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Contents

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The Ordnance Survey and the mapping of Roads

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A presentation on this theme was made by the author at the Association's Coventry meeting on 24 October 2015

The Ordnance Survey's mapping of roads takes three forms: basic location, including an indication of traffic capability; physical characteristics, notably width and surfacing; and administrative information[1]. These three are both independent and interdependent; it is reasonable to say that OS maps are not a complete record of any of them, but they are in many ways the best – or least inadequate – record that we have[2].

The approach here is to group OS maps by broad type and date, and indicate how roads were shown in each: throughout, the three forms of recording should be kept in mind.

The one-inch Old Series, 1805-44

The first published OS maps were the one-inch (1:63,360) Old Series, issued from 1805 onwards[3]. They were based on surveys, mainly at the two-inch (1:31,680) scale, made from 1784 onwards for military purposes, whose main object was to show landforms and ground-cover; the mapping of roads and lanes may be comprehensive, but the only systematic classification is of turnpike roads. Exceptions to this are (1) the Lincolnshire maps of 1825, where a similar emphasis for some non-turnpike roads is used as for turnpikes (see Figure 1), and (2) some mapping prepared in the late 1830s, where a class below turnpike is indicated (Figure 2): the rationale for both of these is unknown.

This mapping covers Britain south of a line from Preston to Hull; the last sheets were published in 1844. A few sheets were fully revised and republished between 1834 and 1844. The mapping remained on sale until 1903.

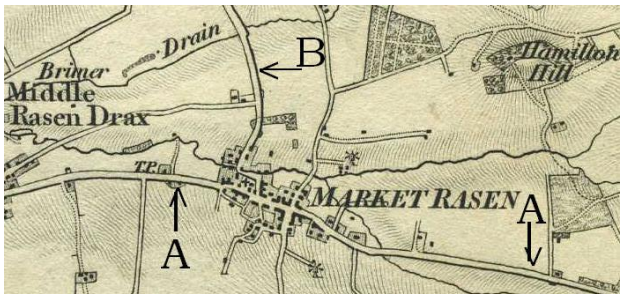

Figure 1: Extract from OS one-inch Old Series sheet 83 (1825): the roads at A are turnpikes; that at B is not.

The six-inch and 1:2500 maps

Following a six-inch (1:10,560) survey of Ireland, in 1841 the OS began surveying northern England and Scotland at this scale. In the mid-1850s the six-inch scale was found inadequate for some purposes and the 1:2500 scale was introduced; henceforth both scales were published[4]. Both six-inch and 1:2500 mapped field boundaries, and indicate the land 'take' of roads: all except narrow verges are indicated on the 1:2500, and so carriageway widths can be calculated. There is no indication of surfacing. Both scales used 'shading' – the emphasis of the line on one side of the road – to indicate some publicly-maintainable roads (Figure 3), on the basis of information from parish surveyors, although the consistency and reliability of this information should be tested from other sources wherever possible[5]. Six-inch mapping prepared before 1854 indicates turnpike trusts (Figure 4). Comprehensive revision began in 1889; thereafter any

'shading' usually followed the conventions adopted in 1892 for the one-inch map.

Figure 2: Extract from OS one-inch Old Series sheet 66 SW (1838): the roads at A are turnpikes; those at B, C and D are a class below turnpike.

Generally the treatment after 1914 was a 'minimal physical' one, of recording bounding fences and the extent of carriageways or sidewalks, but from the late 1930s Ministry of Transport numbers were shown.

Early derived one-inch maps, 1847-90

All one-inch maps published after 1844 were derived from the six-inch and larger-scale surveys. Although roads of varying width can be discerned, only turnpike roads are indicated unambiguously; double-dotted routes could be either tracks or paths of some sort (Figure 5). From 1886 there appears to have been some modifications to suit 'the driving public', by distinguishing metalled roads more clearly; this includes the use of a 'footpath' symbol (Figure 6)[6]. Nonetheless, existing practice was strongly criticised in 1892 by both civil and military users[7]. These 'derived one-inch' maps appear questionable as information sources for historians.

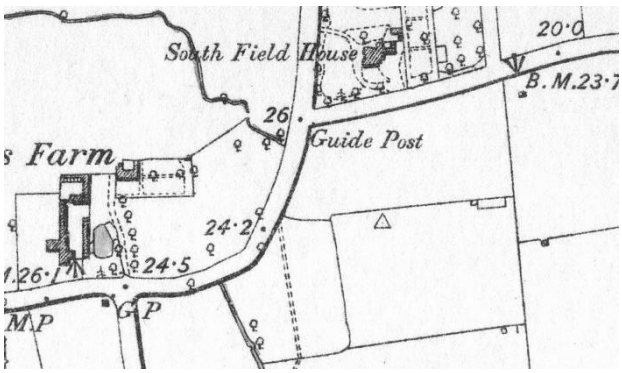

Figure 3: Extract from OS 6-inch sheet Lincolnshire sheet 22 SE (1887), with 'shaded' roads.

The revised one-inch and half-inch maps, 1892-1913

Following the criticisms of 1892, particularly from a War Office committee, a four-fold scheme was adopted (Figure 7), and the basis for this for this was explained in official instructions:

- '*First Class Roads*… are main trunk roads, generally leading from town to town. They must be metalled and kept in good repair; and the *minimum* width of metalled roadway exclusive of edges or footway must be *fourteen feet*.'

- '*Second Class Roads*… are metalled roads in good repair, and fit for fast traffic at all seasons *i.e.,* it should be possible to drive carriages and light carts over them at a trot. They are inferior to first class roads in width, but should be sufficiently wide, in all parts, to allow two carts to pass each other without difficulty.'

- '*Third Class Roads*… are all other metalled roads suitable for wheel traffic. This class will include all metalled roads which are not wide enough to allow two carts to pass each other; or which from want of repair are not fit for fast traffic.'

- 'Fourth class roads… are all unmetalled roads'[8].

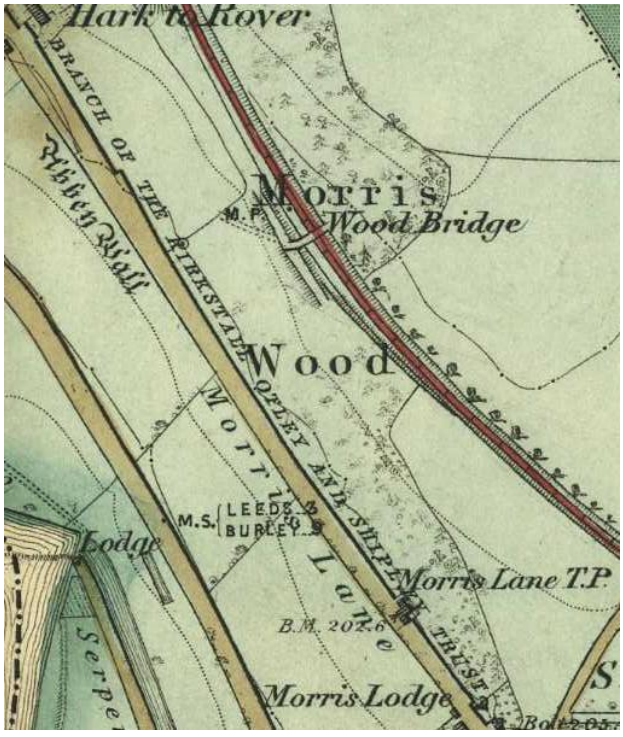

Figure 4: Extract from OS 6-inch sheet Yorkshire sheet 202 (1851), showing a named turnpike road, a turnpike gate and a milestone.

