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“New Series to Popular: European
parallels”

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The Charles Close Society was founded in 1980 to bring together all those with an interest in the maps and history of the Ordnance Survey of Great Britain and its counterparts in the island of Ireland. The Society takes its name from Colonel Sir Charles Arden-Close, OS Director General from 1911 to 1922, and initiator of many of the maps now sought after by collectors.

The Society publishes a wide range of books and booklets on historic OS map series and its journal, *Sheetlines*, is recognised internationally for its specialist articles on Ordnance Survey-related topics.

New Series to Popular: European parallels

R C Wheeler

The view is frequently expressed that the Ordnance Survey, in the twenty or so years before Sir Charles Close became Director-General in 1911, was increasingly backward with regard to new technology and the use of colour. I want to argue here that, compared to France and Germany, the OS was not doing at all badly. Of course, if one chooses to make comparisons against Switzerland, the OS comes off poorly, but Switzerland is an exceptional case, just as southern Europe presents cases of exceptionally *poor* cartography.

One caveat: I am conscious that my statements on continental maps have to be made without the benefit of carto-bibliographies and without any archival research: it is regrettable that there do not exist corresponding societies in other European countries with which we might collaborate.

Germany

Turning first to Germany, the flagship product was the Karte des Deutschen Reiches at 1:100k (hereafter 'KDR-100'). This was to cover Germany in 674 sheets. 48 sheets had been published by 1881, 586 by the end of 1897.¹ It was based on 1:25k plane-table surveys (the *Messtischblätter*) of the respective states, which in many cases pre-dated unification. Prussia already had a 100k reduction of their surveys, in 350 sheets, which could be incorporated in KDR-100. So completion of the entire country in two decades is not quite as impressive as it sounds. The map was finely engraved on copper² and was hachured (*figure 1*). It was available in hand-coloured form, with water-fill in pale blue and boundaries edged in various colours to indicate the different states and the *Kreise* within each state. The hand-colouring of boundaries is inferior to Stanford's work: the lines are too thin and the colours too muddy to be read clearly. The price of the sheet at figure 1 was 1.5 Marks. There is a very useful composite made from these at <http://www.davidrumsey.com/blog/2011/4/10/karte-des-deutschen-reiches-1893>

In the course of the next decade, a second form of KDR-100 was introduced with the hachures transferred to a brown plate and water to a blue plate. Water-lining was introduced to replace the hand-colouring of water fill and contours were provided at 50m intervals. The brown would have benefited from being darker and sharper: looking at Schwaneweder Heide on figure 2 the eye gains the impression of a fuzzy layer-colour rather than the detail that ought to be conveyed by hachures.

The first decade of the twentieth century also saw the launch of a 1:200k series, the Topographische Übersichtskarte (KDR-200). This was a reduction and generalisation of KDR-100 which also took data from the original *Messtischblätter* to provide, for example, contours every 10m. It was available in four colours:

¹ *Notes on the Government Surveys of the Principal Countries*, HMSO, 1882; A Knox, *A Guide to Recent Large-Scale Maps*, 1899, as a supplement to the foregoing.

² In 1899, parts of Brandenburg and Saxony were on stone rather than copper.



Fig 1.
KDR-100 Sheet 630
(Colmar), 1888

Fig 2.
KDR-100 Sheet 206
(Bremen), 1910 state



Fig 3.
KDR-200 Sheet 139
(Frankfurt am Main),
1900, printed 1905.
Prussia is edged in purple,
the Grand Duchy of Hesse
in mauve. Readers are
invited to ponder which
territory Homburg is in.
The subtle greenish blue for
meadow can just about be
seen alongside the stream
eg immediately N of
Homburg.

black detail, brown contours and blue water (including water-lining); there is also a light greenish-blue printed over areas of meadow (*figure 3*). The map already has a symbol for meadow, taken from KDR-100, but this fourth colour allows the area to be shown more exactly (based on the *Messtischblätter*) without cluttering the map. The effect is quite charming but hardly seems to justify the expense of a fourth printing. Sale price was again 1.5 Mark.

Finally, one must mention the 1:300k *Übersichtskarte*, which started as early as 1893 and which, by no later than 1909,³ was being printed with blue water, red-orange fill to main roads, and dull green fill to woods. Relief was shown by rather nasty hill-shading in brown. The existence of this series caused KDR-200 to be abandoned uncompleted.

