

THE MAPS OF YORKSHIRE, PRINTED IN THE PERIOD 1577-1857,

AS SOURCES OF TOPOGRAPHICAL INFORMATION

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Submitted in fulfilment of the requirements for the degree of Ph.D., The University of Leeds, School of Geography.

ABSTRACT

This thesis considers as sources of topographical information the utility of the printed maps of Yorkshire produced by private individuals before the advent of the Ordnance Survey.

The thesis is divided into two parts. In Part I, the aim is to consider the problem of the reliability of these printed maps and to divide them into two categories: maps which are demonstrably of no use as topographical sources; and maps which merit further investigation. The concern of Part II is to give to the maps in the second category the attention which they merit and to present an assessment of their utility as sources of topographical information.

Part I contains four chapters. Chapter 1 places the research into the context of previous studies in historical cartography. Chapter 2 presents the problem of map reliability by discussing the nature of the printed maps before the creation of the Ordnance Survey. In the light of this discussion Chapter 3 presents a methodology and classificatory system devised for the assessment of the maps of Yorkshire.

Chapter 4 records the results of the application of this classificatory system to all the maps of Yorkshire. This chapter identifies those maps which contribute genuinely to our knowledge of the topography and which will therefore need to be considered in Part II. A graph shows the number and type of every printed map of the county published each year.

Assessment of the maps in Part II is undertaken in chronological periods based on five of the most important works, namely Saxton's map of 1577, Ogilby's strip maps of 1675, Warburton's map of 1720, Jefferys' map of 1771/2 and Greenwood's map of 1817/18. The exceptional survival of Warburton's field survey materials enables an analysis of the crucial relationship of the printed map to the actual survey.

A final chapter considers the relationship of non-printed maps to the printed map. The concluding section of the thesis considers the relevance of the findings for the printed maps of other counties.

ACKNOWLEDGEMENTS

"Who is the third who walks always beside you?"

(T.S.Eliot. The Waste Land, 1922)

The support of many people is acknowledged with profound thanks. Without the financial contributions of the Social Science Research Council over the first three years the task would have been impossible. Similarly the invitation of the School of Geography, University of Leeds, was a prerequisite. Here special thanks are given to my two assiduous and long-suffering supervisors, Mr. G. C. Dickinson and Professor G. R. J. Jones.

The hours spent in archives and libraries placed considerable burdens on their staff and to all those who willingly staggered to and fro with countless maps, books and odd packages, thank you. Particular mention must be made, however, of those responsible for the Brotherton Library, the Brotherton Collection and the Whitaker Collection.

In a thesis about cartography it is fitting that the presentation of maps should be of the highest order. That this has been achieved for many of the Figures is due to the craftsmanship of John Dixon of the School of Geography.¹ The remaining figures are the author's own efforts.

The presentation of the thesis has been further enhanced by the skills of Mrs. Milner for whom, with her husband's interest, the typing of a thesis is so much more than a mere exercise.

Finally I acknowledge the spiritual support of my family and friends. Indeed, for all who have walked beside me, thank you.

1 Namely Figures 5-8, 10, 31-40, 63, 68, 70-2, 77-9.

CONTENTS

	<u>Page</u>
Abstract	ii
Acknowledgements	iii
Contents	iv
Figures	xi
Tables	xv
Abbreviations	xvi
 <u>INTRODUCTION</u>	 1
The structure of the thesis	5
The printed maps of Yorkshire: locations	8
The printed maps of Yorkshire: some definitions	9
 <u>PART I</u>	
 <u>CHAPTER ONE</u>	
<u>A REVIEW OF HISTORICAL CARTOGRAPHY WITH A PARTICULAR REFERENCE TO THE PROBLEM OF CARTOGRAPHIC RELIABILITY AND THE PRINTED MAPS OF YORKSHIRE</u>	14
The wider field: literature on the history of cartography	15
Previous approaches to the evaluation of printed maps	17
Previous work on the printed maps of Yorkshire and the most important cartographers	20
Some concluding remarks	23
 <u>CHAPTER TWO</u>	
<u>THE NATURE OF MAPS BEFORE THE ORDNANCE SURVEY AND THEIR POTENTIAL USEFULNESS AS SOURCES OF TOPOGRAPHICAL INFORMATION</u>	25
The sources of map content	26
1) Previous mapped representation	26
2) General knowledge	27
3) Actual ground measurements	27

<u>CHAPTER TWO</u> (Cont'd)	<u>Page</u>
The context of the printed maps as an indicator of their nature	28
The financial factor in influencing the choice of sources for map content	31
Factors influencing the accuracy and consequently the interpretation of the cartographic information	32
<u>CHAPTER THREE</u> <u>SOME PROPOSED BASES OF CLASSIFICATION FOR</u>	
<u>YORKSHIRE PRINTED MAPS: 1577-1857</u>	36
Introduction	36
The Methodology	36
<u>A description of the classification devised for the printed maps of Yorkshire</u>	45
1) Basic maps	46
2) Significant Derived maps	46
3) Not Significant Derived maps	47
4) Significant Altered Reprints	47
5) Not Significant Altered Reprints	48
6) Unaltered Reprints	48
<u>CHAPTER FOUR</u> <u>APPLICATION OF THE CLASSIFICATION TO THE</u>	
<u>PRINTED MAPS OF YORKSHIRE: 1577-1857</u>	50
The general application of the classification to all the maps of Yorkshire	52
Further consideration of the classification to the categories of Useful Maps	56
Extension of the Key periods to the complete map series	62
Period One: from Saxton's map of 1577 to 1674	63
Period Two: from Ogilby's Road Book in 1675 to 1719	64
Period Three: from Warburton's map of 1720 to 1770	65
Period Four: from Jefferys' map of 1771/2 to 1816	67
Period Five: from Greenwood's map of 1817/18 to the Ordnance Survey 1857	68
Conclusion	70

PART II

	<u>INTRODUCTION</u>	72
<u>CHAPTER FIVE</u>	<u>PERIOD ONE: SAXTON'S MAP OF 1577 TO 1674</u>	73
	Introduction	73
	The background to Saxton's Survey and possible sources and methods	74
	The Map	78
	Parks	80
	Rivers	83
	Bridges	86
	Bridges and Routes	90
	The persistence of Saxton's information	92
	A benefit to be derived from Saxton's errors	94
	<u>Additional maps as sources of topographical information between Saxton's 1577 map and Ogilby's 1675 maps</u>	96
	i) 1610. Speed's County and Riding maps	96
	ii) 1671. 'Quartermaster's' map reprint	99
<u>CHAPTER SIX</u>	<u>PERIOD TWO: OGILBY'S MAPS OF 1675 TO 1719</u>	110
	Introduction	110
	The representation of routes on maps before Ogilby	111
	Ogilby's <u>Britannia</u>	125
	Ogilby's Survey Methods and Interpretation of the roads	127
	External evidence	127
	Internal evidence	130
	Comparison of Ogilby with the Ordnance Survey maps	133
	Repeated roads as evidence for interpretation	135
	A summary of the evidence for interpreting Ogilby's road representation	139

CHAPTER SIX (Cont'd)

	<u>Page</u>
<u>Interpreting Ogilby's Roads through Yorkshire</u>	143
Introduction	143
Road 1. Bawtry-York-Neasham-(Darlington) Plates 7 and 8	146
Road 2. Hull to Flamborough, Plate 42	166
Road 3. Killamarsh-Barnsley-Skipton- Richmond, Plates 48 and 49	173
Road 4. York towards Lancaster, Plate 88	181
Road 5. York towards Chester, Plate 89	188
Road 6. Ferrybridge to Barnard Castle, Plate 95	193
Road 7. Ferrybridge to Wakefield, Plate 95	198
Road 8. Whitby to Stockton, Plate 99	200
Road 9. York to Whitby, Plate 100	203
Road 10. (York)-Malton to Scarborough, Plate 100.	207
Ogilby's Road Network and implied Route Network	209
Ogilby as a Topographical map of Yorkshire	214
Ogilby's influence with particular reference to later Road Books	224
<u>Additional maps of use as sources of topographical information between Ogilby's 1675 maps and Warburton's 1720 map</u>	230
i) 1676 'Quartermaster's' map reprint	231
ii) 1687 Saxton's General Map of England and Wales reprint	232
iii) 1693 Saxton's County map reprint	233
iv) 1695 Morden's Riding maps	233
v) 1708 Morden's small Riding maps, reprints	235
vi) 1712 Nicholl's "20 miles round Leeds"	236
 <u>CHAPTER SEVEN</u> <u>PERIOD THREE: WARBURTON'S MAP OF 1720 TO 1771</u>	 241
Introduction	241
The Warburton materials in the Lansdowne Collection in the British Library	241
Warburton's map of 1720	243
Information in the Lansdowne Collection on the survey methods	245
The Journal: reassessment with special reference to Roman roads	250
The Observation Stations: the accuracy and completeness of the 'framework' of the survey	260

<u>CHAPTER SEVEN</u> (Cont'd)	<u>Page</u>
The completeness of the survey details	267
The accuracy of the survey details as illustrated for the North Riding	271
Warburton's survey compared with Saxton's map of 1577: the North Riding. A comparison of settlement numbers and accuracy	273
The Roads on Warburton's map	285
Warburton's Surveyed Roads	287
The Roads: the present day equivalents	292
Brown's Surveys	295
Smith's Surveys	308
Bland's Surveys	324
Ogilby's Roads on Warburton's map	331
Unsurveyed routes on Warburton's map of Yorkshire	335
Corrections to the printed map. An Early State	340
Some conclusions about Warburton's map	342
 <u>Additional maps of use as sources of topographical information between Warburton's 1720 map and Jefferys' 1771 map</u>	 345
i) 1724 Moll's County and Riding maps	346
ii) 1750 Bowen's County and Riding maps	346
iii) 1750 Dickinson's map of South Yorkshire	348
iv) 1764 Kitchin's County and Riding maps	351
 <u>CHAPTER EIGHT</u> <u>PERIOD FOUR: JEFFERYS' MAP OF 1771/2 TO 1816</u>	 353
Introduction	353
The making of Jefferys' map	354
The 1771 map	365
The maps of 1775 and 1800	374
The 1775 map changes	378
A comparison of Plate XIII: the environs of Aberford, 1772 and 1775	378
The 1800 map changes	380

CHAPTER EIGHT (Cont'd)Page

<u>Additional maps of use as sources of topographical information between Jefferys' 1771 map and Greenwood's 1817/18 map</u>	388
i) 1773 Backhouse. Map of the Meetings	388
ii-v) 1787, 1793, 1809 and 1812, Cary	389
<u>Cary's North Part of the West Riding 1812. An illustration of the problems in interpreting a map which cannot be readily accepted or rejected</u>	390
vi-ix) 1787, 1794, 1816 and 1786, Tuke's County map and map of Holderness	392
x) 1789 Cary's Riding maps	393
xi-xvii) 1789, 1791, 1806, 1806, 1809, 1814 and 1817, Cary's County map and reprints	394
xviii,xix) 1801, 1808 Smith's County map and reprint	394
xx) 1808 Laurie and Whittle's County map	394
xxi) 1808 Cary's New County map	395

CHAPTER NINEPERIOD FIVE: GREENWOOD'S MAP OF 1817/18 TO THEORDNANCE SURVEY 1857 396

Introduction 396

Greenwood's map of 1817/18 396

Additional maps of use as sources of topographical information between Greenwood's 1817 map and the Ordnance Survey in 1857 399

i-vii) 1818, 1831; 1818, 1831; 1819, 1822, 1828 reprints of Cary's maps	400
viii) 1828 Teesdale's County map	400
ix) 1829 Bryant's East Riding map	402
x) 1832 Pigot's County map	402
xi,xii) 1834, 1841 Smith's County map and reprint	402
xiii) 1834 Greenwood's Riding maps	403
xiv) 1836 Fowler's County map	404
xv) 1839 Frank's West Riding map	405
xvi) 1843 Hobson's County map	405
xvii) 1845 Dower's Railway map of Yorkshire and Lancashire	405
xviii) 1846 Newton's County map	405
The Ordnance Survey maps. Dating the contents	406

	411
Introduction	411
Kirkstall: the representation on printed maps of Yorkshire to 1771. Comparison with Dickinson's manuscript map of 1711	413
Kirkstall and the printed county maps	413
Kirkstall: Dickinson's 1711 manuscript map	417
Warburton's map of 1720 and Dickinson's 1711 map	418
Jefferys' map of 1771 and Dickinson's 1711 map	419
Conclusion	419
Skeffling. 1721 A pre-enclosure estate map by Bland and Smith in an area of coastal erosion	421
Coastal erosion and the manuscript map of Skeffling	425
Comparison of Warburton's printed county map and the 1721 manuscript map	427
The manuscript map as evidence for the misuse of printed county maps	428
Non printed maps and printed maps: some conclusions	429
<u>CONCLUSIONS</u>	431
<u>APPENDICES</u>	442
1. List of all Printed Maps of Yorkshire considered in this thesis, 1577-1857	443
2. Unseen Printed Maps of Yorkshire, 1577-1857	463
3. Warburton's Collection within the Lansdowne Collection	467
4. Places used for testing the relative locational accuracy of the settlement of the printed maps of Saxton and Warburton and also Warburton's Field Notes	471
5. Brown, Bland and Smith's Survey dates, 1718-1719	472
<u>BIBLIOGRAPHY</u>	476
A) Published works	477
B) Printed maps cited other than those in the Whitaker Collection	498
C) Manuscript maps cited	499
D) Unpublished sources cited other than manuscript maps	500
E) Newspapers cited	501

FIGURESPage

Figure 1	The maps of Yorkshire printed in the period 1577-1857: the general application of the classification, highlighting the chronological distribution of the useful maps	50
Figure 2	The numerical and chronological relationship of new maps to reprints	54
Figure 3	A Saxton error	94
Figure 4	A Pre-Ogilby County map route: comparison with Ogilby and the Ordnance Survey	112
Figure 5	Gough Map routes in Yorkshire. c.1360	115
Figure 6	Ogilby's Index map: Yorkshire 1675	118
Figure 7	Carr's Post routes in Yorkshire. 1668	120
Figure 8	Ogilby's Road and Settlement details superimposed directly on the Ordnance Survey map	132
Figure 9	An Ogilby road surveyed twice: comparison with the Ordnance Survey	137
Figure 10	Ogilby's roads in Yorkshire	141
Figure 11	Wentbridge to Ferrybridge. Ogilby and the Ordnance Survey	148
Figure 12	Towton to Tadcaster. Ogilby and the Ordnance Survey	153
Figure 13	Aldbrough to Dishforth. Ogilby and the Ordnance Survey	159
Figure 14	Topcliffe to Sandhutton. Ogilby and the Ordnance Survey	161
Figure 15	Breakhouse Bank to the River Tees. Ogilby and the Ordnance Survey	164
Figure 16	Leconfield to Scarborough Hall. Ogilby and the Ordnance Survey	167
Figure 17	Great Driffield to Kilham. Ogilby and the Ordnance Survey	170
Figure 18	Rotherham to Brampton and Wombwell. Ogilby and the Ordnance Survey	172
Figure 19	Rylstone to Linton. Ogilby and the Ordnance Survey	176
Figure 20	Middleham to Harmby. Ogilby and the Ordnance Survey	178
Figure 21	Skip Bridge to Allerton Mauleverer. Ogilby and the Ordnance Survey	180

<u>FIGURES</u> (Cont'd)	<u>Page</u>
Figure 22 Hampsthwaite to Blubberhouses. Ogilby and the Ordnance Survey	182
Figure 23 To the Lancashire Border: Ogilby	185
Figure 24 From Tadcaster through Bramham towards Thorne. Ogilby and the Ordnance Survey	187
Figure 25 Thorne to Leeds. Ogilby, Teal and the Ordnance Survey	190
Figure 26 Leeming towards Richmond. Ogilby and the Ordnance Survey	194
Figure 27 The entry into Richmond. Ogilby and the Ordnance Survey	196
Figure 28 Lythe to Scaling Dam. Ogilby and the Ordnance Survey	199
Figure 29 Stockton-on-the-Forest to Spittle Bridge. Ogilby and the Ordnance Survey	202
Figure 30 Staxton to Seamer. Ogilby and the Ordnance Survey	206
Figure 31 Routes implied by Ogilby's junctions	210
Figure 32 Routes added to maps of Yorkshire after Ogilby in 1675 and before 1720	238
Figure 33 Routes taken by Warburton recorded in his Journal	251
Figure 34 Roman roads as depicted on Warburton's map	253
Figure 35 Observation Stations: their distribution and the bearings between stations	259
Figure 36 The route followed by the surveyors between the 118 Observation Stations, August-October 1719	266
Figure 37 Settlement comparison between Saxton's map of 1577 and Warburton's map of 1720: the North Riding	274
Figure 38 Warburton's map of 1720. Roads actually surveyed by his surveyors	286
Figure 39 Warburton's map of 1720. 'Roads' depicted but not surveyed by his surveyors	286
Figure 40 The Roads surveyed by Brown, Bland and Smith and the routes they took, 1718-1719	289
Figure 41 Bridlington to Ulrome. Warburton and the Ordnance Survey	293
Figure 42 Skipsea to Hornsea. Warburton and the Ordnance Survey	294

<u>FIGURES</u> (Cont'd)	<u>Page</u>
Figure 43 Bedale to Burneston. Warburton, Brown and the Ordnance Survey	298
Figure 44 The Burneston Junction. Warburton, Ogilby and the Ordnance Survey	298
Figure 45 Kirkbymoorside. Warburton and the Ordnance Survey	301
Figure 46 Hutton Buscel. Warburton and the Ordnance Survey	301
Figure 47 South Cave to North Cave. Warburton, Brown, Jefferys and the Ordnance Survey	303
Figure 48 York to Easingwold. Warburton and the Ordnance Survey $\frac{1}{4}$ "	305
Figure 49 Bedale to Ulshaw Bridge. Warburton, Smith and the Ordnance Survey	307
Figure 50 Sedbergh towards Dent. Warburton and the Ordnance Survey	309
Figure 51 Thornton to Ingleton. Warburton and the Ordnance Survey	309
Figure 52 The Road and River between Wetherby and Tadcaster. Warburton, Smith and the Ordnance Survey	312
Figure 53 Tadcaster towards Cawood. Warburton and the Ordnance Survey	314
Figure 54 Thorne to Hatfield. Smith, Bland and the Ordnance Survey. (Smith and Bland superimposed on O.S. 7th series 1" base)	316
Figure 55 Hemsworth and New Mill Dam. Warburton and the Ordnance Survey	318
Figure 56 Part of the road and river from Elland to Dewsbury. Warburton and the Ordnance Survey	320
Figure 57 Almondbury to Shepley. Warburton, Smith and the Ordnance Survey	322
Figure 58 Bedale towards Richmond. Warburton, Bland and the Ordnance Survey	325
Figure 59 Scaling Dam to Whitby. Warburton, Smith, Bland and the Ordnance Survey	327
Figure 60 Kirkburn to Great Driffield. Warburton and the Ordnance Survey	329
Figure 61 An Unsurveyed Route between Tadcaster and Thorner: comparison with Ogilby's 1675 Road Surveys and the O.S.	333

<u>FIGURES</u> (Cont'd)	<u>Page</u>
Figure 62 An Unsurveyed Route from North Cave to Market Weighton. Warburton and the Ordnance Survey	337
Figure 63 Jefferys 1771: the three Surveyors' areas	355
Figure 64 Jefferys' 1771 map: errors at the Plate edges	364
Figure 65 Aberford. Jefferys and the Ordnance Survey	366
Figure 66 Notton. Jefferys and the Ordnance Survey	370
Figure 67 Alne. Jefferys, Warburton's survey and the Ordnance Survey	372
Figure 68 Diagram of all changes on Jefferys' map 1771/2-1775	376
Figure 69 Changes recorded on Plate xiii: 1771-1775	377
Figure 70 Diagrams of changes on Jefferys' map 1775-1800	381
Figure 71 The East Coast from Staithes to Whitby: comparison of the Jefferys Editions and the Ordnance Survey	383
Figure 72 The relationship between the roads and the coast on Jefferys before 1800: comparison with the Ordnance Survey	385
Figure 73 Ordnance Survey 1" Sheets Pre-dating the 6" sheets: Publication dates	407
Figure 74 Ordnance Survey First Edition 6". Date at which surveying began: principal anomalies between survey dates of adjacent sheets	409
Figure 75 Kirkstall: the representation on part of Dickinson's Manuscript map of 1711 at the original scale	414
Figure 76 Kirkstall: the representation on five Printed Maps at the original scale	414
Figure 77 Skeffling: features on the 1721 Manuscript map immediately comparable with those on the Ordnance Survey 2 $\frac{1}{2}$ "	420
Figure 78 Skeffling 1721: The Open Road crossing the strip system	422
Figure 79 Skeffling: coastal erosion as recorded by the Ordnance Survey maps	424
Figure 80 Skeffling and Burstall Priory. Warburton 1720	426

<u>TABLES</u>		<u>Page</u>
Table 1	Printed Maps of Yorkshire: 1577-1857. Numerical summary of the classification	51
Table 2	Useful Maps by type and period	57
Table 3	First representation of Topographical Features on printed maps of Yorkshire: 1577-1857	58
Table 4	Summary of all the printed maps of Yorkshire by type and period	61
Table 5	Ogilby's Yorkshire roads: present day equivalents	142
Table 6	Ogilby's bridge information	215
Table 7	Bearings between Stations	260
Table 8	Observation Station Cross-reference Accuracy	262
Table 9	Summary of places recorded by Saxton, Warburton and the Ordnance Survey $\frac{1}{4}$ " in the North Riding	275
Table 10	Places on Saxton's map but not on Warburton's map in the North Riding	277
Table 11	Places on Ordnance Survey $\frac{1}{4}$ " Maps not on Warburton's map in the North Riding	279
Table 12	Comparison of 17 Angles on the maps of Saxton, Warburton, the Ordnance Survey and Warburton's Field Survey	282
Table 13	The representation of Kirkstall on Printed Maps: 1573-1771	415

A.H.R.	The Agricultural History Review
A.A.A.G.	Annals of the Association of American Geographers
A.M.O.	Ashmolean Museum, Oxford
B.L.O.	Bodleian Library, Oxford
B.M.Q.	The British Museum Quarterly
C.U.P.	Cambridge University Press
C.J.	The Cartographic Journal
D & C	David and Charles
E.Y.L.H.S.S.	East Yorkshire Local History Society Series
E.P.N.S.	English Place Name Society
G.J.	The Geographical Journal
G.R.	The Geographical Review
H.A.S.	Papers and Transactions of the Halifax Antiquarian Society
H.M.S.O.	Her Majesty's Stationery Office
H.R.O.	Humberside County Record Office, Beverley
I.M.	Imago Mundi
I.B.G.	The Transactions of the Institute of British Geographers
J.H.G.	Journal of Historical Geography
L.R.L.	Leeds Reference Library
M.C.P.L.	Map Collector Publications Ltd., Tring, Herts.
N.C.S.S.	The National Council of Social Service for the Standing Conference for Local History
N.L.S.	National Library of Scotland, Edinburgh
N.R.R.S.	North Riding Record Series
N.Y.R.O.	North Yorkshire County Record Office, Northallerton
O.S.	Ordnance Survey
O.U.P.	Oxford University Press
R.G.S.	The Royal Geographical Society
S.G.M.	Scottish Geographical Magazine
S.S.	The Publications of the Surtees Society
T.S.	The Publications of the Thoresby Society
T.B.S.	Transactions of the Bibliographical Society
T.E.R.A.S.	The Transactions of the East Riding Antiquarian Society
U.L.S.G.	University of Leeds, School of Geography
W.W.	Wentworth Woolley Collection, Brotherton Library, University of Leeds.
W.Y.R.O.	West Yorkshire County Record Office, Wakefield
W.	(prefix to a number) entry number in Whitaker (1933)
W.C.C.	(prefix to a number) entry number in Whitaker (1947) The Whitaker Collection Catalogue
Y.A.J.	The Yorkshire Archaeological Journal
Y.A.S.	The Yorkshire Archaeological Society

INTRODUCTION

In 1801 the Ordnance Survey initiated the publication of an official series of maps to cover the whole of the British Isles beginning in the south-east of England.¹ Once produced, these maps have thereafter provided a standard source of information on the landscape features in existence at the time when the maps were produced. Compact in form and relatively easily accessible, the Ordnance Survey maps are generally outstanding as sources both in the quantity and the accuracy of information which they record.²

Since the official topographical maps can be regarded as useful representations of the landscape from the early nineteenth century onwards it is reasonable to enquire whether similar utility might not reside in the large body of earlier topographical maps which were produced in the main by private individuals. It is towards this broad theme that this thesis is addressed. It considers as sources of topographical information the utility of the printed maps of one historic county, Yorkshire, produced by private individuals before the advent of the Ordnance Survey. The appeal of such an investigation is enhanced by the fact that these early maps also possess, as sources, at least some of the attractive characteristics of the Ordnance Survey maps, most notably accessibility and compactness. Moreover, the period covered by these printed maps, from the late sixteenth century to the nineteenth century, is one of great topographical interest, encompassing the major changes in land use, in communications

1 Close (1969), p.44. Also p.xxx note 39, 1801 map of Kent actually engraved and published by Faden.

2 This holds good despite certain known limitations, particularly in the earlier Ordnance Survey productions, vide infra Chapter Nine p.406.

and the growth of towns associated with the Agricultural and Industrial Revolutions.

Before any source can be used effectively its characteristics and limitations must be appreciated. Here the most crucial question of all is that of reliability, and in the case of the printed map as a source the issue is confounded by a conflict between what a map purports to be and what it actually is. At first sight the map seems to be a primary source, a representation of the topography at a specific date; closer examination, however, reveals that this is not strictly so. For example, since it is not realistic to expect the map to have been engraved (in reverse) directly from field notes, the printed map is necessarily at one remove from the original source, the manuscript map prepared from the survey. In many cases, however, the printed map will be at a much further remove from the original material than this, having been derived, for instance, not from an original survey but from another much older map, and there is, unfortunately, no easy or obvious indicator to differentiate the engraved map which is the product of a survey, from the engraved map which has been copied from an earlier map. Nor is the printed map alone in this respect; manuscript maps, too, may have similarly complex origins.

One characteristic which does effectively separate the printed maps of any county or substantial part of a county from the usually very localized manuscript maps is that of scale. The same consideration applies to Yorkshire, to its constituent Ridings or to extensive portions of the county. If as a crude yardstick, we define small scale maps as those at a scale of one inch to the mile and less, and large scale maps as those at any scale greater than this, then in the period from the sixteenth century to the nineteenth century the maps of Yorkshire, or extensive portions of the county are with very few exceptions both printed and of a small scale.

No printed map of any extensive area of the county has been discovered at a scale greater than that of one inch to the mile, but one small scale manuscript map of the whole county has been recorded. Again, a few large scale manuscript maps of very small areas were copied and printed in topographical works at a reduced scale but with little or no loss of their content. This was particularly so in the early nineteenth century. Most manuscript maps, in fact, were drawn at scales of the order of chains to the inch.

This dichotomy between large scale maps and small scale maps has important implications in relation to both the quantity and the quality of the content of the maps. For the contemporary¹ user the printed maps can be seen as guides to the location of features which in general would have been obvious in the field thus obviating the need to define their position on the map with the highest feasible standard of accuracy. Such maps can be viewed as aids for the administrator or travellers and as contributors to education or general interest. On the other hand, the purpose of the large scale manuscript maps was to achieve that precise location of features which would not necessarily have been immediately apparent even at a local level. Thus many of these large scale maps are actually or effectively documents purporting to record without any ambiguity the limits of rights over land, as for example was the case with estate maps and enclosure maps. Here obviously accuracy was often of crucial importance; yet, unfortunately, many of these manuscript maps fall short of 'modern' standards of accuracy desired by the investigator who is seeking to make a confident interpretation of their topographical content.

The significance of the Ordnance Survey for cartographic reliability

1 Throughout this thesis contemporary is used in the strictly correct sense as referring to the time appropriate to the subject being considered.

is twofold. The maps of the first edition of the 6" publication are the earliest which can be accepted for most purposes as primary sources in the sense that they are the first maps to be derived completely from a highly detailed survey of proven authority. There are certainly problems involved in the use of Ordnance Survey maps, at all scales, but they are of a radically different order from those encountered with the privately produced maps of an earlier period. Second, the production of the Ordnance Survey maps in the nineteenth century coincided with a general upsurge in official documentation which greatly enriched the number of sources available to the investigator.

Before the advent of the Ordnance Survey there was a general lack of sources of topographical information, particularly those relating to extensive areas. The most obvious and certainly the most widely available record was the printed map. It is essential, therefore, that such printed maps should be assessed critically for their potential as sources of topographical information.

This task is undertaken here for the historic county of Yorkshire. To this end all the printed maps of Yorkshire are considered, ranging in date from the first, produced in 1577, to the completion of the first Ordnance Survey coverage in 1857. Each map is categorized according to the reliability of its topographical information and particular attention is given to a handful of maps which stand out as being of the greatest importance. In the case of one map, that produced by Warburton in 1720, the chance survival of the field survey materials permits an almost unique opportunity to investigate thoroughly the relationship between topographical features and their cartographic representation.

The need for a total approach in which all the printed maps of the county are examined rather than only the more detailed ones, arises from certain deficiencies inherent in the nature of privately produced maps.

These deficiencies were revealed in an initial pilot investigation into the cartographic representation of roads in Yorkshire before the publication of the Ordnance Survey maps. From this pilot survey four important points emerged. Comparison of the representation of any one road on the earlier printed maps with the Ordnance Survey representation was liable to raise more questions than it answered. Second, uncertainty in interpreting road alignments stemmed from possible inaccuracies in the representation of adjacent topography on the earlier maps. Third, as a result, attempts to trace the representation of any one road through a number of maps presented insurmountable problems posed by conflicting evidence. Finally, examination of maps to this particular end provided strong evidence of plagiarism and demonstrated that it was imperative to determine which, historically, were the original mapped representations from which subsequent maps were copied.

If together these four points produced a first impression of the printed map as a Pandora's Box rather than a Cornucopia, there were nevertheless sufficient counter-indications of the ultimate usefulness of printed maps to justify the aim of providing a definitive classification and evaluation, in terms of their reliability as sources of topographical information, of the printed maps of Yorkshire which were published before the advent of the Ordnance Survey.

The structure of the thesis

The thesis is divided into two parts, each with a particular area of concern. In Part I, the aim is to consider in some detail the problem of the reliability of private maps of Yorkshire printed before the first Ordnance Survey maps and, on the basis of this consideration, to divide

them into two categories: maps which can be rejected with confidence as inadequate topographical sources requiring no further investigation; and maps which merit further investigation. The concern of Part II is to give to the maps in the second category the attention which they merit and, on the basis of even more detailed analysis, to present an assessment of their utility as sources of topographical information.

The detailed structure of the thesis follows from these two differing areas of concern. Thus in Part I after an opening chapter has placed the current investigation into the context of previous studies in historical cartography, Chapter Two presents the problem of map reliability in general terms by discussing the nature of the printed maps before the creation of the Ordnance Survey and shows that such maps are in effect a complex group of several significant sub-groups whose existence only emerges after detailed comparisons of maps. Since it is only in the light of their characteristics and limiting influences that the potential of the maps as genuine sources can be properly discovered, the aim of Chapter Three is to present the methodology devised for this purpose, and the classificatory system for maps which has been developed and adopted.

Chapter Four presents the results of the application of this classificatory system to all the printed maps of Yorkshire. Its objective is to identify those maps which contribute genuinely to our knowledge of the topography of Yorkshire and which will therefore need to be considered in Part II. A graphical means of representation is adopted to show the number and type of every printed map of the county published each year from 1577 to 1857.¹ In addition a table is used to record the first map portrayal of each topographical item, thereby illustrating the increasing completeness of the content of private maps over the period.

1 To facilitate the reading of many Figures and Tables in conjunction with the text they have been bound to face the text.

Part II presents the substantive work on those maps identified in Part I as meriting further investigation. This is divided essentially on a chronological basis into five periods, with each period dominated by one of the five cartographers who contributed so significantly to the cartographic representation of Yorkshire, namely Saxton in 1577, Ogilby in 1675, Warburton in 1720, Jefferys in 1771/2 and Greenwood in 1817/8.

The remaining chapter attempts to place the findings of Part II and, indeed, of Part I, in a rather wider context by drawing attention to some manuscript maps. Manuscript maps, by their sheer number and lesser accessibility have of necessity been excluded from anything resembling full consideration in this study of the cartographic representation of the pre-Ordnance Survey landscape of Yorkshire. Nevertheless, it is important that their potential for purposes of comparison with printed maps should receive some consideration, however brief. Accordingly, from the wide range of manuscript maps consulted, those available for two well contrasted localities have been selected in order to indicate the light, corroborative or otherwise, which they can throw on the printed maps. The testimony from these two localities can be used to buttress the reliability of the findings made in earlier chapters.

A final concluding section of the thesis will bring together the main arguments developed and consider the possible relevance of the findings made on the printed maps of Yorkshire for other counties.

Before turning to Chapter One an account is given of the locations of the maps examined and definitions of some terms used is provided.

The printed maps of Yorkshire: locations

The maps considered in this thesis are selected predominantly from those listed in Whitaker's catalogue "A Descriptive List of the Printed Maps of Yorkshire and its Ridings, 1577-1900", published in 1933.¹ In particular the maps examined are those up to entry number 527 in this catalogue, which relate to the period from 1577 to 1857. The total number of maps recorded in this thesis, however, is 555.² Nearly all the additional maps are listed in the more recent catalogue by Whitaker for his own collection.³

Whitaker⁴ donated his collection to the University of Leeds in 1939, and it is now housed with the Brotherton Collection in the Brotherton Library. In the introduction to the Whitaker Collection catalogue the University Librarian, Offor, claimed that "Dr. Whitaker has conferred an immense boon on present and future workers in historical geography and kindred subjects".⁵ Such a claim is fully endorsed here; indeed, the greater part of the initial research for the present study was undertaken in the Whitaker Collection. In all, over 200 relevant maps in atlases, books or on loose sheets were consulted. The Map Room of the British Library, London and the Map Room of the Bodleian Library, Oxford, are two other main repositories of the printed maps considered in this thesis.⁶

Many Yorkshire maps, or portions of them, are also available in reproduction, a state of affairs which increases their accessibility but

1 Whitaker (1933)

2 Vide infra. Table 1 p.51.

3 Whitaker (1947)

4 Biographical details are given in Whitaker (1947). Students of historical cartography are greatly indebted to him. It was fitting that the University of Leeds honoured him with a doctorate in 1944.

5 Whitaker (1947) Introduction

6 It is, of course, a major advantage of printed maps that many can also be found in the larger public libraries including the Leeds Reference Library.

which may nevertheless pose additional problems. Whitaker's catalogue of Yorkshire maps¹ and also his catalogue for the Whitaker Collection² include some illustrative examples of printed maps. The greatest number of illustrative examples is given in Rawsley's "Antique Maps of Yorkshire and their Makers" published in 1970.³ Unfortunately, several of the maps are incorrectly identified. For example, the reprint of the Quartermaster's map ascribed by Rawsley to 1644 is in fact that of 1676. The error in date is very important for the routes shown on the map reproduced in Rawsley's book were not shown on the Quartermaster's map of 1644. Again Rawsley attributes the maps by Kitchin to 1749 rather than 1775, and Cary's map of 1793 is incorrectly ascribed to 1787. It would appear that Rawsley has cited the date of the first edition of each of these maps rather than the dates of the reprints used by him for his illustrations.

The Printed Maps of Yorkshire: some definitions

To avoid unnecessary repetition in this thesis the expression 'Printed Maps of Yorkshire' is to be taken as including maps of areas both greater and smaller than the county itself. Whitaker's catalogue of the printed maps of Yorkshire⁴ includes many such maps of areas other than the true county. Maps of the separate Yorkshire Ridings are the most obvious exceptions. Whitaker's procedure for listing the various maps has been a source of confusion, for the maps of separate Ridings are often published

1 Whitaker (1933)
 2 Whitaker (1947)
 3 Rawsley (1970)
 4 Whitaker (1933)

in a work which also includes a map of the whole county of Yorkshire. In such a case, the work is given only one entry number by Whitaker. Thus, for instance, entry number 83 for Blaeu, refers to a true county map of Yorkshire and also to three separate Riding maps. To avoid confusion in this thesis such maps have also been treated as one work unless separate classification of the maps proved to be essential. Thus the numerical identification of the maps considered in this thesis, and recorded in Appendix 1, can be related directly to the Whitaker entry numbers.

In this thesis any reference to a map or work cited in Whitaker's catalogue of the printed maps of Yorkshire¹ is prefixed by the letter 'W'.² Thus Saxton's map of 1577, the first entry in Whitaker's catalogue, is identified as W.1. Additional maps considered in this thesis but not identified by Whitaker are related to his entries by appending a letter to the number given to a work cited by Whitaker nearest in date to that of the additional map; in such a case no prefix is given. For example, Ogilby's Road Book, Britannia, published in 1675, is given the identification 120.A., thus placing it between entry number 120, dated 1673, and entry number 121, dated 1676.

In this thesis any reference to a map or work listed in the Whitaker Collection catalogue³ is prefixed by the letters 'W.C.C.' In the Whitaker Collection catalogue Ogilby's Britannia is given the number 240; here it is given the reference W.C.C.240. It will be appreciated that all such references apply not generally to various copies of a certain printed map or work but to a particular example of that map or work contained in the Whitaker Collection.

1 Whitaker (1933)

2 Except in Appendix 1 where the prefix is superfluous.

3 Whitaker (1947)

The first print of any map is called the first edition. In this thesis, any subsequent printing is described simply as a reprint, whatever form a reprint may take. The only exception to this usage is where the word edition is an integral part of the title of a subsequent reprint being considered; as for example, with Jefferys' Third Edition of 1800. The term series is used where several reprints of one map are produced over a number of years. The only exception is where the "7th series Ordnance Survey 1" map" is used as the standard terminology for the last published one inch coverage of Great Britain.

In the assessment of the cartographic representation of routes on the printed maps it is necessary to differentiate two types of representation. On the one hand there are the representations which portray unequivocally a specific identifiable alignment on the ground. On the other hand there are representations which at best provide evidence that there was a recognized way between two places but the cartographic evidence is not sufficiently detailed to indicate which, of several alignments on the ground, was the actual line being depicted. In the first case, where a definite alignment is identifiable, the representation is called a 'road representation' and the map called a road map, or a map depicting roads. In the second case the representation is termed a 'route representation' and the map called a route map, or a map depicting routes.

In describing and classifying maps for the purposes of this thesis the terms useful and rejected are used. It is particularly important to stress that such usage is meant to be strictly limited to the purposes of the thesis. Thus one map may be useful as a source of topographical information; on the other hand another map must be rejected as a source of topographical information because it is, for example, simply a result of plagiarism. Nevertheless even a rejected map may be of value for other purposes such as being a pointer to the demand for maps in a particular

period. Moreover, like all the maps considered in this study, the rejected maps constitute an important part of our historic heritage.

PART I

CHAPTER ONEA REVIEW OF HISTORICAL CARTOGRAPHY WITH PARTICULAR REFERENCE TO THE
PROBLEM OF CARTOGRAPHIC RELIABILITY AND THE PRINTED MAPS OF YORKSHIRE

As a result of the differing approaches of a large number of earlier workers the study of historical cartography is an extensive and complex subject. For the present day student of maps the heritage of earlier workers is a mixed blessing. There is, it is true, a wealth of studies which provide the necessary general context for the study of specific maps; disadvantage, however, is also inherited in the sheer quantity of studies many of which, despite their titles, provide little or no information of use for the present research.

The interrelationships between the many facets of historical cartography are such that no single categorization of previous works is likely to prove entirely satisfactory. Nevertheless some categorization is necessary. That adopted here is to start with the most helpful of the general introductions to the history of cartography. Attention is then directed to the evaluation of cartographic reliability in these works. Finally an assessment is made of previous work undertaken on the printed maps of Yorkshire.

On the basis of this review attention can be drawn to the lacunae in earlier works, in so far as these bear on the study of the printed maps of Yorkshire.

The wider field: literature on the history of cartography

The breadth of the literature on the history of cartography is most clearly illustrated in Ristow's¹ "Guide to the History of Cartography" published in 1973, an annotated list of references containing some 400 entries. These range, alphabetically, from "Acta Cartographia", a series of reprints from periodicals published since 1800, to Zerlik's study of an eighteenth century Austrian missionary and cartographer who worked in China. This reference to China is a reminder that the literature on the history of cartography is, in fact, heavily Eurocentric. The third volume of Needham's² massive work "Science and Civilisation in China", published in 1959, draws attention to the importance and wealth of the Chinese contribution to cartography. More recently this western bias has been corrected by an exhibition organised by the British Library on "Chinese & Japanese Maps" in 1974,³ and by the even more recent study by Leeming,⁴ "Official Landscapes in Traditional China", part of the fruits of ongoing research. Even though many works on the history of cartography have been published since 1973, Ristow's guide is an invaluable starting point as is evident from the obscurity of the Austrian cartographer investigated by Zerlik.

There are two excellent introductions to the development of cartography. One is Bagrow and Skelton's⁵ self explanatory "History of Cartography"; the second is Brown's⁶ "The Story of Maps". The latter, despite its rather popular title, is a very erudite work with a particular emphasis on the instruments and methods used for surveying and map making.

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- 1 Ristow (1973)
 - 2 Needham (1959)
 - 3 Jones, Nelson and Wallis (1974)
 - 4 Leeming (1980)
 - 5 Bagrow and Skelton (1964)
 - 6 Brown (1949)

Further attributes of Brown's book are his generous complement of detailed explanatory notes and his extensive bibliography. More recent studies such as Bricker's,¹ published in 1976, "Landmarks of Mapmaking", do not displace the contributions of these earlier historians. Bricker does, however, usefully reproduce many significant maps.²

The bibliographies of most recent studies in the history of cartography are dominated by references to articles published in periodicals, many of the most useful references occurring in two periodicals. One is "The Cartographic Journal" which embraces almost every aspect of cartographic scholarship including the future development of mapping. The other journal is the more specialist "Imago Mundi" significantly sub-titled "A review of early cartography".

The above works deal with the history of cartography from the earliest times to the present day and in their content range from maps of the whole world to maps of very localized areas. Harley's "Maps for the local historian: A guide to the British sources", published in 1972,³ is an invaluable guide to studies concerning British cartography and also to the locations of the maps themselves. Specific utility resides in Harley's section on county maps and the "Bibliographical postscript" of some 150 works, including references to catalogues of the printed maps of the various counties.

A more succinct introduction to the specific aspect of English county cartography can be found in the prefaces to various catalogues of printed county atlases and printed county maps. Chubb's⁴ pioneering bibliography of Atlases, "The Printed Maps in the Atlases of Great Britain and Ireland", published in 1927, although now largely superseded as a catalogue, includes an account of the development of county cartography

1 Bricker, Tooley and Crone (1976)

2 One of the earliest records of surveying, if not of cartography, has been generally overlooked in the literature. In circa 1200 B.C. the Israelites undertook a survey of their recently gained lands. This is described in some detail in Joshua Chapter 18.

3 Harley (1972)

4 Chubb (1927)

which ought not to be overlooked. Skelton's¹ "County Atlases of the British Isles", published in 1970, was compiled in order to replace Chubb's catalogue. The preface to Skelton's new catalogue *augments* rather than replaces Chubb's comments. Whitaker's catalogue² "A Descriptive List of the Printed Maps of Yorkshire and its Ridings, 1577-1900", published in 1933, is among the many such catalogues of printed county maps which include introductory matter.³

The achievements of British cartography immediately prior to the publication of the first county maps by Saxton in the late sixteenth century have been well summarized by Tyacke and Huddy,⁴ in a very recent publication "Christopher Saxton and Tudor map-making".

Previous approaches to the evaluation of printed maps

On the evaluation of printed maps there is again an extensive literature. Most of the key works are listed in an excellent introduction to cartographic accuracy by Laxton,⁵ under the title "The Geodetic and Topographical Evaluation of English County Maps, 1740-1840". But although Laxton considers the accuracy of English county maps the primary concern of his study is not their evaluation as sources;⁶ moreover his study is deliberately confined to the period 1740-1840 and to maps published at a scale of one inch to the mile or larger.

The scope for differing approaches to the assessment of maps can be illustrated by two contributions. One is that of Koláčny's⁷ entitled "Cartographic Information - a Fundamental Concept in Modern Cartography". In this he is concerned with perception and map interpretation. Koláčny defines "cartographic information" as "the intrinsic content, meaning and

1 Skelton (1970)

2 Whitaker (1933)

3 Many such catalogues are listed by Lambert (1956)

4 Tyacke and Huddy (1980)

5 Laxton (1976)

6 *ibid*, p.38

7 Koláčny (1969)

sense of the cartographic portrayal of reality". Thereby he draws an important distinction between "cartographic information" and "map content" which he sees as being merely the sum of the graphical elements. This distinction is very useful - but developed by Koláčný essentially for modern purposes. In this thesis the concepts of "cartographic information" and "map content" will be applied to historical cartography.

The second work, by Ravenhill and Gilg,¹ "The Accuracy of Early Maps? Towards a computer aided method", would appear, at first sight to be more relevant than Koláčný's study to the assessment of the printed maps of Yorkshire considered in this thesis. Nevertheless, Ravenhill and Gilg's approach, concerned with geodetic accuracy, is demonstrably of limited value for the specific purpose of evaluating the reliability and implications of specific topographical features, if only because on historical topographical maps with their limited and often clearly diagrammatic content it is frequently the relative position of features which is important rather than their absolute position.

Planimetric inaccuracy of an early map has been clearly demonstrated as being an inadequate criterion for assessing the map as a topographical source. This has been expounded by Price² in his study "Medieval Land Surveying and Topographical Maps", in which he exemplifies the point by comparing such an inaccurate map with the London Underground map, a map which is topological rather than topographical. Although Price's study is based on medieval cartography, the principle is of relevance in relation to all later maps. His work provides a reminder that cartographic distortion, at whatever date, could be deliberate. Consequently even a distorted map should not be dismissed as being a mere product of inferior cartography. Rather distortion must itself be the subject of careful examination in order to try to ascertain the cartographer's intentions.

Several catalogues of the printed maps of individual English

1 Ravenhill and Gilg (1974)

2 Price (1955)

counties, including that for Yorkshire, provide comments on the reliability of the maps which they list. Since, however, the function of such catalogues is to identify and list maps rather than to analyse them, they cannot be expected to provide an unambiguous assessment of every map as a source of topographical information. Moreover, the quality of the comment which they offer varies quite considerably. The Warwickshire catalogue, produced by Harvey and Thorpe¹ in 1959, is one of the best and presents some specific detail on the most important maps. Again, Emmison's² catalogue of the printed county maps of Essex published in 1955, though less informative, does comment for example, on the probability that the minor roads on Rocque's map were no more than "intelligent guesses".³ By contrast, one of the most recent catalogues for Buckinghamshire⁴ shows little evidence of investigation in any depth. That some detailed research has been undertaken on the maps of Cheshire is evinced by Harley's⁵ very readable series of articles published in the periodical "Cheshire Round".

For evaluation a methodology is essential and fortunately the foundations of such a methodology have been provided by Harley⁶ in his study "The Evaluation of Early Maps: towards a methodology", published in 1968. Harley describes the current methods available and provides a detailed bibliography on works in which methods of evaluation are recorded either explicitly or implicitly. As Harley acknowledges, attempts to establish a generally applicable methodology are constrained by the unique characteristics of specific map types. A method valid for one type of early map may not be applicable to another type. Such is the case with the present assessment of the printed maps of Yorkshire. Thus,

1 Harvey and Thorpe (1959)
 2 Emmison (1955)
 3 *ibid*, p.4
 4 Wyatt (1973)
 5 Harley (1966a)
 6 Harley (1968b)

the methodology devised for this thesis reflects the characteristics of the actual printed maps considered and, indeed, the specific objective of assessing their reliability as sources of topographical information.

Previous work on the printed maps of Yorkshire and the most important cartographers

The onerous task of compiling a catalogue of the printed maps of Yorkshire was undertaken by Whitaker some 50 years ago. This catalogue,¹ "A Descriptive List of the printed Maps of Yorkshire and its Ridings, 1577-1900", was a remarkable achievement whose quality and completeness are confirmed by the very few corrections and additions which have been found necessary since it was first compiled in 1933. Whitaker's work, by providing a date for each map facilitates the task of crucial importance in this thesis, of discovering possible precursors for each map.

A further attribute of Whitaker's catalogue is that it clearly distinguishes newly compiled maps from reprints, and many reprints are clearly recorded in the catalogue entry as "unchanged". Further investigation has confirmed that this comment is usually justified. Occasionally, however, Whitaker's assessment of reprints is inadequate, as with the map recorded under entry number 47, where the comment "seems unchanged" is clearly inadequate for the purposes of this thesis; as Hamlet said "I know not 'seems'."

Inevitably errors do occur in Whitaker's work. Many of his comments in his introduction and in the description under each entry require re-assessment; this is especially true of his references to the first appearance of topographical details on maps. Again his comments on the

1 Whitaker (1933)

maps of Ogilby, Warburton and Jefferys are inadequate.

The five most important contributors to the cartographic representation of Yorkshire, Christopher Saxton, John Ogilby, John Warburton, Thomas Jefferys and Christopher Greenwood, also produced maps of other counties or of lesser areas; and these contributions have attracted comment which has often taken into account their work on Yorkshire.

Evans and Lawrence's¹ recent study, "Christopher Saxton: Elizabethan Map-Maker", published in 1979, provides the best introduction to Saxton's printed map of Yorkshire. They also offer excellent biographical and carto-bibliographical information and an interesting account of manuscript estate surveys made by Christopher Saxton and his son, Robert. However, neither this study by Evans and Lawrence nor any other work provides a detailed analysis of the topographical reliability of Christopher Saxton's map of Yorkshire.

Ogilby's contribution to the mapping of Yorkshire is presented in his Road Book of 1675 for England and Wales. The Yorkshire component is given on 10 of the 100 plates recording, in strip form, the principal roads engraved at a scale of one inch to the mile; an explanatory text accompanies each plate. Important introductions to Ogilby and his work are provided by Harley² and Van Eerde.³ Harley's contribution is an introduction to a facsimile edition of Ogilby's Road Book, Britannia. Both Harley's introduction and Van Eerde's study, "John Ogilby and the Taste of his Times", include extensive and complementary references to primary and secondary sources demanding further investigation, though Van Eerde's study is more concerned with Ogilby's life and the context and "taste" of his times than with the maps themselves.

There are several studies on Ogilby's road maps for areas outside

1 Evans and Lawrence (1979)
 2 Harley (1970b)
 3 Van Eerde (1976)

Yorkshire. Three of these provide useful material for comparison with the subject matter of this thesis, namely Cochrane's¹ "The Lost Roads of Wessex", Good's² "The Old Roads of Dorset" and Russell's³ "A Leicestershire Road". Within Yorkshire, Crump's excellent studies of roads in the Halifax and Huddersfield areas include an interpretation of the few miles of roads mapped by Ogilby in these localities. Crump's series of articles entitled "Ancient Highways of the Parish of Halifax" were published in the years 1924-28;⁴ his book "Huddersfield Highways down the Ages" is a later work, reprinted as recently as 1968.⁵

Crump⁶ has also provided an important introduction to Warburton's map of 1720, "The Genesis of Warburton's Map of Yorkshire". In this, perhaps, his most valuable contribution was in drawing attention to the potential utility of the field survey materials for Warburton's map which were preserved in the British Library. Crump's aim was "to arrive at a considered judgement of the merits of his (Warburton's) map",⁷ and at a general level he succeeds in showing that Warburton's map deserves a better verdict than that proffered by an earlier worker, Brown, that it was "a very mediocre performance".⁸ Even so, Crump's study is not based on a detailed assessment of either Warburton's map or the field survey materials. It cannot therefore provide a satisfactory answer to the question of the reliability of the topographical information mapped.

Jefferys' map of Yorkshire, published in 1771/2, was the first map of the whole county published at a scale of one inch to the mile. Like

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- 1 Cochrane (1969)
 - 2 Good (1966)
 - 3 Russell (1934)
 - 4 Crump (1924-28)
 - 5 Crump (1949)
 - 6 Crump (1928)
 - 7 *ibid*, p.388
 - 8 Brown (1900) p.64.

Ogilby's road book, the general importance of the map has justified the production of a facsimile for which Harley and Harvey¹ provide an informative introduction which firmly places the map in its late eighteenth century context. They also record that the survey was undertaken by three surveyors and indicate their source for this detailed information. In so far as map users may be tempted to use a facsimile as a substitute for the original map it is unfortunate that it is the reprint of 1775 and not the first edition by Jefferys which was reproduced.

Harley² has also provided a useful introduction to Greenwood's map of Yorkshire printed in 1817/18, albeit in a study primarily concerned with Greenwood's map of Worcestershire. This additionally provides an insight into Greenwood's methods in general and cites contemporary references to Greenwood's map of Yorkshire in local newspapers.

Some concluding remarks

Within the vast literature on the subject of historical cartography there are many studies of relevance to the purposes of this thesis. Indeed, at a general level the importance of the question of map reliability is frequently acknowledged. Nevertheless, as yet, this subject of the reliability of early printed maps as sources of topographical information does not appear to have been investigated either systematically or with sufficient rigour to provide unequivocal guidance for those seeking to use early maps as sources of topographical information.

This need for a clear understanding and a more adequate assessment of map reliability is evident from comments made by historical cartographers.

1 Harley and Harvey (1973)

2 Harley (1962)

For example, Harley and Skelton, two authors whose many important contributions to the study of historical maps are essential reading, have reiterated this point in their comments on the state of cartographic research. Both Harley¹ and Skelton² have noted the lack of detailed analysis and have, for example, called for more precise work on the methods used by surveyors, and on the accuracy and originality of specific maps.

Skelton stressed the need to establish "critical principles, methods, and practice"³ in studying early maps and suggested that regional maps from the sixteenth century onward required re-examination "using more exact methods of control".⁴ A further recommendation made by Skelton was that "growth curves" should be used to illustrate "the rate of cartographic progress".⁵

Harley likewise has commented that "more detailed studies are needed to reconstruct the stages by which maps were made".⁶ The availability of the field survey materials for Warburton's map of Yorkshire provides a unique opportunity to comply with this plea. Harley's remarks, like those of Skelton, are concerned with the study of early maps in general. Nevertheless, it is clear that their comments can be applied to the specific map-type, the printed English county map; a map type which embraces the subject matter of this thesis. Accordingly it is to be hoped that this thesis will make a contribution to "the process of evaluating the accuracy of maps", a concern described by Harley as "an ultimate goal of cartographic scholarship".⁷

1 Harley (1967)
 2 Skelton (1972)
 3 *ibid*, p.103
 4 *ibid*, p.106
 5 *ibid*
 6 Harley (1967) p.10
 7 *ibid*, p.9

CHAPTER TWO

THE NATURE OF MAPS BEFORE THE ORDNANCE SURVEY AND THEIR POTENTIAL
USEFULNESS AS SOURCES OF TOPOGRAPHICAL INFORMATION

A map is defined by the Royal Society as "A conventional representation, normally to scale and usually on a flat medium, of a selection of material or abstract features on or in relation to the surface of the earth."¹ As such it appears to offer an excellent guide to features contained in past landscapes yet in this respect on maps before the Ordnance Survey interpretation of what is represented is complicated by two reasonably obvious facts. Firstly, the representation is not necessarily of the landscape at the date of publication (the map might be a reprint or derived from an earlier map). Secondly, the level of accuracy of the representation may vary considerably both from map to map and within a particular map.

The contemporaneity of the representation suggests the advantage of adapting from the discipline of modern cartography Koláčný's concepts of map content and cartographic information.² To be useful, as a source, a map must be more than an uncritical replication of the map content of an earlier map or maps. Any map which cannot be so described may be rejected and denied further study, so far as the aims of this thesis are concerned.

From this it follows that the accuracy of the representation now has relevance only to the assessment of maps which cannot be rejected by the criterion of map content replication. These maps will range from those in which almost all the content is repeated but in which isolated features appear to be a new representation meriting assessment to maps clearly made

1 quoted in Harley (1968b) p.74.

2 vide supra p. 17.

almost entirely from a new survey in which the whole map requires assessment.

The source of the map content is obviously of primary importance in affecting both the contemporaneity and accuracy of the content. In general terms three types of source can be identified: 1) Previous mapped representation; 2) General knowledge; 3) Actual ground measurements.

The sources of map content

1) Previous mapped representation

This type of source occurs in two variants. When a map is a reprint the fundamental source of the map content is the plate (or for later lithographic maps the stone) of the previous printing. This variant is the most easily recognized type of source but can become obscured if the original plate is considerably reworked: it is then essential to distinguish the new from the original. When, in contrast, all or part of the content of a previous map itself is copied onto a new plate to produce a new map, the type of source is seen to be a previous map rather than a previous plate. Whilst maps resulting from this second variant might be described as plagiarized had the intent been to deceive, in many cases the use of this type of source can be seen as a valid exercise to produce a map relevant to a specific need. For example, the simple reduction of the scale and content of a large map could be undertaken to provide a small illustration for a topographical work.

The extent to which this second variant can be recognized will vary greatly but recognition is essential for both variants because it enables content which has been mapped before to be identified; such content is liable to be anachronistic and, since it does not add to our knowledge of the topography, can be rejected.

2) General knowledge

General knowledge, implying no more than some degree of non-measured acquaintance with the existence and relative position of features was, of course, the predominant source for much of the material shown on the very earliest maps, particularly those predating the advent of county cartography. Maps which have included material from this type of source can therefore offer important potential clues to the actual existence of such features at a given time, though it is obvious that they may do so in a manner which in planimetric terms is most inaccurate.

Nor was material from this type of source rejected by map makers with the coming of measurement. Indeed material added in this way can be discerned on maps right through the period of county mapping into the nineteenth century. For example, many of the railway alignments added to maps in the nineteenth century were derived from general knowledge rather than measurement and were often in error. In general terms content based on this type of source is more easily recognized and interpreted towards the end of the period.

3) Actual ground measurement

Two variants can be described for this type of source: i) Adopted measurements and ii) Measurements made for the map itself.

i) Adopted measurement

This is always a supplementary source and can be found on maps which are predominantly based on first hand surveys or predominantly based on previous maps. For example, maps of the late eighteenth century and early nineteenth century can include the representation of canals and common boundaries taken from contemporary plans. Although this source is generally useful in so far as it presents information on the printed

county map which otherwise would be less accessible to the historical geographer, it must nevertheless be treated with caution. The plans, although based on measurements, may not have been realized as planned on the ground. Thus a county map maker could include data from plans of park improvements or canal and railway routes before they were actually constructed, providing misleading evidence for the date of these features. Again, the map maker could include data from plans which were either never realized or significantly altered before they were implemented.

ii) Measurements made for the map itself

Obviously this type of source is potentially the most useful but, at least in Yorkshire, it is not until the advent of the Ordnance Survey that the county is represented only from first hand measurements. It is also not until the Ordnance Survey that the accuracy of the measurement is standardized and before then the interpretation of this type of source can be complicated by differing standards of accuracy. The extent to which this type of source is used can vary from no more than a few features added to a derived or reprinted map to the content of almost the entire map.

A further understanding of the nature and consequent usefulness of all the maps not rejected because of the source of their map content, and also of those which are rejected, can be gained by a consideration of the circumstances underlying the choice of source or sources used by the map makers; foremost amongst these in many cases is the context within which the maps were first printed.

The context of the printed maps as an indicator of their nature

There are three general contexts in which printed maps are found. They are, in roughly increasing likelihood of usefulness as sources of

topographical information: 1) in a book (usually topographical):
 2) in an atlas: 3) as separate sheets.

The book context is that in which maps are most likely to be of very little or no use as topographical sources because often they are included simply as illustrations to the text and although possibly fulfilling that function adequately, it is no surprise that they rarely add to our knowledge of the topography. When intended only as illustrations, maps are most likely to have been made as easily as possible by being derived from previous maps rather than surveys, additional material being added only exceptionally. Subsequent reprints of the books are liable to result in reprints of the maps with little or no significant change. Further, the size of the book, being influenced primarily by factors other than the illustrations, often results in very small maps, a factor which while not a fundamental criterion for rejection is nevertheless a serious constraint. For Yorkshire the exceptional size of the county compounds this influence.

At first consideration maps in atlases would appear to be more promising as sources of information considering the obvious cartographic nature of the work. With few exceptions, however, the reliability of any one county map in the context of an atlas is liable to be reduced by the fact that the atlas proves to be a compilation not of county maps surveyed for the purpose of making the atlas but rather of county maps newly compiled but derived essentially from previous maps. Alternatively, the atlas may be a collection of county maps selected by the publisher but not necessarily from either the most recent or best surveys. Because of its explicitly functional nature as a guide to travellers the Road Book, consisting of linear maps with or without areal maps and forming a rather special type of atlas, would appear to be useful by definition as a topographical source, but in practice is open to the same constraints of type of source and interpretation as the full county maps found in atlases.

Printed maps published as separate sheets range in usefulness from maps made from first hand measurements to a miscellany of maps many of which can also be found bound in books or atlases. This context is further complicated because the modern antique trade is responsible for removing many maps from their original context for commercial reasons. It is an important part of the assessment of separate maps to discover whether they were originally bound in a larger work.

It will be appreciated that useful maps are more likely to be found in atlases or maps originally printed as a single work rather than in a book. In the light of this potential differential usefulness of these three types of context it is worth mentioning, at this early stage, that a perusal of the catalogue of the printed maps of Yorkshire¹ shows that less than 50 of the 525 entries are listed as separate sheets and that numerically reprints of atlases and books dominate the period 1577-1857.

This predominance of maps published in atlases and books, and especially the predominance of reprints, shows that at least in Yorkshire the printed county maps are more likely to have been initiated by a publisher as distinct from a cartographer or surveyor and that the dominant type of source chosen was the one least useful in providing map content suitable for the purposes of the historical geographer, namely the previous mapped representation. There seems little doubt that the origin of this state of affairs is closely related to probably the most significant of all considerations influencing the choice of types of source and the potential accuracy and usefulness of the printed map, financial considerations.

1 Whitaker (1933)

The financial factor in influencing the choice of sources for map content

The constraint of cost is highlighted by Harley in his study of the bankruptcy in 1766 of Jefferys¹ but it is also seen in the dominance of subscription as a means of raising the necessary capital to commence a major cartographic project. Examples include Ogilby in the seventeenth century,² Warburton in the early eighteenth century³ and Jefferys himself in the late eighteenth century.⁴ All these projects included Yorkshire surveys. In the nineteenth century Teesdale was able to revise and reprint Greenwood's map of Yorkshire by subscription.⁵ Ogilby also raised capital by means of lotteries. The influence of cost can be seen further in the failure of many enterprises dependent on subscription, including the ambitious projects of Ogilby⁶ and Warburton.⁷

It is also notable that while the very first county atlas, by Saxton in 1579, succeeded as an enterprise largely through the patronage of Thomas Seckford, in contrast, the failure of Norden's venture at the end of the century was due to his lack of support. This was despite the very clear topographical advances, especially the addition of roads, which he included on the few maps he did manage to produce.

A further insight into the constraining influence of limited financial resources is provided by the upsurge of surveying which followed the offer of premiums by the Society of Arts. This offer by its very terms forced the cartographers seeking the premium to adopt the best techniques available such as a scientifically constructed trigonometric framework.⁸

- 1 Harley (1966c)
- 2 vide infra Chapter Six
- 3 vide infra Chapter Seven
- 4 vide infra Chapter Eight
- 5 vide infra Chapter Nine p.400
- 6 Clapp (1933) pp.365-79
- 7 vide infra Chapter Seven
- 8 Harley (1963)

The financial factor which accounts chiefly for the fact that only a handful of printed county maps, at least in Yorkshire, prove to be the end product of a first hand measured survey concomitantly helps to explain the limited usefulness of most of the county maps simply because they are the end product of the utilization of the very much cheaper alternative sources of reprinting or copying. In this respect a copper plate can be seen as an item of capital investment to be husbanded carefully and not discarded and replaced lightly by the owner. It was not until the advent of official sponsorship with the Ordnance Survey that map production, in so far as it was aimed at providing an accurate representation of the county, was largely freed from the fundamental constraint and need of those involved to make a profit, and hence a livelihood from their cartographic endeavours. Modern commercially produced maps can bear comparison with those produced by the Ordnance Survey, not least because they are usually based on the Ordnance Survey maps. Before the Ordnance Survey there is no such standard for comparison and it is that lack which makes the assessment of pre-Ordnance Survey maps a significant problem.

Factors influencing the accuracy and consequently the interpretation of the cartographic information

Even when a map presents new map content the assessment of the reliability of that new content can be complicated by three problems. First, the new content might be entirely fictitious. Second, it is necessary to distinguish that which is the result of actual measurement from that added from general knowledge. Third, even information originating in measurement is itself liable to be confused by uncertainties resulting from limitations in the accuracy of that measurement and limitations in its subsequent drafting and printing.

All these problems can be seen partially as the outcome of the general factors of context and finance already discussed. For instance, the temptation to fill the empty spaces on the printed maps to make them more attractive and saleable was commented on by Swift in his well known poem ("So Geographers in Afric-Maps/With Savage-Pictures fill their Gaps ...")¹ and this temptation accounts for many initially perplexing features on maps. Furthermore, new information which might be useful cannot be treated as if it were unambiguously accurate given a lack of capital and a context in which an accurate representation of the ground is clearly of secondary interest to the map maker.

Having accepted that all aspects of map making can be seriously affected by contextual and financial considerations, the third problem relating to actually measured features can be considered further in terms of factors influencing the accuracy of the survey and the translation of that survey into the printed map.

The survey can be influenced by several interdependent factors including precedent and intent, the problems imposed by the terrain (both in terms of area and difficulty), the adequacy of the instruments and techniques used and the differing capabilities of the surveyors. It should be emphasised that the technical and instrumental factors are constraints not because the best contemporary ones were inadequate but because the surveyors did not necessarily adopt the best. Brown² and Thrower³, for example, have shown that trigonometry had been developed and that the plane table and even reasonably accurate theodolites were available before the first county map of Yorkshire was produced by Saxton in 1577. Evidence of their application can be seen in many estate maps which, though

1 quoted in Hill (1978) p.60

2 Brown (1949)

3 Thrower (1972)

contemporary with the printed county maps, show a much higher level of planimetric accuracy.

Simple knowledge of surveying techniques, particularly those which might have been used under the constraints of limited time and resources, suggests that in Yorkshire, as elsewhere, before the late eighteenth century the level of planimetric accuracy is generally liable to be best for point features such as settlement and poorest for linear features such as boundaries, rivers and roads. Settlement as indicated by the position of landmarks such as churches, or indeed any point features, can be fixed relatively accurately and rapidly by the intersection of a pair of cross bearings, or trigonometry. Alternatively, an approximate position can be achieved with a bearing and an estimate of distance. Linear features, by contrast, require much more care and time if they are to be measured sufficiently precisely for the mapped representation to be at all accurate.

Furthermore, as the amount of detail, not all of it accurately located, increased on maps so too did the potential number of inaccuracies of representation of relative position which could result. Paradoxically, therefore, the problem of interpreting the mapped detail is likely to increase over time, at least until such time as reliance on the accuracy of the features shown can be assumed. In this context it is not surprising that the linear features shown on maps, particularly roads and rivers, present the most persistent problems of interpretation.

It would be wrong, however, to imagine that inaccuracies in field surveys represent the only potential source of errors in the translation of the survey data into the final printed map for at three distinct stages subsequent to the survey, factors which may affect the accuracy of the end product intervene. These three stages are: the drafting of a manuscript map from the field notes, the engraving of that onto a plate and the final printing. At the level of accuracy generally applicable to the maps of

the period under study, the printing process presents the fewest and least significant problems. Trivial distortions such as the warping of the paper can give a false impression of the accuracy of the survey as recorded on the engraving.

At the draft map stage, whilst the degree of accuracy is obviously based on the field notes and the adequacy of the survey, the printed map can also be influenced by such factors as the choice of scale, the choice of symbols and, if provided, the detail and accuracy of the key. It is also at this stage that material could be added from general knowledge or possibly from previous mapped representations: spurious space filling features might also be added.

A further source of error might have occurred when the draft map had to be engraved, in reverse, onto the plate. Indeed in all stages, from the initial motivation through surveying to the printing, human fallibility must be borne in mind. The contemporary map makers were well aware of this and there is plenty of evidence of some maps being corrected both before the final printing and also in subsequent reprints.

Undoubtedly there are good reasons for rejecting printed maps as sources of topographical information. Even so, it is also clear that some printed maps must be of some value as sources. This said, an attempt to assess the reliability of the various printed maps of Yorkshire published before the advent of the Ordnance Survey can be conveniently considered in two parts. Firstly, the recognition and rejection of the totally unreliable maps and map content. Secondly, the much more difficult task of assessing the remaining maps and map content.

Furthermore, it is reasonable that the methodology to be adopted should be based on the considerations influencing the potential usefulness of these maps. That is, the origins of the maps (the types of source used) and the map maker's intent (expressed by the context and constraint of finance). Such a methodology forms the subject of the following chapter.

CHAPTER THREE

SOME PROPOSED BASES OF CLASSIFICATION FOR YORKSHIRE PRINTED MAPS, 1577-1857

Introduction

The concern of this chapter is to present a methodology whereby map reliability can be assessed. Of the two key issues discussed in the previous chapter it was seen that the contemporaneity of a map takes precedence over the accuracy of a map. Hence the initial phase of assessment was concerned entirely with an attempt to discover whether the map content appeared to be new or was merely copied from previous maps. The accuracy of this new content was the subject of two further phases of assessment.

The problem of how best to manage some 550 maps was resolved within the first phase by formulating clearly definable classes of map types based primarily on the origin and hence contemporaneity of the map content. The initial system of classification was deliberately simple, but its obvious potential both for the present study and future researches led to refinement and a formal description of the final classification system. This is given at the end of this chapter: its application to the maps of Yorkshire can be seen in the following chapter.

The Methodology

The question to be asked of each map was: "to what extent can this map be trusted as a record of the topography at the date of publication?" Ascertaining satisfactorily the contemporaneity of the content must precede a consideration of the accuracy of that content. Indeed the answer to the date of the map's content often makes the issue of accuracy irrelevant

for the purposes of this thesis since if the map is proved to be anachronistic because it merely copies an earlier map it is not only unreliable but may be rejected as a source and preference for purposes of analysis given to the earliest map containing the same content.

With chronology as the initial criterion for the assessment it seemed logical to study the maps in chronological order, starting with the earliest known printed county map. In effect the method adopted was simply that of looking at consecutive maps to determine the extent to which they differed. Batches of maps, about six at a time, were studied together starting with the first recorded printed map of Yorkshire, that of Saxton in 1577. The initial purpose of this comparative study was quite simply to provide an approximate date for the content of each map by dividing the maps into those which merely repeated content already shown on earlier maps and those which contained at least some new content.

The strictly chronological sequence adopted was broken only to compare a series of reprints of a map. This could involve jumping over many intervening maps. This was done because new content is obviously more easily seen on a reprint than on an entirely new map. 'Advance' knowledge of any new content facilitates awareness of its representation on other intervening 'new' maps. The first map, that by Saxton in 1577, was held for comparison with all the subsequent maps until the chronological sequence revealed a new map which was obviously not derived predominantly from Saxton's map. This new map was retained until it too was superseded and so on to the end of the period.

In the first phase each map was placed in one of two basic categories, either a new map or a reprint.¹ For the purposes of this thesis both categories were subdivided to produce the following four-fold classification of the maps: 1) New Maps: Possibly Significant; 2) New Maps:

¹ Mainly following Whitaker's catalogue (1933)

Demonstrably Not Significant; 3) Reprints: Possibly Significant and 4) Reprints: Demonstrably Not Significant. The criteria for placing a map in one of these categories were as follows:

1) New Maps: Possibly Significant

These maps were possibly significant because they contained topographical features not previously mapped or represented in such a new way as to suggest more than a mere difference in the method of cartographic representation. The new features were noted and the map accepted for the next stage of investigation.

2) New Maps: Demonstrably Not Significant

These were maps which although clearly printed from completely new plates nevertheless equally clearly were merely copied from previous maps and failed to add any new topographical information whatsoever. Any outstanding stylistic features were recorded as possible clues to these maps themselves being used as sources for later maps but the maps were rejected as useful sources.

The argument for rejection is as follows. With a new map whose entire topographical content can be shown to have been copied from an earlier map the repeated content is literally a representation of the previous map and not the topography at the date of the subsequent map. As such a 'Not Significant' new map not only includes the weaknesses inherited from the original map but its consequent unreliability is increased by the fact that the map is not truly contemporary with the topography. Hence the map adds nothing to our knowledge of the topography. Indeed if this category of map is not recognized it is liable to obfuscate our knowledge and so needs to be clearly rejected.

3) Reprints: Possibly Significant

Reprints which include even the slightest topographical change from the previous print of that map demand further examination. The new features or types of features were noted and the maps accepted for the next phase of investigation.

4) Reprints: Demonstrably Not Significant

A map placed in this category would be topographically identical with the previous print of that map and therefore adds nothing to our knowledge of the landscape. Such a map can be rejected for the same general reasons as given for the Demonstrably Not Significant New maps.

For every map both the category into which it was placed and any new features were recorded for three purposes. Firstly, this was undertaken in order that all the maps could be classified in a form of value to those wishing to use these maps as sources of topographical information. This classification is described at the end of this chapter: the application to Yorkshire is the subject of the next chapter. The second purpose was to draw a graph (Figure 1) to depict the different map types over the whole period. This information also ensured that a table (Table 3) could be compiled recording the first appearance by map and date of topographical features recording, amongst other things, the development in the relative completeness of the mapped topography over the whole period.

Except for a few maps whose smallness and lack of detail enabled their contents to be assimilated quickly the method used in comparing each map was laborious but cannot be satisfactorily eased. The simplest maps to cope with were the reprints, which fell into two types, those with a grid framework already on the map and those without any grid. Some form of grid was essential to structure the comparison and ensure that no item

was missed. For reprints already provided with grids the task was simply to compare each map grid square by grid square looking for any topographical alterations of any kind and recording them. If a change was blatant no technique was required. The feature was recorded and the map accepted as meriting further investigation.

For those reprints on which no grid was provided it was necessary to create one. It would have been improper to deface an original by adding a grid and to print a reproduction and add a grid to that would have been both expensive and unsatisfactory because some features can be extremely faint on the original or confused by smudges or damage. This would have involved continual comparison of the reproduction with the original as well as with the map with which it was being compared. To merely overlay tracing paper with a grid on it would have been unsatisfactory because it imposes a considerable strain reading through even the best paper. The solution adopted was to use two A.4 size sheets of tracing paper, one for each map and to cut out of each a square 'window' of the same size, thus providing not only a clearly defined area for comparison but through the surrounding tracing paper ensuring that features which overlap the square being examined are not missed. The size of the square depended on the amount of detail on the map: the more detailed the map the smaller the square. The whole map was studied by moving the trace 'window' over the map step by step.

