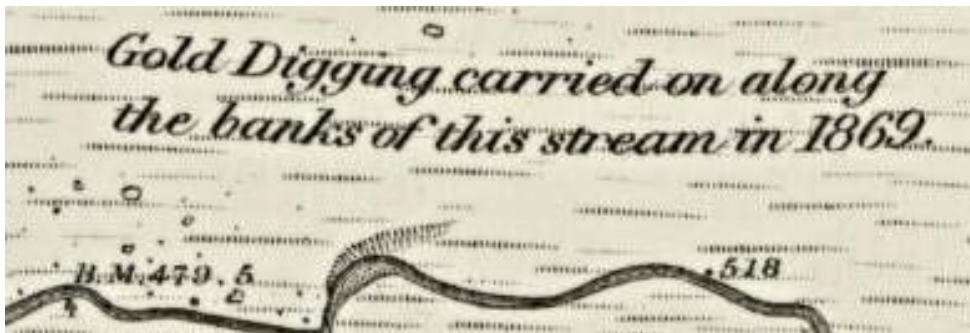
*Pathfinder 86: Note on gold
digging*

in 1869'. This is a reference to what is sometimes known as the 'Scottish Gold Rush'.¹ From late 1868, some 600 adventurers made their way up the road to Kildonan: at this date the railway terminated at Golspie. One of the temporary camps was at Baile an Òr (=town of gold) at NC 912213. That and Càrn nam Buth (=hill of the tents) at 899249 may perhaps be the most modern Gallic names shown by the OS. Experienced men could make useful but not spectacular incomes from alluvial gold. However, as from 31 December 1869 the Duke of Sutherland terminated licences and extraction came to an end, though there were subsequent unsuccessful attempts to find the vein from which the gold

¹ See eg <http://www.belmsdale.org/gold-rush.php>

had come.

The note found on the modern map can actually be traced back to the first edition of the County Series, to Sutherland sheet 67, published 1877-8 but surveyed as early as 1871. So when the surveyors actually wrote down the description, the events they were describing had come to an end only about 18 months before. One wonders whether the description should be regarded as ‘history’ so much as an explanation for a confused mess of channels and remains of temporary dams along the lines of the burns, a landscape which was deemed too temporary to be worth surveying but was felt to require a note of some sort.



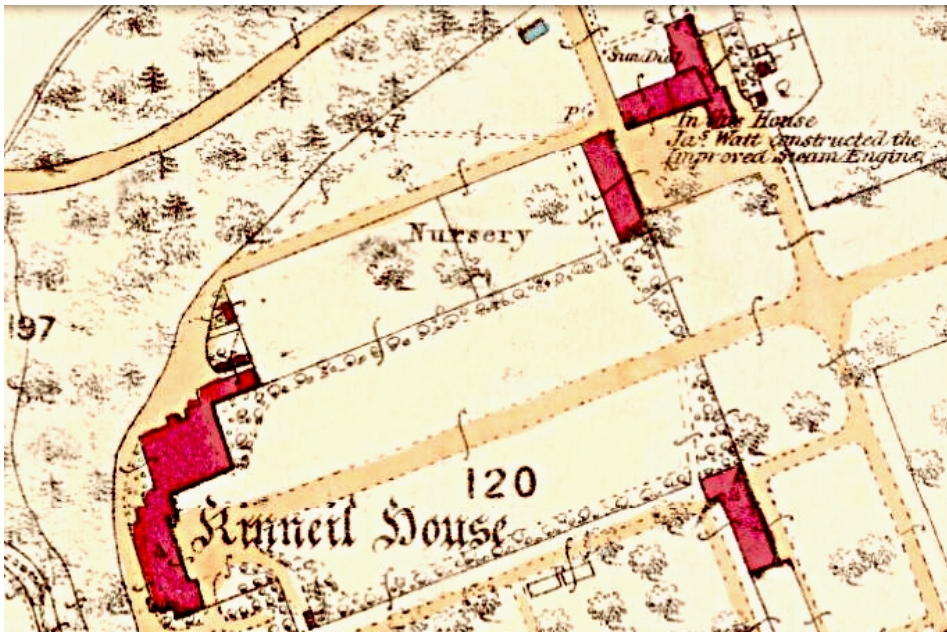
*Sutherland sheet 67:
one of the 1869 notes*

Perhaps in a busier area, when the time for revision came round, such a note might have been thought unworthy of the space it occupied. The Strath of Kildonan is not exactly a congested area; although it has quite a high density of archaeological sites – far more on the modern 1:25,000 than on the first edition of the six-inch. So there was hardly any pressure to remove the note to make way for modern detail. And these days, perhaps the OS sees it as another archaeological site, albeit one that happens to be precisely dated.

This raises questions about the definition with which I started. Does ‘Bronze axe found 1892’ with a ‘site of antiquity’ symbol count as ‘history’? It seems perverse to treat it so. Should the annotations at Kildonan be regarded as a geological equivalent: ‘alluvial gold found here 1869’? I think not: the note refers to the digging, not to what was found. So this probably should count as ‘history’, even though the events were less than two years old when recorded. That degree of recency will surely be hard to beat.

Recency is important, because the surveyors were not in a position to conduct historical research. Thus, what they recorded was local tradition, and local tradition can become confused over time. This is illustrated at Kinneil House, west of Bo’ness, where the surveyor recorded against one of the houses that flank the grand approach to the mansion ‘In this House James Watt constructed the Improved Steam Engine’. The reference is to the events of 1759 when Watt was completing his first full-sized engine for Dr Roebuck, who had taken a lease of Kinneil House and found the Newcomen atmospheric engine inadequate to pump water from his mines thereabouts.² It is indeed possible that Watt was *living* in this house at the time, but the construction appears to have been done in a small workshop immediately south of the mansion house.

² Samuel Smiles, *Lives of the Engineers*, 2006, 89.



That at least is the view held by the local council, who maintain a small museum there and who quote in evidence a letter recommending a building close to the glen that runs immediately west of the mansion because of the greater privacy it offered. Ninety-five years is quite long enough for the story to have become confused.

Linlithgow 1.10 (Borrowstouness) surveyed 1854, published 1856

James Watt's workshop at Kinneil, together with a cylinder thought to be from one of the Newcomen engines that Watt was responsible for at the time (moved to the site about 90 years ago) [photo by the author]



The extracts from Sutherland sheet 67 and Linlithgow 1.10 are taken from National Library of Scotland on-line mapping at <http://maps.nls.uk>, with thanks.

Further comment on OS mapping of limekilns in Scotland

Paul Bishop and David Munro¹

A recent note in *Sheetlines* explored the mapping of limekilns on OS first and second edition maps of the Central Belt of Scotland.² Part of that exploration involved compiling the symbols used in OS mapping, including examining the antecedents to the limekiln mapping symbols used in Scotland. Bishop and Thompson also speculated on the extent to which symbols used for the mapping of draw kilns were an attempt to represent the on-the-ground structure of kilns and, in particular, of draw kilns. Recent work shedding light on these matters is reported here.

Lime is produced by burning (calcining) limestone (CaCO_3) to a temperature of at least 900°C in a kiln.³ The limekilns mapped in Scotland on OS first edition mapping were represented by at least 35 different symbols.⁴ This apparently large number of symbols is in fact easily simplified into two broad classes representing one or other of the two classes of kiln types, namely, simple clamp kilns – three-sided U-shaped or rectangular pits or embayments into which the limestone and fuel were packed and burned – and more elaborate draw kilns in which a stone-built structure encloses an internal kiln ‘pot’ or pots. Limestone and fuel were loaded into the draw kiln pot from a platform at the top and the resultant lime was drawn off at the base of the pot.



Figure 1. John Birrell's 1796 survey of the lands on the Eastside of Kinnesswood, showing the boundary between the arable runrig lands (lower third of the map) and the fore brae of the Bishop Hill to the north. Note the line of six U-shaped kiln symbols above the rigs. Also visible is the word 'Row' between dotted lines. The Row is where limestone was rolled down to the kilns from the Fairy Doors Quarry at the top of the brae.