The classification was thus based on the suitability of the road as a route, and was not related to its administrative status: some carriage drives to country houses were graded as second class.

This classification system was used on the half-inch (1:126,720) map that the OS began preparing in 1902 at

War Office behest, and which was based on the one-inch. A second revision for the one-inch begun in 1901 resulted in a 'Third Edition', published 1903-13, which retained the '1892' classification.

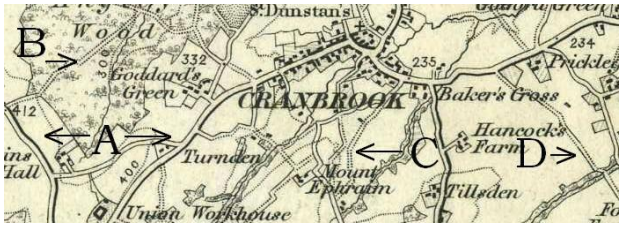

Figure 5: Extract from OS one-inch New Series sheet 304 (1879): the roads at A are turnpikes; it is unclear whether those at B, C and D are tracks or paths.

The 'Hunter-Weston' system, 1912-34

The well-known Edinburgh firm of John Bartholomew included on their half-inch map from 1902 onwards a road classification system based on information from the Cyclists Touring Club (Figure 8); this mapping otherwise closely followed the OS one-inch[9]. In 1912 a War Office committee under Colonel Aylmer Hunter-Weston considered aspects of OS half-inch mapping, and proposed a new road classification system that must have been inspired by the Bartholomew-CTC one, although this was not acknowledged[10]. This system was adopted for a new half-inch map, which got no further than a single proof sheet, and for the one-inch map, which was the basis for the half-inch. The 'Hunter-Weston system' is most familiar from the one-inch Popular Edition, published 1919-32 (Figure 9)[11].

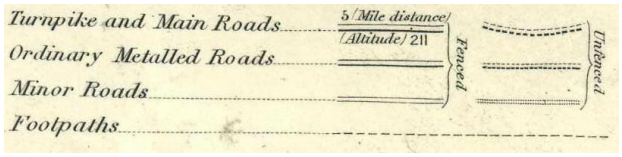

Figure 6. Symbols introduced in 1886: from New Series sheet 219 (1887).

Like the Bartholomew/CTC system, the Hunter-Weston system used a combination of road casings that showed width and colour-infill that denoted surface. Although the reference to 'fast traffic' might be inferred to refer to motor traffic, the use of the same phrase in the 1890s might equally denote equestrian traffic; it is unclear if pedal-cyclists were considered. It is unlikely that the Hunter-Weston system can be used to infer the progress of road tarring: it is possible to have a smooth macadamised surface that is practically as good as a tarred one, although such surfaces are very unusual nowadays. Interpreting other usages in the system is also not straightforward, for example 'Indifferent': what potholes does this represent?

The phrase 'private roads are uncoloured' needs to be treated with caution: colour was systematically omitted from side-streets in built-up areas, and there are occasional instances where a coloured road on the one-inch Popular Edition is regarded as definitely 'private' nowadays[12].

From 1924 onwards there was regular 'road revision' of the one-inch, and there may be marked changes in classification between printings, especially of higher-class roads.

A simplified version of the Hunter-Weston system was used on the early sheets of the (redrawn) one-inch Fifth Edition, published 1931-5 (Figure 10).

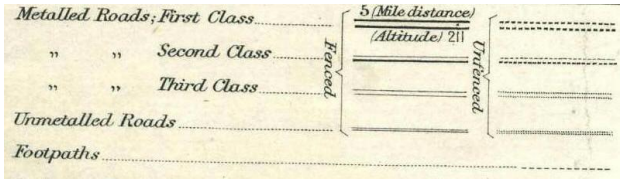

Figure 7. The road classification for the one-inch adopted in 1892.

The Ministry of Transport maps

The '1892' and Hunter-Weston systems were both based on the condition of the road, rather than administrative considerations. Following the official classification of roads in 1922-3 the OS produced a 'Ministry of Transport' version of the half-inch map, coloured to show the new class I/A and class II/B roads. New editions were produced up to the late 1920s, but the maps do not seem to have sold very well. This was probably because of their 'administrative' bias, and lack of information on 'unclassified' roads; commercial competitors such as Bartholomew were quick to include the new numbers on their own mapping, as were the OS on their quarter-inch (1:253,440) mapping from about 1929 onwards. A two-sheet map of Britain at the ten-mile (1:633,600) scale, issued in 1932, was more successful and, as a route-planner, much more useful. However, the half-inch 'MoT' maps are useful records of the road numbering system in its early years.

OS maps have never recorded the classifications and numberings used by highway authorities.

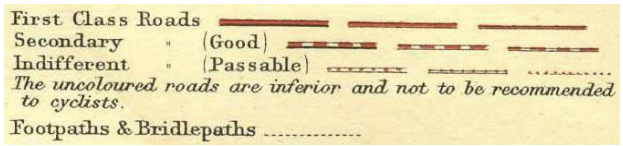

Figure 8. The Bartholomew-Cyclists Touring Club classification.

Post-1935 classifications on one-inch and 1:50,000 maps

In 1935 the OS brought its classification into line with the Ministry of Transport's; the 'indifferent' category was abolished, and metalled roads under 14 feet in width were classified as 'Good' or 'Bad' or 'Tarred' or

'Untarred' (Figure 11). Previously published one-inch maps were brought into line either, as on the Fifth Edition, by treating erstwhile 'indifferent' roads as either 'bad' or 'untarred', or, as on the Popular Edition, by treating the 'indifferent' roads as 'good': comparison of late 1930s Popular printings with more recent mapping indicates that most of the former 'indifferent' roads were probably tarred, though there are occasional exceptions[13]. The higher class of road therefore now depended on administrative rather than physical characteristics. Although by the mid-1930s one might expect 'A' and 'B' roads to be tarred, this was not always so, especially in more remote parts[14].

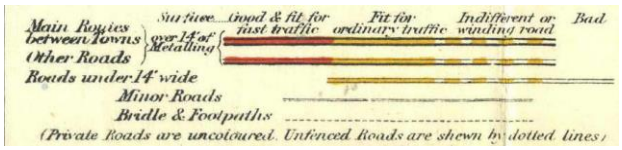

Figure 9. The 'Hunter-Weston' classification in its original form: from one-inch *Aldershot (N)* (1914).

For the one-inch Seventh Series, of which the first sheets were published in 1952, the road classification was broadly that adopted in 1935, except that trunk roads were distinguished; from 1960 dual carriageways and motorways were also shown (Figure 12). This basic system was adopted for the 1:50,000 series, which replaced the one-inch in 1974-6. On the 1:50,000 Second Series, published from 1974 onwards, the 'untarred metalled' category disappeared and from 1979 mentions of tarring were omitted from map legends, but in practice coloured infill continued to denote a tarred or other 'sealed' surface, notably concrete – not that such alternatives ever seem to have been common in Britain. At the same time the threshold for distinguishing narrow 'unclassified' roads was changed from 14 feet, 4.3 metres, a standard adopted in 1892 for horse-drawn traffic, to 4 metres, or 13 feet: this was presumably to minimise fieldwork, although an increase to 5 metres (16.5 feet) might have been more appropriate to modern traffic conditions. Trunk roads were not distinguished on road signs, but continued to be shown on the 1:50,000 up to 2001; they were then replaced by 'Primary routes', which had been indicated on road signs since the mid-1960s.