Why was the 1:300k so much more innovative? I believe it was because it was primarily a military product and was produced by the Prussian Survey alone. Germany lay on a cartographic spectrum stretching from Prussia, interested in depicting marshy lowlands, to Bavaria, where depiction of Alpine terrain was the supreme challenge.⁴ The larger scales could accommodate these diverse requirements; but to produce a common specification for 1:200k and smaller scales that would satisfy all the constituent states must have been difficult.

France – *Carte Vicinale*

Turning now to France, the story needs to start with the *Carte Vicinale*. This was announced in a circular from the Interior Ministry to all Prefects, 17 August 1878.⁵ The justification for the project was the need for a large-scale map to assist decisions on railway and road projects – both *routes départementales* and *chemins vicinaux*. ('Large-scale' seems an odd term for a 1:100k map, but these things are relative.) Some such maps had already been compiled by officials of the ministry's *Service Vicinale*⁶ but being of different styles and different scales, they did not fit together when something was needed straddling two *Départements*. The new project was to produce a uniform map covering the whole of France in 570 or so sheets each of a quarter by half a degree. Each sheet was to be on a separate polyconic projection, this being 'more exact and more rigorous' than that of the General Staff map (*carte de l'état-major*). (This seems to be a reference to the distortion that occurs away from the centre with a map of the whole country on a single projection.) The specification had been drawn up by a commission which included representatives of the *ponts et chaussées* and also a civil engineer, Edouard Anthoine, *chef du service de la carte*

³ AR Hinks, *Maps and Survey*, 1942. The series had a long life and some later printings do not carry a print code, which makes it difficult to establish from map specimens when the first four-colour specimens appeared.

⁴ From 1903, the Bavarian survey started to produce mountainous sheets of its 1:50k *Topographische Atlas* with brown contours and violet hill-shading. The existence of maps by a private society, the *Alpenverein*, must have acted as a spur; the *Alpenverein* had links to the official Swiss survey. See E Arnberger, *Die Kartographie im Alpenverein*, 1970, 8.

⁵ Bulletin officiel du Ministère de l'intérieur, 1878, 333-338. It is available at <http://gallica.bnf.fr/ark:/12148/bpt6k5539759v/texteBrut>

⁶ As early as 1868 in the case of the *Département des Landes*.

de France.⁷ The small size was presented as a great convenience to users needing to consult more than one sheet at a time – which would certainly be a problem with the General Staff map.

The map was to be in four colours: black for detail, railways, and *chemins ruraux* – the term is used in a technical sense that related to maintenance responsibilities – blue for water, green for woods, and red for roads other than *chemins ruraux*. The use of red was the biggest novelty here, but the use of red line-work for roads was something of a French tradition in manuscript maps and, if the road network dominated the map, that was not inappropriate in a map intended primarily to show the transport network in a manner that indicated responsibilities for upkeep. The map was to be compiled by sending out sheets of the 1:80k General Staff map to the *agent voyer en chef*⁸ of each *Département*. Through the officials of the Service Vicinale, they were to correct and update these, providing also the extra information which the circular stressed as being so very useful: the distinction between double- and single-track railways, places with Post and Telegraph offices, and population figures.

The central administration would deal with the reduction to 1:100k (and the change of projection) and the transfer of the fair copy to stone, which would then be stereotyped (*clichée*) to copper. Sheets covering the Haute-Vienne and Lozère had already been produced, and had been exhibited that year at the *Exposition universelle*. The sum of 100,000 Francs had been voted for the continuation of the work and it was expected that the whole of France would be completed within four years. Copies would be placed on sale at a modest charge sufficient to meet the cost of printing and paper.

The absence of any representation of relief was recognised as a defect. A contoured map would be better. This would require a country-wide network of levels (*un nivellement opéré sur une vaste échelle et fait avec la plus scrupuleuse exactitude*); nevertheless, the Minister hoped it might be accomplished.

I have summarised the announcement at some length here, both because so detailed an announcement of a new map is remarkable in its own right, but also because it tells us a lot about the Ministry's thinking. The new map was to be produced cheaply: revision was to be done as a secondary duty by officials whose normal responsibilities were akin to those of the English road surveyor; turning their draughts into a printed map could be organised centrally on a production-line basis.

We need to understand the Ministry's thinking because embarking on an activity that had previously been a responsibility of the Ministry of War was a remarkable thing to do. Moreover, the harsh criticisms of the General Staff map make it clear that the move was not being made with the concurrence of that Ministry. The new map was termed *Carte de France*, not, it is true, in the map's

⁷ Anthoine is described in the catalogue of the *Exposition universelle* as *agent voyer inspecteur* so was a senior Interior Ministry official. The *Carte de France* referred to is the Ministry's own product, outlined here.