Comparing new maps presented a greater problem unless a new feature was obvious. Unlike reprints, the new maps were liable to differ in scale, in the basic frame-work, and in the style of representation of features. The basic method was the same as for reprints without grids, but instead of identical 'windows' in the tracing paper they were cut to reveal as nearly as possible the same area; thus if the scales were very different the 'squares' would be similarly different in size. The advantage of using

tracing paper was emphasised by the fact that variation in the basic framework of the two maps frequently resulted in some features not appearing in both windows however carefully the 'squares' were adjusted.

If one of the new maps was provided with a grid that same grid was used as the basis for a trace grid window on the other map being investigated; if both maps had a grid and these grids were incompatible then the grid on the first map was used and the second grid was ignored, and instead a trace grid based on the grid of the first map was used.

As a result of this initial examination and classification it was possible to define two types of map which merited further study. The first type was represented by a rather small number of only eleven maps, all of which came into the category of New Maps: Possibly Significant. These stood out so clearly from the general run of preceding maps in terms of both the wealth of original content and also their general accuracy, as seen from the comparison with Ordnance Survey maps, that there was little doubt that the main source of these maps must have been field surveys. These maps merited a separate classification and were termed Basic Maps. Concomitantly it was apparent that the remaining New Maps whether Possibly Significant or Demonstrably Not Significant, were chiefly copied from these basic maps. They could therefore be reclassified as Derived Maps producing two new classes: 1) Possibly Significant Derived Maps and 2) Demonstrably Not Significant Derived Maps.

The second type of map meriting further study consisted of a much larger group of some 150 maps which although basically unreliable because they were clearly derived from earlier printed maps, nevertheless contained one or two items of topography not previously found on a printed map or recorded very differently, which therefore called for further investigation.

As a second phase of the investigation attention was now concentrated on the second type, namely the larger number of maps with a few points

requiring assessment (the Possibly Significant Derived and Reprinted Maps), leaving the much more complex maps of greatest interest for the third phase. The greatest number of the maps considered in this second phase of analysis occurred in the last 15 to 20 years up to 1857 and purported to record the new railways. It was soon apparent that the majority of these maps could be rejected because the railways were the only new features and they were clearly based on guess-work rather than fact. Fortunately these maps would have been of minimal value anyway as sources even if correct both in date and alignment of the railways because far better alternative sources are available in, for example, the various Acts of Parliament and their deposited plans, the evidence of the Ordnance Survey's early field notes and maps, or simply the material evidence which has survived on the ground.

For the rest of the maps in this group the question posed about the new content concerned its correctness. Fortunately, for many of the features comparison with the Ordnance Survey maps¹ was sufficient to confirm the features as being the first mapped representation of genuine items of topography. Therefore those maps could be classified as useful sources for those specific items, though with the necessary caveat that items could have been included from plans or written proposals produced for example by park improvers or canal companies and seen by the map maker before they were realized on the ground. Other features were proved by comparison to be erroneous and rejected. A further selection could only be described as possibly reliable when the incompatibility with the Ordnance Survey maps could have been due to difficulties of interpretation of the earlier map's style or possible change between that date and the Ordnance Survey maps.

Study of these Possibly Significant Derived and Reprinted maps highlights the fact that it is inadequate for the purposes of an historical

1 Initially the 1" Seventh series.

geographer to classify these maps as reliable without qualification. It is clearly possible to classify some maps as being completely unreliable and of no use as a source of topographical information. Where this is not so, it is essential to be precise about features on an otherwise unreliable map which are definitely reliable and those which are possibly reliable.

Throughout the first two phases of the investigation it became progressively more easy as a result of increased familiarity to assess the maps at a general level. Thus by the start of the third phase, all the maps warranting attention could be confidently subdivided into two types. First, the group of eleven maps classified as Basic which were not considered in detail in phase two. This group obviously required the greatest consideration in the final phase of analysis as being potentially of the greatest use as sources. The second group, eventually reduced to 49 maps, comprised the remaining maps from the second phase which contain a few new items of content; new content which at the worst was not definitely wrong and at best was clearly the result of new survey material being added to an otherwise unreliable map.

By the end of the second phase it was also possible to refine the classification of all the maps providing a breakdown of the total of over 550 maps based principally on the source or sources of each map and consequently indicating the usefulness of the maps as sources of topographical information.

The third phase, which effectively forms the second part of this thesis was structured primarily on five of the Basic maps which stood out even within this special class. These five maps were those by Saxton in 1577,¹ Ogilby in 1675,² Warburton in 1720,³ Jefferys in 1771/2⁴ and

1 (W.1) (W.C.C.1)
 2 (120A) (W.C.C.240)
 3 (W.162) (W.C.C.270)
 4 (W.240) (W.C.C.273)

Greenwood in 1817/18.¹ The uniqueness of these five maps necessitated different approaches, described in the relevant chapters of part two, but with both these and the other maps in this final phase it was clear that it would not be possible to consider the reliability of every feature since the search for corroborative evidence necessitated amongst other approaches the search of local archives.

To simplify the task now the most obvious comparative sources were concentrated on. These were the large scale manuscript maps, and here the major constraint was availability. Within this constraint it was decided to choose for comparison with the printed maps those manuscript maps of areas which presented particular problems of interpretation on the printed maps. To ensure a regional balance the map resources of selected archive repositories were investigated. The main repositories chosen were: Beverley for the former East Riding of Yorkshire; Northallerton for the former North Riding and Leeds City Archives for the former West Riding. The merits of manuscript maps for testing the reliability of printed maps justifies an examination of the parallels and contrasts between the former and the latter.

1 (W.335) (W.C.C.286)

A DESCRIPTION OF THE CLASSIFICATION DEvised FOR THE PRINTED MAPS OF
YORKSHIRE

Like the methodology this classification, which evolved out of the examination of the maps, strongly reflects the importance of the source or sources of each map and to a lesser extent the map maker's intentions in influencing the potential usefulness of each map as a topographical source. Hence the three chief map types, the Basic, the Derived, the Reprint and the subsequent subdivision of the latter two into the Significant and Not Significant categories. It is necessary to emphasise that maps classified as significant or useful as sources are not by definition unequivocally reliable although the classification does differentiate the Basic maps from the Significant Derived and Reprinted maps. The former contain a lot more useful information. The complete reliability of individual maps of Yorkshire cannot be reduced to a meaningful classificatory system because there are too many considerations involved. The present classification serves as a very necessary step towards the provision of an informed assessment of individual maps.

The Basic maps and the subdivision of the Derived and Reprinted maps according to their usefulness or otherwise produced a six fold classification: 1) Basic maps; 2) Significant Derived maps; 3) Not Significant Derived maps; 4) Significant Altered Reprints; 5) Not Significant Altered Reprints; 6) Unaltered Reprints. Only three of these types are useful as sources of topographical information and these are the Basic maps, the Significant Derived maps and the Significant Altered Reprints. All six types will be described to facilitate better understanding of the maps.

1) Basic maps

A Basic map is based on a contemporary ground survey, predominantly measurements made for the map itself; for that reason alone it is liable to add to our knowledge of the topography of the period of the survey and as such merits further consideration. Basic maps are the sources of the best evidence which we have of the topography of Yorkshire in that period. They are also the source from which the Derived maps stem. Basic maps must not be taken as wholly original compilations, however, and in part two of the thesis it will be seen that individual Basic maps do include some content derived from General Knowledge, from Adopted measurements, from Previous mapped representation and can even be marred by spurious in-filling of gaps. These occurrences need to be recognized.

The motive for the production of these maps often appears to have been the desire to record (at specific dates) aspects of the topography which had either not been recorded before or which it was felt needed to be recorded more accurately. The intention was often to produce 'working documents', for example, the first county maps by Saxton, published as an atlas in 1579 as, amongst other things, an essential aid to central government¹, or Ogilby's Road Book, in 1675, as the first attempt at an accurate depiction of the main roads of England and Wales.²

2) Significant Derived maps

There are two potential sources for Significant Derived maps: from Basic maps, in which case they can be from the original map or from reprints; and from another derived map, or its reprint. It will be appreciated that considerable investigation would be necessary in order to identify the

1 vide infra Chapter Five

2 vide infra Chapter Six

source or sources of some of the individual Derived maps. Fortunately important clues are available in the form of carto-bibliography (for instance, who owned which plates) and the blatant repetition of gross errors present on the original source copied. Once found, such clues permit all the copied material to be identified by comparison; and thus the new and potentially Significant content can be recognized. The Significant content can be based on an adopted source or general knowledge and even actual measurement for the map itself, and thus while obviously not as comprehensive a source as the Basic maps this second type with Significant content can nevertheless add to our knowledge of the contemporary topography and so merits further assessment.

That these maps were predominantly copied from earlier works suggests that the level of accuracy required was less than for the Basic maps. The purpose of the map did not warrant a proper survey and this suggests that the Significant content is liable to be included, in general, with less precision than the content of a Basic map.

3) Not Significant Derived maps

This type can be rejected because unlike the Significant Derived maps they add nothing at all to our knowledge of the topography at the date of the map. Where their content is less, for example where they indicate a smaller number of parks than on the previous basic map, it was found that this was due to deliberate reduction by the map maker, or error and not to a genuine decline in the number of parks.

4) Significant Altered Reprints

Because of the identical basis of a reprint with the previous print of that map any alteration can be readily identified. As with the

Significant Derived maps it will be appreciated that it is not the map as a whole but only the specific verified new content which is significant.

The source of the significant new content can be from adopted measurements, general knowledge and especially with reprints of Basic maps, can include a proportion of new measured survey material to correct serious errors on the Basic map and to up-date other content. Altered reprints of a Basic map are clearly very important in helping to assess the Basic map and this emphasizes both the essential need to compare maps with each other as much as possible and therefore the advantage of knowing precisely which maps and the content of which maps can in fact be usefully compared.

5) Not Significant Altered Reprints

The fact that a Reprint was altered would appear at first sight to indicate that the alterations might add to our knowledge of the topography. This type is rejected, however, because all the changes can be shown to have been mapped before the date of the altered reprint or can be proved to be erroneous.

6) Unaltered Reprints

These are topographically unaltered reprints. Changes in dates, imprints and other non-topographical content are only potentially relevant on the reprints if there is change to the topographical content. This class comprises maps obviously redundant as sources of topographical information except in two possible circumstances. The first circumstance, of hypothetical interest only, is the situation in which it is envisaged that the previous print was a perfect representation of a county and that nothing in that county had changed. The second circumstance, which assumes the previous print was useful as a source, is a utilitarian one in that the

reprint can be treated as the previous map if it is only the reprint that is available to the researcher.

That five of the six categories are Derived or Reprinted maps is a reflection of the numerical dominance of these types over the Basic maps. It serves as an important reminder that however accurate and reliable a map might look it is essential to find the source of its map content by comparison with previous maps.

Before applying this classification to the printed maps of Yorkshire two caveats must be recorded about the rejected maps. Firstly it must be stressed that though the works may be rejected here as sources of topographical information, they may well be of interest for other purposes such as the study of specific cartographers, the development of printing techniques or the relationship of cartographic development to other historical movements. Secondly, individual maps can be found in collections with contemporary manuscript additions and while great care needs to be exercised in considering them, they can prove useful; for instance in the Whitaker Collection, Speed's Yorkshire map¹ which repeats Saxton's mislocation of Morton is corrected in ink to place the village to the east of the Swale near Ainderby Steeple. The correction incidentally highlights an error in Saxton's map which can be used as evidence for the use of Saxton's map by subsequent map makers either directly by copying Saxton's map itself, or indirectly by copying Speed's map.

1 W.C.C.12 (W.122)

**CONTAINS
PULLOUTS**

Table 1 Printed Maps of Yorkshire: 1577-1857. Numerical Summary of the Classification

MAP TYPE	BASIC	SIGNIFICANT DERIVED	SIGNIFICANT REPRINT	NOT SIGNIFICANT DERIVED	NOT SIGNIFICANT ALTERED REPRINT	UNALTERED REPRINT	NOT MAP	* NOT SEEN	GRAND TOTAL
SUB TOTALS	11	19	30	105	89	280	2	19	555
USEFUL MAPS (60)					REJECTED MAPS (476)				

* For possible significance see Appendix 2

CHAPTER FOUR

APPLICATION OF THE CLASSIFICATION TO THE PRINTED MAPS OF YORKSHIRE 1577-1857

To devise a classification and elaborate a methodology is one thing: to apply these to the very diverse and numerous maps of the largest county in England is a very different matter. The purpose of this chapter is to demonstrate the results of such an application to all the printed maps of Yorkshire considered in this thesis.

The general application of the classification to all the maps of Yorkshire

Some 550 maps of Yorkshire were printed in the period 1577-1857. Applying the classification already described produced some striking results. These are summarized in Table 1 and also portrayed graphically (Figure 1).

For the historical geographer the most disappointing figure in Table 1 is the number of maps which must be rejected as sources of topographical information. Indeed, the 476 rejected maps represent just over 85% of the grand total. Why so many maps have to be rejected is largely explained by the dominance of the various reprints. 75% of the rejected maps are reprints and most of these are unaltered reprints. Reprints also account for approximately 75% of the grand total and 50% of the useful maps.

This dominance of reprints, however, is both an advantage and a disadvantage. It is an advantage in that the majority of maps could be assessed for classification relatively rapidly because of the ease with which reprints can be compared. On the other hand, it is a disadvantage in that even the significant reprints will by their very nature include much that is not useful.

The number of reprints of a specific map range from only one reprint

to twenty-eight in the case of Mercator's 'Eboracum' of 1595.¹ The final reprint of this map was in 1642, yet not one of the reprints is of use as a source of topographical information. A longer time span is covered by the fewer reprints of Saxton's map of 1577.² One reprint was published in about 1720³ some 140 years later and incidentally at about the same time as that major new survey by Warburton.⁴

All but two of the remaining rejected maps and over half the remaining useful maps are classified as derived maps. This leaves a mere eleven basic maps which together with the few significant reprints and significant derived maps provide a pool of 60 useful maps. At the best, these useful maps undoubtedly add considerably to our knowledge of the topography and at the very worst, cannot be rejected as definitely not adding to that knowledge.

The two maps classed in Table 1 as 'not maps' are listed by Whitaker.⁵ They are included here not only because they are recorded by Whitaker, but because they raise some interesting, though strictly secondary points. The first, Drayton's Poly-Olbion 1622⁶ described as an allegorical map by Whitaker, deserves a mention because despite its obvious eccentricity this is the first 'map' of Yorkshire to suggest land use. For instance, shepherds are pictured on the hills, archers in the forests and cattle in Holderness. The Halifax scaffold and Knaresborough dropping well are also 'cartographic firsts'. The second, Bickham's Bird's Eye View of Yorkshire 1754⁷ is aptly described in its title but although interesting because of its perspective, is of no topographical value.

In the graphical representation of the printed maps of Yorkshire from 1577 to 1857 (Figure 1) all the map types are distinguished but the useful

1 (W.3)

2 (W.1)

3 (W.160)

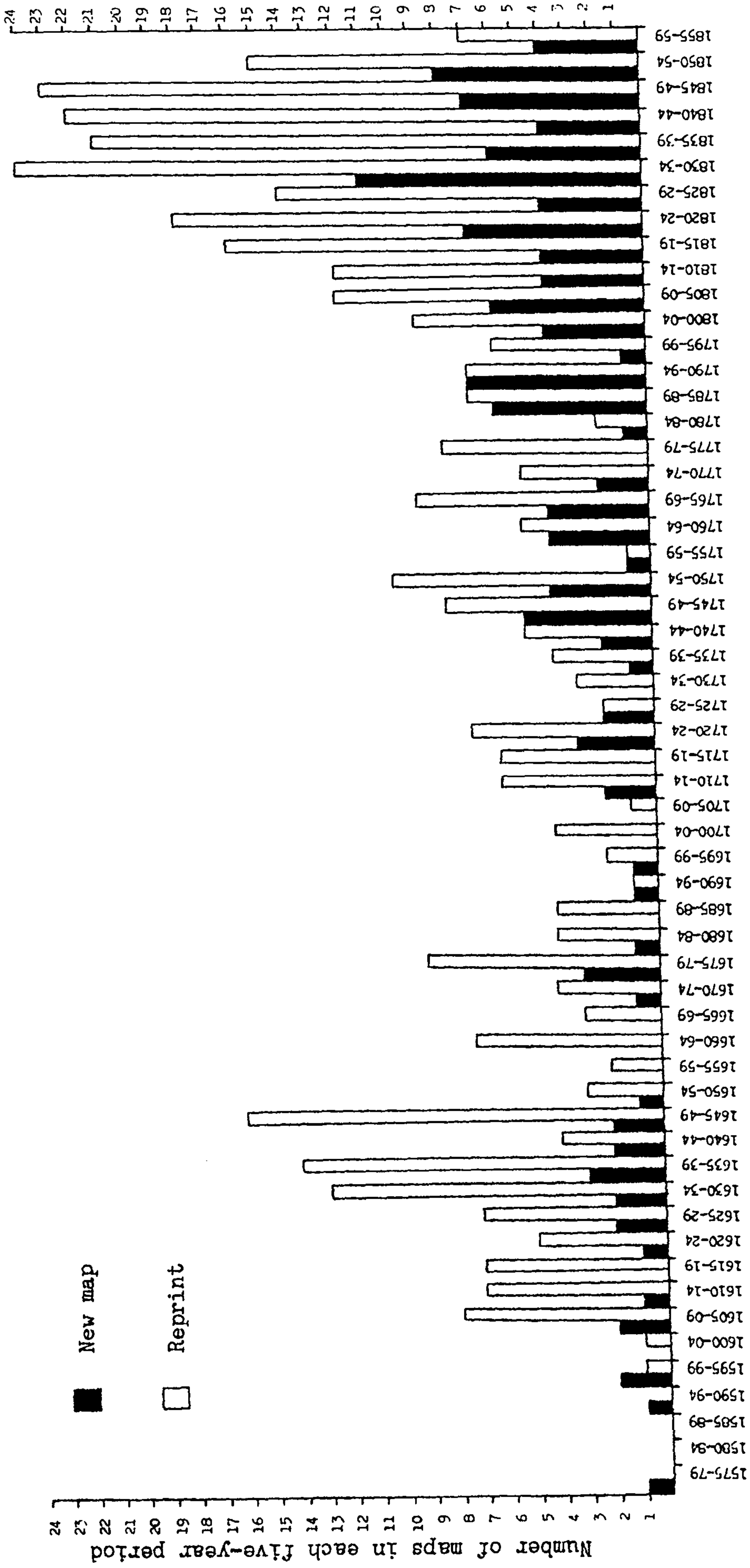
4 (W.162)

5 Whitaker (1933)

6 (W.35) reproduced in Whitaker (1933) plate vii.

7 (W.213)

Figure 2 The numerical and chronological relationship of new maps to reprints



maps are marked so that they stand out clearly so as to permit both the rapid identification of these genuine source maps and also the determination of their relationship to the general chronological distribution of maps. In the first thirty years a mere six maps of Yorkshire were printed after the first county map, Saxton's basic map of 1577.¹ Not one of these six adds anything of topographical significance. This can be contrasted with the final thirty years to 1857, in which period over 150 Yorkshire maps were printed, including a dozen useful maps. After the first thirty years there was an increased output of maps until the middle of the 17th Century yet only the one significant map, by Speed in 1610.² Significant maps increased in number after 1670 and there was a dramatic upsurge in printing in the one year after the publication of Ogilby's Road Book in 1675³ with a total of nine maps. This figure was not equalled or surpassed until after 1840 some 160 years later. From 1675 the total number of maps printed each year fluctuated with a general increase in the frequency of significant maps until the late eighteenth century when their publication averaged roughly one every other year with as many as three significant maps in the two years 1787 and 1806. The final thirty years saw a consistently high total output yet it was still possible as late as 1851 for not one map to be published.

The primary purpose of the graph (Figure 1) is to depict the chronological distribution of useful maps. Secondary details such as the numerical and chronological relationship of new maps, whether useful or not, to reprints are not immediately apparent. This particular relationship is also shown graphically (Figure 2). It can be seen that with few exceptions there is a close relationship between the periodic fluctuations with reprints dominating over the number of new maps. This can be seen as an illustration of, amongst other things, the preference for producing maps relatively

1 (W.1)
 2 (W.20)
 3 (120.A.)

cheaply from existing plates rather than having to engrave new ones. Further considerations of the ideas, other than those relating specifically to the useful maps, suggested by these graphs are beyond the brief of this thesis.

Further consideration of the classification to the categories of Useful Maps

For further analysis of the useful maps the first graph (Fig.1) suggests the possibility of dividing the whole period from 1577 to 1857 into smaller and more manageable periods each relating to one of the eleven Basic maps and defined as the time during which the influence of that map predominated and in which subsequent significant derived and reprinted maps can be seen as additional sources of knowledge prior to the next Basic map. Since, however, the distribution of these eleven Basic maps in time is highly skewed with five occurring in the last forty years, it was decided that more meaningful periods could be defined from five of the Basic maps. These five, because of their special significance, have been called Key Maps. Four occur before the more crowded last forty years, namely those of Saxton in 1577,¹ Ogilby in 1675,² Warburton in 1720³ and Jefferys in 1771/2⁴. The final Key Map is in fact the first in the last period, Greenwood's map of 1817/18.⁵

A summary of the resultant periods considering only the useful maps is provided in Table 2 . The five Key Maps produce one long period of almost a century followed by four others with roughly similar lengths of between forty and fifty years. Despite these irregularities and particularly

1 (W.1)
 2 (120.A.)
 3 (W.162)
 4 (W.240)
 5 (W.335)

that of the first long period, it will be appreciated that these are the most valid periods of study for the purposes of this thesis. It should be appreciated further that each period is not necessarily discrete since from the second period onwards the influence of the preceding Key Map or Maps can sometimes still be seen.

Table 2 Useful Maps by Type and Period

PERIOD	BASIC	SIGNIFICANT DERIVED	SIGNIFICANT REPRINT	TOTAL USEFUL MAPS	YEARS
Saxton 1577 →	1	1	1	3	98
Ogilby 1675 →	1	2	4	7	45
Warburton 1720 →	2	3	-	5	52
Jefferys 1771/2 →	2	8	14	24	45
Greenwood 1817/18 to O.S.1857	5	5	11	21	40
TOTALS	11	19	30	60	280

By definition the only maps which add to our knowledge of the topography of Yorkshire in the whole period are the 60 useful maps. The rejected maps merely repeat features on the useful maps or add spurious content. By implication the Basic maps and more specifically the Key maps will make the major contribution. This is confirmed by the first appearance of individual types of topographical features commencing with the first county map by Saxton, and then recording the map with the next new topographical feature. The first representations of topographical features on printed maps of Yorkshire are recorded in Table 3 .

Table 3 First Representation of Topographical Features on Printed Maps of Yorkshire: 1577-1857

W.1. 1577 Saxton	Town, Village, Hamlet, Hall, Grange, Abbey, Chapel, Castle, Inn, Park, Wood, Forest, Dale, Hill, Chase, Moor, Marsh, Lake, River, Dyke, Bridge, Beacon, Cross.
W.20. 1610 Speed	Town Plan, Wapentake boundaries.
W.116. 1671 Quartermaster	Route.
120.A. 1675 Ogilby	Road, Junction, Bridge material, Post, Stoop, Gate, Ferry, Roman Road, Open/Enclosed Road, Well, Windmill, Watermill, Common, Meadow, Arable, Spa, Rill, Pond, Limepit, Coal Pit, Lead House, Minster, Quaker House, Alms House, Lighthouse.
138.A. 1693 Saxton	Sunk Island.
W.162. 1720 Warburton	Fen, Drain, Dam, Waterfall, Head of River, Old River course, Sandbanks, Decoy, Nunnery, Priory, Free School, Warren House, Park detail, Avenue, Racecourse, Cave, Paper mill, Allum, Copper, Iron Forge, Roman Station, Ancient Hermitage, Ruins, Devil's Arrows, Historic Burial Site, Topographical Notes.
W.203. 1750. Bowen	Turnpike.
W.240. 1771/2 Jefferys	Hachures, Boundaries of Common and Moor, Warren, Green, Waste, Hospital, Smelt Mill, Tin Mill, Old Lighthouse, River navigation, Local Roads, Turnpike Bar, Milestone.
264.A. 1786 Tuke	East Coast Lost Villages.
W.335. 1817/18 Greenwood	(Greatly improved overall detail)
W.391. 1830 Hoare & Reeve	Railway.

In this table the specification is of the first single occurrence shown and does not imply multiple or general portrayal of that type of feature, moreover such features may also be represented conventionally rather than accurately.

For this reason the concept of cartographic 'firsts' needs to be used with caution. Even so, three useful points emerge from a consideration of the table. The first is that the table highlights the Key maps, maps which not only clearly require special attention but which mark a significant step forward in the mapping of the county. Only one Key map, that by Greenwood in 1817/18 fails to stand out in the table by virtue of the number of new features, but its inclusion in this class is justified by the quality of the greatly increased amount of detail it contains. The table also serves to correct certain errors in the picture of the development of the mapping of topographical features as given in the preface to Whitaker's catalogue of the printed maps of Yorkshire. Whitaker claims "I have also noted topographical features that either distinguish a map, or are characteristic of its period, and are inserted on the map for the first time."¹ Whereas in Whitaker's text the first reference to coal, allum and copper works and windmills is for Jefferys' map of 1771/2², one or two mills and mineral references appear in Ogilby 1675³, whilst the first whole county map to show them is Warburton 1720.⁴ This and the comment that "Warburton only surveyed roads"⁵ gives a seriously misleading picture of cartographic progress. The other point of particular use to the historical geographer is that the table at least helps him to know which features are not mapped at all before specific dates and therefore need not be looked for.

1 Whitaker (1933) p.xii.
 2 (W.240)
 3 (120.A.)
 4 (W.162)
 5 Whitaker (1933) p.82.

This last point raises the question of the completeness of the representation of the contemporary landscape on a map, a question which by its very nature cannot be comprehensively answered. The Basic maps are more complete than the Significant Derived or Significant Reprints and the table of contents shows that successive maps add to the total number of features recorded but even the modern Ordnance Survey maps necessarily omit much of the present landscape. Particularly is this true in the scales most similar to those of the printed maps made in this study period, namely $\frac{1}{4}$ " and 1" to the mile.

Indeed scale is an obvious physical constraint on the quantity of detail that can be shown on a map and in general terms there is a relationship between the scale of a map and its usefulness. In Yorkshire the range of scales before the 6" Ordnance Survey in 1857 is from one mile to the inch to the extremely small 65 miles to the inch,¹ but useful maps in the period are no smaller than 15 miles to the inch and over 50% of the useful maps are at scales greater than 7 miles to the inch; in the last two periods only four of the useful maps have a scale of less than 7 miles to the inch.

The first one inch to the mile work is Ogilby's Road Book of 1675. The first whole county map at 1" scale, albeit in twenty large sheets, is Jefferys' map of 1771/2. One inch to the mile road surveys are also extant in the manuscript field books for Warburton's map of 1720. Again, Dickinson's map of south Yorkshire in 1750² is also at this scale.

The first Key map, the first county map by Saxton in 1577 is at about 4.5 miles to the inch, a scale similar to the Ordnance Survey $\frac{1}{4}$ inch, and this remained the largest scale full county map until Warburton's in 1720, the third Key map. Warburton's map produced over 140 years later than Saxton's is at 2.5 miles to the inch. In between these two maps though, the North Riding maps of Blaeu in 1645³ and Jansson in 1646⁴ are nearly at

1 (W.76)
 2 (203.A)
 3 (W.83)
 4 (W.89)

Table 4 Summary of all the printed maps of Yorkshire by type and period

PERIOD	BASIC	SIGNIFICANT DERIVED	SIGNIFICANT REPRINT	NOT SIGNIFICANT DERIVED	NOT SIGNIFICANT ALTERED REPRINT	UNALTERED REPRINT	NOT MAP	NOT SEEN	TOTALS	YEARS
Saxton 1577 →	1	1	1	17	7	95	1	-	123	98
Ogilby 1675 →	1	2	4	7	8	23	-	-	45	45
Warburton 1720 →	2	3	-	19	4	50	1	2	81	52
Jefferys 1771/2→	2	8	14	20	7	47	-	4	102	45
Greenwood 1817/8 to O.S.1857	5	5	11	42	63	65	-	13	204	40
TOTALS	11	19	30	105	89	280	2	19	555	280
		USEFUL MAPS			REJECTED MAPS					

the same scale as Saxton's map and their East Riding maps at 3.5 miles to the inch are actually larger yet they do not add to our knowledge of the topography. This serves as a reminder that a larger scale does not inevitably mean a more useful map.

With the exception of Dickinson's one inch map of south Yorkshire in 1750, Warburton's map remained the largest scale map until Jefferys' 1" county map in 1771/2. In the fourth period however, between Jefferys and Greenwood, relatively large scale works began to be more numerous, namely three reprints of Jefferys' map in 1772/5,¹ 1775² and 1800,³ and works derived from Jefferys' maps at two miles to the inch by Tuke in 1787⁴ and by Faden in 1816,⁵ and at 2.5 miles to the inch by Cary in 1808⁶ and at 3.5 miles in 1810 by Rowe.⁷ Greenwood's map is at 1.38 miles to the inch and Bryant's East Riding in 1829⁸ is at one inch to the mile.

Extension of the Key periods to the complete map series

Application of the analytic approach to the complete series of maps is summarized in Table 4 which adds the Key period sub-divisions for rejected maps to that already provided for the useful maps.

An assessment of all the useful maps is presented in part two of this thesis. In this section however, a summary of the application of the classification to the whole series of maps is provided for each period with specific reference being made to maps which though rejected as sources of topographical information nevertheless provoke comment. Several of these Yorkshire maps are bound in works which in fact contain other topographical information which is of importance.

-
- 1 (W.242)
 - 2 (W.246)
 - 3 (W.286)
 - 4 (W.264)
 - 5 (W.332)
 - 6 (W.308)
 - 7 (W.317)
 - 8 (W.386)

Period One: From Saxton's map of 1577 to 1674

Almost three quarters of the rejected maps in this period are reprints or reductions of three maps and predominantly unaltered reprints. Of the first 83 maps, 51 are reprints or reductions of Mercator's 1595 map.¹ This map, derived from Saxton's General Map of England and Wales which was published in 1583, and being almost one-third the size of Saxton's county map was clearly a more manageable map for subsequent map makers to copy, but at a scale of 14 miles to the inch cannot be expected to show much detail and indeed what is shown is taken from Saxton.

Both Mercator's map and those by Blaeu in 1645² and Jansson in 1646³ illustrate that the frequency of reprinting and hence contemporary popularity is not a reliable criterion for assessing the usefulness of a map for the historical geographer. Blaeu's and Jansson's maps are very similar and together account for 25 of the last 39 works in this first period. Much of the popularity of these maps can be attributed to the excellence of the engraving. Nevertheless, despite their beauty and their contribution to the development of cartographic styles, for instance in a more 'realistic' though not more accurate representation of hills, they add nothing to the topographical knowledge of Yorkshire beyond the details already portrayed by Saxton, the very first county map and to a lesser extent by Speed, in 1610.⁴

Five other rejected maps merit the following notes in this period. The Camden/Saxton work of 1607⁵ comprises the first separate maps of the Ridings but the only information added to Saxton's map of 1577 is the latin names of the Roman stations, itself a reflection of the antiquarian interest of the book in which these maps are bound. This interest is seen also in

1 (W.3)
 2 (W.83)
 3 (W.89)
 4 (W.20)
 5 (W.10)

a map of the 'Anglo-Saxon Heptarchy'. The text, which was much copied, is the significant part of the work rather than the maps. The text gives geographical and topographical information about both Yorkshire and the other counties.

Keer's map of 1599¹ has not been inspected but is rejected on the evidence of the 1617 reprint.² The British Museum copy of the atlas contains no map of Yorkshire and the Royal Geographical Society copy³ has only a manuscript map of the county which unfortunately does not add any new topographical information.

Bill's map of 1626⁴ is the first map of Yorkshire to show latitude and longitude. "A Direction for the English Traveller", engraved in 1635⁵ by Langeren is noteworthy for mileage tables and finally Blome's 'Britannia' of 1673⁶ includes a map of Richmondshire, original only in the area chosen for cartographic representation.

Period Two: From Ogilby's Road Book in 1675 to 1719

Because Ogilby's maps of 1675 are in strip form depicting some of the more important roads it is not surprising that the basic county frameworks for this second period were derived from maps pre-dating Ogilby. Jansson and Blaeu's maps, noted in the previous period, were clearly used by Morden, for example, who produced both significant and not significant works.⁷

The most interesting rejected maps are in fact also by Morden, who published a series printed on playing cards.⁸ These show routes intended,

1 (W.5)

2 (W.29)

3 R.G.S.264 A.35. Maps of Great Britain P. Kaerius.

4 (W.37)

5 (W.62)

6 (W.120)

7 Vide infra Chapter Six pp.233-6

8 (W.125) 1676

according to the 'Explanation' on the pack, to be from Ogilby. They are very inaccurate and are of interest only in so far as they attract attention. Were they accurate copies they would still be rejected as sources for the simple reason that Ogilby's work¹ is the source to use. It is interesting that on none of the Jansson or Blaeu reprints in this period are these or any roads added.

Period Three: From Warburton's map of 1720 to 1770

The wealth of additional topographical detail on Warburton's map of 1720 created problems for subsequent map makers and many of the smaller maps are consequently very cramped and hard to assess. The fact that some publishers made no attempt to use the new information is evinced by over twenty reprints of maps from the previous period.

One of the problems of cataloguing and classifying maps is illustrated by Palmer's map of 1725/6.² It is a circular map depicting an area within a radius of forty miles round York, it is orientated to the east and is explicitly 'contracted from an old map of Yorkshire'. It is severely limited in detail and adds nothing to our knowledge of the topography at that date. However, this map is in fact no more than an inset on a plan of the river Ouse and part of the river Derwent. This plan is of value as a source. It was surveyed in 1725 and it shows several details not recorded by Warburton in 1720, including additional halls and their owners, the old and new courses of the Ouse south of Selby and of the Derwent by Weldrake. In so doing the river survey incidentally highlights the limitations of Warburton's representation of the river. Further, the map is the first to show Knack mill by Kirby hall, Little Ouseburn, a mill which

1 vide infra Chapter Six

2 (W.170)

is first portrayed on a county map by Jefferys in 1771/2. The first reference is therefore a useful addition to the record of this local detail.

Palmer also surveyed other rivers, including the river Don in 1722,¹ a survey made "in order to improve the Navigation from Hull to Doncaster and to continue up to Sheffield". It is similar in style to the later Ouse map.

Hutchinson's 'Geographia Magnae Britanniae' of 1748² includes both a true County map and separate Riding maps and all have to be discarded as sources. Yet an investigation of the text provides some very important aids to the interpretation of routes both on maps and in written itineraries.

Since it is probable that some routes on early maps were copied from written itineraries, that is lists giving the names and possibly mileages from place to place on a route, it is important to understand the significance of such written routes. Hutchinson's text repeats the new routes listed in Morden's work of 1708³ but with these few differences. The York to Stockton route is given twice by Hutchinson: firstly as route no. LVI in the London to Hartlepool road and secondly as route no. CLVII, the York to Stockton road. The parallel sections reveal several dissimilarities. Some places are given different spellings, for example, Shreaf-Hutton (LVI): Sheriffe Hutton (CLVII) illustrating the uncertainty in the spelling of place names, at least by London based publishers, a problem not fully resolved until the advent of the Ordnance Survey.⁴ Route LVI records five fewer places than route CLVII between Hovingham and Stockton including both Helmsley and Stokesley. Were it not for the fact that the total mileage is the same it would not have been obvious that the two itineraries represented the same route. If the less detailed one had been used as a

1 Reproduced in Willan (1965)

2 (W.196)

3 (W.148) vide infra Chapter Six pp.235-6

4 Seymour (1980) pp.60, 105 and 175.

source for adding that route to a map the chances of it being engraved correctly throughout the whole length are certainly less than good. The more detailed route repeats that given in Morden's 1708 work and its re-appearance in 1748 is a reminder of the limitations of a survey like Warburton's in 1720 since this route in its entirety is in fact not shown by Warburton.

Finally in this period the work by Kitchin and Jefferys for 1749¹ merits consideration in the present account solely for the lists beneath each map recording the dates and places of fairs and markets.

Period Four: From Jefferys' map of 1771/2 to 1816

Cary's name occurs more often than any other on the maps published in this period and although not all of his maps are rejected his work is a further example of quantity without quality so far as source potential is concerned. Fordham² proposed that John Cary stands out from all other cartographers including Saxton "as an exponent of the art and science he practised", and suggested that he is "the founder of ... the modern English school" (of cartography). Whitaker³ considered that Fordham "was inclined to overpraise the work of John Cary". Analysis of Cary's Yorkshire maps confirms this view and clearly shows that these works are limited as topographical sources. In Yorkshire at least he is certainly of very much less importance than either Jefferys before him or Greenwood in 1817.

1 (W.200). comprising a County map and three Riding maps

2 Fordham (1925) preface

3 Whitaker (1933) p.xii.

The 1775¹ reprint of Kitchin and Jefferys' 1749 maps of the County and separate Ridings is a brave attempt to add as much detail as possible from the new survey by Jefferys. The road noted by Whitaker² from Saddleworth to Knaresborough as mapped is erroneous. The list of fairs and markets beneath that map has been extended.

Maps 277, 278 and 279, all of 1794, are rejected but they are contained in the three important Board of Agriculture Reports (respectively the West, East and North Riding reports). The first two maps are very crude but the third, by Tuke, is of some interest as an attempt to show soil types.

Period Five: From Greenwood's map of 1817/18 to the Ordnance Survey 1857

Outstanding for this final period in the summary table (4) is the number of Not Significant altered reprints increasing dramatically from under ten in the preceding periods to over sixty. Many of these Not Significant altered reprints are works on which the only topographical changes are details of railways. Nearly all the maps with railway additions in this period have to be rejected because of their unreliability.

Several interesting specialized maps appear in this period such as the 1821³ reprint of one of Cary's maps, on which geological data are added. After the 1832 Reform Bill new parliamentary information was included on a few maps, for example, by Duncan in 1833.⁴ In 1841⁵ a map of the diocese of York was produced and in 1850⁶ a reprint of a map by Walker is the first of a long series purporting to show the extents of the fox hunts.

1 (W.245) East Riding reproduced in Whitaker (1933) plate xxii; West Riding reproduced in Rawnsley (1970) p.28 (misdated 1749)

2 Whitaker (1933)p.85.

3 (W.357)

4 (W.410)

5 (W.453)

6 (W.501)

Three further rejected works from this period of map making merit extra comment. The first is that by Hoare and Reeves in 1830.¹ There is, in fact, an earlier state of this map than that described by Whitaker.² The earlier state can be found in the Whitaker collection³ and does not show any railways. The 1830 map with railway lines is also in the Whitaker collection.⁴ Unfortunately the railway lines recorded are portrayed long before they were actually constructed. This is the first of many works in the period up to the Ordnance Survey in which railway routes are the only additions. The vast majority of these maps show, mingled with correct lines, lines inaccurately aligned and often lines which were never even built. An uncritical use of such maps could create a very wrong impression of the contemporary landscape.

The second work meriting extra attention was produced by Dawson in 1832.⁵ The County map is little more than a simple outline but it is found in the context of a work of considerable value which includes plans of 18 Yorkshire Boroughs at a scale of $\frac{1}{2}$ mile to the inch. The following are given: 1) New Malton, 2) Northallerton, 3) Richmond, 4) Scarborough, 5) Thirsk, 6) Whitby, 7) York, 8) Beverley, 9) Hull, 10) Bradford, 11) Halifax, 12) Huddersfield, 13) Knaresborough, 14) Leeds, 15) Pontefract, 16) Ripon, 17) Sheffield and 18) Wakefield. The Leeds plan shows, for instance, the road system to just beyond Weetwood prior to the construction of the New Otley Turnpike.

Pigot's 1839 Atlas⁶ is the third work. It is mentioned because the text contains a brief history of the Yorkshire railways to 1839 which merits consideration because, unlike so many of the maps in the period, it

1 (W.391)

2 Whitaker (1933) (W.391) p.135.

3 (W.C.C.147)

4 (W.C.C.148)

5 (W.406)

6 (W.444)

contains accurate information. It records, for example, the opening, with horse drawn carriages, of the Whitby to Pickering line on 26 May 1836, an event which can be confirmed in detail from other sources.¹

Conclusion

The application of the classification to the printed maps of Yorkshire reveals that the majority of these maps cannot be deemed sufficiently reliable to be used as sources of topographical information. The extent to which the remaining maps are reliable and therefore useful, is also indicated in general terms by this classification. It is apparent, for instance, that not all these maps are of equal reliability. The most reliable maps are the Basic maps and especially the Key maps. The Significant Derived maps and the Significant Reprints are necessarily less reliable. Furthermore, the relationship of these Significant Derived and Reprinted maps to the Key maps and, to a lesser degree, the scale of the former types, provide two further criteria for assessing the reliability of each map.

Clearly, to know that a map is useful, even to know how it is classified, is not the end but rather the beginning of the end of assessment. For such maps it is necessary to define not only which features on each map are reliable but also how reliable those features are. This detailed evaluation of the useful maps formed the final phase of assessment and is the concern of the second part of this thesis.

1 North Yorks Moors Historic Railways Trust. Moorsline (1973) no.23.

PART II

Introduction

The analysis in Part I enabled the printed maps of Yorkshire to be divided into two categories: maps which can be rejected with confidence as inadequate topographical sources requiring no further investigation; and maps which merit further investigation.

The concern of Part II is to give the maps in the second category the attention which they merit and, on the basis of even more detailed analysis, to present an assessment of their utility as sources of topographical information. This is divided essentially on a chronological basis into five periods, with each period dominated by one of the five most important maps, namely Saxton's map of 1577, Ogilby's strip maps of 1675, Warburton's map of 1720, Jefferys' map of 1771/2 and Greenwood's map of 1817/18.

A final chapter considers briefly non-printed maps, and the light, corroborative or otherwise, which they can throw on the printed maps.

The concluding section of the thesis will bring together the main arguments developed and consider the possible relevance of the findings made on the printed maps of Yorkshire for other counties.

CHAPTER FIVE

PERIOD ONE: SAXTON'S MAP OF 1577 to 1674

Introduction

It is difficult to overstate the influence which Christopher Saxton had on English and Welsh county cartography. Even as late as 1743, over 160 years after Saxton's maps had been first printed, Martin Folkes, President of the Royal Society, declared that it was from Saxton that "most part of the present maps, except Ogilby's Roads, were taken".¹ Although by 1743 there already existed a few new surveys even some of these show a debt to Saxton. Yorkshire was no exception to Folkes' comment in general terms. The graph (Figure 1) and Table 3 show that with the exception of Ogilby's Road Book it was not until the arrival of Warburton's map in 1720, over 140 years after Saxton, that Saxton's dominance was effectively removed.

Something of this dominance can be judged by the fact that in the period covered by this chapter, nearly a century long, only two maps published after Saxton's county map of 1577 record new information meriting assessment, but even these are fundamentally derived from Saxton. The first, Speed's maps of 1610 can be traced back directly to Saxton's county map. The second, the 1671 reprint of the 'Quartermaster's Map' can be traced back to Saxton's original survey via his own General Map of England and Wales printed in 1583.²

1 Folkes, M. Journal Book of the Royal Society XVIII (1740-45) p.100.

2 Skelton (1974)

The background to Saxton's Survey and possible sources and methods

Notwithstanding the vagaries of the survival of evidence, there can be no doubt that Saxton's achievement in topographical mapping can be seen as being more revolutionary than merely evolutionary. There are several early maps of Great Britain or England and Wales such as the thirteenth century Matthew Paris map, and the fourteenth century 'Gough' map. Nearer in date to Saxton's map were Mercator's 'Angliae' of 1564 and Lluyd's 'Angliae' of 1573. These maps merit consideration by the historical geographer because of their uniqueness, but none is comparable with Saxton's county maps. Indeed, had there been anything similar to Saxton's county maps already in being, Saxton would not have received the necessary support of influential patrons. Among them were Thomas Seckford, Master of the Queen's Requests, and Lord Burghley, Lord Treasurer to Queen Elizabeth. Nor indeed would he have had the patronage of the Queen herself which included various grants and the usage of the Royal Arms on the maps.¹

That none of the extant earlier maps could have been of any real use to Saxton when he was making his map of Yorkshire does not preclude the possibility that he was able to ease his task by adapting maps now no longer extant, which had already been produced. There is strong evidence that there had been previous attempts to make a survey of England and Wales. Reynold Wolfe, the Royal Printer, who would have been known to Seckford, Saxton's patron, had been apparently working on maps until his death in 1573.² More interestingly, John Rudd, shown by Marcombe³ to be Saxton's master in 1570, had received two years leave of absence from Durham Cathedral in 1561 for making a 'platt' of England. There

1 For details of the patronage see Evans (1979) Ch.6.

2 Ibid, p.40.

3 Marcombe (1978) pp.171-5.

is therefore the possibility that Saxton's Yorkshire map contained some previously mapped information and did not contain solely the results of a first hand survey.

Further it is possible that Saxton could have studied written sources such as lists of villages, lists of park owners and itineraries. Nevertheless, close analysis of Saxton's map suggests that though earlier sources might have been a help initially in leading Saxton to decide which routes to take or even what to survey, the final map is explained much more reasonably as being fundamentally the result of a new survey carried out by Saxton.

Precisely how Saxton made his maps is still, in Evans' phrase "matter for reasoned speculation".¹ In this thesis this is relevant only in so far as knowledge of his method is an important criterion for assessing the reliability of the map as a representation of the topography in 1577. Fortunately, given the hazards of speculation, much can be gleaned directly from the map itself. The range of opinion about Saxton's method is very wide. Thus Ogilby in 1675², with obvious vested interest, contrasts his own 'Dimensuration' with Saxton's 'Perambulated Projections', i.e. superior sketches. Ravenhill,³ a much more dispassionate observer, writing in 1974, has little doubt that Saxton used trigonometry. Between these extremes advocates can be found for most contemporary methods including the plane table⁴ and compass traverse.⁵

The best evidence for Saxton's method is provided in the Order of Assistance dated 10th July 1576, which facilitated his survey of Wales.⁶ Although this Order was explicitly for the Welsh part of the survey, the Order actually predates several of the English county maps including

1 Evans (1979), p.44.

2 Ogilby, J. Britannia (1675) Preface.

3 Ravenhill (1974)

4 Lynam (1953)

5 Manley (1934)

6 Privy Council Register 2:11, quoted in Evans (1979) p.147.

Yorkshire. It is therefore more likely than not to indicate the general method used at least in the later English county surveys. The Order is in the form of an open letter to the Justices of the Peace, mayors etc. in each county instructing them to assist Saxton by ensuring that he was directed to towers, castles, high places or hills in order to "view that countrey". These local officials were also to provide Saxton with two or three "honest" men who knew the country well, so as to aid him in his task and finally to ensure that after Saxton had completed each "view" he was to be accompanied on horseback to the next market town.

On the basis of this Order it seems reasonable to infer that Saxton progressed from market town to market town, stopping at suitable high places in order to record the surrounding countryside, and especially the pattern of settlement. Simultaneously he was advised by the 'honest' men, both at the high places and en route, about the names of places and the location of important landmarks and possibly even the direction of flow of rivers and streams.

Manley¹ has considered Saxton's possible method in the Pennines by examining the named hills which were mapped and the accuracy of the placing of river headwaters. Reassessment of Manley's ideas on the Yorkshire side of the Pennines confirms his general conclusion that Saxton travelled no further up any valley than was strictly necessary. Presumably, in the Pennines, this would be the point at which Saxton could take a bearing to a hill recognized by his local guides as being located on the county boundary. It is possible to supplement Manley's argument by including as a boundary marker 'Huseat Moruell Hill', Hugh's Seat, which Manley records as mapped by Saxton merely as the source of the rivers Swale, Ure and Eden. Again, Manley's argument can be

1 Manley (1934)

strengthened by asserting that 'Bauderskarth Hill' at the head of Baldersdale was a recognizable boundary marker despite his comment that there is no such hill. Certainly the name cannot be found on the modern Ordnance Survey maps but the range of hills at this point is named by Jefferys in 1771/2 as Badderscarth. Bardersdale as a seventeenth century alternative to Baldersdale and Barder Bank are recorded by the Victoria County History for the North Riding.^{1,2} Well to the east of the Pennines 'Betteresse Hill' provides further testimony to the effect that Saxton followed roads from market town to market town. 'Betteresse Hill' is also recorded by Ogilby in 1675³ as lying on the road from Ferrybridge to Sherburn in Elmet.

The evidence of the Order and the development of the ideas within it must be seen in the light of the maps themselves, which certainly for Yorkshire, and also it would appear for Surrey,⁴ are remarkably accurate in terms of the basic framework of the settlement. For Yorkshire at least the pattern of settlement is also remarkably complete. It would be unreasonable to think that Saxton, even in his home county of Yorkshire, would not have used local guides. If so, some credit must go to them, not only for the accurate recognition of settlement and of distant hills but also for providing such effective guidance for Saxton within their own area. If this is true then the portrayal of England and Wales provided by Saxton's complete survey is not as idiosyncratic as has been suggested by earlier works.⁵ Indeed, study of the most poorly surveyed areas within specific counties could provide evidence not merely of the obvious constraint of difficult terrain but of those areas which were

1 Page (1914) Vol.1, p.120

2 Manley also doubts the existence of Pinnow hill near Skipton. This is, in fact, mapped on the Ordnance Survey 1" 7th series as Pinhaw and was recorded by Warburton's surveyors in 1719 with accurate bearings to Pinnow hill from both Kildwick church (N.W.80 degrees) and Skipton church (S.W.56 degrees).

3 Ogilby (1675)

4 Ravenhill (1974)

5 Morgan (1979)

considered of little importance and therefore not deserving of too much attention. Similarly, an area in which the topography is portrayed in greater detail than would be expected given later conditions may serve as a pointer to the decline in the importance of that area. Some idiosyncracies cannot be thus explained, as for example the inclusion of the very small hamlet of Dunningley, which was Saxton's home.

The Map

That an assessment of Saxton's map of Yorkshire is not dependent primarily on knowing what methods he used can be illustrated by a comparison of overlapping features on adjacent maps. It has been suggested¹ that the accuracy of maps can be affected both by the survey and by the process of recording that information onto paper as a printed map. There are six other Saxton maps for the counties which bound Yorkshire, namely, Durham, Cumberland & Westmorland, Lancashire, Cheshire, Derbyshire, Lincolnshire & Nottinghamshire. On all these maps there is a slight overlap of detail with the Yorkshire map.

The Durham map has correctly included a tributary of the Tees on the Yorkshire side of the border between Cotherstone and Rombaldkirk, yet Cotherstone, correctly located on the Yorkshire map is placed on the wrong side of the river Balder on the Durham map. Indeed the Tees itself is not represented identically on the two maps. Again, the delimitation of the county boundary is not identical on the Cumberland & Westmorland map and the Yorkshire map. Although the approximate boundary line is correct where it lies along Carlin Beck, this tributary was incorrectly named as the Lune itself. Comparison of overlapping sections also shows that the county surveys were not totally independent since Howgill

1 Vide supra Chapter Two

in Yorkshire is recorded on the Cumberland & Westmorland map but not on the Yorkshire map. That spelling was not consistent is revealed by comparison of the Lancashire and Yorkshire maps. On the former, Clitheroe is recorded as Clethero and on the latter as Cledero. Moreover, Saxton's own manuscript survey of Dewsbury¹ shows that he could spell a place in more than one way on one and the same map.

The conclusion to be drawn from the comparison of overlapping detail is that whatever the degree of accuracy of the survey, and in general terms that was high, the differences in the recording of the detail at least with respect to rivers, boundaries and both the presence or absence and spelling of places can not only be attributed to weaknesses in recording but also taken as a yardstick for assessing the rest of each map away from the overlaps.

The contents of Saxton's Yorkshire map are summarized in Table 3². Two aspects are relevant; the richness of Saxton's content and the persistence of that same type of content until Ogilby produced his maps in 1675 or in the case of full county maps until Warburton's work in 1720.

Although, in the light of later surveys, Saxton's maps were deficient in some respects it is important that his achievement should be viewed in its true historical context. The contrast between the quantity and quality of information on Saxton's map and the best previous representations is stark not least in the total number of places recorded. The completeness of Saxton's settlement pattern can be demonstrated by a comparison with the content of the Ordnance Survey $\frac{1}{4}$ " map, whose scale was closest to that used by Saxton and also by comparison with the content of Warburton's map of 1720.³

1 Vide infra Chapter Seven p.321

2 Vide supra Chapter Four p.58

3 Vide infra Chapter Seven pp.273 et seq.

Saxton's map, however, is not simply concerned with the depiction of settlement. It also provides an important record of halls, parks, bridges and less precisely, of the larger forests, moors, chases and marshes. Moreover, it brings out the more important broad contrasts in the landscape of the county. The depiction of the North York Moors as a relatively empty area can be compared, for example, with the wealth of detail provided for the south-west. Within the limitations of this thesis it is not practicable to investigate all these features. Accordingly three features have been selected to illustrate the strengths and weaknesses of the map as a source of topographical information, namely, parks, rivers and bridges.

Parks

Saxton's depiction of parks in Yorkshire is considered for two linked reasons. Since parkland has changed over the centuries it is reasonable to seek the potential of contemporary maps as a record of this change. The second reason is the fact that both Saxton's map and subsequent maps of Yorkshire have been used incorrectly as evidence for change in the distribution of parks.

Ultimately an assessment of the completeness of Saxton's representation of parks depends on an exhaustive survey of local archives. An alternative approach is to compare Saxton with subsequent maps to see if changes on later maps imply errors of omission or commission on Saxton's map rather than genuine changes in the landscape. The identification of differences provides a simple method of assessing the completeness or otherwise of representation for if study of local records reveals these to be due to error then caution must be exercised before assuming that Saxton does provide a good total representation of parkland.

For the parks in Yorkshire an important and useful source of information is B. Coates' thesis "The Development and Distribution of Landscape Parks in the East and West Ridings of Yorkshire".¹ In this work Saxton, Speed and Warburton's cartographic representations are used as evidence of change. Fortunately these three maps provide only a minor part of his analysis for three errors are committed in their use, which highlight the need for caution. The first is numerical and illustrates the problem of counting specific features on maps which have no grid facilitating an accurate count (Saxton and Speed) and which can also be ill defined. Coates correctly records 51 parks in the West Riding and 7 parks in the East Riding for Saxton,² but later states that Speed's map shows respectively 54 in the West Riding and 9 in the East Riding³ when, in fact, Speed shows exactly the same number and same parks as Saxton. Thus cartographically there is no growth or change in parkland recorded between 1577 and 1610.

Coates' second error is in failing to specify, with respect to Speed's map, whether he is using Speed's Yorkshire map or Speed's Riding maps. The park information for the East Riding is identical but for the West Riding the Yorkshire map omits Sandal Castle park, south of Wakefield, which is shown on the Riding map. His third error is to use Speed's map as one with which to compare Warburton's map⁴, for since comparison of Speed's map with Saxton's map shows unequivocally that Speed uncritically copied most of his map content, including the parks, from Saxton, no confidence can be put in Speed's representation as an independent picture of the parks in 1610. In fact, with the exception of Ogilby's strip maps in 1675

1 Coates (1960) unpublished

2 Ibid p.10

3 Ibid p.50

4 Ibid p.50

and Sutton Nicholls' map of "20 miles round Leeds" in 1712,¹ Warburton's map of 1720 is the first printed map to show genuine new information on parks since Saxton.

This lack of cartographic change is disappointing as a measure of landscape change in that a degree of confidence can be placed in only two true county maps up to 1720, i.e. Saxton's map of 1577 and Warburton's map of 1720, and that the printed county maps of the intervening years cannot be used as evidence of the contemporary park number and distribution. Nevertheless, this lack of cartographic change is also encouraging in suggesting that Saxton's representation was felt by contemporaries to be sufficiently accurate not to require immediate alteration. It is to be expected that a park owner of any importance would object strongly to being overlooked and Speed's project would have been an obvious occasion for correction. In this context the county map can be seen as a social register; to have one's park included could be described as an instance of what might be called paling into significance.

The limited accuracy with which each park is shown by Saxton suggests that it is unlikely that the survey of them involved more than a distant sketch. Indeed, considering the limitations of the map's scale (about 4.5 miles to the inch) and the level of inaccuracy in drafting or engraving implied by comparison of the overlapping areas, factors of which Saxton would surely have been aware by the time he began his survey of Yorkshire even if he had not appreciated these facts before his first county maps printed in 1574 some three years and over a dozen maps earlier, it is unlikely that he would have wasted time and energy on a more detailed survey resulting in a minimal increase in the accuracy of the map itself. Even so, comparison of the possible extent of the parks with their representation on the detailed surveys recorded by Jefferys in 1771/2 and the maps of the Ordnance Survey suggests that Saxton's representation of the area covered

¹ (151A) Vide infra Chapter Six pp.236 et seq.

by each park is reasonably correct. This is in marked contrast to the work of Speed who clearly exaggerated the area of the parks, possibly for commercial reasons.

Saxton also records many halls, especially in the West Riding, without a park symbol. Coates suggests that the parks that are shown were largely medieval in function, that is stores of wood, 'live' meat and hunting grounds as distinct from landscape parks. If so, it would be interesting to investigate, through local archives for example, the landscape around Saxton's apparently unemparked halls. Indeed, the more Saxton is studied the clearer it becomes that his fundamental contribution lies in what he shows rather than how features are shown. Hence while providing important evidence for the existence of features such as parks and halls, the very baldness of the representation provokes more questions than answers, and that is a strength rather than a weakness.

Rivers

As is the case with parks, rivers are liable to change or be changed over a long period and also like parks, their cartographic representation is not immediately interpretable. What is clear is that from a comparison of rivers in areas of overlap with other Saxton county maps, the Tees and Lune for example, and from the limiting scale of the map, the rivers cannot be used as a record of minor changes in either stream length or course and so attention must be directed towards the larger scale changes resulting from drainage and navigation schemes, though that raises the question of the accuracy of the survey.

It is remarkable that Saxton's representation of the main rivers is, at least in Yorkshire, very similar to the Ordnance Survey $\frac{1}{4}$ " at about the

same level of generalization. Interestingly Skelton has noted the accuracy of Saxton's Sussex rivers suggesting that this was because rivers were important as obstacles to travel and as sources of power for mills.¹ He could also have added, at least in some instances, their importance as means of travel. Dugdale, for his history of Warwickshire in 1656 explicitly followed the rivers as part of his own survey.² The implication is that Saxton must have surveyed the rivers at a level superior to mere sketching or guesswork from certain fixed points such as towns, riverside villages and bridges. Nevertheless this is debatable for given the relative density of settlement along the main rivers, settlement which Saxton located with a high degree of accuracy, and the limitations of his scale, it would require a combination of very bad guesses on the part of Saxton or his local guides and very unrealistic draughtsmanship to produce a river on the printed map which did not closely resemble the actual course. Indeed it is on the tributaries and the rivers with few recorded adjacent settlements such as some of the rivers flowing southwards from the North York Moors that inaccuracy is most evident. Manley's suggestion that Saxton went no further than necessary up valleys is supported by the Yorkshire evidence with, in general terms, increasingly inaccurate river representation up stream.

Be this as it may, the accuracy of the main rivers is good enough to permit a comparison within areas which have since been altered by navigation or drainage schemes. Since 1577 there have been several alterations to the rivers of Yorkshire including the Tees at Stockton, the river Hull, Wallingfen and Hatfield Chase. Where the changes are known to have been made later than Jefferys' map in 1771/2 then clearly that map should be consulted in preference to Saxton. Hatfield Chase and the Isle of

1 In Margary (1970)

2 Harvey (1959)

Axholme, however, were significantly changed by the drainage schemes of Vermuyden in 1626-9. Certainly Saxton's map appears different in this area to the present landscape as seen on the Ordnance Survey representation. These changes have been studied from as early as 1662 by Dugdale,¹ in the eighteenth century by Stovin² and much more recently in an excellent unpublished thesis by Metcalfe in 1960.³ The Stovin reference, a reproduction, includes a map depicting the landscape before and after the changes based on records such as a map of 1596 "made in persuance of Special Commission 38 Elizabeth", and a second map dated 1639 by Acerlebut. River changes of this order are usually still discernible on the ground and even on modern large scale maps, at least vestigially. This is true of this area confirming the basic accuracy of the manuscript plans reproduced in Stovin but in so doing making Saxton's map effectively redundant as a source of this information, for Saxton is very much more generalized. Nevertheless, the evidence of the 1596 plan does, in affirming the general correctness of Saxton's river representation, point to the possibility that Saxton's maps may be of some value in identifying other areas where man has altered the drainage patterns and indicating the general course of the rivers before that change.⁴

1 Dugdale (1662)

2 Stovin (1975)

3 Metcalfe (1960) unpublished thesis. Includes several reproductions of early maps and plans.

4 That Saxton's occasional use of the word 'dike' implies an artificial channel already constructed by 1577 is confirmed in one instance in an interesting study by Grant (1975).

Bridges

Bridges are one of the most numerous of the 'less basic' topographical features recorded on Saxton's map. Unfortunately, assessment of the accuracy of this record is hampered by the difficulty of finding satisfactory corroborative sources and to assess all the bridges individually is not possible in this thesis. Of these corroborative sources the secondary work by Jervoise¹ is a useful pointer to the earliest records of specific bridges but he does not use Saxton. Apart from the guide lines provided by later printed maps, specifically those of Ogilby in 1675, Warburton in 1720, Jefferys in 1771/2² and the Ordnance Survey, three sources have been examined in detail, namely Leland's Itinerary 1535-43³, the North Riding Quarter Session Records⁴ and the Book of the Bridges 1752 for the West Riding.⁵

A brief comment on the limitations of these sources is essential. Since Leland pre-dates Saxton it is possible that Saxton could have had access to Leland's notes and hence the independence of Leland's testimony cannot be guaranteed. Furthermore, much of Leland's detail is based on hearsay or general knowledge; for instance, when travelling from York into the East Riding he crosses the Derwent by Kexby bridge and then interrupts his notes with a list of bridges on the Derwent both above and below Kexby yet it is clear that he did not inspect those bridges on that specific trip.⁶ It is also apparent that much of the diary was written down at a date later than the day on which he was travelling; thus on several occasions he uses the phrase "I remember ...".⁷

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- 1 Jervoise (1931)
 - 2 Vide infra Chapter Eight
 - 3 Smith (1907)
 - 4 N.R.R.S. Vols. i-ix.
 - 5 West Yorkshire Record Office Q.D.3.
 - 6 Smith (1907) Vol.1. p.44/5
 - 7 Ibid, p.42.

All the other sources are later than Saxton and for that reason alone can mislead since bridges could either have disappeared or been constructed in the intervening years. The Quarter Session Records usually include only bridges for whose repair the county was responsible. Thus the absence of a reference in these Records to a Saxton 'bridge', whose existence at that date is questioned, might only mean that that bridge was not a county bridge. Fortunately there are occasional references to non-county bridges also, such as the two (otherwise suspect) bridges in the North Riding at Ruswarp, near Whitby, and Ryton, near Malton, which were cited in the Quarter Session Records as definitely not the county's responsibility.

The East Riding presents the greatest problem of assessment because of the several alterations to the rivers of the area both in the region between Howden and Market Weighton and Holderness and the river Hull. Several of Saxton's East Riding bridges present no problem at all. It is possible however, that the two bridge symbols immediately north of Hull do not depict specific bridges and are no more than a conventional representation of the numerous dikes that had to be crossed between Hull and Beverley.¹ Again, whether there was in fact a bridge between Lowthorpe and Kelk is not clear, yet just to the south there is no bridge shown by Saxton at Frodingham though one was noted by Leland.²

For the North Riding the much larger number of bridges can be readily compared at one level of analysis with the Quarter Session Records. This and study of Ogilby and the other printed maps, suggests that where Saxton is most at fault is with omissions, as for example, Howe Bridge over the Rye between Malton and Pickering and Wath Bridge between Ripon and Bedale. Some other omissions could be explained by bad draughtsmanship; the name of Helmsley covers the point at which the bridge could have been shown.

1 Vide infra Chapter Six pp.166 and 216

2 Smith (1907) Vol.1, p.62.

Other omissions may merely reflect limitations of the survey and scale rather than the possibility that they were not built then.

In this thesis more attention was given to the West Riding of Yorkshire than to the other Ridings. Over 70 bridges are shown by Saxton in the West Riding. Having compared them with Jefferys' map of 1771/2 and the Ordnance Survey maps, only six raised serious questions about the reliability of the map and eventually two of these were solved. The six initial 'suspect' bridges were these. A bridge between Sedbergh bridge and the river Lune; one on the Ribble opposite Newsome; two on the Wharfe at Addingham and Weston and two near Sheffield at Owlerton and Westbury. The two resolved problem bridges were Newsome and Westbury. Newsome is evidently Paythorne bridge which is in fact not opposite Newsholme but about one mile downstream and Westbury is Attercliffe bridge.¹ That there may have been a bridge at Owlerton before the 19th century rests, at present, on the ambiguous evidence of Jefferys' 1771/2 map. On that map it is not clear whether or not the suggestion of a ford is an engraver's error. The probability that the other 'bridges' were really no more than fords, if that, cannot be ruled out. Certainly several fords across the river Wharfe were recorded on the first edition of the Ordnance Survey 6".

One of the most complete sources of evidence for bridges in the West Riding is the Book of the Bridges.² The full title of the book continues "belonging in whole or part to the West Riding of the County of Yorkshire 1752" and is a reminder that, as with other Quarter Session materials, the evidence is normally strictly limited to matters for which the Sessions were responsible. In that light it is not surprising that no early record can be readily found, for example, of the bridge Saxton shows at 'Rust Park' (between Sherburn in Elmet and Cawood). By 1771/2

1 Smith (1961) Vol.1, p.218

2 W.Y.R.O., Q.D.3.

the park was recorded on Jefferys' map as no more than a name and the stream the bridge may have spanned had already been transformed into what is now Bishop Dike. Although the Book is nearly 200 years later than Saxton it does at least show that Attercliffe and Paythorne were county bridges in 1752 and equally that the other problem bridges were not.

That a few mistakes should occur on any map is only to be expected, whether by missing the odd significant bridge (e.g. Skip Bridge on the Nidd) or by including a bridge which was never a reality. The unresolved apparent 'additions' are, of course, the most frustrating. Considerable delving into local records will be necessary to produce a clear idea of which are definitely erroneous.

Not surprisingly Saxton could not present a picture of what these bridges looked like. For specific bridges, clues are provided by Leland and at later dates by Ogilby and the Quarter Session Records and Book of the Bridges, all of which comment on the materials used in bridge building. Ogilby provides the evidence that even on important roads there were a great number of bridges made of wood, or predominantly of wood, in the late seventeenth century. By 1752 the Book of the Bridges shows that nearly all the 120 county bridges in the West Riding were built of stone and that these varied dramatically in both size and condition. Bingley bridge, though of stone, was 'too narrow'; Clough bridge, at the head of Garsdale was 'placed as much out of the road, and in so dangerous a situation, that it is seldom pass'd over'; sometimes a bridge had 'so high an Ascent, that it is scarce possible for horses'. For this reason Keighley bridge was described as difficult for carriages.

Thus only exceptionally is there cause to question the presence of a bridge symbol on Saxton's Yorkshire map. Hence it is worth considering briefly whether Jervoise¹ could have benefited from using Saxton as a source.

1 Jervoise (1931)

In fact over 20 bridges recorded on Saxton's Yorkshire map pre-date the earliest record used by Jervoise. In one chapter¹ dealing with the river Tees, six of the bridges discussed can be shown on the basis of Saxton's evidence to have been in existence at an earlier date. The most readily proved illustration is Jervoise's claim that Eggleston bridge was first shown on a map in 1775 (i.e. Jefferys' reprint). It is, in fact, shown by Saxton 200 years earlier and even more positively on a large scale manuscript map of 1612.²

Bridges and Routes

Though Saxton does not record any routes in Yorkshire it is but a short step from bridges to routes implied by the record of bridges on the map.

Since a bridge represents no more than one point it is not possible to discover from the map the number or directions of the routes served by a bridge. It is possible that a bridge was included because it was used by Saxton and his guides in his survey either as a point of reference or merely as a bridge on his travels and that usage does not necessarily imply a more general importance as a bridge on a regular route. In contrast, the absence of a bridge on a known route can be attributed to errors of omission, limits of scale or because at that date the crossing was by ford or ferry. Leland, as Jervoise states, noted that he had to use a ferry at West Tanfield and Ogilby in 1675 records a ferry across the Tees on his road north from Northallerton to Darlington.³

The problem of using Saxton's map as an indicator of possible routes

1 Jervoise (1931) Ch.4.

2 Illustrated in Baker and Harley (1973) p.46.

3 Ogilby (1675) plate 8.

is not made much easier by seeking corroborative sources. Often the nearest alternative record was made many years before or after Saxton and is in consequence not inevitably conclusive. For example, between Towton and Tadcaster on the main route from Doncaster to York, Saxton shows a bridge across Cock Beck in line with "the Old London Road" on the Ordnance Survey 1" seventh series.¹ However, the first survey of the London road between Doncaster and York, by Ogilby in 1675, shows the road as following a very different line to cross the stream much nearer Tadcaster and approximately on the line of the modern road. Hence it would appear that either there has been an interesting pattern of route alteration or that the cartographic record cannot be trusted.²

Evidence of definite change in routes can be found on the plans of the Isle of Axholme³ at a date closer to Saxton than Ogilby. This 1596 plan shows that at this date Misterton, about 5 miles N/W of Gainsborough and 12 miles S/E of Doncaster, outside Yorkshire but recorded on Saxton's Yorkshire map, had two bridges described on the plan as "the New Bridge" and "the Old Bridge". The New Bridge to the east of Misterton was clearly on the then main road crossing the Idle. By contrast, the Old Bridge was not on any clear route. Saxton, pre-dating the plan by nearly 20 years, only shows the Old Bridge yet the present main road (A.161) has reverted to the line of the Old Bridge.

Both these examples illustrate the fact that such comparisons and the quests for corroborative sources are liable to raise more questions than they answer. Of broader significance is the evidence that there is not necessarily a simple development from the 'old' to the 'new' road. What is clear is that routes fluctuate. Proof that one route was used at

1 Sheet 97 S.E. 475403

2 Vide infra Chapter Six pp.154 et seq.

3 Vide supra p.85

a specific date does not preclude the possibility that another way was equally possible at that date. Hence although Saxton's record of bridges cannot be taken as conclusive evidence of routes and certainly the omission of bridges cannot be taken as proof of the absence of a route, the record does provide a very valuable starting point for further investigation. The specific issue of the representation of routes on maps is taken up at the end of this chapter and in more detail within the following chapter on Ogilby's period.

The persistence of Saxton's information

Saxton's information, reduced of course in amount on the smaller maps, provides the material for practically all the maps of Yorkshire produced from 1577 until the early eighteenth century and indeed for some later maps. Thus the extent to which maps up to Ogilby in 1675 and Warburton in 1720 depict the topography at the date of the map is merely coincidental. In many cases they actually show nothing later than Saxton's information of 1577. For the same reason the additions of Ogilby's roads and route information from other sources on reprints and newly compiled maps produced before Warburton's survey in 1720 are literally additions not to a contemporary picture of the landscape but to a version of Saxton's picture.

The question why Saxton's basic work was not revised in Yorkshire until the road surveys of Ogilby in 1675 and on a wider scale the county map of Warburton in 1720 cannot be answered precisely. The magnitude of the task of revision in an area as large as Yorkshire must have been an important factor. For English counties other than Yorkshire the first significant attempt at county resurveying was by Norden. The few maps he produced were confined to the smaller counties of England, e.g. Surrey 1594,

Sussex 1595. Norden's choice of counties may also reflect that proximity to London was significant. The most noticeable difference between the maps of Saxton and Norden is that Norden included routes, windmills and water mills. Camden in 1607¹ and Speed in 1610² used Norden and other post Saxton maps in preference to Saxton yet curiously Speed removed the routes from his copies of Norden.

Whether or not the exceptional size of Yorkshire was a significant factor in ensuring the repetition of Saxton's information it is clear that the picture presented by the county of Yorkshire, although complying with Folkes' declaration³, does not truly reflect the awareness of what could or ought to have been mapped in the late sixteenth century and in the seventeenth century. Lynam considers that both Norden and the less well known Symonson were, as cartographers, "as great as Saxton".⁴ Why they failed to revise Saxton completely must be explained at least partially by the constraints of finance to cover the costs of new surveys.

Comparison with the later sixteenth century maps of other counties and the new information on Ogilby and Warburton in Yorkshire as recorded in the table of map content (Table 3) is an indicator of what Saxton might have included and therefore of the completeness of Saxton's representation. That even the information Saxton did record was not improved upon for so long is encouraging evidence of the basic accuracy of Saxton's map, suggesting, as illustrated by the study of specific items, that considerable confidence can be placed in his map for what it does record.

1 (W.10)

2 (W.20)

3 Vide supra p.73

4 Lynam (1953) p.8.

A benefit to be derived from Saxton's errors

It is useful to list the most obvious errors on a map like Saxton's because their repetition on subsequent maps provides strong evidence of the origin of the latter maps. Hence they indicate the limitations of such maps as strictly contemporary records. In this respect two of Saxton's errors are particularly noteworthy: the misplacing of Rosedale Abbey beside the river Dove instead of placing it in Rosedale and the gap of nearly two miles in the river Rye to the south and west of Helmsley.