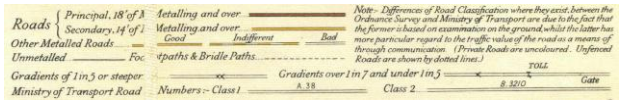

Figure 10. The simplified 'Hunter-Weston' classification; from one-inch Fifth (Relief) Edition sheet 123 (1933).

Although the basic classification system has remained unchanged since 1935, there is an important qualification for cul-de-sac roads: up to the late 1940s those which were tarred were indicated as such, but from then up to about 1990 most cul-de-sac roads were shown as 'untarred' or 'other'. The change of policy gives the impression that there was a sudden surge in tarring of cul-de-sacs by highway authorities which is certainly at odds with the truth.

The 1:25,000 and related scales

In 1914-19 a 'confidential' military series of two-and-a-half-inch (1:25,344) maps of eastern England were produced: these maps are rarely met with, but the earlier ones are of interest as classifying metalled roads as over 16 feet for first class, and over 12 feet for second class[15]. From 1918 another military series was started, at 1:20,000; it was replaced by a 1:25,000 series from 1931. Both series were intended primarily for artillery rather than logistics, and the road classification is a greatly simplified version of that used on the one-inch. In 1945 publication of a civil 1:25,000 series began: at first this only distinguished 'A' and 'B' roads, but later other tarred roads were distinguished: these 'Provisional Edition' or 'First Series' sheets were thus less informative than were the contemporary one-inch. In 1965 publication began of a 'Second Series' which was as informative as the one-inch and 1:50,000.

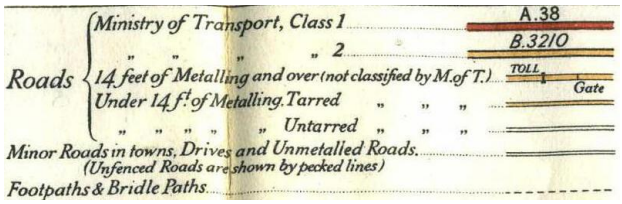

Figure 11. The system adopted in 1935: from one-inch *New Forest* (1938).

Smaller-scale series

'Revised' half-inch mapping published from 1924 onwards embodied first a watered-down version of the 'Hunter-Weston' system, and from 1936 a classification similar to later one-inch Popular sheets. This mapping withered away after 1940, and only five sheets of a replacement 'Second Series' were published in 1958-61 before this scale was abandoned. Classification on the Second Series is in essence similar to the 1:25,000 First Series, *i.e.* less informative than the one-inch.

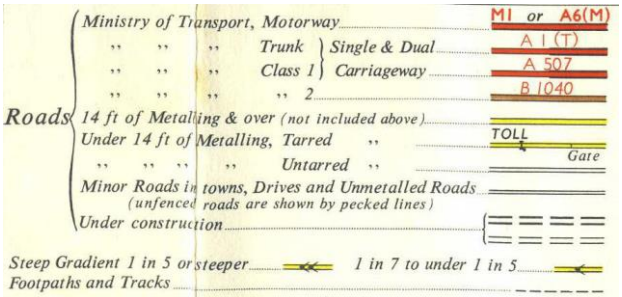

Figure 12. The modified scheme used on the one-inch Seventh Series from 1960: from sheet 147 (1963).

The OS began work on a national quarter-inch (1:253,440) map in 1859; generally the road-mapping was a dilution of the one-inch, with two basic categories. From about

1929 road numbers were shown, and from 1934 onwards the colouring was according to MoT classification. From 1957 the scale was changed to 1:250,000 and motorways and dual carriageways were distinguished; from 2000 'unclassified' roads were distinguished according to whether over or under 4 metres in width.

The OS ten-mile – later 1:625,000 – mapping started around 1816; successive versions showed at first 'main' routes and later MoT classifications and a selected of 'unclassified' roads. All these smaller-scale series would appear to be of more interest to cartographic than to road historians.

Conclusion

A point of particular interest to this writer is the surfacing of roads: what were pre-tarred roads really like? We can experience travel in steam trains on jointed track, vintage buses, and vintage cars: but vintage road surfaces are seemingly beyond present experience. Ordnance Survey maps seem at best partial tools in reconstructing them.

Due to formatting constraints, the footnote references to this paper appear on page 16.

Research Tips

Index to Digitalised Online British and Irish Newspapers

Richard Heaton has been updating his index to Digitalised Online British and Irish Newspapers. It provides a finding aid and gives an indication (where possible) of not only the range of dates covered by title and the number of issues included a collection.

Details may be found at:
http://freepages.genealogy.rootsweb.ancestry.com/~dutillieul/BritishandIrishNews.html

If anyone is aware of anything he has missed or finds any broken links please let him know at rjheaton@hotmail.com in order to amend.

He would also be interested to hear of any card indexes or other local indexes to local newspapers in archives and libraries. It may seem odd – but despite the accuracy of mass digitalisation - card indexes (compiled sometimes so long ago that we've forgotten the scope) still have a role to play.

An Appeal
A non-member is appealing for information about a company for which his father worked – Johnson Bros (Aylesford) Limited. His aim is to build up a fleet of scale models of the company's vehicles. If there is anyone who can help, please contact the Secretary.

Sad News
We regret to report that Association member Terence Dobson died on 24th July.

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A City Region set in the Footsteps of Saint David

Robert McCloy

Prologue

The Swansea Bay City Region relates to the area largely served by the University of Wales Trinity Saint David, with which the Association is closely linked, and embraces Swansea, Neath Port Talbot, Carmarthenshire, and Pembrokeshire. Before focusing upon the shape of things to come, it is appropriate to review the past. For truth to tell, in part, we have been here before.

The Romans

A starting point is the Roman invasion. Two features, in particular, are crucial: community and communication. The invaders had long accepted a version of living that placed a premium upon living in towns. For them herein was 'civilization'. The sea and rivers were crucially important for general mobility. Carmarthen was their principal base, duly a civitas, providing order, market, shrine and companionship; the connecting roads with forts, providing access, quicker journeys, and higher security[1]. Complementing the pedestrian and the marching soldier were the horse riders and chariots. Tracks located in excavations to the west of Carmarthen testify to the presence of substantial wagons[2]. In essence, those roads and forts [with their related settlements] delineate the region under review.

After the Romans departed

The unifying influence of Rome yielded to more localized pressures as tribes struggled with one another. Incursions from overseas contested for space[3]. Duly the Normans invaded and, though unable to establish themselves in the island's mountainous extremities, progressively imposed a high level of uniformity embracing castles, church order, monasteries, with connecting tracks.

The Thirteenth Century

The thirteenth century saw a further redrawing of jurisdictions, more of the region became subject to the king's immediate rule and there was a further development of the structure of counties with sheriffs. New and rebuilt castles, with adjacent civilian settlements, characterized the landscape[4]. Monasteries and priories flourished in the provision of education, welfare, travellers' hospitality, and agricultural management, not least in Neath, Margam, and Saint David's[5]. The tracks connecting these settlements would have witnessed the regular movement of churchmen and pilgrims, agents of the sheriff and local barons, and the cast that peopled Chaucer's Canterbury Tales.