⁸ This official had under him the *agents voyers* of the Service Vicinale, in several *départements* also the staff of the *ponts et chaussées*.

title, but it was referred to as such at the *Exposition universelle*, and the words appear on the blind-stamp applied to each copy before it was placed on sale. The implication is that it was seen as the premier map of the country, with the General Staff map being purely a military product.

In most countries and in most eras, a hostile bid by a civil ministry to take over a function traditionally carried out by the Army would be almost unthinkable. However, French politics in the late 1870s were far from normal, with a vicious struggle between republicans and monarchists.⁹ The Right, and almost the whole of the Army, was monarchist and, following the crisis of 16 May 1877, had suffered a massive and unexpected defeat in the subsequent elections. So the timing was right for such a move.

Perhaps the most interesting aspect of the announcement is the aspiration to have contours. Was Anthoine or his Minister seeking to take responsibility for this? The problem was not as great as might appear: the *Ponts et chaussées* had already run levels along their main roads, and several *Départements* had already established networks of levels over their territories; if their multiple datums could be reconciled, there was scope to produce a national network that was good enough to serve as a basis for contouring. P-A Bourdalouë, *Conducteur* to the *Ponts et chaussées*, had already produced a skeleton national network.¹⁰ Even so, the task of drawing the contours either required substantial manpower (if instrumental contours) or skilled surveyors (if sketched): where were these people to come from? It may be significant that the General Staff map was nearing completion – only Corsica remained to be done. Was the Interior Ministry bidding to take over the redundant surveyors – and their funding?

In the Third Republic, the best-laid plans were liable to founder at the next reshuffle. The Interior Minister in 1878 was Émile de Marcère. He was replaced in March 1879, and never returned. Between then and 1900 there were 27 changes of Minister.¹¹ So even if Anthoine continued to plot a raid on Army funding, quite possibly none of de Marcère's successors were interested – or were long enough in post to execute such plans.

Anthoine's timetable was hopelessly optimistic. By 1881 just 81 sheets had been published.¹² It would be interesting to know whether they had any depiction of relief. By 1888, the idea had been abandoned of not showing relief until contouring had been done; all sheets were hill-shaded, presumably based on the hachured depiction of the General staff map. It is not very effective, except insofar as it distinguishes mountainous areas from the hilly, and hilly areas from flat ones (*figure 4*). By 1888 publication was in the hands of Hachette. The price for flat sheets was 80c. Folded in a smart book-fold cover of red cloth, they cost

⁹ There is little doubt that France would already have acknowledged a Bourbon king, had the legitimate claimant been willing to accept the *tricolore* as the national flag.

¹⁰ https://fr.wikipedia.org/wiki/Carte_d'%C3%89tat-Major

¹¹ https://fr.wikipedia.org/wiki/Liste_des_ministres_fran%C3%A7ais_de_l%27Int%C3%A9rieur#Troisi%C3%A8me_R%C3%A9publique

¹² *Notes on the Government Surveys of the Principal Countries*, HMSO, 1882.



