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Public realm special issue



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Kinneir, Calvert
and the British road sign system

A design
(to sign roads by)



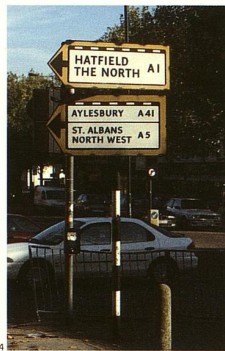
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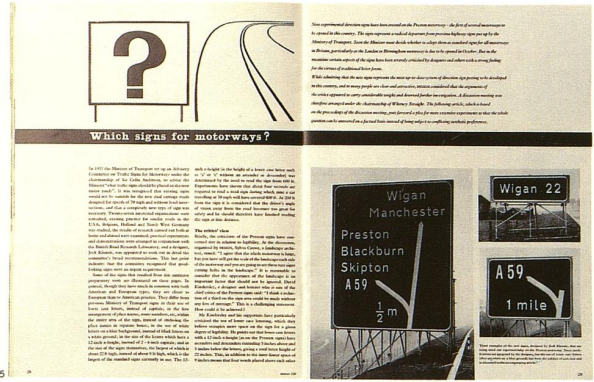
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1 (opposite, top). Detail of a road sign scale mock-up executed in gouache and cut paper on artboard, 1963. Courtesy of the collection of St Bride Printing Library.
2 and 3. Pictogram drawings, 1963. Car and "flying motorbike" by John Jamieson. Children by Margaret Calvert.



As an exemplary rational design programme, the road signs of Jock Kinneir and Margaret Calvert demand careful study. Despite poor application, inconsistent additions and muddle over the past four decades, their robust, flexible system – with its humane typeface and quirky pictograms – still functions throughout the length and breadth of Britain. *By Phil Baines*

4. The old system. A-road sign with yellow background still in use today, Essex Road, London N1. The signage that preceded the Kinneir Calvert system dated from an Act of 1944, itself a revision of an Act of 1933. That system was adequate for the road speeds of its time, but was decidedly old-fashioned, with a clumsy all-capitals alphabet and symbols of obscure origin. In many cases, the 1933 committee ignored the fresh approach to symbol use already taking place in continental Europe and opted for a more wordy approach. Photograph: Roman Imhof.
5. Prototype Preston by-pass signs in use, from *Design* no. 129, published by The Design Council, September 1959. These show the scale of the signs and two differences from later production versions: the "elegant" angle for the road ahead, which was later made vertical and heavier, and the ungainly fraction which was later replaced by a version with smaller numbers and no bar. Courtesy of St Bride Printing Library.
6. Front cover of the first publication introducing the new signs prescribed by the Traffic Signs Regulations 1964. An eight-page A5 leaflet prepared by the Ministry of Transport and the Central Office of Information, 1965.

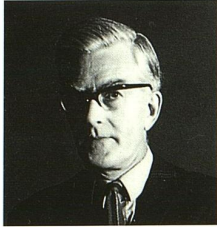


Some time in 1965 *The New Traffic Signs*, a Department of Transport leaflet, arrived at our house. Learning this new language of symbols, shapes and colours was exciting for a six-year-old. Trips by car henceforward became *I-Spy* journeys of trainspotting intensity. Twenty years or so later, I would learn that the signs were the work of Jock Kinneir and Margaret Calvert, whose graphic design amounted to a house style for Britain, characterised by the use of sans serif alphabets with careful and sparing use of colour and a great attention to detail.

The sign system for the national road network had its origins in the motorway signs tested on Britain's first motorway, the Preston by-pass. Realising that these new high-speed roads would need something quite different from any British precedent, the government set up an advisory committee in 1957, chaired by Sir Colin Anderson, which took as reference signs for similar roads in the US and elsewhere in Europe. Practical research was carried out at the Road Research Laboratory in Slough and Jock Kinneir was asked to detail the committee's broad recommendations. Margaret Calvert, an illustration student of Kinneir's at Chelsea School of Art, joined as his assistant on the project.

The Preston by-pass, which opened the following year, was used to see what regulations this new class of road should have, and some provisional signs were erected there for testing. The system was essentially alphabetic, offering directional and distance information.