The Tudors

The Tudors brought formal incorporation of Wales into England, a reaffirmation of the county structure, the dissolution of the monasteries, and the imposition on parishes for responsibility for rudimentary social care and road maintenance[6].

The Eighteenth Century

Prior to industrialization, the upkeep of roads worked tolerably well: few travelled outside their parishes, would as necessary walk longer distances, and employ pack horses. With industrialization there was the need to transport heavier goods. Parliament's solution was the turnpike trust. Landowners and others were empowered to form trusts to build and maintain roads charging tolls from users. The first locally established, in 1763, covered the route from Trecastle Mountain, near Brecon, to Tavernspite on the Pembrokeshire border via Llandeilo, Carmarthen, and Saint Clears. By 1772, this had been extended to cover the route from Gloucester. A further route used the Severn Ferry to Carmarthen via Chepstow, Newport, Cardiff, Cowbridge, Neath, Swansea, Pontardulais, Llanelli, and Kidwelly. The demanding economics of operation led to a new breed of entrepreneurs – the toll farmers - whose ruthlessness provoked hostility. The toll roads reverted to parish

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1 Roman Frontiers in Wales and the Marches, Ed. B.Burnham. J.Davies, RCA & HM of Wales, 2010, Chap 2.

2 *Ibid* p48

3 *Ibid* p65

4 Edward 1 and Wales, Ed. T. Herbert, G.E.Jones, Cardiff, UWP, p76.

5 St. David's, Llandaff & Brecon, E.Foord, London, 1925, pp13-24, 153-168.

6 Highways Act, 1555.

supervision but their ultimate demise was, of course, attributable to the railway[7].

A crucial initiative was that of the post office. With road improvement and a requirement for efficient delivery of letters, the post office developed a service of mail coaches. The impetus was the need to facilitate a link with Ireland. Two routes, one via Gloucester, the other via Bristol, were promoted. The former traversed the Brecon road through the Towy valley via Llandovery, Llandeilo and Carmarthen. The latter, at the prompting of commercial interests, linked Bristol with the ports in south Wales. The two routes met at Carmarthen and thence as a combined service the mail coach travelled on to Milford Haven[8]. Here was a vital instance of 'connectivity.' However, even improved roads were insufficient. The carriage of exceptionally heavy loads, especially coal, necessitated a return to water. River location rarely sufficed. Canals were built to connect mines and ports.

The Nineteenth Century

Such then – turnpike roads and canals- were the solution, but only for a moment. By the middle of the nineteenth century, the railway had expanded throughout the region. Not only did it move supplies in bulk but also afforded the public relatively cheap and quick mobility. The network reached out from London and followed the same east-west trajectory as the earlier highways responding to market needs. In the coalfield lines led down the valleys to the coastal ports[9].

There had been much migration attracted by employment in the mines. The southern coalfield area population had increased almost by ten times between the beginning of the century and its end. To the north there had been a decline in population. New settlements were created which were close-knit communities wherein religious non-conformity thrived. For the most part, the population stayed within its settlement.

The nineteenth century witnessed significant local constitutional reforms. Swansea's size dictated its establishment as a county borough, enabling it to exercise both the powers of a county and those of a borough. Such a resilient entity had many benefits. However, viewed historically, it perpetuated a separation between town and country which had characterized ancient Greece and Rome [the civilized and barbarian] and compromised the interdependence of the two. Notwithstanding, local government developed significant provision in education and cultural amenities, including institutions equipping students for industrial employment.

The Twentieth Century

The wars brought employment and grief, the inter-war years unemployment and depression. Nevertheless there were developments bearing upon the focus of this study. The railways continued being the major distributor of coal and were the principal means by which people travelled to London and elsewhere in search of employment. The hitherto independent railways linking the valleys with the coast were united with the Great Western Railway [GWR] under the national grouping arrangements. The docks in Swansea underwent a major renovation following their takeover by the GWR[10]. The London Midland and Scottish Railway also served Swansea.

As for the roads, surplus lorries from the war were converted for civilian use: as buses and the carriage of goods. Though initially accident rates were high, following the enactment of the Road Traffic Act of 1930, numbers fell and services expanded quickly throughout the region, under the largely beneficial regime of state regulation. Recognizing the reality that, in terms of traffic movement, north and south Wales were separate worlds, south Wales had its own traffic commissioner, whilst north Wales was linked to the north-west of England[11].

Small one-man operations as well as major companies prospered, some with railway capital. Whilst the railways played their part in carrying miners to newly-opened seems away from their homes, and for occasional seaside visits, it was the local bus that now played a significant part in transforming community. The strong cohesion that had been built up in the mining settlements, buttressed by chapel, church and institute, was now steadily to be compromised by cheap and regular travel opportunities offered by the bus[12].

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[7] Carmarthenshire Turnpike, South Wales Classic Car Magazine, Ed. Glyn Bryan, December, 2013. www.swccc.net

[8] G.Ayres, History of Mail Routes to Ireland to 1850, Lulu.com, www, p22.

[9] J .Davies. A History of Wales, London, 2007, pp395-399.

[10] R. McCloy, Travels in the Valleys, Swansea, 2012, p31.

[11] *Ibid*, pp37-39.

[12] F. Zweig, Men in the Pits, London, 1948, p109.

Bearing on this study's focus, the region functioned efficiently in the second war, in terms of communication, including a crucial role for the docks and the Channel, and demonstrated initiatives of an exemplary nature. Not only was fuel saved on a considerable scale in the provision of transport, but the transport that was provided carried greater numbers than hitherto. Strict rationing, prioritizing travel needs, cutting waste, fuel experimentation, utilizing vehicles to capacity, encouraging people to walk, utilizing underused trains and banning car use except for a minority of special cases, created a world that a later generation would recognize as being more environmentally-friendly[13].

Swansea Area Transport Advisory Committee

A crucial instrument in effecting co-ordination of transport in the area, another initiative anticipating, in part, current developments, was the Swansea Area Transport Advisory Committee. This was a creature of a local act of parliament and provided most successfully for the joint supervision of local transport by Swansea council and the South Wales Transport Company [SWT][14].

Post war austerity

At the war's end, in a continuing period of austerity and rationing and in the absence *en masse* of the car, as the public sought respite, and found entertainment and employment further afield, public road transport became more popular and SWT's travelling numbers peaked to seventy-seven million in 1949 [in 1937 23 million][15]. In this region, it was the bus, often crowded with standing passengers in the peak hours that transported the larger part of the population to and from work. Swansea was principally served by two major operators, SWT and United Welsh Services [UW], whilst other companies complemented the extensive provision. In nearby Bishopston, Swan Motors provided major local services to Swansea. Ammanford and Tycroes alone was the base of three operators [James and Sons, Rees and Williams, and West Wales Motors] whilst Neath could boast five [SWT, Neath and Cardiff, UW, Western Welsh [WW] and Richmond Motors].

Carmarthen's WW depot, by way of illustration, housed a hundred vehicles, as part of a comprehensive service covering the whole of south and west Wales with the exception of Swansea. Llanelly was served by two operators: the Llanelly Electric Traction Company, operating trolleybuses and buses, and SWT. In addition, many communities would have possessed small operations providing works services and excursions, whilst two companies, Red and White, and Black and White came into the area in providing longer distance services. Pembrokeshire was served by Silcox Motors[16].