Fig 4. Carte Vicinale – extract from XVI.26 of 1898

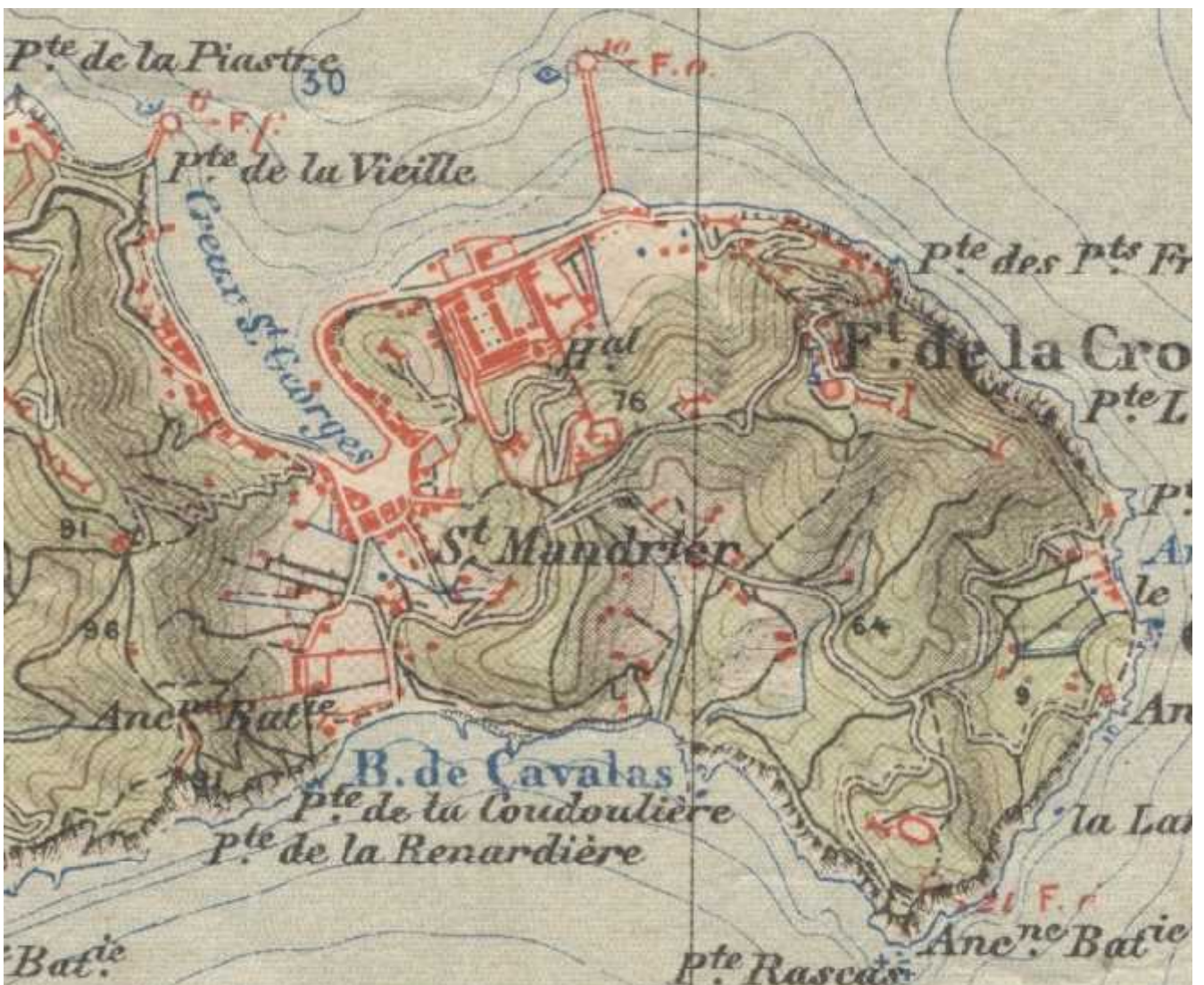


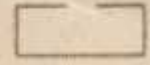
Fig 5. Extract from the Type 1900 showing peninsula south of Toulon harbour

VI. CLÔTURES

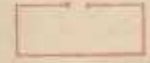
Haies



Levées de terre



Murs



VII. FIGURÉ DU TERRAIN

Courbes



Rochers et éboulis



Glaciers



VIII. CULTURES, NATURE DU SOL

Marécages, Tourbières, Prairies marécageuses



Pâturages, Pâtis, Plaines caillouteuses et incultes, Friches, Landes, Bruyères, Genêts, Oseraies



Prairies 1, avec arbres 2, sans arbres



Terres cultivées (Aucune indication)



Houblonnières, Vignes



Vergers, Arbres fruitiers, Oliviers 2, Jardins, Pépinières



Parc



1, Forêts et Bois 2, Broussailles et Bois (Blanc estoc.)



Limite de culture



Fig 6. Type 1900 characteristic sheet, showing marsh, turbaries, marshy meadow/ rough pasture / meadow, with trees (1) and without (2) / arable [uncoloured] / hops, vines / orchards (inc. olives), gardens / parks / wood, scrub

1.05 Francs.¹³ Hachette seems to have done a good job of encouraging sales: the Carte Vicinale is encountered in second-hand bookshops far more often than the General Staff map, even though the latter in lithographed form could be had more cheaply.

As for levelling, the government did agree in 1878 to a major in-filling of Bourdalouë's network, but this was entrusted, logically enough, to the Minister of Public Works, whose department included the *Ponts et chaussées*. The work was undertaken under Charles Lallemand and continued until 1922 – not exactly the sort of speed that Anthoine seems to have envisaged.