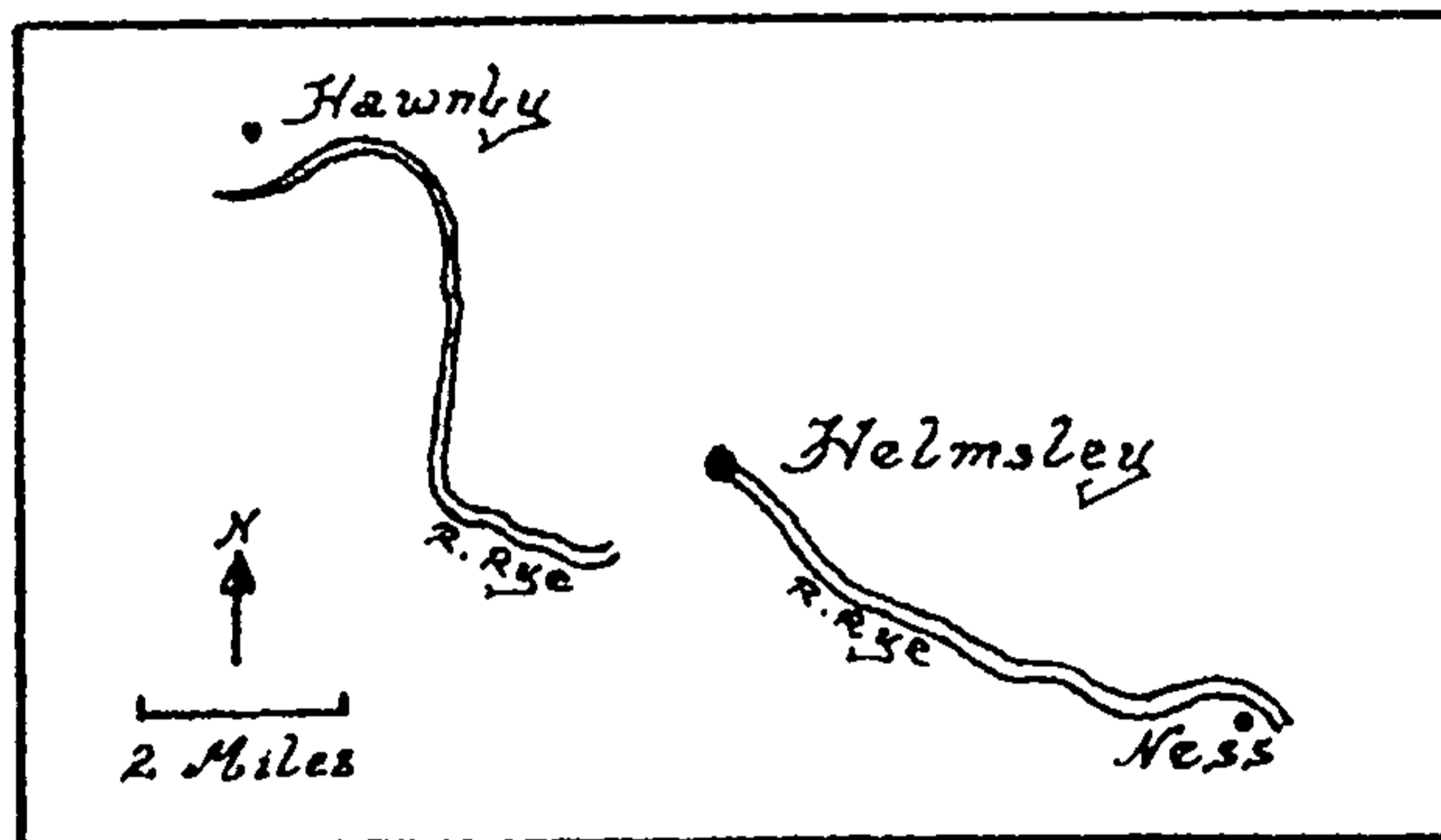


Figure 3

A Saxton error

For nearly 150 years the position of Rosedale Abbey was erroneously mapped. Warburton's map of 1720 was the first to show the Abbey in its correct position. None of the better known cartographers, Speed, Jansson, Blaeu, Lea, Morden etc. corrected the mistake. The error concerning the river Rye (Figure 3) was noticed by Camden in 1607¹ but not by Speed, Jansson or Blaeu. Morden in 1695² eliminated the gap but did so inaccurately with a straight line, thus missing Helmsley completely. Again Warburton corrects the error.

At least one map after Warburton, that by Keer in 1729,³ a reprint of a map published in 1651⁴ but with a new title and surroundings, still perpetuated both errors affirming Saxton's influence over 150 years. In fact it can be shown that Keer did not copy Saxton directly. Rather Keer

1 (W.10)
 2 (W.139)
 3 (W.173)
 4 (W.101)

derived his map from Jansson's county map of 1636.¹ Jansson's map was derived from Speed's county map of 1610² and it was Speed who actually copied Saxton, thereby providing an excellent illustration of the potential complexity of cartographic plagiarism.

This evidence that map makers compiled their maps relatively uncritically from previous maps is confirmed by their failure to adjust areas which had undergone significant change since Saxton's map. The drainage changes which had taken place in the Hatfield and Isle of Axholme area could have been included after the plan and completion of the work in 1639, yet it was not until Warburton in 1720 that this occurred.

1 (W.67)
2 (W.20)

Additional Maps as sources of topographical information between Saxton's
1577 Map and Ogilby's 1675 Maps

Only two printed maps of Yorkshire as listed in the Whitaker catalogue between Saxton and Ogilby can be considered as potentially useful. Even so, both are of limited utility since they are derived predominantly from Saxton.

i) 1610 (W.20) Speed. Yorks: W/R (1608.W.13): N & E/R (1608.W.13)

In 1611 John Speed published his famous "Theatre of the Empire of Great Britaine", a work containing both maps and textual descriptions of the counties. It is a very attractive publication and was extremely popular, being reprinted regularly almost to the end of the eighteenth century. Speed's work immediately illustrates one of the problems of cataloguing Yorkshire maps. His Theatre contains not only a whole county map but also separate maps of the combined North and East Ridings and one of the West Riding. In the general classification of the maps for this thesis it was found easier to treat this group and similar groups as one map since in practice it is only exceptionally that the contents of the maps show significant differences. To have recorded each one separately through identical reprints would have given a false impression of the total number of mapped representations of the county. It is also easier because the catalogue of printed maps¹ gives only one entry for each group and so separate numbering would have confused the otherwise simple comparison with the maps as catalogued there. Each map is, however, considered in this section.

1 Whitaker (1933)

The Riding maps, in a slightly incomplete state, had appeared just before the full set, with the West Riding dated 1608. Again to keep the classification simple, these two Riding maps, though pre-dating the full county map dated 1610 and the complete set as published together in 1611 are classified as "not significant altered reprints", so avoiding the need to classify the first complete set individually.

Speed's Yorkshire maps are copied from Saxton's county map of 1577 and in his text he is indebted to Camden¹. Speed adds to Saxton's information only a few features. Among these were a few battle sites, a reflection of his antiquarian interests. In addition he included Wapentake boundaries and most importantly his own plans of York, Hull and Richmond. It would appear that the omission of Wapentake boundaries was a serious weakness of Saxton's work for the depiction of these boundaries would have aided government administration. Dr Helen Wallis quotes Robert Beale's list of duties and requirements of a Secretary of State in 1592 which includes " ... a booke of the Mappes of England with a particular note of the division of the shires into Hundreds, Lathes, Wappen-taes ..."² This contribution by Speed to the contemporary usefulness of the maps of Yorkshire does not, however, add to our knowledge strictly speaking of the topography. The town plans are Speed's sole contribution to that knowledge and will be considered below.

That Speed's basic map does not add to Saxton is not only made apparent by visual comparison which reveals the identical representation of content including the errors, but it is also suggested by Speed's careful record of his debt to earlier map makers in the often quoted preface lines "I have put my sickle into other men's corn, and have laid my building upon other men's foundations". That his copying was open to error is

1 (W.10)

2 Evans (1979) preface

evinced both by the early state of the Riding maps and the more interesting omission from the North and East Riding map of Egglestone Bridge over the river Tees which he did manage to copy onto the smaller scale map of the whole county.

Study of the many subsequent reprints of Speed's Yorkshire maps shows that not one of them adds anything of use to the historical geographer. If this is true of the other counties the popularity of the Atlas cannot be related to the contemporary reliability of either the maps in the work, or in general terms of the text (for both were derived), but from the combination of map and text and the artistic skill with which the work was produced. One textual change, strictly belonging to the next chapter, is of interest but is mentioned here to keep the Speed comments together. This is the reprint of 1676¹ which includes tree-diagrams of the routes purporting to be from Ogilby but includes one in Yorkshire not in Ogilby's Britannia. This is a most interesting alignment from Lichfield via Chesterfield, Staveley, Killamarsh, Harthill, Laughton, Braithwell and Doncaster. With the exception of the fourteenth century Gough map's direct line between Chesterfield and Doncaster the route is not shown completely on a map until the 1800 reprint of Jefferys' 1771/2 map.²

With reference to the plans of York (an inset on the West Riding map) and plans of Hull and Richmond (insets on the combined North and East Riding map) Speed's attitude is in marked contrast to his apologia with respect to the maps themselves. He claims that "some (town plans) have been preformed by others, without Scales annexed, the rest by mine own travels, and unto them for distinction's sake, the Scale of Paces, according to Geometrical measure, five foot to a pace I have sent". Using this criterion all the Yorkshire plans are Speed's own and there is no reason to doubt this. The plan of York has been mistakenly attributed to Braun

1 (W.122), (W.C.C.12)
2 (W.286)

and Hogenberg.¹ The plan of York in Braun and Hogenberg's 'Civitates Orbis Terrarum' is found in volume six which was published in 1618 after Speed. That the other five volumes appeared between 1575 and 1598 raises the possibility that Braun and Hogenberg could have surveyed York and that Speed obtained a copy before they managed to publish but there is evidence that Speed's was the original plan.

Both plans are extremely similar but the index to places on the Braun plan cuts off part of the extreme eastern edge of the plan detail and consequently loses part of the road to Hull including the church of St. Nicholas. Braun's plan also omits the northern end of Gilly Gate and the Free school there. Despite the general impression that Speed's is the original, however, it could be argued that the differences could be equally explained as additions by Speed. One final difference suggests most strongly a copying error by Braun. On both plans a letter is given to identify the church of St. Sampson but whereas Speed squeezes this letter in the available space between the church and the market cross, the church is actually missing from Braun's plan and so the letter relates only to the market cross. Comparison of Speed's plan with Jefferys' plan in 1771/2 (in his county map) confirms that basically the plan is a very good representation of the city's road plan.²

ii) The 1671 Reprint of the "Quartermaster's" Map (W.116)

This map was not inspected by Whitaker³ despite the intriguing note recorded in the entry that Sir H. G. Fordham claimed that roads had been added. Whitaker first accepts the recording of roads on the reprint he dated 1687⁴ "doubtless intended to be according to Ogilby, but quite inaccurately". The unwillingness to accept roads on a map before Ogilby

1 Rawnsley (1970) and Bagley (1972) p.173.

2 For an introduction to research into early town plans see Harley (1972)

3 Whitaker (1933)

4 (W.137) actually 1676 (128A)

in 1675 is understandable, particularly on the part of an author in 1933.

On the title page of the Bodleian Library map¹ it is clear that the date has been re-engraved from 1644 to 1671 and that there has been added the engraved phrase "and the dubell lines sheweth the Rodes from place to place ...". The imprint is the same as for the 1644 print, i.e. "sold by Thomas Jenner ..." etc. Since Jenner died in 1673² and since the next reprint in 1676 had Garrett's imprint, there is no reason to doubt that this 1671 reprint is indeed of 1671 and certainly pre-dates Ogilby's work in 1675. The 1676 reprint of the Quartermaster's map included further routes and at least some of these can be disregarded as merely attempts to copy from Ogilby, the obvious source, but the 1671 map clearly demands more attention.

In the Yorkshire section of the 1671 map these 'pre-Ogilby' routes present serious problems of interpretation. As the compiler of the 1671 map did not alter the base of the map at all it is inevitable that the inherent weaknesses and errors in the planimetric accuracy of the settlement and rivers, combined with the limiting scale of about 10 miles to the inch, will create problems in relating the cartographic alignment of the added routes to the alignments on the ground however accurate the source of the information. Indeed, as with the assessment of Saxton's county map, the need for caution is emphasised by a comparison of the portions of overlapping detail on this map. Both the northern edge and the south-west edge of the Quartermaster sheet which includes Yorkshire have a section of overlap. There are discrepancies and most markedly so in the south-west, in Lancashire around Warrington, where the accuracy of engraving on the two sheets is disconcertingly different.³

Of the possible sources for the route information-measurements,

1 B.L.O. Wood MS.466

2 Skelton (1970) p.244.

3 Vide infra Chapter Six pp.231,232

previous mapped representation or general knowledge - the least likely (and the most accurate) is actual measurements. The general impression of the mapped routes does not suggest a source anywhere near as precise as Ogilby's surveys, which were published only four years later in 1675. Interestingly, few of the routes in Yorkshire on the 1671 map even approximate to those surveyed by Ogilby. Some routes had appeared on maps before 1671 but in highly diagrammatic form as on the fourteenth century 'Gough' map and Carr's map of 1668. An apparently less diagrammatic representation of routes is recorded in Walton's map of 1668.¹ These combined with general knowledge based on written itineraries such as lists of Post towns are the most likely sources if the routes are not proved to be entirely fictitious. It is pertinent to recall the evidence of the comparison between the two written routes.² It was noted that not even all the places passed through on a route were given and certainly no clue was given to the proximity of places adjacent to the route.

The limitations of the base and the generalization of the source of the routes, necessarily created problems for the draughtsman or engraver. Short of surveying the routes, of which there is not the slightest evidence, the compiler was forced to guess the alignment of the routes from a limited number of fixed points, chiefly it would appear, Post towns. Inspection of the map leads to the conclusion that, in fact, the compiler opted for the easiest solution, a smooth line between the few known 'fixed' points lying along the road. Even error with respect to these 'fixed' points cannot be excluded; for example, as when the 'direct line' drawn between two known fixed points brought another mapped location onto the route 'by accident'. Furthermore, the relationship of a route to a river on the 1671 map is likely to be erroneous except when a Post town was also a bridging point.

1 Vide infra Chapter Six pp.119 et seq.

2 Vide supra Chapter Four pp.66,67

It follows that the routes cannot be treated as an accurate record of road alignments either between successive or adjacent settlements. However, with caution the routes can be treated as evidence of more general alignments pointing to the existence of established routes over greater distances. In this light the following observations can be made about the routes in and through Yorkshire.

All the routes lead directly or indirectly to or from York and working clockwise from the south are, from Bawtry via Tadcaster to York, from Rochdale via Halifax, Leeds and Tadcaster (to York), from Halifax via Wetherby to York, from Lancaster via Skipton to Wetherby (and so to York), from Darlington via Thirsk and across the Forest of Galtres to York, and from Hull to York.

The most obvious record with which to compare the routes on the 1671 map is Ogilby's road book of 1675. Surprisingly only two alignments even approximate to Ogilby routes, namely from Bawtry via Tadcaster to York and the route via Halifax, Leeds and Tadcaster. Detailed comparison confirms that these routes as shown on the 1671 map cannot be treated as planimetrically correct over short distances, e.g. between Tadcaster and York Ogilby's road can be readily related to the Ordnance Survey alignment but the 1671 map gives a completely straight alignment passing between Askham Richard and Askham Bryan, a relationship of road to settlement which is in fact only possible because the villages are inaccurately plotted on the map. The evidence suggests that the compiler knew only that the route went from Tadcaster to York. Neither Carr's map nor Walton's map, for instance, would have been of much help. Carr's map does not portray any settlement between Tadcaster and York and neither of the two intermediate places on Walton's map are on the 1671 map. Of the few places Walton does show in this area one, Oxton, is grossly out of position. Hence the relationship of the engraved route to the settlement on the map would be the result of guesswork by the compiler rather than genuine knowledge.

Ignoring, therefore, any attempt to relate the 1671 map routes to intermediate detail the question now arises as to whether any of them are intended to represent the same routes which later appeared on Ogilby. Comparison of the two routes which have potential similarity to those shown by Ogilby show that that from Bawtry to York can be assumed to have been the same. In contrast, in the case of the Rochdale, Halifax and Tadcaster alignment, it is impossible to decide whether this is Ogilby's road with a slight diversion through rather than past Halifax or a completely different one. There is no reason to doubt that a different route could have existed between Halifax and Leeds but if, as seems highly unlikely, the intermediate 'fixed' point of Adwalton is correct, then even on Jefferys' map in 1771/2 there is no hint of any route other than along circuitous back roads. If the route is not intended to be the same as Ogilby's then the most likely and reasonably direct one, would be leaving Halifax on the old line of the present A649 Dewsbury road as far as Hartshead Moor Side and the A643 and then taking the A643 into Leeds. In fact the A643 section is basically Ogilby's road and the justification for suggesting the combination of his road and the A649 is that Ogilby gives a turning to Halifax at Hartshead Moor Side which at least confirms the existence of that route only a few years after 1671. (The present A58 through Adwalton is basically new made turnpike, post Jefferys 1771/2, and to add to the problems of assessment Warburton's 1720 map shows a similar alignment to the 1671 map between Halifax and Leeds but as will be shown in the Warburton Period chapter, that route was not based on a survey and can be rejected as evidence.)

Greatest interest, however, lies in the possible significance of general alignments which are not to be found on Ogilby a few years later. Two can be confirmed in general terms relatively confidently. These are the route from Darlington through Thirsk to York and the route from Hull to York.

From Darlington to York the 1671 map differs from Ogilby considerably in that from Northallerton Ogilby misses both Thirsk and the Forest of Galtres, preferring instead a route via Topcliffe and Boroughbridge. Even so, from Northallerton to Thirsk the 1671 route is confirmed by Ogilby's junction in Northallerton to Thirsk (one of his Backward turnings to be avoided). For the direct route between Thirsk and York Walton's map¹ provides a precedent but the earliest definite record of a recognizable road is the survey by Warburton for his map of 1720.² Before that date there is ample evidence of a more general nature of routes across the Forest of Galtres if not directly from Thirsk to York. For example, there is the Hambleton Ridge Way, a recognized Drovers' road, and referred to as the way from York to Yarm on Saxton's 1598 manuscript map of Old Byland.³ Closer to Thirsk would have been the route across the Forest taken in 1639 by John Aston when travelling from Derbyshire through Yorkshire to the north.⁴ He actually went via Topcliffe rather than Thirsk but his remark that the route over the Forest was "foule travelling" could explain why the route used by Ogilby's surveyors went via Boroughbridge, thus avoiding the Forest.

Although a route from York as far as Beverley via Market Weighton is marked on the fourteenth century Gough map, one of the earliest detailed records confirming much of the local alignment between York and Hull is found in Leland's Itinerary.⁵ This leaves no room to doubt that Leland's route from York as far as Market Weighton was effectively the same as that surveyed by Warburton in 1720 and represented today by the A1034. The line used by Leland and still used today, is partially Roman, in fact. Where the 1671 map differs, for example, by going through Bielby and bypassing Market Weighton there is no reason to doubt that this is merely a

1 Ashmolean Museum. Walton (1668) C.1. pre f. p.viii

2 Vide infra Figure 38

3 Reproduced in Evans (1979) Plate 15.

4 Hodgson (1910) p.7.

5 Smith (1907) Vol.1, p.45

cartographic difference (the combination of limited source detail, a poor base map and possibly weak engraving). The route over the Wolds between Market Weighton and Hull is not obvious. Leland went via Sancton and in 1720 Warburton recorded two surveyed roads and one unsurveyed route which suggests that there was not only one definite road across the Wolds on the route from York to Hull but several possibilities of similar merit to the traveller.

Of the other routes, the problems can be simplified by breaking down the routes into one from York to Wetherby, from Wetherby to Halifax and from Wetherby towards Lancaster. The existence of a route from York to Wetherby is confirmed by Ogilby's junction on his road from York to Skip Bridge just beyond the city itself.¹ This fits the B1224 junction to Wetherby very well. However, in the absence of corroborative detail the actual road cannot be assumed to be simply a forerunner of the modern B1224, whose course is clearly shown by Jefferys in 1771/2 since from the same junction just beyond York another possible alignment is suggested, also shown by Jefferys, to the south of the B1224 via Healaugh and Wighill. If the detail of the 1671 map could be trusted the 'evidence' points strongly to some earlier form of the B1224 but since it cannot be trusted the actual alignment intended must remain undiscovered.

The link between Wetherby and Halifax via Bradford is not so easily confirmed even in very general terms as a probable route. A possible previous record of a similar alignment is a diagram of routes related to Thomas Porter's 1655 list of highways, which links Wetherby to Bradford and Halifax.² The route between Wetherby and Bradford is not clear: the 1671 route was apparently via Harewood. Beyond this information it is suggested that in any attempt to fix this potential route one must forget the detailed

1 Ogilby (1675) Plate 8.

2 National Library of Scotland. Newman MS.1020.

evidence of the 1671 map. For instance between Wetherby and Harewood the route as mapped lies to the north of the river Wharfe. The more probable alignment used by the contemporary traveller would be to cross the Wharfe over Wetherby bridge and use the present south bank alignment. The present route was in fact surveyed in 1719 for Warburton¹ and also recorded by Crump as a possible Saltway.² Not only is the route less hilly than that implied by the 1671 map but it also avoids the need to ford the Wharfe immediately prior to Harewood.

From Harewood to Bradford the map is certainly inadequate but fascinating. At first doubts were raised whether Harewood was a genuine 'fixed' place between Wetherby and Bradford. Fortunately, Harewood as a recognized baiting or refreshment point is recorded in the late sixteenth and early seventeenth centuries in the Accounts of the Shuttleworths of Gawthorpe near Burnley but their route to York went via Keighley and Otley to Harewood and not Bradford to Harewood. Their route is the Saltway discussed by Crump.³ So, assuming that Harewood is correct, the route apparently cuts straight over to the river Aire crossing at Apperley Bridge. While that crossing is possible,⁴ there is no hint, even on Jefferys' map in 1771/2, of a reasonable line from Harewood to Apperley Bridge since the line cuts diagonally across the recognized routes between Wharfedale and Airedale. If there was, in fact, a recognized way between Harewood and Bradford avoiding Leeds as implied by the 1671 map, then the evidence of Warburton in 1720, Jefferys in 1771/2 and possible routes on the Ordnance Survey all point to Kirkstall as the more likely crossing of the Aire.

The final route is also from Wetherby, to the north west via Skipton to Lancaster. It bears only a remote resemblance to Ogilby's surveyed

1 Vide infra Figure 38

2 Crump (1940)

3 Ibid

4 Smith (1961) Vol.III, p.259

route between York and Lancaster but even had the 1671 route been added after Ogilby the differences are too great to permit the route to be dismissed as a very poor representation of the same road. The issue is not whether there was a recognizable route between York and Lancaster, for Ogilby confirms that conclusively, but rather whether the 1671 alignment by way of Wetherby and then south of Kirkby Overblow and north of Leathley to Skipton was also recognizable. Without other evidence it could be said that there is no reason why a seventeenth century traveller should not have been able to travel on the implied route north of the river Wharfe rather than on the line of the modern road south of the river at least as far as Addingham. The absence of obvious baitings on the north side in contrast to Harewood, Otley and Ilkley, for example on the south side of the river suggests that most travellers would prefer the southern route. Indeed, it is possible that one type of traveller who would prefer the northern route was the Drover and there is ample evidence of links between Skipton and the surrounding Craven centre of pasturing and the market at Wetherby.¹ A further clue to the northern route is provided by a record of the boundaries of the Forest of Knaresborough walked in 1767.² The boundary of the Forest crosses over the line of the 1671 route just west of Kirkby Overblow where the boundary is following Swindon Syke which enters the Wharfe almost due south of Kirkby Overblow. The text of the Boundary Commission at this point reads "and so down Swindon Syke to Bowhill yate, standing in the high road which leads out of the West country to Wetherby..."

Such a clue does not justify accepting the whole route as accurate and indeed examination of the rest of the route suggests that even that item of corroborative evidence is fortuitous rather than conclusive. For instance, whereas between Wetherby and Skipton the alignment is both reasonable and possible, beyond Skipton to Lancaster the alignment, if correct,

1 Bonser (1970) p.162.

2 Grainge (1871) p.12.

is absurdly perverse, avoiding Settle and hitting the uninviting hills of the Forest of Bowland just south of Settle on line with the aptly named village of Wham. The problem is best explained in terms of the addition of highly generalized information onto an existing map base with insufficient knowledge of the true relationship between the new information and the map.

From this investigation it is seen that the importance of the routes on this reprint of the Quartermaster map must be seen in the light of the addition of routes based on at the best general rather than measured information onto an earlier map which is not of the highest accuracy. Thus the problems for the map compiler then become the problems for the map interpreter today. It is quite clear that no significance can be attached to the details of the routes on this map, or indeed by parallel reasoning on all other maps where routes were added without a basic survey having been made of the course of the road itself. At a more general level, ignoring the details, routes approximating to Ogilby roads can be reasonably taken as confirmation of the validity of Ogilby's choice of important roads. Where they differ, the routes are useful in suggesting routes Ogilby might have surveyed had he been more ambitious. Of the non-Ogilby routes in Yorkshire the level of investigation possible for this thesis has shown that they range from the absurd (the link from Skipton to Lancaster) through the intriguing (Wetherby to Bradford; Wetherby to Skipton) to lines readily confirmed by contemporary or earlier sources (York to Hull; York to Thirsk and Darlington).

As a contribution to knowledge of the topography of Yorkshire these routes are an important supplement to our information on routes before Ogilby's day. Unlike Ogilby, it is certainly not possible from the cartographic record alone to translate the routes portrayed into alignments which physically exist or existed then. As such the evidence is thought provoking, inspiring further investigation.

As a contribution to understanding the development of cartography the 1671 map is important for the way in which it highlights the major problem of mapping linear features such as roads as distinct from point features. For both the compiler and interpreter the problem is exacerbated when the linear information was not an integral part of an original survey but was merely an addition to an existing map. In this respect the wealth of information on Saxton's map (from which the Quartermaster was derived indirectly via Saxton's 1583 map of England and Wales) paradoxically increased the possibility of error in the cartographic representation of roads until a completely new survey was made: the greater the amount of detail between what was in practice a very limited number of known points on a route to be added, the greater the possibility that the engraved line between any two known points would be wrongly placed in relation to the intermediate detail. It would have been better for the historian and presumably for the contemporary user had the compiler not added the routes but printed them as written itineraries. The historian seeking a more precise alignment of early routes can only turn with relief to the work of Ogilby described in the next chapter.

CHAPTER SIX

PERIOD TWO: OGILBY'S MAPS OF 1675 TO 1719

Introduction

One word is sufficient to distinguish this period in the mapping of Yorkshire; roads. The absence of roads on printed maps is one of the major disappointments for the historical geographer because the map is potentially the ideal source for recording the development of the road system. For that reason the first maps to depict clearly the roads as opposed to merely the routes demand special attention.

This change in cartographic representation from routes to roads reflects two major innovations in Ogilby's work, namely the depiction of topographical detail and the use of the 'modern' scale of one inch to the mile, a usage which enabled that detail to be recorded relatively clearly. In the first period¹ the useful printed maps were seen to be basically generalized records of the presence of features. As such they cannot be used independently to determine the details of those features. With Ogilby the printed map, as a topographical source, takes on a new significance because the work purports to record not merely that there was a recognized route between 'A' and 'B' but that the cartographic representation is based on a measured survey of a specific road on the ground.

In assessing the reliability of a general route map the approach, like the information, is general and needs only to confirm, to reject or to doubt seriously that there was a route between 'A' and 'B'. In assessing Ogilby's reliability the problem is much more complex because it is necessary to determine the extent to which every detail of specific roads can be interpreted. The issue is not simply whether there was a

1 Vide supra Chapter Five

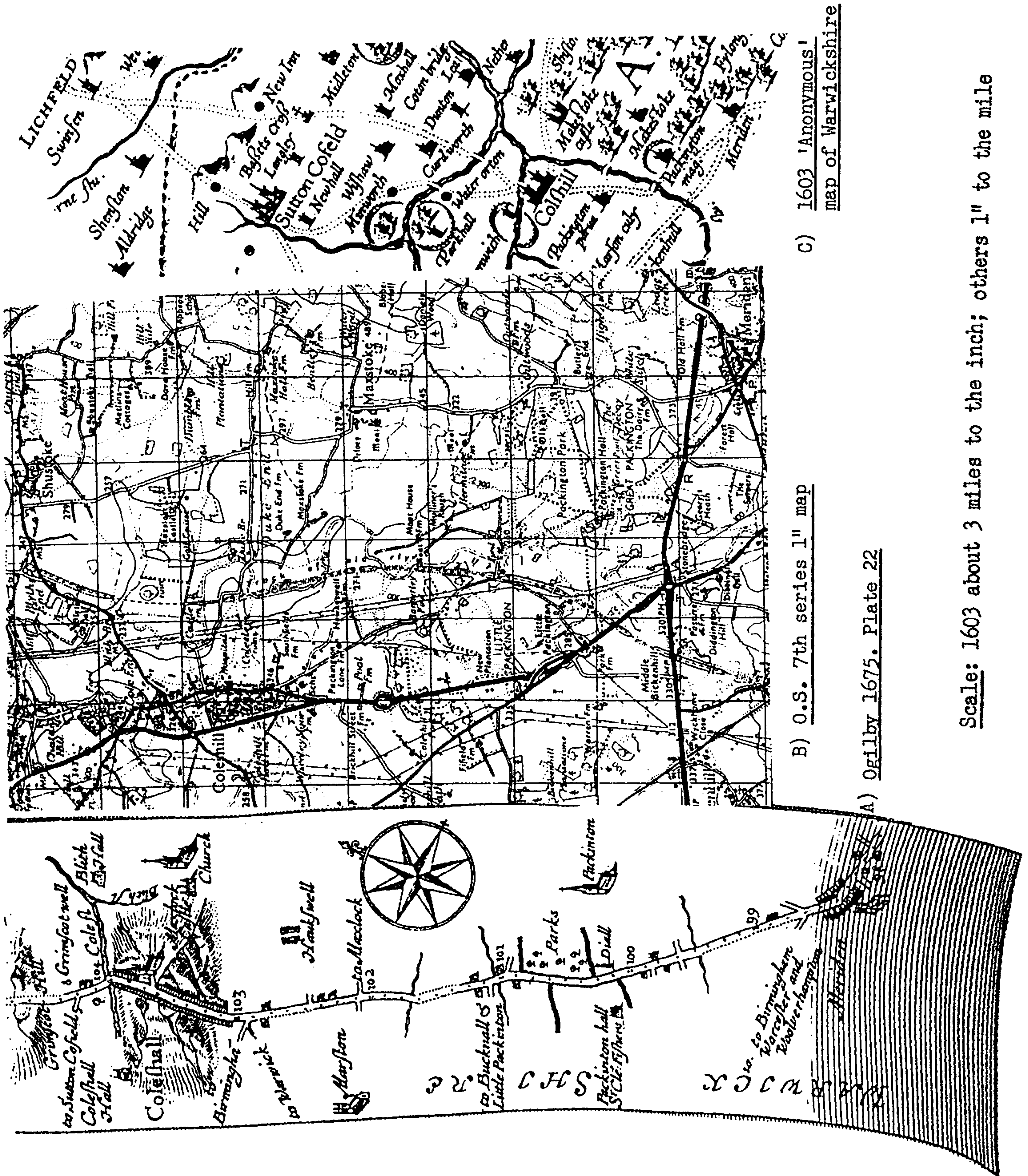
road between 'A' and 'B' but whether Ogilby's map can be related to specific alignments on the Ordnance Survey maps and if so, how precisely and, if not, then why not. Thus, in order to provide a satisfactory assessment of the reliability of Ogilby's maps it is essential that considerable attention be given to the detail of each road map. Obviously this cannot be divorced from description of the road itself.

Section I will place Ogilby's Britannia, which contained the first true road surveys, in the context of the mapping of routes on previous maps. This is followed by Section II which comments on the book as a whole. Section III considers Ogilby's survey methods and the problems of interpreting the roads. Application of the consequent understanding of Ogilby's road representation is the concern of Section IV which traces the course through Yorkshire of all the roads shown on his maps. Sections V and VI seek to demonstrate that though the Road Book is quite obviously a series of strip maps depicting roads it can be described as a printed topographical map of the county in all but shape. This is argued in Section V by considering the implied network of roads, and in Section VI by highlighting the considerable additional topographical information within each strip. Having stretched the definition of printed maps of Yorkshire to include Ogilby's work, it is necessary to consider in a brief Section VII the influence of Ogilby on subsequent road books to see if they also merit consideration. Finally, Section VIII comments on the six additional maps in this period considered to be potential topographical sources.

I. The representation of routes on maps before Ogilby

Maps depicting routes before Ogilby's Road Book in 1675 can be divided into three main types. First the large scale manuscript estate and other strictly local plans such as the 1721 plan of Skeffling in the

Figure 4 A Pre-Ogilby County map route: comparison with Ogilby and the Ordnance Survey



East Riding.¹ Routes on maps of this type vary from very precise and unambiguously measured roads to frustratingly vague sketch lines. Second, the much more limited number of small scale printed county maps. Unfortunately Yorkshire cannot boast such a map. Third, the small and often very small scale maps showing routes in the whole or greater part of the British Isles and which obviously include implicitly if not explicitly the area of Yorkshire.

Although there are no Yorkshire maps in the second group, an inspection of this type does assist in helping to interpret routes depicted in the third type of maps. Such an inspection will also help to emphasise the importance of Ogilby's contribution to the mapping of roads.

To gain an insight into the significance of the routes on pre-Ogilby county maps the map of Warwickshire of 1603² was selected. Consideration was given to part of one of the routes chosen because it was also surveyed some 70 years later by Ogilby (Figure 4.C.). This route from Meriden to Lichfield was compared directly with the Ordnance Survey map (Figure 4.B.). It was soon clear that there was insufficient detail on the Warwickshire map to attempt to relate the route to an alignment on the Ordnance Survey map without recourse to further evidence. Indeed there were several serious doubts about the reliability of the route representation even in general terms. For instance, there is no road now between Meriden and Coleshill as depicted on the map and north of Coleshill the single symbol for 'Moxhall' could apply to either Moxhull Hall or Moxhull Park. Ogilby shows the same general alignment on his road from Coventry to Lichfield.³ Comparison of Ogilby's very detailed plot of the road with the Ordnance Survey map leaves no doubt that at least Ogilby's road can be recognized on the modern map. For example, between Meriden and Coleshill although there is no through road on the alignment

1 Vide infra Chapter Ten pp.421 et seq.

2 Anonymous. vide Harvey and Thorpe (1959) p.74.

3 Plate 22

used by both the 1603 Map and Ogilby, it is clear that Ogilby's road cuts across the present Packington Park past the hall roughly along the line of the park roads so as to join the minor road running past Bannerley Pool into Coleshill (Figure 4.A,B). North of Coleshill the Ogilby road can be related to present roads with even greater confidence.

Having fixed the road in 1675 and seen that the general alignment shown in 1603 does not conflict in any way, there is good reason to believe that the 1603 cartographer knew, at least in general terms, by or through which villages the road passed. He had not merely guessed the alignment of the road from a couple of known places.

Two reservations are necessary. Since there are only a dozen places between Meriden and Lichfield, though a guessed route almost certainly would have been wrong, general knowledge would have been a sufficiently detailed source of information for the draughtsman to map the approximate alignment of the route. Certainly there is no need to think in terms of a survey of Ogilby's accuracy and detail as the draughtsman's source. The second reservation is that the lack of detail on the 1603 route prevented a satisfactory interpretation. It was only with the corroborative evidence supplied by Ogilby that it was possible to consider the route as an actual alignment on the ground.

Though the above illustration is an isolated route example, a brief look at the rest of the Warwickshire map and the similarly styled map of Middlesex in 1593 by Norden,¹ suggests that though seriously limited in detail these early county maps with routes merit careful consideration if there are signs, as with these two, that some form of survey was employed and that the maps were not solely the outcome of guesswork. A comparison of the routes later surveyed by Ogilby is an obvious means of commencing such studies.

1 (W.C.C.351)

By far the most interesting of the earliest known maps of the third type is the fourteenth century 'Gough' map. This is now published in facsimile with an excellent introduction and commentary by Parsons and Stenton.¹ The routes on the Gough map, at least through Yorkshire (Figure 5),² are markedly different from Ogilby's routes. Only four sections are the same in so far as the same places are recorded on the same route (Skipton to Settle, Wetherby to Boroughbridge, York via Malton to Pickering and Whitby to Guisborough). Although there is no question that the Gough map lines are not road alignments any justification for suggesting that between the same places on the Gough map and on Ogilby's maps the actual road was the same could be based on the similarity of the mileage given on the Gough map with Ogilby's "computed" (i.e. customary) mileages. Between Malton and Pickering, between Wetherby and Boroughbridge and between Skipton and Settle, Ogilby's figure is only one mile greater. The other mileages between Whitby and Guisborough and York and Malton are the same.

However, for nearly all the routes on the Gough map the distance between each place is too long to permit any attempt to relate with confidence the lines to actual roads. Comparison with the Ordnance Survey maps shows that the most interesting route on initial inspection is the composite one from Market Weighton to Bowes. This route poses questions first about the alternative routes from Market Weighton to York directly or via Pocklington. The representation of two routes to York could be taken as a depiction of the present configuration in which Pocklington is on a branch of the main road rather than on a completely separate alignment as suggested by the Gough map. The difference in mileage on the Gough map is only one mile (via Pocklington 10 plus 7 miles: direct 16 miles). Nevertheless, a completely separate route crossing the river Derwent at Sutton for example, could have been the direct route

1 Parsons and Stenton (1970)

2 *ibid*, p.19 fn.1. Assumes a link to York from the Doncaster to Boroughbridge road obscured by the "congestion on the map".

intended by the cartographer for that, too, would have a similar mileage. A second question is whether the Helperby venue forces the adoption of a crossing of the river Swale by Thornton Bridge. A third issue is the alignment through Gilling which is far from obvious.

From the fourteenth century right through to the seventeenth century there is an apparent hiatus in maps of the British Isles showing routes. From the standpoint of communications, as distinct from cartography this time can be divided into two. The second period commences with the development of the Post Road system in the early sixteenth century. Even if the hiatus is understandable before the advent of the Post Road system the lack of extant maps depicting such routes in the second period must be questioned.

In fact, little research has been published on printed maps of the British Isles. As recently as 1980 an apparently unknown late seventeenth century map by William Berry passed through the hands of an antique map dealer. Fortunately it was possible to inspect the map before it was sold. This map depicts several routes but cannot be described simply as being copied from Ogilby since it includes an additional route from York to Hull and on the other hand, omits routes from York to Scarborough and Whitby to Durham. The routes were clearly engraved as part of the original map and therefore by the named engraver Wenceslaus Hollar who died in 1677.¹ The earliest recorded date for Berry is 1671.² Thus the map can be dated between 1671 and 1677. The route information suggests that it might pre-date Ogilby. This map, together with the Walton map of 1668³ and a similar type of map of uncertain date by Green⁴, affirm that printed maps of the British Isles are worthy of more attention.⁵

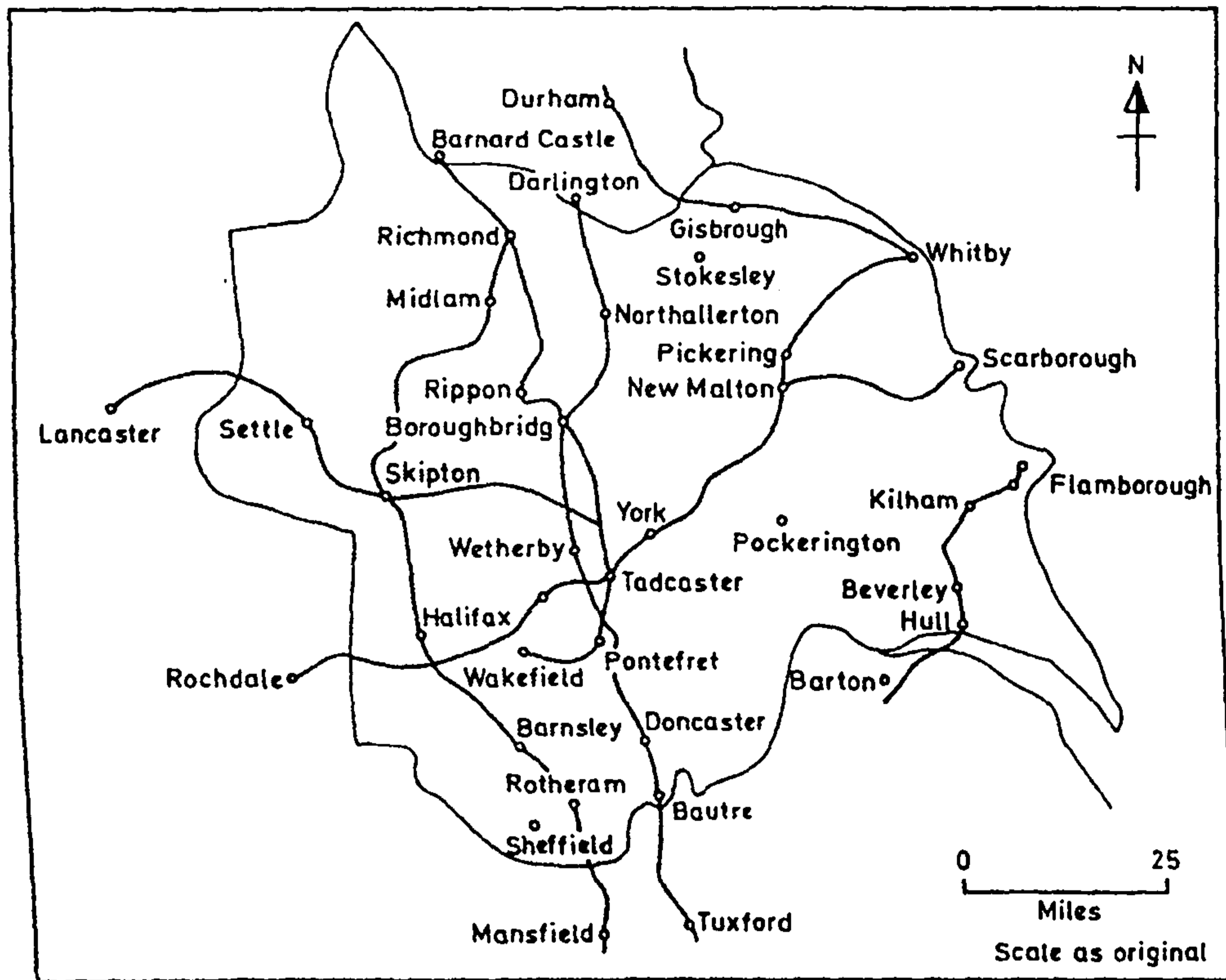
1 Taylor (1954) p.211

2 Tyacke (1978) p.100

3 Ashmolean Museum. Walton (1668) C.1. pre f.p.viii.

4 National Library of Scotland. Green (1673?) Newman MS.1002.

5 Shirley (1980) a bibliography of such maps for the period 1477-1650.

Figure 6 Ogilby's Index map: Yorkshire 1675

Spellings as original. Rivers omitted.

The earliest map of the third type appears to be no earlier than 1668.¹ This has been linked with Porter's diagram of the post routes published some years earlier in 1655.² It will be recalled that 1668 is well after the publication of the first county maps with routes, for instance, that by Norden in 1593.

The choice of the early sixteenth century as a significant date is based on the fact that tables of Highways listing the main places on the primary routes were obvious sources of information for map makers not able or prepared to survey roads. The adoption of a Post System requiring recognized routes with staging posts can be dated as early as 1516.³ The earliest tables of Highways discovered by Fordham date from 1541.⁴ He notes that until 1528 the various Chronicles (within which subsequent tables appeared) gave as the King's Highways nothing other than the four ancient ways: Foss Way, Watling Street, Ermin Street and the Icknield Way.

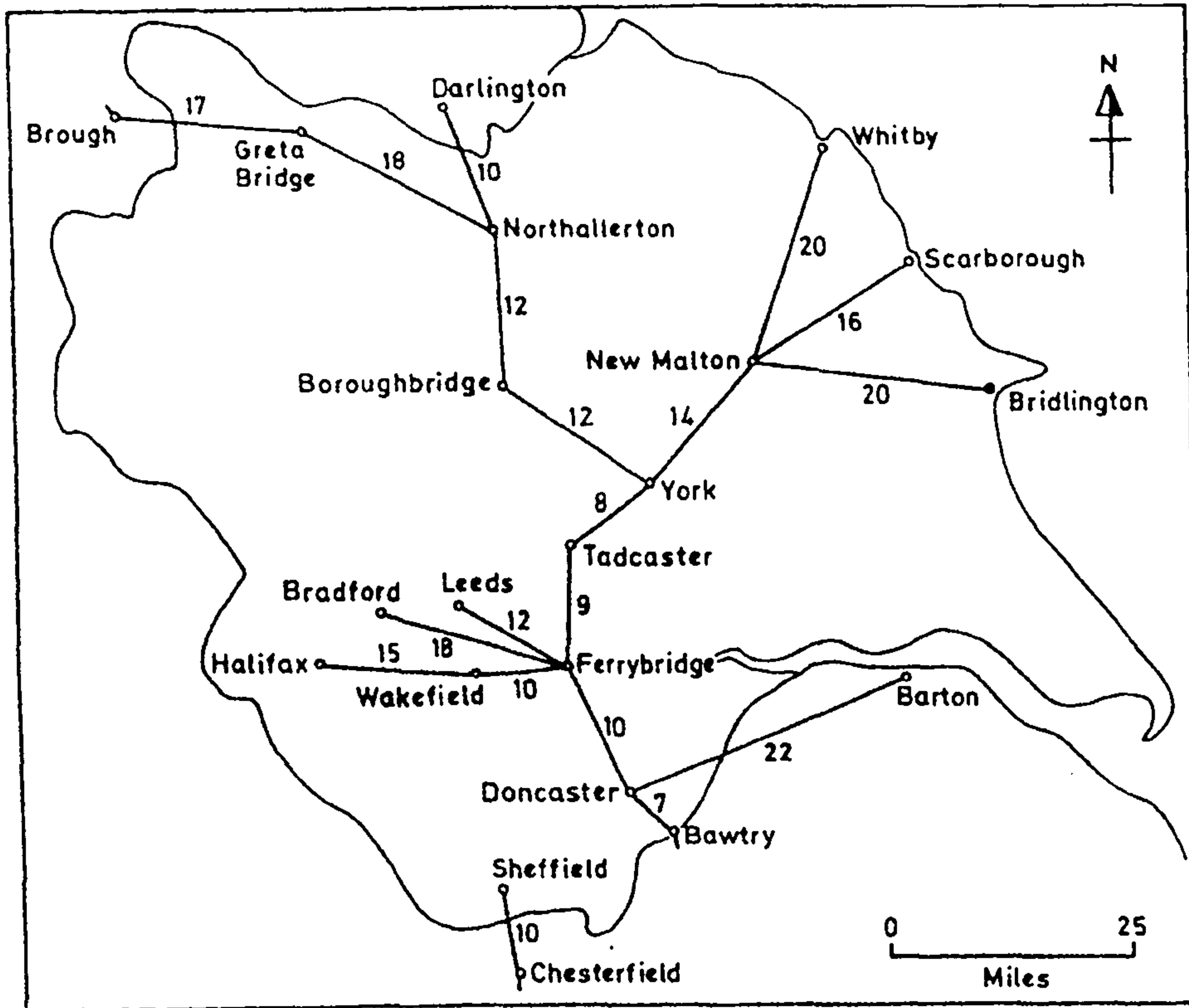
Although, undoubtedly there are more maps awaiting discovery, it is considered that the maps which have been studied and other similar maps of all or the greater part of the British Isles are best assessed in the light of Ogilby's own small scale index map in his Britannia (Figure 6).

Ogilby's Index map reveals errors both of omission and of addition. In Yorkshire this map omits the route from York to Skip Bridge recorded on both plates 8 and 88 and also adds the unrecorded route running directly from Tadcaster to Boroughbridge. Thus according to Ogilby's index map the way north from York in 1675 was either south via Tadcaster or north-east by way of Whitby. The map also shows the Flamborough road as missing Barton which was the actual crossing point on the Humber.⁵

Such aberrations on a map which was itself part of the Britannia Road Book clearly illustrate two points. First, they reveal the magnitude

1 Ashmolean Museum. Walton (1668) C.1 pre f.p.viii
 2 Skelton (1970) p.136
 3 Encyclopaedia Britannica Vol.14
 4 Fordham (1927)
 5 Ogilby (1675) plate 42

Figure 7 Carr's Post routes in Yorkshire. 1668.



Spelling modernized. Distances as given by Carr.

of the mistakes made by the draughtsman or the engraver, thus posing problems for the would be interpreter. Second, they show that considerable caution must be exercised when assessing earlier route maps. If Ogilby's index map, based on original measured surveys, can omit routes, add apparently unsurveyed routes and show the route missing places of importance located on the routes, then worse can be expected of earlier works for which there is little or no evidence of measured surveys and certainly nothing to compare with Ogilby's preparatory work. As with the very early Gough map, Ogilby's index map and the following maps mentioned are really diagrammatic in their depiction of routes. That some are more sinuous than others is a function of cartographic style rather than topographic fact.

One of these maps is Carr's 1668¹ map which claims to show the post roads. The Yorkshire routes are illustrated diagrammatically in Figure 7 . The map studied² is annotated with an explanatory note on the reverse "Color'd and given me by Blathwaite and remarks made there on by M. E. Gascoin ye Platt - maker." On the map it can be seen that the northern route to Darlington is the same route as shown by Ogilby. This route is described by Ogilby in his preface as one of the Post Roads and the text accompanying the plates of this road states that "the Computation of Post Miles are precisely the same as the vulgar estimation, only from ... York to Northallerton but 24 miles." Carr records 24 miles, Ogilby records 26 according to the 'vulgar estimation'. Ogilby does not suggest that the difference might be due to the portrayal of a different route, rather than to the adoption of a different estimation. The same route is found in the earliest table of Highways in 1541³ and this also gives the distance as 24 miles. The only place recorded in the table between York and Northallerton is Topcliffe. There is, therefore, no

1 Bodleian Library MS. Rawlinson A173

2 " " " " " f.V

3 Fordham (1927)

clue to a possible difference of route.

Two of the Yorkshire routes on Carr's map which were not surveyed by Ogilby were also not recorded subsequently by Warburton in his new survey of 1720.¹ These routes are the direct link from Northallerton to Greta Bridge and that from Ferrybridge to Bradford. The routes on Carr's map subsequently surveyed by Ogilby are reliable for that reason alone and consequently add to the record of these routes. Since mileages are given alongside all the Carr routes it is reasonable to accept all of these as meriting consideration as records of routes in Yorkshire, though certainly not of roads. For instance, there is no reason to doubt that post routes went from Ferrybridge to both Leeds and Bradford but it is not necessary to assume that because they are depicted as totally separate the first few miles of the Leeds route could not have been, as is very probable, on the same road as the Bradford route. The crudity of the river system and the absence of detail on the map here provide no guidance whatsoever. The contemporary annotator Gascoin appears to have accepted the basic network.

A map for which further study is necessary before it can be dated definitely is "A New Map" by Robert Green.² The date suggested is 1673.³ Like Carr's map, the map by Green shows some routes in addition to those surveyed by Ogilby yet also omits some of those shown by Ogilby. Again some of the additional routes were not surveyed until after the production of Warburton's map in 1720. Such for example, was the case with the route from York via Sheriff-Hutton to Hovingham or from Ferrybridge north of the river Aire to Leeds. As with Carr the lack of detail prevents a confident interpretation in terms of actual roads.

Comparison of these maps with the 1671 reprint of the Quartermaster map⁴ reveals one important difference. The base of the 1671 map was much more detailed than maps like Carr's and Green's or even the Gough map.

1 (W.162)

2 National Library of Scotland. Newman MS.1002

3 Newman Collection Shelf Catalogue

4 (W.116)

Paradoxically the greater detail merely increases the problems of interpretation. It can be shown by examination that the routes had been engraved on the 1671 map with only limited knowledge of the alignment between a small number of known places. Where no villages, or only a few, are mapped between towns, as on these other maps, the potential number of errors is very much less than when the engraver or draughtsman has to draw the route across topographical detail for which his source of information is wholly inadequate.

Indeed more work needs to be done on determining the sources used by draughtsmen for routes shown on pre-Ogilby maps. The evidence points towards tables of highways as the major source for those routes which are not directly copied from other route maps. Thomas Porter,¹ for example, published a book of maps in 1655 which included a list of Highways. Two Yorkshire routes are indicated in this list. Part of the Berwick to London route (not vice versa) is clearly the same route as shown later by Ogilby in terms of the main places; Darlington, Northallerton, Topcliffe, York, Tadcaster, Wentbridge, Doncaster and Tuxford. The other highway is from Halifax through Wakefield to Doncaster. In a diagram accompanying the list two further Yorkshire routes are given: Doncaster to Mansfield and York via Wetherby, Ousby (?), Bradford, Halifax, Blackstone Edge to Rochdale etc. This latter route differs from Ogilby's York to Chester route but is similar to the Quartermaster route which beyond Wetherby passes through Harewood.

Ogilby is obviously not the only map source of routes before the eighteenth century. It is also clear that the pre-Ogilby maps do not present a simple progression of road addition and Ogilby is far from the sum of the preceding works. Had Ogilby only produced his index map the historical geographer would have considered the map an important contribution to the record of routes even if, in the light of the earlier

1 Newman MS.971; diagram MS.1020

works and commonsense, his map omits many important routes.

Actual ground measurement before Ogilby's day is evident as the source for mapped routes only on the very local large scale plans. The next most reliable and useful map type would appear to be the two or three county maps which even if mainly based on Saxton's maps, nevertheless evince considerable revision necessitating some form of survey. That leaves the Great Britain maps as the least reliable. On these maps much depends on whether the routes can be shown to have been merely superimposed on an earlier map, as with the Quartermaster map of 1671, in which case many errors can be expected. Unfortunately these errors are not readily demonstrable. As with Carr, much depends on the extent to which the map is obviously diagrammatic rather than planimetric in route representation. With this last type of map it is also important to realise that one county, even as large as Yorkshire, is only a small part of the whole.

The significance of Ogilby's contribution is that unlike the other earlier works the problem of relating the route to the road on the ground is often completely solved. Where this is not the case the problem is limited or can be limited to very small areas. For example, the only clue on Carr's 1668 map to the road between York and Malton is the customary distance of 14 miles. Ogilby also records the distance as 14 miles "the vulgar computation", but his map¹ gives statute miles, some indication of alignment and a large number of locatable points either on the route or adjacent to it. There are problems in interpreting this Ogilby road but the problems which are unresolved have been narrowed down and placed in the context of the greater length of road which can be confidently interpreted.

With the exception of the large scale estate plans the interpretation

¹ Plate 100

of routes on maps before Ogilby's work in 1675 must begin with the assumption that at best they are only representations of general routes and that often they will be totally unreliable. Principally this is because it is not until Ogilby that roads were surveyed with the wheel and compass so that the ensuing maps truly represent the roads they meant to portray.

II. Ogilby's Britannia: The Road Book

Ogilby's Britannia is more than a series of plates depicting roads: it includes a complementary text and an introduction giving explicitly Ogilby's purpose, method and the key.

Ogilby places his work in the context of growing home and overseas trade. One of his hopes was "to improve our commerce and correspondence at home, by registering and illustrating ... your majesties highways ... from London".¹ Thus the work is seen to be London based and thus London biased.

In the preface Ogilby contrasts his "Dimensuration" with Saxton's "Perambulated Projections" and earlier "Guess-Plots". He informs the reader of his intention to produce three volumes. This, the first "An Ichnography² and Historical Description of all the Principal Roads and Ways in England and Wales". Volume two was to have plans of 25 cities and volume three was to have been a "topographical description of the whole".

The preface also includes a brief history of the roads. This is notable for showing Ogilby's awareness of change. For instance, he states

1 Ogilby (1675) Introduction

2 Ichnography: the drawing of ground-plans (C.O.D.)

that some Roman roads were obsolete by 1675 and that there was also growth with "New Towns, New Ways". Ogilby claims to reproduce the "Principal Modern Roads". These were measured with the "wheel Dimensurater" using the statute mile. Under the 'Delineation' is the key which records the difference between enclosed and unenclosed roads. The key also records that bridges are implied unless rivers are drawn across the road. Further, it claims that turnings are to adjacent places if no place is given by name.

Under the 'Illustration' he comments on various problems; on changes in magnetic north since Saxton's work and the problem of the distortion produced by hills on horizontal distance. He also states that mileages are recorded to the centres of towns, points from which bearings were taken. In so saying he indicates the infrequency with which bearings were taken (though towns were not the only places). Further, he records that "all ways" issuing out of the roads were mapped.

Finally the introduction includes an 'Advertisement' claiming that the work "selected only (the) most considerable" roads. This comment is ambiguous since it could mean that he only surveyed the most important roads or that more were surveyed but only the most considerable were included in the Britannia.

The Text

Each road is recorded in the same general way. First a table of the computed (i.e. vulgar estimation) and the measured miles from each town is provided. Then follows a brief comment on the quality of the road and a list of turnings to be avoided. At the end of each road text is a list of Backward turnings to be avoided.

Most of the text for each road merely repeats what is shown on the

maps. The few additional items of information are of two types: they either relate to the route itself or describe the places traversed through. The additional route information includes occasional marginal bearings, for example, four between Bawtry where it enters Yorkshire and York.¹ These can be of use in interpreting the maps. The text also contains additional notes on the junctions such as "Street ways", "different ways" and references to bridges. The text for plate 88 provides a place name not given on the map. Mileages in the text are given to the nearest furlong in the form "128'7", that is 128 miles 7 furlongs. Comment on the places includes details on the government of the larger towns, on fairs, markets, on produce sold and the quality of accommodation.

III. Ogilby's Survey Methods and Interpretation of the Roads

External evidence

John Holwell in his "A sure guide to the Practical Surveyor" 1678 states "this was the Method that both myself and others used who were employed in measuring the Roads for John Ogilby Esq." This phrase occurs in the chapter "How to take the Plot of any Road or Highway by the wheel and semicircle".²

In that chapter Holwell lists the type of information to be mapped and how it should be mapped. For instance, houses are to be shown either "close or scattered"; junctions to be shown correctly at right angles or pointing forward or backward; hills were to be shaded deeply at the foot and more lightly as the road ascended. Holwell illustrates his technique

1 Ogilby (1675) text for plate 8

2 Holwell (1678) Ch.4, p.195

for recording the survey by citing in tabular form the data for the road from London to Highgate. Apart from this illustration none of Ogilby's survey material has been found. The suggestion, made by Van Eerde, that Brown's survey book in the Lansdowne MSS could be an example is refuted in detail below.¹

The most valuable information provided by Holwell for interpreting Ogilby's maps is his instruction to "direct your sights for as far as you can see". In contrast to a road survey in which bearings are taken at every bend, Holwell's method, although very much quicker, will produce a mapped road on which many deviations will have been ignored yet the length will be correct. The similarity of the mapped road to the actual road will be related, inter alia, to the terrain through which the road passes. Thus the more open and level the landscape the further the surveyor could see and thus the mapped road is liable to be a more generalized picture than where the landscape is less open.

Other contemporary sources of direct evidence are less significant. Gregory King's Life² records that "many surveyors" were employed by Ogilby "by Mr. King's direction and Distribution, to measure the Principal Roads of Ye Kingdom, and they being directed to collect Historical Notes as they passed along, Mr. King alone digesting those notes and directed ye Engraving of the plates and Engraved three or four of them with his own hand, being his first attempt of handling the Graver. Mr. Ogilby was very sensible of Mr. King's great assistance to him ..."

Even allowing for the fact that this work is primarily about King it is clear from the excerpt above and subsequent passages that his role in the production of the Road Book was considerable. That some of the plates were his first efforts at engraving provides a salutary warning

1 Vide infra Chapter Seven pp.287,288

2 Bodleian Library MS. Rawlinson C.514, f.22

that the standard of engraving and therefore the accuracy of representation of the survey is liable to be uneven. The employment of several surveyors is likewise a reason for not assuming a constant standard of accuracy for the survey. Some at least of the historical notes are recorded in Ogilby's text.

Aubrey's Perambulation of Surrey¹ was part of Ogilby's scheme for a county map and includes King Charles' warrant. This is an order to High Sheriffs, J.P.s etc. "to be ready upon timely summons to give their Assistance to the said John Ogilby, or whomsoever he shall appoint".² This work also contains a letter in Ogilby's own hand to the relevant persons in Surrey notifying them of his appointment of Aubrey to the survey of that county and includes the significant passage relating to the warrant "Authorizing me to proceed in the Actual Survey of his Majesties Kingdom of England and Dominion of Wales".³

The Journal of Robert Hooke,⁴ Surveyor to the City from 1671 to 1683, gives some insight into the history of Ogilby's surveys of London, Surrey and publication of his Atlases of Africa, America etc. It also provides information on the importance of London Coffee Houses as meeting places for himself and Ogilby and other members of the Royal Society. However, no direct reference to the Road Book has been found in the Journal. The first reference to Ogilby is dated April 1673 and the last in March 1675. That the Road Book is not mentioned and that Ogilby is recorded in London frequently in this period confirms the implication in King's Life that Ogilby's role was not as a surveyor. Ogilby's age of about 70 years, and his lameness⁵ would have been sufficient reason for him to prefer a London Coffee House to the rigors of the open road.

1 Bodleian Library MS. Aubrey 4
 2 ibid f.220 (warrant dated 24/8/1671)
 3 ibid f.221
 4 Guildhall Library, London MS.1758
 5 Van Eerde (1976) p.11

The need to be aware of variable levels of accuracy not merely in the survey itself but also in the protraction and engraving of that survey is affirmed by the study of the field books for Warburton's 1720 maps of Yorkshire.¹ Two points are relevant. First, some of Warburton's poorest road plots are very similar in style to Ogilby's printed work and therefore suggest a similar method and accuracy of survey. Second, re-protracting² Warburton's road from the field notes can produce a more detailed plot than was achieved in 1720. Therefore it is possible that were Ogilby's field notes extant the data could also be re-protracted in greater detail and, as with Warburton's data, produce an alignment more immediately recognizable on the modern maps.

Internal evidence

Information on Ogilby's survey methods can be gleaned either directly or indirectly from three sources within the Road Book, namely the Preface, the Frontispiece and decorative titles and the text.

In the Preface, under the sub-heading 'Prosecution' Ogilby refers to the Dimensuration based on the English mile of 1,760 yards, using the "Wheel Dimensurater". This, he suggests, is an improvement on the use of the chain. The "Direct Horizontal" distance, he claims, was compiled from the wheel with deductions for hills and smaller deflections of the way. The last point about deflections is further confirmation that the mapped roads may fail to record minor bends in the roads.

The Frontispiece depicts surveyors at work: a man on horseback and two assistants with the wheel. In addition, four plates, numbers 1, 21, 80 and 100 are each decorated with a scene showing surveyors. The illustrations on plates 21, 80 and 100 are copied from plate 1. Harley³

1 Vide infra Chapter Seven

2 Re-protracting: re-drawing to scale the original field notes, vide p.288

3 Harley (1970b) p.xv

takes the wheel and theodolite depicted on these plates as evidence of Ogilby's methods. This, however, is unnecessary since Ogilby explicitly claims the use of the wheel and semicircle; moreover the illustrations themselves provide only dubious testimony. For instance, they also picture the chain which was not used and on plate 1 the dial on the wheel has twelve divisions. Clearly this is evidence which has been distorted by artistic licence.

E. G.R.Taylor¹ accepts Holwell's statement² noting that the perambulator would be the half-pole wheel which records poles, furlongs and miles up to a maximum of ten miles. She also avers that elevations would have been taken with the semicircle in order to calculate the horizontal distance equivalent for slopes in excess of 5 degrees.³

The text provides infrequent examples of compass bearings. The text for plate 7, for instance, records the following: (mileage point given first as in the text) i) 149'4 NW by N, ii) 166'1 N by E, iii) 182'1 ENE, iv) 189'6 NNE. Clearly these bearings are not very precise. Comparison of these bearings with the compass roses on the maps shows that there is not a perfect fit between these bearings and the nearest compass rose.

Comparing the number of references to mileage with the number of bearing references in the text suggests that distance was of greater significance than direction. Thus five mileage references and only one bearing reference are given for the first 9 miles shown in Yorkshire on plate 7. That would be in accord with Holwell's advice to the surveyor to look to the furthest point.

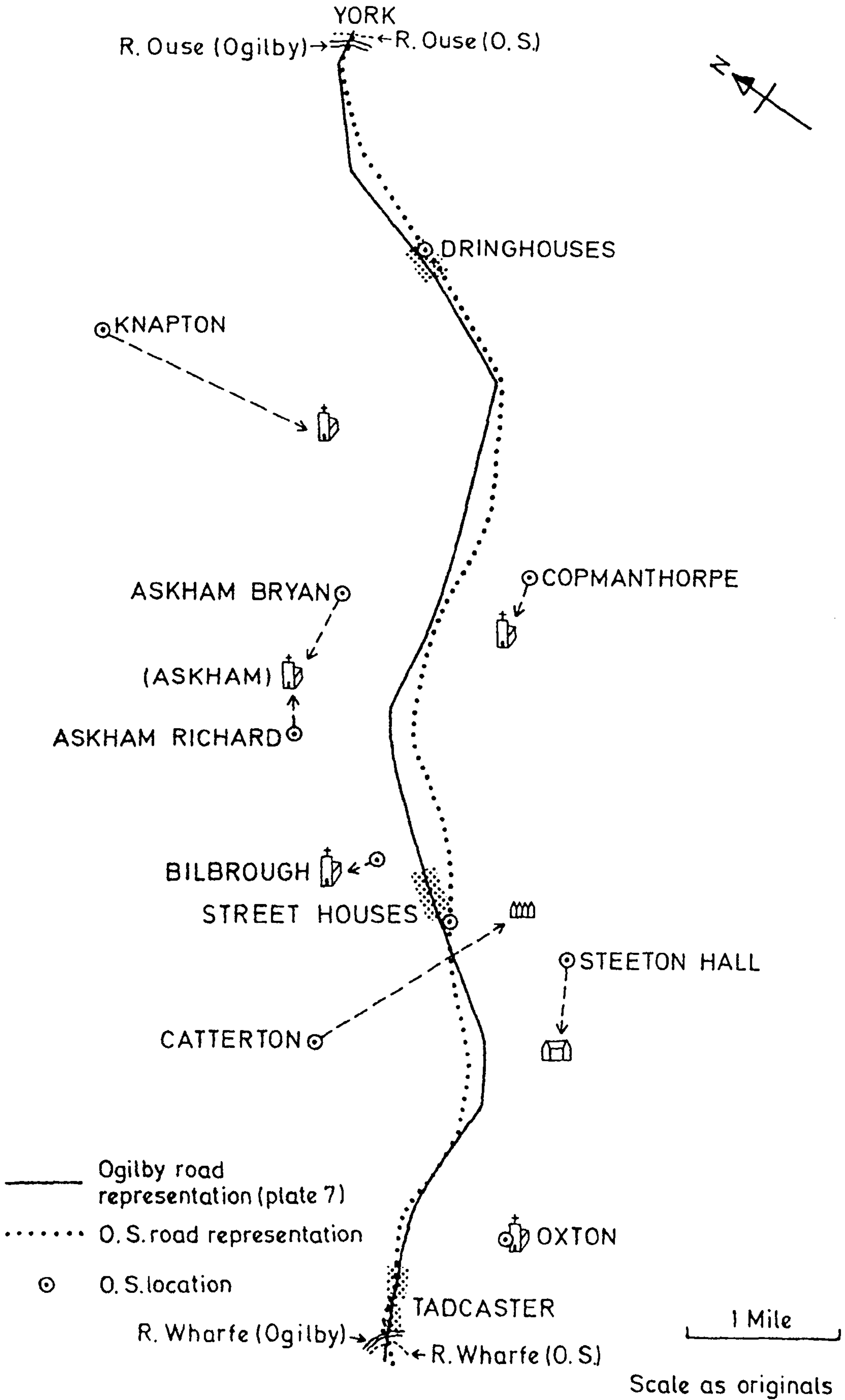
In the primary concern of this thesis, namely the interpretation

1 Taylor (1954) pp.392 et seq.

2 Vide supra p.127

3 As late as 1752 attempts to improve the wheel and allow for the problem of hills were discussed by the Royal Society. (Lukis (1887) p.465)

Figure 8 Ogilby's Road and Settlement details superimposed directly on the Ordnance Survey map



of cartographic representation, knowledge of the survey techniques offers evidence which is sometimes encouraging, at others discouraging. Four techniques point to the accuracy of the representation. First, the roads were travelled with a wheel. Second, the statute mile was used. Third, many places are recorded in the text to within one furlong. Fourth, some adjustment was attempted to allow for hills. On the other hand three points indicate deficiencies. These were as follows: Holwell's advice to look to the furthest point; the paucity of bearings on the map and in the text; and finally the paucity of specific distances and bearings to adjacent places. The last point is important since adjacent places can be precisely located on the modern map. Thus if these places were surveyed accurately from the road they can be used to determine the precise line of the road where this is obviously not the same as the present road. That the survey method was not good enough for this purpose is shown below.

Comparison of Ogilby with the Ordnance Survey maps

Bearing the above points in mind the illustration of the road from Tadcaster to York (Figure 8) shows the relationship of the strip map to the Ordnance Survey map and consequently reveals the accuracy of Ogilby's mapped information.

Since Ogilby's maps are at a scale of 1" to the mile it is possible to superimpose traces of his maps directly on the 1" Ordnance Survey maps.¹ As the road is the 'unknown factor' on Ogilby the best fit in this illustration is based on the two known fixed points, the bridges at Tadcaster and York. It can be seen that Ogilby's scale is apparently very slightly smaller than the modern map. Ignoring, for the time being, the road alignment, two gross errors obtrude: the locations of Knapton and Catterton. Of the other places not on the road itself, only Oxton

1 Initially the Seventh series

and allowing for the errors involved in the superimposition, Bilborough, are correctly placed. According to the text Bilborough lies 6 furlongs to the west of Street Houses. The distance is approximately correct but the bearing is wrong. Similarly, Steeton Hall, 3 furlongs from the road according to the text and shown so by Ogilby, is clearly over half a mile out of position with respect to the other settlement. Ogilby's 'Askeham' could be either Askham Richard or Askham Bryan.

Clearly there is little purpose in attempting to relate the line of Ogilby's road in detail to the adjacent places. At best, adjacent places act as no more than general constraints on the actual line of the road and, at worst, are hopelessly misleading.

Considering therefore, only the alignment of the road on the strip map and the location of places on that road it can be seen that the fixed points (Tadcaster, Street Houses, Dringhouses and York) can be superimposed almost exactly. The general alignment of the road is therefore fixed. The only problem left in deciding the exact course of Ogilby's road on the ground is whether the short lengths between these fixed points fail to match the modern map because of the limitations of Ogilby's work or because the road is, in fact, different. Since the basic pattern of Ogilby's road is the same as the Ordnance Survey's 1" road representation and the four main straight sections are practically the same, it is reasonable to accept that the differences are caused by Holwell's method of surveying to the furthest point. Additional detail on Ogilby's map such as windmills and junctions not shown on the diagram (Figure 8) help to confirm this. Comparison with Jefferys' map of 1771¹ confirms that the road was the same in 1771 as the Ordnance Survey 1" map. The evidence cannot be taken back earlier but neither Jefferys' map nor the Ordnance Survey map supply evidence for any other possible line.

1 (W.240) plate xiii

By the simple method of tracing and the exclusion of obviously erroneous information the great majority of Ogilby's strip maps can be related readily to the modern road system, and here, the ease with which Ogilby's roads can be interpreted is obviously related to the number and proximity of settlements through which they pass.

Repeated Roads as evidence for interpretation

Non Yorkshire roads

The details of Ogilby's survey methods are of secondary importance to the understanding of the accuracy of the protraction of the roads onto the strip maps. Comparison of roads recorded more than once by Ogilby shed considerable light on the reliability and therefore the interpretation of his roads on their way through Yorkshire.

More than 150 miles of road are recorded more than once, including three sections of more than twenty miles: i) London to beyond Uxbridge 20'3 miles on plates 1 and 12; ii) London to beyond Maidenhead 28'1 miles on plates 10 and 14; iii) Bristol to Street 27 miles on plates 58 and 60. Over a dozen sections are of five or more miles and one length, 12 miles from London to Hounslow is recorded three times on plates 10, 14 and 25.

The repeated roads from London to Uxbridge are clearly copied from the same survey. Indeed it is probable that plate 12 was copied directly from plate 1. Superimposing one on the other shows both the alignment and the junctions to be identical. The annotations are almost the same, the few differences are in spellings and the omission of the word 'windmill' but not the symbol at 2'3 miles.

In the light of the very close visual similarity between these two plates, the following illustrations in which the visual similarity is not so apparent are important guides to the interpretation of what is shown

on any single road representation.

The two representations of the road from Bristol to Street are definitely derived from the same survey since both the alignment and the basic information, with one major exception, are the same. The exception is that plate 60 depicts both open and enclosed sections whereas plate 58 does not. This is an example of the claim in the preface that open and enclosed symbols are only significant where both are shown on the same plate. Where, as on plate 58, the whole road is shown "enclosed", that is with two continuous straight lines, no conclusion can be drawn from the map as to the amount of unenclosed road at that date. Fortunately, for this road, plate 60 provides an answer.

Plates 58 and 60 also show a great difference in style of engraving most noticeable in the depiction of hills. Plate 58 shows hills on the road as one smooth mound. Plate 60 shows the same hills as many smaller mounds but the total length of each group is about the same as the single mound of plate 58. One other stylistic difference worth noting is with the settlement. The representation of Bedminster just beyond Bristol is similar but not identical with regard to either the length or the number of buildings.

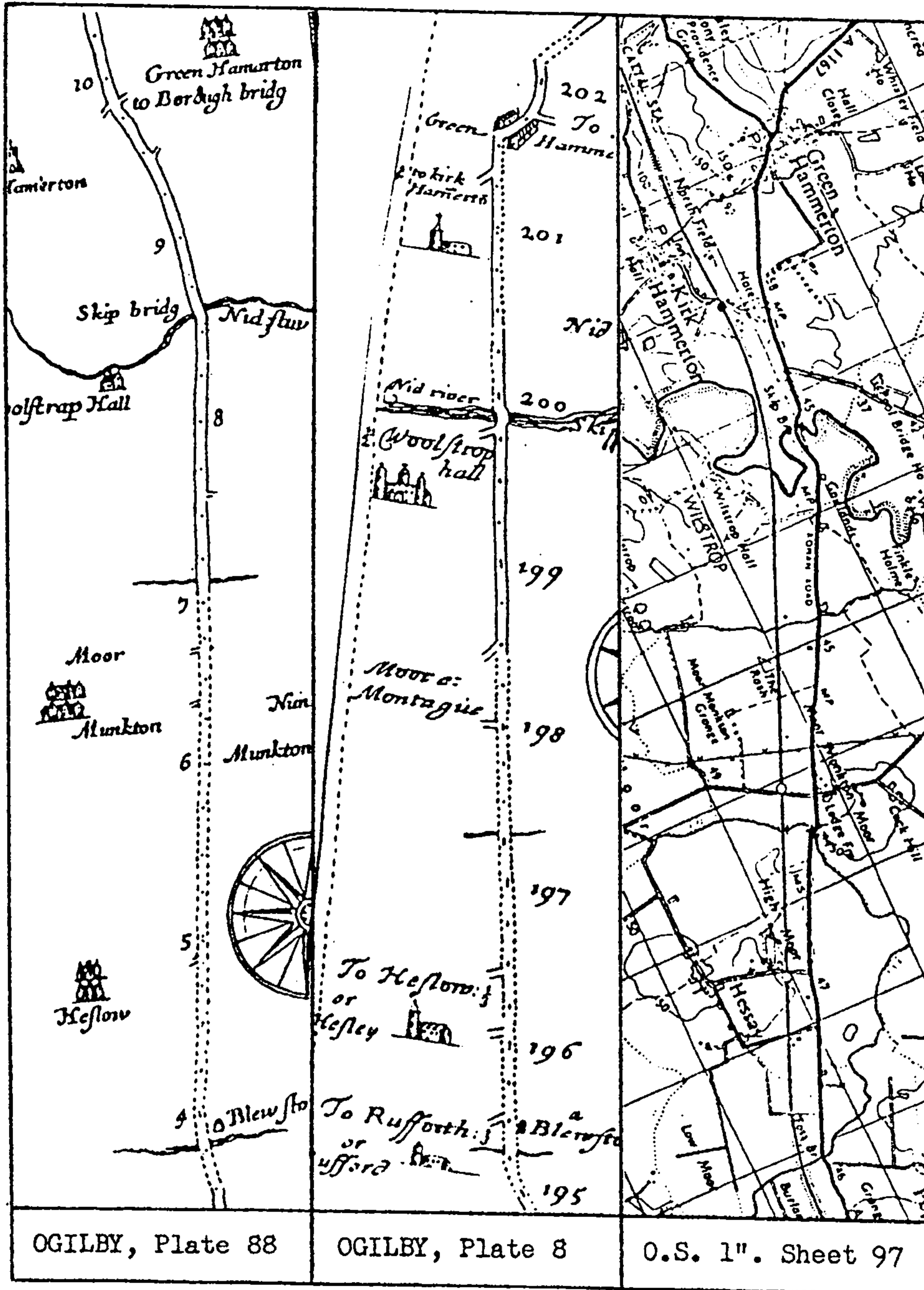
The four mile section from Chelmsford to Waltham Parva bridge is shown twice on the same plate (92) yet even there obvious differences can be found. Thus, for example, there is a difference of one furlong in length; again, two additional hamlets are recorded on the second representation and there is a difference in the relationship of Bromfield church to the road.

