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“Rivers and their catchment basins”

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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.

## ***Rivers and their catchment basins***

***Michael Spencer***

Richard Porter's 'Mapping river basins'<sup>1</sup> impinged on my hobby of making a list of all the mountains in Great Britain over 500m high. I call this a hobby because it has already occupied more than thirty years, and there seems no sign of any immediate completion (though I think the National Library of Scotland's putting all the modern 1:10,000 maps on line will help a great deal).

In order to arrange my hills into coherent groups, I consider them all as being situated on ridges that connect one summit with the next, with low points on the ridges as the topography dictates; and clearly the delineation of river basins forms an important input to this concept. I was therefore very pleased to obtain a copy of the OS *Rivers and their catchment basins* ten miles to the inch map of England and Wales through the good offices of our member David Purchase.

The actual date of the map is not shown on David's copy sent to me, which appears to be made in a dozen sheets on an A3 printer. David suggested 1868. The title data includes the statement that rainfall data as shown on the map is taken from Symons' *Rainfall*, 1867; so that 1867 for the map, as Richard suggests, appears to be pushing it a bit. Maybe a member with a complete title panel can clear this up.<sup>2</sup>

### ***Use of the map in my concept***

In my concept, each hill is joined along a definite ridge to the next higher hill. Other hills on the same ridge, lower than either, are not relevant. Following the ridge is mainly intuitive, particularly when using layer-coloured maps such as Bartholomew's, but a problem arises when looking for the next higher hill to Ben Nevis. Clearly this is somewhere on the Continent, and the line of the ridge must be traced through France and under the Channel, where the important line is that of least depth. Admiralty Chart 2451 does the job.

A lifetime of painstaking research (well, it sounds good) shows that the line of least depth from France to Britain comes ashore in the parish of Fairlight in Kent. There is a trig point, 220 feet, TQ875116, at the eastern end of a small ridge leading along the coastline eastward from Hastings, and this is the end of the watershed in Southern England, whose northerly end is the minor hill The Roaches in Staffordshire. The route of the intervening ridge can be very easily determined from the OS *River basins* map. It can be seen to lie between the following sets of basins:

West and South: Weaver; Severn; (Bristol) Avon; (Hampshire) Avon; Test; Itchen; (small streams—on larger-scale maps called the Meon); Arun; (Sussex) Ouse; Cuckmar (now more usually Cuckmere); Old Haven (see further below).

East and North: Trent; Welland; Nen (now more usually Nene); (Great) Ouse; Thames; Medway; Rother.

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<sup>1</sup> *Sheetlines* 112, 42.

<sup>2</sup> See below.

These names are taken from the “Table of lengths and areas” (see below) that accompanies the map. For England and Wales, the Table lists, and the map shows, a total of 215 basins, of which 71 have no name but are merely called “small streams” (as for example that between the Itchen and the Arun). The rest are identified by the name of their major river, that is, the name of the eventual effluent from the basin into tidewater. Basins are all colour-coded so that their boundaries are easily seen.

Rivers are hard to follow within the very flat lands of the Pevensey Levels, and many are enticingly called a “sewer.” It seems clear that the Old Haven has attained a well-deserved obscurity. The major stream in this basin is now Waller’s Haven, which enters the sea at Pevensey Sluice. This same basin also contains a stream called Combe Haven, well separated from Waller’s Haven by a ridge over 200 feet high, and entering the sea by a separate mouth between Bulverhythe and St Leonards. This lumping of separate streams into a single basin leads to some difficulties, as discussed here and below.

Using the Admiralty chart in this way also identifies the true position of the entry of the main water parting of Britain into the English Channel. This is not dependent on any author’s feeling for what might be right, neat or desirable: it depends only on the topography. It is important to consider the topography of the British Isles in its relationship to that of the Continent, and to recognise the line of least depth that connects them. Thus the view of Stamp and Beaver, taking the line of the main water-parting of Britain into Lyme Bay, is shown to be indefensible.