France: birth and death of the Type 1900

If the Ministry of War felt threatened by the Interior Ministry there are few immediate signs. On the other hand, Ministers had more important things to worry about. General Boulanger, who was Minister from January 1886 to May 1887, formed the view that he was called to be a successor to Napoleon; and then in 1894 came the Dreyfus Affair. Nevertheless, one thing was accomplished, namely the separation of the Dépôt de la Guerre into the Service Géographique de l'Armée (SGA) and a separate Service Historique de l'Armée. This was followed by the creation of the Type 1889 1:80,000 map, which was basically the old General Staff map divided into quarter-sheets. Real change only came in 1900, although the new Type 1900 launched in that year must have required several years of experiment.

It is striking that the new map addressed most of the criticisms of its predecessor made in 1878: for example, population figures appear: single track railways are distinguished from double-track, with a further symbol for quadruple-track; places with post or telegraph offices are marked (with telephone offices too); and relief is shown by contours as well as by the combined form of hill-shading (vertical + diagonal). Visually, it is stunning (*figure 5*), principally through the use of red for buildings and walled edges to roads. Use is made of three colours (green, blueish green, and purple) for different types of land use (*figure 6*).

Production and publication of the Type 1900 were slow and the priorities appear to have been driven by political considerations. The eastern frontier was covered by 1914, but also a block of sheets around Paris and sheets covering the major cities around the country. The requirement to cover militarily important areas seems to have been balanced against a desire to allow a high proportion of the electorate to obtain a new-style map of their local area. Whether it would take twenty years or a hundred to cover the rest of France may well have been seen as unimportant. Then came the First World War.

One of its effects was that the Army was seen as the saviour of the nation; another was that the SGA seems to have had more of a voice at the highest level than before or since. It is striking that one of the clauses in the Treaty of Versailles was that Germany was to pass the reprographic material for the maps of Alsace

¹³ Based on stamped prices seen inside the cover. Prices initially seem to have been 5c lower.

and Lorraine to France.¹⁴ The regained provinces were certainly a major challenge for the SGA: there was a need for maps and (even if the German plates were used briefly¹⁵) they needed to be *French* maps. They must also have been needed in large numbers, which made production of Type 1900 maps of the area impossible. In consequence, a Provisional Edition was produced in black, brown, blue and green (*figure 7*). It is an interesting exercise to compare *figure 7* with *figure 1*. The map has been redrawn, but the detail is much the same; the names are largely the same, with translation: thus *Baseler Vorstadt* becomes *Faubourg de Bâle*, etc. And there can be no doubt whatsoever that the contours on the Provisional edition are copied from the German 1:25k. This perhaps explains why the marginalia are unusually coy about the source of data.¹⁶

In 1922 it was decided to discontinue the Type 1900 and that new maps should be of a new Type, broadly similar to the Provisional edition, albeit with a greater density of names. The change has been explained as resulting from the expense of printing the Type 1900.¹⁷ Undoubtedly the French Army in general, and therefore the SGA in particular, was under pressure to economise. But one can argue that it had come to realise that the Type 1900 was often illegible. For example, the reader may care to inspect the island (or rather peninsular) to the south of the harbour on *figure 5* and attempt to mark in all the vineyards. He will find it a difficult task, because vigneron do tend to lay out vineyards on south-facing slopes where there is already purple-grey hill-shading. The answer is indicated in *figure 8*, which uses a later convention in which vines are indicated by green dots along with broken diagonal black lines. Vines are not just of interest to the economic geographer but are of tactical importance, presenting a barrier to cavalry but not to infantry. A more serious problem was that it proved difficult to balance the intensity of the green used for woods against that used for meadows and other vegetation types. Type 1900 sheets can be found where meadows are almost as prominent as woods; other cases are like *figure 7* where the vineyards north of the city and around the Faubourg de Bâle (diagonal broken lines in green) are barely discernible. It would be wrong to pretend that the Type 1922 solved this problem immediately. It gradually progressed to the system seen on *figure 8* and even that had its problems; but problems in a map limited to four printings are more easily tolerated than in one as complex as the Type 1900.

Whereas the Type 1900 had used red for buildings, the Type 1922 changed this to black. This was liable to cause problems in great cities, where names in black previously stood out against the red but now might be lost. The red printing was therefore retained for sheets covering major cities, including the block of nine sheets centred on Paris. *Figure 9* provides an example. The cynical

¹⁴ *Das Reichsamt für Landesaufnahme und seine Kartenwerke*, (Berlin,1931), 174 (available on-line)

¹⁵ I am not aware of any specimens.