Other useful examples outside Yorkshire showing how differently the same topographical detail can be mapped are the sections of road from Hounslow to Colbrook,¹ from New Brentford to Hounslow² and from Monmouth

1 Ogilby (1675) Plates 10 and 14

2 *ibid* Plates 10, 14 and 25

Figure 9 An Ogilby road surveyed twice: comparison with the Ordnance Survey



Scale 1" to the mile for all three maps. Grid north on O.S.

to Trelleck.¹ The last of these is the most interesting, being clearly based on different surveys and taken in different directions: travelling south from Monmouth to Newport on plate 16 and travelling north to Monmouth from Chepstow on plate 56. For neither route does Ogilby's choice of road follow the obvious modern roads.²

The Repetitions of Yorkshire Roads

Tadcaster to York for about 10 miles on plates 7 and 89

The text for plate 89, showing the road from York to Chester, suggests that this section of the road was lifted from the plate 7 survey. "From York to Tadcaster you have the Account", that is the London to Berwick road.

Although the road is recorded in the reverse direction on plate 89 by superimposing a trace of plate 89 onto plate 7 it is possible to prove that the former is a copy of the latter. The alignment of the road and the location of mutual information is identical. Plate 89 has fewer items of information. That the plate 89 section was lifted from plate 7 is evidence, albeit inconclusive evidence, that the London to Berwick road was surveyed before the York to Chester road.

York to Skip Bridge for about 9 miles on plates 8 and 88

Part of this repeated section is illustrated in Figure 9. This is important because it is clear that these sections are derived from separate surveys. Since it is also clear that precisely the same road was surveyed the several differences revealed in the comparison can contribute substantially to the assessment and interpretation of Ogilby's strip maps. In the nine miles or so a dozen differences can be discovered.

1 Ogilby (1675) Plates 16 and 56
2 Namely the A449 and A466

These differences reveal some of Ogilby's limitations. The principal limitation is that his maps cannot be treated as 'absolute'. Slight differences occur in the compass bearings and in the alignment and the length of the two sections and in the exact location of places adjacent to the road. There are also differences in the recording of open and closed sections, junctions, and in the recording of streams and bridges. All these can be seen in the illustration (Figure 9). Comparison with the Ordnance Survey map shows plate 8 to be the better map.

The most significant difference is that the junction for the Lancaster road out of the Boroughbridge road is not even shown on plate 8 despite its general superiority. The text for plate 88 gives the Boroughbridge road junction as one to be avoided but on the plate itself that junction (at 9'4 miles) is unnamed and "to Boroughbridge" engraved incorrectly at the next turning (9'7 miles).

The spelling is also different; for example, Skipp bridge and Skip bridg. Textual comparison reveals that bearings were taken from different points on the road. At York 'WSW' is given for plate 8 (at Micklegate); for plate 88 the bearing is W by N, presumably from the Pavement Cross. The second bearing recorded for plate 8 (WNW) is at the Wetherby junction at 193'2 miles; for plate 88 the bearing is NW at 193'1 miles.

A summary of the evidence for interpreting Ogilby's Road representations

Unlike the generalized routes mapped at a very small scale before Ogilby, those presented by Ogilby are based on measured surveys at a scale of 1" to the mile. That contrast is sufficient to reduce markedly the problems of interpreting the information presented to very minor local issues. Nevertheless serious problems of interpretation remain. In assessing Ogilby's representation of roads three considerations are of

paramount significance: how the roads were surveyed; how the roads were mapped; and what the roads looked like in 1675.

First, the planimetric accuracy of the road maps is clearly not of the same standard as the Ordnance Survey maps and also varies from plate to plate and even within plates. The most useful evidence is Holwell's advice to survey to the furthest point. This alone can account for many of the apparent discrepancies between Ogilby's map and the Ordnance Survey maps, especially where the measured distance given by Ogilby not only fits the modern road distance very well but is incompatible with the apparently much straighter Ogilby alignment. Even so, Ogilby's surveyors clearly surveyed more of the detailed alignment on some occasions than was required by Holwell's method. Usually such sections can be compared very easily with the alignments on the Ordnance Survey 1" maps.

Second, comparison of Ogilby's roads recorded more than once in the Britannia is of importance not only in revealing errors but also in showing the extent to which precisely the same topographical features can be represented cartographically in different ways. Awareness of the ways in which the representation differs facilitates interpretation of the representation on road maps in general by providing a yardstick for assessing planimetric accuracy.

Third, comparison of Ogilby's road maps with the roads subsequently surveyed by Warburton's surveyors in 1720, at generally a much higher standard than Ogilby's work, brings out two points of qualification that should be borne in mind. Thus it is almost certain that had Ogilby's field notes been extant they would have provided greater detail than the printed maps and hence a more readily interpreted road. Second, the exactness with which many of Warburton's best road plots can be related in every detail to the modern maps at a date only 45 years after Ogilby suggests that Ogilby's roads ought to be similarly locatable in detail and

Table 5 Ogilby's Yorkshire roads: Present day equivalents

Ogilby Road	Present Main Road mileage	Present Minor or less	In minor classification		Total Mileage	% Ogilby Present Main	Ogilby Class.
			Present Gone	Not Found			
1	82	11	½		93	88	Direct Independent
2	23	20			43	54	Direct Dependent
3	52	57	6	2	109	48	"
4	37	29	10	8½	66	66	Cross Independent
5	23	15	1		38	61	"
6	41	34	1		75	55	Accidental
7	3	9	1	1	12	25	"
8	25	9	1½	4	34	74	"
9	27	23	16	7	50	54	"
10	15	8	5		23	65	"
Totals	329	214	42	22½	543	60	

Definitions:

Ogilby Road number: as on Figure 10 ; not Ogilby's own numbering
 Present Main Road mileage: 'A' or 'B' roads on the 7th series O.S. 1" maps
 Present Minor or less: Any lesser road, track or gone on 7th series O.S. 1" maps
 Present Gone: No line extant on the 7th series O.S. 1" maps
 Not found: Mileage uninterpreted because of inadequacies of Ogilby's mapping
Ogilby's classification: (spelling modernized in the table)
 Direct Independent: a principal road leading out of London
 Direct Dependant: " " " branching out of the above
 Cross Independent: " " " not London based
 Accidental: a lesser road not London based

that many of the initial differences could be resolved not by assuming a different road but rather on the grounds that the road concerned was inadequately surveyed for Ogilby.

It may be concluded that, at least in Yorkshire, the actual line of the Ogilby road ought to be traceable however vestigially on the modern map, and consequently in the present landscape. This however, is not to provide a justification for attempting to relate Ogilby's mapped roads to the nearest approximations on the modern map; for this would be to ignore the complete evidence of Ogilby's map and text. Moreover, in some exceptional cases in Yorkshire, not even a hint of Ogilby's alignment can be found on the modern map; and in such exceptional cases total disappearance of a road may be as good a reason as bad surveying.

IV. Interpreting Ogilby's Roads through Yorkshire

Introduction

To substantiate the argument that Ogilby's road maps ought to be susceptible of detailed and not merely of general interpretation, all his Yorkshire roads have been assessed. The general findings of this study are presented in Table 5 . The roads are shown in Figure 10.

Approximately 60 per cent of Ogilby's 'principal' road mileage of 1675 is also primary in the twentieth century. The road with the highest proportion of its course comprising main road mileage is significantly on one of Ogilby's most important roads, a "Direct Independant" (sic). Conversely, the road with the lowest percentage of present main road is an 'accidental'.

That only 22½ miles of Ogilby's roads have not been located because of inadequate representation on his map provides an important pointer to

the basic reliability of Ogilby's strip maps, when they are interpreted with understanding.

At first sight all Ogilby's roads through Yorkshire posed many problems. Despite the claim that they had been surveyed it seemed that Ogilby might provide no more than an approximate alignment for the road rather than a portrayal of the road itself. That with the exception of $22\frac{1}{2}$ miles out of 543 miles the roads can be related to a specific alignment, albeit with great difficulty in some sections, is due to two facts. The first, illustrated below in detail is that while the configuration of the strip road is apparently often related more to the constraints of strip width, length and survey techniques than to reality, Ogilby's measurements of distance prove in most examples to be adequate compensation for the directional failings; for these measurements are recorded on the strips usually at intervals of 1 furlong and never at intervals of more than 2 furlongs.

The second fact is that in Yorkshire it is possible to compare 177 of the 543 miles, about 30%, with the field survey made by Warburton at a scale of 1" to the mile in the years 1718 and 1719.¹ Many of the Warburton road plots fit the details of the present road with such precision as to suggest that when one of Ogilby's representations only approximates to the same road this can be ascribed more to differences of mapping than to changes in the road. Road changes could have occurred in the period between 1675 and 1719 but there is no historical evidence to suggest more than a very few localized alterations. Moreover, when Warburton surveyed the same route as Ogilby he followed the same road, so that it is reasonable to assume that the Ogilby roads which Warburton did not resurvey but merely copied onto his map were also more likely than not the same as those of Ogilby's day.

¹ Vide infra Chapter Seven pp.331 et seq.

After Warburton's survey the next full survey of the county by Jefferys in 1771¹ reveals that despite much enclosure and the introduction of turnpiking after 1720, the details of Warburton's surveyed roads had not changed, thus providing evidence that in Yorkshire over the period 1675 to 1771 continuity of road alignment was the norm. Indeed, when this appeared to be in doubt, recourse to the turnpike records of the eighteenth century has confirmed the evidence of continuity.

Warburton's survey materials available only for Yorkshire demonstrate the reliability of Ogilby in this county, and by implication in other counties. It may be concluded therefore, that Ogilby's measurements in general are sufficiently precise to permit the accurate location of his roads.

Directional inaccuracy is, in fact, the chief reason why it is not possible to interpret all the road mileages. All the problem sections in Yorkshire were affected by enclosure or turnpiking but their impact on the specific section of road has not been conclusively determined. Neither Warburton's field notes nor Jefferys' map give sufficient evidence to suggest actual alignments of the 22½ unlocated miles. Each of the unresolved problem sections will require a considerable amount of local research to produce a satisfactory solution.

The details of the problem road sections and the limits of variation are given below. The three largest sections present the most serious problems. The first is on the York to Lancaster road, some 7 miles between Hamphwaite and Blubberhouses. The second is on the Whitby to Durham road, 4 miles to the river Tees. The third is on the York to Whitby road, 7 miles from Sutton on the Moor to Spittle bridge.

Two further preliminary considerations are necessary before embarking

1 (W.240)

on an interpretation of Ogilby's Yorkshire roads. First, it is impossible to be an omniscient local historian for the whole of Yorkshire yet it would be necessary to be nothing less in order to answer every question posed by the strip maps. Thus unresolved issues are explicitly recorded here not only to show the possible aspects of unreliability of Ogilby, but also in order to prompt more detailed local study. This chapter will place these unresolved problems in the broader context of an appreciation of Ogilby's work.

Secondly, it is useful to bear in mind that the roads mapped by Ogilby were not necessarily the only possible roads between those places in 1675. The reasons for mapping specific roads rather than known alternatives are not immediately apparent. At least 25 of the 100 plates note alternative roads. Plates 1 and 2 for example, give "the coach way" at junctions, this suggesting that Ogilby's surveyors were on the alternative horse road. Elsewhere, as on plates 11 and 59 the 'horse' way or 'bridle' way is the alternative. Other references at junctions refer to 'the hill way' or the 'worst' way. The complete alternative road is mapped on some strips as on plates 94 and 87, in which the two ways are more usefully described as the 'new' way and the 'old' way. The contemporary use of alternative routes can be illustrated from the diaries. Thoresby,¹ for example, records his journey from Leeds to Newcastle and back in 1703. On the outward journey, which from Boroughbridge coincides with Ogilby's route, Thoresby merely records the crossing of the river Wharfe at Harewood and the river Tees before Darlington; but, on the return "The river Tees not being fordable by reason of the late rains, we went about by Croft bridge"² and used Harewood bridge "the river Wharfe not being rideable".³

Road 1: Bawtry - York - Neasham - (Darlington) Plates 7 & 8

This road is part of Ogilby's 'Direct Independent' from London to

1 In Hunter (1830) Vol.1, pp.422 et seq.

2 *ibid* p.431

3 *ibid* p.433

Berwick, with 93 miles on its course through Yorkshire. Nearly 90% of this road can be related to main roads on the 7th series 1" Ordnance Survey maps (Table 5). Only about half a mile, through Dishforth Airfield, has completely disappeared, thus evincing a very high degree of continuity over some 300 years.

Bawtry to York

Each end of this section of the road can be dealt with rapidly. From Bawtry to Doncaster and from Tadcaster to York the representations on the strip maps fit the modern map with no significant differences.

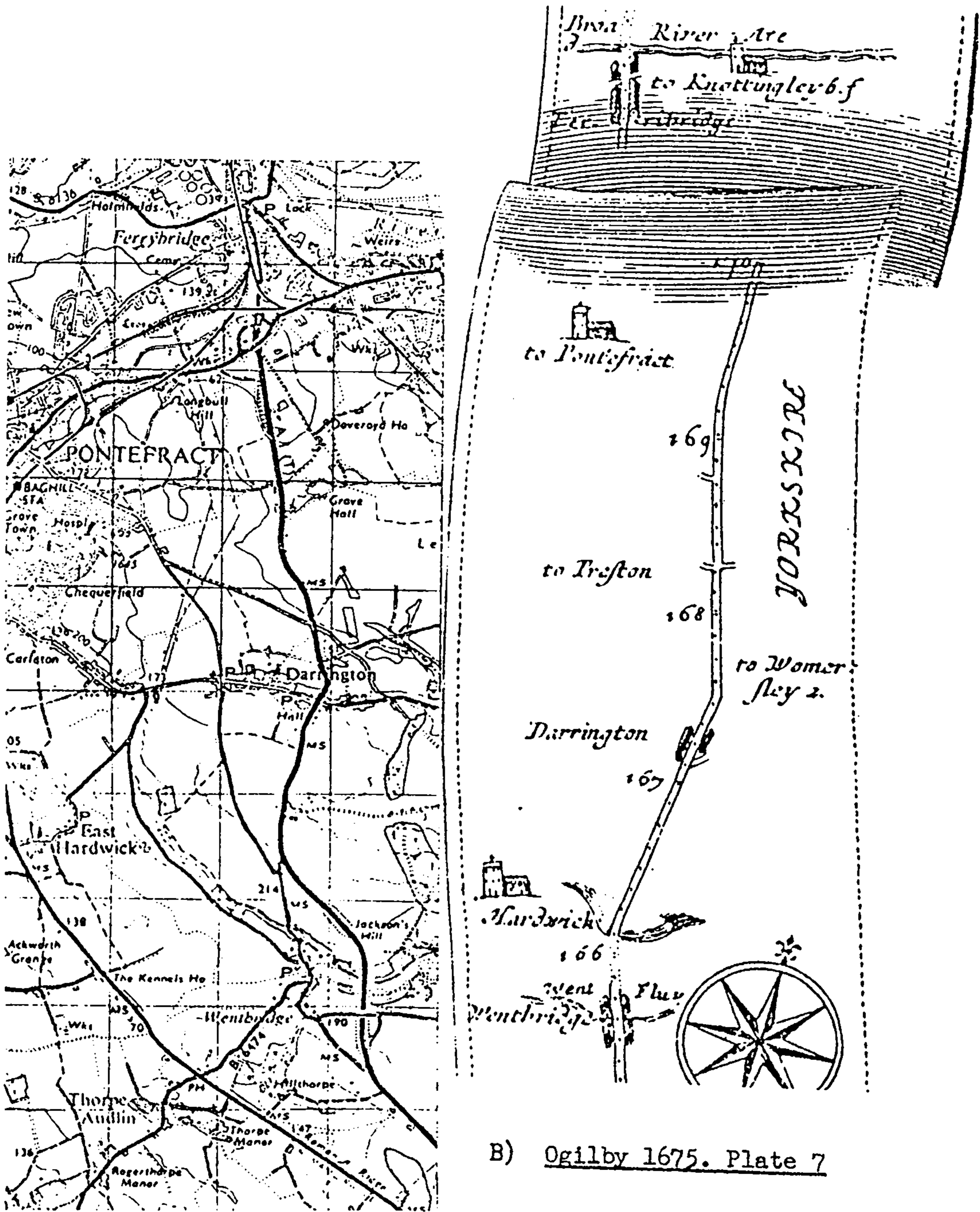
The middle section from Doncaster to Tadcaster also provides a close fit with the modern map but as will be shown, this section requires closer study. It illustrates the tremendous problems that can be encountered when attempting to locate precisely a linear feature such as a road on printed maps produced before the Ordnance Survey even when that information is given in considerable detail.

Doncaster to Tadcaster

This section of road is given additional emphasis because it illustrates the point that even when one of Ogilby's strip map road alignments appears to be essentially the same as the modern road, closer investigation can reveal serious discrepancies.

By superimposing a trace of Ogilby's map road onto the Ordnance Survey map a remarkably good fit can be achieved with only two noticeable divergences from the present 'A' road: for one mile beyond Doncaster, a slight kink; and at Wentbridge Ogilby's road is definitely on the minor road. The conclusion could be that from Doncaster to Tadcaster the A1 as shown on the 7th series 1" Ordnance Survey maps is fundamentally the same road

Figure 11 Wentbridge to Ferrybridge. Ogilby and the Ordnance Survey



A) O.S. 7th series 1" map

B) Ogilby 1675. Plate 7

Scale: both maps 1" to the mile

as that followed by Ogilby's surveyors.

Doubts arise about two sections when one seeks to confirm this interpretation. Between Wentbridge and Ferrybridge doubt is generated by Ogilby's text. Between Towton and Tadcaster the road shown on the Ordnance Survey map apparently did not even exist in Ogilby's day. Four sources were used to check the Ogilby alignments, namely Warburton's map and field notes, Jefferys' 1771 map, turnpike records and contemporary diaries.

Wentbridge to Ferrybridge

With the exception of the modern Wentbridge by-pass, Ogilby's road would appear to be very similar to the present A1 (Figure 11). The problem of interpretation stems from an attempt to relate Ogilby's text to his map where he states "you pass through Darrington, your Road making to the Right and leaving the Street way, which thence passes through Pontefract Park, brings you at 170'2 to Ferrybridge". Figure 11 shows that neither Ogilby's road nor the Ordnance Survey road bends to the right through or beyond Darrington. Similarly neither map indicates a Roman road, that is Ogilby's Street way, at this point.

The doubts thus raised about the accuracy of Ogilby's cartographic representation and the possibility that therefore the A1 cannot be assumed to be the modern equivalent are further increased by the inclusion of the turning marked "to Preston". This turning cannot be related readily to any junction on the Ordnance Survey map. Indeed it is not even clear whether this Preston refers to the village of Great Preston situated just north-west of Pontefract or to Preston in Lancashire. The problem is further confused by Ogilby's representation of Darrington as a village lying along the road rather than straddling it. This means that Ogilby's road might have been on the alignment seen to the west of the A1, also passing

through Darrington and which can be followed down Longbull hill into Ferrybridge. As can be seen from the Ordnance Survey map there is a right hand bend on that alignment. It also leaves a lane (passing through the letter 'N' of Pontefract) which could have been thought of as a Street way. Even that lane, however, does not go through Pontefract Park, which lies to the north-west of the town. An attraction of the western route is that it fits the apparent distance on Ogilby's map between Pontefract and the road. Against that evidence is the general finding that the relationship between adjacent places and the road is not reliable.¹ This can be confirmed on this very illustration with East Hardwick which is clearly located a mile nearer Wentbridge than is correct.

The A1 alignment is favoured by dependence on Ogilby's testimony. A trace of Ogilby's road fits the A1 better than any other alignment. Also the only bearing given in the text for this section of road is at 166'1 miles, at the top of Wentbridge hill, which together with the turning to Womersley favour the present alignment through Darrington. At 160 miles, 6 miles south of Wentbridge, Ogilby's text records, and his map shows, the Street way joining the mapped road at Red House yet neither his map nor his text mentions the equally obvious Roman Ridge leaving the Ogilby road at Barnsdale Bar just south of Wentbridge, and as shown on the Ordnance Survey map does head for Pontefract Park.

This good planimetric fit with the A1 and the omission of the pronounced Roman Ridge road point to a textual error. This was possibly made by the surveyor's guides. Evidence of possible confusion over the Roman road alignment is provided by Leland over 100 years earlier. Thus Leland² wrote: "Some old people constantly affirm that the ridge of Watling Street went through the park of Pontefract ... it was called Brokenbridge.

1 Vide supra p.132. Figure 8

2 Smith (1907) Vol.1, p.39

Ruins of such a bridge yet is seen scant half a mile east of old Pontefract; but I cannot justly say that this bridge stood full on Watling Street". This quotation is of interest not only for its explanation of the name 'Pontefract' but for its revelation of the long held belief that the Roman road went through the park. The bridge site would fit Ogilby's text suggestion, since it is on the line of the lane passing through the letter 'N', but Leland was not convinced about the actual alignment.

Comparison with Jefferys' map published in 1771, after the road had been turnpiked, shows that by 1771 the road is unquestionably on the same alignment as the A1. Nevertheless, Jefferys causes further confusion by showing a junction "to London" just south of Ferrybridge which nevertheless points towards Pontefract. This hints at an earlier route via Pontefract or at least an alternative route to the west of the present road, possibly by way of Longbull hill. Jefferys narrows down the period in which a change of alignment to that of the present A1 could have taken place, to the 100 years or so between 1675 and 1771. He also provides a hint that the change could have been caused by turnpiking.

Fortunately the minute books for this Trust¹ have survived. These give detailed information on the meetings of the Trustees from the initiation of the Trust in 1741 until after 1771. The record includes specific information on repairs made to the road and the introduction of diversions. The only major diversion is that between Towton and Tadcaster.² Several minor changes were made, including that in 1744 to the 'old causeway' out of Doncaster, but there is no hint of a change of alignment between Ferrybridge and Darrington. Indeed, the first reference to realignment of this section was made on the 2nd April, 1778; it refers to a very slight shift immediately north of Darrington. This recorded change was so small that

1 W.Y.R.O. R.T.25

2 Vide infra pp.154 et seq.

it is not discernible when comparing Jefferys' 1771 map with the Ordnance Survey map. Accordingly, the possibility that a previous significant alteration was not minuted is remote especially when it is appreciated that major road changes took many years to put into effect and were minuted at great length in the records of Trust meetings.¹

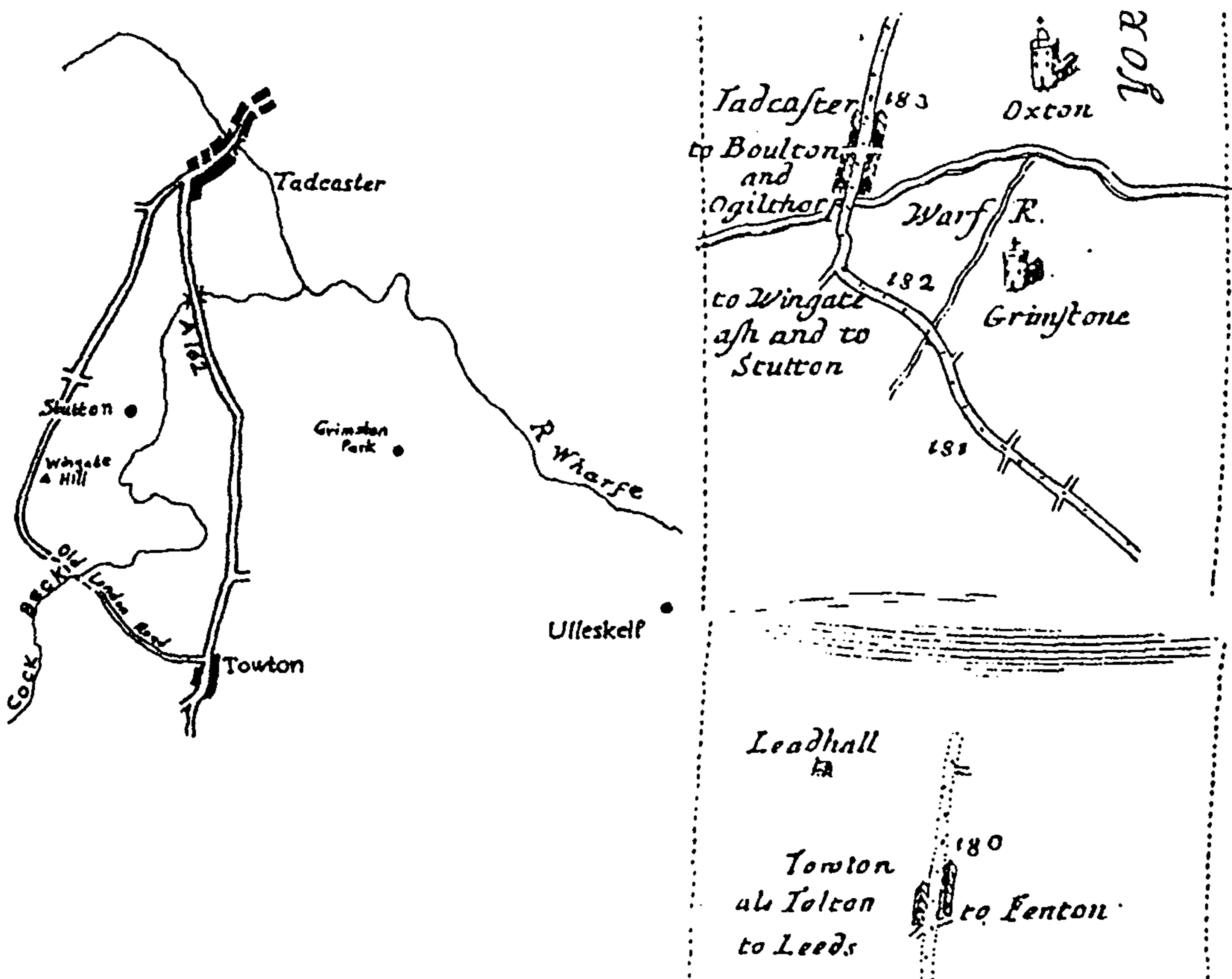
The period when this possible change was effected is firmly fixed by the Trust records between 1675 and 1741 and for this period the additional testimony of Warburton in 1720 can be used. Warburton did not survey this particular section of road and instead he copied Ogilby. Nevertheless he did survey the road from Pontefract to Snaith which crosses the Ogilby road immediately south of Ferrybridge. Re-protracting the very accurate field notes² reveals an important detail. The cross roads Warburton records as the one from which roads lead "to Sherburn and Doncaster" fits the A1 alignment and the notes do not suggest any other alignment. This evidence suggests that the turn designated by Jefferys as leading "to London" can be rejected as a possible clue to Ogilby's road. Any possible change in this route is thus limited to the period between the appearance of Ogilby's map and that of Warburton, that is, 1675 to 1720.

There are two possible solutions. The less likely of the two is that Ogilby's road was not on the alignment of the present road (excluding recent readjustments) and the good fit is therefore merely coincidental; the present alignment could have been made between 1675 and 1720; and that a Roman road did go through Pontefract Park from north of Darrington. The more probable option of the two is that Ogilby's road is on the present line of the A1 and that the confusing reference to the Street way in the text is an error; the Roman road in the text should have referred to the Roman road south of Wentbridge. The weight of evidence points to the correctness of the road shown on Ogilby's map.

1 Vide infra p.155

2 Lansdowne MS.912, ff.196-7

Figure 12 Towton to Tadcaster. Ogilby and the Ordnance Survey



A) As on the O.S. 7th series
1" map

B) Ogilby 1675. Plate 7

Scale: both maps 1" to the mile

Towton to Tadcaster

This problem section is even more challenging than the first. Whereas in the previous section of road the actual alignment of the present Ordnance Survey road could be traced back easily to the late eighteenth century with the aid of Jefferys' map of 1771, here comparison with Jefferys' work suggests that the relevant section of road was not extant in the late eighteenth century.

In Figure 12.A the Ordnance Survey map shows the same alignment as on Jefferys' map in 1771 over Cock Beck and even names this route as "the Old London Road". By contrast, Ogilby (Figure 12.B) apparently maps the road going directly from Towton to Tadcaster on the line of the "new" A162, an alignment which is not shown by Jefferys.

Ogilby's map and text combined would appear to provide conclusive evidence. The position of Cock Beck, the junction at 182¹/₁ miles to Sutton and Wingate Ash all seem to preclude the "Old London Road" and permit only an alignment akin to that of the A162. Since the A162 alignment was apparently not extant in the late seventeenth century, Ogilby's evidence must be seriously questioned and there is, in fact, a great amount of evidence to suggest that Ogilby is in error. If this can be proved it raises very serious doubts about the interpretation of any of his maps.

In an attempt to determine the age of the present A162 alignment, recourse to the turnpike records becomes in this instance a test case for the interpretation of such records. Examination of the relevant Trust records¹ reveals at first no other road that Ogilby could have portrayed than the "Old London Road". Thus from 1781 until the diversion of the turnpike from this "Old London Road" route to the modern direct route through Grimston in 1791, discussion of the "new road" loomed large in the minutes of the Trust. Various alternative courses were discussed and meticulously

1 W.Y.R.O. R.T.25

planned, although no actual maps have survived. That the "new road" was indeed new seems to be confirmed by the record of staking out the alignment.¹ Moreover, there was a note² to the effect that the "New Road" was to be "24 feet stoned" and fenced and that in meeting the need for a new bridge the "battlements" of the old bridge should be utilized.

This road is explicitly recorded by John Byng in his diary.³ In 1792, one year after the completion of the task, he wrote as follows: "Passing Towton village, where is a long extent of wide, new made road, for the benefit of the hasty passenger ... the new road leads magnificently into Tadcaster".

Thus it is reasonable to assume from the evidence of the Trust records and the contemporary diary that the present A162 was a completely new road. Yet such an alignment was apparently used by Ogilby's surveyors. If Ogilby's representation is accurate then some hint in the Trust minutes of such a road might be expected despite the references to the newness of the diversion alignment.

A detailed re-examination of the Trust minutes, however, is no easy matter. The complete Trust minute books comprise many hundreds of closely written and often barely legible pages. Nevertheless, it is only after the perusal of every entry that evidence to support Ogilby's map comes to light. For instance, in 1741,⁴ when the toll bars were first set up there were three: one each at Scawsby Lane End north of Doncaster, at the junction of the present A635 and A638, one at Ferrybridge and the third at Tadcaster between the cross and the lane to the "ings". In the same year⁵ the toll bar at Tadcaster was removed to the south side of Towton and a

1 W.Y.R.O. R.T.25 minute, 25th Nov. 1789

2 *ibid*, 20th July 1792

3 In Andrews (1936) Vol.3, p.34

4 W.Y.R.O. R.T.25 minute, 20th April 1741

5 *ibid*, 3rd June 1741

toll house built there. Regrettably no reason is minuted but the need to move the bar could be explained by the ease with which travellers going south from Tadcaster could avoid the toll bar by cutting across directly to Towton rather than following the "Old London Road"; the location immediately south of Towton effectively nullifies the short cut as a toll avoiding route (Figure 12.A).

A further minute in 1746¹ refers to the need to repair the road from Cock Beck towards the south but asks the surveyors to consider whether "the present road (i.e. "the Old London Road") used by carriages" might not be realigned. The specific, and unusual, reference to carriages could imply that horse or foot travellers did not use this road. The consideration of another possible alignment shows, as does the relocation of the toll bar, that the Trustees were not satisfied with this section of road.

A final clue in the minutes² mentions the widening, by four feet, of a road through Mr. Townsend's plantation. This confirms that at least a part of the 'new' road was not entirely an innovation. Comparison with Jefferys' map of 1771, before the changes, shows that there was some sort of road from Towton at least as far as Grimston. Thus only a further length of $1\frac{1}{2}$ miles needs to be 'discovered' to justify the road alignment shown by Ogilby.

Some twenty years after Ogilby's survey Celia Fiennes³ travelled from Doncaster to Tadcaster and commented that just before Tadcaster the water was very deep and the road impassable when it was raining. This suggests that she was on an alignment close to the present A162 rather than the "Old London Road" because the Old London Road keeps to the higher ground above the marshy area. Significantly she travelled on horseback.

1 W.Y.R.O. R.T.25 minute, 28th May 1746

2 ibid, 2nd July 1792

3 In Morris (1949) p.75

The final testimony to Ogilby's accuracy, despite all the later Trust evidence against his alignment is provided by Warburton. The 1720 map by Warburton is confusing in this vicinity because it attempts to combine Ogilby's road from Ferrybridge to Tadcaster and the road surveyed by Warburton from Tadcaster to Cawood, which is to the south-east of Ulleskelf (Figure 12.A). Travelling out of Tadcaster, Warburton's surveyor, as he records in the field notes,¹ is clearly on the alignment of the "Old London Road" as far as Cock Beck but then he turns to the north of Towton towards Ulleskelf. When just outside Tadcaster, he records an unnamed turning towards the south. Again immediately north of Towton he shows a junction with a road running north "to Tadcaster". The latter and the unnamed turning towards the south near Tadcaster surely indicate the existence of the Ogilby route.

Clearly therefore, corroborative sources are not free from problems of interpretation and there are hazards in accepting the most 'obvious' evidence as proof. At first sight both the turnpike records and Warburton's map of this area point to Ogilby's representation as being wrong and therefore unreliable. Further investigation however, shows that the solution lies not in Ogilby being simply right or wrong. Rather there were in fact two possible routes, at least for the horse or foot traveller, and Ogilby's surveyors used the more direct way, possibly only suitable for horses, as opposed to the "Old London Road" shown by Warburton and Jefferys which could have taken carriages.

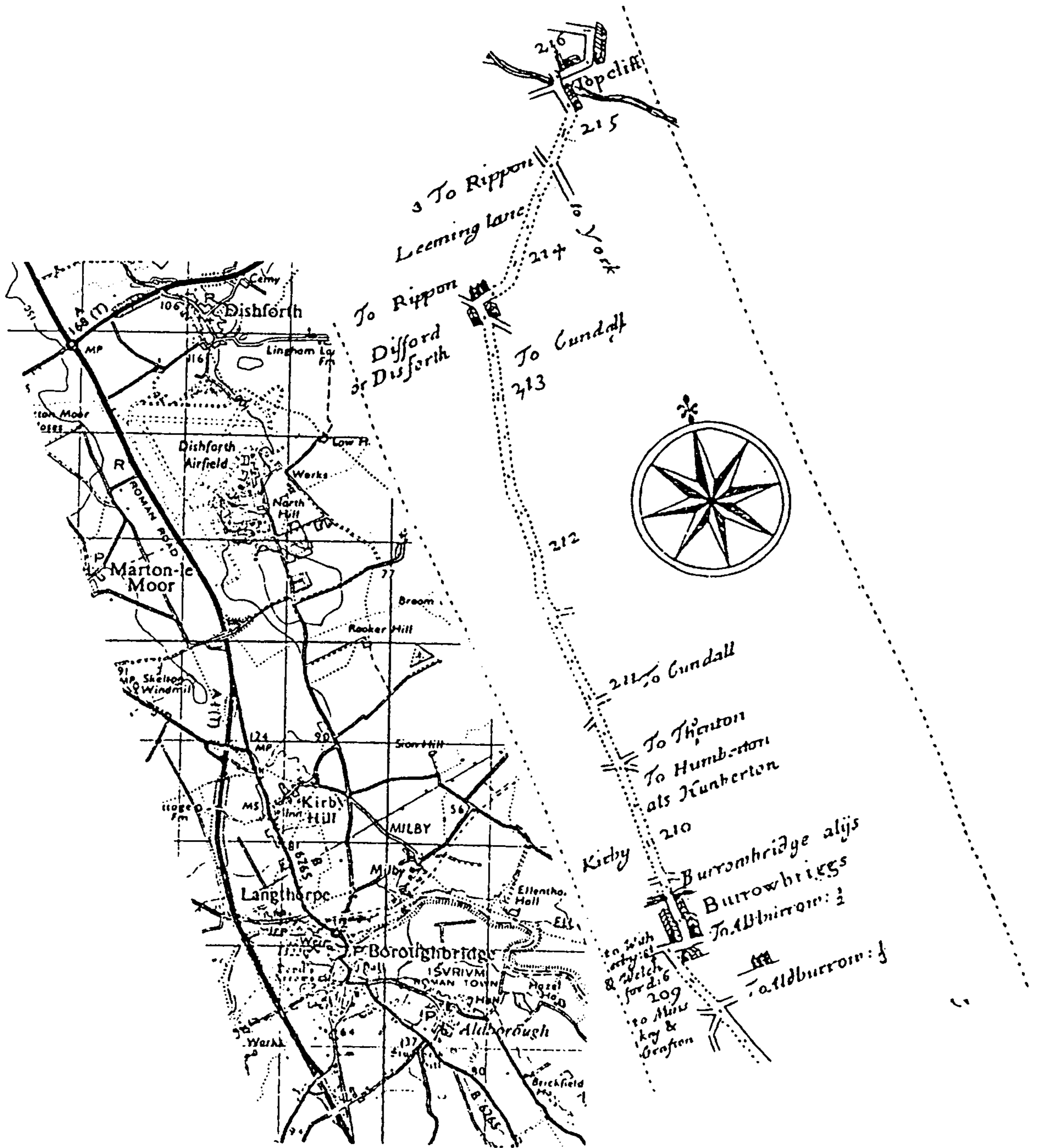
Having shown that the A162 alignment was not impossible for Ogilby, though it may well have been more a track than a road, his map and text can be reassessed with greater confidence. Since the Old London Road and Ogilby's precursor of the A162 are clearly very different in length the mileage as recorded by Ogilby can be used to clinch the choice. The

¹ Lansdowne MS.912, ff.78-9

distance from Towton to Tadcaster bridge by the "Old London Road" as measured on the Ordnance Survey is slightly over 3 miles 1 furlong and along the direct road slightly under 2 miles 5 furlongs, a difference of just over half a mile in a maximum of three or so miles. Ogilby's map and text record Towton at 179 miles 6 furlongs from London and Tadcaster bridge at 182 miles 3 furlongs from London, which is precisely 2 miles 5 furlongs. Finally, although the Old London Road route is not shown on Ogilby's map nor cited in the text for Towton there can be little doubt now that the turning at 182¹ miles immediately south of Tadcaster shown on the map as leading "to Wingate Ash and Stutton", and mentioned in the text as a turning to be avoided, is in fact the Old London Road. In other words Ogilby did not use the "Old London Road" as might have been expected but chose a shorter way, possibly a bridle way. Thus even where, as in this locality, Ogilby seems to be wrong, a thorough investigation of possible corroborative sources reveals that in fact he was correct.

In both cases considered here, the route from Wentbridge to Ferry-bridge and that from Towton to Tadcaster, there is a considerable amount of detail both on the map and in the text which apparently fixes the line of the road shown by Ogilby. The doubts were raised not by the maps but by other sources, in the first length by a single reference in Ogilby's text, to a Street way, and in the second by the evidence of subsequent records of the route. In both cases the general alignment on Ogilby's strip maps is vindicated. The implication is that even as in the second case, against the odds, Ogilby can be interpreted with considerable confidence when the map and text supply sufficient detail. But, obviously, the more the uncertainties in the map and text the greater the justification for doubting Ogilby.

Figure 13 Aldborough to Dishforth. Ogilby and the Ordnance Survey



A) O.S. 7th series 1" map

B) Ogilby 1675, Plate 8

Scale: both maps 1" to the mile

York to the Tees

Between York and the river Tees the road can be compared readily with the present A59 to Green Hammerton and the A167 to Boroughbridge. The straightness of Ogilby's representation before Boroughbridge suggests that he might have been on the Roman road but the unmistakable complex junction at 208'6 miles and the position of Aldborough on his map prove that the road is the same as the present one (Figure 13).

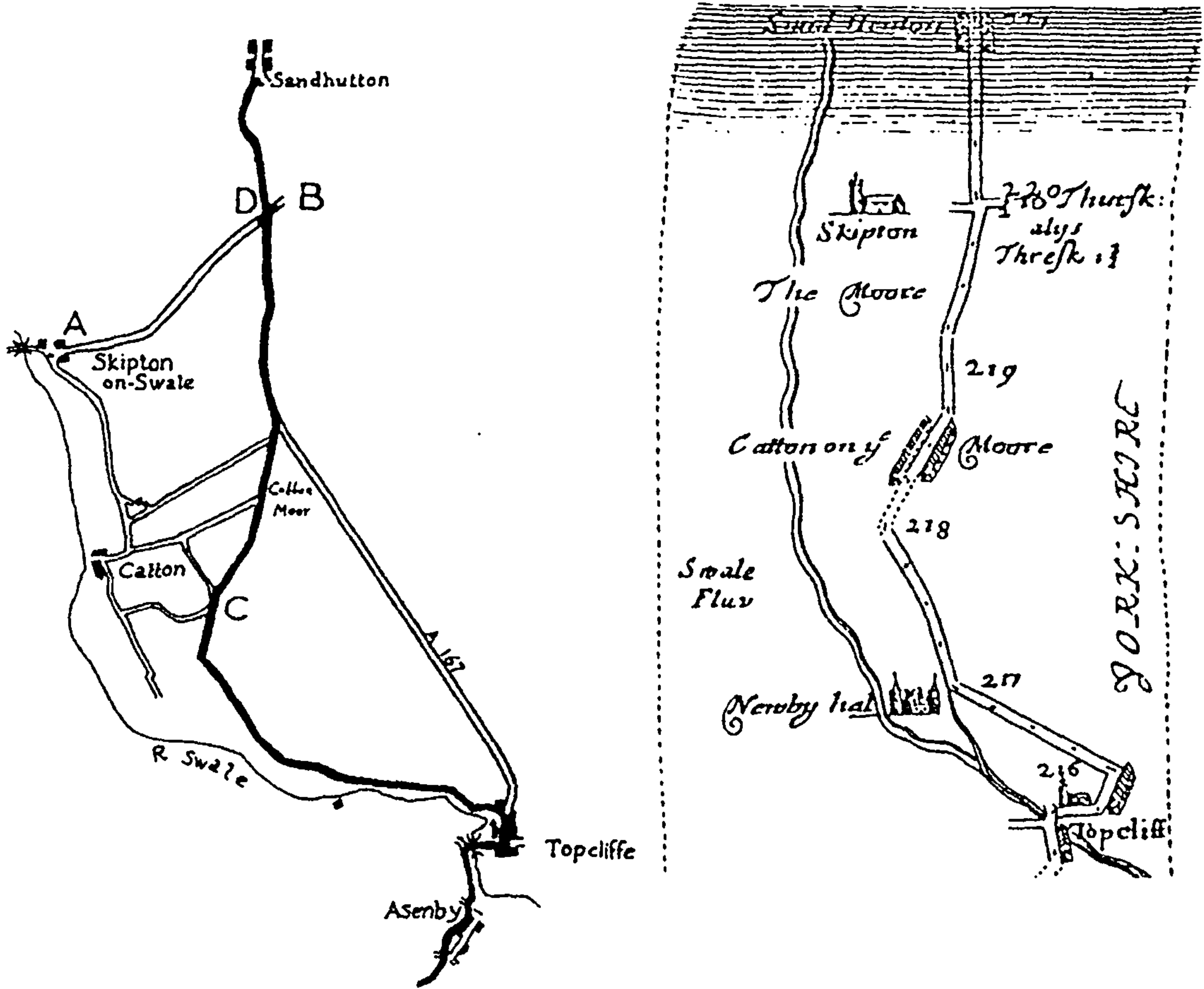
From Boroughbridge to Dishforth Ogilby is on the line of the minor road to the east of Kirby Hill which now peters out in the airport. Comparison with Jefferys' 1771 map shows that the line across the airport area is extant for all save the middle half mile as omitted on the Ordnance Survey map. From Dishforth, Ogilby's road joins the line of the A168 to Topcliffe taking the Azenby 'by-pass' which Jefferys' 1771 map confirms was not a recent improvement. The junction before Topcliffe at 214'6 miles with a road indicated as "to York" is particularly important in that it indicates a more direct route than that surveyed by Ogilby. The text calls it "a different way from York" and as a backward turning to be avoided. Its importance as a route can be confirmed from the Quarter Session Records¹ where this junction is referred to less than 30 years before Ogilby in 1675 as the highstreet to York. Indeed, this is almost certainly the route indicated on the fourteenth century Gough Map between Leeming and Helperby (Figure 5).²

Between Topcliffe and Sand Hutton (Figure 14.B) Ogilby's map poses a serious problem since the details on the map and in the text are mutually incompatible and it is necessary to decide which features are the correct ones. Study of the map and the text provides ample evidence that the surveyors' work was below standard at this point. The surveying errors

1 N.R.R.S. Vol.V 1647-1658 (1887) p.69

2 Vide supra p.115

Figure 14 Topcliffe to Sandhutton. Ogilby and the Ordnance Survey



A) As on the O.S. 7th series 1" map

B) Ogilby 1675, Plate 8

Scale: both maps 1" to the mile

are compounded by errors committed either by the draughtsman or the engraver. On the section of the map from Topcliffe to just beyond Sand Hutton each mile, as pricked in on the map is in fact only 7 furlongs in length whereas both before and after this section they are correct. There are therefore hazards involved in using Ogilby's mileage between these two places as evidence for the actual alignment.

The surveying errors are even more numerous: at 216 miles, at the end of Topcliffe, the bearing 'SW by S' is given in the text yet as the map shows, any possible route to the north out of Topcliffe must run north of west. At 217 miles Newby Hall is recorded but it is placed on the wrong side of the river Swale and in reality was some 2 furlongs nearer to Topcliffe than mapped. At 218 miles a second bearing, N by E is given in the text. This statement, while compatible with the present road which misses Catton, is incompatible with the next statement that the road then enters Catton. This statement is, therefore, also incompatible with Ogilby's map. This confusion is increased by the assertion that the river Swale lies "about half a mile distance on the left" for so it does on Ogilby's map and in relation to the present road, but Catton itself is in fact on the very edge of the river (Figure 14.A). Had the surveyors actually passed through Catton village it is unlikely that they would have made such an error.

Further problems are encountered with the next statement in the text that the road then passes over the moor, for again the present road does but to do so from Catton requires a sharp turn. If the village is ignored on Ogilby's map the alignment bears a remarkable similarity to the present road. The final evidence of unreliable surveying here is the reference both in the text and on the map to Thirsk lying "within a mile and a half" of the road. A distance of $3\frac{1}{2}$ miles would have been closer to the truth.

Since Ogilby is clearly unreliable, as an independent record of this section of the road it is necessary to have recourse to another source. The nearest useful source in terms of time is Warburton's 1720 map and more specifically, the accompanying field notes.¹ Both the road in question and a cross road from Skipton on Swale to Thirsk (A-B on Figure 14.A) were surveyed in detail and these roads confirm without any doubt that in 1720 the main road from Topcliffe to Sand Hutton was as now found on the Ordnance Survey map (Figure 14.A), that is running from Topcliffe past Salmon Hall and so over Catton Moor to join the A167 en route to Sand Hutton.² Warburton also shows very clearly the twin junction seen on the Ordnance Survey map towards Catton and hence Skipton on Swale just before the moor (Figure 14.A.C). On the cross road to Thirsk Warburton records both the present alignment of the Topcliffe to Sand Hutton road at the cross roads (Figure 14.A.D) and also within Skipton on Swale a turning to Topcliffe, that is past or through Catton.

If Catton village is ignored, Ogilby's mapped alignment fits the present alignment to the east of that village remarkably well. The present alignment was also unquestionably the recognized road between Topcliffe and Sand Hutton in 1720. In that same year it was also possible, to judge from the evidence of the junctions, to travel via Catton village itself; but equally clearly this was not the most obvious road to take.

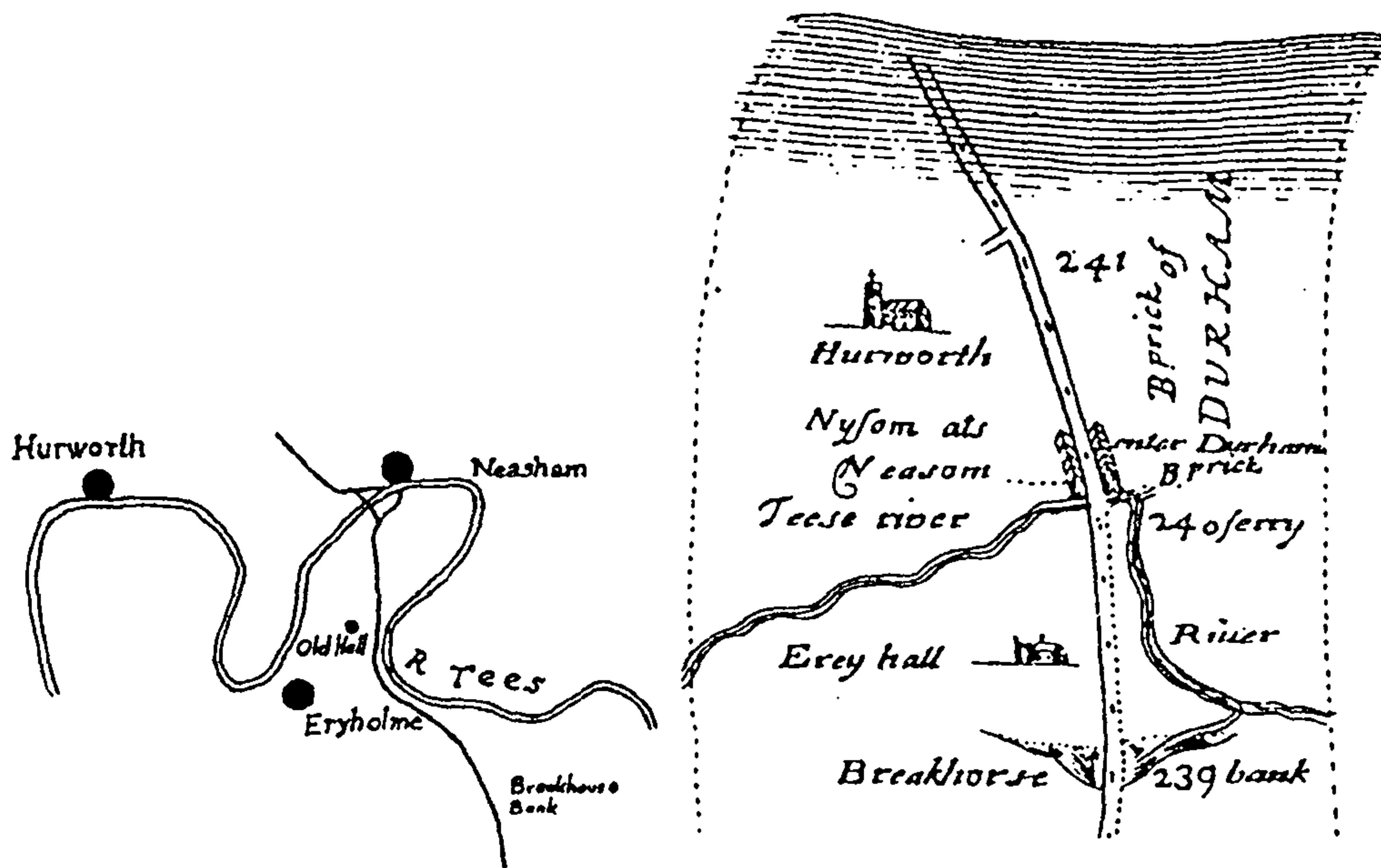
The confusion in this area could perhaps have stemmed from a misreading of the field notes. Where, for example, the text states "and at 218'2 brings you to Catton on the Moor³ a village of 3 furlongs ..." the

1 Lansdowne MS.913, ff.291-301; MS.912, ff.44-6

2 There has been a very slight straightening of the modern road on its course over the moor.

3 This argument is supported by the fact that neither Page (1923) nor Smith (1961) records either the township or village of Catton as "Catton on the Moor".

Figure 15 Breakhouse Bank to the River Tees. Ogilby and the Ordnance Survey



A) As on the O.S. 7th series
1" map

B) Ogilby 1675, Plate 8

Scale: both maps 1" to the mile

original notes could quite possibly have read "and at 218'2 brings you to Catton moor, the village at 3 furlongs ..." In this event the village and the river Swale would have been at the correct distance from Ogilby's alignment. Then the road does indeed pass over the moor as the text states.

Since, however, the evidence is not conclusive, though points very strongly to the fact that Catton village was not passed through despite the map and text, it must also be said that Ogilby's surveyors might have travelled through the village. Not only is there clear evidence of errors but Warburton's survey suggests that if they did go through the village they were mistaken in treating the village as being on the main road.

Viewed in the context of the 340 miles of the whole route as mapped by Ogilby, the occasional human error is very understandable. Indeed, heavy rain when surveying from Topcliffe to Sand Hutton and sodden field notes could explain the several weaknesses of the printed map. Fortunately it has been shown that by using all Ogilby's information the presence of error can be demonstrated. Comparison of Ogilby's information with that provided by Warburton can permit determination of the most probable road that Ogilby meant to portray.

From Sand Hutton through Northallerton to Lower Entercommon Ogilby's route follows the present A167 and then takes the minor road to a ferry at Neasham. At 231 miles to the north of Northallerton it is clear, however, that the road was not as straight as it is today. Nor was it straight in 1771.¹ Weaknesses are evident in Ogilby's survey of the last mile of the road from Breakhorse Bank to the river Tees and also in the depiction of the Tees meanders. Nevertheless, as Figure 15 shows, it is not possible for the road to have differed much, if at all, from the course followed by the track shown on the modern Ordnance Survey map.

1 Jefferys (W.240)

Road 2: Hull to Flamborough. Plate 42

The whole of this road presents problems of interpretation. From Hull to Great Driffield it is evident that Ogilby's routes can be compared with the 'A' roads of the present day; but from Great Driffield onwards only 23 of the 43 miles of road shown by Ogilby are still classed as major roads.

Between Hull and Beverley on Ogilby's strip map comparison with the present line of the A1079 suggests that in 1675 the road was straighter and left Hull at a point east of Beverley Gate. The exit was, however, from Beverley Gate.¹ When Ogilby's road is aligned on Beverley Gate the only significant remaining deviation from the 'A' road is that from near Thearne into Beverley.

Comparison of this section from Thearne to Beverley with its portrayal by Warburton² and Jefferys³ shows that the road was the same then as now, and distinctly curved. That Ogilby's road was also the same is suggested by comparing his map with the text. The text gives the exact mileage as 2 miles 6 furlongs, the distance on the present day road. The straight road shown by Ogilby is also of the same length but being straight is therefore too long. Thus his route could not have been straight and it is reasonable to assume from the exactness of Warburton's fit with the modern 'A' road that Ogilby's road was the same. Once again, Holwell's advice that surveyors should bear to the furthest point provides an adequate explanation for the apparent difference.⁴

From Beverley to Leconfield there is only a poor relationship between Ogilby's road and the A164 through Molescroft - named Musgrove by Ogilby.

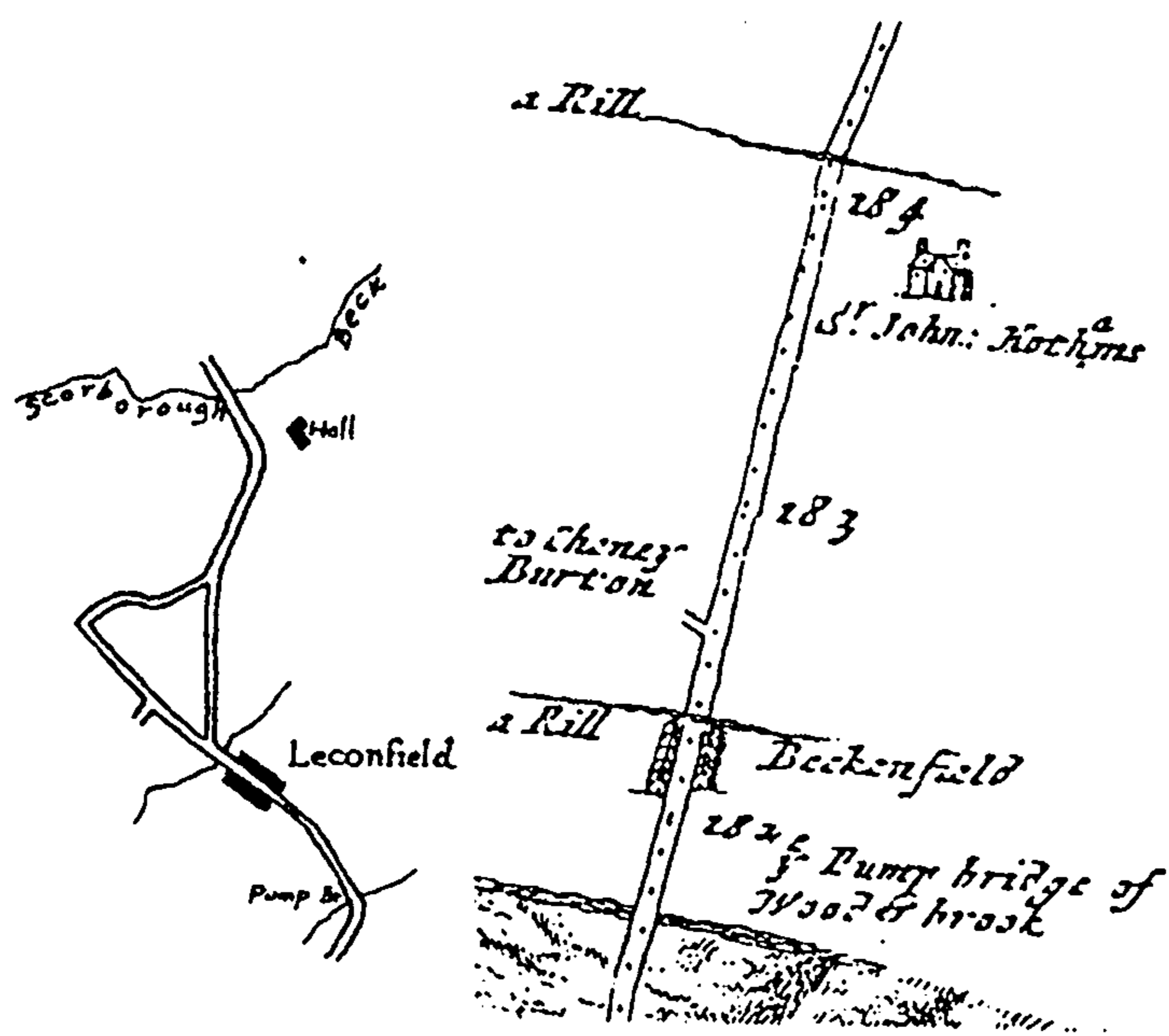
1 Vide infra p.222

2 Lansdowne MS.895, f.191

3 (W.240)

4 The accuracy of Warburton's survey is particularly important because it proves that the turnpiking of the road in 1744 did not result in any significant changes of alignment as might have been assumed had Warburton's evidence not been available.

Figure 16 Leconfield to Scarborough Hall. Ogilby and the Ordnance Survey



A) As on the O.S.
7th series 1"
map

B) Ogilby 1675, Plate 42

Scale: both maps 1" to the mile

Nevertheless the roads must have been the same. Ogilby's text, for instance, gives a new bearing at 180'2 miles and states that "you pass through Musgrove".

Leconfield to Scarborough Hall

This short stretch of 1 mile $3\frac{1}{2}$ furlongs has been selected not only as the best example of Ogilby's tendency to ignore totally some road bends but also in order to show how his maps can be interpreted even under such circumstances. Apparently the 1675 road followed a straight line (Figure 16.B). Since there is no hint of a similar straight alignment on the Ordnance Survey map (Figure 16.A) the first task in interpreting Ogilby's route is to fix as many points on the Ogilby map as possible. Five points can be fixed, namely, Pump bridge, Leconfield, Leconfield brook, The Hall and Scarborough beck. By comparing the distance between Pump bridge and Leconfield brook where Ogilby and the Ordnance Survey both show the road as straight, it can be demonstrated that Ogilby's scale here is one inch to the mile. When comparing Ogilby's road from Leconfield brook to the Hall with that on the Ordnance Survey map it is evident that Ogilby's road is too long; the error, of over 3 furlongs, is a considerable difference in a distance of only 1 mile $3\frac{1}{2}$ furlongs.¹

The distance along the present 'A' road is a little over one mile, but measurements of the dog-leg road yields a distance of almost exactly 1 mile $3\frac{1}{2}$ furlongs, in other words precisely the same distance as that recorded by Ogilby's mileage. Ogilby's junction for Cherry Burton fits this dog-leg road perfectly. Clearly, as Jefferys' map confirms, the dog-leg was the old road, and the straight 'A' road is a more recent feature.

Whether Ogilby's surveyors recorded the 90 degree bend is a matter

¹ This measurement is obtained from the map and from the text which records the Hall at 183'6.

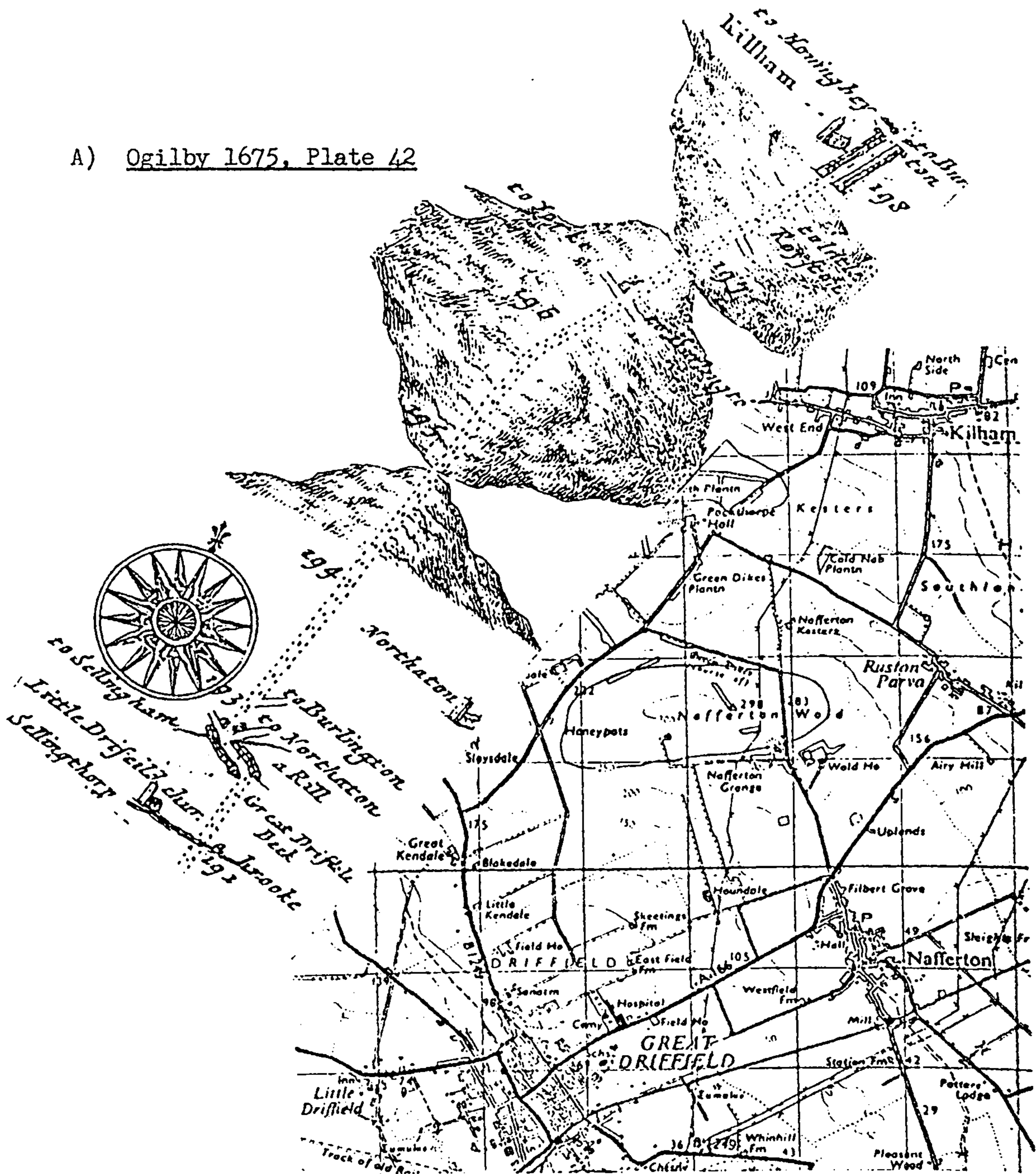
of conjecture; it was certainly not reproduced on the map. Fortunately however, the printed map does reproduce the wheel measurements in miles and furlongs. Evidently it is not possible to rely upon Ogilby's directional representation. Since, however, his records of distances are accurate, and since he used the statute mile, errors of alignment are easily demonstrated. Moreover, by comparing his measured distance with actual roads recorded in later surveys such as those by Warburton, Jefferys or the Ordnance Survey, it is possible to determine which road Ogilby meant to portray. The dots representing the miles and furlongs which Ogilby could so easily have left off his printed map prove to be crucial in interpretation.

This test case also indicates that the distorted straightness of Ogilby's roads may not merely be a result of the width of the strip he adopted. Nor was the use of a compass rose to indicate a change of direction an adequate palliative. On this strip between Leconfield and Scarborough Hall the correct alignment would have been possible and the nearest compass rose is that by Beverley. Again Ogilby used strips of variable width. Thus, for example, on Plate 15 depicting the road from Gloucester to Monmouth the strip used is one an inch wider than that on Plate 42 showing the Leconfield area.¹

1 This interpretation based on the internal evidence of this latter strip is confirmed by comparing Ogilby's representation of the Barnsley to Halifax route with a pre-Ogilby local plan depicting part of one of Ogilby's other Yorkshire roads. There, too, Ogilby clearly produces a straightened representation of a road which can be proved conclusively to have been more sinuous before 1675 and precisely the same after Ogilby. Vide infra. p.174

Figure 17 Great Driffield to Kilham. Ogilby and the Ordnance Survey

A) Ogilby 1675, Plate 42



B) O.S. 7th series 1" map

Scale: both maps 1" to the mile

Scorborough Hall to Flamborough Head

Viewed in these terms the road to Great Driffield can be shown to be the same as the present 'A' road. From Great Driffield to Kilham the road cannot be confidently interpreted but the alignment proposed here is almost certainly correct (Figure 17).

Several features indicate slack workmanship. For instance, immediately prior to Great Driffield, Little Driffield is recorded as only 3 furlongs from the road when it should be about 1 mile distant. Great Driffield itself is not named on the map and the text merely states "pass through another village". Beyond Great Driffield, Nafferton is recorded as 6 furlongs to the right of the road suggesting that the road was parallel to the A166 yet not only is the village mapped much too near Great Driffield but the compass bearing given at this point shows the road to be running nearly due north along the present B1249.

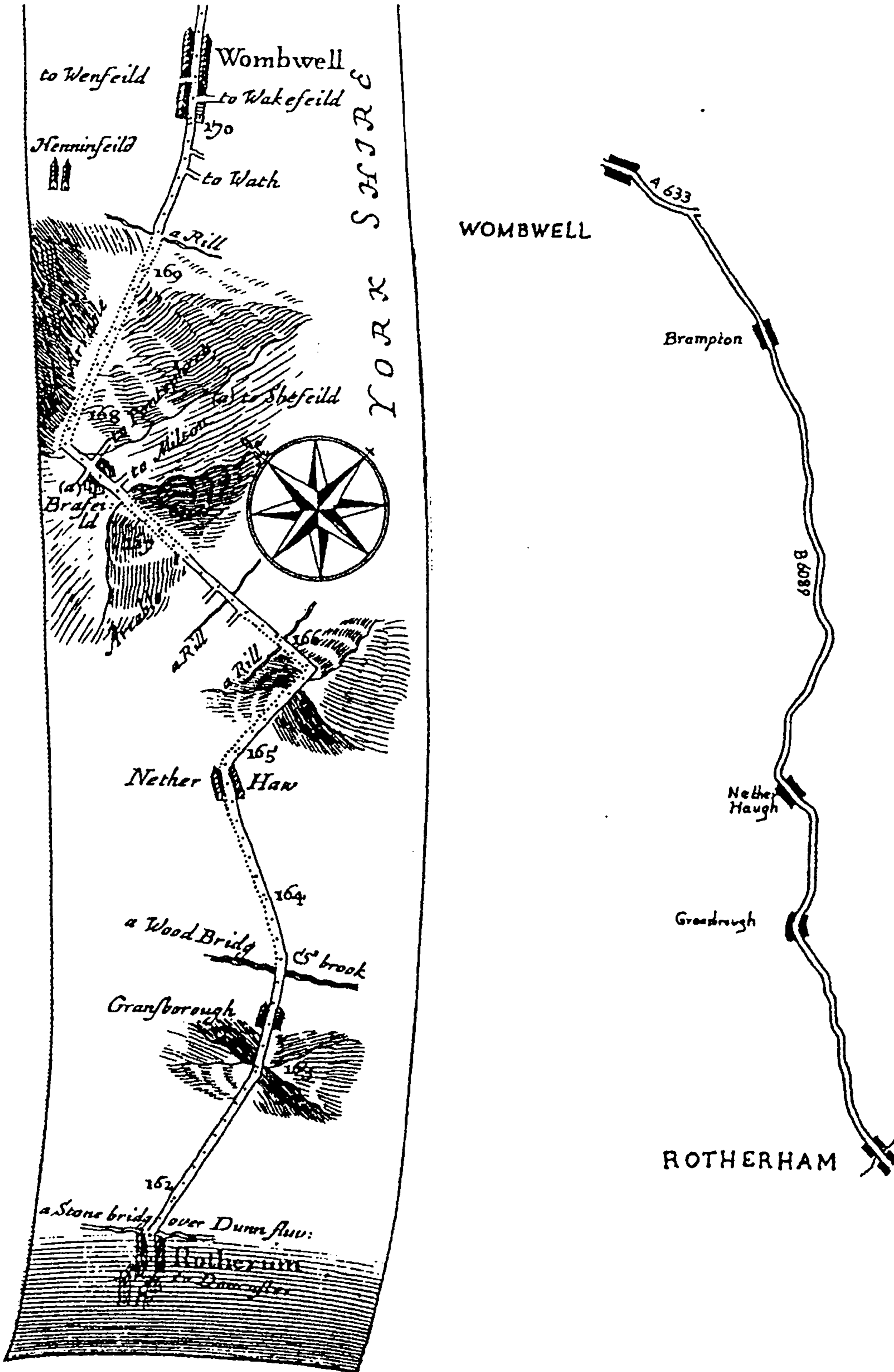
The weight of evidence suggests Ogilby's surveyors took the northern route via Pockthorpe Hall. This route is compatible with the compass bearing, with the two junctions in Great Driffield to Bridlington and Nafferton, and satisfies the hill and vale configuration shown on Ogilby's map. The unnamed building at 196'4 would be Pockthorpe Hall.¹

From Kilgram to Bridlington, Ogilby's road follows the ancient Wold Gate to a point opposite Boynton. Thereafter the map and text are ambiguous but there is no reason to doubt that the road was the same as that taken by Warburton's surveyors, namely the A166 across Gypsy Race to Bridlington.

The road taken to Flamborough Head is the direct road through Bridlington to the Quay then a path along the cliff to Sewerby and thence

1 The road, the B1249 to Kendale and then via Pockthorpe Hall, was surveyed by Warburton 45 years later even though the Warburton map incorrectly records the survey.

Figure 18 Rotherham to Brampton and Wombwell. Ogilby and the Ordnance Survey



A) Ogilby 1675, Plate 48

B) As on the O.S. 7th series 1" map

Scale: both maps 1" to the mile

on the line of the track into Flamborough and so "a direct road conveys you" to Flamborough Head. This is approximately the course today followed by the B1259.

Road 3: Killamarsh - Barnsley - Skipton - Richmond. Plates 48/9

This road extends for 109 miles. At present only some 30 miles are still classified as of 'A' standard and 20 miles as of 'B' standard. Nearly 60 miles, however, including the last 30 or so, are no more than minor roads today.¹

From Derbyshire to Barnsley

From the border to Rotherham the Ogilby road can be followed as the present A618. From Rotherham to Brampton (Brafeild) is a good illustration of Ogilby's lack of respect for planimetric accuracy (Figure 18). It is apparent, for instance, that on Ogilby's strip map (Figure 18.A) the relative positions of the villages of Wombwell, Brampton and Nether Haugh bear little resemblance to their actual positions (Figure 18.B). Fortunately Warburton's survey² is very precise and shows that the B6089 is identical to the road in 1720. With that information and use of Ogilby's mileage and details other than the direction, such as the hills and rills, it can be concluded that the B6089 is on the line of Ogilby's road. Comparison of this example and that of Leconfield (Figure 16) shows that when Ogilby ignores planimetric accuracy of roads diametrically opposed results can ensue. At Leconfield a road with a marked dog-leg bend was mapped as being straight. At Brampton on the other hand, a relatively straight road but one which curved gently westward was mapped

1 Interestingly, the change in the relative significance implied by the present day classification of the last 30 miles does not reflect the recent growth of usage by the tourist.

2 Lansdowne MS.913, ff.56-61.

with a dog-leg towards the east. This latter bend was introduced probably in order to accommodate the curved road on rather a narrow strip (Figure 18).

After Brampton, Ogilby's road follows the present B6089 and the A633 through Wombwell to Ardsey. From Ardsey to Barnsley the road, which was still partially unenclosed in 1771,¹ was the same as the present A635.

Barnsley to Halifax

This section has been followed in detail by W. B. Crump in his excellent studies of the area.² Much of Ogilby's route now consists of little more than a series of lanes. Indeed, as Crump noted, one section, from Woodsome Mill to Birks Wood has completely disappeared. It is evident that several sections of Ogilby's route between Barnsley and Halifax could not have been identified with complete confidence without recourse to the local sources used by Crump. The road is, in fact, shown correctly by Jefferys in 1771.