Greater Prosperity

Cars became more available and road passenger transport embarked upon a long decline. The vital building of a bridge across the River Neath at Briton Ferry in the 1950s, complemented later by a second bridge, and the building of a bypass at Port Talbot and the progressive extension of the M4 and upgrading of the A40 to Carmarthen and further west, and the A465 Heads of the Valleys Road, have fundamentally transformed travel in the region. Significantly, these modern developments have largely sustained the preeminence of the east-west axis existing from Roman times.

Duly a return of a Labour government brought with it Barbara Castle as minister of transport and the promotion, in the 1960s, of passenger transport authorities and executives, with a rationale akin to that behind the city region. As in the earlier instance of a proposed area scheme, under the 1947 legislation, the imposition of a passenger transport authority found little favour in south Wales. As it transpired, that reform was limited to the major conurbations in England and to Strathclyde[17].

Local Government Reform

However, in local government, planning law was poised to bring together spatial design and transport in the 'transport planning programme,' and local government was given the role of subsidizing socially-necessary bus services. Though corporate planning was steadily assuming an orthodox status, the necessary cultural shift to make it work was to take many years. Two other factors were also militating against decisive results: severe financial restrictions imposed upon local government expenditure and a further scattering of local government functions under the 1972 legislation. Thus, whilst councils were being ostensibly granted the powers to effect an

[13] McCloy, Travels in the Valleys, pp76-7.
[14] *Ibid*, pp56-77.
[15] South Wales Transport 50 Years of Service, Swansea, 1966, p18.
[16] McCloy, *op cit*, pp15, 31, 55-6.
[17] *Ibid*, p156.

appropriate balance between public and private transport, and being required to operate in a manner that subordinated departmental interests to the corporate whole, their hitherto separate functions and adequate funding were being progressively transferred to other bodies and significantly curtailed[18]. By way of illustration, in the case of Swansea, highway planning, transport support, education, and social services were lost to an upper tier county of West Glamorgan, whilst it retained responsibility for housing and local planning. Carmarthenshire and Pembrokeshire, alongside Ceredigion [outside the current Swansea Bay region], became lower tier councils within a county of Dyfed.

Further Local Government Reform

The 1972 reorganization proved to be a short term expedient that also failed to address adequately the increasing dispersal of homes and work facilitated by improved highways and transport generally. It had been, in essence, a piece lacking a robust rationale being the last of a succession of compromises catalogued in the government's 1967 white paper *Local Government in Wales*. The impetus for local reform had been the Redcliffe-Maud proposals which had been proposed for England: a reordering which would have combined key towns with their interdependent surrounding countrysides in unitary authorities. In Wales, the unsatisfactory compromise of 1972 was succeeded by a unitary arrangement in 1996 which had the merit of placing within a single jurisdiction all the functions that yet remained in local government. Herein is the current dispensation: Swansea, Neath Port Talbot, Carmarthenshire and Pembrokeshire

Deregulation

Under the Nicholas Ridley 1984 initiative, deregulation of road passenger transport, as far as it related to the 'quantity' of provision, finally took place. It led to a major re-configuration of services. New transport groups characterized the new dispensation. With time, local government's role in the subsidization of socially-necessary services became more established. However, as the debate continues concerning the efficacy of regulation, the need for some kind of supervision, exercised on behalf of the public, over the quality of road passenger transport, seems to be gaining greater support[19].

Notwithstanding, mobility increases, much, of course, in private cars with solitary drivers: the average UK resident travelled 6,806 miles each year in the period 1997-1999, a 45% increase since 1975/76 (although latest data from the National Travel Survey - now confined to England only – indicate a drop from a peak of 7,202 in 2003, to 6,488 in 2014). Whilst issues of equity of provision have hitherto dominated the debate, concerns about the environmental effect, notably issues of health and congestion, of rival forms of transport are now receiving greater attention[20].

The Lessons of History

Though, obviously, the past lacks uniformity. Nevertheless, certain characteristics stand out. Topography, of course, has been a determinant. The Channel and rivers were a principal means of communication and fixed the location of major settlements, be they Roman or Norman forts, or the church's shrines or monasteries. The quality of the land and its mineral deposits determined occupation and industrialization. Overall, however, the most southerly part with an east-west axis has been the most populous witnessing the most activity: immigration and indeed migration and with them the passage of culture and goods. Communications over land by road, river, canal and rail have vitally affected the pace of change. Much of that will surely continue to shape the future. Hospitals, educational institutions, and shopping malls have replaced monasteries, castles and forts. Connectivity between these successor institutions, many in adjacent locations, remains essential and has been the stuff of reforms down the ages. But there will be a further significant factor: the internet, its impact yet to be fully discerned.

In earlier times, though rule could be tyrannical, it often had a personal stamp, be it Roman commander, tribal chief, marcher lord, abbot, bishop, or sheriff. The importance of effective and strong leadership should not be doubted. Though facts relating to Saint David are more elusive than many would wish, it can hardly be doubted that he powerfully impressed upon his diocese, partly coterminous with the region, a distinctive model of life for the community to emulate. The vast number of churches dedicated to him is evidence of the ubiquity of his mission and impact.

18 *Ibid*, p157.
19 *Ibid*, p157.
20 *Ibid*, p157.

The Concept of the City Region

Essentially, the city region is a concept that is meant to define itself. Those within recognize its identity and, so to speak, elect to be participants: it is not a creature imposed from above as were the medieval counties, or the nineteenth century county boroughs. In the emergent model constituent existing councils voluntarily agreeing to share resources, to act in unison and to having an elected mayor, are granted by central government additional powers currently exercised by central government or its agencies. Such a reinvigorated devolved entity, so the argument goes, will more effectively generate productivity, prosperity, and social well-being. Thus far in England, reference has been made to responsibility for transport, health and welfare, strategic regional planning, housing, economic development, police and crime commissioners [including fire and emergency], and training and education[21].

Three factors lie at the centre of the concept of the city region: communication, community and coherence. Critically important is the effectiveness with which its parts relate to one another and how duly it relates externally. A principal current concern is transport of people and goods by road and rail. The price of congestion and environmental degradation leads to a focus upon public supervision. In considering community, issues of wellbeing and group and individual fulfillment have to be confronted. Overarching all, there has to be some coherence manifestly obvious in the region's aspiration, vision, or purpose, shared by those within. It is this latter [and, for the most part, most elusive factor] that prompts an insistence in England upon accepting an elected mayor.

The Concept's Applicability to the Swansea Bay Region

The board of the Swansea Bay region has defined its aims: 'to develop a more entrepreneurial culture, encourage dynamic and sustainable start-up businesses… support large employers, develop a first rate inward investment offer, improve school attainment and ambition, ensure that universities and colleges are aligned to meet growth sectors…target individuals to improve skills and progress, and maximize job creation' [22]. Implicit in these aims, are two of the elements hitherto considered in general discussion of the city region concept: 'connectivity' and 'sustainability.' The former not only embraces a focus upon transport and personal mobility within the region and its purposes but also communication effected by modern technology. The latter's focus is to ensure that in the quest for growth natural assets are protected and replenished.