¹⁶ By 1967, at least one sheet (XXXIV-13) acknowledged use of German material. I am indebted to the Exeter Geog Dept catalogue for this.

¹⁷ AR Hinks, *Maps and Survey*, 1942, 94.

may observe that the extent of built-up area on this sheet is not so extensive that printing in black was really precluded; perhaps the same political motives that caused Paris and the great cities to receive early treatment in the Type 1900 now acted to give them maps of almost equivalent splendour. There would clearly be problems if anyone wanted to mount these maps alongside neighbouring sheets of the ordinary Type 1922; since in most cases the neighbouring sheets were Type 1889 on different sheet lines, this was a problem that could be ignored for the time being.

France: the end of the Carte Vicinale

Regular updating had been proclaimed as one of the virtues of the Carte Vicinale. One can find copies that have been bought as much as nine years after they were printed; on the other hand, revision and reprinting seems usually to have taken place at intervals of no more than fifteen years. Comparison of successive editions suggests that revision showed new population figures and updated post & telegraph facilities and railways – all matters that could probably be dealt with from Paris. Changes to roads seem infrequent. This is despite a broken-line variant of symbols to indicate roads *en lacune*. It would seem that the term should be understood as ‘in the programme’ rather than ‘under construction’, otherwise construction was taking an awfully long time.

After the war, there was a requirement to extend coverage to Alsace and Lorraine. This must have created problems for an organisation which lacked proper surveyors. Perhaps the new maps were based simply on reductions of the SGA’s Provisional Editions. If so, it will have helped prepare the ground for the SGA’s coup in 1922 by which it took over full responsibility for the Carte Vicinale. Henceforth the country had only one official map producer.

Curiously, the plates of the Carte Vicinale remained unchanged for a couple of years: perhaps nothing could be done until the contract with Hachette expired. What does change is the blind-stamp (though scarcely anyone can have noticed this). Instead of referring to the ‘Carte de France’ it now describes the product as the *carte dite de l’Interieur*, an odd expression – it is difficult to imagine that anyone actually referred to the map in this way. From 1925, the SGA appears on the map as its publisher in place of Hachette. From 1925 too, one usually finds ‘partial revision’ which seems to amount to the updating of population figures and nothing else.

The Carte Vicinale staggered on until the Second World War. It presumably filled a useful gap in those large parts of the country where the SGA’s own product was still the unappealing Type 1889, even though this might have been updated more recently than the Carte Vicinale.