Following European and American practice, the committee wished to use upper and lowercase type rather than the capitals used on Britain's roads since 1933.¹ The German Din lettering was suggested but Kinneir rejected this on aesthetic grounds. Wanting a letterform with open counters and clear shapes he wrote his own specification. When he found that such a face did not exist, he and Calvert set about designing one themselves. When revised for the British road system

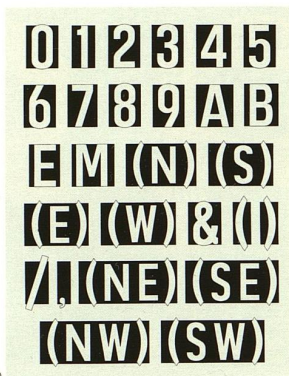


Jock Kinneir (1917-94)
 Kinneir studied engraving, illustration and painting at Chelsea College of Art, 1935-39, and later lectured there. After active service in the Army, he joined the Central Office of Information working on exhibition design. In 1950 he joined Design Research Unit (DRU), which he left in 1956 to set up his own practice. An early assignment was designing a signing system for the new Gatwick Airport (designed by Yorke, Rosenberg & Mardall). He was a consultant to the Anderson committee (1958-62) and the Worboys committee (1961-63), designing the signing system for all UK roads, a system much copied around the world. Many other signing projects followed, notably British Rail (1964), British Airports Authority (1965), the National Health Service, the Army and Tyne and Wear Metro (1977). Kinneir was the head of department of graphic design at the Royal College of Art from 1964 to 1969 and continued teaching until 1974. He retired in 1979 and moved from Ham Common to a (second) self-designed house in Winderton, North Oxfordshire to write and paint. His book *Words and Buildings* (Architectural Press) was published in 1980.



Margaret Calvert (b. 1936)
 Calvert came to England from South Africa in 1950 and attended Chelsea School of Art (1954-57), studying illustration under Brian Robb and graphic design with Hans Schleger and Jock Kinneir. She worked for Kinneir as an assistant at the time of Anderson committee and became a partner in Kinneir Calvert Associates in 1964. The company became Kinneir Calvert Tuhill Ltd in 1970, later Kinneir Calvert. In 1980 she adapted her Tyne and Wear Metro typeface (first commissioned by the French new town of Saint Quentin-Yveline, but considered "too English" and not used) for Monotype, who released it as Calvert in three weights. She became a visiting tutor at the RCA in 1961, and was head of the graphic design department from 1987 to 1990. In 1992, a three-dimensional, stainless steel version of the Calvert typeface was used for external signing at the Royal College of Art. She contributed the font A26 to *Fuse* in 1994.

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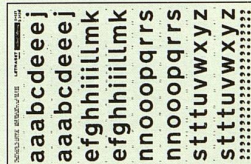
7. Proposed motorway symbol, 1960. "We suggested in our interim report that since motorways would be restricted to certain classes of traffic and special rules would apply to their use there was need for a bold and simple symbol, for use in traffic signs, which would enable drivers to identify a road as a motorway," Anderson, 1962.
8. Gantry sign over individual lanes at the start of the A40 (M) in London features the European motorway symbol redrawn by Kinneir for the Anderson report. Photograph: Roman Imhof.
9. The Transport alphabet was available from the mid 1960s until the 1980s as dry transfer lettering from Letraset.
10. Road numbers for motorway signs use Commercial Grotesque (Haas, 1945-46) with redrawn numerals 4, 6 and 9.

Portraits of Jock Kinneir and Margaret Calvert, 1969.
 Photographer: Kenneth Griffiths.

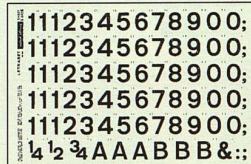
Transport Medium



S 3419D



S 3420D



S 3421D

Transport Heavy



S 3416D



S 3417D



S 3418D

this became known as Transport. Apart from appearing on Letraset sheets for a while, the font has not been available commercially.

The attention to detail on one hand, and no increase in road speeds on the other, have meant that the signs still do their job admirably. At an aesthetic level the system is notable for ignoring the ungainly industrial chic of Din and the us "Interstate", or the rigidity of Neue Haas Grotesk, and combining humanity *and* functionality. In this regard, Kinneir and Calvert were well ahead of their time: mainstream typefaces following this "softer" approach such as Lucida and Meta were not produced until 1985 and 1991 respectively.