The Welsh Government has advocated the promotion of tourism and connectivity whilst international studies of successful city regions suggest they each possess clarity of purpose/ reputation [e.g. Bilbao: culture; Lille, connectivity; Rotterdam: logistics], have strong political leadership and a population that effectively identifies with the region and its character[23].

Drawing upon the emergent 'doctrine' relating to the concept and reflecting upon the region's past, it would seem appropriate to contemplate the establishment of greater 'connectivity' consonant with a rational 'sustainability,' by enhancing public road passenger services throughout the region, embracing evening and weekends, in terms of quality and quantity of provision subsidized at point of delivery and at levels specified by the public [through local forums/councils/regional board]. This should be closely associated with a major restriction of private car use, especially in central urban areas, and national parks and the like. Secondly, a mechanism should be devised whereby the raft of devolved powers should be appropriately devolved further into individual communities to facilitate genuine local ownership of as much as possible. Thirdly, not only should there be a directly elected mayor for the region but the principle should be applied to the local community. Fourthly, vigorous promotion should take place of the notion that tourism [including culture, heritage, recreation, sport, entertainment, hotel and catering, visitor attractions, and shopping] should be the region's essential identifying personality to establish [or otherwise] its ownership by the community at large.
Fifthly, programmes of implementation should be adopted reflecting localized commitment.

[21] Greater Manchester Combined Authority.

[22] Swansea Bay City Region www.swanseabaycityregion.com.

[23] Matthew Taylor, chief executive of the Royal Society of Arts, emphasised the need for effective leadership, a coherent message of identity, and its general ownership by the community, noting 'The great thing about Swansea with its proud history, its amazing scenery, its big plans, is that all the ingredients are pretty much there. Sometimes though it still feels that the recipe to mix them into something really special hasn't quite been found.' Address to invited audience, University of Wales Trinity St David, Swansea, June 25, 2015.

R&RTHA October 2015 Report

Association News…Droitwich calling…

The AGM and Conference took place in the refurbished Coventry Transport Museum on Saturday, March 21, 2015. The meeting stood in silence in memory of the late John Hibbs, founder and president of the Association. Professor Mike Phillips, newly elected director, addressed the meeting on the subject of coastal erosion and its impact upon the road system (as reported in our previous issue), your chairman and Roger Atkinson spoke of transport and the city region - the former with some sympathy, the latter with some disdain- and the Museum's director of marketing briefly updated members on the refurbishment programme.

The AGM had duly witnessed the formal approval of the accounts and the retirement of Andrew Waller and John Howie, respectively, as a director and company secretary; and of the election of Mike Phillips and Philip Kirk, respectively, as a director and company secretary. David Holding volunteered [warmly accepted] to join the committee and subsequently to serve as a director. Amy Graham undertook to take responsibility for marketing and recruitment of new members whilst Maria Stanley volunteered to assist John Ashley, in his role as events organizer, in liaising with members. It was agreed that your chairman would remain in post.

Membership Secretary

After a sustained and conscientious period as Membership Secretary, Pat Campany has decided that the time has come to handover the task to another. Typical of her careful planning, she has given us plenty of notice. She will hand over on April 30, 2016. The records are in splendid order. Annette Gravelle, until recently director of human resources at University of Wales Trinity Saint David, will then take up the position. As many will know, Annette, in an earlier role, was director of human resources at South Wales Transport where she was a colleague of fellow member Alan Kreppel. Pat and Annette have already embarked upon the task of ensuring a smooth transfer.

The Autumn Conference took place in the Coventry Transport Museum on Saturday, October 24, 2015, on the theme of 'Maps in Transport'. The speakers were Margaret McCloy, offering a light-hearted introduction to the subject, Dr Richard Oliver of the Charles Close Society for the Study of Ordnance Survey Maps (see his paper elsewhere in this issue), and John Ashley, on website sources for historic maps. Thereafter, Ian Smith, Industrial Curator at the National Waterfront Museum, gave a fascinating talk relating to the development of the oil refinery in Swansea Bay and its link with the current crisis in the Middle East.

Our next meeting, also at the Coventry Transport Museum, will be on Saturday 19 March 2016.

Until next time

As ever, should you suppose that, as far as you are concerned, the bus has taken the wrong turning, please ring the bell! *The Committee would be pleased to consider your comments.*

Robert McCloy, chairman

News from The Kithead Archive

Kithead has recently had important additions to its collections:

- The archive of the United Enthusiasts Club. This consists of records created by United Automobile Services Limited, the bus company which served a very wide area stretching from Berwick-upon-Tweed to Scarborough and in its early days as far south as Lowestoft.

  The material includes details of vehicles, properties and services and complements that already in the Kithead collection.

- A full set of 'Applications and Decisions' for all Traffic Areas. This is one of the few complete collections of these important road haulage documents.

- A significant donation of photographs from Volvo Bus, following the retirement of their Corporate Spokesman Adrian Wickens.

All these are in the process of being fully catalogued, and the target is to have a full catalogue available online by the end of the year. In the meantime, any enquiries should be directed to hello@kitheadtrust.org.uk.

A free quarterly newsletter is available free of charge, delivered straight to your inbox – subscribe by email to the same address. The September issue is now available which includes articles on the historic aspects of the current debate on bus regulation, Kithead's railway library (20,000 books and counting…) and the travails of an Irish Sleeper Coach service.

A Map Mystery – can you solve it?

This map (excuse the fold marks) was found in the Kithead Trust collection, but not attached to anything and so nothing is known of its provenance. It was originally assumed to be from the 1950s, but commentators have estimated it may be actually from much earlier. It was published by SMMT (The Society of Motor Manufacturers and Traders), when its address was 83 Pall Mall, London, SW1.

The title is "Electric Vehicle Charging Stations" and the assumption is that it was published as information to members.

But what type of electric vehicle would be so far from base that it needed to be recharged? Was this a pre-development attempt to create a national network of charging points? Your assistance is eagerly awaited! Any answers to the Secretary please.

Book Reviews

The Romance of Motoring. T.C.Bridges and H.Hessell-Tiltman. Reprinted by Amberley Publishing, The Hill, Merrywalks, Stroud, Gloucs. GL5 4EP www.amberley-books.com. February 2015. ISBN 978-1-446-4420-2, 320pp, paperback, also in electronic formats. Illustrated. £9.99.

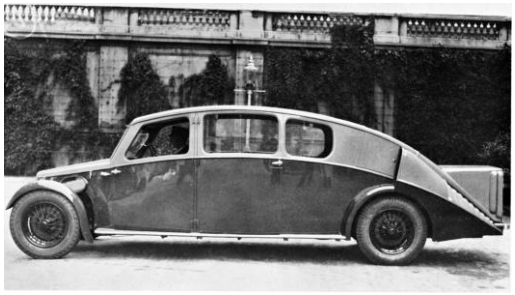
The frontispiece illustration to the 'Romance of motoring' book, then captioned as 'The old crocks race from London to Brighton in 1930. This picture shows a thirty-year old De Dion easily paced by a boy cyclist'. Today the whole view is of historical significance, combining the veteran car with conduit tramway track (avoided by the cyclist) and London General bus, probably an NS type.