### ***Difficulties***

I have identified one major error, resulting from draughting perhaps less careful than we are used to from the OS. This error shows the Dee near Chester crossing its basin boundary into the adjoining one, but in fact the line emphasised in black, the usual colour for rivers, is the course of the Ellesmere Canal. Other canals are shown in blue. I haven’t looked for other errors: that one struck me because it’s in the area where I grew up, and naturally that’s where I first looked.

Various difficulties arise in connection with some areas. For example, look at the extract showing Anglesea (the usual spelling in the eighteenth and nineteenth centuries). Five river basins are shown, keyed to the Table by their Roman-

numeral designations. (The reference to Basin 56, in the top left corner, unfortunately lies right on a fold.) Basins 56, 59 and 60 have river-names; Nos. 57 and 58 are each “several small streams.” No. 56, the basin of the Alaw, includes a number of lesser streams not tributaries to the Alaw at all, and reaching the sea independently. It is difficult to accept that they are in “its” basin. No 60 covers the whole length of the north shore of the Menai Strait: the Braint certainly picks up one end of this, but the northern end has nothing to do with

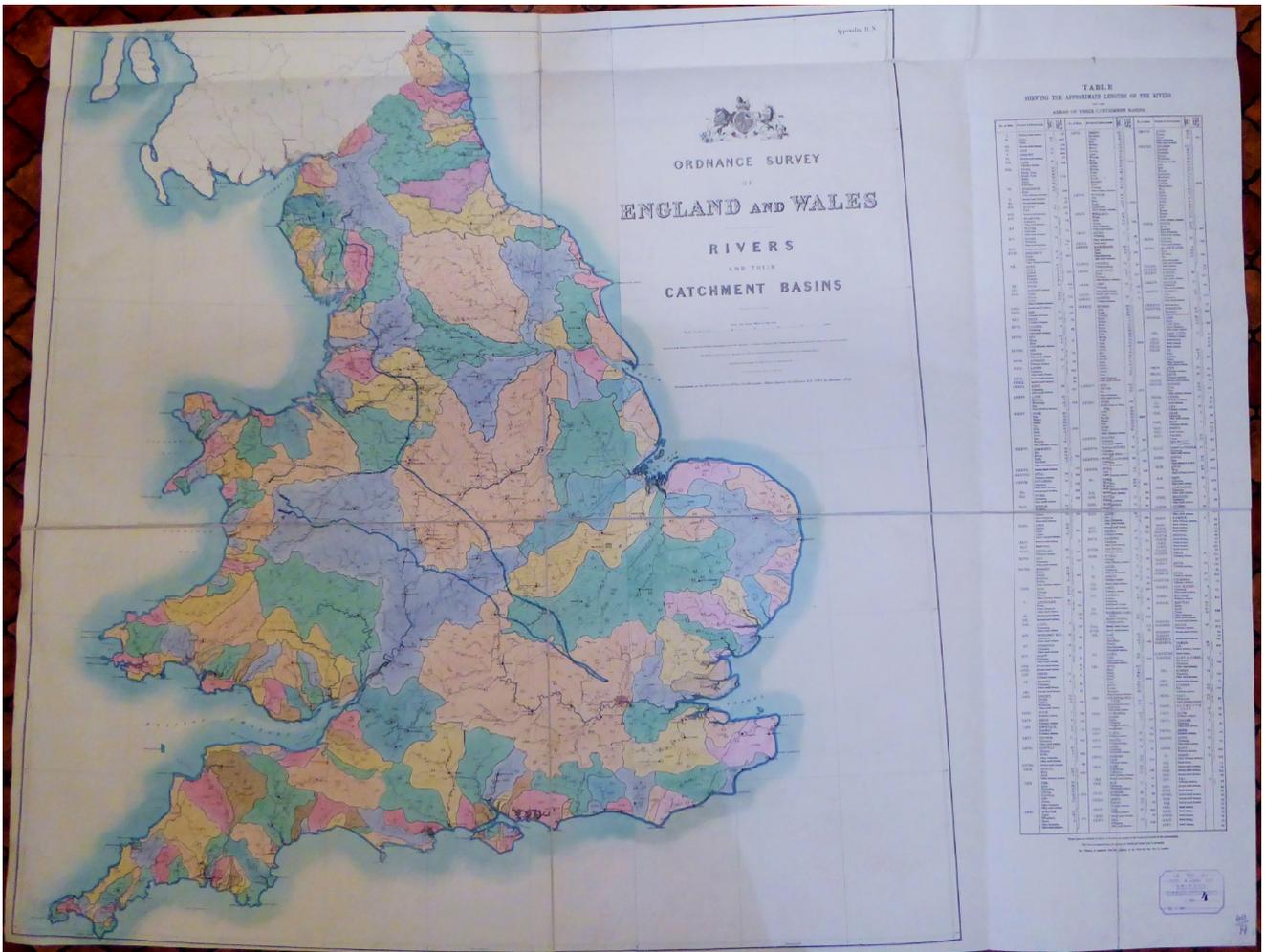