¹ Paul Bishop is a Professor in the School of Geographical and Earth Sciences at the University of Glasgow and David Munro is Historical Geographer in Residence to the Duke of Buccleuch. We sincerely thank His Grace the Duke of Buccleuch for permission to use extracts from plans in the Queensberry Archive at Drumlanrig Castle, and the Kinross (Marshall) Museum for permission to use an extract from John Birrell's 1796 Survey of the Lands on the Eastside of Kinnesswood (*figure 1*).

² Paul Bishop and Gavin Thompson, 'How OS depicted limekilns in Scotland's Central Belt', *Sheetlines* 98 (2013), 19-31.

³ For more detail see *ibid.*

⁴ Bishop and Thompson, *figure 3*.

David Johnson, the leading historian of lime-burning in Yorkshire,⁵ noted in a 12 July 2011 email to PB: “Only one of your [limekiln] symbols appears on English OS first edition mapping. I have never come across the others you found.” The apparent lack of unequivocal symbols for clamp kilns in the Old Series Ordnance Survey maps of England and Wales⁶ is consistent with Johnson’s comment, and it may be that Scotland has a richer range of mapping symbols for limekilns. We hope that this present note and its predecessor prompt some comment from CCS members on OS mapping of limekilns in England.

Our examination of pre-first edition OS maps and estate plans suggests that there may in fact have been a different and perhaps stronger tradition of limekiln mapping in Scotland than in England. U-shaped symbols labelled ‘Kill’ on an ?1805 farm plan of the ‘Long Fauld’ limeworks⁷ – ‘kill’ being a Scots word for kiln – confirm the pre-OS use of the U-shaped symbol for a limekiln. The tradition of mapping clamp kilns with a U symbol (a tradition that Johnson’s comment above suggests may be lacking in mapping of limekilns in England) is now extended further back in time in Scotland by John Birrell’s 1796 survey of the lands on the Eastside of Kinnesswood in Kinross (*figure 1*).⁸

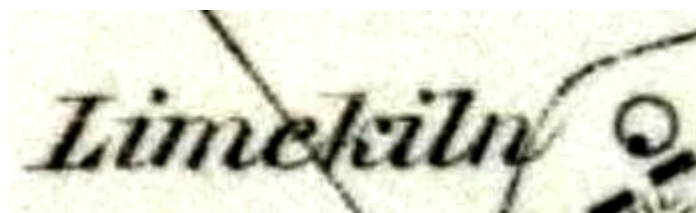


Figure 2A. Draw kiln at Nobleston (Dumbartonshire, first edition six-inch sheet XVIII)



Figure 2B. Draw kiln at Cults Lime Works, Pitlessie, as mapped on Fife, sheet 17, and as imaged by Google Earth [©Google. ©Getmapping plc]

The limekiln symbol recognised by Johnson from OS mapping of limekilns in England is a circle with a black dot at one point on the circle’s circumference. Bishop and Thompson speculated that the dot may indicate the position of the kiln’s draw hole⁹ but this is now less clear (see below). This symbol is also found in the Old Series Ordnance Survey maps of England and Wales,¹⁰ as well as on OS first edition six-inch mapping of Ireland, published 1833-46,¹¹ and corresponds

⁵ D Johnson, *Limestone Industries of the Yorkshire Dales*. 2nd ed., Stroud: Amberley, 2010.

⁶ Bishop and Thompson, *op. cit.*

⁷ Bishop and Thompson, *figure 1*.

⁸ John Birrell’s 1796 *Survey of the Lands on the Eastside of Kinnesswood*, Kinross (Marshall) Museum.

⁹ Bishop and Thompson, *op. cit.*

¹⁰ See Bishop and Thompson, *figure 4F*.

¹¹ *Pers. comm.* Richard Oliver, September 1, 2014.

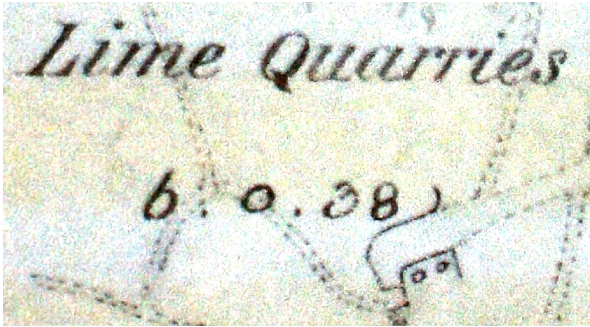


Figure 2C: Extract from sheet 21 of the 1856 McCallum & Dundas survey of the Queensberry Estate (RHP 38148/24). The pots of two draw kilns and their surrounding masonry are at bottom right. This area was surveyed by OS in 1859 for the Lanarkshire first edition six-inch sheet XLVI and 25-inch sheet XLVI.5. Both sheets show a rectangular structure labelled “Kiln” in the overall setting of the “Whitecleuch Lime Works”, but neither shows kiln pots. The 25-inch representation of the kiln shows two enigmatic lean-to structures on the front of the kiln in the work area.

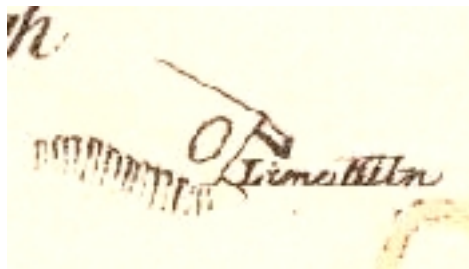


Figure 3. Draw kiln at Auchencloigh Farm, Ayrshire, showing an oval kiln pot in a masonry structure. [Ayr first edition 25-inch sheet VII.08 (Kilbirnie)]

to one of the two symbols used in Scotland to map draw kilns (*figure 2A*). A second main symbol used to map draw kilns is more pictographic in style, with a circle representing the kiln pot and a surrounding polygon that indicates the edges of the masonry structure that encases and supports the pot (*figure 2B*). A variant of this symbol may also have been used in the Old Series maps¹² but that Old Series symbol is slightly more complex than that used in Scotland.

As in the case of the U-shaped symbol for mapping clamp kilns, this second, more pictographic symbol for mapping a draw kiln has precursors in kiln mapping on Scottish farm plans. The mapping of limeworks on the Duneaton Water in Crawfordjohn Parish on the Queensberry Estate in 1856 clearly indicates a pair of draw kiln pots within their surrounding and supporting masonry and set into a backing slope. An access road and work area is located in front (to the north) of the kiln (*figure 2C*).

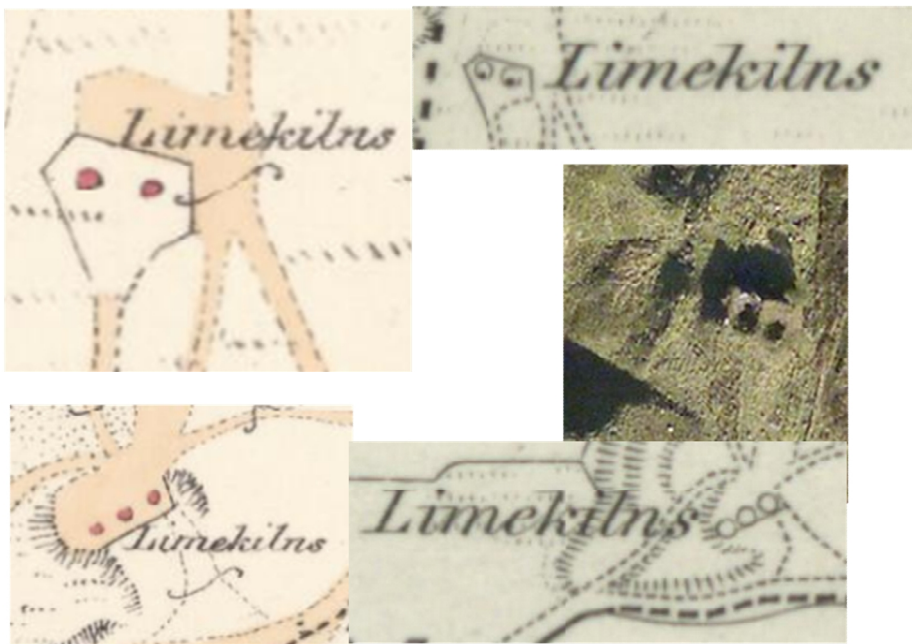
This pictographic approach, in which the mapping moves from either symbolic representation of the mapped object or representation only of the object’s outline in plan view (ie, representation of the object’s ‘footprint’) to pictorial representation of the object’s form or morphology may have been developed even further in mapping of limekilns in Scotland. Speculation that the wings flanking the ‘Lime Kiln’ label in *figure 3* were structural features¹³ is now confirmed after inspection of the remains of this kiln. The ovoid kiln pot is likewise confirmed by field observation, which also revealed that both flanks of the kiln are embanked. It is noteworthy that the mapped symbol in *figure 3* does not represent the embanking of both sides of the kiln. Moreover, the mapped representation of the wings

¹² Pers. comm. Richard Oliver, September 1, 2014.