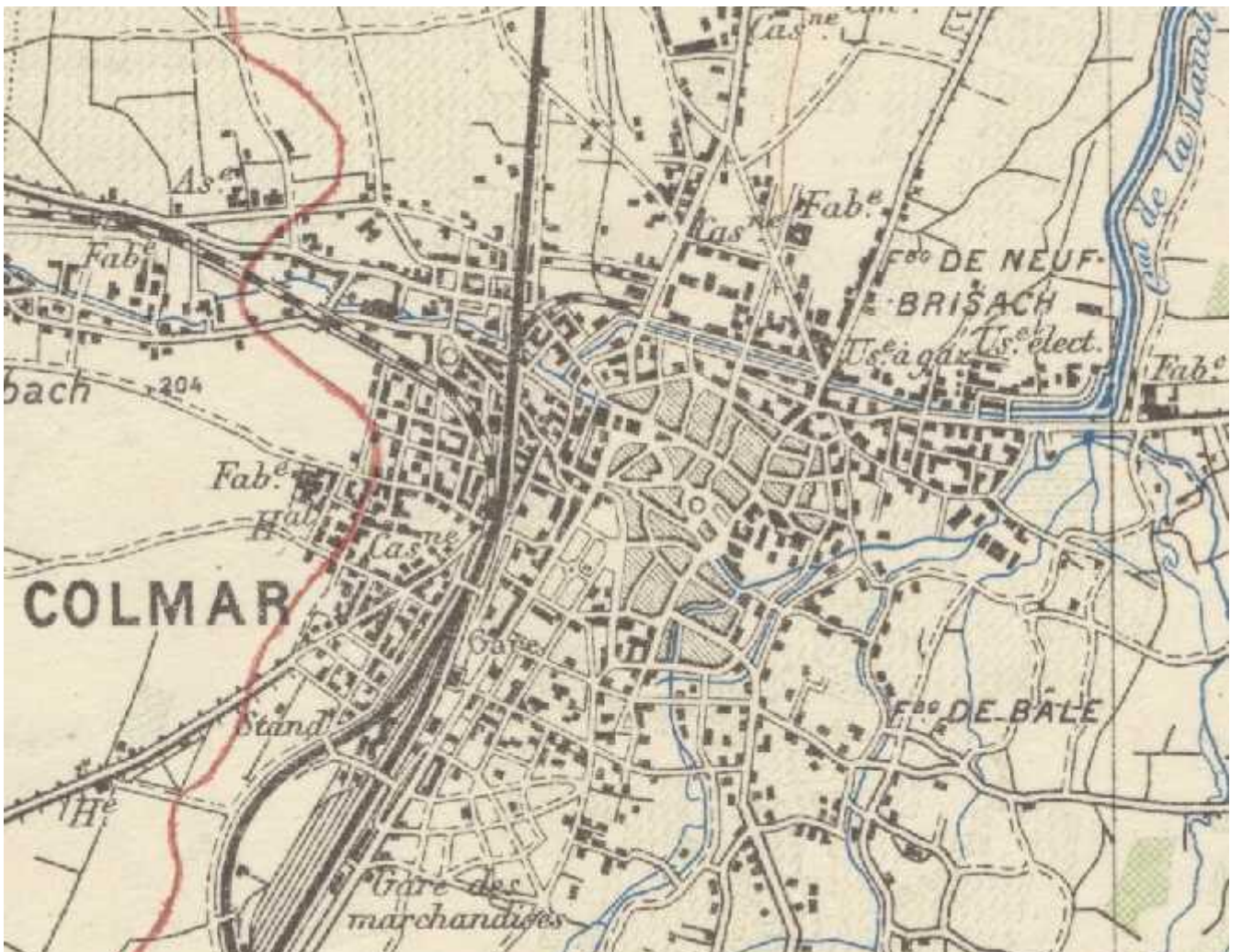


Fig 7. Extract from Colmar sheet of Provisional edition



Fig 8. As figure 6 but edition of 1932



Fig 9. Versailles on Type 1922

UK

The Ordnance Survey rather tentatively launched a coloured lithographed version of the Revised New Series in 1897, which was well received.¹⁸ It went on to produce a coloured version of the Third Edition, and by 1914 almost the whole country was available in this style.

In parallel to this, another style was being developed, the ‘Coloured Outline’ or ‘Contoured Road Map’. Close had a hand in this while heading the Geographical Section at the War Office.¹⁹ On moving to Southampton as Director-General, Close also experimented with a more elaborate style of coloured map inspired by the French Type 1900, producing various isolated sheets of which the Killarney one is the most famous. Then came the First World War; at the end of this, a new one-inch series was needed and the ‘Contoured Road Map’ style was adopted.²⁰ Public demand for maps had been greatly expanded by the exposure to maps so many had received during the war; for those serving in France, the main small-scale maps they will have used will have been GSGS 2364 and 2733 in the ‘contoured road map style’. So in a sense Close’s activities at the War Office had prevailed over his grander ideas at Southampton – though of course cost and the available resources played a massive part.

I have skated very quickly over the UK story, because it is well known to most readers and full accounts are readily accessible.

¹⁸ T Nicholson, *The Birth of the Modern Ordnance Survey Small-scale Map*, Charles Close Society, 2002.

¹⁹ Richard Oliver, *The Ordnance Survey in the Nineteenth Century*, Charles Close Society 2014, 451.

²⁰ Yolande Hodson, *Popular Maps*, Charles Close Society, 1999.

Assessment

Superficially, one might say that Germany was less advanced than the UK, whilst France was more advanced. Such a statement supposes a preordained sequence of development, which all countries followed but at differing speeds. In fact, countries (or groups of countries) have proceeded along different lines. In particular, official topographic maps in the German-speaking world (Switzerland, as well as Austria and Germany) long adhered to a style closely derived from the engraved map but separated into black, brown and blue plates.²¹ Latterly, road fill has been offered, but often by means of a separate overprint, maps being available with and without this option. In the case of Germany, it must have been convenient that this general approach gave the ability to revert to a monochrome lithographed product when under financial or other pressure, but that hardly affected Switzerland. And all these countries have sought to enhance the black+brown+blue design by the subtle application of hill-shading. What all these countries have in common is alpine terrain, whose representation presents a particular challenge to cartographers.