the Braint at all. Numbers 57 and 58 are just incomprehensible: the criteria for determining the boundaries of No 57 are clear enough, lying as it does between the Alaw and the Cefni, but two of the included streams are quite respectable and there seems no real reason why they were not separated out.

This argument is supported by the tabulated areas of the basins:

- 57, several small streams, 69 sq. mi.
- 56, Alaw, 58 sq. mi.
- 60, Braint, also 58 sq.mi.
- 58, several small streams, 47 sq.mi.
- 59, Cefni, 41 sq.mi.

It seems to me that everything hinges on whether the major river in the basin has a name on the ten-mile map or not. This whole map is crying out to be replotted on a much larger scale, with the “small streams” given some importance and independence.



**Bill Hemwood writes:** I share Richard Porter’s enthusiasm for the *Rivers and their catchment basins* map of England and Wales. Some years ago, I was fortunate to find a copy of it (*above*) and of the *Contoured map of the Thames Basin*, both previously owned by the Great Western Railway and languishing in a pile of old railway plans. Incidentally, the two blue lines superimposed are notional routes for pipelines to London from proposed reservoirs in North Wales

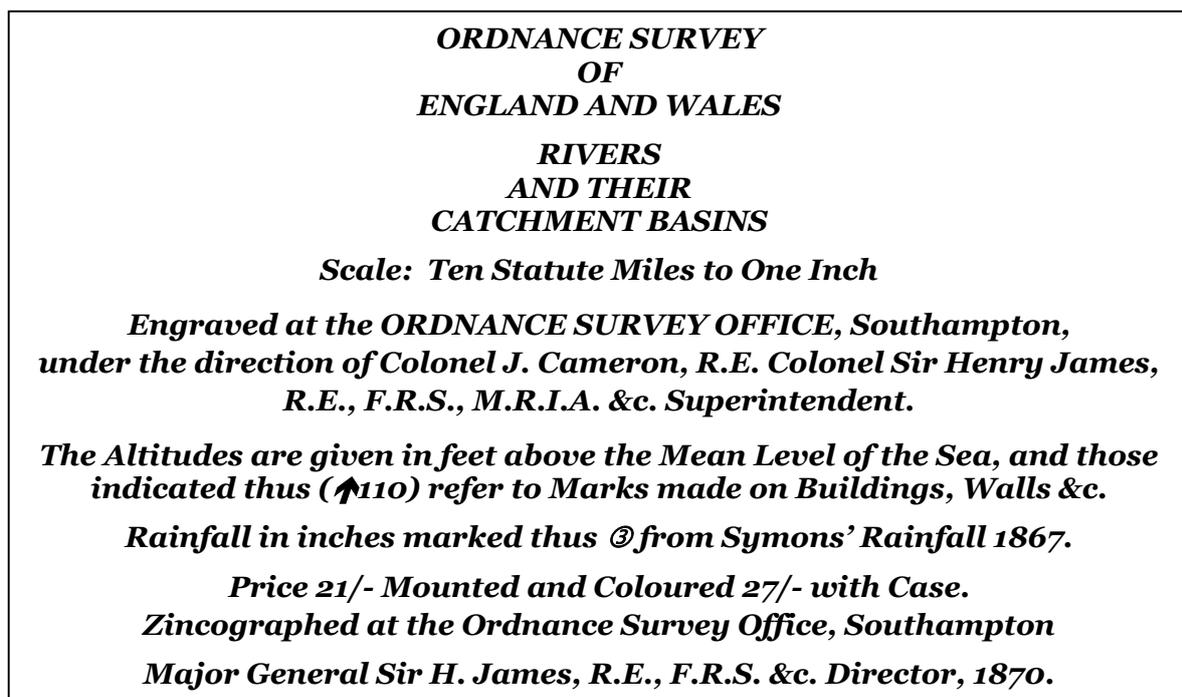
(suggested by John Frederick Bateman) and from the Lake District (put forward by GW Hemans and Richard Hassard). Of course, neither route got used but the idea was later taken up by northern cities.<sup>3</sup>