¹³ Bishop and Thompson, *op. cit.*

can be interpreted as depicting the inner and end faces of the upper (northeastern) wing, while showing only the upper edge of the inner face of the lower (southwestern) wing. Both the slope hachuring of the SW flank of the kiln and the thick line marking the inner and end faces of the upper wing, and the lack of slope hachuring on the kiln's NE flank plus the simple representation of the lower wing's inner upper edge, are all consistent with an attempt to provide a perspective representation of the kiln's three-dimensional morphology, albeit simply and somewhat primitively.

As in all map representations, the mapping of the Auchencloigh kiln remains nonetheless symbolic. The dimensions of the kiln elements, including the long-axis length of the ovoid kiln pot, and the spacing of the wings, are greater on the



mapped symbol than on the ground. The issue of legibility of the symbol versus the true size of the object represented by the symbol is not a new one – think of the width of a mapped road versus its true width – but it is perhaps thrown into sharper relief when the mapped symbol is attempting to represent the mapped object more pictorially, as is suggested here for the Auchencloigh kiln.

Figure 4.

A (top): The draw kilns of the Guett limeworks on OS first edition 25-inch mapping (top left) and six-inch mapping (top right).

B (middle right): Google Earth image of the Guett kilns [©Google. ©Getmapping plc]

C (bottom): The draw kilns of the Craigdullyear limeworks on OS first edition 25-inch mapping (bottom left) and six-inch mapping (bottom right).

In both A and C, 25-inch mapping is from Ayr sheet XLII.3 (New Cumnock) (survey date: 1857; publication date: 1860), and six-inch mapping is from Ayrshire, sheet XLII (survey date: 1857; publication date: 1860)

As noted above, it was speculated in the earlier note that the dot on the circumference of the circle symbol for a draw kiln indicates the position of the kiln draw hole (*figure 2A*). The mapping of two banks of draw kilns in Dumfries and Galloway – at the Guett and Craigdullyear limeworks, to the northeast of New Cumnock (*figure 4*) – suggests that this interpretation is unlikely.

The six-inch mapping of the Guett limeworks (*figure 4A*) uses the circle-with-dot symbol for each of the two draw kilns, with the dot on the southwestern edge of each circle. The 25-inch mapping for the same structures confirms, however, that the kilns' draw holes must have been on their northern side, with the straight edge of the kiln masonry structure facing onto the kiln work area where the quick lime would have been drawn. The roadway that approaches the kiln pots from the south was an access road up a ramp to the top of the kilns from where the pots would have been loaded. Field inspection and the shadow cast to the north on the Google Earth image of the remains of the Guett draw kilns (*figure 4B*) confirm that the northern face fronted onto a work area at the base of the kilns and that the draw holes are on this northern face of the kiln structure. Field inspection also confirms that access to the kiln top for loading was by a ramp up from the south. It now seems clear that the dot on the circumference of the circle marking a draw kiln may have no significance in terms of the position of the draw hole.

The mapping of the Craigdullyearth kilns (*figure 4C*) likewise confirms that they are draw kilns, with loading roads to their tops. Field checking confirms that a work area with draw holes is on the kiln's southeast face, which is indicated by straight line in the mapped kiln structure. Interestingly, the six-inch mapping symbols of the Guett and Craigdullyearth draw kilns are different (circle with dot for Guett; simple circle for Craigdullyearth). Both limeworks are mapped on the same six-inch sheet and it remains unclear why the OS mapper (or engraver) used different symbols for the two sets of draw kilns that the 25-inch mapping (and field checking) indicate are similar. This observation means that it may be impossible to infer kiln type from mapping symbol, beyond the simplest inference of draw kiln versus clamp kiln.

In conclusion, we make the following observations, on which we would welcome comments from CCS members, in particular concerning the mapping of limekilns in England:

1. OS mapping of limekilns in Scotland distinguished clamp kilns and draw kilns
2. The practice of using a U-shaped symbol for clamp kilns might be restricted to Scotland, where such use predated OS's mid-nineteenth century first edition mapping by at least 50 years
3. Early OS mapping in Scotland drew on existing symbology in use by farm and estate surveyors and cartographers, perhaps implying a close link between OS and such farm and estate surveyors and cartographers
4. It seems that OS first edition mapping of limekilns in Scotland may have included attempts at crude three-dimensional pictographic representation of draw kilns
5. An earlier suggestion that the position of the circumferential dot on the circle-with-dot symbol for a draw kiln indicates the position of the draw-hole is not confirmed by the use of this symbol in mapping the Guett limeworks kilns.

One final point: other possible symbols to map lime kilns include horseshoe-shaped symbols for open-circle-shaped (less elongate) clamp kilns. Such horseshoe-shaped clamp morphology is obvious in abandoned kilns (*figure 5A*) and has been used (and distinguished from U-shaped clamp kilns) in recent non-OS mapping of long-abandoned clamp kilns in upper Bannockburn (*figure 5B*). The more circular horseshoe symbol has so far not been encountered in OS mapping, suggesting that OS surveyors in Scotland chose not to go to that level of detail in mapping clamp kilns.

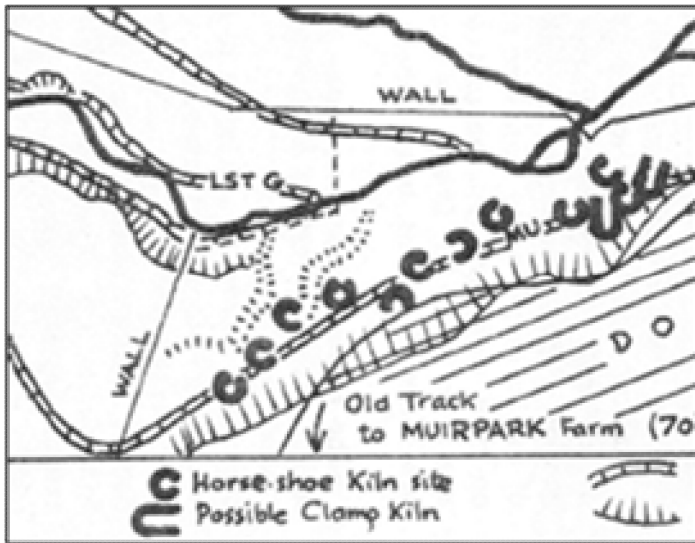


Figure 5.