→ Size follows information

Under Kinneir and Calvert's system, motorway junctions were signed three times, each with map-type representations but differing levels of information (from the general to the particular). The way ahead was shown by an elegantly sloping line to make it "more telling" against the vertical edge, arrowheads were replaced by chamfered ends. The signs broke with previous practice in their non-standard dimensions, determined by the amount of information they needed to convey.

Colour was carefully thought out. In part it was an aesthetic choice, in part it was suggested by the use of reflective materials and their costs. Black was considered for the background but was felt to be "too negative". The blue chosen was the American Standard Interstate Blue Colour, which stood out from the countryside as well as giving good contrast to the white type.

Taken together these were the most radical examples of functional design yet seen in Britain and they provoked strong reactions. Talking, several decades later, to some of those involved, it is clear that feelings ran high on both sides. Much of the argument concerned the type with

11 and 12. These scale mock-ups (artboard, gouache, paper, Cow Gum) were made for presentation to the Worboys committee as well as testing out of doors prior to full-size testing of signs by the Road Research Laboratory in Slough. Courtesy of the collection of St Bride Printing Library.

11. First advance direction sign for an intermediate junction on a motorway. 12. Third advance direction sign sited at the start of the deceleration lane.



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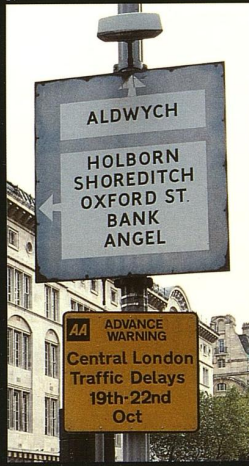
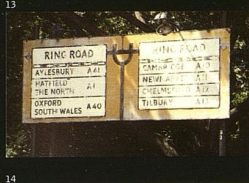
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13 and 14. The 1933/44 directional signs used black and white information panels on a background whose colour varied according to the class of road: yellow for A-roads and light blue for local destinations. The material used was pressed steel. There are still many of these in use across London. Photographs: Phil Baines and Anthony Oliver.

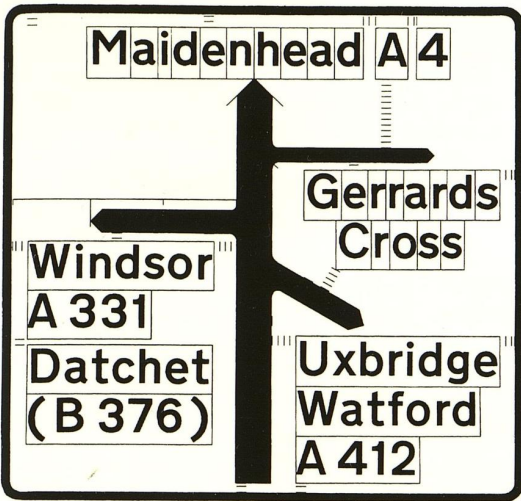
15. Name boards at the outskirts of towns also gave distances to the next two towns: this was a time when roads went to and through places rather than around them. The 1944 version was laid out as the 1933, but featured circular reflectors to aid nocturnal recognition. Photograph: Phil Baines.

16 and 17. A selection of lettering types, including Jock Kinneir's upper and lowercase Transport, were tested for legibility by the Road Research Laboratory. Test signs were mounted on top of a car and driven at 30 mph towards groups of ten to fifteen observers, all RAF volunteers, seated on a tiered platform. 16. An uppercase proposal based on lettering designed by Edward Johnston. 17. A serif uppercase designed by David Kindersley. Surprisingly the results of the tests concluded that no face had "any appreciable advantage over the others with regard to legibility". The case for Transport was therefore made on "aesthetic grounds". The test results were published in *Design* no. 152, August 1961.

18-22. More mock-ups from the collection of the St Bride Printing Library. 18 and 19. "Map" type signs as used for advance warning of complex junctions and roundabouts. The relative importance of roads was indicated by lines of different thickness. (See 23 opposite). These types of sign were to become cluttered by colour patches of other road types by the 1990s; (see page 32). 20. Primary route direction sign sited at junctions. 21. Primary route confirmatory sign sited after a junction. 22. Local advance direction sign. Local signs were differentiated from non-primary routes by the use of a heavy blue border (discontinued in 1994).