But I also share Richard's doubts about the feasibility of adding it to the *Maps from the past* series – not only due to size but also because some of the detail (notably rainfall figures for 1867) is very small and fine and would need a very high-resolution scan to be legible.

Second, a correction. Richard understandably assumed that the England and Wales sheet is divided north/south, but it's actually in east/west halves, the join being along the Greenwich Meridian – so far east because much of the eastern half is taken up with the extensive tables to which he refers.

Finally, I can add to Richard's list of later catchment area maps: *The Field map of the Rivers of Great Britain* (1959). The title is incorrect as the text in the legend begins: 'The areas outlined in red approximate to the principal catchment areas of the United Kingdom and Eire ...' i.e. it covers the whole of the British Isles. It is portrait, 20 x 24.5 inches within the neat line, scale about 1:1,650,000. The text refers to a book which I have not traced; I found the map alone in a rummage box. Red overprint depicts and names 100+ catchment areas in England and Wales, 50+ in Scotland and about 35 on the island of Ireland. Each has code letters for the types of fishing to be had – so a successor to the 1861 Royal Commission map? The base map is curious. In grey outline, it is 'Printed by George Philip ...' but also has the note 'Edward Stanford ... 1959'. It has been updated to name Northern Ireland and Eire but depicts railways as at 1849/50!

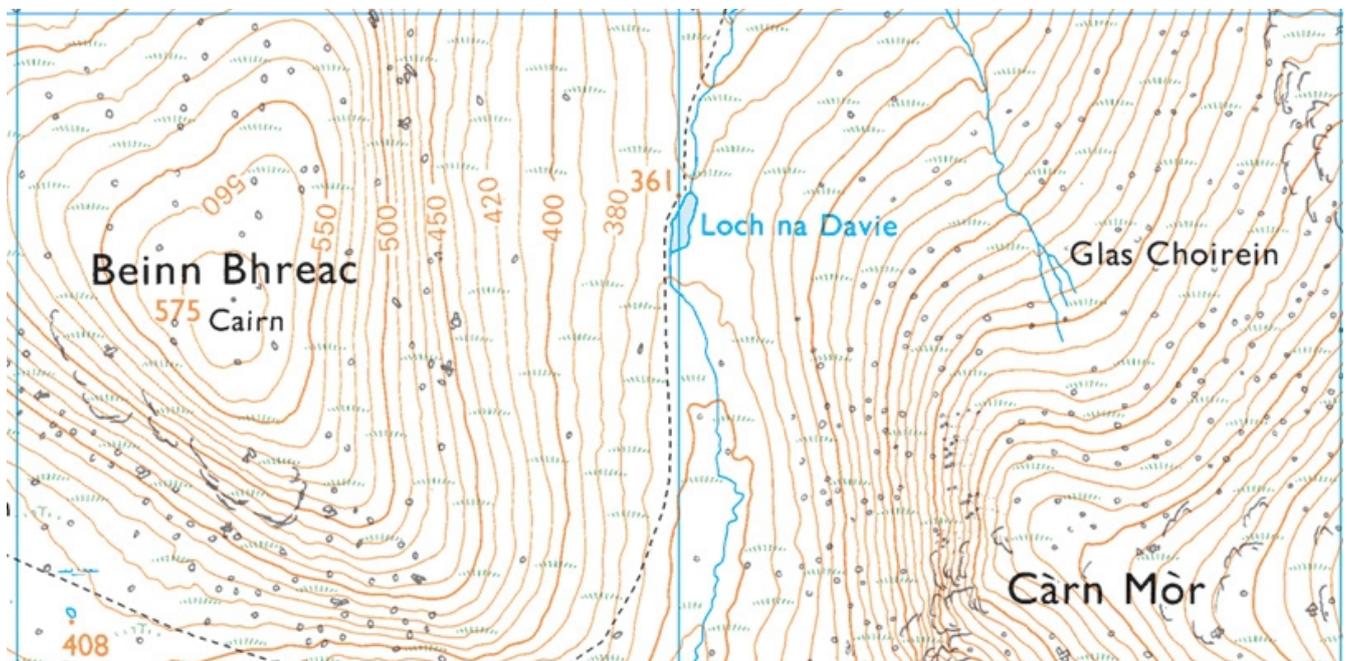
So whether by Philip or Stanford it was about 110 years old when used by *The Field*, though I doubt that their readers noticed or cared.