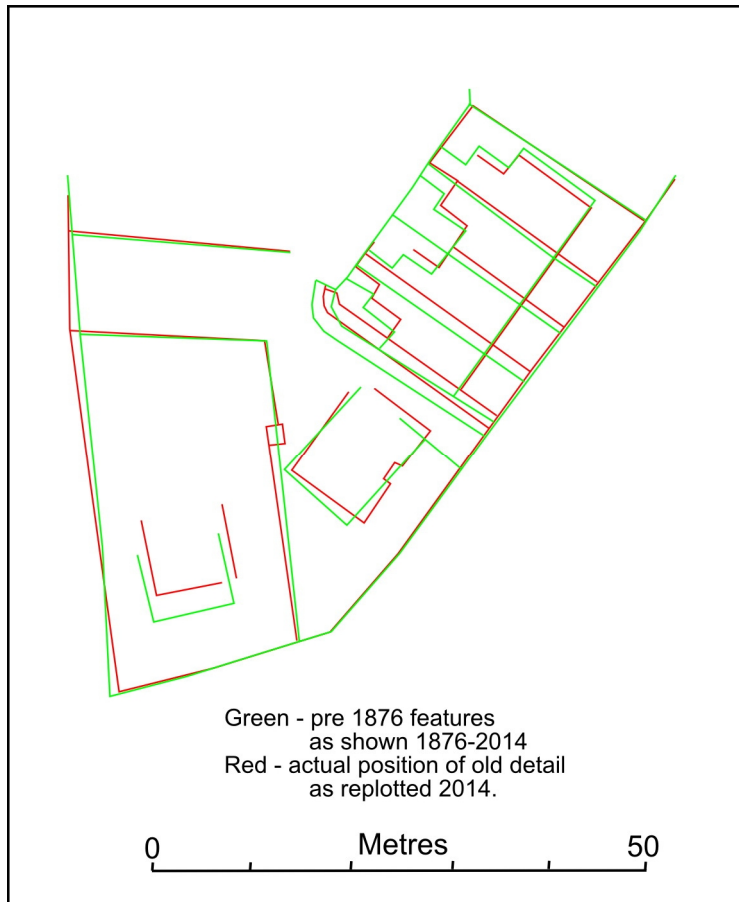
A (above): Adjacent clamp kilns on Blairskaith Muir, Baldernock in East Dunbartonshire. Note the contrast between the elongate U-shape of the left-hand kiln and the more circular horseshoe-shape on the right

B (left): McKay's mapping of Bannockburn clamp kilns,¹⁴ distinguishing the U-shaped clamp kiln morphology (centre right) from the more horseshoe-shaped morphology

The Ordnance Survey map extracts are taken from <http://maps.nls.uk> by kind permission of National Library of Scotland.

¹⁴ KJH Mackay, 'Limestone working. A forgotten Stirlingshire industry', *Forth Naturalist and Historian* 2 (1977), 80-105.

Error and efficiency - a cautionary note on large-scale accuracy
Richard Dean



Comparison of original survey and modern revision



The reviser at work

Error

In his last year of office Major-General Sir Henry James dispatched his teams of sappers and assistants to Staffordshire for the preparation of plans at the 1:2500 scale, and my part of the county was surveyed in 1876 under the local direction of Lieutenant H Elsdale. On Sheet VII.2 my house and its neighbours, then about ten years old, were clearly shown, but I had long been aware of anomalies in the depiction of the building, mainly evident by a misalignment of the frontage.

This erroneous layout was carried forward in subsequent editions of the sheet, from there on to the National Grid plans, finally ending up on the current computerised large-scale database.

Earlier this year I sent an email to OS Customer Services suggesting that the issue might eventually be addressed in future years when revisers were next in the area.

Efficiency

Imagine my surprise when a matter of days later I opened the front door to a friendly young surveyor from OS who had been sent to investigate. After gentle ribbing about the absence of a theodolite, ranging poles, and team of chainmen,

he showed me his equipment which comprised a hand-held computer connected via satellites to a digital mushroom atop a six-foot pole. The computer showed the current survey, and the position of the mushroom was recorded on the screen by the cursor which plotted revisions in real time. The sensitivity was such that moving the pole just an inch or two was reflected in cursor adjustment. A quick walk around and the revised position of the building and its neighbours was instantly corrected on the database. How Sir Henry would have loved to have had such equipment at his disposal! (he would probably have claimed to have invented it....).

Conclusion

The plan above shows the relationship of the revision to the old survey, and the extent to which errors exist in the earlier work. I do not know whether this pattern is localised or general, but chuckle to yourself next time you read in the papers of neighbours disputing the location of a fence to the nearest six inches 'because the correct position is shown on old Ordnance Survey maps'.

A Clacton clanger?

Wanderer asks:

My copy of *Explorer* 184, Clacton, edition A1, 2006, has many instances of names and labels in Times Roman type (*as shown right*), rather than the normal *Explorer* sans serif face. More specifically, these instances are all in the area covered by the previous 1:25,000 map, sheet TM11/21. Has someone dropped a clanger?

Richard Oliver explains:

No, not a clanger! The mix of Times Roman and Gill Sans or Univers on *Explorers* is quite common in places where large areas were published in the Second Series between 1965 and 1972 (as it happens, TM 11/21 covering Clacton was one of the last); we have quite a lot of it in Devon. It comes down to the Times Roman not being replaced when they converted from Second Series / *Pathfinder* to *Explorer*: there were some piecemeal changes, but that's all.



OS maps and motor sport

Tim Stevens¹

Did you ever find an old map with all the spot-heights ringed? Or all the grid numbers or other details highlighted? Was the map rather crumpled or water-stained? Read on and find out why ...

For motoring navigation rallies the UK convention is to require navigators to use a particular edition of OS map – normally the latest *Landranger*. Not always, though, as a recent event for vintage cars used a specially reprinted 1920s OS map, enlarged to 1:50,000 scale and overprinted with the modern grid. The object of the rally organiser is to provide instructions which make life difficult for the entrants, to get them thoroughly lost if possible; avoiding this can involve the competitors in a very close relationship with all sorts of mapping details. This can include almost anything you can find on your keyboard, and in addition can range from the relatively easy tulip diagram right through to the more complex herringbone.

What do you make, for example, of this?

TC1 15 15 78 79 16 80 17 81 18 81 79 TC2

TC1 stands for Time Control one, and what is required from there is to cross the numbered grid lines in listed order as you leave each square. Simple enough, although there will be nothing in the road-book to offer a clue about this – but what if the lines in both directions have similar numbers?

How about: 94 111 83 78 99 130 77 69 96 94 ?

This time the numbers clearly do not fit a grid lines sequence – eventually the beginner might realise that they are spot heights. And what jolly fun if these two ‘systems’ are mixed together? Or if the spaces are omitted?

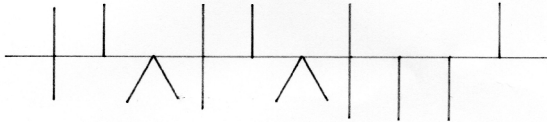
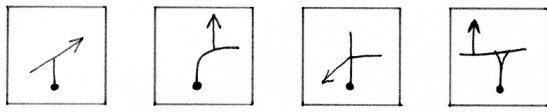
Now try this: SLWSUSELUDRNN

This time, the letters tell you which side of each grid square you must cross, by cardinal point, or direction, so South, Left, West, South, Up, and so on. Easy, really, once you are in on the secret – but there is another variation, which adds further (usually lower case) letters. These represent points on the map where place-name or other lettering impinges on the road symbol. The addition of OS symbols such as > and + from the keyboard, or others drawn in by hand, can be a further twist of the organiser’s knife. The result can be a clue which runs:

Srou67DB+117><u56ERR767778

Finally we come to drawn-in symbols in earnest, of which the more common examples are shown opposite. They both rely on an instruction in the small print such as ‘No whites are used’ or ‘Sealed roads only’ so that everyone knows exactly what counts as a junction. This saves the patience of the farmer’s wife hanging out her washing as lots of drivers turn round in her dusty private drive.

¹ A CCS member who has been involved in motor sport and the recording of rights-of-way for longer than he can remember.



Tulips (*top row*) – first used in the Dutch Tulip Rally in the 1950s – are popular for beginner's classes or non-competitive touring events. Just imagine you are at the blob as you approach the next junction, and leave the junction following the arrow. For more serious events, the symbols are not always drawn the right way up, and sometimes in mirror image or without the starting point blob.

Herringbones (*lower row*) – named from the shape with scant regard for fish anatomy – are less helpful. What is drawn is what the map would show if the required route was straightened out completely, and the navigator's task is to ensure that the driver passes each junction – never mind the directions – leaving the correct number of turnings on each side. Not hugely difficult, once you learn the trick, except that sometimes the ends of the diagram are joined into a circle – so the first task is to work out where on the circle you start from, and whether the correct route is clockwise or widdershins.