From Elland onwards Ogilby took an alignment through Exley and over Salter Hebble bridge to Halifax. Ogilby's road map does not provide a perfect fit with the modern road. This is partially due to a slight deviation introduced for the modern road near the present railway line just north of Elland Bridge. That Ogilby's representation is too straight is suggested not only by the evidence of Warburton's survey³ 45 years later but proved conclusively by the evidence of Saxton's 1597 large scale manuscript map of Elland Park.⁴ This manuscript map, one of the few map records pre-dating one of Ogilby's roads, shows definite kinks in the road over the bridge and past Exley Hall. Ogilby's map does not record

1 Jefferys (W.240)

2 Crump (1924) and (1949)

3 Lansdowne MS.913, ff.12-14

4 Reproduced in Evans and Lawrence (1979) plate 13

these features. These kinks mapped in 1597 can be compared precisely with both Warburton's survey and the modern road and remove any possible justification for Ogilby's straighter representation.

Halifax to Keighley

Leaving Halifax over the 'Lea' Bridge the Ogilby road follows the present A629 to the B6429 into Cullingworth. At Denholme the former line of the road, only slightly different from the present road, is shown by Jefferys in 1771. Between Cullingham and Keighley it is clear that Ogilby's road had been superseded by that date. The course of Ogilby's open road across Harden Moor has been convincingly described by Crump.¹ Nevertheless, at least the point at which the road joins the moor between Cow House and Ryecroft is clear on Ogilby's map, so that even in the absence of local documentation the approximate line could have been determined.

Keighley to Skipton

This section of Ogilby's road has been traced by another local historian, J. J. Brigg.² Ogilby's road to Steeton is clearly the road parallel to the present A629, the outcome of a turnpike improvement. Beyond Steeton the map is vague. Warburton³ shows the pre-turnpike alignment but whereas Warburton's surveyor went via Cross Hills and the 'B' road to Kildwick, Ogilby apparently cut straight across, from the brook at 215'5 miles to Kildwick. Brigg⁴ claims that this straight line, the A629, was not built until after 1675. Indeed both Warburton and Jefferys definitely record the longer route and do not indicate a direct line. Although the evidence suggests another example of directional weakness it is not conclusive. Even so, the line used by Warburton and now the 'B' road was

1 Crump (1926) pp.215-219
 2 Brigg (1927)
 3 Lansdowne MS.913, ff.232-8
 4 Brigg (1927) p.23

certainly the main road.

From Kildwick the map road can be related to the minor road through Farnhill, by Bradley Height and then approximately via the A629 into Skipton.

Skipton to Grassington

With the aid of Jefferys' 1771 map it can be demonstrated that the rather vague road portrayed by Ogilby can be shown to be the old road out of Skipton, which rejoins the B6265 a mile beyond the town and then follows the track turning off this at the present railway bridge and so to Rylstone.

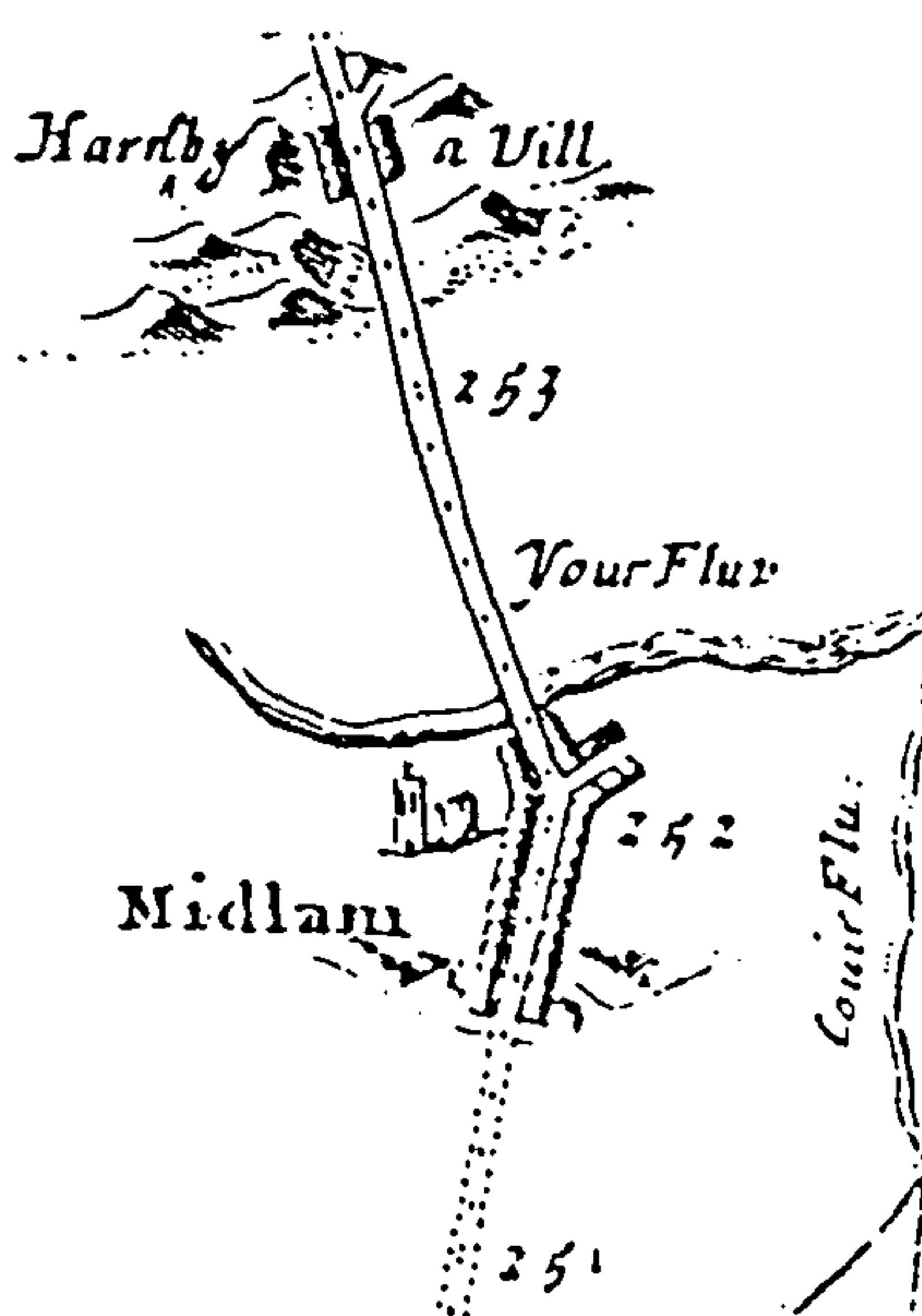
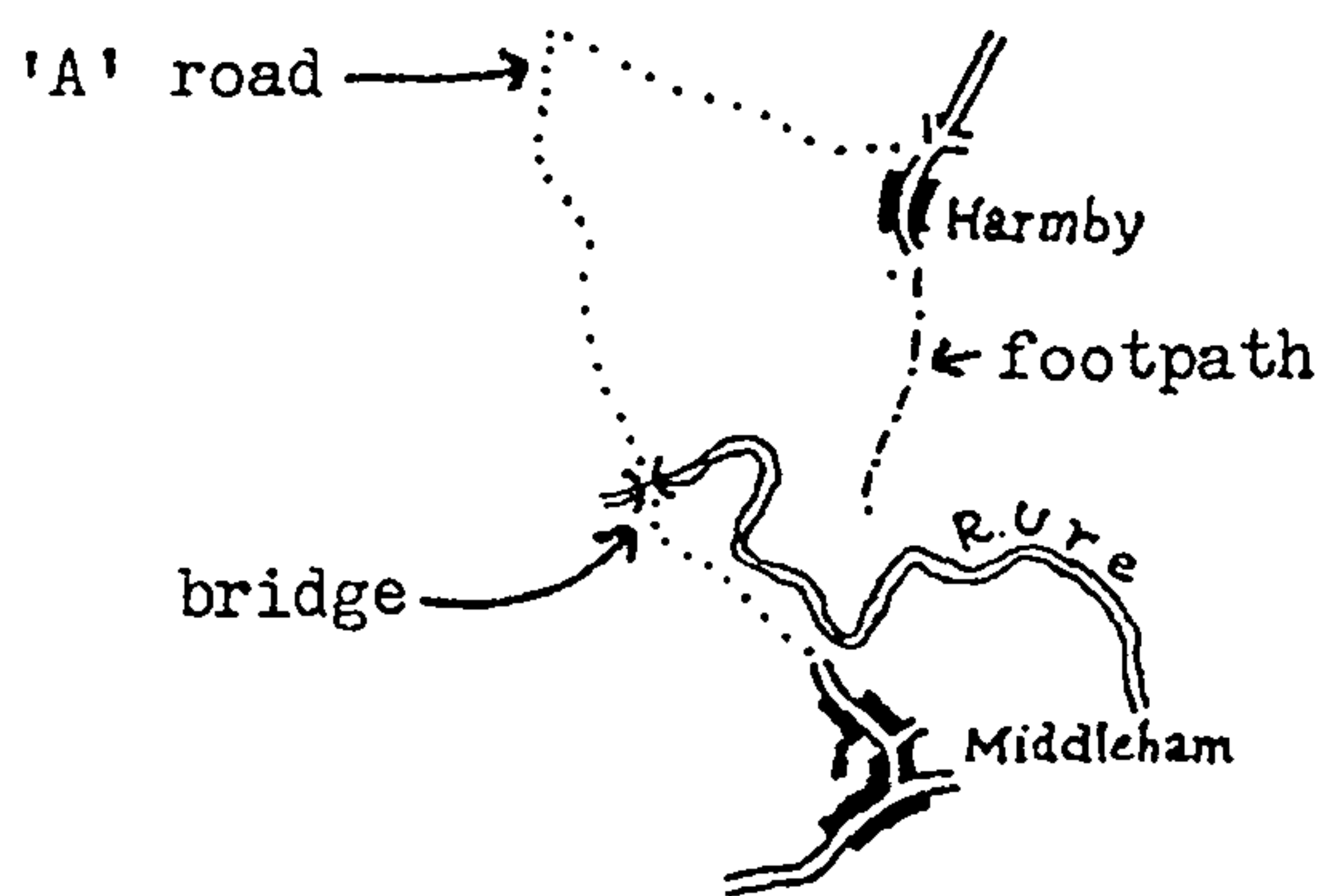
From Rylstone to Linton Ogilby's map is not good enough to depict the precise road (Figure 19.B). For example, it is impossible to reconcile either the rill at 228'6 miles or his mileage with the Ordnance Survey map. This is partly because part of the actual road is no longer extant. That Ogilby's measurement is apparently too long could be explained by assuming a failure to allow for the hills. The most probable route is shown in Figure 19.A. Given all Ogilby's information there is little scope for variation from this line. The tarn is no longer in existence but it was recorded by Jefferys in 1771.

From Linton the road is the present line over Bow and Linton bridges to Grassington.

Grassington to Kettlewell

To Conistone through Grass Wood Ogilby's road appears to take a line a quarter of a mile to the east of the present road. Thereafter to Kettlewell, the present line is clearly the same as that depicted by Ogilby.

Figure 20 Middleham to Harmby. Ogilby and the Ordnance Survey



A) As on the O.S. 7th series
1" map

B) Ogilby 1675, Plate 49

Scale: both maps 1" to the mile

Kettlewell to Middleham

In this stretch Ogilby's road follows the line of the present minor road and then the track up Park Rush and into Coverdale. As far as Agglethorpe Ogilby's depiction of hills, rills and brooks can be readily related to the Ordnance Survey map. From Agglethorpe the text refers to "a straight road over a moor", an alignment now shown as a track.¹

Middleham to Richmond

It is impossible to discover directly from the map the road shown by Ogilby as crossing the river Ure en route to Harmby. Middleham has been portrayed too close to the river (Figure 20) and the mileage as recorded demands a crossing of the river just beyond the town. Certainly the mileage is not sufficient to suggest an alignment via the site of the present Middleham bridge, which in 1675 was a ford (Figure 20.A). That there were other fords nearer to Middleham and possibly opposite the town is indicated in Leland's journal.² On his journey south from Richmond he used a ford "a little or ere I came to Middleham". Such a ford would accord well with Ogilby's general alignment. There is at present nothing more substantial than a footpath leading into Harmby from the south.³

North of Harmby Ogilby is not easy to follow but the most likely exit from the village is confirmed by Warburton's field notes⁴ as being a junction with a road leading "to Richmond". This forms at present a track and then a path leading to Intake House before following the minor road to the cross roads at 255'6 miles. This road is also recorded by

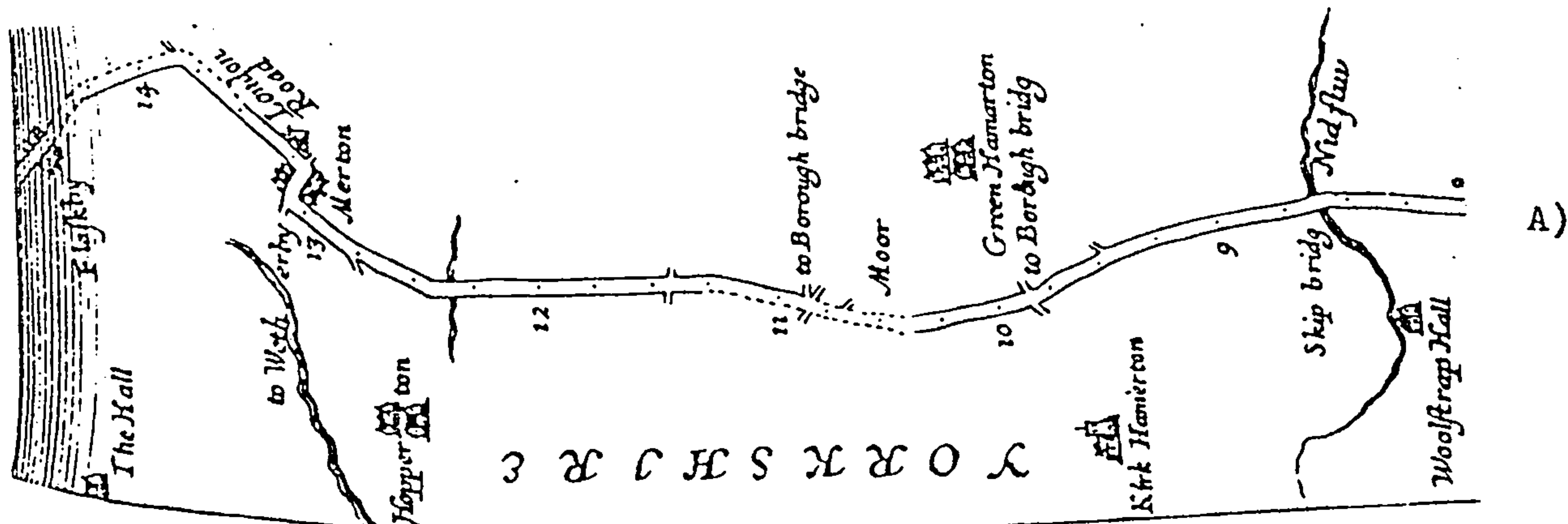
1 Warburton surveyed the last 2 miles of the road but his map erroneously keeps his road separate from that of Ogilby on this part of the route.

2 Smith (1907) Vol.1, p.79

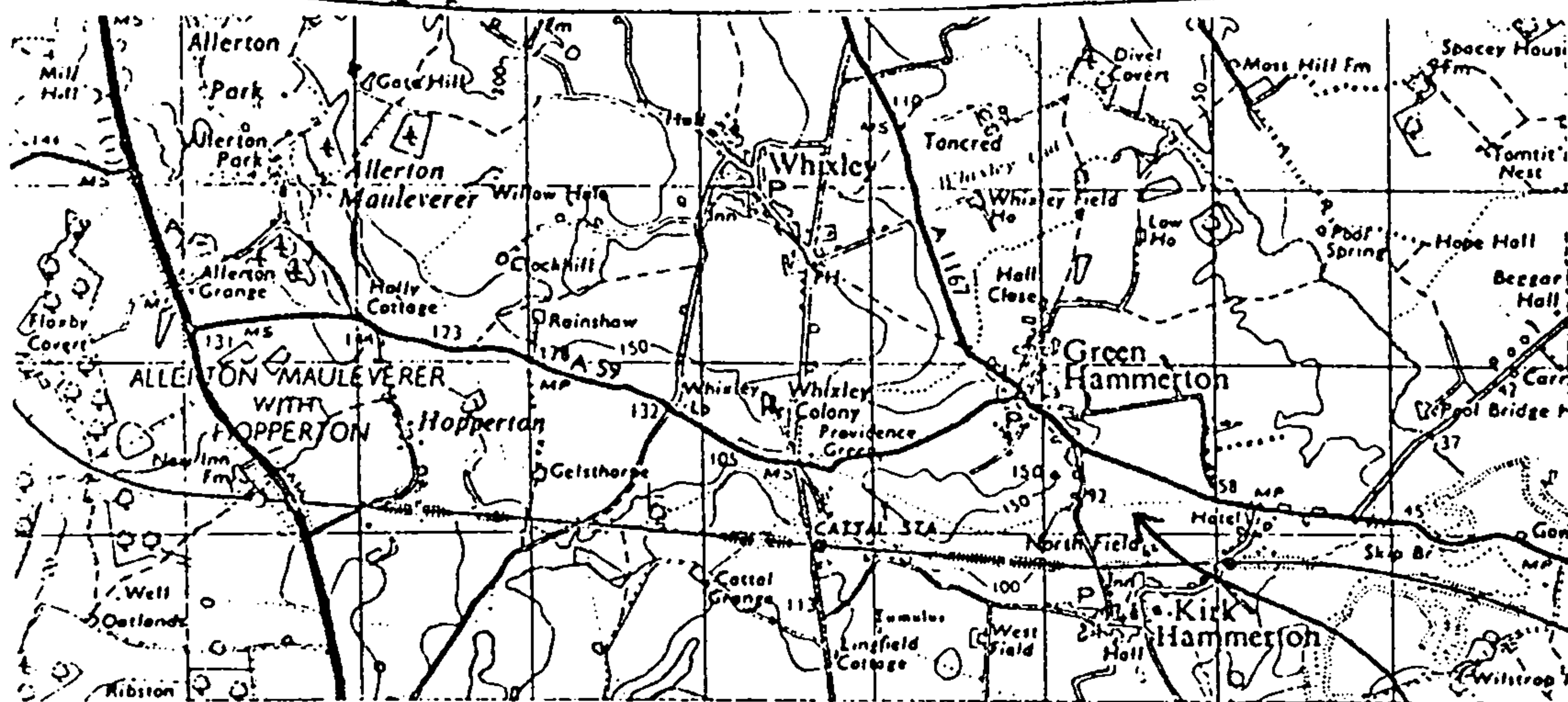
3 It is, incidentally, typical of the frustrations of historical research that the very fine manuscript map of Spennithorne just fails to extend far enough to the west to cover this route. N.Y.R.O. 1715. M.36.

4 Lansdowne MS.895, f.208

Figure 21 Skip Bridge to Allerton Mauleverer. Ogilby and the Ordnance Survey

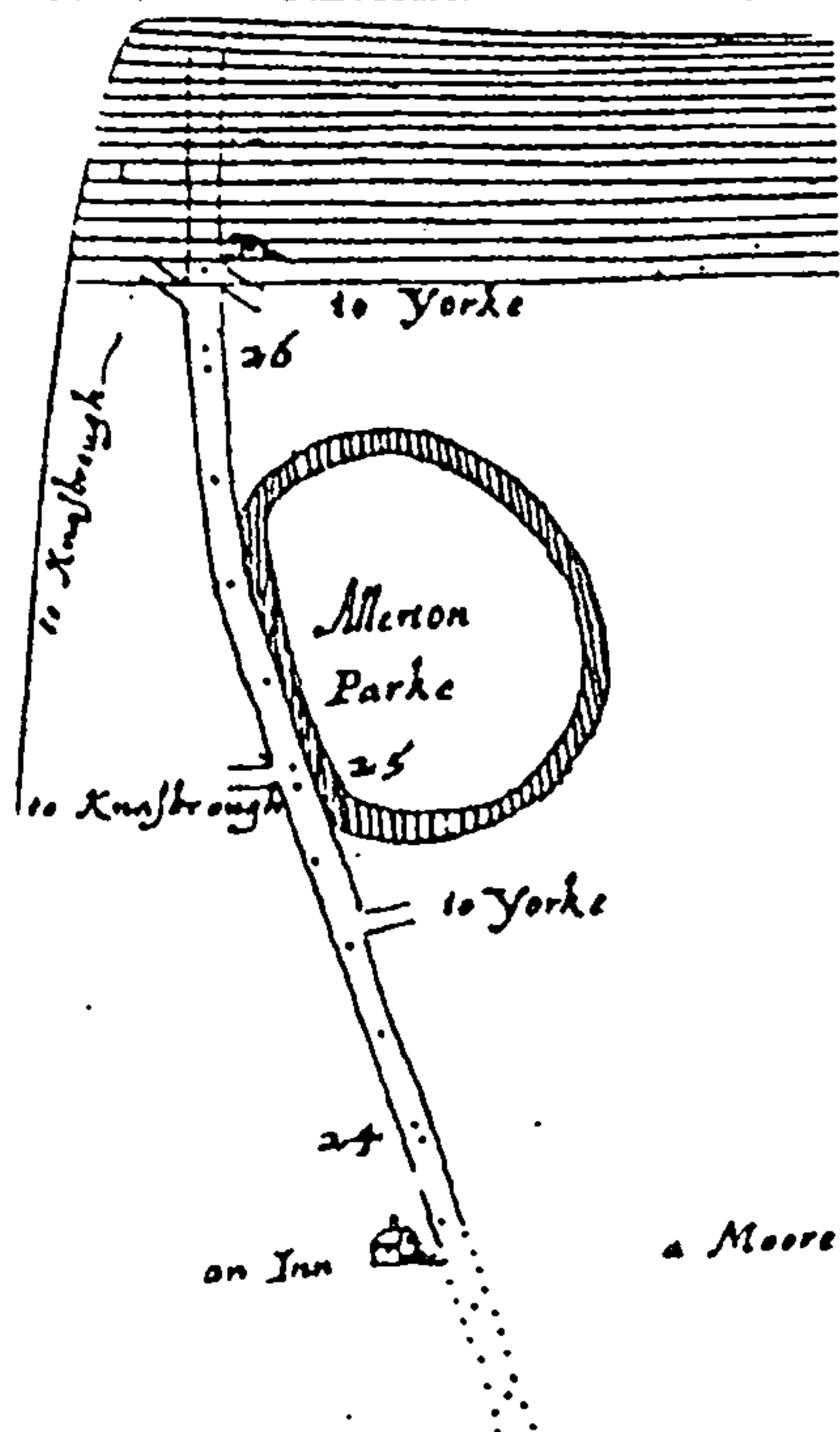


A)



B)

Ogilby's road to Providence Green



a Moore

C) Ogilby 1675, Plate 95

A) Ogilby 1675, Plate 88

B) O.S. 7th series 1" map

Scale: all three maps 1" to the mile

Jefferys in 1771. From the cross roads to Richmond the present most direct road is the same as that which the surveyors followed. The rills and hills on the road and the junctions all fit this road and comparison with the similar road on Jefferys' map shows a good agreement along the open and enclosed sections.

Road 4: York towards Lancaster. Plate 88

The first nine miles of this road to a point beyond Skip bridge is the same as Road 1, now the A59.¹ This road was also surveyed by Warburton² in greater detail, thus confirming that the present road is on the same alignment as Ogilby's road.

More significantly, Warburton's survey which continues beyond to Green Hammerton helps to confirm the accuracy of Ogilby's route between Kirk Hammerton and Green Hammerton because Warburton's survey records the crucial turning "to Knaresborough". This section of the road is no longer in being (Figure 21.B). It was not even shown by Jefferys but clearly followed the parish boundary to Providence Green where it rejoins the line of the modern A59. Ogilby's road then follows the present A59 and reaches the modern A1 via the minor road to Allerton Maulverer. Thereafter it went up the A1 and thence along the A59 to Flaxby.

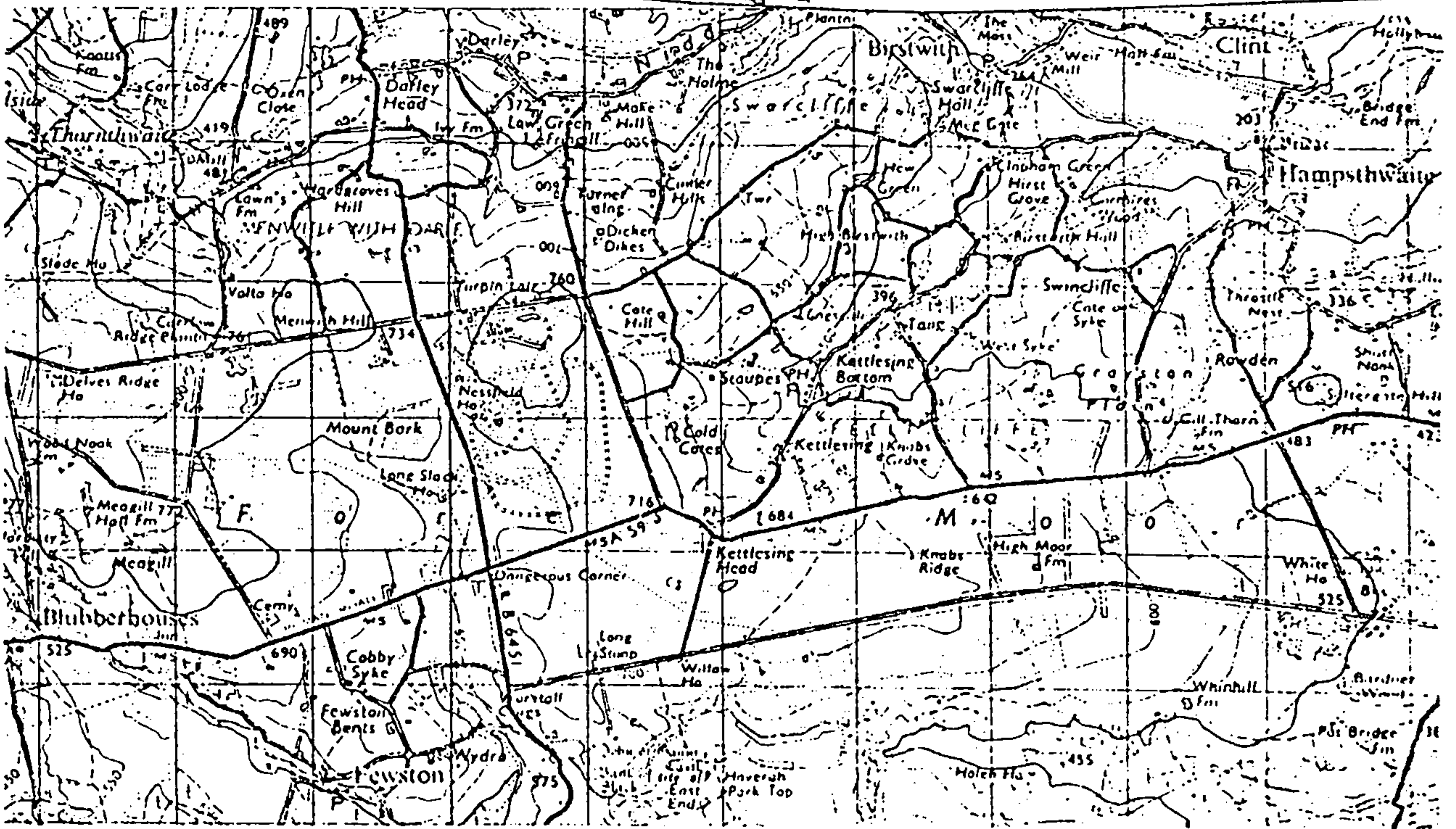
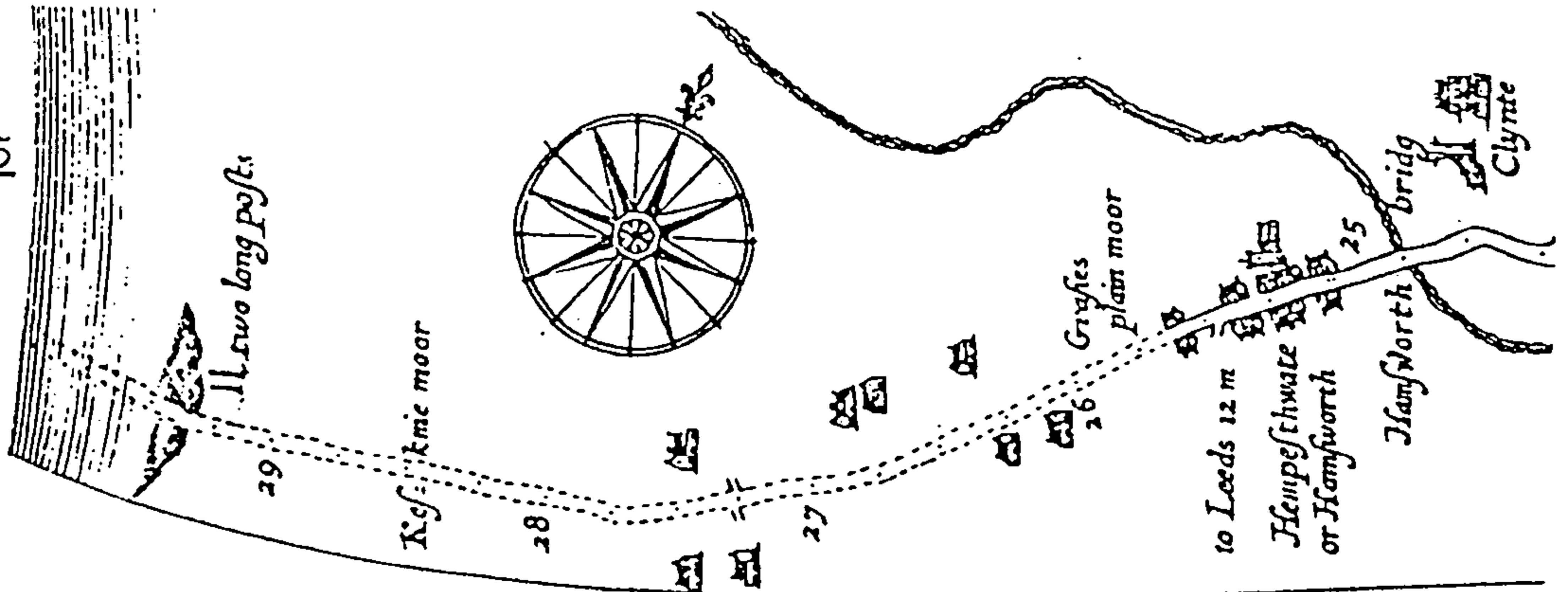
For the route through Allerton Maulverer Ogilby provides contradictory information. That Ogilby's road went through the village and did not cross the park rests not only on the mileage but on three textual entries. These were as follows: the comment that "you fall in with the London Road"; the adoption at 13'7 miles of a new bearing given as "west"; and the indication at the same point that the road to Boroughbridge was one to be avoided. The junctions on Ogilby's other road in this area, which is the

¹ Vide supra p.160

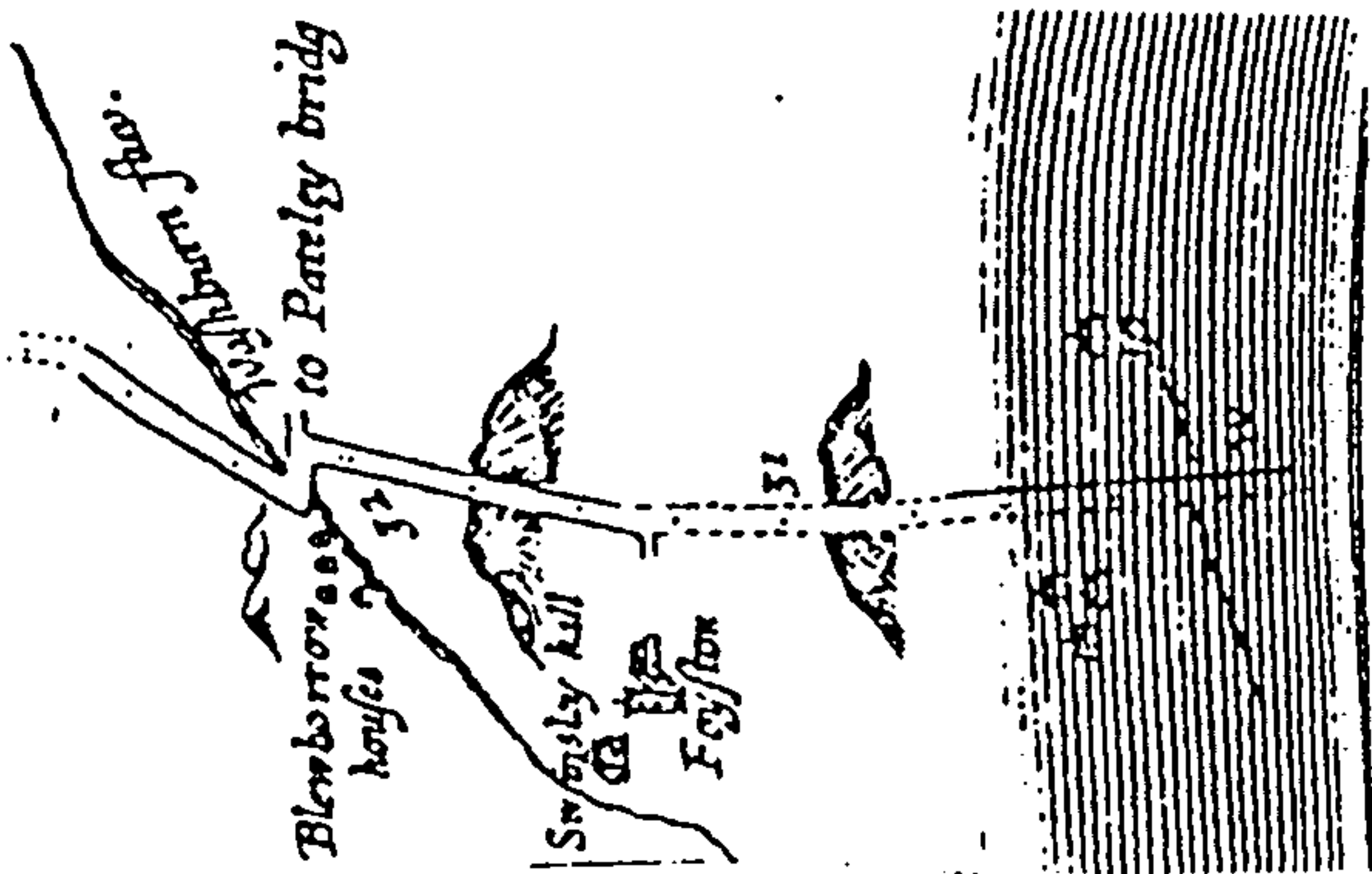
² Lansdowne MS.895, f.226-7

Figure 22 Hampsthwaite to Blubberhouses. Ogilby and the Ordnance Survey

A) Ogilby 1675
Plate 88



B) O.S. 7th series 1" map



C) Ogilby 1675, Plate 88

Scale: all three maps 1" to the mile

present A1 (Figure 21.C) also show clearly that the alignment through Allerton Maulverer was as stated. Off the A1 on to the A59 through Flaxby to Knaresborough Ogilby's road is on the line of the present main road.

From Knaresborough to Ripley the map fits the present B6165. Comparison with Warburton's field book¹ and Jefferys' map of 1771 suggests that this section has been slightly straightened since 1771.

Between Ripley and Hampsthwaite bridge the present minor road fits a stretch extending to within half a mile of Clint. The final half mile comprises a footpath and then the minor road immediately prior to the bridge.

Hampsthwaite to Blubberhouses

Two later works, a 1767 sketch map of the Forest of Knaresborough² and Jefferys' 1771 map of the county, leave no doubt that the basic reason that present investigators are unable to interpret and fix Ogilby's road between Hampsthwaite and Blubberhouses (Figure 22) is that even at the later dates there was no obvious well marked road linking these two places. Nevertheless, had the survey given more details a more precise alignment than that given below could have been elucidated.

Two possible routes are recorded by Jefferys, both recognizable in a modified form on the Ordnance Survey map. Paradoxically however, neither agrees with Ogilby's representation. The 1767 sketch map, drawn for a legal purpose, is planimetrically inadequate but it is very detailed, showing individual houses and enclosed plots of land.³ The sketch does reveal

1 Lansdowne MS.912, f.184

2 "A Sketch of the boundary of Knaresborough Forest" Leeds Ref. Lib.MYK728(1767)

3 To locate all these places and features with the aid of the Ordnance Survey first edition 6" map would be possible but extremely painstaking.

that the area concerned, north of Haverah Park, was a patchwork of enclosures varying in size within the largely open terrain. In consequence there were many possible lines that Ogilby's surveyors could have followed.

Ogilby's text provides three additional items of information not on his map. The first is a bearing 'west' at 27'6 miles and the other two are villages, 'East-End Houses' and 'Straling', on the left of the road when travelling west. Together with the map, this information suggests an alignment that crosses Grayston Plain in an apparently straight line over the A59 across Knabs Ridge, turning 'west' onto the straight road past Long Stoop - the site of Ogilby's poles - with East End close to the left, and then from there to Blubberhouses. Grainge¹ noted that a stoop still existed close to Stoop Farm in 1871.

Blubberhouses to Skipton

From Blubberhouses, the old road used by Ogilby's surveyors, is clearly extant as an alignment north of the A59 for about 3 miles until the old and new roads converge. This section is called "Gaisgill Causeway" on Jefferys' 1771 map. From there through Bolton bridge to Skipton the line is that of the A59. On Warburton's road plot² from Skipton to Pateley Bridge, Ogilby's road is recorded as a turning "to Ripley".

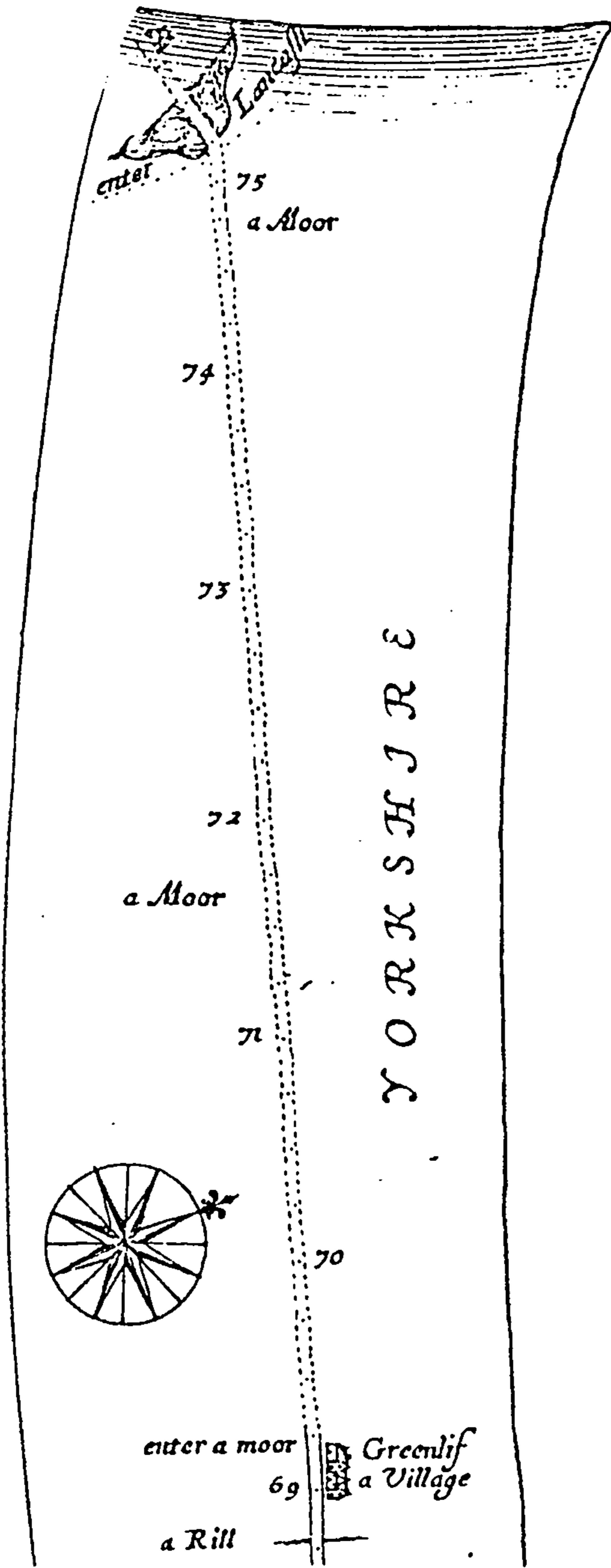
Skipton to Settle

Out of Skipton the old road used in 1675 can be followed via Sturton and Thorlby to the A65 into Gargrave and so to Coniston Cold. On the map and in the text it is recorded that the road then went through Hellifield

1 Grainge (1871) p.490

2 Lansdowne MS.895, f.203

Figure 23 To the Lancashire Border: Ogilby



Scale: 1" to the mile

Peel to Long Preston, an alignment not even hinted at today. Warburton's field notes¹ show almost the same line as the present road which passes through Hellifield, leaving Hellifield Peel well to the left of the road. The evidence points to Ogilby's reference to the 'Pele' as being an error.

From Long Preston to Settle Brigg's² study provides additional detail. It is, however, very clear from Ogilby's map that his road cuts straight over the hills and is not on the line of the present A65. The actual track is almost certainly the same as the one followed accurately by Warburton's surveyor.

Settle to the Lancashire Border

From Settle through Lawkland and to Clapham, Ogilby's map is not precise enough to prove the exact alignment but comparison with Warburton's survey³ shows that the road could not have deviated very much from the present minor road through Giggleswick and Lawkland and so to the A65 into Clapham.

Between Clapham and the border Figure 23 shows how few clues Ogilby's map provides for interpretation. In fact there are only four. The first 'Greenlif' (Green Close) confirms that the road led there approximately along the course of the B6408 out of Clapham. The second is a bearing given at the border. This bearing, with the third clue, the fact that the road descends from that point to Wennington, fixes the course of the road at the border. The fourth clue is simply that nothing is recorded between Green Close and the border. The text, however, is graphic: "at 69 miles leave Greenby (sic), a village contiguous on the right, and enter a moor. Hence at 75 miles you descend a hill and enter Lancashire".

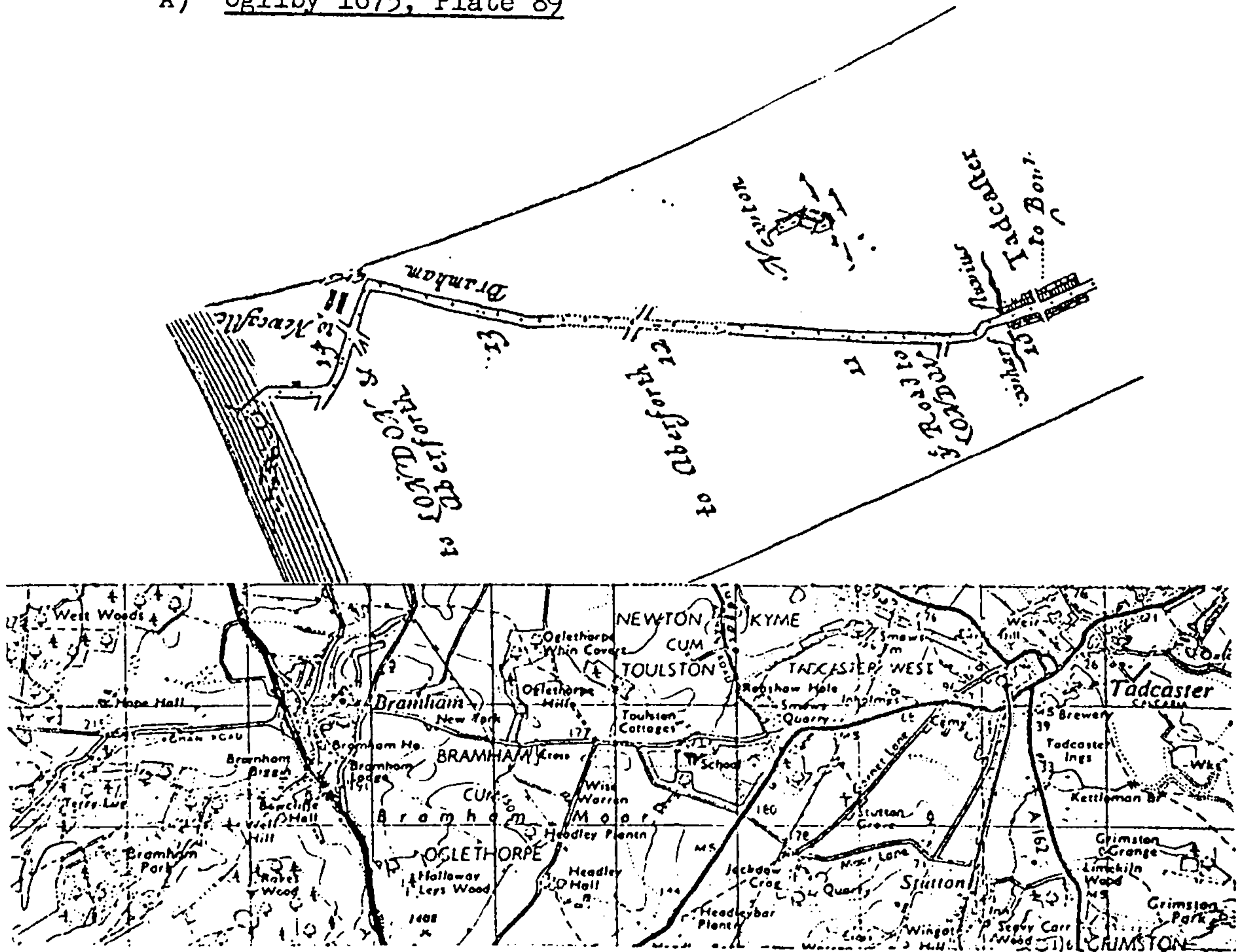
1 Lansdowne MS.912, ff.343-6

2 Brigg (1927)

3 Lansdowne MS.912, ff.343-6

Figure 24 From Tadcaster through Bramham towards Thorner.
Ogilby and the Ordnance Survey

A) Ogilby 1675, Plate 89



B) O.S. 7th series 1" map

Scale: both maps 1" to the mile

The whole of the moor section cannot be positively traced on either Jefferys' 1771 map or the Ordnance Survey maps. The final portion, some two-thirds of this moor section, is however, almost certainly the Ordnance Survey minor road also mapped by Jefferys as extending from Nookdale House to the border. This leaves about $1\frac{3}{4}$ miles across open moor from Green Close which at present defies identification.

Road 5: York towards Chester. Plate 89

From York to Tadcaster the road is the same as on Plate 7, the A64.¹

Tadcaster to Leeds

The first part from Tadcaster to Thorner (Figure 24) is one of the most complex of the problems posed by Ogilby's maps of Yorkshire. The problem arises from three circumstances. First, the route on either side of Bramham Park has been substantially altered since 1675. Second, Ogilby's representation of the village of Bramham is difficult to interpret. Third, comparison of this road with Ogilby's Ferrybridge to Boroughbridge road² shows the York to Leeds cross roads at a different point to the south of Bramham.

Warburton did not survey this section and his map is in error here but Jefferys' 1771 map provides sufficient evidence to confirm Ogilby's line. Further, in 1786 Teal³ surveyed and produced a plan of the turnpike road and the "Ancient King's High Way" from Leeds to Tadcaster.

Jefferys' map confirms that the present direct road to Bramham from

1 Vide supra. Figure 8 p.132

2 Plate 95

3 Leeds Reference Library. M.42743(1786)

Tadcaster was hardly altered by enclosure and clearly Ogilby's road is basically the same. At Bramham the text provides two clues instructing the traveller to leave Bramham on the right and to avoid the road to London just beyond that point. Thus the textual notes suggest that the problem of interpreting the map is caused by an engraver's error which put the London turn at 13'7 not 14'2 miles (Figure 24.A). This error is corrected in manuscript on Ogilby's strip map included in Warburton's collection for Yorkshire.¹

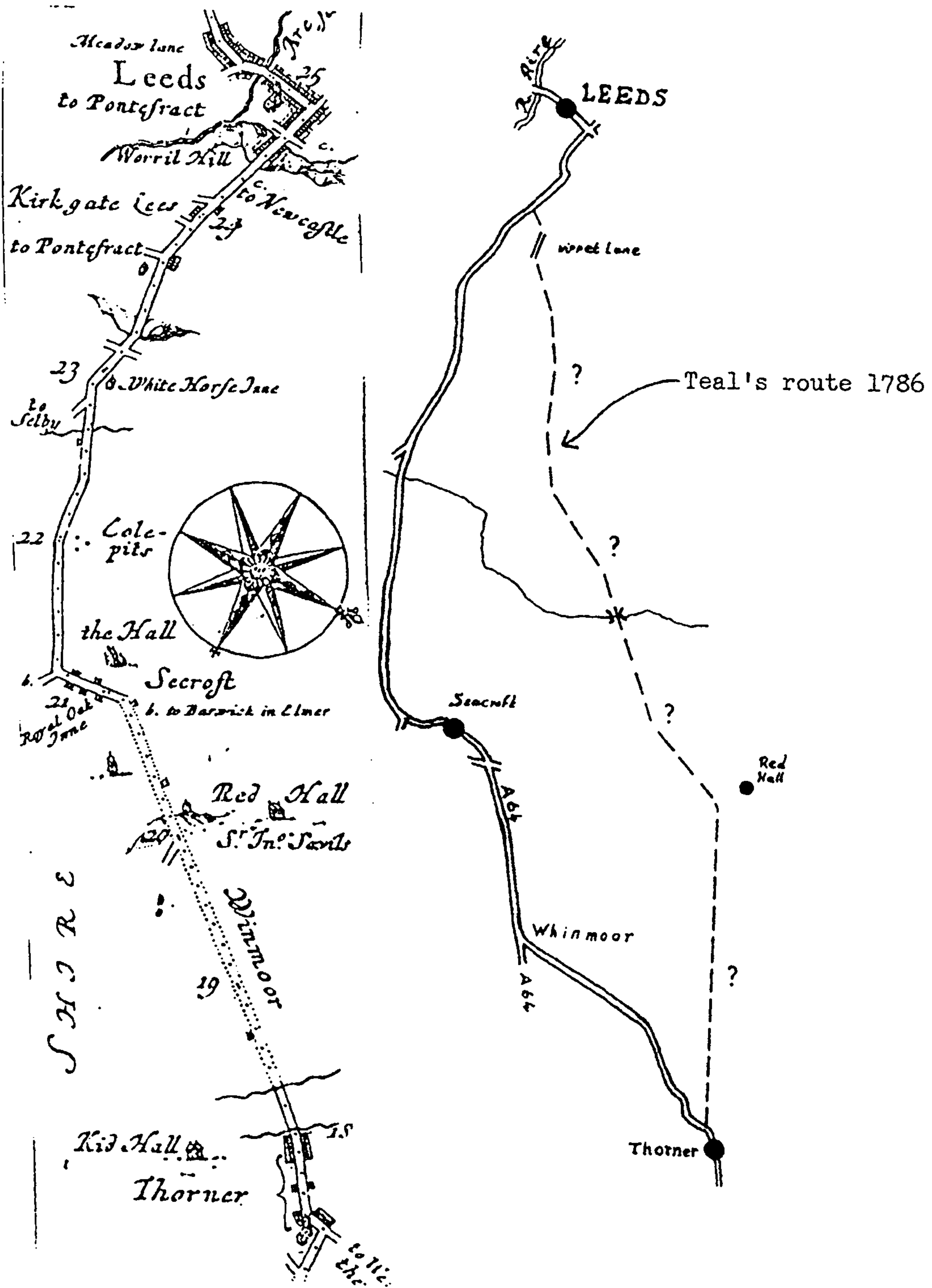
This evidence shows that Ogilby's road follows the minor road to the A1 immediately before Bramham and then crosses the A1 to the lane past Bramham Biggin into the present Bramham Park which was then moorland. Comparison of Jefferys' 1771 map and Teal's 1786 map and the present road through the park permits Ogilby's road to be identified as follows. From the A1 to the end of the woods immediately after crossing the stream the present line is Ogilby's road; part of this is shown by Ogilby as being enclosed. From this point the old road curved to the north of the present drive to join the lane on the edge of the park leading directly to the track and lane into Thorner.

On both Jefferys' map and on Teal's "King's Highway" road map not only is this half mile diversion clear but the relationship of the park boundary, the surrounding moor and the road towards Thorner gives no reason for doubting that this half mile in front of the Hall was the only length of road affected by the emparkment.

From Thorner to Seacroft, Jefferys' map shows that the pre-enclosure route was very similar indeed to the present straight roads, that is, it was partly a minor road, then on the A64 and finally the old road to Seacroft.

¹ Lansdowne MS.895, f.229

Figure 25 Thorner to Leeds. Ogilby, Teal and the Ordnance Survey



A) Ogilby 1675, Plate 89

B) As on O.S. 7th series 1" map and Teal's 1786 map

Scale: both maps 1" to the mile

Ogilby's mileage shows that he could not have cut straight across Winn Moor as the map implies. From Seacroft to Leeds, Ogilby's road follows the line of the A64 except where that now deviates from the old road. Ogilby's detail is sufficient to show that in Leeds the Headrow was followed to the head of Briggate and thence down to the bridge over the river Aire.

Surprisingly, Teal's map (Figure 25.B) does not give this route from Thorner to Leeds as his 'King's High Way' but one from Thorner to Red Hall, over Wyke Beck at 'Roundhay Bottoms' and so by Coldcotes and down Nippet Lane into the town centre. This road was not shown in its entirety by Jefferys in 1771. Teal surveyed this 'King's High Way' as being distinct from the turnpike which he also surveyed. Thus it raises the question of what relationship there was between Ogilby's road and the "King's Highway". If Teal's designation was correct in 1786 there is the possibility that unless the title "King's Highway" was not confined to any one specific road between two places, then Ogilby's road was not, in fact, the King's Highway route in 1675.

Leeds to Elland

Meadow Lane¹ is named as the road out of Leeds and this line can be readily extended through Beeston to rejoin the A643. Only the slightest deviation in Birstall prevents Ogilby's road map from fitting the 'A' road. From there, however, the 'A' road is on the same line over Hartshead Moor to Brighouse bridge. Thence to Elland Ogilby's road follows the old road down Elland Lower Edge. Crump² describes the section from Hartshead Moor in great detail.

1 Since slightly altered

2 Crump (1926) pp.219 et seq.

Elland to the Lancashire border

From Elland to Ripponden Ogilby's map road is basically the same as the B6113 save that there is now a straighter road down the hill into Ripponden. The rills shown on the map are obviously wrong and comparison with Jefferys' 1771 map gives just cause for questioning the accuracy of the open and enclosed sections. Jefferys' map also suggests that the road has been straightened slightly since the end of the eighteenth century.

There is no doubt, however, that the section from Ripponden to Batings Inn is the minor road as shown by Jefferys.

Over Blackstone Edge the interpretation of Ogilby's map is confused by the fact that the mileage recorded is unquestionably about one mile too short between Batings Inn and the Edge. A possible explanation could be that this represents an exaggerated attempt to adjust the length of the road to allow for the steepness of the edge.

From this Inn, Ogilby's route can be traced on the 'A' road before it bears onto the present bridle path to the Roman road. That the road over the Edge was definitely the Roman road and not the present line, a turnpike improvement, is best confirmed by Ogilby's very clear representation of the Edge as a hill rising sharply from both sides of the border. Had the present alignment been used the level section of nearly one mile before the descent into Lancashire would have been shown on Ogilby's map. The text supports this view. Thus from Ripponden "at 47'2 you ascend Blackstone Edge a great Eminence at the Top whereof you enter Lancashire, and descend again ..." Crump,¹ with the benefit of detailed local knowledge, comes to the same conclusion that Ogilby's route was on the line of the Roman road.

1 Crump (1926) p.246

Road 6: Ferrybridge to Barnard Castle. Plate 95Ferrybridge to Wetherby

Despite Ogilby's erroneous reference to Ledstone Hall it is clear from the mileage and the hill representation to Old Micklefield that the road follows the line of the minor road into Brotherton and then the A1 to the point where that road now by-passes Micklefield. The A1 has, however, been slightly altered as, for example, through Fairburn and at the A63/B1222 junctions. Beyond Micklefield Ogilby's road rejoins the A1 as far as the junction with the A656, and thereafter the road follows the Roman road through Aberford, now a minor road.

Across Bramham Moor the road, still shown as open by Jefferys in 1771, is roughly the same as the A1 to Bramham but goes through the village and so back on to the A1 to Wetherby. Remarkably, both the text and the map record turnings to Tadcaster going westward rather than eastward.

Wetherby to Walshford

Ogilby's road can be followed on the present B6164 through Wetherby and then on the A1 to Walshford. Comparison with Warburton's survey¹ and Jefferys' 1771 map suggests that Ogilby's map fails to record a kink in the road just before Walshford and that beyond the river Nidd the old road lies to the left of the A1. At the Hunsingore junction, which was used by Warburton's surveyors, the note "to Boroughbridge" is given in the direction of Ogilby's road.

This section is another example of the effect of strip width in enforcing an incorrect road alignment.

1 Lansdowne MS.915, ff.65-73

Walshford to Boroughbridge

From Walshford past Allerton Maulverer Park comparison of the mileage and junctions proves that the line is the same as the A1. From the park, with the exception of the minor deviation past Ninevah and the minor road entry into Boroughbridge, the A1 represents Ogilby's road.

Boroughbridge to Ripon

Ogilby's road can be followed along the B6265 to Kirby Hill and then on an earlier version of the same road to Ripon. Errors prevent an exact fixing of this section. The road is just over half a mile short. From Kirby Hill to near Hewick it is shown as open by Ogilby. By 1771 Jefferys' map depicts only the first part as open but that road was the same as the present enclosed line. Thus the Ogilby road could not have differed much from the present line.

Ripon to Leeming

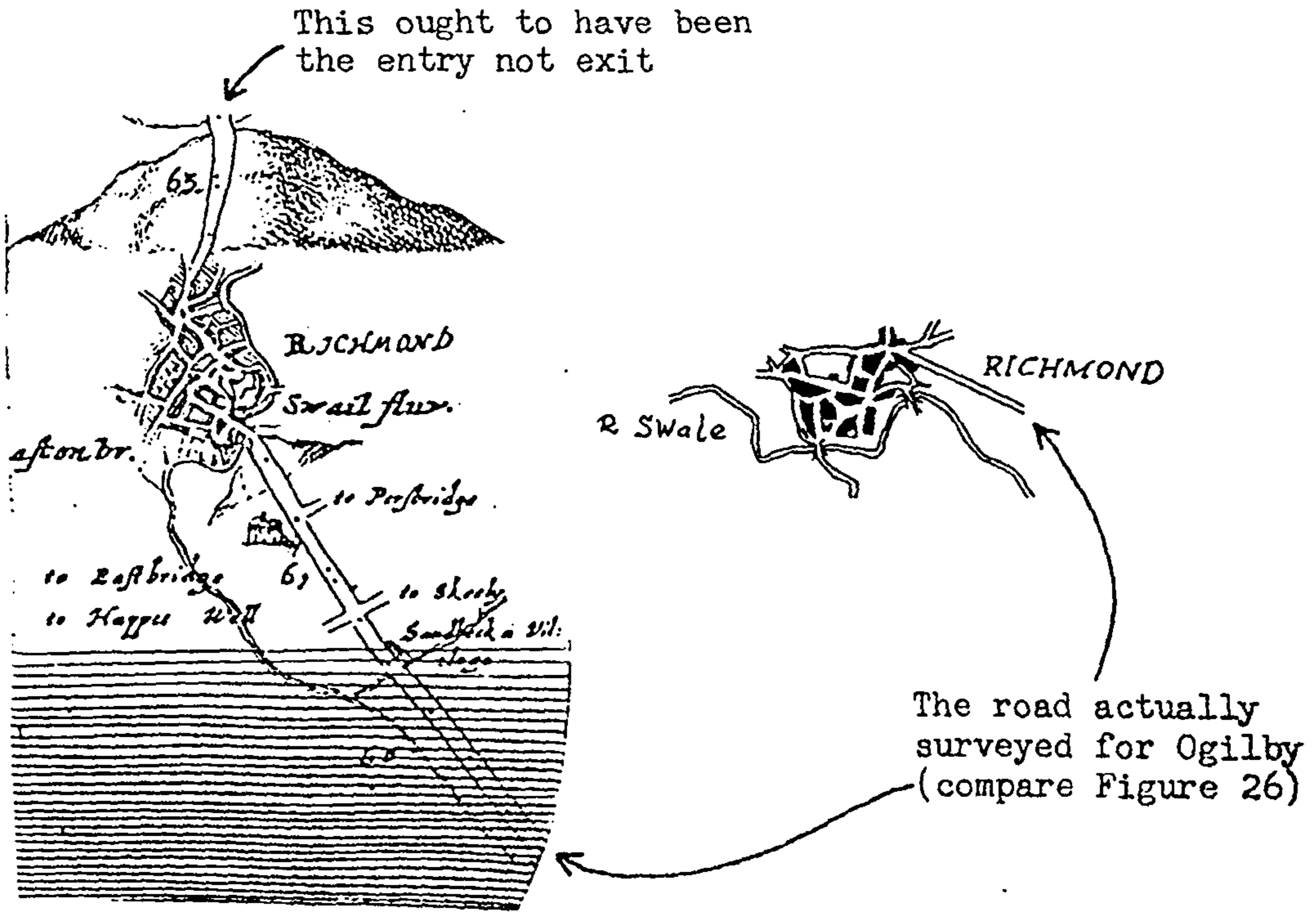
From Ripon Ogilby's road follows the A61 over the river Ure and then the minor road through Hutton Conyers and Wath and past Middleton Quernhow onto the A1. Again comparison of mileages and Jefferys' 1771 map affirms that the road was the same as now. The road continued on the A1 until that left the Roman road taken by Ogilby's surveyor, now a minor road straight into Leeming.

Leeming to Richmond

Beyond Leeming Ogilby's road follows the minor road east of the A1 which it rejoins at the 'T' junction (Figure 26.B). Since Warburton also surveyed this route¹ in preference to the direct line of the Roman

1 Lansdowne MS.895, f.166

Figure 27 The entry into Richmond. Ogilby and the Ordnance Survey



A) Ogilby 1675, Plate 95

B) As on the O.S. 7th series 1" map

Scale: both maps 1" to the mile

road it seems that this direct road was not in general use.

From the 'T' junction Ogilby's road remains on the Roman road, now the A1, for only one mile before turning east just before Oran on a line now obliterated by the airfield and so by a bridle way into Catterick. This deviation from the straight Roman road is also recorded as the main road by Warburton in 1720 and as the turnpike by Jefferys in 1771.

From Catterick to Catterick Bridge Ogilby's road is on the A6136 and then the B6271 to Richmond. This junction is another clear illustration of Ogilby's complete failure on some sections of the strips to depict the true road alignment (Figure 26).

The entry into Richmond as shown by Ogilby (Figure 27.A) is impossible. It is a blatant cartographic error.¹ Ogilby's map in Figure 27A ought to fit onto the strip in Figure 26.A but, as mapped, Richmond is recorded both upside down and on the wrong bank of the river Swale. Fortunately there is sufficient information on the strip to confirm that the line is that of the B6271. This is also confirmed by Warburton.²

Richmond to Barnard Castle

Like the entry into the town, the exit is also a cartographic error³ (Figure 27). It is clear that the road is, in fact, the present minor road towards Ravensworth. Ogilby's route turns off this road through Kirby Hill but the actual junction is not clear. The mapped information is, in fact, contradictory. Except for the position of Kirby Hill church there would be little doubt that the road was the same as today. Comparison with Jefferys' 1771 map suggests that Ogilby could have been on the footpath cutting across from just south of the present junction.

1 Vide infra pp.221, 222

2 Lansdowne MS.895, f.166

3 Vide infra pp.221,222

Beyond the village and past Gayles to the A66 at Smallways bridge Ogilby's map and text fit the present minor road with the possible exception that on the section parallel to the Dalton and Newsham lane, Ogilby's road was straighter.

From the bridge to Greta Bridge Ogilby's mileage is too short but is, nevertheless, clearly on the A66 line. From Greta Bridge Ogilby's road is the minor road branching out of the A66 past Rokely Park and Egglestone Abbey. The abbey, however, is wrongly located by Ogilby.

The text and map suggest that the road continued close to the river Tees, possibly on the line of the present path to the bridge and hence over to Barnard Castle in Durham. The information is not detailed enough to prove this section conclusively without further information. The present minor road is the only route depicted by Jefferys in his map of 1771.

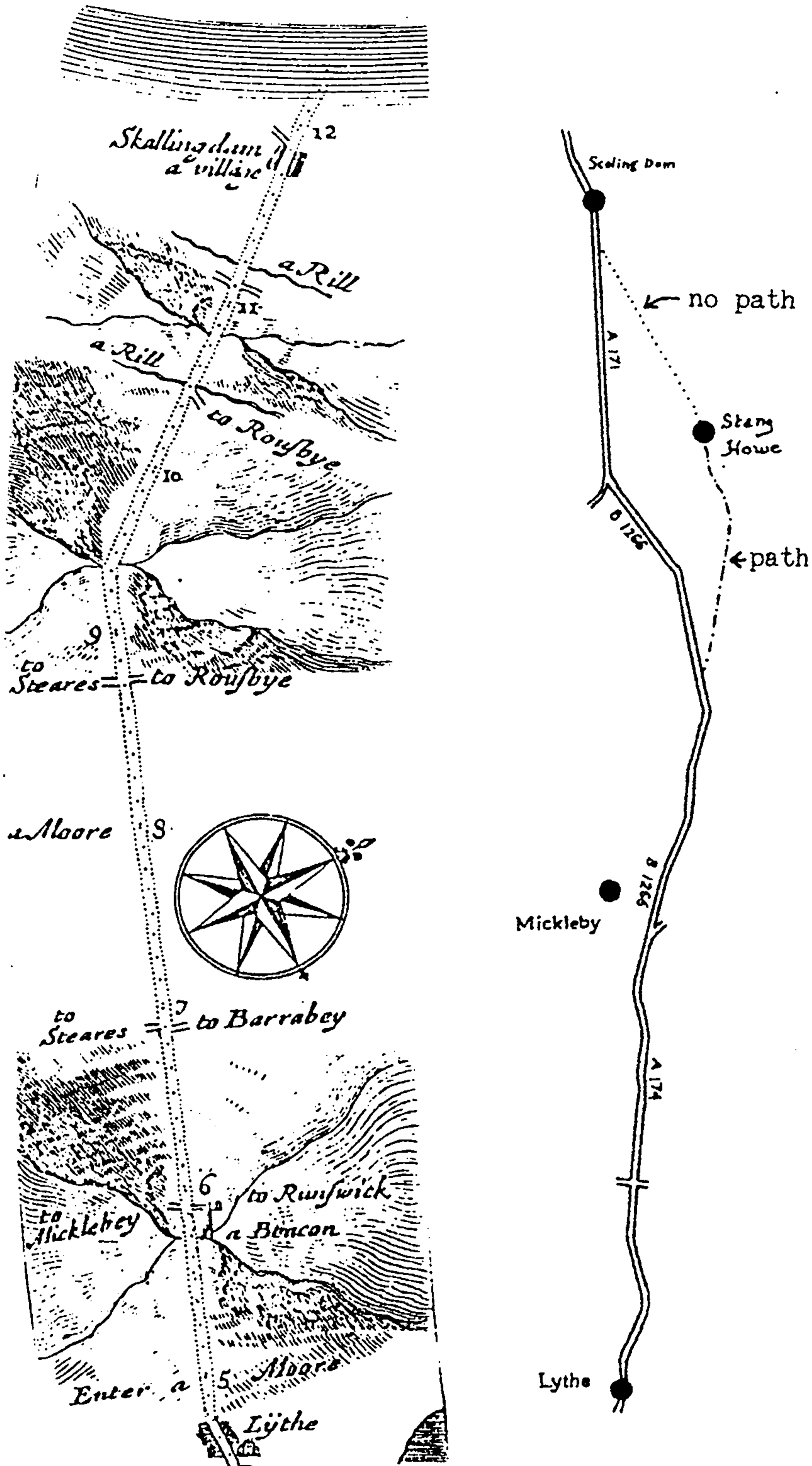
Road 7: Ferrybridge to Wakefield. Plate 95

From Ferrybridge to Pontefract Ogilby's line closely follows the present minor road. Between Pontefract and Wakefield the way is less obvious. Comparison with Warburton's survey¹ and with Jefferys' 1771 map shows that the following alignment must be basically correct.

From Pontefract the lane named Monk Road by Jefferys between the A656 and B6134 which becomes the B6421 for half a mile is Ogilby's road. Thence the road cannot be found but the alignment is shown definitely by Warburton as cutting across to the A645 at about the junction with the B6133. From there the cartographic information is not detailed enough to say more than that Ogilby's road roughly fits the minor road through Streethouse to the A655. The A655 then clearly fits the Ogilby line into Wakefield.

¹ Lansdowne MS.913, ff.132-136

Figure 28 Lythe to Scaling Dam. Ogilby and the Ordnance Survey



A) Ogilby 1675, Plate 99

B) As on the O.S. 7th series 1" map

Scale: both maps 1" to the mile

The inclusion of this short route from the London road to Wakefield can be seen as evidence of the importance of Wakefield at that date as a coaching base. The use of the Wakefield coach is recorded frequently by the diarists. For example, Sir Walter Calverley¹ used that coach twice in 1695, though he also took the coach from Ferrybridge. James Fretwell² travelled on the Wakefield coach in 1718/19. Ralph Thoresby³ took the London coach from Wakefield in 1723. A final example is John Hobson⁴ who notes it was at Wakefield that he met his sister off the London coach in 1725/6.

Road 8: Whitby to Stockton. Plate 99

Much of this route was mapped very poorly, thus making interpretation very difficult. Fortunately, all but the last 7 to 8 miles can be directly compared with Warburton's surveys but even so 4 miles remain unidentified.

From Whitby Ogilby's road ran down to the shore, continuing on the sand as far as Sandsend and then up the A174 line to Lythe.

From Lythe to Scaling Dam there is no doubt that Ogilby's map is erroneous (Figure 28.A). The destinations given at the various cross roads are impossible. For instance, two of the southward turnings point to Staithes which is to the north on the coast. Barnby is also on the wrong side of the road and the position of Mickleby is not reasonable. If guides were used they clearly failed in their duty to the surveyors. Thoresby⁵ followed this general route in the opposite direction in 1682

1 In Margerison (1886) pp.65 and 68
 2 In Newton (1877) p.193
 3 In Hunter (1830) Vol.2, p.349
 4 In Pashley (1877) p.247
 5 In Hunter (1830) Vol.1, p.144

and refers to the "bad moors" to Guisborough and then "the rotten moors for many miles without anything observable ...". That second comment would help to explain the weakness of this section of the survey.

Warburton's surveyors coped rather better on this route; both Smith¹ and Bland² surveyed the route separately in opposite directions. Bland's road is almost exactly the present road but Smith clearly follows a more northerly alignment from the Ellerby Moor tumuli to Stang Howe and then across to Scaling Dam. It is almost certain that one of these routes is the line intended by Ogilby's surveyors but a conclusive answer is not possible from this evidence alone.

Scaling Dam to Guisborough

This section is easier to follow and again Warburton's field books³ help to fix the road. This is the present A171 with slight deviations especially down the scarp slope off Strangber Moor and from there through Charlton.

Guisborough to Stockton

The A171 to the A1043 junction fits Ogilby's map. Of particular interest is Ogilby's depiction of Upsall Hall which seems at first sight to be located wrongly. In fact Ogilby is correct; the hall is shown at the same point on the road by both Warburton in 1720⁴ and Jefferys in 1771. The old hall is no longer named on the Ordnance Survey map and the present Upsall Hall lies over a mile nearer to Guisborough. While concentrating on trying to interpret a road alignment it is easy to overlook the possibility that, as in this instance, features other than the road itself might have altered.

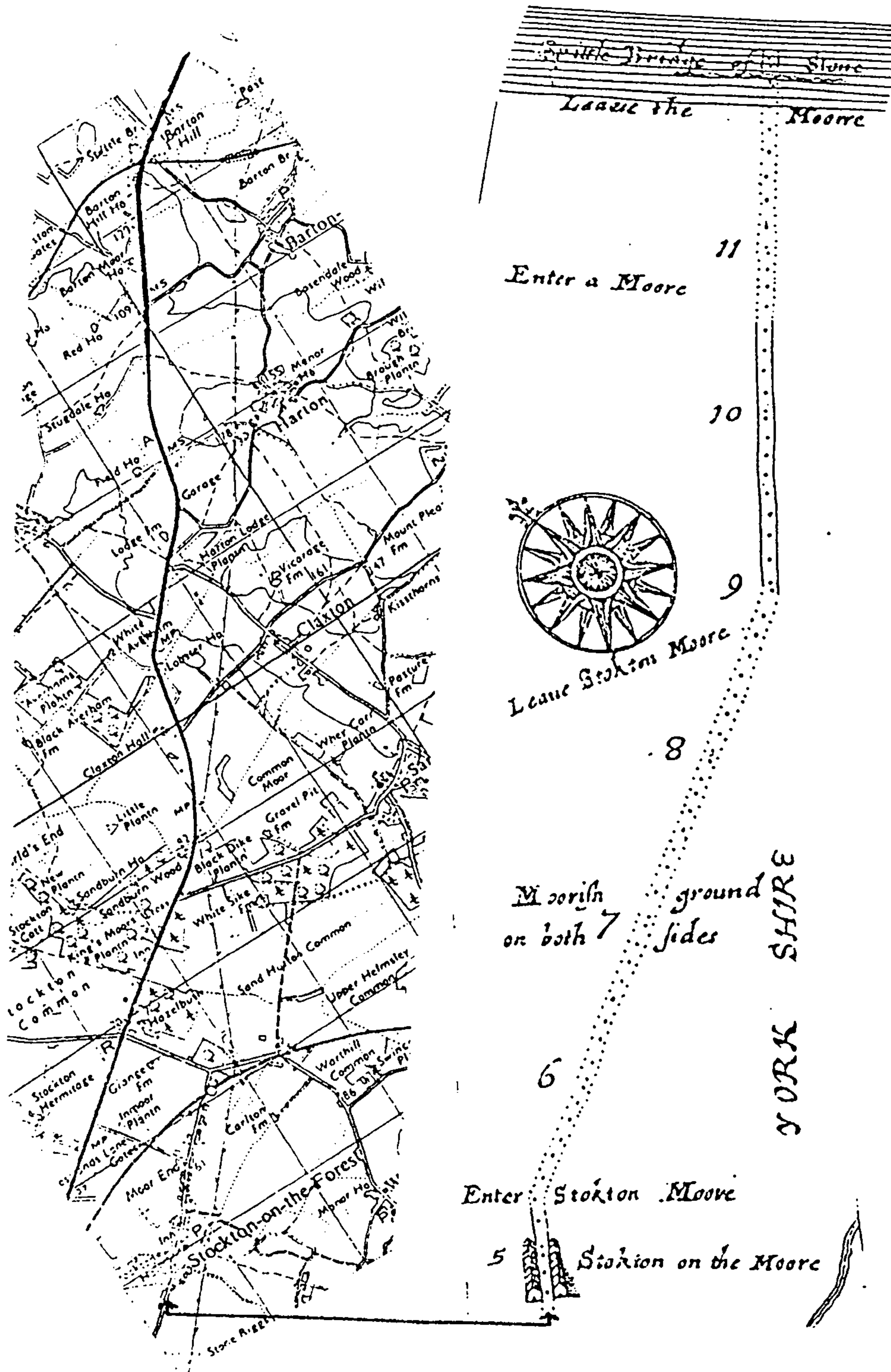
1 Lansdowne MS.913, ff.109-119

2 " " 912, ff.17-20

3 ibid

4 Lansdowne MS.912, ff.14-17

Figure 29 Stockton-on-the-Forest to Spittle Bridge.
Ogilby and the Ordnance Survey



A) O.S. 7th series 1" map

B) Ogilby 1675, Plate 100

Scale: both maps 1" to the mile

At the A1043 junction Ogilby's road follows the minor road past the hill (spot height 417). From there the map is not at all clear. One mile further on the present road Warburton's survey¹ gives a turning to Stockton but Ogilby's road is not obviously the same. From this point to the river Tees not even Jefferys' map helps. Ogilby's map and text suggest that the road cut straight across from Marton to the Ferry opposite Stockton but only the last two miles approximate to either Jefferys' map or the Ordnance Survey map. This problem cannot be resolved from the printed maps alone. The route is restricted to the north, however, by the old course of the river Tees which Ogilby's surveyors clearly did not cross until opposite Stockton.²

Road 9: York to Whitby. Plate 100

York to Spittle bridge

The first $5\frac{1}{2}$ miles to the end of Stockton-on-the-Forest³ clearly follows the present A64 out of the city straight onto the direct minor road. From there to Spittle bridge the exact line cannot be discovered from Ogilby's representation (Figure 29.B). Comparison with Jefferys' map of 1771 shows that the enclosure of the moor at a date after the publication of Jefferys' map did not significantly affect the line of the road. The present link between Stockton and the A64 past Moor End and Hazelbush is merely a straightened version of Jefferys' road rather than a completely new alignment.