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23. Sign layout diagram showing how a single unit (the width of a cap I) determines the size, position and relationship of all elements. The signs are only as big as the information they convey. The disposition of these elements was more tightly related than the original Preston motorway signs (see 5). Note that a name that appears on two lines is centred. The parentheses indicate a second road that can be reached from the first one listed.

24-32. Pictograms. 24 and 25. Margaret Calvert's drawings, such as the children crossing, 1963 (see page 26) show a sensitivity lacking in many of the signs added since, such as elderly people (c.1975). 27-30. Anthony Froshaug in his excellent analysis in *Design* no. 178, 1963, commented on the variety of signs used to indicate particular hazards. He cited the animal hazard sign, which was in four versions compared to the protocol's one. "It may be that users find the new signs too much to learn... more so since the different signs can be confused with one another". Thirty years on there are seven animal signs, but this confusion pales beside the bewildering variety of pictograms used for tourist signs. Forty-nine symbols appear in the 1994 regulations (see inside back cover).

33-38. There are three basic types of traffic signs. 33-35. Circles give orders: blue circles tell you what you *must* do; red circles tell you what you *must not* do. 36 and 37. Triangles warn of particular hazards. Most circular and triangular signs match the Geneva protocol of 1949. 38. Rectangles inform, with different colours for the different classes of road (see 11 and 12 and 18-22).

24-32



33-38



its upper and lowercase setting. Sans serif offended people in a way that is difficult to comprehend 40 years later. A rash of letters appeared in *The Times*, and a discussion meeting organised by *Design* magazine explored the issues in some detail.² David Kindersley, the calligrapher and carver, represented the "traditionalists", and presented his own, all-capitals alphabet. Later this was tested against Transport but found to be far less of an improvement than he had claimed.³ Even to the liberal eyes of 1999 his type still looks homespun and ugly.

The size of the signs was another cause for complaint. They were nearly three times larger than previous signs, in part due to the use of upper and lowercase instead of all capitals, and in part because of the requirements of reading 600 ft away.

Such criticisms do not feature in the Anderson report, which sets out clearly its goals and findings. It was a working party, with a constant cycle of test and evaluation. The signs were revised a year later for use on the new London-Yorkshire motorway, the M1. By the time the committee's report was finished in December 1960, there had been eighteen months of practical experience at Preston and twelve months on the M1. That the signs were deemed a success can be seen by the fact that one year later parliament had appointed another committee, chaired by Sir Walter Worboys, to recommend signs for all Britain's roads.

→ The road system

Creating signage for all classes of road in the country was a more complex task than the motorways, but many of the principles established could be applied, and a consistent system emerged. The signs were of two kinds: "regulatory", which included mandatory, prohibitive and warning signs, and "informatory" – principally directional signs.

For the former, British practice had always been at variance with continental Europe where the development of symbolic rather than literal signs had been carried since the 1931 Geneva *Convention Concerning the Unification of Road Signals*. In the early 1960s, Britain was applying for entry to the European Community (now the European Union) and the need for acceptance of an international standard figured in the decisions of the Worboys committee to base many of its designs on the later Geneva protocol of 1949. This described signs in their form – circular, triangular, etc. – and in their content, but not in the details of their drawing. The protocol was ignored only in a few cases.

The road signs, like the protocol, comprise a hybrid set: part iconic, part alphabetic and part symbolic. What ties them together and makes them distinctive is the quality of their drawing. Diagrammatic road layouts are ruthlessly concise, while the pictograms give both people and vehicles a personality that in no way detracts from their efficiency.

For directional signs, the protocol had no comprehensive instructions, so Kinnear devised a system based on the motorway signs. Green backgrounds with white type and yellow road numbers were used on primary routes. The green was a compromise between the bright green Kinnear had proposed and the dark green suggested by Sir Hugh Casson – "like the colour of old dinner jackets," Casson was quoted as saying.⁴ White backgrounds with black type were used for other routes, with a heavy blue border for local destinations – a distinction dropped in 1994. The junction map presentation was made more explicit, with lines of differing thickness used to denote each road's particular status. The elegant angles of the prototype Preston signs disappeared. The actual layout of these signs was not dictated: what was provided was a kit of parts and the instructions for use. The signs designed themselves according to these rules.