In the UK, the Ordnance Survey was trying to achieve sales to a wider public. That wider public was interested in maps as means of getting about; they did not share the geographers' interest in maps as an aid to the appreciation of land-forms. Take, for example, the Ellis Martin family group on the cover of 'Country Round London'. Two men are poring over a map; a cyclist has stopped to give advice; a lady stands up in the back of the car, shielding her eyes against the sun: what is she saying? (This would almost make a caption competition.) "I *do* think that is a glacial moraine over there" is the sort of entry that might win such a competition for its sheer absurdity: of course the question under discussion is "Do we turn left or right?". So, whilst the Ordnance Survey listened politely to the likes of AR Hinks²² (and even tried to follow his suggestions, where possible), right from 1897 coloured fill for the better sort of road was seen as absolutely essential.

This difference in expectations is brought out by the British Army's version of KDR-100, GSGS 2739, which adds a brown fill to roads, perhaps in part as a compensation for the poor reproduction of the black detail. There is an even better example at the 200,000 scale, where CUL Maps 257.90 is a partial set of KDR-200 with red fill for main roads, blue water, and green woods, said to have been produced in Paris but looking like a WW1 British product. By a strange quirk, the 1:300k *Übersichtskarte* is similar in style to GSGS 2739, as though the German and British armies were actually quite close in their cartographic aspirations.

As for France, there is no denying that the Type 1900 was highly innovative and provided a depiction of relief that the geographers greatly admired. For tactical use by the Army, it was so superior to the map it replaced that perhaps

²¹ One might cite the 1:10k of the Zugspitze printed 1892, with contours in brown and glaciers (?hand-coloured) in blue, as evidence that the Bavarian survey was in no way backward. A facsimile of this map was issued in A Habermeyer, *Die Topographische Landesaufnahme von Bayern im Wandel der Zeit*, (Stuttgart, 1993).

²² Secretary to the RGS. See RC Wheeler, 'OS maps as they might be' *Sheetlines*, 48, 64.

no one was inclined to criticise it. Likewise, if the man in the street saw a copy, he would doubtless consider it quite splendid. Did he go out and buy it? I have never seen any sales figures. As noted, the Type 1900 was something of a dead end.

The Carte Vicinale was highly innovative too. Even if we regard the Interior Ministry as equivalent to Bartholomew – despite being part of government it was not the official cartographer – it can still claim priority for producing the first decent topographic map of a large country that made full use of the possibilities of colour-printing. If only Anthoine's ambition to produce a contoured road map had been achieved, perhaps French cartography might have followed an entirely different course. In the event, the Carte Vicinale was also to prove a dead end.

The consequence was that by 1972, half a century after the launch (or re-launch) of the flagship product of official French cartography, the Type 1922 was looking tired and was still incomplete. It would be interesting to know who bought it, other than academic geographers. The motoring public bought the Michelin 1:200k. (The cartographic revolution brought about by the IGN in the years that followed would make a fascinating account but this is not the place to tell it, nor am I the person to do so.)

What, then, should we make of the Close experiments with the 'fully coloured' one-inch? Perhaps the most telling point was that they remained experiments. Close was evidently pushing them for all he was worth; and the sheer number of experimental sheets either indicates unusual caution on Close's part or – perhaps more plausibly – that his response to failure to obtain authorisation for a new series was to keep the programme going with yet another trial sheet. Without doubt, Close's enthusiasm was misplaced: the Army seems not to have wanted his Fully Coloured style;²³ and the public (as shown by the later history of the 5th Edition) did not care for it either. He was paying too much attention to the geographers.

Thus, in the end, the Contoured Road Map prevailed. Red main roads – a particular dislike of the geographers – are about to celebrate the centenary of their appearance *en masse* and are still going strong. Close's real achievement was the Popular Edition. To his predecessors belongs the credit for the UK (bar the Western Isles) being covered in 1914 by a coloured map that met public needs and commanded a measure of public affection. In that respect, the Ordnance Survey was decades ahead of its neighbours.

One final observation: the politics surrounding official cartography in the UK seem to have been remarkably trouble-free in this era, compared to both France and Germany.

²³ The Aldershot experimental sheets can be interpreted either as a sales pitch to a potential customer or as reflecting a measure of enthusiasm in certain quarters at the Aldershot Command; but the outcome seems to have been negative so far as the fully coloured style was concerned.