Ogilby extends the moor 2 miles further north-east than was shown

1 Lansdowne MS.912, ff.14-17

2 The new course of the river Tees was cut in the nineteenth century.
(Atkinson (1974) Vol.1, p.132)

3 Stockton on the Moore (Plate 100)

by Jefferys. Comparison of the enclosed section with Jefferys' map beyond the moor shows that Ogilby's road is too straight. On the present A64 several bends have been ironed out. Measurement of Ogilby's road beyond Stockton suggests that this might also be wrong since no hint of a sufficiently sinuous line can be found on later maps. Indeed, the turnpike on Jefferys' map is itself full of bends and it would therefore be unlikely that that route had been even more winding in 1675. Further, since Ogilby makes a point about entering a lane beyond the moor it is reasonable to conclude that the old line of the A64 as seen clearly on Jefferys' map is the road surveyed in 1675. That leaves the line across the moor to be resolved by further local study. The most likely outcome would be to confirm that Ogilby's map is wrong on this section and that the road approximates to the unenclosed moor roads shown by Jefferys and partially discernable on the present Ordnance Survey maps.

Spittle bridge to Malton

Most of this road was the same as the present A64. Ogilby's map differs most clearly at Whitwell-on-the-Hill, now by-passed, and at the few points of recent straightening such as Spittle bridge and Crambeck bridge.

Malton to Pickering

Ogilby's road follows the line of the A169 over Howe bridge and then, despite the straightness of the representation, must have followed this road to Pickering.

Pickering - Saltersgate - Sneaton - Whitby

Unfortunately the route from Pickering to Whitby was not surveyed by Warburton and by 1771 Jefferys' map shows only the line of the new turnpike.¹

1 Turnpiked in 1764. Perry (1977) p.117

Between Pickering and Saltersgate Ogilby's mileage is clearly wrong. It is, for instance, almost one mile longer than the present A169. Failure to adjust for the hilly terrain could be the reason for this discrepancy. Even so, the few clues provided such as Kingthorpe to the right of the road, Farwath to the left and Lockton 2 furlongs to the left, taken in conjunction with the representation of the hills do not permit much variation from the present line.

In contrast to the poor surveying of the moor route from Whitby to Guisborough, the moor alignment from Saltersgate to Sneaton is remarkably good. Despite the fact that much of this line cannot be found on the Ordnance Survey 1" map the details of mileage, rills, hills and the Sleights junction demand the choice of a road across the moors to Falling Foss past the significantly named York Cross Rigg. Such a road is confirmed by Sewell¹ in a study of great value in providing a detailed record of the pre-twentieth century tracks across the moors south of Whitby.

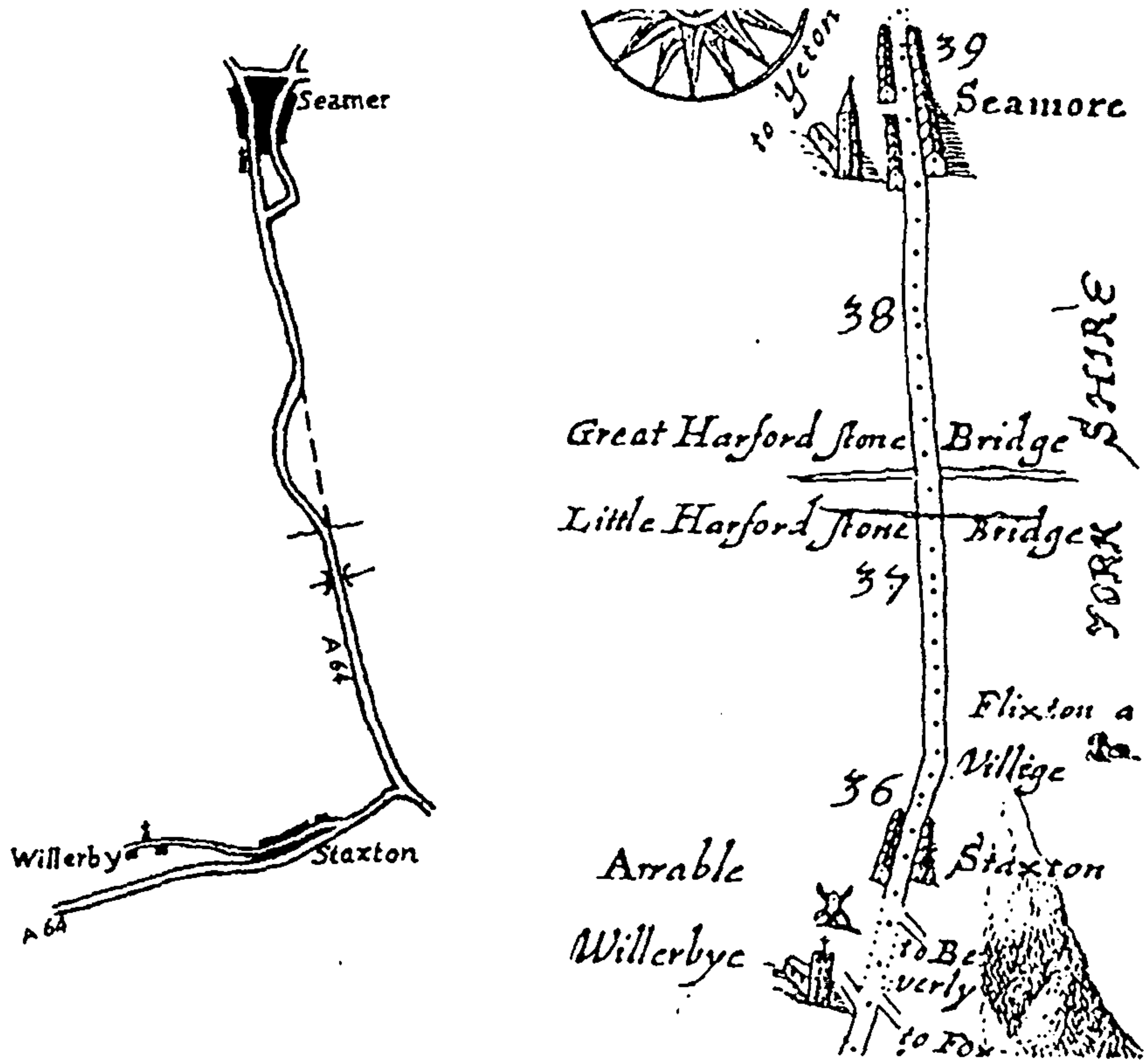
From Sneaton to Whitby Ogilby's road follows the B416 to Ruswarp and then up to the A169 into Whitby. The crossing of the river Esk at Ruswarp is noteworthy. Ogilby's map is ambiguous recording the bridge symbol but also showing the river running over the road. Since Sewell refers to this as a ford and Jefferys' 1771 map does not indicate a bridge it was assumed at first that Ogilby's 'bridge' was an error. However, the North Riding Quarter Sessions² mention "Romsworth" bridge in 1620. "Romsworth" bridge is recorded as in Whitby Strand. There is therefore, little reason to doubt that it can be equated with Ogilby's 'Rushworth' for Ruswarp. The minute of the Quarter Session makes it clear that this was not a county bridge, a fact which could explain why it disappeared. A bridge is shown at 'Rushworthe' on Saxton's map of 1577.³

1 Sewell (1923)

2 N.R.R.S. Vol.II 1612-1620 (1884) p.301

3 (W.1.)

Figure 30 Staxton to Seamer. Ogilby and the Ordnance Survey



A) As on the O.S. 7th series
1" map

B) Ogilby, Plate 100

Scale: both maps 1" to the mile

Road 10: (York) - Malton to Scarborough. Plate 100Malton to Rillington

This section cannot be fixed precisely but must have followed the line of the present road very closely despite the apparent straightness of the road to Scagglethorpe and the wrong positioning of that village. Ogilby's mileage precludes a straight line and the position of Scagglethorpe is corrected by Warburton although this road was not resurveyed in 1720. By the date of Jefferys' map in 1771 the road was a turnpike.

Rillington to East Heselton

Except for the first two miles there is no doubt that the modern road is not the same as that surveyed by Ogilby's men. From Rillington the A64 was followed for two miles or so but then Ogilby's road clearly took a line north of the present road in almost a straight line to East Heselton thereby missing West Heselton. This line, shown on Jefferys' 1771 map was removed from the third edition in 1800¹ and cannot be traced at all on the Ordnance Survey 1" map.

East Heselton to Staxton

The A64 closely fits the Ogilby road with only slight differences past Potter Brompton and perhaps at the entry into Staxton.

Staxton to Scarborough

The most remarkable fact on this section of Ogilby's map is his failure to record the right angle bend in the road between Staxton and Seamer (Figure 30). The bend which is shown on Ogilby's map is one

1 (W.286)

of only a few degrees. This, Ogilby's very last strip in the Road Book, is a clear illustration of the failure not only to record a very obvious bend but also the failure to adopt the method claimed in the preface clearly showing marked changes in direction by introducing additional compass roses.

Although this understanding aids the interpretation of Ogilby's work in general, neither the contemporary traveller nor the historical geographer could have failed to interpret this specific representation correctly. The map as it is and the text instruct the traveller to "leave the Hills or Wolds and Flaxton village on the right, then you cross Great and Little Harford Bridges ...". This route cannot possibly differ much from the present road.

From the right angle junction with the A1039 Ogilby's map can be compared with Warburton's survey.¹ Even though this is not one of the best of the 1720 surveys, it and Jefferys' 1771 map confirm in general Ogilby's line up to Seamer. The minor road bend to the left of the main road beyond Star Carr House could not have been assumed from Ogilby's map alone but the straight section is recent. From Seamer Ogilby's road is the minor road leading directly to the Mere and so onto the A64 again into the "resort" of Scarborough. As Ogilby concludes this road he records that Scarborough "is much resorted unto for its Famous Spaw".

1 Lansdowne MS.895, f.143

V. Ogilby's Road Network and implied Route Network

Preceding Ogilby's 100 plates of strip maps is a map of England and Wales "Whereon are projected all the Principal Roads Actually Measured and Delineated by John Ogilby". This presents a reasonably general picture of the route network despite the Yorkshire errors.¹

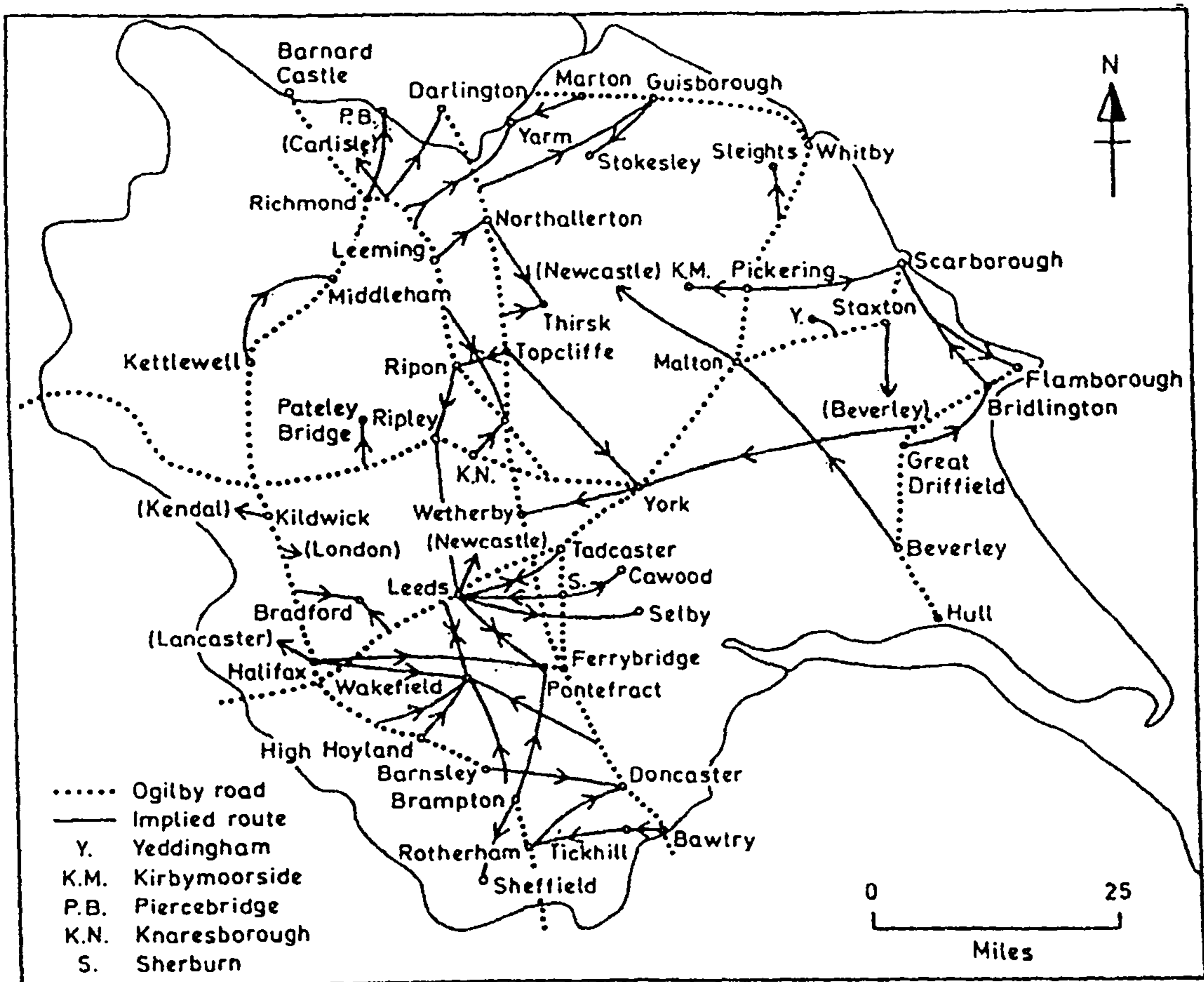
Since over 95% of Ogilby's 543 miles of Yorkshire roads can be related to actual alignments on the ground the compilation of these roads into one general map of Yorkshire will give a reliable skeletal picture of the road network rather than merely the route network at that date.

The usefulness of the strips does not end there however. Along the Yorkshire roads Ogilby's maps record over 500 turnings. With varying degrees of difficulty most of these can be located today. Many of the destinations to which these turnings lead are given either explicitly on the map or in the text as leading "to x", or implicitly on the map by showing a settlement on the strip opposite the turning. The distances to the destinations vary from one furlong to Willerby on Plate 100, to places as far as Newcastle from Malton, also Plate 100, or several turnings to London.

Within the text some of these turnings are given special attention as ones "to be avoided" by the traveller. All these turnings merit particular study since they were singled out by the surveyors, or their guides. Often they highlight interesting routes. However, the precise reason why these turnings were mentioned in the text is not always clear. Many can be interpreted satisfactorily as forks or acute turns which, in 1675, could have caused the traveller uncertainty. Others according to the mapped representation, are at right angles to the main road and marked to places very close to the road. These turnings cannot be so readily

¹ Vide supra p.118, Figure 6

Figure 31 Routes implied by Ogilby's Junctions



interpreted since it is difficult to imagine that any traveller would even contemplate the use of turnings so obviously incorrect. Examples of two such turnings "to be avoided", when travelling south are to Danby Wiske and to Welstrop Hall on Plate 8. The latter can be seen in Figure 9.

Two points need to be stressed about all the turnings. First there is no doubt that errors of omission were committed. For example, on Plate 8 the junction for Ogilby's York to Lancashire road (Plate 88) is missing. Second, with respect to named junctions to places not shown on the strip and presumably named by the surveyors' guides, not only will there be errors as, for instance, the two Tadcaster turnings on Plate 95, but the actual road to the given places, even if named correctly, was not necessarily direct. The Newcastle turnings from Malton on Plate 100 and from Leeds on Plate 89 are obvious examples. One nearly contemporary solution to the Leeds - Newcastle route is given in Thoresby's diary.¹ Thoresby travelled from Leeds via Knaresborough to Boroughbridge where he took Ogilby's route to Darlington and so to Newcastle.

With these reservations it is possible to superimpose onto a reconstructed network of Ogilby's roads the routes implied by the junctions. The accompanying figure (Figure 31) adds some of these routes to the road network. This only shows the longer routes. Many shorter ones to places adjacent to the main roads could be included. Again, a few routes have been omitted to avoid congestion, particularly in the Leeds - Tadcaster - Ferrybridge triangle where it is possible that some of the routes are, in part, the same road.

Comparison with Warburton's survey for 1720 which shows turnings even more accurately assists in the relating of Ogilby's representation

1 In Hunter (1830) Vol.1, p.422 et seq.

to the Ordnance Survey map.¹

Over 90 of the Yorkshire turnings on Ogilby's maps refer to places given on other Ogilby roads or alternative ways to places on the same road. As is to be expected with the roads being surveyed independently, the cross referencing is not good. Thus on Plate 7 at 147 miles a turning is given to Rotherham from Bawtry but on Plate 48 in Rotherham the only reference is to Doncaster. Similarly, in Plate 100 a road to Scarborough is given in Pickering but not vice versa. Just outside Scarborough, however, is a turning to Falsgrave at 42'2 miles; this provides the most likely road entry from Pickering into Scarborough.

The most important illustration of a good cross reference is on Plate 95 in which Ogilby's map affirms the contemporary use of the direct line between Boroughbridge and Leeming Lane although the surveyed road is the considerable detour by Ripon. At 31'5 miles the map shows the turning "to Leeming Lane" and the text instructs the traveller to "omit the forward way on the right that leads to Leeming Lane a different way ..." At 43'2 miles a back turning to Boroughbridge is shown and this is recorded as a backward turning to be avoided " ... to Boroughbridge a different way". Thus both ends of the road are fixed and its contemporary use is confirmed.

This same plate gives two more examples of alternative routes; at 30'1 miles in Boroughbridge "the 10 mile way to Wetherby", that is a longer way, and more pointedly at 34'4 miles "to Boroughbridge the worst way".

The junctions can be divided into five types. The simplest are those which are other other Ogilby roads. For example, on Plate 100 on strip 2 a turning is given in Malton to Scarborough which is Ogilby's road

1 A deliberately undertaken comparative study of the much smaller and consequently more manageable county of Oxford confirms the validity of an attempt to reconstruct the minor routes implied by Ogilby's junctions. Even in that smaller county however, Ogilby's claim to show all the turnings is shown to be inaccurate. In addition, obvious errors occur as at the Bloxham junction south of Banbury which is shown in three distinct ways on the three separate representations. Jones (1976) unpublished paper.

to that place, as recorded on the last two strips of the same plate. There are, however, some problems in this category.¹

A second type of junction refers to places on other Ogilby roads or further along the same road. In general, the greater the distance between the two fixed points, the junction and the place, the greater the problem of relating the route to a specific road.

Third, there are the junctions pointing to places shown on the strip map which are no more than a couple of miles away. Even these are not without interest. Such for instance, was the case with two junctions on the first road between Bawtry and York; when travelling south two "to be avoided" would not get a second look today. The first between Wentbridge and Doncaster is the right turn to Skelbrooke, now represented by a bridle path. The second, of greater interest, is the turning "to be avoided" "5 furlongs short of (and opposite to) Rossington, the right", which is now merely a path fording the river Thorne into Rossington. Such a turning could be a reference to the medieval route known as the "Great Way of Blyth" which ran between Nottingham and Doncaster.²

The fourth type of turning is the most problematic, giving directions to places at a considerable distance. The comment about the second type applies even more clearly here.

The fifth type records the 'Street ways', names given by Ogilby to roads attributed to the Romans.

This construction of the network of Ogilby's roads and the implied roads or routes must also be one, albeit limited, indicator of the contemporary importance and awareness of places and lines of movement. The network map reveals, for example, the nodal nature of Wakefield. In other areas the absence of routes also provokes interest.

1 Vide supra p.139

2 Parsons and Stenton (1970) p.18, fn.8

It is to be hoped that having illustrated the reliability of Ogilby's basic road network in Yorkshire and having shown that his turnings are both numerous and generally capable of interpretation, Ogilby will be used as a source for the reconstruction of the actual Yorkshire road network of the late eighteenth century. The basic method in attempting to fix the Ogilby roads can be applied to the turnings. The most realistic present day alignment on the Ordnance Survey can be traced back through the first edition Ordnance Survey, early nineteenth century maps and if possible Jefferys' map in 1771, as well as Warburton's field notes and any local plans.

VI. Ogilby as a Topographical map of Yorkshire

Although Ogilby's road network covers limited strips of the Yorkshire countryside, the detail given within the strips records more than merely roads. Comparison with the list of 'firsts' on conventional printed maps¹ shows that many later mapped topographical features were anticipated by Ogilby and that the variety and type of information, though limited by the strip format, justify the acceptance of Ogilby's work as a topographical map in all but shape.

The information given on the strips can be classified into six categories. First, there are the roads. This group includes the roads themselves, turnings, and the Roman roads, also bridges, posts and stoops, gates and ferrys. Second, there are the representations of settlement. Third, there are the references to agriculture and land use: open and enclosed areas, arable, meadow, common, woods, moors, marsh, wells, spas,

1 Table 3 Vide supra Chapter Four p.58

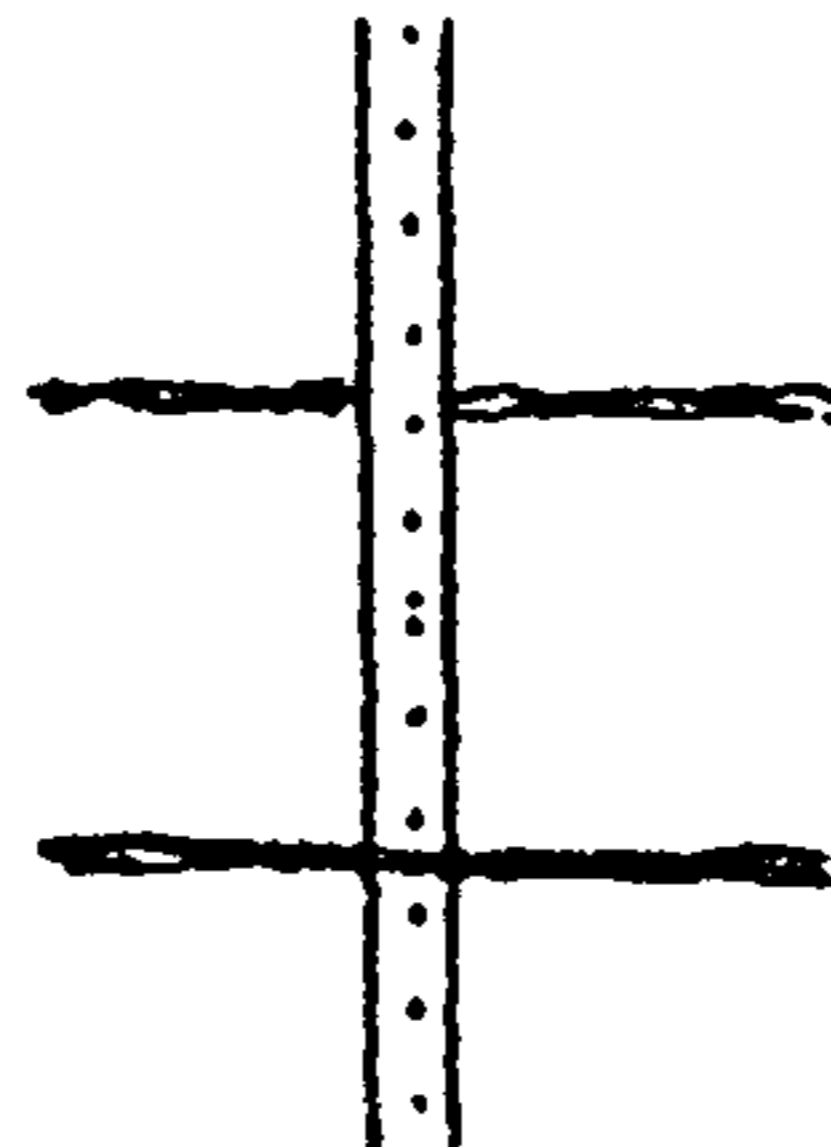
Table 6 Ogilby's bridge information

Road	No. River Crossings	Explicit Bridges			Implied Bridges	Implied Fords	Ferry	Total Mileage
		?	Stone	Wood				
1	19	3	3		12		1	93
2	17			7	2	7	1	43
3	81	1	12	5	63			109
4	28	4	6		18			66
5	19	3	1		11	4		38
6	34		13	6	5	10		75
7	2		2					12
8	17			2	14		1	34
9	11		3	2	3	3		50
10	14		3		1	10		23
Totals	242	11	43	22	129	34	3	

Key to Table

Implied Bridges - map representation

Implied Ford - map representation



as given in Ogilby's introduction

4 explicit and 3 implied bridges are recorded twice

dikes, wind and water mills, and parks. Fourth, there are features of natural topography, the rivers, rills, ponds, the sea and the hills. Fifth, are the references to local minerals: limepits at Brotherton, Ripley and Aberford, coal pits at Killamarsh, Warmfield, Seacroft and Bruntcliffe and a lead house between Middleham and Richmond. Finally, Ogilby shows miscellaneous buildings, including a minster, abbeys, almshouses, a Quaker House at Bruntcliffe and Flamborough Lighthouse.

Some of this information about the rivers, hills, abbeys etc. contributes nothing to our knowledge of the topography at this date. For other features such as the inns, and bridges Ogilby provides at the least a specific date for their presence and may indeed provide the only evidence for their existence.

Ogilby's surveyors were not consistent in the type of information they recorded. The least additional detail is given on the first route from London to Berwick. Examination of Ogilby's bridge representation illustrates this point (Table 6).

This table demonstrates the need to consider any one item within as wide a context as reasonable. It is apparent, for instance, from the table that the detail with which each route was surveyed is not consistent. The difference in bridges 'per mile' between routes 1 and 3 suggests more than a difference in the geography of the areas traversed. Route 3 does not record either on the map or in the text any fords and of the 63 implied bridges 44 occur in the last 40 miles from Skipton onwards. It is hard to believe that every single one of these rills across this remote area was, in fact, bridged and that there was not one ford. Route 6, on the other hand, does record implied fords across similar terrain north of Richmond. In keeping with this suggested difference in attention to detail on route 3 a river crossing presents a serious problem of interpretation.¹ Route 8,

1 Vide supra p.179 Middleham to Richmond

another route without any fords according to Ogilby's map, was partially resurveyed by Warburton for his map of 1720¹ and the survey shows quite clearly that even then not all the rills were bridged.

As a consequence, it is proposed that greater confidence can be placed in the implied bridges on routes which also record implied fords.²

Study of specific routes also reveals certain problems which show that caution must be exercised in accepting Ogilby's record of implied bridges. For instance, several bridges known to be extant in 1675 are only implied by the map symbol such as that at Doncaster and even Wentbridge on route 1. The bridge at Elland is only implied on route 5 but is specifically noted as a stone bridge on route 3. On that third route, however, there is no sign of the river Worth at all before Keighley. On route 4 there is a textual error stating that the stone bridge over the river Aire is in Coniston and not, as correctly mapped, before Coniston. Plate 100 contains cartographic errors by depicting the ford symbol but explicitly naming the bridge at that point.

Although there are problems involved in interpreting the implied bridges and fords there is little reason to doubt the correctness of the explicit bridge references. Ogilby's Road Book is not necessarily the first record of these bridges but his description of them being made of wood or stone is certainly a useful contribution. Even so, interpretation is not simple. For instance, Howebridge over the river Rye on the road from Malton to Pickering is described as 'of wood'³ and from the record of repairs⁴ was clearly predominantly a timbered structure, but there were "stones at both ends of the bridge". In 1611, some 60 years before Ogilby, Howebridge was described as being "in great decay".⁵

1 Lansdowne MS.912, ff.14-20

2 In the Delineation Ogilby cautiously states that Bridges "are generally imply'd where the Rivers or Brooks crost (sic) are not drawn through the Road."

3 Ogilby (1675) Plate 100

4 N.R.R.S. Vol.I (1884) p.vii, fn.

5 *ibid* p.238

Land-use information

The annotations on the use or state of the land are very generalized but ought not to be ignored. For instance, on Plate 100, the road from York to Whitby, commons are noted on either side of the road out of York and another before Stockton on the Forest. Beyond this point there is a record of "Moorish ground on both sides". Before Howebridge there is a reference to marsh and on the other side of the bridge, meadow on both sides of the road. Two and a half miles before Pickering common is noted and one mile further on there is arable land. Beyond Pickering more arable is recorded and then there follows "moorish" ground towards Whitby. There is no reason to doubt the correctness of this information and while it occasions no surprise to see moorland noted between Pickering and Whitby, the references to arable meadow and marsh are noteworthy.

Ogilby claims that he records whether the roads are open or enclosed. Detailed confirmation of the accuracy of this claim is not possible but several facts suggest that Ogilby's representation is generally reliable. First, the preface explicitly informs the reader that the solid or pecked lines represent closed or open roads unless the whole route is drawn in solid lines. The routes depicted entirely in solid lines are simply not recorded with such information and are not to be assumed to be entirely enclosed. All the Yorkshire routes come in the class of differentiated routes. Second, in many places the road depiction is supplemented by annotations: thus on Plate 48 from immediately before 161 miles the road is shown enclosed, whereas at 161 miles and for only 2 furlongs the road is shown open; in between is the note 'A Moore' and at either end of the moor "Pass through nether more gate" and "Pass through upper more gate". On Plate 48 at 116 miles the road is shown open on one side and enclosed on the other: on the open side is recorded "A common" and on the enclosed side "Cornefeilds". Third, the text can add to the map as, for example, on Plate 8 where the text confirms that from Sand Hutton to Northallerton

the road is enclosed.

Given that differences are recorded for distances of as little as one furlong, a practical possibility given the use of the wheel, it is obvious that Ogilby's record cannot be dismissed. Equally the record cannot be accepted without considerable reservations. The general standard of both surveying and mapping has been shown to vary and this is true of enclosure information. Comparison of the separate surveys of the York to Skip bridge road¹ shows that while the open and enclosed sections are almost identical from the "Blewstone" to Skip bridge, it clearly differs for the two miles before the "Blewstone", with Plate 88 showing this section as apparently enclosed. Jefferys' 1771 map records this section as still open.

Gonner² states that "Careful study has led me to attach very great importance to Ogilby's testimony". On the Yorkshire evidence that is clearly too generous a tribute. Further, it is not evident from Gonner's study whether his calculations for the percentage of enclosed land allowed for the significant amount of repeated mileage.³ It is certainly not valid to present the percentage of enclosed Ogilby road as representative of enclosure within a Riding.

In any investigation of the pre-enclosed landscape or indeed the late seventeenth century landscape as illustrated in areas through which Ogilby's roads passed, the road maps are undoubtedly a useful additional independent source. Unfortunately unless the road representation is adequately supplemented by annotations and the text it would be unwise to quote Ogilby as sole proof. Thus for example, the unresolved issue of

1 Vide supra p.137, Figure 9

2 Gonner (1912) p.170

3 Gonner also compares Ogilby's record with Leland's Itinerary. Unfortunately two of the Leland Yorkshire roads cited by Gonner (p.170) are demonstrably not the same as those traversed by Ogilby. The first is between Healaugh and York, compared with Tadcaster to York. The second is from Beverley to Hull; Leland's route was on the opposite side of the former Beverley park. In both cases the claim that Ogilby's record provides evidence of enclosure since the 16th century is unfounded.

Ogilby's road across Stockton Moor and on to Spittle bridge on Plate 100 is related to the fact that the depiction of open and enclosed sections does not fit the pattern shown by Jefferys in 1771, which alone can be compared with the Ordnance Survey map. It is not reasonable simply to accept Ogilby as correct and assume change between 1675 and 1771. Without detailed local study the matter cannot be resolved. In such a case Ogilby's information is best regarded as a pointer to the need for further investigation rather than as an answer to a problem.

The Representation of Towns on Ogilby's Roads

Before Ogilby the representation of settlement on maps was highly conventional, depending on simple symbols to differentiate crudely between settlement of different sizes. Thus on Saxton's map,¹ copied right up to Ogilby's time, the city of York is represented by a compact cluster of churches and houses. A market town such as New Malton is shown by a couple of churches; villages are shown just by a single church and hamlets only by a house. Many maps provide no more than a circle to locate a place. The exception to this statement is Speed,² who in 1610 added, as insets to his maps, small but recognizable plans of three of the Yorkshire places, namely York, Hull and Richmond.

In the context of the printed maps of Yorkshire, Ogilby's settlement representation is apparently a major step forward in terms of depicting the lay-out of places through which the roads pass. In consequence it is worth considering the validity of Ogilby's representations.

The details of the places, the 'Ichnography', varies considerably

1 {W.1.}
2 {W.20}

but they can be classified into three main types: Linear, a parallel row of houses along the road; Cruciform, showing houses extending down cross roads in the town; and Plans.

The contrast between the crudity of the first two types and the detail of the plans is marked. It is not just coincidence that the three places which are recorded in plan form are the same three shown on Speed's maps of 1610. The evidence for their derivation from Speed is conclusive. Comparison of the York plan, on Plate 100, with Speed's plan shows that both the number of roads (14) and their precise terminations on the plans are the same; the limits being the edges of Speed's plan as on his West Riding map. The extremes of the rivers Ouse and Foss likewise terminate at the same points. Internal differences are clearly a function of the smaller scale of Ogilby's reproduction and therefore these plans do not add to our knowledge of the city.

Ogilby's Richmond is shown on both Plates 49 and 95 and comes from Speed's North & East Riding map. Plate 49 reveals two differences when compared with Speed, one an erroneous straightening of the river Swale to the west of the town, and the other an extension of the road heading northward. Plate 95 gives the details as shown by Speed. Plate 95 is illustrated in Figure 27 where it can be compared with the plan as on the Ordnance Survey. That Ogilby did not survey Richmond as part of the road survey on Plate 95 is shown by the fact that had the strip been copied from a complete survey the gross error of bringing the road from Brompton on Swale into Richmond across the bridge used by the Middleham road, that is, from the south-west, could not have been perpetrated. Both Brompton on Swale and Richmond are north of the river Swale. The road surveyed from Brompton on Swale can be followed clearly on the map to within a few furlongs of Richmond. Then according to the map, the traveller is confronted by the river Swale and Richmond on the south bank across Aston

bridge. The exit of the road northward is also incorrectly mapped.

Hull, on Plate 42, derived from Speed's North & East Riding map, is also incorrectly added to the road survey. Plate 42 shows the Beverley road leaving the town from the centre of the north wall rather than by the Beverley Gate, which was correctly named by Speed.

The reliability of Ogilby's cruciform representations can be seen from Skipton, recorded on both plates 49 and 88. Comparison of the two plates shows that when Ogilby portrays more than one street neither the precise angles of the junctions nor lengths of built up areas can be assumed to be correct. In this instance, the angles are shown best on Plate 88.

Comparison of the text for the two routes through Skipton shows slight differences between the written account and the mapped portrayal of the town. The text for Plate 49 states that Skipton is entered "at 221'1 a Town of 7 Furlongs Extent". The map shows Skipton the same length but beginning immediately after the bridge at 222 miles and ending at 221'7 miles. For Plate 88 the text gives the entry as on the map but is silent on the length. Comparison of the repeated section of road on the two plates shows that on Plate 88 Skipton is one furlong shorter from the junction towards Settle than on Plate 49.

New Malton, now Malton, shown twice on Plate 100 confirms the limitations of the cruciform representations of towns. The text notes that for the first representation Malton "Extends 4 Furlongs on the Road and more transverse .." The generalization "more transverse" also used to describe Boroughbridge is the most useful comment.

By far the most frequent type of town or large village is the simple linear representation, with or without gaps for other roads. Doncaster on Plate 7 "of near 5 Furlongs length" is a good illustration of the limitations. Comparison with the picture of Skipton suggests that Skipton was

the larger and more important place in 1675. The balance is redressed in the textual comments.¹

Three facts are clear about Ogilby's depiction of towns and larger villages. First, that the accuracy of the length of the town along the road is liable to error of a furlong or more. Second, that junctions within towns are only approximate and third, the detail with which a town is recorded is not a simple function of the size or importance of the place.

Thus, while Ogilby's representation of towns is, in general, sufficient to fix the road and give a general idea of the size of the place as seen from the road, it is not sufficient for an independent study of the exact extent of the places at that date.

The Text and the Towns

For most of the larger places the map detail is augmented by the text. For example, the text for Doncaster (Plate 7) gives its etymology, and describes it as "Large and well built, Govern'd by a Mayor and Alderman" with "a good trade for stockings and knit wascotes" and with "a good Market on Saturdays for Cattel, Corn Etc.", and a fair on August the 10th. Skipton (Plate 49), by contrast, has "good accomodation, it's an indifferent large and well-built Town" with "a good" market on Saturday.

Caution must be used in interpreting the comments about accommodation. For instance, it is not comprehensive, since no accommodation is mentioned for Doncaster. Furthermore, the descriptive vocabulary is limited and is dominated by combinations of "good" or "some" with "accommodation" or "entertainment". The few exceptions are "well provided" at Tadcaster, "well accommodated" at Ferrybridge and "good reception" at Wentbridge.

¹ Vide infra this page

One and the same phrase, "good entertainment", however, is used on both routes through Elland.¹

On the road from Killamarsh to Richmond there are eleven references to accommodation. Five are references to good accommodation, three to some accommodation, and three to good entertainment. The only significant place not commented on in the text is Halifax. Two inns are also mapped on the route, the Red Lion between Keighley and Kildwick and 'An Inne' between Coniston and Kettlewell. Thus assuming accommodation in Halifax, in the 108 miles of road through Yorkshire there are only two stretches of more than 10 miles between accommodation as recorded by Ogilby: from Barnsley to Almondbury, some 15 miles; and from "An Inne" near Kettlewell to Calton, a distance of $11\frac{1}{2}$ miles.

The pinpointing of specific inns, the references to accommodation in the less obvious places such as Rylstone and Carlton and the regular occurrence of places of accommodation on this route are of more importance than the precise significance of the terms used for accommodation.

VII. Ogilby's influence with particular reference to later Road Books

Ogilby Britannia Reprints

There are problems in deciding how many reprints of Ogilby's road maps were produced. Whitaker² records three printings in 1675 and one more in 1698. Cleeve³ gives two versions in 1675 and 1698 as the final print. There is no problem when these are considered as sources of Yorkshire

1 Depicted on Plates 49 and 89
 2 Whitaker (1947)
 3 Cleeve (1971)

topography, since the strip maps in 1698 are topographically identical to the first print. To the plates of the Itinerarum Angliae print of 1675 and the 1698 print, plate numbers have been added. The 1698 text, despite the revision claimed by the publisher, contains no new information at least for Yorkshire. The text has been reset but the differences are no more significant than the substitution of "This road" for "Which road" in the text for Plate 100. An obvious error outside Yorkshire, "Barkshire" instead of Oxfordshire on Plate 14 remains uncorrected.

Influences

The influence of Ogilby's maps can be seen in four main ways: maps of England and Wales with routes, County and regional maps with added routes, tables and written itineraries and fourthly, further strip maps.

Although routes on England and Wales maps and on County and Riding maps of Yorkshire up to 1720 are predominantly copied from Ogilby's maps, they are not entirely so.¹ One demonstrably unreliable work is Tooker's Travelling Map of c.1679.² It can be shown to be copied from Ogilby's strip maps rather than Ogilby's index map since two routes are mapped from York to Skip bridge, not because there were two roads but because the route is recorded twice by Ogilby on Plates 8 and 88.

Maps of England and Wales, other than those mentioned already and also tables and itineraries are strictly outside the scope of this thesis. The task of assessing all the strip map road books published after Ogilby's day and especially those of the nineteenth century is not possible here, but since this chapter attempts to illustrate that Ogilby's Road Book is more than simply a book of roads, the following brief account of road books will provide some indication of their relationship to Ogilby and their

1 Vide infra pp.230 et seq.

2 Bodleian Library MS. Rawlinson A173

reliability as additional sources of topographical information.

Senex in his Road Book of 1719¹ explicitly acknowledges his indebtedness to Ogilby. According to the title, however, the survey is "now improved, very much corrected, and made portable ...". At first the work looks very promising. The "Barkshire" error has been corrected on Plate 14 and in Yorkshire on Plate 7 the hill beyond Wentbridge at 166 miles has been 'corrected' to a rise rather than a descent as approached from the south. Unfortunately, this latter 'correction' proves to be merely fortuitous since Senex, in what is cartographically a retrogressive step, inverts all Ogilby's descents. Thus Lowsey Hill hamlet on Plate 8 at 233 miles is now shown incorrectly by Senex as at the top of a rise from the south instead of from the north. Thus his alterations to the representation of hills are merely artistic.

The removal of the titles from many of the plates and the extension of the strips to fill the space results in differences in the positioning of some of the roads from strip to strip. Thus where Ogilby's Plate 7 commences at Tuxford (131 miles) and ends at York (192 miles), the parallel plate in Senex begins at 139 miles and ends at 212 miles. As with the hills, the differences which ensue are no more than artistic; the Yorkshire road alignments are in fact identical with Ogilby's representations.

Further illustrations of Senex's 'corrections' can be discussed in terms of additions, subtractions and spelling changes. Nearly all the additions are in fact, taken from Ogilby's text; for example on Ogilby's Plate 48 Senex adds the place name Adsey to the village at 173 miles and at 188 miles adds the word East to Dudley Gate. At 189 miles Senex corrects Ogilby's junction "to Woodsom Hall" which he had shown inscribed to the right of the road at the base of strip two on Plate 49; the hall is shown correctly by Ogilby on the left of the road at the top of the preceding

1 Senex (1719) "An Actual Survey" (W.C.C.242)

strip. In Senex's book this section of the road is shown in the middle of a strip and consequently the error would have been very obvious to him or his engraver. On Plate 42 at 204 miles, Senex links the junction to Boynton with the village by a dotted line.

Senex removes more than he adds but none of the deletions is significant. Most of the omissions are either alternate spellings such as 'als. Elmsall' below Emsall on Plate 7 at 164 miles or the removal of distances to places such as on Plate 7 at 153 miles ' $\frac{1}{4}$ ' and '2 furl'.

The differences in spelling need to be treated with caution since Senex alters 'Ferribridge' to 'Ferribriggs' (Plate 7. 170 miles in Ogilby). This alternative spelling is actually given in Ogilby's text.

Failure by Senex to correct such an obvious error as the mis-orientation of Richmond on Ogilby's Plate 95 illustrates the unreliability of Senex's road book either as a source of topography in its own right or as an aid to the interpretation of Ogilby's maps. Indeed, Senex's reduction of Ogilby's cumbersome volume to a portable size was the only genuine improvement for the contemporary traveller.

Britannia Depicta, published by Bowen in 1720,¹ like Senex's work explicitly claims to improve on Ogilby's Road Book. Harley² classifies the improvements made as: Landowners' names; Inn names changed or gone; and the spelling of places.

Bowen's work is a very much closer copy of Ogilby than that of Senex and consequently there are fewer differences. As with Senex the "Barkshire" error is corrected, but unlike Senex neither the strip positioning nor hill representation is altered. The Wentbridge hill error therefore remains uncorrected. The road alignments are copied exactly and there is, in fact,

1 Bowen (1720) Britannia Depicta (W.C.C.244)

2 Harley (1970a) Introduction

not one single significant topographical change on the Yorkshire roads. Ogilby's Richmond error on Plate 95 remains as does the blatant junction error "to Tadcaster" on that same plate. Yet Bowen incorrectly changes the pole at 35 miles on Ogilby's plate 88 into a pool.

Even the spelling changes cannot be considered reliable since Wombwell given the present day spelling by Ogilby is changed to Wombel and while Allerton Maulverer is changed from Merton on Ogilby's Plate 13 to Allerton, it is changed from Allerton to Alerton on Ogilby's Plate 95.

Thus Bowen is neither a reliable work for Yorkshire nor for resolving any of the problems posed by Ogilby.¹

A less well known road book is Kitchin's 'Ogilby's Survey Improved' 1771.² It is of interest because the source of the improvements is clear for Yorkshire. These are taken from Warburton's 1720 map which Kitchin had already quarried for his 1750 atlas.³

Unfortunately, Kitchin's road book cannot be treated as a useful source of topographical information in Yorkshire for at least three reasons. The additions such as Carr House south of Doncaster merely repeat the work of Warburton, some 50 years earlier. Again, where Kitchin has attempted to alter Ogilby's maps or correct some of his mistakes, he fails. For example, at Allerton Maulverer he shows the north-south route, as Warburton does, passing between the church and the park but this is an impossible solution. Warburton did not survey this route and was in error here. Furthermore, Kitchin ignores Ogilby's errors such as the mistake made at Richmond.⁴

For these reasons the road book does not assist in the interpretation of Ogilby's roads or serve as a guide to later developments. As a source

¹ The Yorkshire roads in the reprints of 1724 and 1736 were still the same.
(W.C.C.245 and W.C.C.246)

² Nat. Lib. Scotland. Newman MS.633

³ (W.203)

⁴ Vide supra p.221

of contemporary roads in Yorkshire Kitchin's work must be rejected not only for these reasons, but also because the information given is slight as compared with Jefferys' 1" map of the County published the very same year.

After Jefferys' map of 1771, Road Books and Itineraries make only a limited contribution to our knowledge of Yorkshire because of the detail and general accuracy of Jefferys' map. Indeed, this map should always be used as a first test of any point of interest in the later road books. The texts of some of these road books can, however, be of greater interest than those of the earlier road books. Thus, for example, in Armstrong's 1783¹ road book there is a list of Post stages, names of some of the coaches, the inns used, the times taken and costs of travel. Accordingly we learn from it that the York Fly took 36 hours from London to cover the 200 or so miles to the "George" in York and that the charge for the journey was £2.2.0.

Paterson in his road book of 1785² comments on the need for a new work. Writing of previous and contemporary road books, he claims that "in some are only given the old and now mostly discontinued Roads, described by Ogilby ...". Some measure of the inaccuracy of that statement is provided by the fact that even in twentieth century Yorkshire, Ogilby's roads are not "mostly discontinued".

That Ogilby still directly influenced road books at the end of the eighteenth century is confirmed by Jefferys' 'Itinerary' of 1775.³ This is a particularly interesting work because it clearly uses the plates from which Senex's maps were printed as altered in 1767 for a French printing by Desnos.⁴ The many additions engraved on this by Jefferys are obviously

1 Armstrong (1783) "An Actual Survey" (W.C.C.251)
 2 Paterson (1785) "Paterson's British Itinerary" (W.C.C.253)
 3 Jefferys (1775) "Jefferys' Itinerary" (W.C.C.248)
 4 Desnos (1767) "Nouvel Atlas d'Angleterre" (W.C.C.247)

derived from his own Yorkshire map of 1771 based on his own survey. As with Kitchin's use of Warburton the new information could be expected to be of little value, but there is one exception. Ogilby's road from Rotherham to Barnsley is difficult to interpret because of errors. The road shown on Jefferys' county map can be readily recognized on the Ordnance Survey map and the additional information from his map on the strip helps to confirm the alignment of Ogilby's road. That Jefferys did not re-engage this particular strip and correct the alignment can be explained by the practical problems associated with having to erase a whole strip. It was much easier to add a few details to clarify the alignment of the road.

The contemporary popularity of the various reductions and 'improved' versions of Ogilby's road book provides no indication of the accuracy or reliability of their maps at the dates given. It may however, be a reflection of their texts and these could well merit further study.

The influence of Ogilby persisted beyond both Warburton and Jefferys' new county surveys. As sources of topographical information, those studied for this thesis show that save for a very limited number of points of detail, only one road book is worthy of intensive use at least up until 1771. This was Ogilby's road book of 1675. Gough's¹ comment made in 1780 on the addition of Ogilby's information to later maps can hardly be bettered: "The editors are the only persons benefited".

VIII Additional maps of use as sources of topographical information between Ogilby's 1675 maps and Warburton's 1720 map

In the 45 years from Ogilby to Warburton's new county survey, only

1 Gough (1780) p.xvi

6 maps or works warrant attention as topographical sources. Four of these are of interest only because they depict routes which were not copied from Ogilby's Britannia.

i) 1676 (128A) Garrett's reprint of the Quartermaster map

Examination of the several routes in Yorkshire on this reprint can be prefaced by reiterating the observations made on the previous reprint in 1671 about the inherent limitations of the map base. In the areas for which overlapping detail is shown there are discrepancies. For example, the sheet showing Yorkshire omits entirely the routes recorded on the northern sheet between Carlisle and Newcastle. Other discrepancies can be seen on the south-western overlap where the route between Warrington and Wigan is actually recorded differently on the two sheets. Even the indication that part of the route on the 'Yorkshire' sheet was re-aligned does not resolve the uncertainty. Clearly this map must be treated with considerable caution.

In Yorkshire all but two of the additional routes on this reprint can be assumed to have been copied from Ogilby's work published one year earlier, and with one exception, merit no further comment. The exception is one route shown as a double line¹ from York by way of Boroughbridge to Thirsk. Since the 1671 reprint of the Quartermaster's map depicted a route going directly from York to Thirsk it is reasonable to assume that while the additional link to Thirsk and then Northallerton was possible, as evinced by junctions on Ogilby's road, there is a good reason why this addition is not exactly the same as Ogilby's road via Boroughbridge which actually missed Thirsk. It can be explained simply as a choice by the compiler of the easiest solution.

1 All the other additional routes in Yorkshire are single lines.

The two 'non-Ogilby' additions are from Scarborough to Bridlington and from Malton to Pocklington. The first, from Scarborough has been noted already on the Gough map and could have been derived from Ogilby's depiction of a turning in Bridlington which led "to Scarborough" shown on Plate 42. Warburton's map of 1720 records two surveyed routes between these places.

The second route from Malton to Pocklington is more significant in that it draws attention to an almost unbroken alignment of present minor roads running for much of the way at the foot of the Wolds. As such it merits consideration as a route, of possibly considerable importance.¹

ii) 1687 (137A) Lea's reprint of Saxton's General Map of England and Wales

The new and enlarged title given to this work is important: "The Travellers Guide ... To which is added Ye Direct and Cross Roads according to Mr. Ogilby's late Survey. Described by C. Saxton. And now carefully Corrected with Additions By Phillip Lea".

Within the limitations of this small scale map Ogilby's routes are shown reasonably accurately with the distances between market towns indicated. Surprisingly, in the light of the title, there are eight additional routes. Two, from Scarborough to Bridlington and from Malton to Pocklington, were noted above² and to these mileages have now been added. Three others also record mileages: from York to Pocklington, from Ripon to Ripley and from Wentbridge to Pontefract. The other three merely depict the routes: from Doncaster via Thorne to Barton (in Lincs.), from Wakefield to Halifax, and from Richmond to Piercebridge.

1 The state of the routes in Yorkshire remained unaltered at least up to and including the reprint in 1752 by Rocque.

2 Vide supra this page

Although Lea would appear to have been better informed than Garrett in aligning the routes between the market towns it is still necessary to treat his routes primarily as indicating recognized links between places rather than routes correctly mapped in detail.

iii) 1693 (138A) Lea's reprint of Saxton's County Atlas

The map of significance contained in this work is not the county map but a new map of England and Wales. The county map is the first county map to record Sunk Island in the Humber estuary but it is crudely taken from Great Britain's Coasting Pilot of 1693.¹

The much smaller map of England and Wales at a scale of about 15 miles to the inch, shows, with two exceptions, the same routes as Lea's earlier, larger work. It lacks the route from Halifax via Wakefield to Pontefract but adds a route from Rotherham to Pontefract.

It is interesting that Lea should publish in one work a map of England and Wales in which the route information for Yorkshire is both better and fuller than that given on the county map which is approximately four times larger in scale. It should also be noted that in this atlas the maps of counties coterminous with Yorkshire include details of routes across their county boundaries into Yorkshire which are not recorded on the Yorkshire map itself. For example, the map of Durham shows a route crossing the border into Yorkshire via Piercebridge.

iv) 1695 (W139) Morden's Riding Maps in Camden's Britannia

Like the last work Camden's Britannia includes a map of England and Wales of greater interest than the maps of Yorkshire (in Ridings).

1 Collins (1693) Great Britain's Coasting Pilot

The preface to the work reveals the admitted methods of a map compiler. The "newly engrav'd" maps of each county were made where possible from the latest "actual survey" made since the days of Saxton and Speed. In the absence of a recent survey "the best copies extant" were sent to "the most knowing Gentlemen in each county, with a request to supply the defects, rectifie the positions, and correct the false spellings". This shows the esteem with which Saxton and Speed were held even at the end of the seventeenth century. For Yorkshire it is clear that copies of Jansson¹ or Blaeu's² maps were sent out. Strangely, Morden added Ogilby's routes only to the North Riding map.

The map of England and Wales includes some obviously inaccurately copied Ogilby routes such as those from Doncaster to Tadcaster and Skipton to Richmond. Yet it also adds the route from Wakefield to Halifax and a new one from Ripon via Masham to Richmond.

A contemporary advertisement in Houghton's weekly paper³ records on March 30th 1694 that the publication of Morden's work was being delayed because not all the improvements promised by the Gentlemen had been received. April was set as the dead-line for the information. The maps at this stage were "near finished".

The few place name spellings altered by Morden do not suggest that the additional information he had obtained was very good. Bessingly in the East Riding, spelt Besserby by Saxton in 1577⁴ is changed to Bessonby and Boynton spelt as at present by Saxton in 1577 and by Warburton in 1720, is changed by Morden to Bainton.

The East Riding map was criticized in a letter dated 16 May 1711 by

1 (W.89)
 2 (W.83)
 3 Houghton (1692-1703)
 4 (W.1.)

the Rev. Francis Brokesby.¹ He noted that the map recorded "several villages that are wholly depopulated, as Wulfurton, Tranby, Hesselskugh" and the omission of "some considerable villages, as Little Wighton, Riplingham, etc." He also criticizes the spellings. For example, Elton instead of Etton, and Bromfield instead of Bromflete. More obviously he noted that Hull is sited too far from the river. He concluded that for the next edition of the work, Camden's Britannia, greater care should be taken and "due information procured from judicious and observing persons".

Study of Morden's maps of Yorkshire in Camden's Britannia shows that while they cannot be rejected out of hand as sources, they cannot be "rated fairly highly" as are all Morden's 1695 maps in the modern introduction to the facsimile reprint.²

v) 1708 (W148) Reprints of Morden's small Riding maps

In the "Advertisement to the Reader, concerning the Uses of the Book and Maps" it is stated that the maps have been "compared and corrected by Mr. Ogilby Large and Actual Survey". Before the maps comes "The Travellers Guide" describing Ogilby's routes just as in his own text including the few bearings and distances and comments on the state of the road. It is surprising to find five non-Britannia routes listed amongst these. Comparison with the Ordnance Survey maps affirm that all five routes are possible and further that the actual roads can be confidently fixed for much of the routes.

Greatest interest resides in those route sections not recorded by Warburton in 1720 such as that from York to Hovingham. Had it not been for the work of Morden, the recording of the link between these two places,

1 In Hearne (1744) Vol.VI, p.106

2 Harley (1972a) Introduction

in this detail, would not have occurred until Jefferys' map of 1771. Indeed, since Jefferys inexplicably omits the northward link from Hovingham to Stonegrave, which was surveyed by Warburton, the entire route from York to Stockton was not mapped until Jefferys' reprint of 1800.¹

Following this useful textual information is a map made by Moll entitled "The South Part of Great Britain". This map includes two routes not listed in the text: from Thorne via Howden and South Cave to Hull; and from Northallerton via Richmond to beyond Appleby.

Morden's own Riding maps are unfortunately, the least useful part of the work, showing some odd and demonstrably unreliable routes.

vi) 1712 (151A) Sutton Nicholls' "20 Miles round Leeds"

The main interest of this map is not its new content, but that the additional content can be ascribed to Ralph Thoresby, the noted Leeds antiquarian. The map was published in Thoresby's Ducatus Leodiensis which appeared in 1715² and although the map title refers to Mr. Boulter as a prime mover, evidence for Thoresby's contribution is found in his diary.³ For instance, on August 2nd 1712, he was "visited by Mr. Boulter, with whom about the Map, (sic) to procure the largest and best already published, thence to make a new one twenty miles each side Leeds; was with the engraver, Mr. Sutton Nichols (formerly Mr. Boulter's servant)". And again on August the 9th, "directing Mr. Nichols about engraving the 20 mile map". Although the map is dated 1712, there are references to the activities of Thoresby and Boulter as late as 1714, which suggests that it might have been revised before being printed with the book in 1715.

1 (W.286)

2 Thoresby (1715) illustrated in Rawnsley (1970) p.21

3 In Hunter (1830) Vol.2, p.150 et seq.

The title of the map misleadingly suggests a very limited area. Yet the area covered embraces all the West Riding except for the far west and north-west and also part of the North Riding up to Topcliffe and the East Riding as far as Market Weighton. The map from which it was derived proves by comparison to be Lea's reprint of Saxton's county map.¹ The Nicholls map is at precisely the same scale and is a very close copy of the basic contents including the routes added by Lea to Saxton's map.

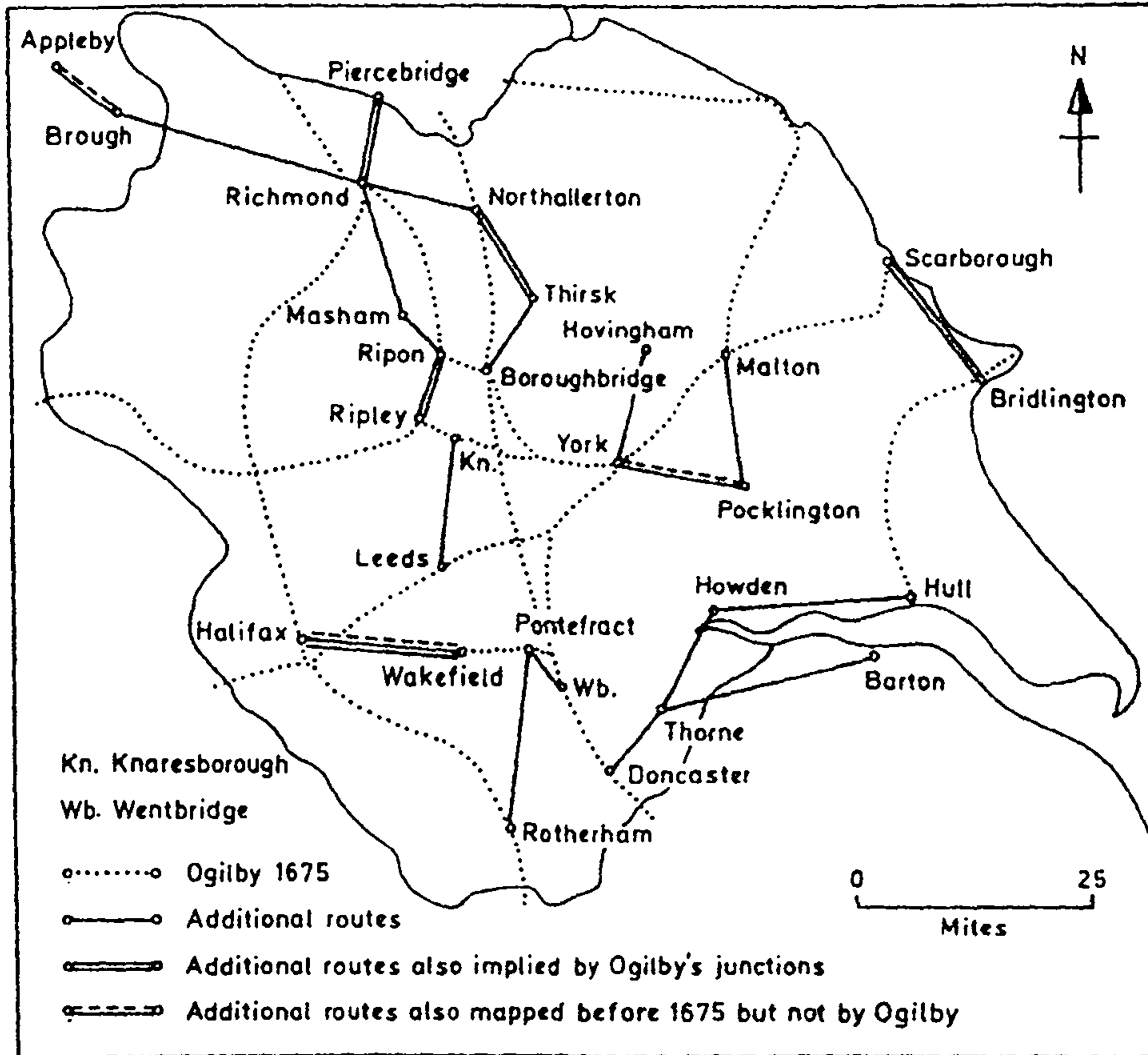
There are many additions to that Lea/Saxton map. They include most obviously two circles centred on Leeds at 10 and 20 miles and lines of latitude and longitude passing through Leeds. Not surprisingly, considering Thoresby's interest in Leeds, the majority of the new topographical features are found near Leeds. Leeds, itself, is now shown for the first time on both sides of the river Aire instead of just to the north. Several small villages including Osmondthorpe are added as are additional parks at for example, Bramham, Kippax and Arthington.

Two previously unmapped routes shown on this map are a Roman road from Doncaster north through Boroughbridge and a route from Leeds via Harewood to Knaresborough. The Roman road between Wentbridge and Doncaster coincides neither with the present known alignment as shown on the Ordnance Survey maps nor with Thoresby's own record of this route in his diary. His diary records a strong interest in the Roman roads of this area. In 1703² he notes that the ridge of this road could still be seen beyond Wentbridge and he follows this south, returning the same way. It is clear, however, that as with the Ordnance Survey map representation, Thoresby's diary route was west of the present Doncaster road and not to the east as on this map.

1 (138A) Vide supra p.233

2 In Hunter (1830) Vol.1, p.411

Figure 32 Routes added to maps of Yorkshire after Ogilby in 1675 and before 1720



The other route from Leeds to Knaresborough does not suggest as a source anything better than Thoresby's own general knowledge and indeed that source rather than a more precise form of survey is sufficient to account for all the new content.

Study of this map shows that even when additions to a printed map can be shown to have been initiated by a local person of renown both then and at a later date, the reliability of that new content cannot be guaranteed. While some of the new content such as the parks and villages can be used as a record of topographical features derived from general knowledge, neither the base of the map nor the Roman road information can be accepted as either correct or adding to our knowledge of contemporary topography. This is a disappointing finding in so far as it limits the usefulness of this map. Nevertheless, it serves as a reminder of the need for even greater caution when interpreting the new content shown on maps covering a greater area and for which there is little or no reason to expect that detailed local information was provided.

As can be seen from the accompanying figure (Figure 32) summarizing the routes mentioned in this final section, Ogilby's Britannia, at least for Yorkshire, is not the only source of mapped routes in this period. That several mapped routes might have been surveyed for that road book but not incorporated is possible but not proven. Certainly, five routes, such as that from Scarborough to Bridlington could have been taken from the routes implied by Ogilby's junctions and a few others could have been taken from pre-Ogilby maps.

Two further points are evident from this figure. There is first¹ the linking of the network between Doncaster and Hull and second, the existence of the route from Halifax to Wakefield which, though not mapped

¹ "From Doncaster to Burlington by Howden and Hull" is listed by Ogilby as a "Principal Depending Branch" ... of "the Post Roads of England". Ogilby (1675) Preface.

by Ogilby, was apparently important enough to warrant inclusion on maps both before and after Ogilby. Ogilby does, however, acknowledge its existence by means of junction references.

The general impression is that, like the routes on pre-Ogilby maps, these mapped routes must indeed be treated first and foremost as routes and not as roads. The source for many of the routes on these post Ogilby maps can be shown to have been previous mapped representations, not least Ogilby's Britannia. As such they merit no further consideration. The most probable sources for the remaining routes would have been either general knowledge or written itineraries. Taken in conjunction with an often inaccurate map base, it is only to be expected that the resulting compilation owed more to the draughtsman's imagination than to reality. Viewed in this light even such routes, if treated with caution, can be accepted as genuine pointers to specific roads.

To this end, the evidence that Ogilby's roads can be interpreted very accurately is a source of encouragement. Since his roads can be identified with actual alignments the same ought to be true for many of these other routes. The task, therefore, is to limit the possible range of variation of such routes with the aid, where feasible, of corroborative sources. By so doing a significant contribution will have been made to our knowledge of the roads of Yorkshire in the years between the production of Ogilby's record in 1675 and the publication of Warburton's new county survey in 1720.

CHAPTER SEVEN

PERIOD THREE: WARBURTON'S MAP OF 1720 TO 1771

Introduction

Warburton's map of 1720 is the first newly surveyed full county map of Yorkshire since Saxton's map made some 150 years earlier. As such Warburton's map is potentially a very important contribution to the topographical records of the county. Thus it demands careful assessment. Fortunately, the survival of the surveyors' field notes permits this assessment to be undertaken at great depth.

The crucial relationship between the finished map and the field materials and other secondary sources of map content is the concern of the first part of this chapter. The four remaining significant maps in this period are considered in the second part of the chapter. They include another original survey, whose results are embodied in Dickinson's map of 1750; although this covers only the southern portion of the county it proves to be a very important new topographical source.

The Warburton materials in the Lansdowne Collection in the British Library

Since the assessment of Warburton's map of Yorkshire is largely the result of a comparison of the map with the materials in the Lansdowne Collection, an introduction to them is necessary.

There are 31 manuscripts¹ which once belonged to Warburton. Although termed manuscripts these are bound volumes. One of the most important manuscripts, MS.911, is in fact four separate volumes totalling some 450 folios.² Furthermore, many of these manuscripts contain printed material

1 Vide Appendix 3

2 A folio is one leaf of paper. Thus 450 folios comprise 900 page sides.

as well as manuscript data.

Use of these manuscripts was greatly inconvenienced by the circumstances that they are not numbered logically,¹ that many folios are out of order and moreover pose palaeographical problems. A painstaking rationalisation of the manuscripts was a prerequisite to their effective usage in interpreting Warburton's map.

Of these manuscripts 27 relate to Yorkshire but many sections bear little or no relationship to the making of the county map. Large portions of the contents are undated and since these are bound with material which can definitely be ascribed to the period after 1720, they cannot be treated with confidence as material used by Warburton in preparation for the making of his map. Nevertheless, such portions of the contents can be used in a more general sense as contemporary records which help in the interpretation of Warburton's map.

Four manuscripts² stand out as being of the greatest importance because they contain, at least in part, definite field survey material. Yet, even these present problems. For instance MS.895 includes not only dated manuscript road surveys³ but also possible secondary sources of information such as earlier printed maps⁴ and a list of Yorkshire forests.^{5,6}

1 Vide Appendix 3

2 MSS.895, 911, 912, 913

3 MS. 895, ff.135 et. seq. dated 1718

4 *ibid* f.1. Overton 1711

5 *ibid* f.128

6 Confirmation that this manuscript is bound neither logically nor chronologically is proved by the inclusion of material post-dating Warburton's map and of no relevance to the survey. For instance, f.135 is a Proposal concerning Buck's views, dated 1724.

Warburton's map of 1720

A cartographer's own claims for a proposed map can be a useful if not entirely trustworthy introduction to an assessment of the printed map which he eventually produced. A 'Proposal' or advertisement reflects the contemporary financial climate and particularly the need to encourage subscribers. Such was the case with Warburton's 1720 map of Yorkshire.

In his proposal,¹ Warburton claims that the Yorkshire map was the second of sixteen surveys intended to cover the whole of England and Wales. Northumberland, his first map, was published in 1716.² Immediately after publishing the map of Yorkshire, Warburton commenced the survey of Essex, Middlesex and Hertfordshire which appeared in 1726.³ His proposal for a total of 16 maps, to be published by subscription, never materialized.

For each survey Warburton states that he would "employ a sufficient number of Able Artists to measure with wheels the exact distance between each of the market towns according to statute miles (which together with the computed will appear at sight). And by a collection of the bearings made by the windings and turnings of the Roads, Rivers etc. (all which will be minutely taken by the needle and laid down by protraction) their true horizontal distances differences of Longitude and Latitude etc. And from those stational points will form triangles for the true fixing of all the inferior parts as villages, churches, castles, seats ..."

Such claims were presumably intended to impress Warburton's contemporaries. The claims would certainly not have impressed cartographers in the second half of the eighteenth century, influenced as these surveyors were by the more scientific approach encouraged by the Royal Society of Arts.⁴ The more immediate interest of the proposal, however, is in the

1 MS.895, f.125

2 Rodger (1960) p.18

3 *ibid* p.7

4 Harley (1963,4)

pointers it provides to the reliability of the promised map. Positive pointers are the fact that Warburton had already completed one county map and that there is an explicit emphasis on surveying the routes between market towns. The main pointer to possible weaknesses in the map is Warburton's vagueness about the basic framework. It would appear for example, that the positions of the market towns were to be protracted from the road surveys and that the "inferior" parts were to be fixed from triangles constructed from "those stational points".

Examination of the field materials confirms the weakness of the framework. These materials also prove that the standard of river survey for the Yorkshire map fell far short of Warburton's claim. To counter-balance that deficiency at least some of the roads were surveyed as carefully as he claimed. The phrase "Able Artists" is also disconcerting; a skilled surveyor would not now be described as such.

The chronology of the survey

With the exception of the report of an exploratory tour by a Mr. Colley in 1717,¹ there are three principal strands of survey material. These are the Journal material, the Road Surveys and the Station Observations. Fortunately most of the definite survey material is clearly dated.

The Journal material, recording Warburton's travels in search of subscribers and some of his Roman road work covers two periods: 15th October to 5th November 1718, and 9th February to 28th February 1719.

The Road Surveys were also undertaken in two periods: the first by Brown from 17th November 1718 to 31st December 1718 and the second, by Bland and Smith, from 10th April 1719 to 27th July 1719 but excluding the month of June.

1 MS.911, f.167

Only after the completion of the road surveys were the observations and bearings taken from 118 Observation stations. This work took place from the 19th August 1719 to 26th October 1719.¹

The facts that the road surveys were completed first, that they contain many arithmetical calculations and that, as Figure 38 shows, they provide a reasonably interconnected network, all suggest that the road surveys formed the primary framework for the subsequent map.

This finding, which helps to explain the vagueness of the description in Warburton's proposal² is important in providing an explicit account of a survey technique which generally speaking, is the opposite of the modern approach. Warburton attempted to create a geometrical framework out of a series of road surveys. The Ordnance Survey created the geometrical framework first with a trigonometrical survey and then surveyed and added the topographical detail to this framework. Such an approach is likely to have posed problems for the draughtsman, particularly in a large county like Yorkshire.

Information in the Lansdowne Collection on the Survey methods

For the vast majority of early printed maps no survey materials are known to have survived. For such maps it is necessary to resort to contemporary books and treatises on survey methods.³ With Warburton's map not only have the survey materials survived but included among them is his own treatise on surveying. Much of it may well have been copied from earlier works⁴ but he does adapt this survey method explicitly to Yorkshire.

1 Thoresby refers to being with Smith on this part of the survey in October. In Hunter (1830) Vol.2, p.264

2 MS.895, f.125

3 Richeson (1966) A study of many such publications

4 Vide Appendix 3

This treatise, therefore, is of value as enabling Warburton's cartographic theory to be compared with his practice.¹

The Treatise²

This treatise is the most important single source describing Warburton's survey methods. It is partially concerned with surveying in general but the greater part is specifically related to the Yorkshire survey. Warburton describes, in order, the instruments, their general use, the layout of the field books, the need for local guides, the actual method of surveying by perambulation using as an example his road from York to Easingwold and finally the method of protracting the survey.

Warburton recommends use of the wheel or 'way-wiser', the theodolite and the chain for measuring "Roads, Rivers Streets etc." There is, however, little evidence that he used the chain. His wheel was half a pole in circumference (8'3") and had two dials or "plates", one divided into poles, rotating once every furlong and "the lesser plate which is divided into Miles and Furlongs moves the contrary way and makes its revolution once in 10³ miles ... so that driving the wheel before you you may at any time discover the number of Miles, Furlongs and Poles from your first setting out ..."

The theodolite consisted basically of two independent compass cards with sights, one with the needle, rotating within the other card which was fixed by a socket and ball screwed to a tripod. Warburton illustrates the method of measuring angles, lengths and heights. "Trigonometry by calculation" is also described. Warburton, however, claims with county surveys that "exactness and great expedition"⁴ are achieved by using only two stations.

1 Scattered amongst the folios are other notes on survey methods. Two of these are mentioned after the consideration of the main treatise.

2 MS.912, ff.162-172: Crump (1928) pp.400-1 prints the first part.

3 Misread by Crump (1928) as 20

4 f.164

Warburton notes that magnetic north is not necessary when fixing places but his comments apply only to very small areas. It is evident from the field books that the theodolite was aligned with the needle and not merely to the next station.

Before commencing the road survey or "journey" Warburton advises the preparation of the field books "ready ruled according to the annexed scheme", which related to the route used by Brown between York and Easingwold. He also recommends the employment of the services of a guide "that can conduct you in the true Road and give you satisfactory account of all such places as you shall have occasion to enquire after".