The typeface drawn up for the motorways was modified slightly and drawn in two weights: medium (for white and yellow type on the

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39-42. The current road sign system tries too hard to be too helpful and visual clarity is sacrificed. Signs have to be much larger to carry extra information. 39. The original maquette shows how simply understood the alphabetic system could be. A-roads are main roads and B-roads are ... B-roads. 40. With the first published signs in 1965 this had been amended. "Primary routes" (a Worboys notion not explained in the *Highway Code*) are indicated by green panels behind road numbers. At this stage there was still a balance between information and clarity. 41. In 1994, following an experiment conducted around Guildford, the green panel was made full size, upsetting the visual balance, confusing the eye and destroying the sense of the road ahead. 42. Signs on primary routes show white panels to the same end. These newest versions recall the 1944 signs in their clumsiness.



green and blue signs) and heavy (for black type on white). It was produced on tiles rather like the bodies of metal type. These butted up to each other and ensured correct spacing by the many different contractors who were then responsible for the signs' production. The stroke widths of the cap "I" in the size of type used were the determining factors governing the size of elements and the distance between them (See sign layout diagram, caption 23, page 31).

The report still impresses with its thoroughness and the scale of its implications. The twelve-strong committee met for a mere twenty days, discussing and assessing Kinneir's designs, the test results from the Road Research Laboratory and the findings of the working party. Practical matters such as illumination, construction, maintenance, siting and clutter were all touched upon. They recommended implementation of the report within five years (three for primary route signage) at a cost of £22 million. It was approved by the minister of transport, Sir Ernest Marples, in December 1964.

→ People

As with many innovative designs, part of the sign system's success lay in the combination of people involved. A key figure was the chairman of the working party for the Worboys committee, T. G. Osborne, head of the Traffic Signs Division at the ministry (and also a member of the Anderson committee in its final months). As an administrator, his influence was an important factor in carrying through the whole process. The personality of Jock Kinneir was crucial, too. Designer David Jones, a junior in the studio at that time recalls: "Jock seemed very much the right person for the job. As an ex-Army officer, he got on with people at the ministry in a way which wouldn't have been possible for, say, Fletcher Forbes Gill."

Kinneir's own recollections in the 1980s were slightly different: "... I was a consultant to the committee and not a member. Frequently I had to battle to get my views heard, and had running skirmishes with one chairman who had a habit of taking design decisions at home over supper with an architect friend and then telling me what to do."⁵ In the studio, Margaret Calvert's eye for detail was crucial in the drawing of the alphabets and the pictorial signs. Kinneir employed more staff as the pace of work increased. Apart from the rigours of testing the Transport alphabets and their spacing ("a lot of squinting"), there was fun, too. Calvert remembers the individual designers responsible for certain signs: John Jamieson drew the car, "flying motorbike" and train; Clare Theobald drew the sheep and falling rocks. Calvert herself drew the children and pedestrians.

→ Critique

The association of Kinneir and his studio with the Department of Transport lasted no longer than the report. (Even there, the smaller explanatory text plates were not designed by them.) By the time the *The New Traffic Signs* was issued in 1965, several signs had been altered. Such tinkering, not to mention much poor application of the designers' system, has been part of the history of British road signs ever since.

Design tinkering can be seen in the Department of Transport's subsequent attempts to be "helpful". Two specific examples: the dramatic increase in the use of pictograms and the depiction of primary and non-primary routes on directional signs are noted in the illustrations. The design work has been done in-house and is characterised by poor detailing and muddled thinking. Too often, the guidelines are simply ignored: a large proportion of signs do not meet the regulations.

The role of the road signage system within society has changed. In 1965, it could afford to inform. Today's situation – faster cars, slower



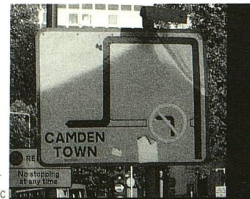
Road signs in London

Photography by Roman Imhof.
 Commentary by Nick Bell and
 Phil Baines.

A and B. Deterioration and renewal in London. City analysts speculate that the poor state of the capital's road signs costs businesses millions of pounds each year. A. "Lightbox" style sign, Lambeth, 1999. The arrows on the over-lane gantry are non-standard. Before the recent introduction of retroreflective sheeting, the alternative to lamp lighting was internal illumination. Sheeting for internally illuminated signs is usually made of fibreglass (which weathers badly) or in this case brittle acrylic sheet. Such signs are being phased out slowly. B. New sign set on retroreflective material replaces old lamp-lit type which has yet to be removed, Southwark, 1999. The arrival of the M25 London orbital motorway is helping to simplify road signs in central London (even if it has not reduced the volume of traffic). This new sign, like others all over central London, now offers directions to local destinations. Tower Bridge is acknowledged as a tourist attraction with the addition of the brown patch. New signs are more likely to direct you to the shops (in this case the Surrey Quays shopping centre) than a London landmark or your home.