<sup>3</sup> See Tim Nicholson, 'The OS and a 19th century environmental crisis', *Sheetlines* 31, 12-18.

**TABLE**  
**SHEWING THE APPROXIMATE LENGTHS OF THE RIVERS**  
 AND THE  
**AREAS OF THEIR CATCHMENT BASINS.**

No. of Basin.	RIVERS & TRIBUTARIES.	Length in Miles.	Area of Basins in Sq. Miles.	No. of Basin.	RIVERS & TRIBUTARIES.	Length in Miles.	Area of Basins in Sq. Miles.	No. of Basin.	RIVERS & TRIBUTARIES.	Length in Miles.	Area of Basins in Sq. Miles.		
I.	Several small streams.		37	LXXII.	TRENT.	147	4052	CXXVII.	AVON.	62	891		
II.	TILL.	38	231		Derwent.	54				Frome.		19	
	Glen.	10				Tarne.		22				Chew.	10
III.	Several small streams.		129		Eau.	8				Other tributaries.			
IV.	ALN.	18	104		Meden.	42			CXXVIII.	THAMES.	111	4618	
V.	COQUET.	40	240		Mann.	13				Cherwell.	40		
VI.	Several small streams.		21		Devon.	19				Evenlode.	27		
VII.	LINE.	20	104		Leen.	11				Dorme.	13		
	Tributary streams.					Wreak.		21			Windrush.		25
VIII.	TYNE.	34	1130		Soar.	34				Thames or Isis.	48		
	North Tyne.	39				Mease.		15			Ock.		12
	South Tyne.	38				Anker.		21			Ray.		12
	Rede.	22				Blythe.		13			Thame.		27
	Allen.	13				Tame.		29			Lamborne.		14
	Derwent.	30			Cole.	5				Emborne.	16		
IX.	WANSBECK.	22	126		Dove.	29			Kenet.	45			
	Font.	12				Manyfold.	11			Loddon.	15		
	Other tributary streams.			LXXIII.	WITHAM.	40	1079		Blackwater.	10			
X.	Several small streams.		18		Till.	14				Wey.	38		
XI.	Several small streams.		37		Bain.	24				Mole.	35		
XII.	BLYTH.	16	131		Brant.	13				Chess.	7		
	Pont.	16			Langworth.	9				Colne.	26		
XIII.	Several small streams.		31		Other tributary streams.				Brent.	10			
XIV.	WAMPOOL.	14	78	LXXIV.	WELLAND.	42	760		New.	35			
	Tributaries.					Wash.		19			Lea.	50	
	Other small streams.				Glen.	31				Maran.	11		
					Chater.	15				Beame.	11		
XV.	WAVER.	12	70	LXXV.	ARTRO.	7				Stort.	19		
	Tributaries.				Other tributaries.			CXXIX.	STOUR.	45	407		
	Other small streams.				Other small streams.				Brett.	20			
					Tributaries.				Boxford.	6			
									Other tributaries.				
									Other small streams.				



**John Davies adds:** Loch na Davie, (NR 950 456) in the hills above Lochranza on the Isle of Arran, has the unusual attribute of emptying into two different river basins. The loch is fed by underground streams and – fun fact – provides the water from which the Arran single malt whisky is distilled.