The method of surveying the road with the wheel and theodolite and how to enter the data in the field book is also described, and can be summarized as follows. Thus at the first station the theodolite is fixed so that the needle is "due north and south" and the sights aligned to the next bend or as far as possible and the bearing to that point recorded. The wheel is then pushed to that point and the distance noted down to this the second station. The following information was to be recorded en route: all side roads and their angles of entry at the exact distance; bridges, fords, mills, rivers with their names, sources and destinations; "noted inns", wind mills, water mills, beacons, churches, whether with a tower or steeple, the beginnings of ascents and their tops and descents; public edificies, mansion houses, and churches at a distance from the road to be recorded from two points on the road to fix their position; the mileage on entering and leaving towns and villages, their market days, fairs, government and whether they were "close" or "scattered" settlements.

There follows "an explanation of the Rules foregoing by way of example in a road between Yorke and Easingwold actually measured by my order ..."¹ This detailed description of the survey taken on 22nd December 1718² provides two additional items of information. The first was the

1 f.166
2 f.167

instruction that if there was no obvious bend or object to sight the assistant surveyor must go to a suitable point on the road and the bearing and distance should be taken to him, so that the position of the second station on the road could be fixed.

The second was the instruction that the theodolite should be orientated north/south at every station so that at the end of the route the bearing of Easingwold from York could be calculated. From this it is clear that Warburton did not take into account the significant effects of local deviations of the compass.

Then came "the method of protracting according to the Observations taken above ..."¹ As described the method was simple. A sheet of paper was ruled with straight lines representing north/south and a hole pricked on one of the lines to represent the first station. From this point the next station was plotted using a protractor and the field book bearing and the distance ascertained by use of "the scale of Equal parts". Station two was then pricked in at the point thus determined. The same method was repeated for subsequent stations.

Only after all the stations had been protracted were the other observations to be added. Additional information was given to the draughtsman. All churches were to be shown with their steeples at the west end "for all steeples of churches are at the west end ...". Churches lying some way from the road were to be located with the base of the steeple at the point at which the bearings intersect. Scattered houses were to be shown "as you find them". Hedges "must" be shown by solid lines and open roads by pricked lines. The quality of the ground was to be noted, whether common, moor or arable and woods if a mile or more in length along the road. The entry and exit from forests, chases and parks were also to be shown and indication given whether they contained trees, were open, and also whether

1 f.170

they were grazed by deer. Finally fords were to be indicated by "having the river open".

Some other notes on surveying in the Warburton manuscripts

There are also two essays on surveying in MS.911; the first¹ was stated to be derived explicitly from the seventeenth century works of Dr. Plott and contains only one item of relevant information. Following a reference to the arduousness of keeping in daily contact with his surveyors Warburton concludes by writing "I have not concern'd myself with anything further than what I judge immediately necessary".²

The second essay³ is concerned with protraction and provides the following statement worthy of addition to Warburton's main treatise: "Note in measuring along the road when you pass over a hill that makes an angle at the base of above 5 degrees and the height thereof be above a furlong you must find the horizontal distance and protract that otherwise a great error may ensue".⁴

There can be no doubt that Warburton's method of road traverse as recorded in his treatise owes much to the method used by Holwell for Ogilby's road surveys some 45 years earlier. The types of information to be recorded on a road and adjacent to it, for instance, are almost identical. Warburton's ambiguous instruction to survey to the next bend or as far as possible, was possibly derived from Holwell's expedient of ignoring some bends, the cause, as we have seen of many problems with Ogilby's maps. Fortunately, only one of Warburton's three surveyors, namely Brown, resorted to this expedient.

1 MS.911, ff.171-181

2 *ibid* f.181

3 *ibid* ff.299-305

4 *ibid* f.305

The treatise and the few other notes on surveying preserved in the Lansdowne Collection are of significance in their own right. As we have seen they permit an assessment of the reliability of Ogilby's maps.¹ Even so, they are much less important than Warburton's field survey data for the purposes of understanding and interpreting his map.

The Journal:² Reassessment with special reference to Roman Roads

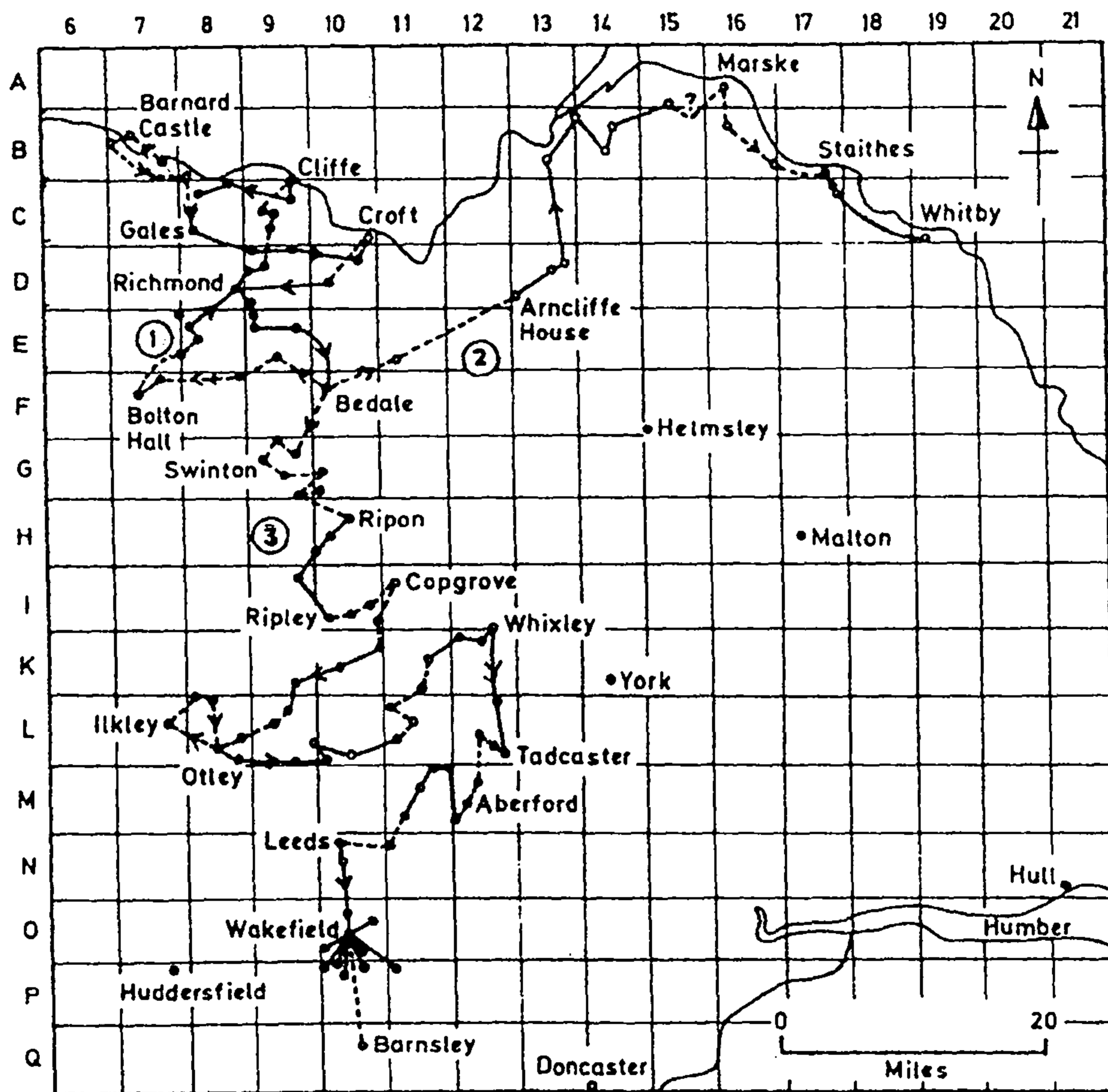
Warburton's Journal is significant because it provides a key to the assessment of several features on Warburton's map. This is particularly true of his representation of Roman roads, halls and parks. Although the Journal was published in 1900 with an introduction by Crump, its value as a guide and as a supplement to the map was not then appreciated.³ Indeed, Brown's article is misleading and requires revision on three points in particular.

Brown refers to Warburton's earlier career as an Excise officer⁴ but fails to say that in 1716 Warburton had already surveyed and published a map of Northumberland. Thus Warburton was not, as Brown implies, inexperienced as a surveyor and map maker when he arrived in Yorkshire.

Brown also claims that the aim of Warburton's tours as recorded in the Journal was to gain subscribers and to make surveys.⁵ That the main purpose was to obtain subscribers is manifest throughout the Journal. It is also true that Warburton refers to his surveys of some Roman roads and states that "The chief part of my business in this part is Roman roads".⁶ Nevertheless, Brown misleads in relating the Journal to the surveys made

1 Vide supra Chapter Six
 2 MS.911, ff.346-399
 3 Brown (1900) pp.61-76
 4 ibid p.61

5 ibid p.63
 6 MS.911, f.349 and ff.395,6

Figure 33 Routes taken by Warburton recorded in his Journal

Route 1 15th October - 23rd October 1718. Bedale - Bedale

Route 2 28th October - 5th November 1718. Bedale - Whitby

Route 3 9th February - end of February 1719. Bedale - Barnsley
(Wakefield. Warburton made several short trips from here)

——— } separate day's travel
- - - - - }

Grid base as on Warburton's 1720 map (No 'J')

with the wheel and theodolite. As is evident from Figures 33 and 38 the two routes used are not directly related; indeed, save for stretches of a very few miles the routes taken by Warburton were in fact completely different. Warburton refers to his "viewing"¹ part of the course of the river Tees but this was not a survey; and the survey of the Tees at that point was undertaken from the Observation Station surveys carried out in August 1719.

Brown's most serious errors are his assertions that Warburton's remarks in the Journal on places and people are "very jejune and uninforming" and that the chief value of the Journal "arises from the notices it contains of places which have since been destroyed or altered, and his giving the names of the owners of the different seats he passed by".²

Reassessment of the Journal leads to the conclusion that its overriding significance lies in the fact that it provides precise details of the dates, to the exact day, when items of information were seen and recorded. The Journal is, indeed, a day-book.³ Unfortunately, some of the information given is sparse, and all of it confined to the north and west of the county (Figure 33). Nevertheless, it contains much evidence of importance to the historical cartographer and the historical geographer.

The Journal reveals the efforts required to obtain subscribers and shows how important it was for the cartographer to be accepted by the gentry. Indeed, it shows that Warburton acquired information for the survey and map from the gentry. For instance, he was helped by Mr. Maire of Lartington in following Roman roads in that area⁴ and to this end he was promised assistance by Roger Gale. Mr. Vavasour of Weston provided a guide for Warburton.⁵ Again, when at Sir W. Hustler's seat in Acklam, Warburton was able to copy a list of "persons of distinction" residing in Yorkshire,⁶

1 MS.911, f.351

2 Brown (1900) p.62

3 MS.911, f.346

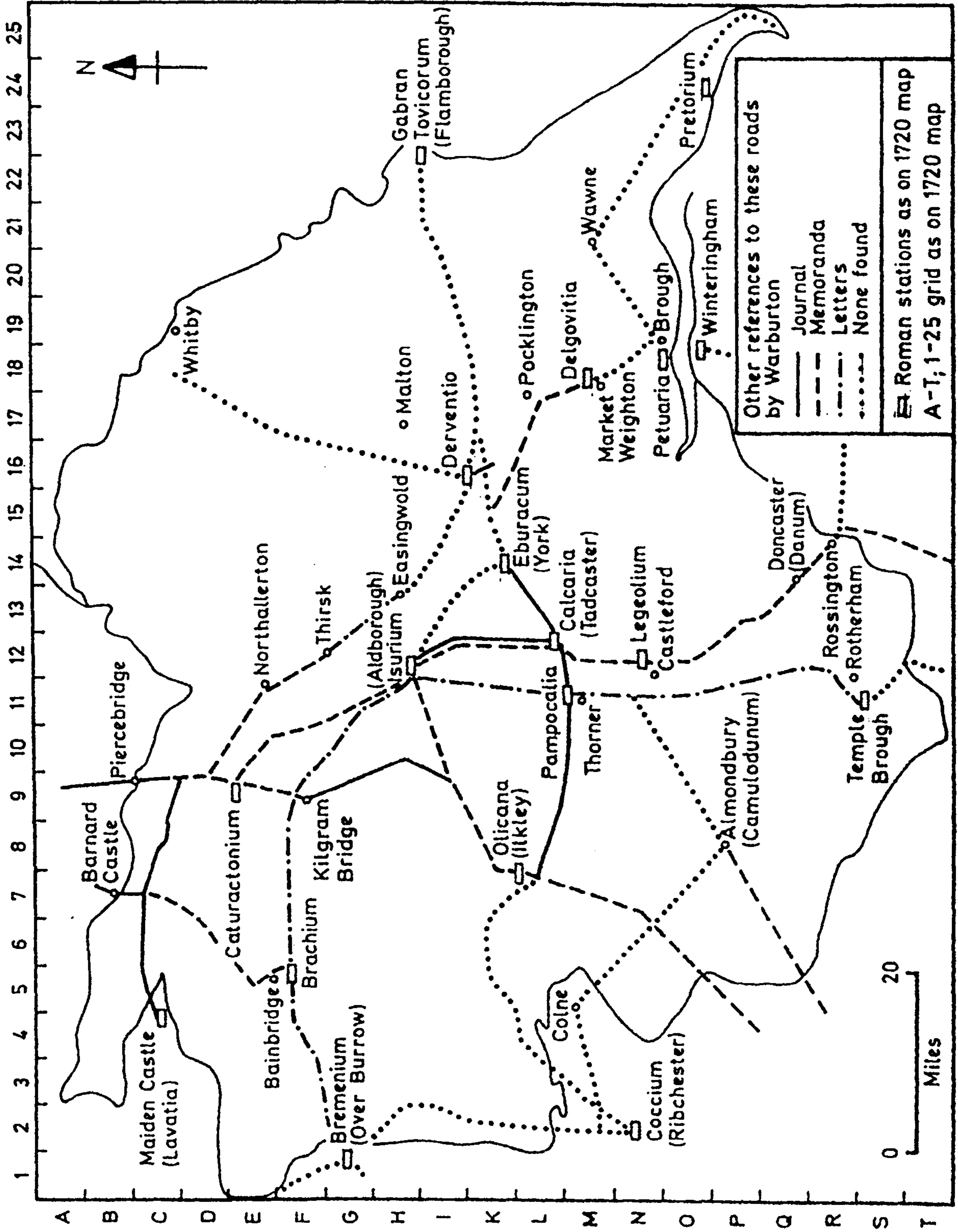
4 *ibid* f.349

5 *ibid* f.386

6 *ibid* f.351



Figure 34 Roman roads as depicted on Warburton's map



a list which survives in the Lansdowne Collection.¹

Warburton's Roman Roads: the evidence from the Journal and other notes

Since Warburton's map was the first county map of Yorkshire purporting to record Roman roads it is important to assess their reliability. Comparison of the system of roads as depicted by Warburton with the present state of knowledge as recorded by Margary² shows sufficient accord at a general level to justify a closer inspection of the differences.

The source of Warburton's information and the way in which this information was represented on the printed map are the two crucial issues. Both issues can be answered in large part by recourse to the Journal, but for convenience reference will also be made here to notes recorded elsewhere by Warburton.

That Warburton had a strong interest in Roman artifacts is shown by his activities as late as the 1740s.³ His main reason for journeying on beyond Greta Bridge was to trace the course of a Roman road.⁴ On Bramham Moor Warburton drew a crude sketch of the roads.⁵ Elsewhere,⁶ references to Roman roads can be shown to be based on visible remains, on artifacts which Warburton assumed to be Roman⁷ or even on contemporary common belief.

Figure 34⁸ depicts all the Roman roads mapped by Warburton. Only one of these routes noted in the Journal is not reproduced on the published map, that from Ilkley to Almondbury. The most interesting route recorded by Warburton in the Journal is that from Catterick via Kilgram Bridge, Grewelthorpe, Micklehow Hill to Ripley.⁹ Although designated by Warburton as an "old causeway" in a very matter of fact way, it is not at present recognized as a Roman road but clearly merits closer study.

1 MS.911, f.245 (Further evidence that these materials are not bound chronologically).

2 Margary (1973)

3 In Lukis (1883) pp.329 et seq.

4 MS.911, f.349

5 *ibid*, f.396

6 *ibid*, f.394

7 *ibid*, f.380

8 His annotations are not shown here

9 MS.911, ff.378-80

The most detailed route in the Journal is also the most significant for the interpretation of Warburton's Roman roads. This is the road from Whixley to St. Hellensford which he travelled on 19th February 1719.¹ To judge from the Journal there is no doubt that Warburton followed this road, the "Road Gate", now called Rudgate; his map shows this road as correctly positioned relative to the settlements but as being far too straight. From Whixley to Cattel Bridge his mapped Roman road lies to the east of his surveyed main road from Wetherby to Easingwold.² Comparison of the field book route and the Ordnance Survey map proves that the surveyed road was exactly the same as the modern road. Since the modern road is also on the Roman road it is clear that Warburton has made no attempt to relate his Roman road information to the field book survey.

The discrepancy in the position on Warburton's map of the Roman road and the surveyed main road is due to the fact that while the surveyed road was mapped planimetrically the Roman road was mapped diagrammatically. This example, taken in conjunction with the other Roman road references in the Journal is sufficient testimony that Warburton's depiction of Roman roads, whether actual or supposed, is diagrammatic. Independent evidence for this conclusion is provided by the Sixteenth century manuscript map of Barton.³ This map confirms that Warburton's "Ermine St." and the present Al to Piercebridge past Barton are one and the same road and not two separate alignments as mapped by Warburton.

Apart from the Journal the best additional information on the Roman roads is to be found in Warburton's correspondence with the famous antiquary Roger Gale.⁴ In 1717 soon after arriving in Bedale, Warburton wrote to Gale about the possibility that there had been a Roman road running from

1 MS.911, f.394

2 Surveyed 5 months later by Smith, 9th July 1719

3 N.Y.R.O. ZDG(A)XIV 1584

4 In Lukis (1887) pp.74 et seq.

Catterick Bridge directly to York. Again in 1717 he discusses the road from KirkbyLonsdale via Askrigg to Barnard Castle. It is significant that Warburton expresses his doubts and uncertainties about these roads. He also suggests to Gale that there may be evidence of a Roman road from Easingwold to Richmond.

Most important are two references in these letters to field work on the roads. Thus Warburton claims that he traced that road shown on his map as running from Askrigg through Bolton Park, Thornton Steward and Middleton Quernhow to Leeming Lane.¹ In a letter written in 1723, after the publication of the map, he comments on the road from Gatherly Moor to Rotherham claiming as evidence "the examination of my survey books and journal of that county".² Regrettably this evidence, if true, has not been re-discovered.

Of the many Roman road memoranda scattered throughout the manuscripts those in MSS.899 and 903 may post date the printed map but are still of some use. The note,³ for instance, of a military way from Manchester to Aldborough via Oldham indicates a route differing slightly from that mapped by stating that it passed through Huddersfield and by failing to confirm the route as a definite one from there to "Kiddale". Then follows an account of the other route from Manchester shown on Warburton's map, that via Blackstone Edge and Ilkley to Aldborough. In an essay⁴ on Ermine Street Warburton expresses his doubts about the exact alignment and even admits to guessing the route in parts. Thus he concludes his note by saying "I am sensible there must be many mistakes in the foregoing essay". Such a conclusion applies also, by extension, to Warburton's map.

Figure 34 shows that several of Warburton's mapped Roman roads

1 In Lukis (1887) p.81

2 *ibid*, p.84

3 MS.899, f.60

4 MS.903, ff.1-27

are not mentioned in the extant collection of his works. One further clue to the interpretation of these, and all the other Roman roads, is provided in yet another of Warburton's letters.¹ This refers to several routes but particularly to that from Boroughbridge through Thornborough, Thornton Watlass, Thornton Steward and along Wensleydale. It is suggested in the letter that the word "thorn" is significant and may be derived from the Latin "turris", a tower. It is reasonable to expect look-out towers adjacent to the Roman roads. Certainly Warburton's mapped routes are in accord with this suggestion. Moreover, to the route from Boroughbridge along Wensleydale can be added two places bearing names in thorn, namely Spennithorne and Thornton Rust. Similarly there are several "thorns" including Thornton-le-Street between Thirsk and Northallerton. Even if the etymology of thorn is suspect, there is, at least in Yorkshire, a high incidence of the settlements bearing names in thorn on or adjacent to known Roman roads. On the basis of the Yorkshire evidence alone the significance of names in "thorn" as pointers to Roman roads and settlements merits further investigation.

Hall and Park information in the Journal

Warburton's references in the Journal to halls and parks is also of assistance when assessing the printed map. For instance, there are thirteen references in notes to places surrounded by woods.² Of these, only one, Woodall,³ is not shown thus on the map. By contrast, seven of the halls are recorded as having "beautiful" avenues, gardens and ponds, but none of this information is drawn on the map. Thus while Warburton's map presents a good general representation of woods around halls and in parks, he does not depict the detailed evidence of landscaping. The Journal also confirms one error made on the map by noting that Whixley park

1 Warburton (1753) p.160 et seq.

2 For instance, MS.911, f.350. Gilling "encompassed with wood".

3 *ibid*, f.388

lay to the south of the village and not, as mapped, to the west.¹

The Journal also reveals Warburton's excitement on witnessing contemporary landscaping and the improvements being made to the halls.² Such comments help to animate the cartographic record and remind the map user that noticeable topographical changes were being effected in Yorkshire in this period by the landed classes.

Warburton's routes as recorded in his Journal³

Although the detail provided in the Journal is not adequate to fix all the roads on which Warburton travelled, the fact that the greater part of his time was spent in travelling on roads which were not subsequently surveyed for the map means that at least the Journal permits the number of these routes to be added to those shown on the map. Some can be related to the unsurveyed routes on the map. Thus, for example, Warburton travelled between Leyburn and Bellerby⁴ and from Nidd on the causey to Copton and then south to Sceven.⁵ Since these specific unsurveyed map routes are therefore based on definite roads they can be interpreted as being diagrammatically depicted on the map. Unlike the Roman roads which are shown as being straight, these are represented sinuously. Thus the Journal helps in the interpretation of the map by revealing those unsurveyed routes which are unquestionably based on genuine routes because they can be proved to have been used.

Many of the routes Warburton travelled are not shown at all on his map. These routes merit closer study. They not only illustrate the limitations of the detail on Warburton's map but also add to our knowledge of routes definitely used in this period.

In all these respects therefore, the Journal is of importance to both the historical cartographer and historical geographer.

1 MS.911, f.394

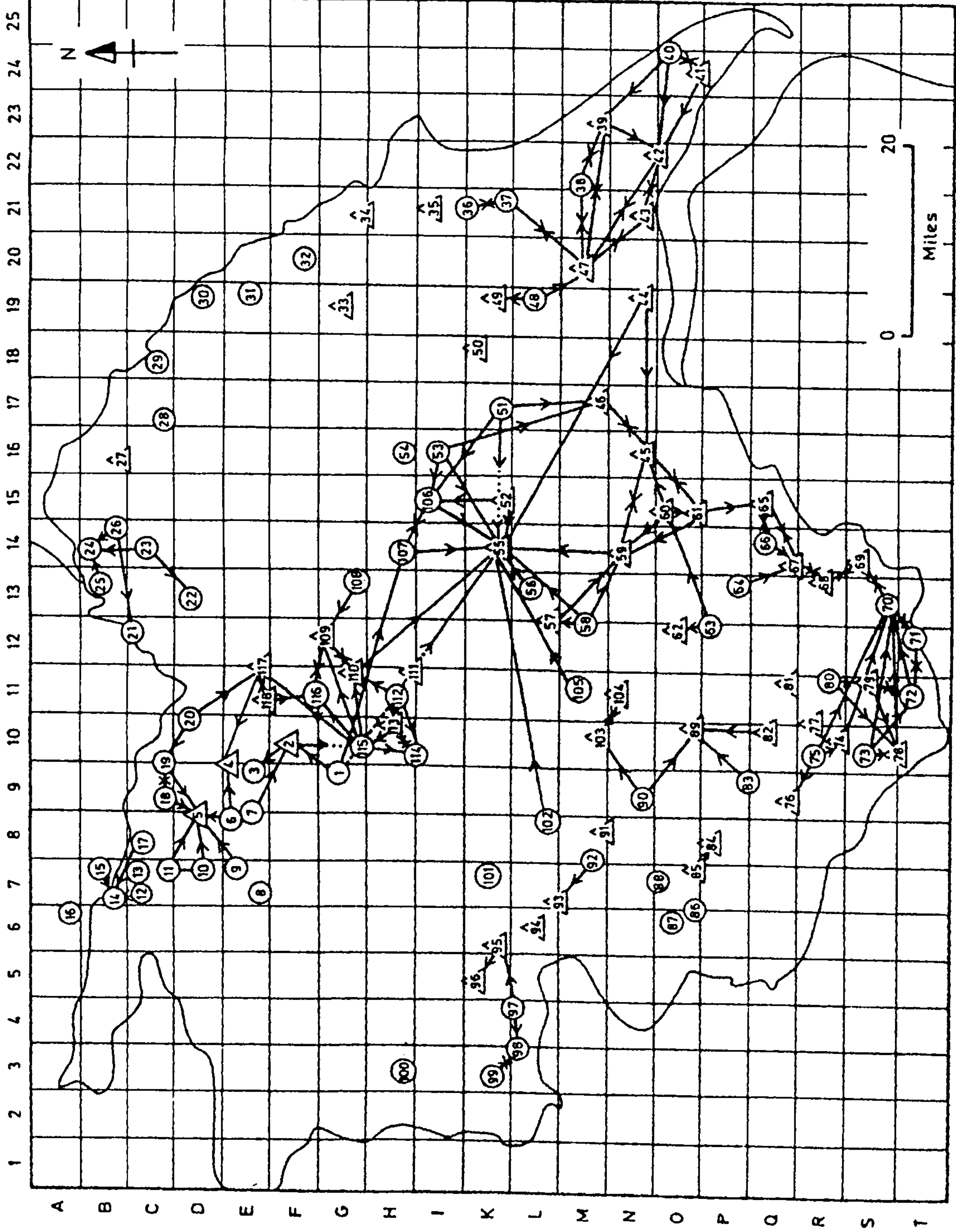
2 For instance f.385 Leathley Hall

3 Figure 33

4 MS.911, f.347.15 October 1718

5 *ibid* f.381

Figure 35 Observation Stations: their distribution and the bearings between stations



Grid as on Warburton's map

The Observation Stations. The accuracy and completeness of the 'framework' of the survey

The importance of the field books in assessing the general reliability of the printed map is illustrated in Figure 35 . Both the distribution and the interlinkages of the stations are uneven. Two large areas, the north-west of Yorkshire and the North York Moors could not possibly have been surveyed from the stations. This areal variation in the incidence of Observation stations is further emphasised by the distributions of bearings between stations. There is not just one network of stations but instead several discrete networks. The main network extends from the north-west to the south-east down the Vale of York with a tenuous link to the area around Sheffield. The next in size is in the south-east and smaller ones are located in the south-west and the north. Nonetheless 24 stations are completely isolated from other stations.

From this distribution of stations it could be seen that the principles of trigonometrical surveying were used at only five stations¹ and gave rise to two triangles based on Beverley. The survey failed to comply even with Warburton's own less rigorous standard, as recorded in the treatise, of linking consecutive stations,² for only 18 consecutive stations are so linked.

Table 7

BEARINGS BETWEEN STATIONS

Direction of bearing	Number of stations
None	24
Outward only	35
Inward only	15
Outward and Inward	44
	<u>118</u>

1 Stations 47, 38, 39 and 47, 42, 43.

2 Vide supra p.246

In Table 7 44 stations are listed as having bearings both to and from other stations. Even so only 37 of these are true cross references. For example, station number 45 provides a bearing to station 46 and vice versa. The other stations which both receive and provide bearings do not receive a bearing from the station to which it gives one. Furthermore, only 28 separate stations have cross references because some have cross references to more than one other station. Thus, as Figure 35 shows, while Whitkirk (station 104) has only one cross reference, Beverley has cross references to five other stations.

The preponderance of outward bearings is explained by the fact that a few stations were the foci of several bearings. The extreme example is York Minster (station 55) which receives bearings from 13 stations yet does not send one bearing to another station. This is not entirely unexpected because the Minster is a readily identified landmark visible over great distances.

The presence of stations with more than four bearings to or from other stations serves to indicate the better surveyed areas within the separate networks. With one exception the cross referenced stations lie in the two largest networks.

Figure 35 provides a clear picture of the density of the Observation stations and their links but does not indicate the accuracy of the links or the ease with which the stations can be located on the ground. The name of the station is normally given at the head of each station's lists of bearings as recorded in the field books. Of the 118 stations no less than 60 are church towers and a further 9, though naming only the town in which they were located, were probably church towers. Hill sites, numbering 25 in all, contribute the next largest group of stations. The remainder include castles, halls, fields and less precise identifications such as "Near Newby".¹

1 Station 23

Table 8 Observation Station Cross-reference AccuracyA. All Station Cross References. Total 28

Bearing Difference	No. of Cross References	Accumulative %
Same	6	21.5
1° or less	11	39
2° or less	16	57
over 2°	12	100

Max. error 15°. One Error S/E instead of N/E

B. Definite Station Cross References. Total 11

Bearing Difference	No. of Cross References	Accumulative %
Same	3	27
1° or less	6	54.5
2° or less	7	63.5
over 2°	4	100

Other Errors. 2 x 3.5°; 9°; 15°

C. Probable Station Cross References. Total 17

Bearing Difference	No. of Cross References	Accumulative %
Same	3	17.5
1° or less	5	29.5
2° or less	9	53
over 2°	8	100

Other Errors. 3 x 3.5°; 4.5°; 5°; 5.5°; 7°; .5° S/E = N/E

D. Consecutive Station Cross References. Total 18

Bearing Difference	No. of Cross References	Accumulative %
Same	6	33
1° or less	10	55.5
2° or less	13	72
over 2°	5	100

Maximum Error 7°

E. Non Consecutive Station Cross References. Total 10

Bearing Difference	No. of Cross References	Accumulative %
Same	0	-
1° or less	1	10
2° or less	3	30
over 2°	6	100

Maximum Error 15°

Four of the stations, however, have no title and several are only vaguely located: thus, for example, station 7 is "Upon Ye Moore". Only three cannot be positively identified¹ and even these can be located to within a radius of about one mile by protracting back the bearings to the surrounding features. It is to be expected that the draughtsman would have had problems in mapping the information provided by such stations. Fortunately, Warburton's map scale of about $2\frac{1}{2}$ miles to the inch means that the vagueness poses less serious problems than would have been the case with a map on a larger scale.

Because of the variations in magnetic north both over time and space the testing of accuracy of the station bearings to and from each other is best undertaken in a relative way by comparing those stations which have cross references. An attempt to construct a map of magnetic bearings using only the exact bearings to precisely locatable sightings provided less than 20 bearings, too few for significant conclusions to be drawn. These bearings do, however, suggest that all the bearings were based on magnetic north which, in 1720, was about 11 degrees west of true north.² It is significant that the field notes provide no evidence at all that Warburton was aware of the problems of local magnetic variations. Hence the draughtsman was provided with bearings which were less than ideal.

From the bearings given in the field notes, five tables have been compiled (Table 8.A-E). The total of 28 stations includes both definite and probable cross references. For example, the cross reference between stations 70 and 71 is definite. In the field notes station 70 is named as Loughton Church and the relevant bearing is to Aston Church. Station 71 is Aston Church and has a bearing to Loughton Church. By contrast, between stations 69 and 70 there is a definite bearing from the former, Tickhill Church, to Loughton Church but from Loughton Church the bearing given is

1 Stations 7, 23, 31

2 Yorkshire Archaeological Society. MS.871.

not to Tickhill Church but simply to Tickhill. Although such uncertainty would be unacceptable to the Ordnance Survey it is likely to give rise to serious problems of interpretation on Warburton's map only in those places where the church was some way from the town centre.

Comparison of Tables B and C shows that there is good reason to take the probable cross references as actual cross references. Indeed, the two worst errors or greatest differences occur with the definite cross references. In the two illustrations given above, that between 70 and 71, the definite cross reference is half a degree out of true¹ whereas between stations 69 and 70 there is no difference.²

That the consecutive stations (Table D) provide better figures than the non-consecutive stations (Table E) is not surprising. In the former table the stations are closer, were used on the same or successive days and thus the work was more likely to have been executed by one and the same person. Correction or simply modification of the bearings at the time of survey is more likely in these cases than with stations used only at intervals of several days. In fact the field book shows that at station 99 the bearing to station 98 was altered. Since, however, only six of the cross references are the same this finding is probably of little significance.

Of all the cross references, no less than 57% are accurate to within 2 degrees. The lists of errors beneath each of the cross reference tables shows that all but a very few of the errors are less than 5 degrees. Nevertheless, such levels of inaccuracy in the relationships of the Observation stations must have presented the draughtsman with problems.

Even if all these cross references were of the highest accuracy, given the patchiness of the network (Figure 35), it would not have been possible for Warburton's draughtsman to construct the map from the

1 SW70⁰30:NE70

2 SW68:NE68

information on bearings alone. Two further considerations would have been of assistance in this task. First, and of least importance, the distances from the stations to some of the features are recorded. More detail on the distances to features other than another station is given below.¹

It is only for four station cross references that mileages are recorded. Of these one is ambiguous and the other three record the distance from one station only. One cross reference, that between stations 39 and 38, gives the correct distance. The other two, between stations 103 and 104, and between stations 109 and 110, underestimate the distance by about one mile.

The second consideration which would have been of assistance to the draughtsman is the relationship of the Observation stations to the Road surveys. This is depicted in Figure 35 which is to be compared with Figure 38, the map of the surveyed roads. Of the 118 stations, 51 are connected to the road surveys either explicitly by being entitled "on the road to ..." or implicitly by being church towers recorded on the road survey.

Once again the areas indicated above as being the best surveyed, are emphasised. By contrast, 14 stations are shown to be isolated, both from other stations and from road surveys.

The many weaknesses in the network of Observation stations suggest that the concept of a framework was not paramount in the choice of sites for Observation stations. Indeed the function of these stations is best understood as being that literally of stations for observation, in other words, places from which to observe and record the countryside around. Remarkably, it was only a matter of secondary importance that one observation point should be linked directly to another. Comparison with the integrated road survey suggests that the basic framework of the map was provided by the Road surveys which were already completed.

1 Vide infra p.272

Two further considerations add weight to this interpretation. If the stations were the basis of a framework then the individual stations ought to be locatable on the printed map. Yet this is not possible for stations named as "in a field" or on "the moor side".¹ Again, the road surveys crossed all types of terrain whereas the routes taken by the surveyors from station to station (Figure 36) followed, in general, the lowlands wherever possible. Indeed, the route taken by the Observation station surveyors can be explained in cost-benefit terms. The areas with few or no stations are those within which there was very little of interest to the surveyors. The most fully surveyed areas are those with the greatest number of settlements. It is surely no coincidence that the gentry and other subscribers lived in the best surveyed areas.

The Observation Stations. The completeness and accuracy of the survey detail

The completeness of the survey details

The general form of report adopted in the field books for each station is the same. At the top of the first page is the name of the station. For over half the stations the date of the survey is also given. Besides fixing the date of the information recorded, these entries also confirm the impression given by the station numbers of the routes followed by the surveyors.

Underneath the title comes the list of places to which bearings were taken. These bearings are given to the nearest five minutes of arc in the form NE41'15 or SE88'45. At the 118 stations some 3,000 bearings were recorded in all, an average of about 25 for each site.

Despite the inaccuracies illustrated by the cross referenced stations, the vast majority of the bearings to places around the stations are

1 For instance, stations 27, 29, 58.

sufficiently accurate to fix the approximate sites of most places which are not immediately obvious from Warburton's map itself. For instance, the tentative assumption that Bank Furnace could have been sited in the present Bank Wood¹ is confirmed in detail from station 83, High Hoyland Church. A bearing to Bank Furnace at $NW7\frac{1}{2}^{\circ}$ and a distance of $2\frac{1}{2}$ miles is recorded. The true line of the bearing can be calculated by reference to bearings to known sites such as Wakefield church at $NE43$. This places Bank Furnace unequivocally in the present Bank Wood. The actual site of the furnace is confirmed by Jefferys' map of 1771.

Churches, towns, halls, castles and hills dominate the lists of bearings. Usually with a hall, the name of the owner is given. There is also a wealth of additional information which can be used to test the printed map. For instance, both stations 2 and 5 include notes on the general nature of the surrounding countryside. In station 2 it is recorded that "5 miles round Bedale generally woody". The printed map does depict this particular information. Station 5 has the comment "Note 3m South and great distance West moors. East and North East rich land - woody". The draughtsman has included the moor information but found no way in which he could represent the "rich land". In general the distribution of woodland on Warburton's map is confirmed by the field books.

Mineral works, some of which are also found on the map, are also recorded. Coal pits are noted to the north of station 8; alum works near stations 24 and 29; lead and copper mines are also noted and station 13 gives a bearing to "a very good slate quarry" which is not mapped.

Although the majority of the bearings are to point features a few refer to such linear features as rivers and the coast. Even so, such bearings are to a very limited number of specific points and are wholly inadequate by themselves for plotting the linear features. Station 24

¹ Some 6 miles south-west of Wakefield

gives bearings to some of the major meanders on the river Tees and station 16 has a note on two of the tributaries of the Tees. Flamborough Head is fixed from stations 31 and 34 and Spurn Head is fixed from stations 40 and 42. Station 40 also gives bearings to the east, middle and west of Sunk Island. It is obvious that the surveying of these linear features was not only very cursory but that this information could have been of little value for the draughtsman. Indeed, at least for the coast line of Holderness and the representation of Sunk Island in the Humber, there can be no doubt that the draughtsman resorted to copying the work of Collins.¹ Collins published his detailed survey of the coasts in 1693. Plagiarism is confirmed not only by the exact replication of the Holderness and Sunk Island coastlines but by Warburton's inclusion of the sand banks and even the recordings of depths off Bridlington.²

The other linear features occasionally noted in the Observation station lists are roads. Five are explicitly referred to in the titles of the stations, namely Bowes Street, station 12; the Whitby Road, station 27; the Bridlington Road, station 35; the Road between North Cave and Hull, station 44 and finally the Road between Tadcaster and (Cawood), station 58.

Consideration of the roads and routes implied by the sequence of Observation stations from number 1 to number 118 can complement the map itself as well as aid in the interpretation of some of the roads on the map.

Since the Observation surveys post date the road surveys and since at least one of the road surveyors, Payler Smith, was also employed on the Observation survey, it is reasonable to assume that where the route from one of these stations to the next could have followed a surveyed road this road was used. Thus the length of road from station 41, Parlington to station 47, Beverley can be related to a mapped road. In all about 35 links

1 Collins (1693)

2 The "Burlington Bay" chart is dated 1686. (Robinson (1962) provides a detailed study of marine cartography.)

between stations can be related to mapped roads.

The remaining routes implied by the need to get from one station to the next fall into two categories. First, there are those routes which could be represented by unsurveyed routes recorded on the map, which account for some 50 links. Second, there are those routes for which the map provides no clues at all. The first type can be subdivided into three types, namely unsurveyed routes, routes taken from Ogilby but not resurveyed and a few Roman roads. All these links can be readily identified by comparing the Observation route (Figure 36) with the map of the roads (Figure 38).

The most useful of the Observation station routes fall into two categories. There are those which enable the unsurveyed routes on the map to be identified, by virtue of the station routes as representing actual roads even if not actual alignments. Where no route at all is shown on the map the station routes highlight omissions deserving further investigation. The problem of discovering the implied roads is a prodigious task but that there is some scope for success is illustrated by the two following examples.

Between stations 8, 9, 10, 11 and 12 no route was shown on Warburton's map and there is no obvious route on the present day Ordnance Survey maps. At the time of the survey the area was unenclosed moorland. By the time of Jefferys' survey, published in 1771, little had changed and again no obvious route was indicated. The absence of any route recorded on the map in 1720 is indicative of the lack of a well defined way at that date across the moorland from station to station.

The second illustration, which makes use of no more information, yields a more readily identifiable route. Stations 116, 117 and 118, between Pickering, Northallerton and Ainderly Steeple were surveyed on the same day, thus implying the presence of a direct route between Pickhill

and Northallerton. There is no direct route today over the river Swale at Maunby but Jefferys' map records a ferry at that point in 1771 and the minor roads clearly lead to this point. It is therefore probable, though not certain, that the route shown by Jefferys between Pickhill and Northallerton via Maunby was in being 50 years earlier and was travelled by Warburton's assistants.

It will be apparent that Observation station field notes contain a wealth of information about both the reliability of the printed map and also the topography of the county of Yorkshire. Clearly such information cannot be analysed exhaustively in the present study. Two general findings, however, merit consideration. The first is that even the properties of members of the landed classes were not always immune from omission; so much is apparent from the omission of a park to the south-east of Ingleby Manor near station 26. The second finding is that place names presented a problem for the map maker. For instance, Castle Howard is recorded in the field notes for station 54 yet that same place is recorded in the field notes for station 106 as Hinderskelf Park and Castle. The printed map records the name Castle Howard but station 106 provides evidence that both names were used in c.1720.

The accuracy of the survey details as illustrated for the North Riding

For the North Riding of Yorkshire there were in the Observation station field notes a total of 635 sites for which bearings were recorded when bearings from stations within and without the Riding are taken into account. Less than half these sites, namely 312, are cross referenced. Churches dominate the lists with a total in the North Riding of 457. No less than 249 of these churches are cross referenced as are 45 of the 70 Halls and 28 of the 40 hills. The other sites include such features as castles, abbeys and a number of isolated mines.

An item by item comparison of the station bearings with the printed map shows that not all the places observed were mapped. Omitted from the map for instance, were 23 churches or their associated settlements, including 9 which were cross referenced. The same was true of 9 halls, including 2 which were cross referenced.

Although the proportion of cross referenced places is relatively very much higher than the proportion of cross referenced stations, the draughtsman cannot be blamed for all the errors of location on the map. The lack of a cross reference for some 50% of the sites, for instance, was not counter-balanced by an abundance of mileage recordings to these sites. Indeed, for only 127 sites were mileages recorded and mileages from more than one station were given for only 17 of these. Surprisingly the draughtsman omitted three sites which were given two mileage and bearing entries in the lists.

When both the station site and the site to which the bearing is directed can be precisely located 136 measurable distances are provided. Of these 136 measurable distances 35 are correct to within half a mile; 22 overestimate the distance from the station to the feature, and 79 underestimate that distance. The greatest error is one of 5 miles in a distance of 21 miles from station 1 to Crayke Castle. Most of the other measurable distances are of the order of 2 to 4 miles from the station and the errors in these cases range from about half a mile to one mile. One measurement from station 17 is recorded precisely and correctly at 1.3 furlongs, thus suggesting that at least in this case the distance was actually measured on the ground. By contrast it is clear that the other distances were merely estimates made either by the surveyors or by their guides.

Warburton's survey compared with Saxton's map of 1577: The North Riding

A comparison of settlement numbers and accuracy

Since Warburton's map is the first new County survey of Yorkshire after Saxton's it is valid, despite the difference in scale, to compare the number of places and their relative accuracy. This is particularly the case in the light of the problems of map construction highlighted by the account of the information provided by Warburton's Observation stations.

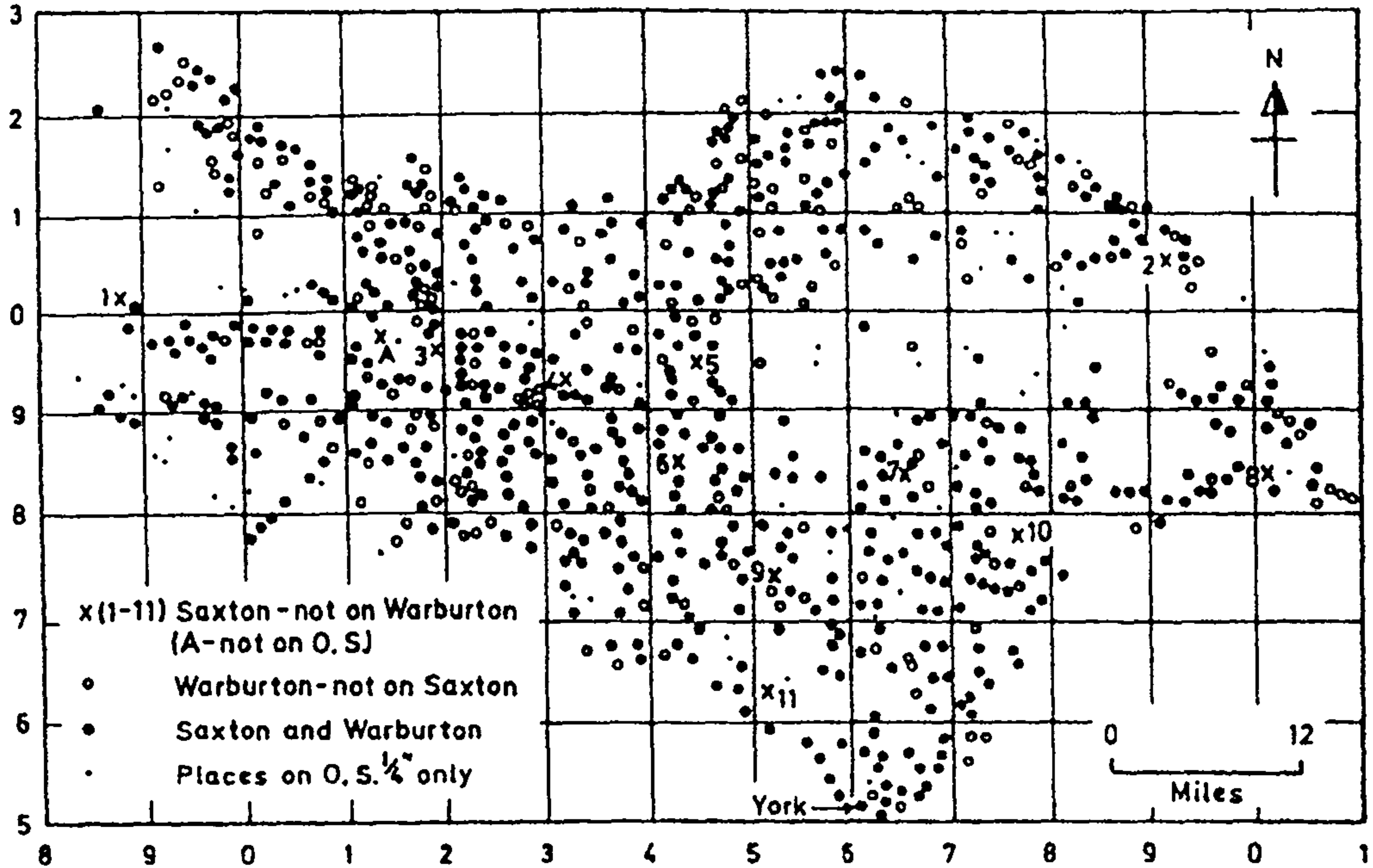
Settlement numbers

Because of the sheer volume of work involved in the exercise, comparison is limited to the North Riding. The numbers of settlements portrayed on the two maps are compared with the Ordnance Survey $\frac{1}{4}$ inch maps since these are the closest in scale to the maps of Saxton and Warburton, at about $4\frac{1}{2}$ miles to the inch and $2\frac{1}{2}$ miles to the inch respectively.

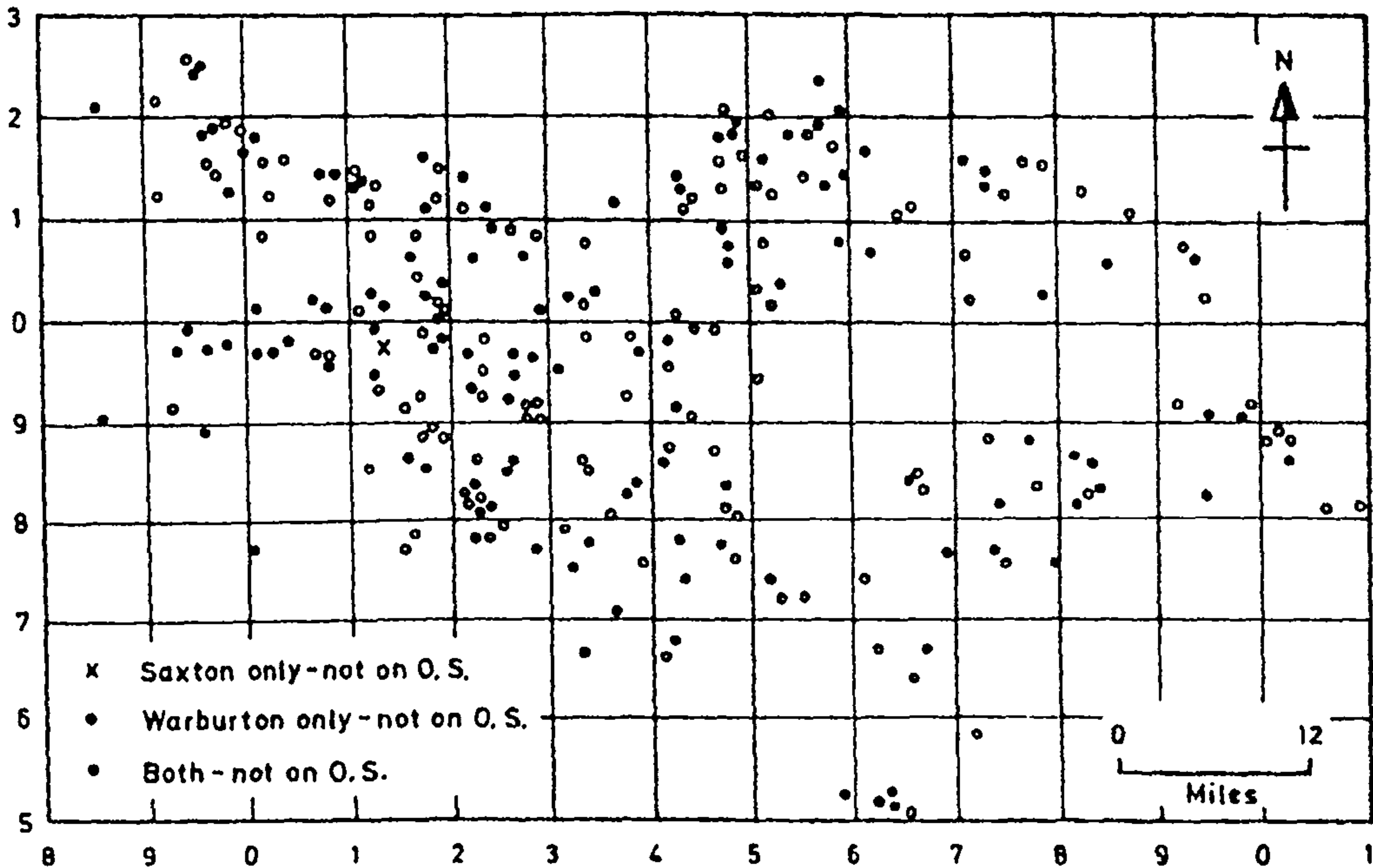
Five problems complicate a direct comparison of the settlement pattern. Some place names are very different; and thus for instance Cockayne has replaced Bransdale. A few places such as Sutton Howgrave, shown on Warburton's map, are so badly misplaced that they could be easily overlooked. Some places are named but given no symbol as is the case with Appersett (Apperside) on Warburton's map. The reverse is also true, that is symbols are given but not a name, as with Thrintoft on Warburton's map. Finally, with both Saxton and Warburton's maps there are ambiguities caused by the existence of adjacent places bearing similar names, as with Copt Hewick and Bridge Hewick. In this case Saxton merely records one village 'Hewick'. Warburton's map also depicts only one village but names it 'Hewick Bridge'. Nevertheless, the few unresolved problem cases are not significant in a general analysis of some 800 different places in the North Riding.

Figure 37 Settlement comparison between Saxton's map of 1577 and Warburton's map of 1720: the North Riding

A) All places recorded by Saxton and Warburton



B) Places recorded by Saxton and Warburton not on O.S.



N.B. O.S. grid base

Ordnance Survey (O.S.) information included from the 1/4" map, the nearest in scale to Saxton's and Warburton's maps

Table 9 Summary of Places recorded by Saxton, Warburton and the Ordnance Survey $\frac{1}{4}$ " in the North Riding

	Total Places	Saxton and Warburton	Saxton not Warburton	Warburton not Saxton	Saxton and Ordnance Survey $\frac{1}{4}$ "	Warburton and Ordnance Survey $\frac{1}{4}$ "	Ordnance Survey $\frac{1}{4}$ " only
Saxton	546	534	12 *		425		
Warburton	710	534		176 **		465	
Ordnance Survey $\frac{1}{4}$ "	537				425	465	61

* 1 is not on O.S. $\frac{1}{4}$ "** 125 are not on O.S. $\frac{1}{4}$ "

The findings of this analysis are shown in Figure 37.A and 37.B and Table 9 . Figure 37.A shows all the places recorded on the maps of Saxton, Warburton and the additional ones on the $\frac{1}{4}$ " Ordnance Survey map. The most remarkable feature is the completeness of Saxton's map. Table 9 shows that both in absolute terms and in relation to scale Saxton's map shows more places than the Ordnance Survey map. On Saxton's map the uplands of north-west Yorkshire and the North York moors stand out as areas with hardly any settlement. Although Warburton's map records many more places in total, only a very few of these additional settlements were in these upland areas.

Although Saxton's map and the $\frac{1}{4}$ " Ordnance Survey map record a similar number of places only 425 out of 546 places are the same (Table 9). Figure 37.A and 37.B show that while most of the places mapped by Saxton but omitted by the Ordnance Survey are in the lowlands, a considerable number of those places recorded by the Ordnance Survey but not by Saxton are in the uplands. That many of the additional places mapped by the Ordnance Survey are in the uplands is an indication that Saxton surveyed these areas with less detail than he surveyed the lowlands. Similarly, the same general relationship is true between Warburton's map and the Ordnance Survey maps. For instance, half the additional places mapped on the $\frac{1}{4}$ " Ordnance Survey maps lie beyond the range of either Warburton's Observation survey or his Road surveys.

The portrayal of different places on the three maps merits further consideration. Three groups of settlements can be considered: the places recorded by Saxton but not by Warburton; the places recorded by Warburton but not by Saxton; and finally, the places recorded by the Ordnance Survey but not by Warburton.

Table 10 Places on Saxton's map but not on Warburton's map in the North Riding

Place	Observation Station from which bearing recorded		Comments
1 Stonedale	-		No possible survey
2 Sneaton Thorp	30, 31		Confused with Sneaton?
3 Scotton	4, 20		
4 Thrintoft	117, 118		Symbol only on map
5 Thimbleby	117	R	Road junction leading to ...
6 North Kilvington	109	R	On the road surveyed
7 Nawton	-		Poorly surveyed area
8 Irton	32, 33	R	Road junction leading to ...
9 Husthwaite	108		
10 Little Barugh		R	Road junction leading to ...
11 Tollerton	-		
12 Waithwill	-		

R: Referred to in one of the road surveys

Places in the North Riding on Saxton's map but not on Warburton's map

12 places have been positively identified as being shown by Saxton but not by Warburton. Of these places 11 are also recorded by the Ordnance Survey $\frac{1}{4}$ " maps but one, Waithwill is not (Figure 37.B). Waithwell can be found on the Ordnance Survey one inch maps some 2 miles to the south-west of Richmond. It was also depicted by Jefferys as a very tiny hamlet. Consequently the reason why Saxton should have recorded it is of more interest than the reason why Warburton did not record it.

The omission of the other 11 places from Warburton's map can be readily explained by recourse to his field books. Table 10 shows that 4 of these places were beyond the range of Warburton's Observation stations. The omission of these places, therefore, is a result of the deficiencies of Warburton's original survey. By contrast, the omission of the other places can be attributed to weaknesses in the draughting of the map since they were all surveyed. The omission of these places paradoxically, provides evidence of the integrity of the cartographer and hence of his map. Whereas the omission of 12 places out of some 700 from the manuscript survey notes is understandable as human error, it is very unlikely that, had Warburton merely been copying Saxton's printed map slavishly, he would have missed so many places.

Nevertheless, that Saxton's map and indeed later maps, were used to provide background reading for Warburton is suggested by their presence in his collection. Moreover, at least two places, Appersett and Coverhead, recorded by Saxton, lie beyond the range of Warburton's surveys. These places are significantly only named by Warburton on his map and not given a place symbol.

Table 11 Places on Ordnance Survey $\frac{1}{4}$ " Maps not on Warburton's map in the North Riding

Place	Comment	Place	Comment
1 Grassholme	J	31 Thorgill	
2 South Bank		32 Keldy Castle	
3 Grangetown		33 Stape	J
4 Dormanstown		34 Hunt House	J
5 Clove Lodge	J	35 Cloughton Newlands	
6 Sleightholme	13,15(not J)	36 Marsett	J
7 Boosbeck	J	37 Countersett	J
8 Stanghow	J	38 Staling Busk	J
9 Port Mulgrave		39 Kidstones	J
10 Kettleness	J	40 Walden Head	J
11 Whaw	J	41 Walden	
12 Langthwaite	J	42 West Scrafton (Mislocated?)	J
13 Hurst	J	43 Thirn	J
14 Washfold		44 Leeming Bar	
15 Scotch Corner		45 Londonderry	J
16 Street		46 Oldstead	108, J
17 Houlsyke		47 Wether Cote	J
18 Lealholm	J	48 Muscoates	J
19 Beckhole		49 Kirkby Mills	R
20 Ravenscar		50 Eastfield	
21 Cotterdale		51 West Summerside	
22 High Shaw		52 Sharow	112, J
23 Sedbusk	J	53 Copt Hewick	113, J
24 New Biggin	8, J	54 Thorpe Hall	
25 Catterick Camp		55 Ampleforth College	
26 Whitwell	J	56 Skewsby	J
27 Crosby Court		57 Scackleton	106, J
28 Grange		58 Tholthorpe	J
29 Fangdale Beck		59 Flawith	J
30 Low Mill	J	60 Cross Lanes	
		61 New Earswick	

J: Also mapped by Jefferys 1771;

R: in road survey;

Numbers refer to Observation Station references.

See also Table 10 for 11 additional places.

Places in the North Riding on Warburton's map but not on Saxton's map

Table 9 shows that 176 of the 710 places recorded by Warburton in the North Riding were not recorded by Saxton. On the basis of the foregoing comments it is reasonable to assume that a few of these places were surveyed by Saxton but omitted in the process of draughting.

The majority of the additional places shown by Warburton lie in amongst the settlements already mapped by Saxton rather than in the more remote upland areas. That most of these places were surveyed from the Observation stations and are not found on the Road surveys supports the argument advanced above that Warburton's map is not merely a survey of roads superimposed on the settlement information of earlier maps.

Warburton's Road surveys are explicitly surveys of roads leading from one market town to the next.¹ These road surveys add few settlements to the number already recorded by Saxton, possibly because Saxton himself would probably have used many of these same roads.

Places in the North Riding on the $\frac{1}{4}$ " Ordnance Survey maps but not on Warburton's map

The 11 places recorded by both Saxton and the $\frac{1}{4}$ " Ordnance Survey maps have been noted already. That a further 61 places were recorded by the $\frac{1}{4}$ " maps but not shown by Warburton is a feature which merits comment since Warburton records nearly 200 more places in total than the Ordnance Survey. Moreover, the scale of the Ordnance Survey is smaller. These 61 places are shown on Figure 37.A and listed in Table 11.

Figure 37.A shows that many of these places lay beyond the range of Warburton's surveys. Of these, 7 can be explained as omissions by

1 Vide supra p.243

Warburton's draughtsman.¹ Some, such as Catterick Camp, did not exist in 1720.

A comparison of the $\frac{1}{4}$ " maps was also made with Jefferys' map of 1771. Given the scale of Jefferys' map, namely one inch to the mile, any place omitted from it is likely to have been very small or even non-existent. In either case the omission of such a place from Warburton's map is not significant. In fact, most of the places recorded by the $\frac{1}{4}$ " maps but not on Warburton's map can be found on Jefferys' map (Table 11). Again, most of these lie beyond the range of Warburton's surveys.

Thus the presence of places in the North Riding mapped by the Ordnance Survey but not recorded on Warburton's map reflects not simply a more detailed survey but one which paid greater attention to the less accessible parts of the county.

Conclusions from the comparison of settlement numbers

Comparison of Saxton's map with Warburton's map and both with the Ordnance Survey $\frac{1}{4}$ " maps provides a basis for a general analysis of the settlement on the earlier maps. Comparison reveals some unexpected features, notably places which at the scale of the map, surprise by their presence or their absence. The importance of such findings is primarily in providing evidence of the depth and completeness of each survey rather than in providing evidence of change in the significance of the places themselves. This comparison can be no more than a starting point for the consideration of the significance of the unexpected features.

Three general conclusions can be drawn from the settlement distributions on successive maps. The first is the surprising completeness of Saxton's representation of settlements in 1577, especially given the small scale he

¹ Numbered 6, 24, 46, 49, 52, 53, 57.

Table 12 Comparison of 17 Angles on the maps of Saxton, Warburton, the Ordnance Survey and Warburton's Field survey

Angle in °	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Saxton - O.S.	+ 5	+ 2	-12	- 2	+ 2	+ 7	+ 5	0	- 2	- 3	-11	0	+ 5	0	+ 6	- 2	+ 1
Warburton - O.S.	-38	-48	+13	+ 3	+13	-12	- 5	+14	- 4	-13	+ 1	+ 1	- 2	- 9	-13	- 2	+ 1
Warburton's Survey - O.S.	+14	+ 8	(2.30) + 2	(1.30) + 1	- 7	- 5	- 1	(-0.5) 0	- 3	- 1	- 4	- 3	(-.05) 0	(-2.5) 2	0	(-2.5) 2	+ 1
Degrees O.S.	157	170	72	40	23	143	74	112	177	122	22	26	107	159.5	76	162	144

Mean error: Saxton. 3.82° ; Warburton. 11.29° (7.06 excluding 1 and 2); (Warburton's Survey. 3.17°)

adopted for his map. The second is that Warburton's survey did not push much further than Saxton's survey into the more remote areas of the county but it did add significantly to the number of places in the more accessible areas. Thirdly, the additional places on the Ordnance Survey maps and particularly those found also on Jefferys' map of 1771, emphasize the extent to which both Saxton's map and Warburton's map were the outcome of surveys which sacrificed settlement detail in the remoter areas in the interest of ease and speed. Nevertheless, these earlier surveys may accurately reflect contemporary awareness of the relative unimportance of the areas not surveyed. These surveys do not, however, reflect the true distribution of settlement in the county.

Settlement accuracy: their relative location

The planimetric accuracy of the maps of Saxton and Warburton can be assessed by measuring the angle between groups of three given places on the maps. The angles so derived are consequently unaffected by the problems of magnetic north.

For the purposes of this study, comparisons are made between the maps of Saxton, Warburton and the Ordnance Survey and also with the data recorded in the Warburton field books. Thus the relationship between Warburton's survey and his printed map can also be illustrated.

For purposes of comparison 17 angles were selected. The choice was constrained by the need to use bearings recorded without ambiguity in Warburton's field books; and 6 stations were used with each station as the point at which the angles were measured.

The results are given in Table 12 . The places used are recorded in Appendix 4 . The Ordnance Survey angles are taken from the 1" series and all angles are adjusted to the nearest whole degree towards the Ordnance

Survey figure. The field book angles are shown in brackets where they are not whole numbers. An adjustment of half a degree simplifies the table and is justified on the grounds that a greater error is implicit when measuring angles on early maps. Errors which creep in between the survey and the printed map can, of course, act in both directions.

It is remarkable that in six instances¹ Saxton's map presents the most accurate angles, as compared with seven such instances in the Warburton survey. Warburton's map, by contrast, is the most accurate in only one instance. Indeed, Warburton's map stands out as the least accurate with 12 in this poorest category as against a mere 2 on Saxton's map. The survey, however, is poorest in only one case.

The greatest error on Saxton's map is 11 degrees yet 8 of the 17 angles on Warburton's map have an error greater than that. The mean error shows that Saxton's map is almost as accurate as Warburton's field survey. Even ignoring the two gross errors on Warburton's map, the margin of error is clearly greater on the map than either in Warburton's survey or on Saxton's map.

The two gross errors on Warburton's map can be simply explained. The area concerned, the far north-west, was poorly surveyed as is shown by the large positive survey errors. The map errors, however, are negative, that is, showing a more acute angle between the sets of three places than is correct. This dramatic swing from surveyed angles which were too wide to the over reduced mapped representation of the places would appear to be due to the size of paper² available for drawing the map at the chosen scale. The protrusion of the county up the Tees valley had to be distorted by the draughtsman in order to fit it on to a sheet. Scale is also partially responsible for the difference in accuracy between Saxton's map and Warburton's map since the smaller the scale and the larger the place symbol

1 Angles 1, 2, 5, 9, 12, 14.

2 Almost certainly vellum, in fact. (Crump, 1928, p.393, quoting Thoresby)

relative to the scale the smaller the possibility of large errors.

With Warburton's map, study of the field notes makes it clear that the very slight relationship between the Observation station surveys and the Road surveys inevitably created problems for the draughtsman. This makes Saxton's achievement all the more remarkable and suggests that he must have had a strong basic survey framework since his printed map is only fractionally less accurate than Warburton's field survey. Furthermore, unlike Warburton, Saxton had no reasonable map against which to check his own survey.

The roads on Warburton's map

The third main strand of Warburton's survey, the Road surveys, represents a feature which cannot be compared with Saxton's map for the simple reason that Saxton's map does not record any roads at all. Before Warburton's map routes had been mapped and best of all by Ogilby. No map of Yorkshire, however, had depicted anywhere near so many routes as can be seen on Warburton's map. The variable standard of Warburton's Observation information as mapped is sufficient to suggest that the roads are liable to present problems of interpretation.

Crump,¹ as early as 1928 recognized that Warburton's roads could be divided into four classes: surveyed roads, roads copied from Ogilby's Road Book, Roman roads and unsurveyed roads. The Roman roads are differentiated in the key to the map with the comment "The Roman Military ways are shewn by 2 unequal black lines and when discontinued or broken off are not visible".

1 Crump (1928) p.398

**CONTAINS
PULLOUTS**

Figure 38 Warburton's map of 1720. Roads actually surveyed by his surveyors

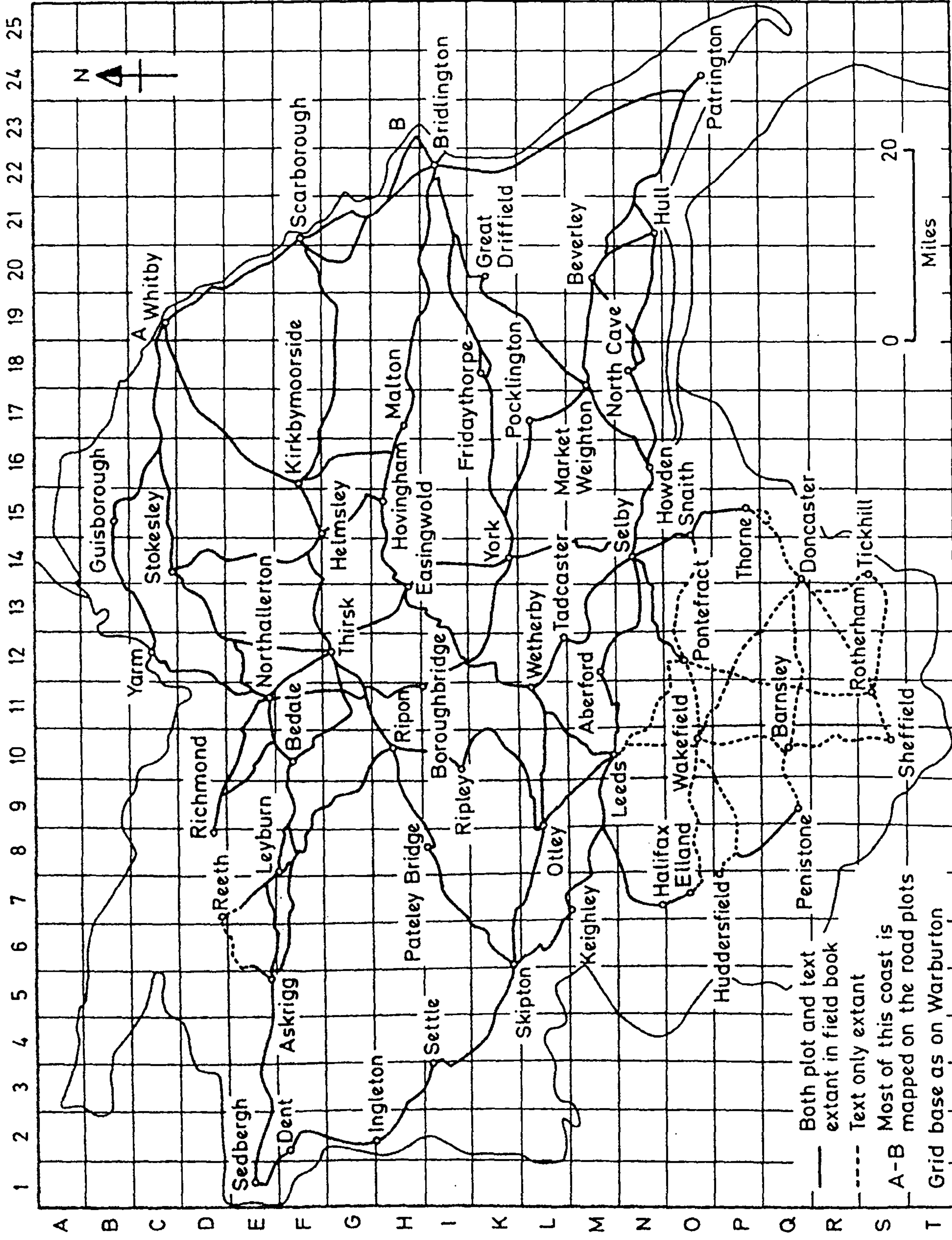


Figure 39 Warburton's map of 1720. 'Roads' depicted but not surveyed by his surveyors

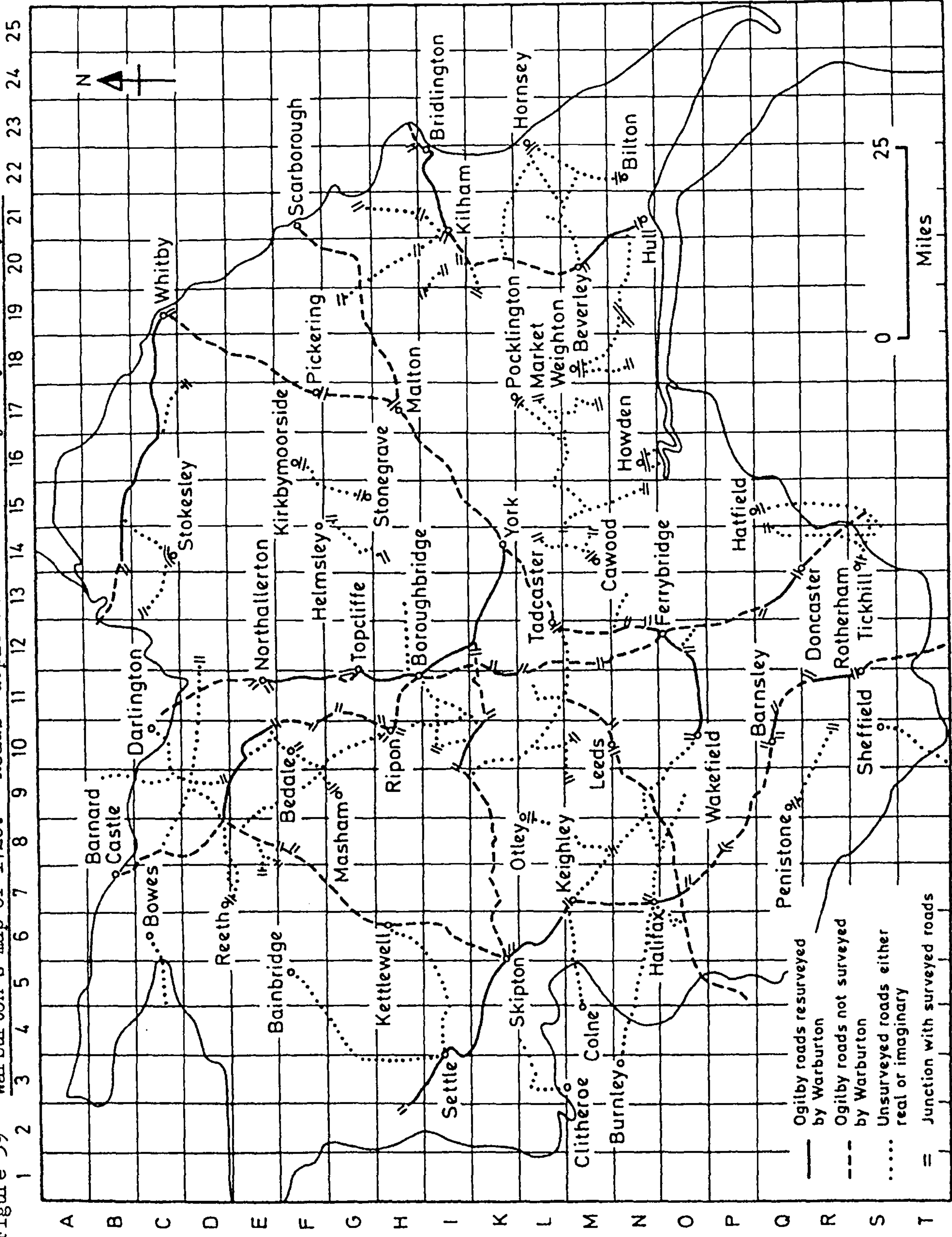


Figure 38 Warburton's map of 1720. Roads actually surveyed by his surveyors

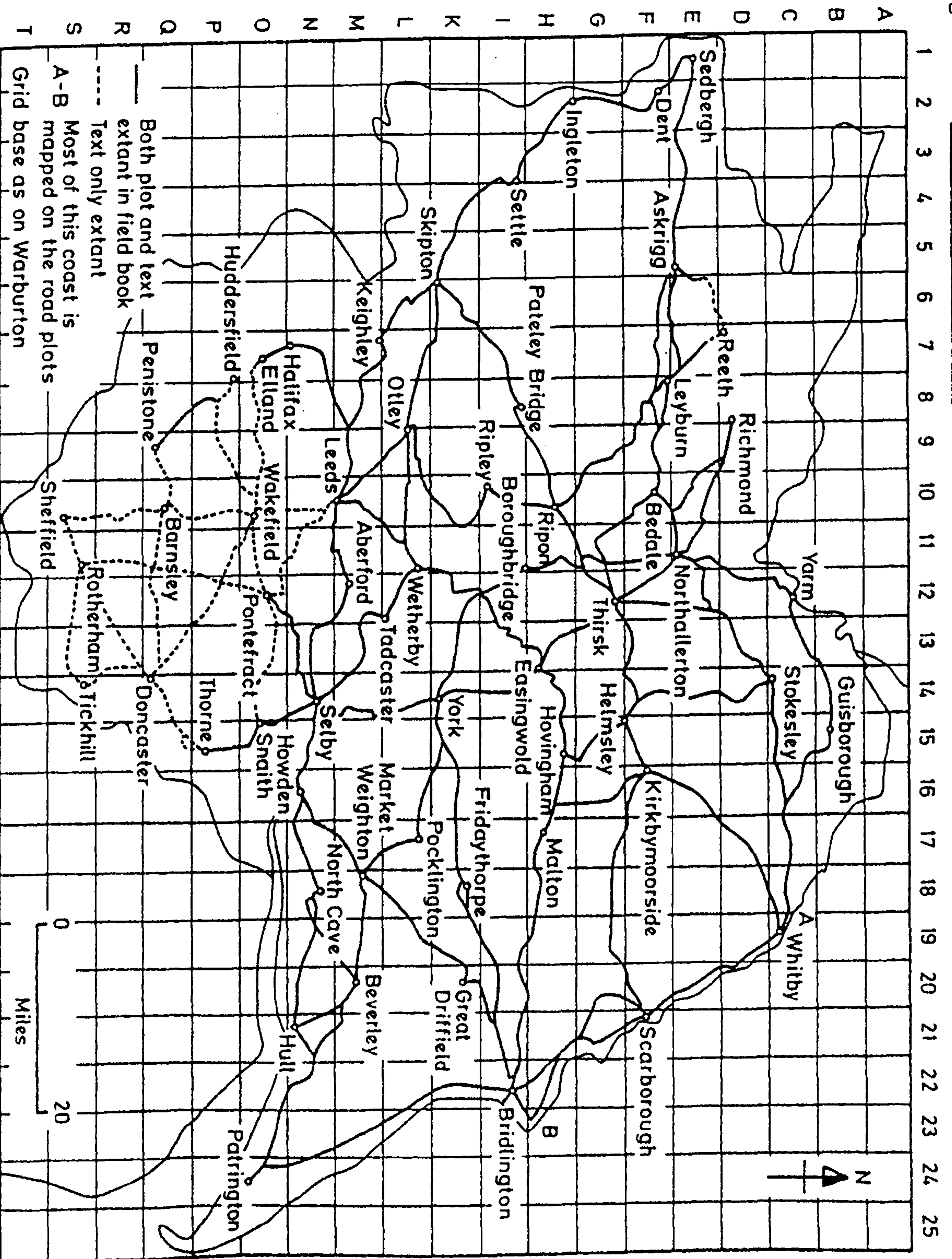
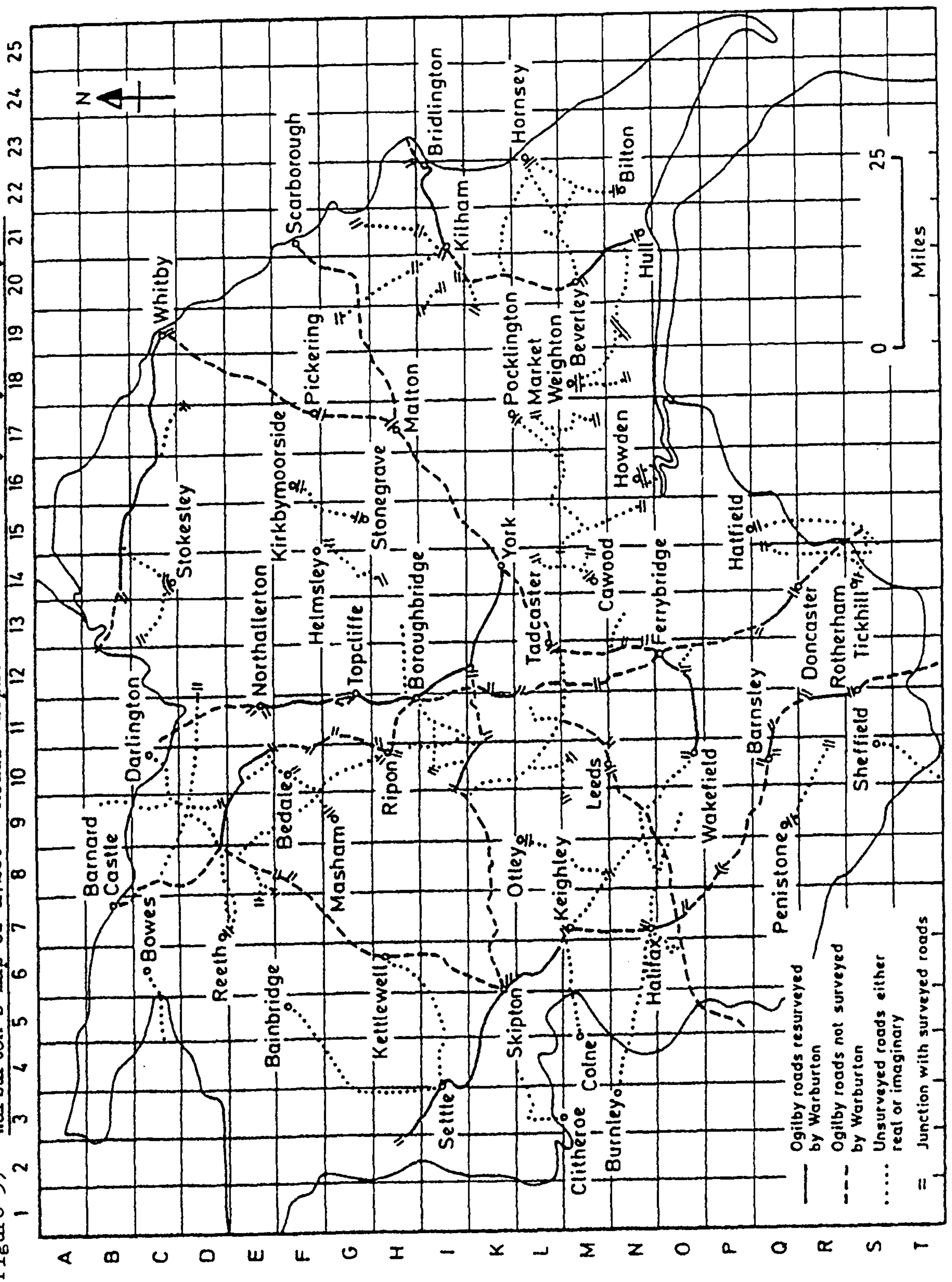


Figure 39 Warburton's map of 1720. 'Roads' depicted but not surveyed by his surveyors



- Ogilby roads resurveyed by Warburton
- - - Ogilby roads not surveyed by Warburton
- Unsurveyed roads either real or imaginary
- = Junction with surveyed roads

From the map alone it is not possible to distinguish the other three types. Crump did not undertake the task of attempting to identify all these roads but noted that it would be possible from the field book materials in the Lansdowne Manuscripts. Figures 38 and 39 are the result of his suggestion being implemented. In fact, it became apparent that the four fold classification was too simplistic. Figure 38 shows all and only the surveyed roads, including those sections of roads previously surveyed by Ogilby and resurveyed for Warburton's map.¹

By contrast, Figure 39 shows all the unsurveyed routes including the Ogilby roads which were not resurveyed. To illustrate the extent to which Ogilby's roads were resurveyed by Warburton's surveyors these roads are also included on this figure. It is clear that unlike the map of the surveyed roads (Figure 38) with its definite network, the routes in this second figure are generally shorter and very disjointed.