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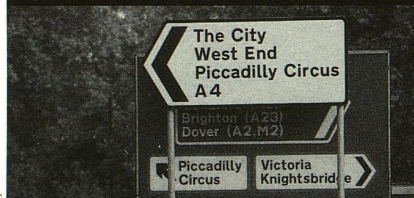
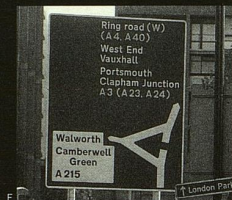
C and D. Oversize "map" style signs in Westminster result in expensive and cumbersome structures. Properly applied, the road sign system can deal with London's complex one-way traffic, but in both examples here the result is clumsy. Because of its size sign **D** needs to carry a crossbar for support.

E and F. Examples of new signs cluttered with route patches and excess information in Westminster and Southwark respectively.

G-J. New signs in front of old ones in Westminster.

G. A non-primary local route (with a white background) has now acquired a road number.

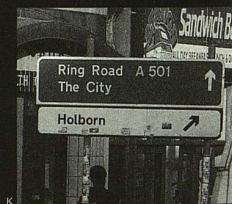
H. Hyde Park Corner and Trafalgar Square (two landmark roundabouts) do not appear on the new sign, whereas the retail districts of West End, Kensington and Knightsbridge do.



I. Ugly grey "lightbox" style sign is replaced by new ones. Road status has been elevated to a primary route. Distant destinations and mileage are no longer signed.

J. The old signs gave a misleading impression of the importance of towns around London. Aylesbury, for instance, crops up with perplexing regularity.

K. This sign, in Islington, ignores the layout instructions (see page 31) by allowing arrows to become disconnected from places.



L. A blank panel is permitted to straddle a wide pavement or to reduce background "noise". In the process it becomes an ideal flyposting site. Islington.

M. Roadworks sign adapts to changing schedules. The new "London Eye" Ferris wheel is visible in the background.

N. Though new, this Islington sign uses capitals in the awkward, literal style of 1933 and 1944.

O. Sign for urban clearway, now theoretically superseded by Red Routes: clearways with cameras, patrols and on-the-spot fines. British motorists only obey restrictions when they are enforced. Lambeth.

P. Another Aylesbury sign in the old green, which is darker than the green on the new retroreflective signs. Islington. Notice also the Red Route sign and parking meters: restricted access to high street shops has boosted the success of out-of-town shopping centres such as Bluewater (see page 62). Islington.

Q-T. The traces of thirty-odd years of weathering, wear and tear.

Q. This large sign was assembled in sections that have now separated over time. Islington.

R. Lettering peeling off. Lambeth.

S. Internally illuminated fibreglass, Westminster.

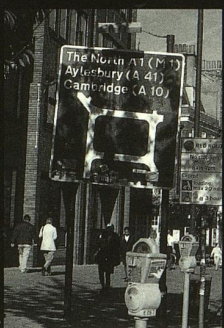
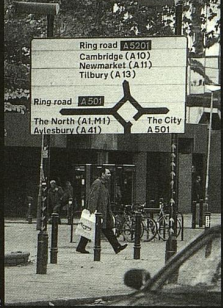
T. Sunbleached sign. Islington.

U-X. Non-standard lettering.

U. Hand-drawn lettering with misplaced chevron. Islington.

V and W. Non-standard grey lightboxes are common in Westminster. The one shown in **V** mistakenly uses the Transport Medium weight designed for white or yellow lettering on a dark background, while **W**, found in the same street, uses the correct Transport Heavy font.

X. Sign using non-standard typeface. Camden.



43. Ministry of Transport *Traffic Signs Manual*, 1964. Fig. 8: 116. Layout of signs for roadworks on single, two or three-lane carriageway roads. While the Worboys report dealt with principles and recommendations, the manual gave the local authorities and sign manufacturers comprehensive details for every eventuality. Courtesy of the collection of St Bride Printing Library.