There are two ways in which OS maps can be required (as distinct from useful) for motorsport events – one by the event regulations (see above) and the other by law. The legal requirement applies to motoring competitions on public roads. Everyone 'knows' that racing on the highway in Britain is illegal, but this does not prohibit lots of other motoring events using the road – treasure hunts, navigation rallies, driving tests, trials, each with its own complex rule-book. Where the law draws in the OS is in 'The Motor Vehicles (Competitions and Trials) Regulations 1969' – which require the event organiser of any motoring competition with a set route using the highway² to get approval from the MSA.³ This involves sending them a tracing of the proposed route at 1:50,000 scale taken from the current *Landranger* mapping. The route is then checked against MSA records, where a full set of maps is kept, and against the declared routes of other events in the area around the same time. This avoids the risk of two motoring events using the same roads, and helps to 'spread the load' sensibly.⁴ There are lots of other requirements, as you might expect, but this is one of the few aspects of the law which requires the use of OS maps specifically for ordinary non-government activities.

² With a few minor exceptions.

³ The UK governing body of motor sport, whose full title is 'The Royal Automobile Club Motor Sports Association'.

⁴ What it does not do, of course, is to avoid conflict with cycling or equestrian events, or the village music-fest, as they are not caught by the regulations.

Ordnance Surveys for HM Land Registry

John Cole

The following is a brief description and some personal experiences rather than an account of the convoluted history regarding work done by OS for HM Land Registry (HLMR), some of the background for which can be found in the ‘Seymour’ history¹ and to a lesser degree elsewhere. Pages 70-79 of the *National Plans* (1934) gives a full account of the history from the inception of HMLR in 1862 up to the 1930s. Relations between OS and HMLR had not been altogether smooth during that time span but the writer of the *National Plans*, Director-General Brigadier H St J L Winterbotham was recognised by HMLR as a supporter of their cause more so than had hitherto been the case.

The desirability of a measure of state control has its roots in the conveyancing of land by deeds kept in private custody not always providing full protection for purchasers and/or lessees. And the OS role was to provide an accurate survey – probably in the majority of cases the existing map – to which a deed plan might be related. The first such survey took place in January 1929 and during the first year 49 such surveys were completed; the following year 295 and by the late 1950s in excess of 8000.

My first sighting of what was known as an ‘LR case’ determined me to have as little to do with such as I possibly could and it is a remarkable paradox that only a few years later I opted to transfer to an office which at the time was concentrating on such surveys! But before then I found it difficult to understand the enthusiasm and even competition amongst experienced surveyors to undertake such work. With hindsight the reasons were obvious: escape from the drudgery of 1:1250 survey in a bleak industrial landscape (The Black Country), certain financial incentives in the shape of allowances and a task which required more mental agility than the normal line of work apart from often being in pleasant villages or rural surroundings..

A couple of things in particular frightened me. Quite a percentage of the work was at 1:2500 scale even in 1:1250 areas which had yet to be tackled. But for LR purposes 1:2500 surveys needed to be enlarged to 1:1250 and any necessary (for LR reasons) measurements taken, to scale exactly. Given the uncertain linear accuracy standards of the County Series 1:2500 map this seemed to me to be asking a great deal.

The other drawback was the amount of complicated documentation, completion of which was of paramount importance for various purposes, not least costing.

I can never recall seeing a precise set of instructions prior to a section M being issued for the ‘Red Book’ in the late 1950s. But in later years I was able to secure a copy of a *Guide to Field Surveys for Land Registry* with a date of April 1950 running to forty pages including maps, diagrams and sample forms. These comprised the important LR requisition form MB16. A further LR form MB18 if

¹ WA Seymour (ed), *A History of the Ordnance Survey*, 1980, 172.

terms of tenancy were requested. OS forms 131 devoted to times, journeys, dates and allowances claimed etc, 130 quoting the status of a case taking longer than expected and 101, a monthly time docket for each week's work. There were also example traces including a very useful 'floor survey' – three traces superimposed showing the differences of property limits.

Reverting to my final years in the West Midlands I recall one of my senior colleagues expressing a wish that the counties of Worcestershire, Staffordshire and Shropshire would all be made compulsory for Land Registration purposes. The significance of this remark didn't strike me until some time later. Meanwhile my colleague and others were far from pleased when a single surveyor (unpopular to begin with) was made responsible for all LR work in the south Staffs north Worcestershire area. This may or may not have had some connection with a 1:1250 map under continuous revision which had been pushed towards new edition criterion purely by a build up of scattered LR cases but without any additional chain survey or tachy to maintain the integrity of the framework. Almost certainly not an isolated case since there would always be a desire not to delay LR work (an aim which was frequently asserted), but neglecting the fact that a hectare or so of additional work needed a proper framework.

In 1962 or 63 Land Registration was made compulsory in the county of Berkshire and a glance at the progress map (*Annual Report 1962-3*) reveals that apart from Reading not another post-1942 surveyed or revised large scale map existed for the county. I plunged into this situation via a voluntary move to an office at Nettlebed, north of Reading, and for the next three months spent all my time on OS surveys for HMLR. A total of twenty-five cases were involved mainly in the Abingdon / Wantage area and surrounding villages (eight of them) but also a few Oxfordshire voluntary LR cases, starting in fact with Henley-on-Thames. In this instance the 1:2500 map had been revised and published whilst at Goring a trace of the recent revision document was available. But in the main, the medium was the pre-war 1:2500 revision trace, or worse a paper copy which could cause 'penning-up' difficulties.

The learning curves for me were the actual survey work and the documentation. My chief fear regarding the 1:2500 scale map, the scale for all twenty five cases I attended to, was that there was no 'friendly' revision point to work to or from. I had also been cushioned by the advent of equally accurate tachy points and machine-plotted air survey which had made 1:1250 mapwork far more straightforward. And there was a further complication in that the selling off of council housing built since the previous survey or revision had commenced making it necessary to add complete estates. Attempts to 'traverse in' to survey individual properties had led to subsequent disaster, experience of such causing my immediate superior to order proper surveys. This certainly improved matters but due to the nature of the 1:2500 did not entirely eradicate problems.

Floor surveys were not uncommon in the older parts of small towns and large villages and one had to be very alert in such cases. I initially missed an overlap in Abingdon and the case was returned to us for further check. There was little excuse for this because during my first week I had assisted a colleague who had

similarly overlooked a basement in a large house overlapped by the adjoining property.

The LR requisition form MB16 would usually give a clue and at this point a description of the form may be useful. It was divided in two: special requisitions on left; surveyor's replies on right. Each item would be numbered and the surveyor would always commence with 'Sir' and sign off with 'Ordnance Survey' not his own name. Typical might be: 1. Land to be surveyed is edged red on copy OS plan. 2. Where the boundaries are defined by features other than fences, walls or hedges eg by posts, pegs etc. state size and nature. 3. Please supply a dimensional sketch of the property. 4. Base extent as in occupation. The answers to 2, 3 and 4 could be conveniently dealt with on the reverse of the form. The stock answer to most requisitions was simply 'Attended to' but often confirmation of the address of the property was asked for. Further relatively common requests were to state age and nature of a boundary feature, the former often difficult to state with accuracy other than brand new or erected, many years ago.

In my later years of service HMLR solved a lot of their problems by asking for photographs of various boundary features, so the OS surveyor would be armed with a disposable camera.

Turning back to personal experiences, I managed to cope with a single exceedingly simple case in the Birmingham: area before making the courageous decision to transfer to the Berkshire / Oxfordshire borders for a very stiff (but ultimately invaluable) dose of work for HMLR over a three month period.

The very first pair of cases actually fell on the border, in Bell Street Henley-on-Thames and just on the Berkshire side of Henley Bridge. I have a graphic reminder of both in the shape of Alan Godfrey's 1910 Henley-on-Thames (North) map but the OS working document available was a 1961 revision and I hoped that this indicated few problems. Indeed, I was cheerfully informed that an 'experienced' man would have both in the post by the end of the working day. Sadly, what happened next has already been mentioned in *Sheetlines* 82 – at least regarding difficulty on the Berkshire bank of the Thames. On paper, the Bell Street case was simpler. In effect the previous revision (quite possibly that of 1910) indicated a 'step' of about two metres in an internal property division, not altered in 1961, and which disagreed with the deed plan. One property had been demolished and was in the early stage of re-building but clearly revealing the said step. I managed to complete the job but was far from happy about measurements along Bell Street to properties either side of the case and similarly at the rear. In my innocence I believed that once overhaul had taken place, as in the case of the SU7682 1:2500 map, we all would live happily ever after. See previous articles of mine on the subject and also John Cruikshank's in *Sheetlines* 50.