Something of a curiosity, but a fascinating one for all that. First published in 1933, this pot-pourri has 19 chapters, ranging from the origins of mechanised road transport to 'the future', taking in such topics as motoring for the million, the romance of speed and the role of the motor vehicle in war and crime. The development and spread of the motor bus are covered ('FTL' on page 46 should be 'STL') and, in less detail, taxi cabs and motor vehicles for goods carriage. The romance of speed leads to record-breaking, then to 'Missing death by inches'. 'Motoring for the million' looks at the contribution of Ford, Austin, Morris and Royce, the last included in the quartet for his emphasis on the reliability of the engine. One chapter, 'The G.H.Q. of Motoring' is devoted to the Automobile Association, others to speedway racing and mass production at Cowley.

Illustrations include a Burney streamliner, and a works pick-up with an eye-catching 'WAIT' painted in large letters on the side of its cab, presumably to avoid collisions in a busy environment. To represent commercial vehicles an advanced type of German tipping refuse-wagon is shown, rather than more representative lorries or vans.

One would not use this book as primary history of automobilism, but as diverting read it has much to recommend it: Amberley Publishing have given road transport enthusiasts an intriguing period piece: its value would have been enhanced by even a page profiling the two authors [the publisher's press release for the book describes Bridges as a '..well-known motoring expert and a motor racing reporter' and Hessell-Tiltman as 'one of the leading non-fiction authors and publishers in pre-war Britain. To this day a prestigious award for non-fiction, the annual Hessell-Tiltman prize, is named after him' Ed]

RAS



The Burney streamlined car mentioned in this review, its original caption informing the reader that it had 22 horsepower, and '...This car was lent to the Prince of Wales by Mrs Stephen Cortauld until a similar car ordered by the Prince for his own use had been delivered'.

Motors and Motoring Prof H.J.Spooner (12th edition 1916, reprinted 2015)**.** Reprinted by Amberley Publishing, The Hill, Merrywalks, Stroud, Gloucs. GL5 4EP www.amberley-books.com. February 2015. ISBN 978-1-446-4455-4, 320pp, paperback, also in electronic formats. Illustrated. £9.99.

Motors and Motoring was one of many books on technical themes written by Professor Henry John Spooner (1856-1940), Head of the Polytechnic School of Engineering in Regent Street, London for forty years until 1922. Knowing his background, there can be little surprise then, that this is a technical reference, considering all aspects of the mechanical works of the motor car, giving an explanation of what they do and how they are made to do it. We would call it today a 'How it Works' book. It is loaded with formulae and maths, and Spooner is in his element using terminology like 'unctuosity' (greasiness of oil, I have learnt). We learn how to start a motor on the handle (pull it upwards, never push downwards, in case it backfires), what to look for if you break down, and when to apply the sprag (were cars still using sprags in 1916?).

As a book describing the state of the art it is immensely useful, and shows how engineers were seeking to improve the design and efficiency of the motor vehicle through increasingly scientifically-informed study. Thus, we learn about the latest float-feed carburettors, but there are also descriptions of the older technology, such as surface carburettors. We see, then, the progress from solid tyres to pneumatics, from gravity lubrication of the engine to force-fed, from chain drive to live axle.

Britain had always been concerned about achieving self-sufficiency in the production of petrol. This edition, the 12th, published at a time of war, was rightly concerned with the availability of, and substitutes for, motor fuel. Benzol, a coal-tar derivative, for example, could work well as a substitute, but tended to bung up the works and only six gallons could be derived from 100 tons of coal. But the revisions that were made by the author to pass from one edition to the next (ours was published in 1916, the first edition appearing in 1909) can make this an uneven text – we still find references to "our German friends", and to the ingenuity of the Germans, which

reads a little incongruously considering the two countries were at each other's necks.

It is peppered with throw-away remarks. Comment is passed on how roads (surfaced in wood or tarmac) were dug up (for new-fangled telephone wires, for instance) as soon as they are made – we would love to think this was a curse of our age alone, but we would be wrong. The appendices are excellent – conversion rates and ready reckoners, but best of all, with sample copies of the City Guilds exam papers for around 1910 – in 'ordinary' and 'honours' form. Anyone internally digesting this book would have no difficulty with the questions.

An original edition has probably been used to scan to text, and here, some scanning errors in creating this reprint have crept in. The best one I found was on p131: 'when descending steep Kills'. Not a book for the beach, but a wonderful window on the state of the art of motor vehicle technology around the time of the First World War.

Craig Horner, Manchester Metropolitan University

Blackout, Austerity and Pride: Life in the 1940s Roger Atkinson**.** Published by Roger Atkinson Publishing, 45 Dee Banks, Chester CH3 5UU. £22.50 post free in the UK. Order either by cheque made out to Roger Atkinson, sent to him at 45 Dee Banks, Chester CH3 5UU or visiting website www.memoir1940s.org.UK on which there is a payment by card Buy Now facility.

One is first struck by the book's splendid appearance: a hardback of generous proportions with an attractive dust jacket featuring a LTPB LT class vehicle [this reviewer's favourite bus] in London's Regent Street, surmounted by a strip bus ticket for military personnel, a clue to the author's abiding interest. Would-be readers might suppose that here was a bus enthusiast's specialist's publication. They would err. The expansive text, lavishly illustrated, amply demonstrates that it is much more. It is an authoritative social history of a crucial period personally witnessed.

The author's account is rooted in precise recollection, subsequently checked by painstaking research. A childhood free far from trauma is recounted without angst. He recognises that he blessedly escaped the immediate bloodshed of war and writes with affection of those who were significant influences and labours little upon those who might have done more. What comes through is a stoical character well able to learn from experience, generally free of misgivings, with a capacity to get the most out of life. That he was endowed with a prodigious memory with a robust mental and physical constitution there surely can be little doubt. He was also blessed in parents, who, whilst seriously incapacitated and dying young, yet gave him an inheritance of genes of purposefulness and commitment, time and constructive counsel, including a strong sense of duty. A middle class background also gave him an assured social security.

The format adopted immediately arrests attention. Instead of a rather standard and boring narrative following a strict chronology, the reader is taken hither and thither as events trigger observations relating to the future and past, be it evacuation, the blackout, popular songs, or the government's near absolutism. Two phenomena constitute strong themes: municipal pride, and modern management: occasioning, in the case of the former's passing, regret; and, in that of the latter's advance, contemptuous obloquy. Indeed, these 'detours' add considerably to the book's interest. The device of including 'textboxes' offering mini essays on related topics works effectively: so much more accessible than footnotes or end notes.

Much literature taking transport as a theme pays scant attention to its wider social relevance. Often the focus is on the minutiae: colour schemes, vehicle numbers, types etc. There can be no doubting that for many enthusiasts this is important. What the author does, in this study, is to encourage the reader to comprehend transport and the means used, be it bus, trolleybus, or tram, in its historical context. In one such instance, within a detailed description of trolleybus operation in Wolverhampton, the author, a young enthusiast, operates the route frog wires with the trolleybus crew's supportive connivance, illustrative of a 'liberty bestowed, and of resourcefulness expected.' In another, of bus services in the severe winter of 1947, favourable commentary is made of transport's capacity, in that period, to continue to function in spite of difficult conditions.

The period examined was one where most would use public transport, take for granted the related routines, and where the young would be expected to make their way unescorted and with minimal direction. Therein, in part, the product of austerity, bus, tram and trolleybus, whilst often now creaking for want of care, provided comprehensive and efficient transport with a democratic stamp.