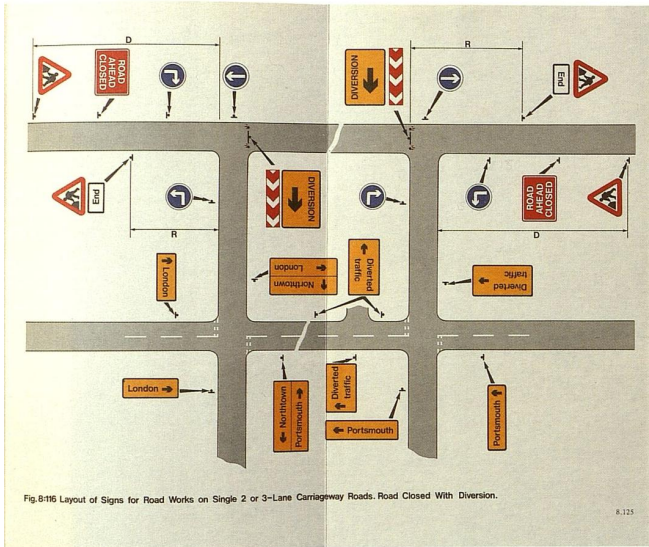
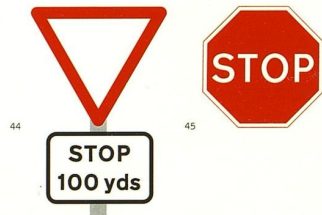


Fig. 8:116 Layout of Signs for Road Works on Single 2 or 3-Lane Carriageway Roads. Road Closed With Diversion.

44 and 45. Certain signs break the rules to give them greater prominence. 44. Advance notice of a stop line. The upside-down triangle also appears on the road surface at a stop or give way line. 45. The octagonal STOP sign appears at junctions where particular caution should be taken. Note the use of capital letters for absolute instructions.



average speeds, too much car use – demands an increasingly large measure of *control*. British motorists have seen the emergence of special routes for pedestrians or cyclists, restrictions for different classes of vehicle, the increase of parking restrictions and the use of signs to direct cars where planners want them to go. These examples are a response to either a lack of infrastructure for the car, or successive governments' refusal to restrict vehicle use.

Editing or limiting the information provided for road users does not appear to be an option at present. In any case, such "authorial" control is impossible: responsibility for signing the different classes of roads is fragmented and shared between the Highways Agency, the local authorities, and the county and metropolitan councils.

The Department of the Environment, Transport & the Regions (as it is now known) is constantly reviewing the system. It has also digitised the Transport alphabets and all the symbols (a process made difficult by a lack of original artwork). Signs are being constantly evaluated so that improvements can be considered for inclusion in regulation revisions. New signs are also considered: some pictogram-type and some variations of existing models in response to new traffic management techniques. The next regulations (with dozens of new signs) are due to be issued in 2000.

At a purely visual level, it is clear that the department still believes in the Kinneir Calvert principles of layout, and that the system is robust and flexible enough to cater for most of the needs of today's traffic. Yet the simplicity of that original system has been eroded by inconsistent additions and a plethora of pictograms of little or no use.

What the department has lost sight of is the philosophy at the heart of the design, that signs **"should contain only essential information and their significance should be clear at a glance so that the driver's attention is not distracted from the task of driving,"** (Worboys, para. 26 (c))

Yet as an example of a rational design programme applied without visual preconceptions, the Kinneir Calvert system should be required study material for the skin-deep Modernists of today: it is Modernist in broad terms but does not adhere to any dogma. There may be many inconsistencies and quirks, but it *works*. **e**

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1. According to *Design* no. 152, 1961, these were based on a design by Edward Johnston.
2. *Design* no. 129, 1959, pp.28-32. Participants included, Kinneir; Kindersley; Sylvia Crowe, landscape architect; Noel Carrington, typographer and designer; E. C. Poulton of the Applied Psychology Research Unit, Cambridge; G. Grime of the Road Research Laboratory; G. S. Campbell of Franco Traffic Signs; Rolls Royces' deputy chairman Whitney Straight; Brooke Crutchley, a Cambridge printer; and C. H. Wykes from the Ministry of Transport.
3. *Design* 152, 1961, pp.56-61.
4. *Design* no. 178, 1963, pp.28-32.
5. From a lecture transcript (early 1980s) supplied by Margaret Calvert to the author. Original publication unknown.