During my first spell in Cornwall from 1965 to 79, according to my records I averaged ten cases per year with the majority falling in the St Austell 1:1250 area. Three which stick in the mind were the very first, at Portmellon close to Mevagissey where I was a bit alarmed over the seaward extent of the property with rather a dangerous cliff involved; at Withiel near Bodmin where I had to indulge in 'detective' work before tracking down a tenant to complete HMLR's

form MB18 and at Boscastle where I was just in time to intercept second-home owners before they returned to Birmingham!

During my second stint, for which I have no records, it became more commonplace to make appointments and in one instance where I had to rendezvous with a solicitor and an interested party on the other side. I caused amusement to the latter by asking the solicitor to look along a fence between properties visible from end to end, and inform me if it was dead straight or bent in two places; the result of which brought the proceedings to an abrupt conclusion. Rather more embarrassing for me was a photography incident whereby I could not take the shot HMLR requested without including a scantily-attired lady in the adjoining property sun-bathing. She had already been glaring at me whilst I was doing some measuring.

The break between Cornish stints had been due in part to the resurvey of the Devonshire beauty spot of Brixham at the 1:1250 scale. Some thirty years before, it had been 'resurveyed' at 1:2500 using revision points (*Sheetlines* 52) and although the 1:1250 resurvey employed a different method many of the RPs were found and incorporated without any difficulty in the modern map. Several HMLR cases were attended to and some of the deficiencies of the original method came to light when the existing LR document which had been 1:2500 enlarged to 1:1250 was overlaid on the modern document. Predictably (I thought) the RPs fitted exactly as did some exteriors of housing blocks which had been chain surveyed from the RPs. Internally there were discrepancies usually caused by inadequate revision of 'county series' detail used to infill the blocks.

The following extract comes from an OS Field Bulletin dated 1950:

"Land Registry. 325 survey cases and 454 printing cases were received during the month. 57 survey cases were dealt with by Town Groups.

The month has been eventful for at least one of the mobile surveyors. A wet Monday morning ushered him into the LR briefing room (Kensington, London) in an anguished mood and uttering threats of resignation etc. Questioned, he produced the tattered and muddled remains of several forms and tracings with the statement 'That's some LR cases – the other pieces are making pork'. The story is this: the day was wet and the job a smallholding of sorts. With his trace and documents safely dry inside the sketching case, the surveyor decided to tape and book a few measurements. He put the case on an apparently unoccupied pigsty and got to work. To his surprise a few minutes later the case had disappeared and as he rushed towards the sty sounds of grunting were heard. Casting caution aside he leapt into the sty on to several large pigs who had pulled the case down, opened it, and having eaten his lunch, straight-edge, set square, most of LR form MB16 and parts of the LR tracings, were fighting over the rubber bands and remaining traces which so far remained safely in the case. Astride the back of the largest animal he wrenched the rapidly disappearing 25-inch scale from its jaws and then searched amidst the now frantic mess

of pigs for any remaining bits and pieces. Finally after much groping in the muck to no avail, he retired to count his losses and to wash. All ended well however and the documents were replaced without difficulty. The nature of LR work invites many little incidents apart from 'social' ones. In recent months LR men have fallen into: cesspits (various), a drum of oil (filthy); fallen off: roofs, ladders, walls.

It is not generally realised that (particularly in the City of London) the LR man's work goes beyond the scope of the normal cartographic surveyor and, often requires great care in tracing boundaries, perhaps on several floors. And checking thickness of walls, concealed juts, etc. In much burgled districts he is far from popular and needs all his tact. Most of the LR mobile section can testify to the remarkable efficiency of our Police Flying Squad!"

Having had a pig attempt to consume part of a measuring tape and a policeman waiting for me outside a garden gate, I can testify to the accuracy of the above.

Editions of Sheetlines referred to in John Cole's article may be downloaded from www.charlesclosesociety.org/SheetlinesArchive

High tied?



Calum Mackay was browsing the OS online 1:25,000 map of the harbour at Burnham Overy Staithe, Norfolk (TF 840460) and was surprised to find two lines labelled Mean High Water.

UKHO and AIDU – maps for seamen, maps for airmen

The CCS autumn programme included visits to two member organisations of Joint Forces Intelligence Group (JFIG); UK Hydrographic Office in Taunton (UKHO) and No 1 Air Information Documents Unit at RAF Northolt (AIDU). The Society recently visited the ‘army’ member of JFIG, the Defence Geographic Centre (DGC) in Feltham.¹

The two visits nicely complemented each other; at Taunton the emphasis was on the archive collection of Admiralty charts, at Northolt on the compilation, editing and publishing of modern aeronautic charts.

UKHO archive contains almost three million charts, documents and surveys, the earliest dating from 1795 when the Admiralty appointed its first Hydrographer, Alexander Dalrymple. The archive services manager, Dr Adrian Webb and his team laid out a display of selected items for inspection, including a chart of St Lawrence seaway signed by a junior surveyor named James Cook and bundles of correspondence between the Admiralty and Ordnance Survey from the 1820s, some signed by Thomas Colby.

The older items in the collection are in the process of being catalogued prior to being transferred to The National Archives, Kew. UKHO archive is open to the public by appointment; to arrange a visit contact research@ukho.gov.uk.

At Northolt, Wing Commander ‘Slim’ Dyer welcomed the visitors and described the scope and objectives of the organisation. The data handled is defined as ‘information’ rather than ‘intelligence’; open not secret. AIDU’s role is to collect geospatial data from sources such as DGC, OS, NGA [USA], commercial publishers and national aeronautical services worldwide and to create a range of publications on paper and digital formats, available to subscribers, military and civilian, at home and abroad. AIDU also runs its own school of air cartography.

The products include Terminal Approach charts and topographic maps at scales of 1:500,000 and 1:250,000. These are published in traditional paper form (for which demand is rapidly declining – from about twelve million print impressions four years ago to about 4.5 million today) and in a range of digital outputs, suitable, for example, for aircrews to rapidly create a flight plan and view simulated fly-through. Latest developments include the Milflip website, from which authorised users can instantly download data anywhere in the world and – the ultimate in convenience and portability – an app for Apple and Android tablet computers.

John Davies

To register your interest in joining future CCS visits, including Essex Records Office on 22 April, York and Belfast, please contact Bernard Anderson, Visits Co-ordinator at the address shown inside the front cover.

¹ *Sheetlines* 97,8

What makes a good society?

John Fowler

I subscribe to twelve collectors' societies, covering my interests in maps, railways, London, publishing and the Post Office. I have served as treasurer with two and journal editor for eight years with one, so I feel I have some experience of what members can expect from their subscription.