The narrative awards a key role to a Mrs Mann. This powerful Dickensian character enters the author's life at a critical moment. On the cusp of being sent to an orphanage, a professional associate of his late father, she magisterially takes charge, successfully demands of a remarkably compliant solicitor that without delay he travels to London and make application to a judge in chambers that our author and his incapacitated mother be made wards of court. That task executed, Mrs Mann systematically at key moments kindly interviews her ward, over tea and biscuits, giving him unambiguous counsel and direction. Though the ward clearly entertained considerable respect for this figure, the narrative makes clear that there was hardly a loving bond of affection between the two. In other contexts one might have supposed that she would have been appointed to an honorific auntship, a step taken, for example, in the instance of many taking in evacuees.

Excellent use is made not only of memory but of papers long stored to back up the narrative. The bus ticket is employed as a vital historical source, facilitated by the author's pioneering collection. The period for the author was one of regular movement through England and Scotland, which far from destabilizing in his younger days, seems to have given him resilience of purpose, alongside a detailed knowledge of place and transport. Education and social encounter were not serious challenges and he seems to have blossomed everywhere, be it boarding school, the army, or early employment in the Inland Revenue.

It seems cavil to offer any criticism. However, in the interests of objectivity, a few are tentatively suggested. There are occasional repetitions. An index and, possibly, a bibliography might have been included. This reviewer would have relished an essay on the relationship between the Garden City concept and transport, a study possibly inadequately examined by historians, and of which the author could surely write with authority. Possibly, the next project?

Robert McCloy

Rugby Portland Cement Transport: A story of vehicles and their drivers Glen McBirnie. Silver Link Publishing Ltd., The Trundle, Ringstead Road, Great Addington, Northamptonshire NN14 4BW. ISBN 978-1-85794-1. £30. Card covers, 296pp. June 2015. Copies may be obtained by sending a cheque for £30 payable to 'The Rugby Group Benevolent Fund' to Isobel Watson, The Rugby Group Benevolent Fund, Cemex House, Rugby, CV21 2DT.

This volume follows Part One of the author's work on the same subject published in 2002. Association members will also be familiar with his two articles published in this Journal, and his talk to our meeting in October 2012. This second volume includes a very wide range of illustrations and recollections, many prompted by publication of the first part. As the title indicates, the emphasis is both on the operations and vehicles, and also on the operating staff themselves. Acknowledgement is made to those who contributed to this work, including Association member Richard Storey.

A number of production sites form the main focus of illustrations and recollections, including Rugby itself, Southam, South Ferriby and Chinnor, with briefer references to other sites such as Lewes. The production and distribution processes are described (including quarry workings), as well as transport operations per se. The very wide range of illustrations covers not only the vehicles (notably from British manufacturers such as Foden and ERF), but also scenes displaying working practices, and many views of staff social events. The rudimentary working conditions of the past are very evident, notably the remarkably small rear-view mirrors fitted to many vehicles in the 1950s and 1960s. Given the robust nature of the vehicles operated, many ended their days working with showmen, as amply illustrated, and a number have also been preserved.

The ethos of the company, under the leadership of Sir Halford Reddish, while opposed to trade union activity, emerges as paternalistic, with considerable personal attention paid to the needs of staff members both by local and head office management. The camaraderie of working for the company is recalled, with numerous anecdotes. In later years, a shift to contracting out to driver-operators was attempted but interestingly the author reports that this was replaced by reversion to in-house working.

The quality for production is excellent, with many colour illustrations, and amply-sized views to display larger scenes such as aerial views of production plants.

PRW

Tate & Lyle Transport. Bernard Coomber, edited by Mike Forbes. Kelsey Publishing Group, Cudham, 2015. 99pp, illustrated. £7.95

'Bookazines' such as this have a part to play in transport history publication. In magazine format, but more substantial yet obviously not as complex as books to publish, they can convey pictorial history with historical information in the introduction and captions, and be easily available through major retail chains. This, the third in ***Vintage Roadscene's*** 'Road Haulage Archive' series, takes the reader principally through the post-1945 years of its subject, but the dual origins of the firm and its transport subsidiary, Pease & Son, are not ignored. For this reviewer the establishment of Silver Roadways Ltd. and TLT Distribution and Contract Services, sold off as Rockwood Distribution Services, covered new ground and added to the value of an interesting and attractive publication.

RAS

Our next issue will be no 83, February 2016. Copy to the editor by 7 February please

Best wishes for Christmas and the New Year to all our readers

Viewpoints and opinions expressed by contributors to this Journal should be seen as personal, and do not necessarily reflect views of the Association.

This Journal is produced with the support of The University of Wales Trinity St Davids

Footnote references to Richard Oliver's paper (continued from page 5)

[1] 'Roads' are defined here as public highways; this article does not enter into questions of rights of way, and does not discuss 'paths', *i.e.* foot and bridle routes.
[2] For basic information see Richard Oliver, *Ordnance Survey maps: a concise guide for historians*, London: Charles Close Society, 2013. Both that book and the present article apply to Great Britain rather than to Ireland, although many points made will doubtless be found to be applicable to the latter.
[3] See Roger Hellyer and Richard Oliver, *The first Ordnance Survey map*, London: Charles Close Society, 2015, for the current state of knowledge on the Old Series: roads are discussed on 95-6.
[4] From the early 1840s larger urban areas were mapped successively at 1:1056, 1:528 and 1:500: these scales do not generally add to the information shown on the 1:2500, except that some 1:528 manuscript maps of the early 1850s distinguish areas of 'ballast' and macadam. The 1:2500 was never published for 'moorland' areas, and thus not for large areas of Scotland, especially.
[5] Yolande Hodson, 'Roads on OS plans, 1884-1912', *Rights of Way Law Review* 9.3 (1999), 107-18: Dr Hodson's assessments are more cautious than mine.
[6] T. Pilkington White, *The Ordnance Survey of the United Kingdom*, Edinburgh & London: Blackwood, 1886, 103.
[7] Roger Hellyer and Richard Oliver, *One-inch engraved maps of the Ordnance Survey from 1847*, London: Charles Close Society, 2009, 54-6, 97-101.
[8] Instructions to revisers, 1896, quoted in Hellyer and Oliver, *One-inch engraved maps*, 99.
[9] The information awaits careful analysis, as does that embodied in the contemporary Gall & Inglis half-inch 'Graded Road Maps' of part of Scotland and northern England, and that in the Michelin 1:200,000 mapping of the British Isles, first issued 1914-16.
[10] 'Report of a Committee… with regard to the Half-inch Ordnance maps…', 17 February 1912: copy of printed report only in The National Archives [TNA] WO 33/3265: the minutes referred to therein are lost.
[11] See Yolande Hodson, *Popular maps*, London: Charles Close society, 1999, esp. 127ff, and Yolande Hodson, 'Coloured roads on Ordnance Survey First Edition 1:2500 plans and one-inch maps 1897-1935 and the Rights of Way disclaimer', *Cartographic Journal* 42 (2005), 85-110..
[12] For example, the road across Croft Marsh in Lincolnshire, between TF 533600 and 562601.
[13] For example the road south from Withcall station in Lincolnshire, TF 284836 to TF 287831, which by 1992 was little better than a cart-track, and had evidently never been tarred.
[14] The writer recalls travelling over a long untarred section of the A861 from Fort William to Mallaig in 1961.
[15] One of these sheets – 85 NE – was reissued in 2014 by the Charles Close Society.