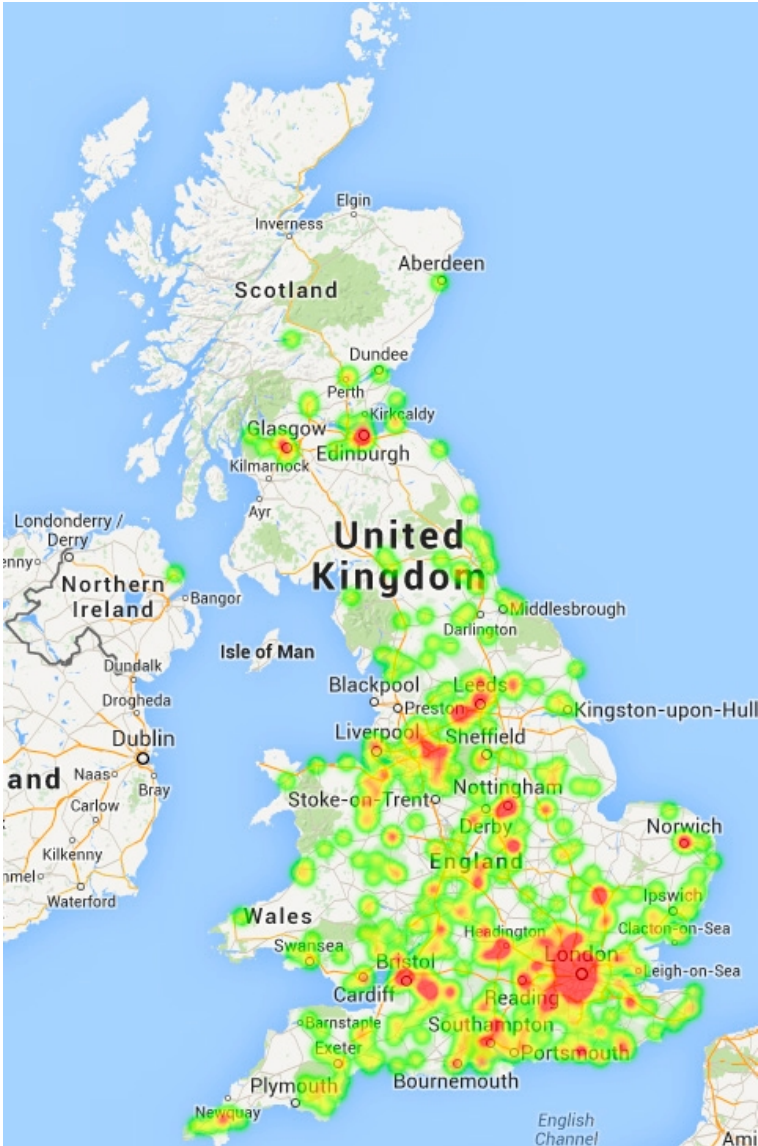
What should we expect from our (often paltry) subscriptions? In my view, a regular journal, with articles covering a wide range of interests and suitable for both specialists and general collectors, is a prerequisite, and many people subscribe solely for this benefit. Nowadays, few societies (but not few enough) manage without a website, and those which allow members to raise queries and pass on information are far more useful than the ones which are merely to field applications for membership. If they also include links to articles previously published by the society, they are even more of a benefit, and provide an incentive to others to join.

Meetings held fairly frequently in varied locations, particularly weekend ones which offer a range of talks or activities (such as visits to local sites or organisations with a particular relevance), are particularly welcomed by those wishing to share their interest with like-minded individuals. If the society publishes monographs, thus forming an outlet for members' research in permanent and publicly available form, they are providing a service for future readers and researchers. Some societies are able to provide such publications free to members, but economics usually dictate that there is a special reduced rate for these.

What should a society expect from its members? A good society will welcome contributions of information either as news or articles for its journal, and it is reasonable to expect members to respond to such requests. It is a regrettable fact that a high percentage of members of any society are happy to receive all the benefits without lifting a finger to assist in any way with the running of the group, by putting their names forward for necessary society offices or sending in articles. As a society can only be as good as its members allow it to be, some simply have to fold because there are no replacements for the often elderly officers.

Where does the Charles Close Society rank in my experience of societies large and small? It seems to me that it ticks all the boxes for a good society. Other thriving societies which tick almost all include the London Topographic Society (for its fine publications in particular), the Railway Philatelic Group (an excellent magazine), the Penguin Collectors Society (more good publications) and the Forces Postal History Society (a well organised website with a popular queries and responses section). All these societies have one thing in common – their membership increases each year, and it's easy to see why.

I congratulate the Society and *Sheetlines* on passing the hundredth milestone and only regret that I won't be around to see the two-hundredth.



Where do we live?

This heat map shows the distribution and concentration of CCS members. Each green dot is an individual address; these merge into yellow and red blobs as the local density increases.

What it shows is that we are quite widely and thinly spread across most of mainland Britain, but with some concentration in the main urban centres.

The reason it was produced was to test the feasibility of holding occasional local meetings in various locations. The results suggest several places where these may be popular. If you would be interested in helping arrange or in attending local meetings, please contact the editors.

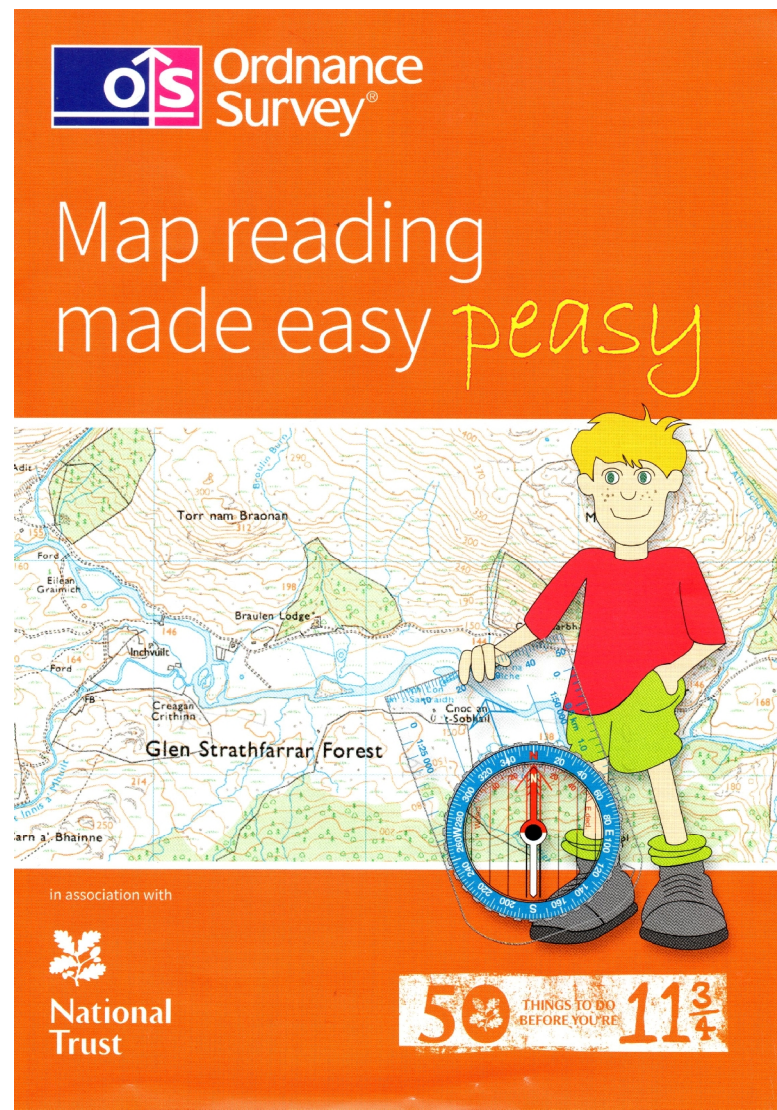
The map was produced by loading the address list into <https://mapalist.com>

Easy peasy

This colourful 8-page booklet, a joint production by Ordnance Survey and National Trust is given away free at NT properties as part of their *50 things to do before you're 11¾* campaign.

Designed to appeal to the target age-group, it covers the basics of map-reading, such as understanding symbols, compass bearings, grid references, scales and how to measure distances, with illustrations and examples from 1:50,000 and 1:25,000 maps.

There are self-test questions and your reporter has to confess that despite having six decades extra experience beyond the target age, he didn't quite score 100%!



Kerry musings

David Archer

Over the years, I have twice been told of thousands of large scale plans, in dozens of plan chests, that had to be removed from somewhere, as of yesterday. One location was rural and the other under a London main line railway terminus. Lacking the necessary storage space, I did not take part and am not sure of the outcome, except that I never heard of the market being flooded with the plans. But, of plans being flooded I do have experience. We were flooded in July 2012, seventeen inches in the hall and map store and ten throughout the rest of the house. A lot of County Series 1:2500 plans were damaged beyond re-cycling and had to go into a skip, along with folded maps in the lowest drawers of sixteen filing cabinets, three drawers of Old Series, engraved six-inch full sheets and much more. There is no need to dwell on this whilst making the point that it was not how I had intended the parting to be. Just as a few weeks earlier, we had to leave our store in Welshpool, and could not bring everything back to the house. So at short notice I had to sort through several thousand 1:2500 sheets, keeping only those that 'had anything on them' : towns, large villages, industrial archaeology and so on. The rest went for re-cycling; several car loads each day, hundreds of sheets, showing just fields and forestry, which nobody would want to buy. Even local history libraries declined them as a gift. Today, there is nobody available in local government to go through a pile or list to select what is needed. Save money, no money, accept gaps and get a photocopy if the petty cash allows.

When it comes to our own cherished map collections, none of us would wish such a disorderly retreat. So often we hear older people saying that they are sorting things out and disposing of items, as it will save someone else having to do it later. Over the years, I have bought collections where no instructions have been left to executors, just as a few times, an executor has found a note saying to contact me. In the latter cases, the wishes of the deceased are granted, and a burden is removed from the family. So, briefly, what sort of things should one consider when thinking about the future?

The most desirable outcome is that a map collection is 'disposed of' as the owner wishes. Preferably by themselves, or under their instruction. The best time to call it a day is when a collector is both physically and mentally capable, in control and making all the decisions: pleasing friends, enriching public collections, or just selling in bulk to map-sellers or at auction. The same can be achieved by leaving detailed written instructions, but the derived pleasure and satisfaction are nil. "I don't want someone else to have to sort things out." The key words here are 'sort things out'. If someone else has to see to things, work will always be needed, a lot of work usually, which can be lessened if clear instructions are left. Instructions introducing the collection, highlighting important items and advice on how to proceed. Even better if preparations have been made in advance, and someone has visited and seen the material. So often instructions are lacking. Things are not discussed with executors or relatives, leaving them to

identify and handle the unfamiliar, frequently not being able to execute the wishes of the collector. At the very least, a short tour and description of the collection in advance would help, noting special and common items.

When does one decide to stop collecting? Never, is the real answer. Or at least, one never ceases to look. We have not been buying stock for years, yet if someone rings offering maps, I cannot resist asking for an outline of what is available, which is the same as a retired collector looking in the bookshop map box. One always does. Perhaps a good indication of when it might be easier to call it a day, is when one consigns sections of a collection to boxes in the garage or attic. Let's face it, the owner will almost certainly never look at them again. So why not part with them now, and have the satisfaction of knowing they have gone to a good home one approves of? Having taken the decision, the path ahead varies from person to person. Some identify maps they would never part with and work on the remainder. Others start with maps they can more easily part with, and head for the garage.

It is all very well saying things are to be disposed of, and deciding what is to go, but the actual disposal could be the hardest part. Where does one start? Gift or sell? Gifting maps is not always easy. True, we all have friends that covet something we own, just as we covet something they treasure, and in this case, one should be sensitive to the desire of others. But for the straightforward, meaning common maps, it can be tricky, as I believe there is a tremendous overlap in holdings of most collectors. If you offer your friends a choice of any of your post-war maps, they will probably have 98% of what they want or 'need', and you also will be lacking their missing 2%. In a similar way, the large public collections will probably not want anything of this sort, and even if you spent ages listing what is available, as mentioned, many will not have the resources to check the list. Remember, without prior contact and agreement, a bequest might well be refused.

I cannot immediately bring to mind a private collection, the whole of which merits keeping intact, as so many collectors are easily distracted, having a core collection and a mass of other material. But whole sections of many private collections really should be preserved for the future, preferably within a public collection, so that we, and future generations can enjoy them. Those who own such, know their importance, have a good idea of where they should be housed, and will probably have the best chance of agreeing a deposit or sale.

So, let us consider a group of Ordnance Survey produced aviation maps, civil and RAF, all scales, held as sets, plus print code variants, together with proof copies of maps and covers, ephemera, a large file of personal notes and copies of official documentation. Five hundred maps; mouth-watering. Where might these find a public home, whether given free or sold? I would doubt whether one would have to make more than a single telephone call, but almost certainly the initial reply would be that the matter would have to be considered. What might the considerations be?

A library would initially consider whether it was within their remit, their sort of thing? A public library would be negative, the RAF Museum would just happen

to be passing tomorrow and a legal deposit library would seek more information. Even though the last two institutions might have a considerable number of the maps offered, a researcher would find that holdings are scattered and only appear together in a catalogue, if then. So, such a collection would save a lot of work for both sides if a popular subject, even without the attractive supporting material. A favourable response would be likely if collections on similar subjects were held, or if that offered was a new area, which added strength, depth or breadth to the existing collections.

If interest is shown, the next step might be to assess the material offered: do similar collections exist elsewhere, how complete is it, how important do those who know about such things judge it? What will the likely usage be? If the staff cannot provide answers, enquiries will be made. A final decision will be made after considering the costs of acceptance. What storage space, storage containers, conservation and cataloguing effort are needed? I have been told by one map curator that such a collection, especially if gifted, would be more likely to be accepted if accompanied by a bequest to help allay the outgoings involved. Perhaps it would be within the charitable status of our society to help financially in certain cases, especially where failure to do so would see an important collection being broken up.

I cannot remember a discussion of positive support by the society for any particular map collection, other than our archives, which are not map orientated as such. Should there be? The regional distribution of the legal deposit libraries in England is appalling, with all three being in the greater south east. Might we wish to help build a strong Ordnance Survey collection of national standing between Birmingham and Edinburgh? I am strongly in favour of keeping things local. Local maps in local libraries, meaning that I would have distributed the Ordnance Survey Record Map Library's 1:500 town plans around the British Isles, rather than keeping them together. They would have been of more use, and therefore more used and valued if housed in the towns they depict. I have never heard of a national policy seeking to 'house' maps in their locality. Years ago, a scarce map of the turnpike roads in Mid-Wales was offered in a map-seller's catalogue. The British Library just beat the National Library of Wales in buying it, and I have had to go to London twice in order to study a map of my own area. Surely there could be a mechanism to remedy this, either by exchange of items or funds, thus strengthening regional diversity. Again, should the society try to ensure that important Ordnance Survey maps are held locally wherever possible?

Compared to when the society was founded, there are more private collections, and within them many scarce and unusual maps, known to be so, rather than just being another seemingly ordinary map. Having gathered these, we must not let them be thrown back into the pond and vanish. As ever, I ask that at the very least, scarce maps are recorded, if not made available for consultation. Surely we all have an obligation to others and the society to repay something for the knowledge and support received? Placement of part of a collection in a public institution is one option for only a few members; other options of more widespread relevance will be considered at a later date.

Letters

Mike Horne wrote an interesting article about Burnham-on-Sea pier.¹ He, and I'm sure, others may be interested to watch an excellent short film *Branch Line*, narrated by John Betjeman and produced in 1963 for the BBC. It's about the Somerset & Dorset Branch from Evercreech Junction to Burnham-on-Sea and has some splendid shots of the pier and station. The picture on page 28 of *Sheetlines* features in the film, but of interest is the view of the pier which may well show the existence of the broad gauge as on the right of the tracks there is a faint parallel line which, if it is the broad gauge track, would then make the railway central to the pier. The film, which comes in three parts can be seen at www.youtube.com/watch?v=XBE2fR0z3CI. Burnham features in part three.

Hugh Brookes

The OS bench mark on a house wall in Wallington, Surrey is labelled G3557, evidently the height (355.7ft) with prefix G. The previous house on the site, which burnt down, is shown on the 25-inch map as 354.7, so the height seems to be correct, but why the prefix letter?

John D Matthews

Bench marks do not show the height, but have a unique serial number, which may be all-numeric or have the prefix G, L or S. The bench mark database at www.bench-marks.org.uk shows that G3557 is the serial number of the flush bracket at Little Woodcote (TQ 283 614) and suggests that this replaces the previous bench mark, serial number 2753, 130m to the northeast.



The latest new member, Rob Kirk, being welcomed by chairman Gerry Zierler during the visit to No. 1 AIDU on 7 October.

[photo: John Davies]

¹ 'An Unusual surviving railway pier', *Sheetlines* 100, 27

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Prospective new members can join the Society and pay online at *../Membership*.

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