With the information provided by these two figures many of the problems of interpreting the roads on Warburton's map are solved by the evidence that the apparent road was not in fact surveyed and was, therefore, at best only a guessed alignment of an actual road in 1720 and at worst might have been entirely fictitious.

Unfortunately, not all the road problems are so simply resolved. Greater attention must therefore be given to all these types. The surveyed roads are considered first.

Warburton's surveyed roads

Dating the Road survey materials

The date and consequently the reliability of the road surveys in the

¹ The grids on Figures 38 and 39 are the same as on Warburton's map to facilitate direct comparison of the roads.

Lansdowne Collection have been questioned in the recent work by Van Eerde¹ on Ogilby. She suggests that some of the field notes in manuscript 895 (ff.138-228) are not part of Warburton's survey but "might have been done for Ogilby".² Her evidence is the great similarity in the style between these specific survey plots and Ogilby's printed strip maps. She also claims that nothing similar is found elsewhere in MS.895 or MS.913. Certainly these plots do look similar to Ogilby's work but there is no doubt that they belong to Warburton's survey. The proof is given in MS.912 which was apparently overlooked by Van Eerde. This manuscript, which contains the written text for these plots is dated 1718. 'Re-protracting'³ these texts confirms that the plots were originally protracted from them. Further evidence is provided by the members of the gentry named in the texts and on the plots. For instance, Thomas Frankland is named as the occupant of Thirkleby Manor. His father, Sir William Frankland, died in 1697⁴ and Thomas was clearly not the owner in 1675, the date of Ogilby's maps. Finally, these plots begin, as do the other unquestioned surveys, from Bedale, Warburton's Yorkshire residence.

The three Road surveyors; Brown, Bland and Smith

Van Eerde's observations that some of the road surveys look very similar to Ogilby's work draws attention to the fact that the road plots in the Lansdowne Collection are not all of the same standard or indeed in the same style.

The plots identified by Van Eerde are named in the manuscripts as Mr. Brown's Survey.⁵ Brown's surveys were all completed in 1718 whereas

1 Van Eerde (1976)

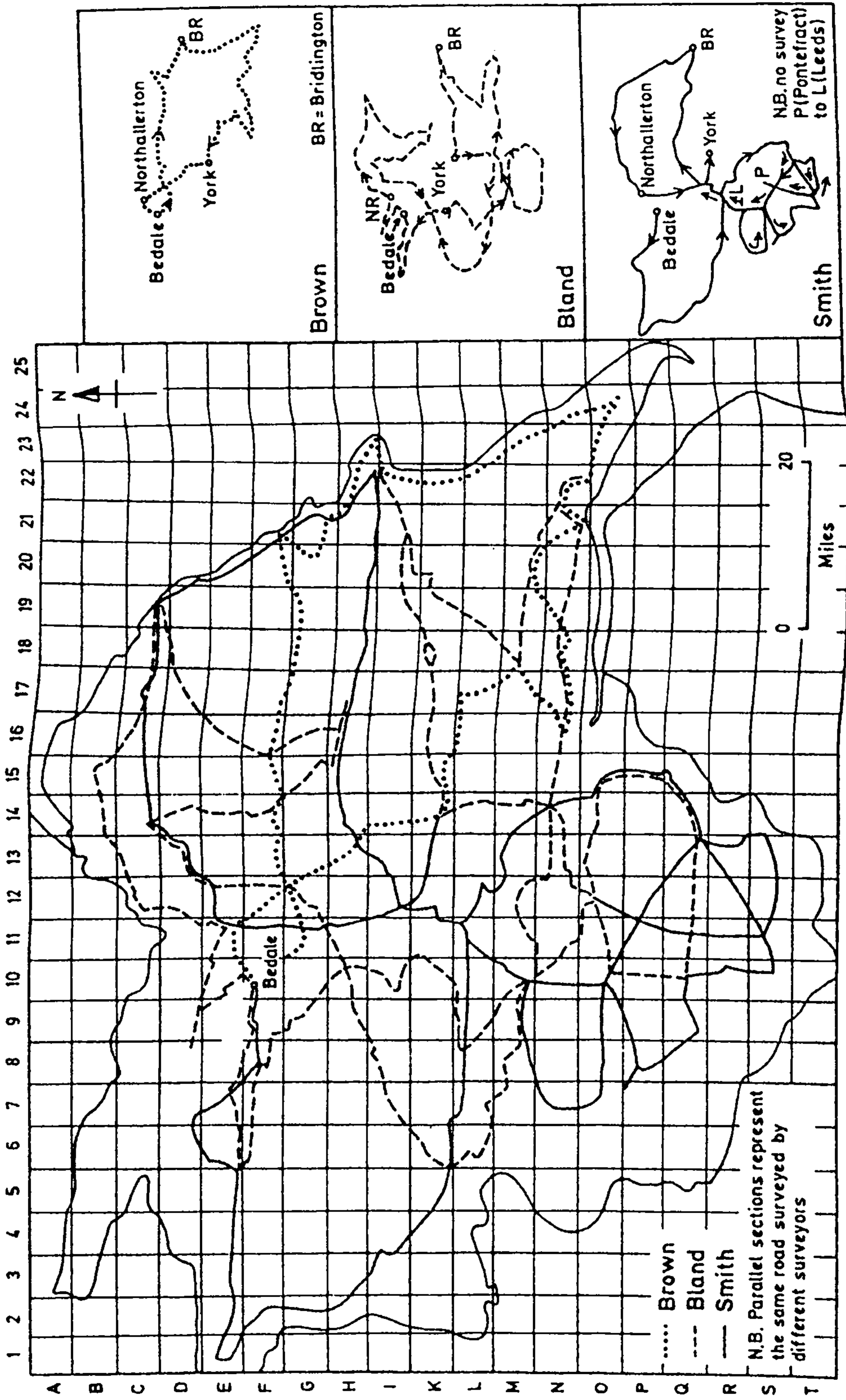
2 *ibid* p.168

3 The term 're-protracting' is used for the exercise undertaken for the purposes of this research of drawing to scale the survey data which has already been protracted once by Warburton or his assistants, in order to compile his map.

4 Page (1923) p.57

5 MS.895, ff.138-228

Figure 40 The Roads surveyed by Brown, Bland and Smith and the routes they took, 1718-1719



Grid as on Warburton's map

the other two surveyors, Bland and Smith, only began in 1719. Since Brown's surveys are inferior to those of the other men and his name does not appear again, it is possible that he was replaced because his standard was not satisfactory. The differing accuracy adds to the problems of interpreting the map since his mapped roads are necessarily less precise than for the better surveys of Bland and Smith. For this reason Figure 40 has been drawn showing the roads surveyed by each of the three surveyors. Bland's and Smith's roads are much easier to interpret directly from the map than Brown's roads. Smith's roads are superior to Bland's.

This Figure (Figure 40) is also a pointer to the construction of the map. It can be seen that the roads are interlinked, so providing fixed points of reference. This interlinking is most intense in the central section with the north-west and the south-east corners being the least controlled. Four towns, Bedale, Northallerton, Bridlington and York were included by all three surveyors and several other places such as Hull, Doncaster and Whitby by two of the three. Brown and Bland's surveys were complete circuits and all three cross over roads already surveyed by themselves, thus adding further points of reference.

Several remarks about the survey, including explicit references to Smith and Bland but not to Brown, are found in Thoresby's diary. For instance, Thoresby records that in October 1719 he transcribed Bland's survey and watched Smith at work.¹ The absence of any reference to Brown could be explained by the unfortunate gap in the diary from 1714 to September 1719.

Brown's survey is important not only for showing in greater detail than the printed map some of the roads of Yorkshire in 1718, but because a few of his roads, such as that between Hedon and Hull, were also surveyed by the much more accurate Bland in 1719. Comparison of the two representations of the same road facilitates the interpretation of Brown's more

¹ In Hunter (1830) Vol.2, pp.263-4

general survey and consequently provides a key to the interpretation of the similarly styled Ogilby road maps.

Brown's text reveals that he took bearings at a greater distance along the road than Bland. Hence Brown's plot records only the more obvious bends where Bland's survey detail produces a road plot depicting almost every bend. By extension it can be argued that where differences between the cartographic representation on Ogilby's maps and the Ordnance Survey can be interpreted in terms of a more generalized method of survey rather than a different road alignment, then the onus is on the local historian to provide evidence that Ogilby's road was not the same as the present road.

Surprisingly, Brown in his text records bearings with precision extending to minutes of an arc such as SE22.30 while Smith and Bland only record the degrees of arc. That Smith was more precise than Bland is illustrated by the fact that the majority of Bland's bearings are to the nearest five degrees, for example SW15 or NE20, whereas Smith's bearings are to the nearest single degree, NW21 or SW87.

Re-protracting the three surveyors' work shows that since Bland records angles to the nearest five degrees and also records almost every bend, in fact his work presents few problems of interpretation. Furthermore, since Smith is even more accurate and gives even more frequent bearings his work presents even fewer problems. It follows therefore that Brown's greater precision is not necessary for the construction of an accurate road plot. The crucial factor is not measurement of angles but the greater frequency of bearings.

Brown's surveys can be dated from the manuscripts to the month and the surveys of Smith and Bland to the actual day on which they were made.¹ Thus the field notes provide a very firmly dated portrayal of the main roads of Yorkshire. For no other Yorkshire map made before the Ordnance Survey

¹ Vide Appendix 5

maps can topographical information be dated so exactly. The reliability of the dating of Warburton's surveys could hardly be bettered.

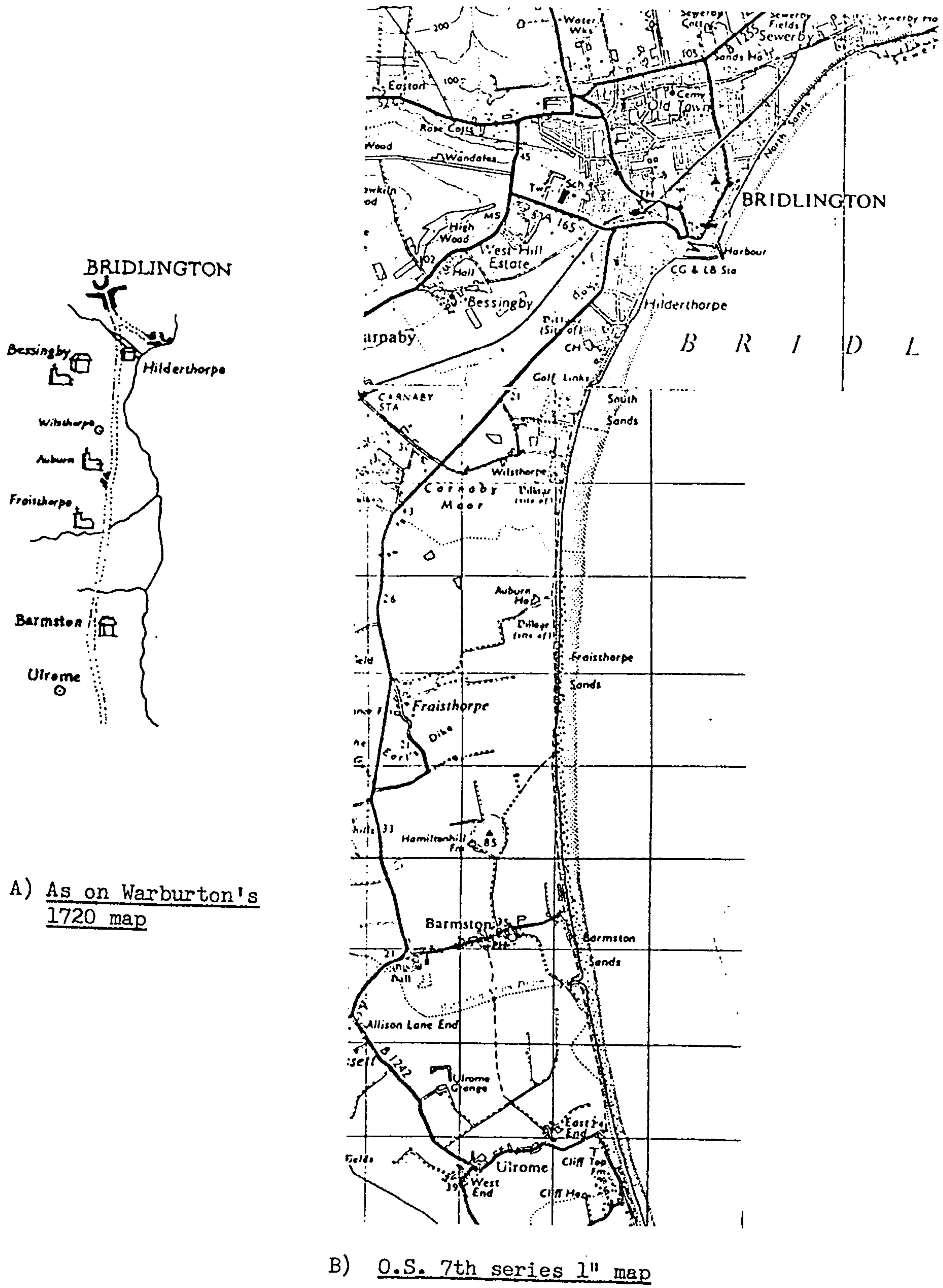
The Roads: the present day equivalents

Ultimately the reliability of the surveyed roads on Warburton's map depends on the extent to which they can be confidently related to alignments on the ground, even if parts of these alignments are no longer extant. The surveys in the field books were plotted at a scale of one inch to the mile. Hence both these and re-protractions of road surveys for which the text alone survives can be traced and superimposed on the Ordnance Survey 1" maps. For the purposes of this study the roads are described as "the same" if the trace of the survey coincides exactly with the road as portrayed on the Ordnance Survey map or differs from it by no more than the width of the road representation to either side.

Even with Brown's surveys, it is usually clear whether or not the road he was surveying is the same as a present alignment. Bland's surveys are very good but those of Smith achieve a remarkable accuracy. Thus the vast majority of his surveys portray every kink on the Ordnance Survey map whether the road surveyed by Smith is still a main road or is now no more than a track. With all three surveyors' work, comparison with Jefferys' map of 1771 helped to eliminate any problems of identification.

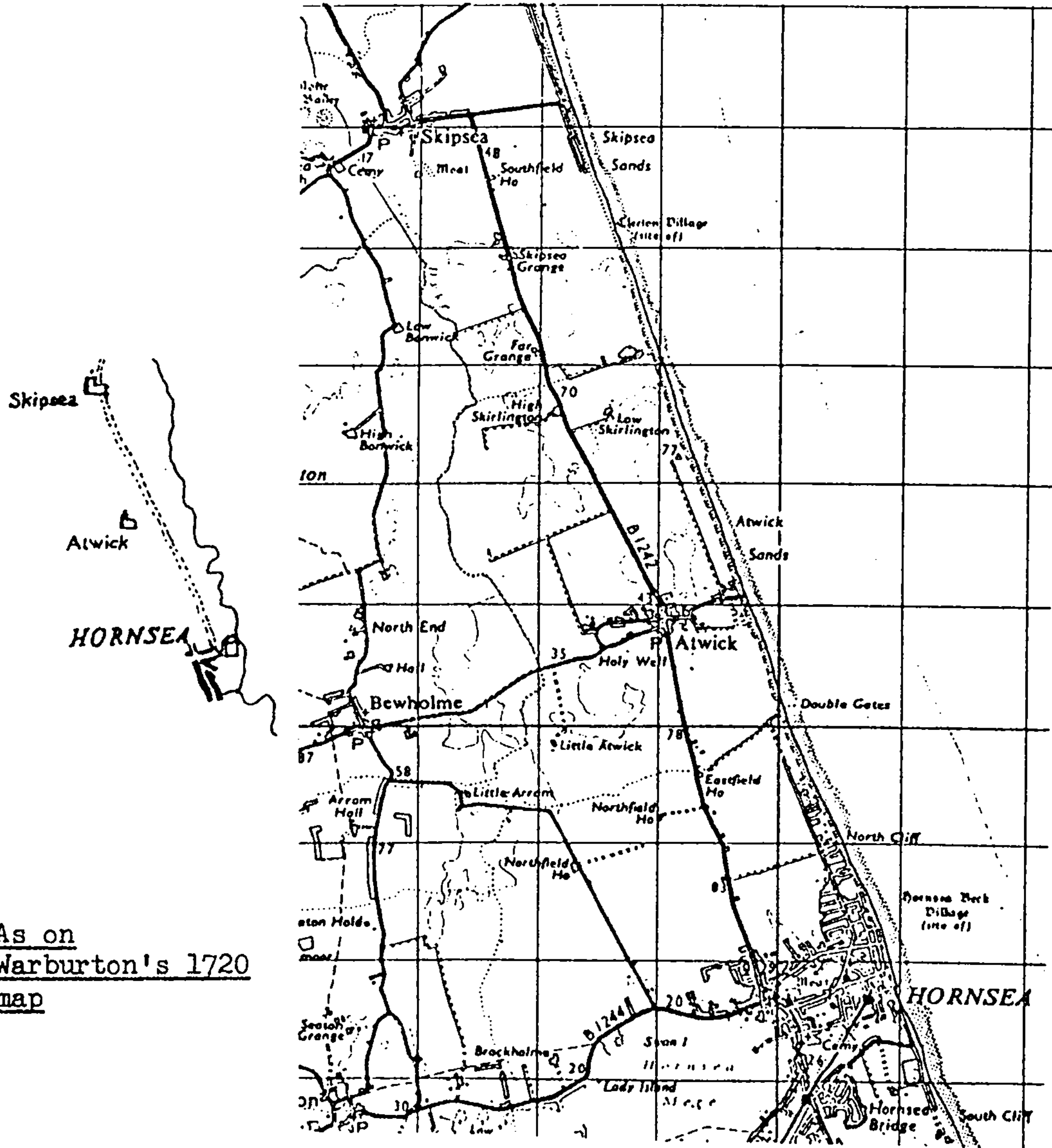
The following assessment of each surveyor's road surveys includes interpretation of the major problems posed by the representation of these surveyed roads on the printed map. For this assessment every road plot and text was examined, re-protracted where necessary, and compared in detail both with the printed map itself and the Ordnance Survey 1" maps.

Figure 41 Bridlington to Ulrome. Warburton and the Ordnance Survey



Scale: Warburton $2\frac{1}{2}$ miles to the inch; O.S. 1" to the mile

Figure 42 Skipsea to Hornsea. Warburton and the Ordnance Survey



A) As on Warburton's 1720 map

B) O.S. 7th series 1" map

Scale: Warburton $2\frac{1}{2}$ miles to the inch; O.S. 1" to the mile

Brown's surveys

Brown's surveys are not always detailed enough to enable the present day investigator to state categorically that the road he surveyed is exactly the same as a present alignment. Nevertheless, with few exceptions the accuracy and detail are sufficient to justify the claim that the road is almost certainly the same as such an alignment.

The results of the Brown surveys are inevitably depicted on the printed map in more generalized form than those of Bland and Smith. Nevertheless, the roads based on Brown's work are presented in sufficient detail to permit the identification of the approximate course of the road. There are, however, instances where the road on the map cannot be immediately related to a present road or alignment. The explanation may be that part of the results of the survey was incorrectly presented on the map. Alternatively, the inadequacies of the map could reflect poor surveying. Finally, it is possible that the actual road has disappeared by the present day. These three explanations can be illustrated by reference to Brown's road from Bridlington to Hornsea (Figures 41 and 42).

The road from Bridlington to Hornsea

Were it not for the existence of the field notes there would be good reason to think that this route on the map had not been surveyed but that its course was merely surmised. Comparison of the road as depicted on Warburton's map with the Ordnance Survey maps in Figures 41 and 42 fails to reveal a reasonable present day equivalent. Thus the 1720 road has either been unreliably mapped or it has disappeared. One definite cartographic weakness on Warburton's printed map is an imperfect fit of the detail between Ulrome, on the north-east sheet, and Skipsea, on the south-east sheet. For this reason the route is considered in two sections.

Bridlington to Ulrome

The most obvious difference between Warburton's map and the Ordnance Survey map (Figure 41) is the contrast in the relationship of the road to the coast. At first sight erosion appears to have cut into the line of the road as far south as Auburn. Erosion, however, cannot explain the course of the road from Auburn southward beyond Ulrome.

Examination of the road plot¹ shows that the compiler of the printed map cannot be blamed for the discrepancy. For instance, the plot provides no clear idea of the location of the coast and gives no reference to either Fraisthorpe or Barmston.

Analysis of the text² for this road plot reveals that the survey was lacking in detail but also shows that a few crucial details were omitted from the plot. For example, the survey provides only four bearings in this stretch of some seven miles. Again, neither Fraisthorpe nor Barmston are recorded. Three entries, however, enable the survey to be re-protracted more accurately than on the road plot. The first is the note that at 2 miles 3 furlongs and 22 poles the road enters the sands. The second is the statement that when going south Auburn was on the right of the road at 3 miles 3 furlongs and 25 poles. The third is the observation that at a distance of 7 miles and 30 poles from Bridlington the road left the sands at a point slightly south of Ulrome.

Thus the road should have been plotted and consequently mapped not up to 2 miles inland but on the shore from Hilderthorpe to a point level with Ulrome. The map errors, specifically the position of the road relative to the coast and to Fraisthorpe and Barmston, result not so much from a poor road survey but rather from a combination of a poor overall framework for survey and weak plotting. Thus the draughtsman had no adequate means of

1 MS.895, f.145

2 MS.912, ff.56-7

relating the information presented on the road plot to the largely independent survey of the settlement obtained from the Observation stations. Today, however, it is possible to compare the road survey notes with the accurate basic framework of settlement provided by the Ordnance Survey maps.

Confirmation that the road was on the sands is provided by two independent sources. Thoresby¹ explicitly refers to a journey over the sands on this very route in 1681. Even closer in date to the survey is the fine manuscript estate map of Fraisthorpe of 1716.² This map and Brown's field notes suggest that from the early eighteenth century to the present day coastal erosion has removed land to a width of the order of one or two furlongs. This is far less than the amount of erosion implied by Warburton's map (Figure 41.A).

Skipsea to Hornsea

As with the section from Bridlington, the relationship between the mapped road and the coast bears little relationship to the evidence of Brown's field notes.³ An additional source of uncertainty is provided by the church at Atwick which is situated some 3 furlongs distant from the village. If the church symbol, as mapped, represents the church site then Warburton's road could be interpreted as being on the line of the present B1242 passing through Atwick village. On the other hand, if the church symbol represents the village then Warburton's road lies to the east of the B1242 nearer the coast.

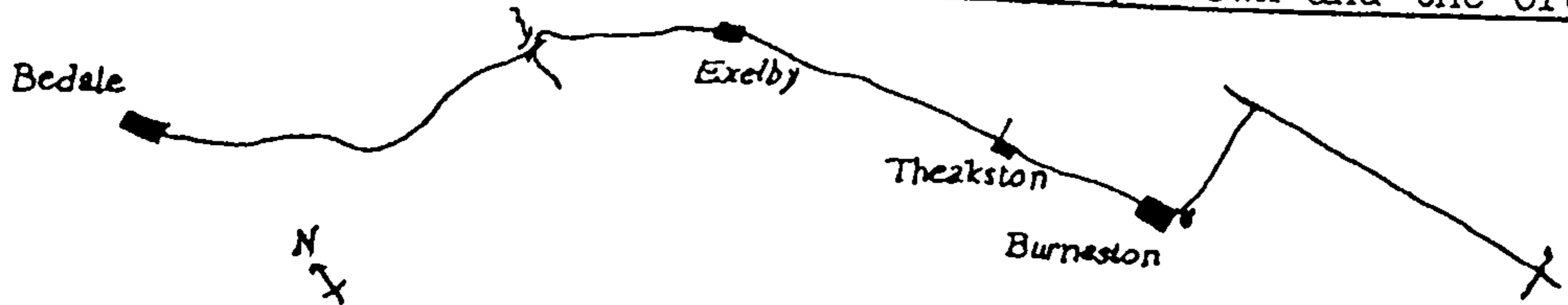
In fact, the survey notes show that though the road left the sands at approximately Cliff Top Farm (Figure 41.B), the road remained on the coast until a point beyond Skipsea and Atwick to enter Hornsea roughly on the line of the road from North Cliff.

1 In Hunter (1830) Vol.1, pp.147 et seq.

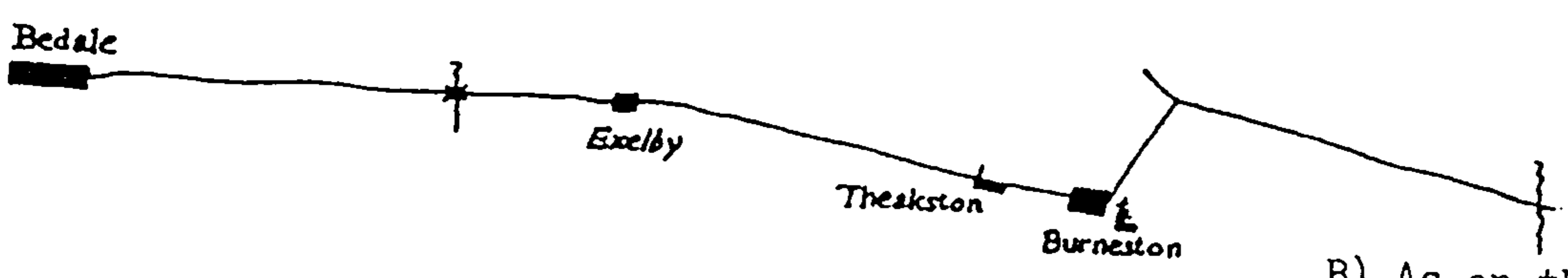
2 H.R.O. DDX 17/138. Includes clear details of Auburn

3 MS.912, ff.56-7

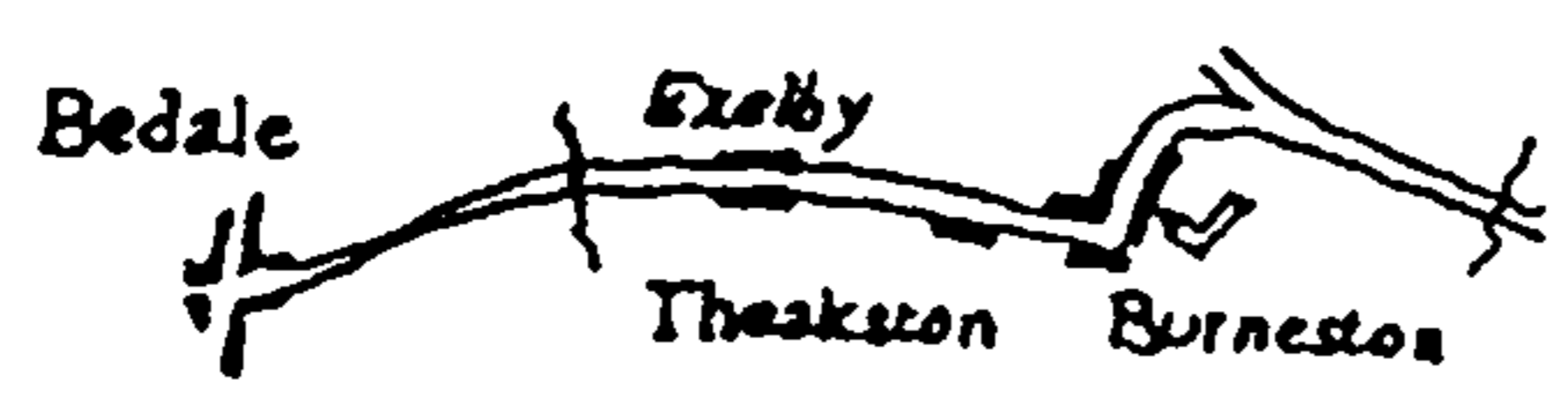
Figure 43 Bedale to Burneston. Warburton, Brown and the Ordnance Survey



A) As on the O.S. 7th series 1" map

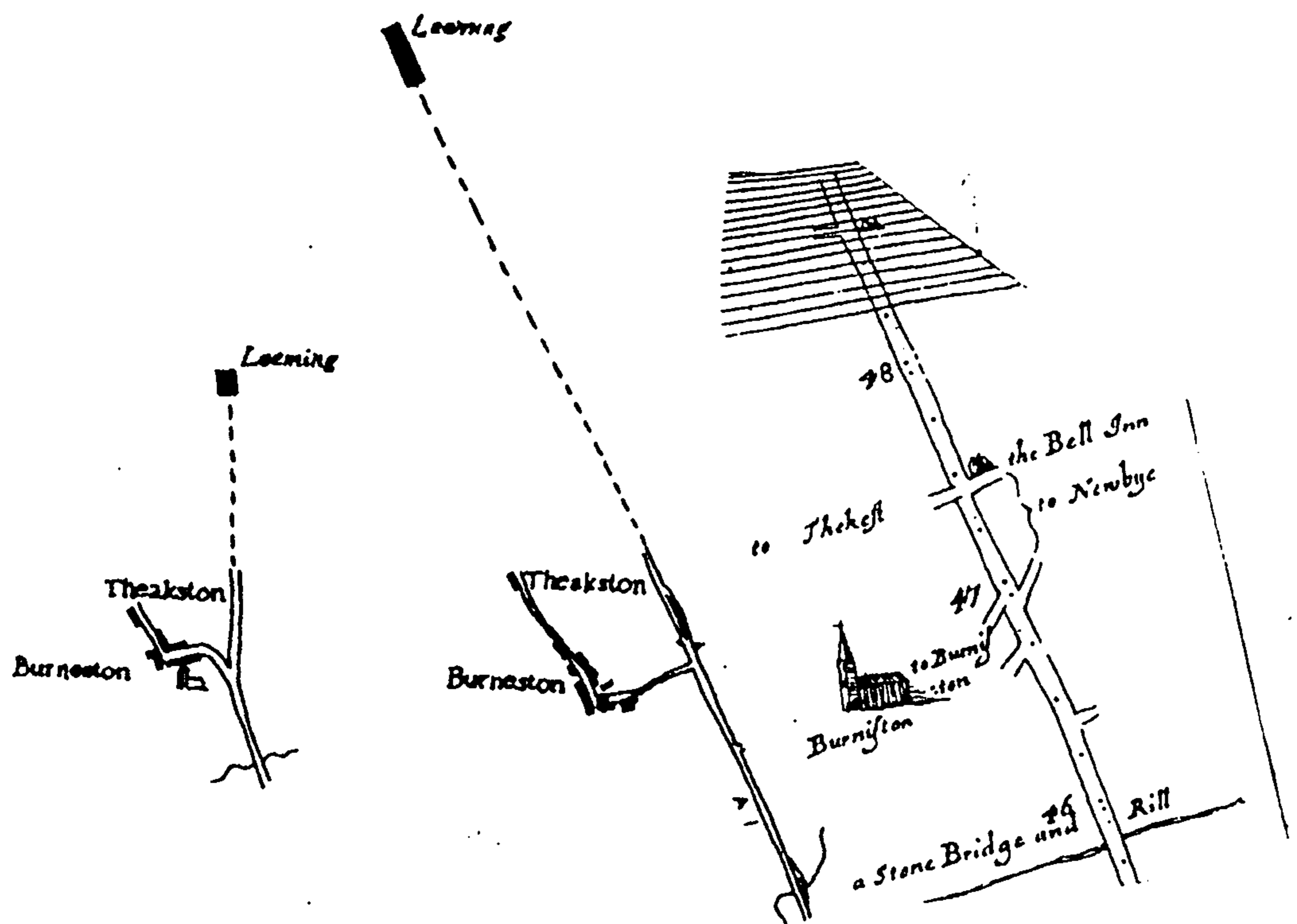


B) As on the Survey Plot



C) As on Warburton's 1720 map

Figure 44 The Burneston Junction. Warburton, Ogilby and the Ordnance Survey



A) As on Warburton's 1720 map

B) As on the O.S. 7th series 1" map

C) Ogilby 1675, Plate 95

Scales for both figures: Warburton $2\frac{1}{2}$ miles to the inch. All others 1" to the mile

Now that the most difficult problem posed by the depiction of Brown's roads has been resolved, attention can be directed to the interpretation of his other surveyed roads. These are considered in the order in which Brown surveyed the roads, beginning in the first instance at Bedale.

The route between Bedale and Thirsk as depicted on Warburton's map can be related quite readily to present day A and B class roads. The modern map does, however, suggest that there have been slight changes in the precise alignment of the road, specifically at the junction with the present A1 beyond Burneston, on the section represented by the B6267, between Skipton-on-Swale and Carlton Miniott and finally on the unenclosed section to Thirsk.

The first part of this route is illustrated in Figure 43 . The map itself (Figure 43.C) closely resembles the road on the Ordnance Survey 1" map (Figure 43.A). The middle diagram in this figure shows a tracing of Brown's survey plot.¹ It is clear that Brown's method of survey was not detailed enough to record all the bends. Fortunately, the additional information in the field notes² and the accurate mileages recorded do justify the assumption that Brown's road must be almost exactly the same as the present road.

The junction beyond Burneston merits closer attention because it highlights the dangers of compiling a map from more than one source. In Figure 44 Warburton's map representation (Figure 44.A) is compared with Ogilby's road (Figure 44.C) as well as the Ordnance Survey representation (Figure 44.B). The apparent difference between the junction as mapped by Warburton and the present configuration is explained by the draughtsman's inability to relate Brown's survey plot to the road to Leeming which he copied from Ogilby's strip map.³ The draughtsman was not helped by the

1 MS.895, ff.139-40

2 MS.912, ff.43-45

3 Ogilby (1675) Plate 95

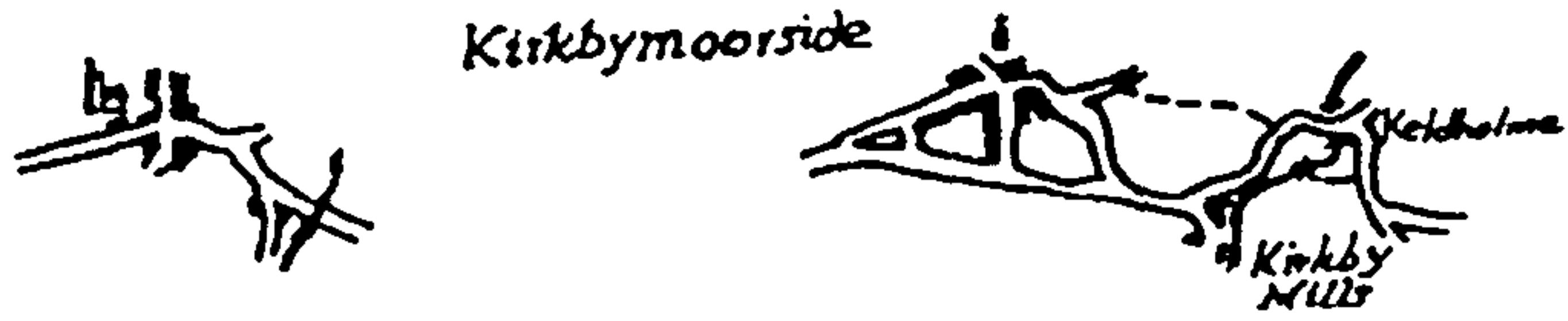
fact that Ogilby's road is divided as a result of its strip format, so that Leeming is placed at the foot of the strip following the one depicting Burneston. Ogilby's road (Figure 44.C) like the present A1 (Figure 44.B), clearly lay on the straight Roman ridge past Burneston. If the junction to Leeming on Warburton's map (Figure 44.A) is ignored it can be seen that the road from Theakston through Burneston to the south is very similar to the present alignment. The depiction of the northward extension of the A1 alignment on Warburton's map can be attributed specifically to two errors rather than to genuine topographical change. The position of the junction, after the right angle bend, is simply the result of an error of copying from the correctly drawn plot (Figure 43.B). The directional error with the northern road to Leeming stems not so much from the angle shown in the plot but from the relative locational inaccuracy on Warburton's map of the next place on the road, namely Leeming itself. Had Warburton's overall survey been sufficiently accurate to map Leeming and Burneston in the correct relative position then the junction at Burneston would not have been mapped as badly as it was.

The course of that section of the road represented by the present B6267 cannot be determined completely from the field notes. The main cause of uncertainty however, proves to be yet another draughtsman's error. The road was drawn as passing through the village of Howe rather than to one side as recorded both on the survey plot and on the Ordnance Survey map.

For the remaining problem sections between Bedale and Thirsk the road plots show that the way was still unenclosed in 1718. Indeed the plots do not mark any alignment across the two open stretches of country. On the map however, only the second section is recorded as open.

From Warburton's map alone it is possible to conclude that save in a few localities which pose problems, the 1718 road between Bedale and Thirsk must have been similar to the present road. By comparing the map

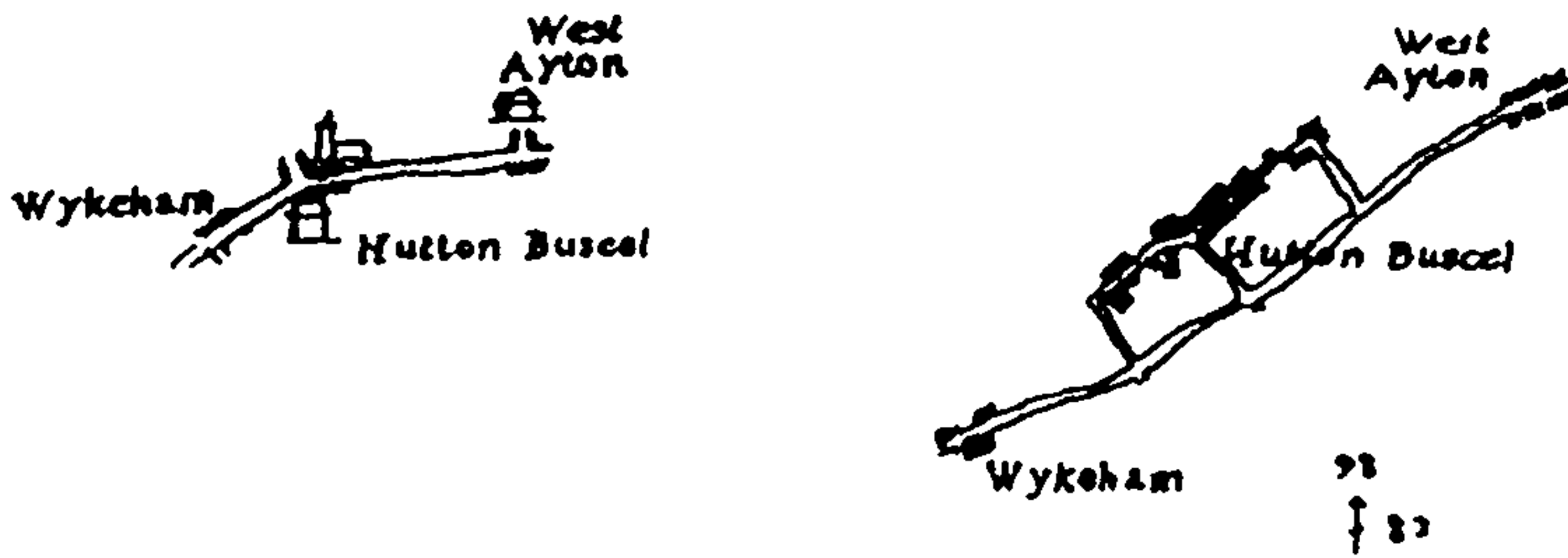
Figure 45 Kirkbymoorside. Warburton and the Ordnance Survey



A) As on Warburton's 1720 map

B) As on the O.S. 7th series 1" map

Figure 46 Hutton Buscel. Warburton and the Ordnance Survey



A) As on Warburton's 1720 map

B) As on the O.S. 7th series 1" map

Scales for both figures: Warburton $2\frac{1}{2}$ miles to the inch;
O.S. 1" to the mile

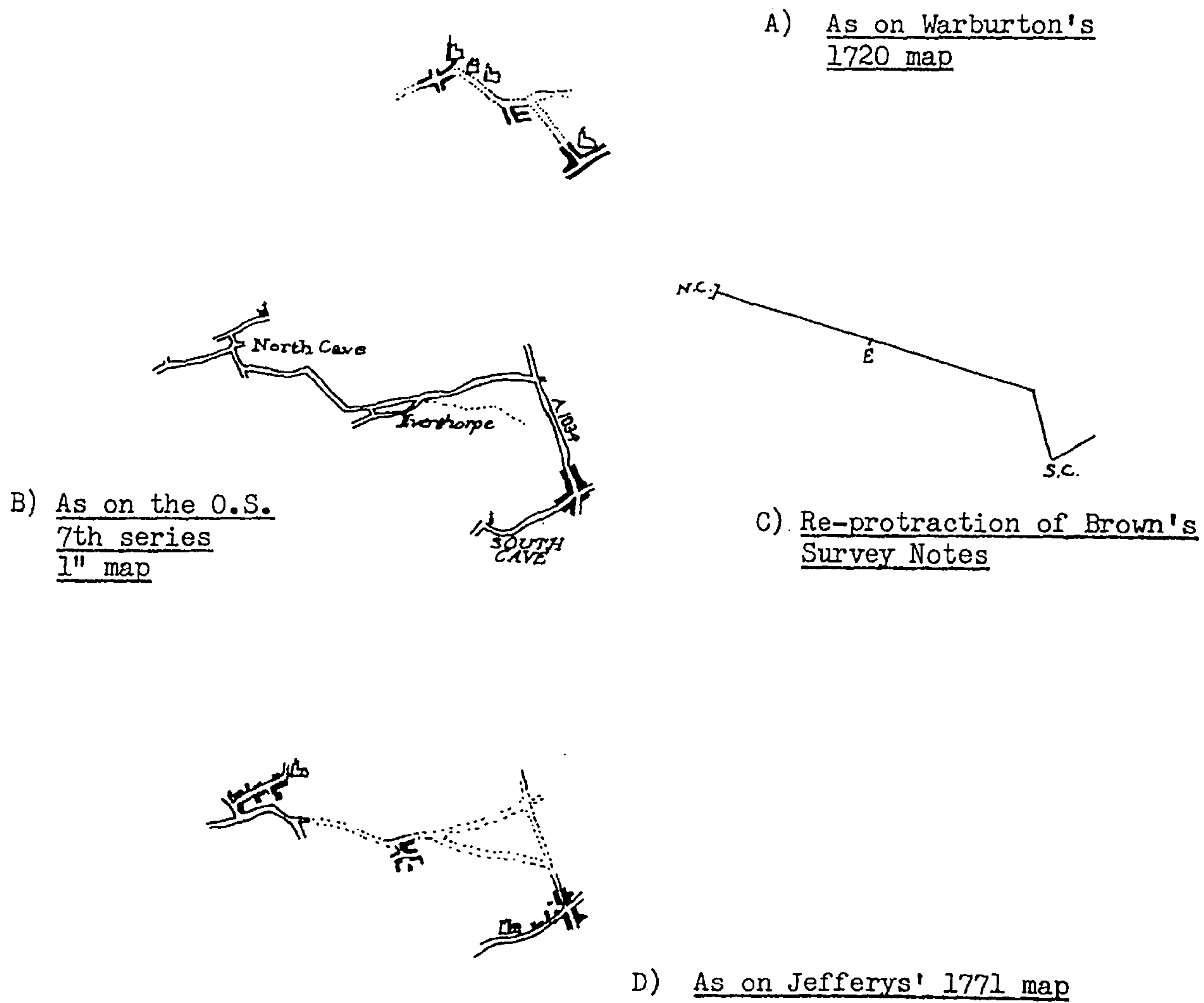
representation with Brown's surveyed road plots and field notes it is possible to confirm this conclusion and also to show that many of the differences can be attributed to deficiencies in surveying and draughting rather than to real differences in road alignments.

The first section of Brown's survey route which clearly follows a road of less than the modern 'B' standard is that between Thirsk and Helmsley. The alignment of the mapped road presents no real problem of interpretation despite two potential sources of confusion: Scawton, on the road, is erroneously named 'Hawton', while Rievaulx Abbey is wrongly placed on the banks of Elton Gill instead of in Rye Dale. Both these errors, however, are clearly discernible without recourse to the evidence of the field materials.

A loss of detail between the survey and the printed map is most serious when, as with the exit from Kirkbymoorside, the modern map presents more than one possible interpretation of the alignment on Warburton's map. Comparison of Warburton's mapped information with the Ordnance Survey (Figure 45) suggests that the surveyed road could have been either on the line of the present road through Kirkby Mills and apparently fording the river Dove across to the present road or on a completely different line such as that indicated by the footpath to Keldholme. Kirkbymoorside is the only named feature on Warburton's map at this point. Brown's road plot¹ is sufficiently detailed to confirm the actual alignment by naming Kirkby Mills as on the road and more significantly, by recording Keldome Bridge over the river Dove. Thus the road is basically the same as the present main road through Kirkbymoorside. The uncertainty was caused by the omission of the name Kirkby Mills, the omission of Keldome Bridge and most obviously the failure to depict the marked northward bend of the road towards that bridge. Poor draughtsmanship can explain the first two omissions of detail which is clearly shown on the plot; but it cannot explain the straightness of the mapped road for that is the same as on the

1 MS.895, f.142

Figure 47 South Cave to North Cave. Warburton, Brown, Jefferys and the Ordnance Survey



Scales: Warburton $2\frac{1}{2}$ miles to the inch; all others 1" to the mile

plot. This erroneous straightness of the road is explained by the limitations of the survey.¹ For this section from Kirkbymoorside to the river Dove only one bearing was taken and that was at the market cross. Even so, for interpreting the road alignment as opposed to protracting it, the precise mileage, to the nearest pole and the additional information in the field notes are adequate compensations for the directional failures of this survey.

Between Pickering and Scarborough the most obvious difference between Warburton's mapped road and the present road is that which occurs between Wykeham and West Ayton (Figure 46). There is no longer a direct road through Hutton Buscel. It is tempting to use the evidence of the site of Hutton Buscel church, to the north of the mapped road, as a justification for proposing that the road is in fact the same as the present main road and that Warburton's road did not go through the centre of the village. The road plot² and field notes³, however, combine to indicate that the road went through the centre of the village. The position of the church proves to be a draughtsman's error. Thus, in this instance, the map correctly records the 1718 road as passing through a village which is now no longer on the main road. This example of Hutton Buscel can be contrasted with the example of the village of Howe, noted before Thirsk, which was incorrectly mapped as being on the main road in 1718.

A similar situation to that obtaining at Hutton Buscel is repeated between Scarborough and Flamborough. The map correctly depicts a 'lost' road from Reighton to Speeton.

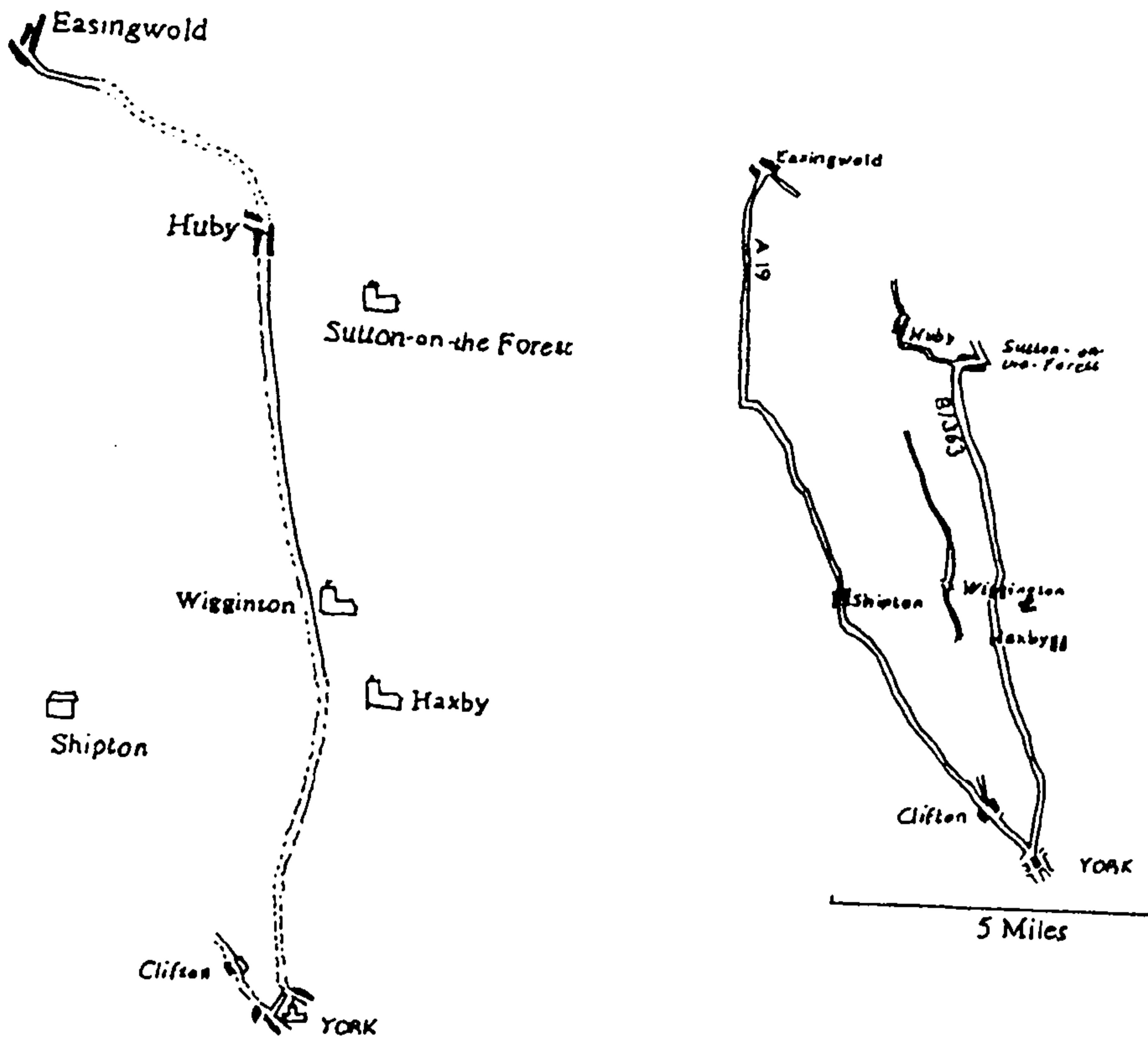
Of Brown's roads, the next section having both topographic and cartographic interest is the route from South Cave to North Cave (Figure 47). Interpretation of Warburton's map is made difficult by the mapped position of South Cave church and the inaccurate relative positions of the three places. The present route (Figure 47.B) does not seem to provide a

1 MS.912, f.48

2 MS.895, f.143

3 MS.912, ff.50-1

Figure 48 York to Easingwold. Warburton and the Ordnance Survey $\frac{1}{4}$ "



A) As on Warburton's 1720 map

B) As on the O.S. $\frac{1}{4}$ " 5th series map

Scales: Warburton $2\frac{1}{2}$ miles to the inch; O.S. 4 miles to the inch

satisfactory answer. The bare bones of the field notes¹ (Figure 47.C) indicate such key features as the alignment of the road through South Cave, the point at which Everthorpe is recorded to the left of the road, and the point at which the road entered North Cave.

The best fit between South Cave and Everthorpe is clearly provided by an alignment along the present A1034 then cutting across to the bridle path. Beyond Everthorpe the road appears to have been straighter. Comparison with Jefferys' representation (Figure 47.D) provides strong testimony in support of Brown's survey notes. It will be apparent however, that in this instance the road could not have been discovered from Warburton's map alone.

One further section of Brown's survey which requires special consideration is his route from York to Easingwold (Figure 48). At first it would seem that Brown's road could be the present B1363, an alignment which can be extended on minor ways to Easingwold.

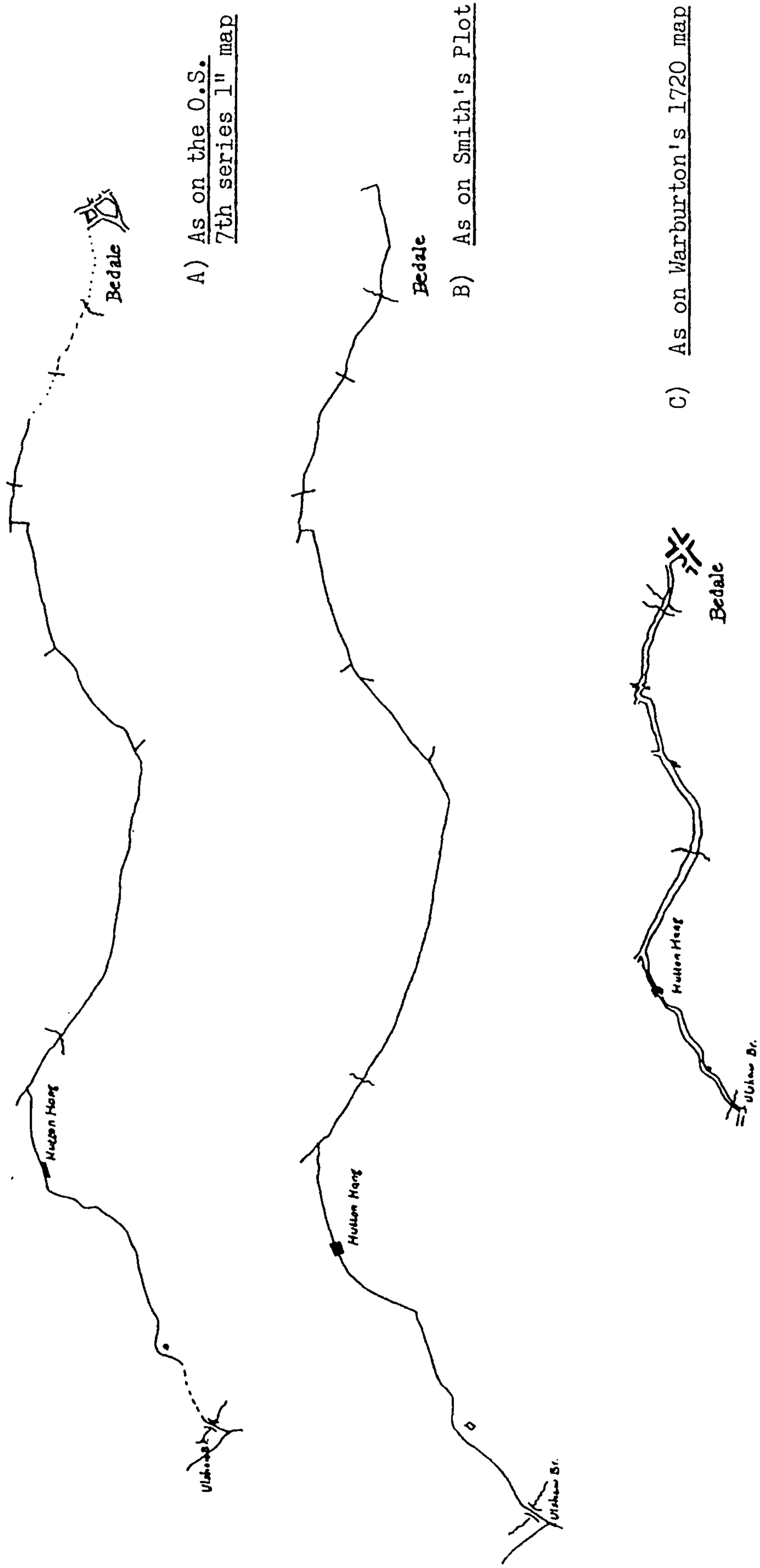
The road plot² and field notes³ show unequivocally that Brown's road lies to the west of the B1363. The alignment he followed had fallen into disuse by the date of Jefferys' map in 1771.⁴ On the Ordnance Survey $\frac{1}{4}$ " map only the sections shown in Figure 48.B are recorded. On the Ordnance Survey 1" map the route can be identified as being made up of very minor lanes and bridle paths for all save some two miles. These two miles, giving rise to a gap immediately north of Clifton (Figure 48.B), cannot now be identified.

The draughtsman can be blamed for the interpretative problems posed by the map. Thus, for instance, he showed the road leaving York by the wrong exit for Bootham Bar and Clifton are both clearly recorded on the road plot. In fact, the map shows the start of a road through Clifton (Figure 48.A)

1 MS.912, f.63
2 MS.895, f.149

3 MS.912, f.67
4 (W.240)

Figure 49 Bedale to Ulshaw Bridge. Warburton, Smith and the Ordnance Survey



Scales: Warburton 2½ miles to the inch; others 1" to the mile

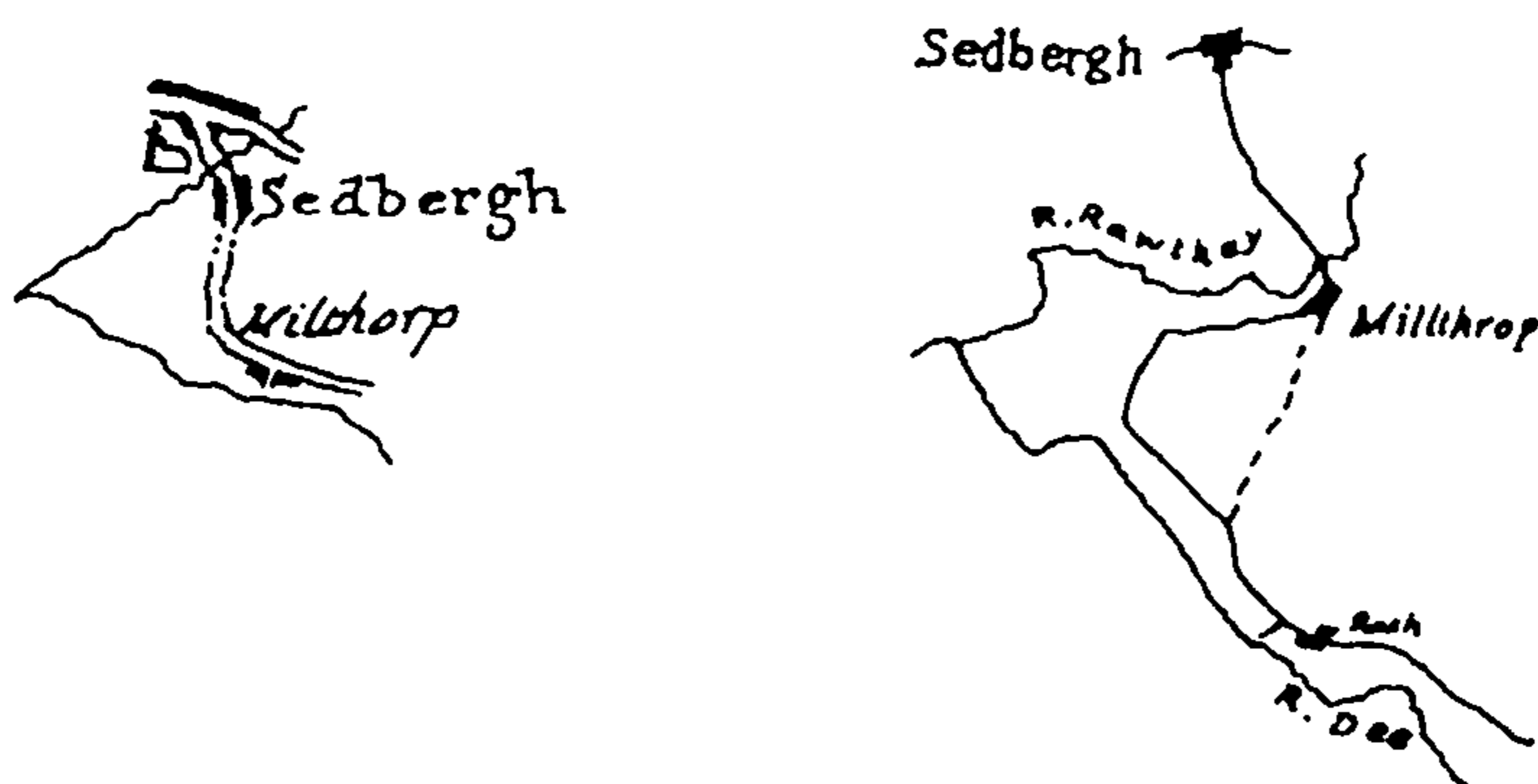
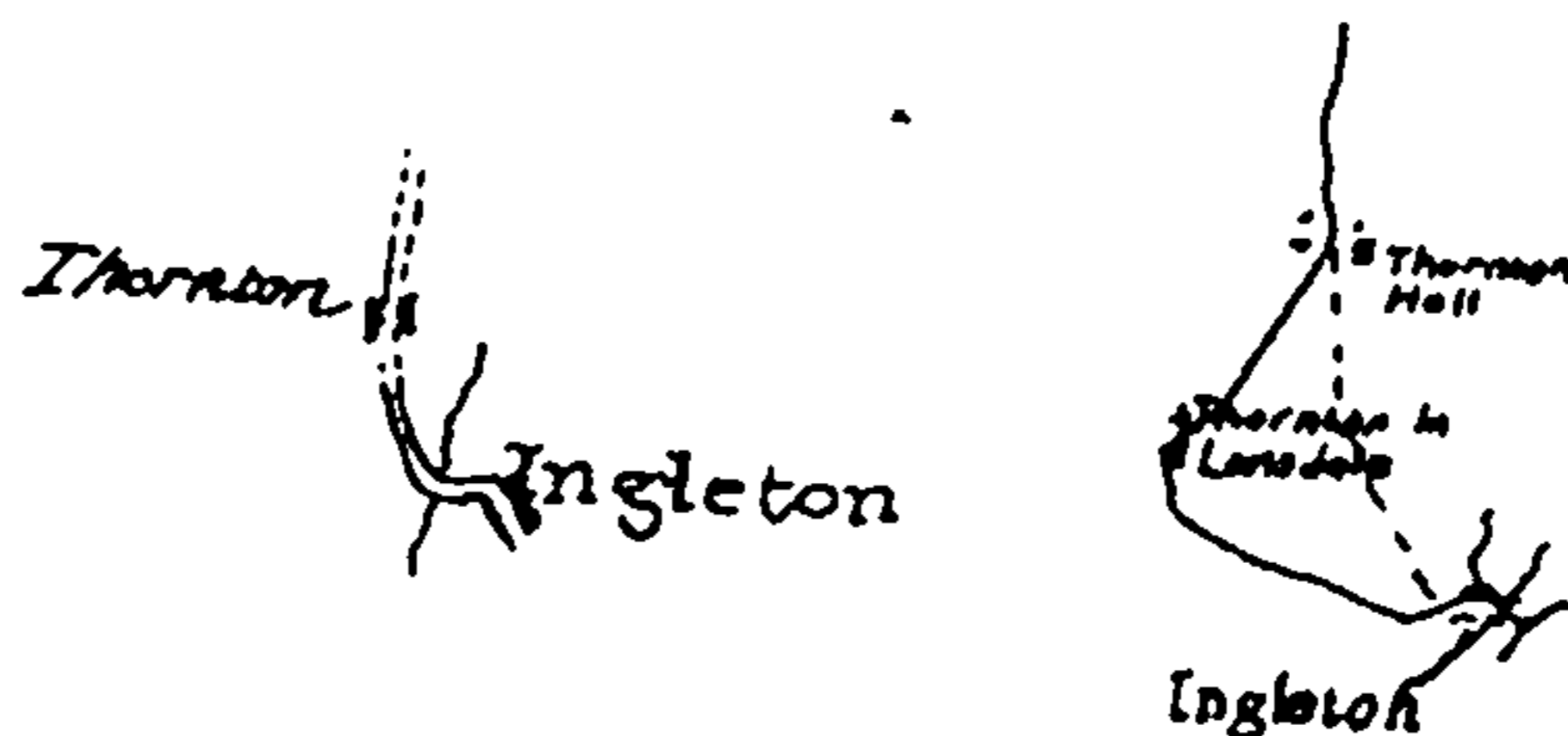
The misleading proximity of the mapped road to Haxby and Wigginton can be attributed either to the surveyor himself or to the person who compiled the field book. The field notes record a bearing at station number 6, just beyond Clifton, which is almost illegible but looks like "NE30"; and this is certainly how this entry was read for the road plot. The bearing ought to have been nearer north, probably NE3. Since the next bearing was over two miles further along the road, the error of some thirty degrees extended for such a distance as to suggest an alignment east of the actual road. This, combined with the draughtsman's error in missing Clifton ensures that the mapped road should resemble closely the alignment of the B1363.

Smith's surveys

From Bedale to Ulshaw Bridge the accuracy of Smith's survey is so great that although his road is nowhere more than a lane today and has disappeared at two places, the precise line is not in any doubt. In Figure 49.B a simplified trace of Smith's survey plot¹ illustrates the excellence of his survey. The original account records the road as a double line and along with other details indicates whether it was open or enclosed. This can be compared directly in Figure 49 with both the mapped representation (Figure 49.C) and the Ordnance Survey alignment (Figure 49.A).

On the Ordnance Survey 1" map the exit from Bedale as far as the first rill is recorded only as an avenue of trees and then as a path extending to the first junction. There is no sign at all of the next half mile of road but then minor roads clearly fit the road plot as far as a point within half a mile of Ulshaw Bridge, when again the present alignment becomes

1 MS.895, f.154

Figure 50 Sedbergh towards Dent. Warburton and the Ordnance SurveyA) As on Warburton's 1720 mapB) As on the O.S. 7th series
1" mapFigure 51 Thornton to Ingleton. Warburton and the Ordnance SurveyA) As on Warburton's 1720 mapB) As on the O.S. 7th series
1" map

Scales for both figures: Warburton $2\frac{1}{2}$ miles to the inch
Others 1" to the mile

no more than a track.

The printed map accurately reproduces the road plot at a reduced scale (Figure 49.C). Thus the map itself is sufficiently detailed to permit the line of the surveyed road to be determined. Furthermore, it is clear that the map correctly records several of the junctions and two rills. Nevertheless, even given this accuracy, errors are depicted on the road as mapped. Thus, for instance, two rills are shown just beyond Bedale where the road plot and the Ordnance Survey map record only one. The second rill could have been a misreading by the draughtsman¹ of a road junction. Again, the position of the rill before Hutton Hang is carelessly depicted on Warburton's map too close to the village.

Beyond Ulshaw Bridge the first mapped representation of Smith's surveys which cannot be related readily to the Ordnance Survey maps is a $2\frac{1}{2}$ mile length from Hardrow to Thwaite Bridge in Wensleydale. Comparison of Warburton's map with the survey notes,² however, confirms the accuracy of the printed map. There is no doubt that the road used to lie about one third of a mile north of the present A684.

Between Garsdale Head and Sedbergh the road, as mapped, looks similar to the alignment of the present A684. This alignment however, does not accord with the relationship of the mapped road to Clough River, or Clough Beck, along Garsdale. Investigation of Smith's survey notes³ shows that the road was almost exactly the same as the present road save for only a few very minor deviations. Thus the error resides in the representation of the river on the map.

Poor draughtsmanship accounts for the next uncertain section on the road from Sedbergh to Dent (Figure 50). The surveyed road⁴ can be followed clearly on the Ordnance Survey representation (Figure 50.B) as following the minor road from Sedbergh to Millthorp and then the bridlepath leading towards the hamlet of Rash. It does not follow the minor road between

1 In MS.912, ff.320-323

2 MS.912, ff.329-334

3 *ibid*

4 *ibid*, f.334-336



these two places. On Warburton's map it can be seen that the shape of the road has been copied correctly but the names of Sedbergh and 'Milthrop' have been added to the wrong places.

Even on the remote upland road from Dent over the High Peak to Ingleton the mapped representation is sufficient to permit the interpretation of most of the road in terms of the present very minor lanes. Two exceptions are the precise line over High Peak and the way into Ingleton.

Over the High Peak the survey¹ shows that the road was in fact nearly one quarter of a mile closer to the summit than the present, unmetalled track, whereas the map depicts it east of the same track. Second, the map (Figure 51.A) shows the road entering Ingleton via Thornton village but such a course would necessitate a sharp bend (Figure 51.B). The survey² also shows Thornton village but provides the solution by portraying a junction immediately beyond the village described as leading "to Thornton Church" in line with the present road to that place. Thus Thornton, at the date of the survey, was the name given to the hamlet centered on Thornton Hall with the church recognized as lying at a distance. The present footpath fits the survey from Thornton Hall to Ingleton Bridge (Figure 51.B). Once again the correctness of the alignment of Smith's road as mapped is confirmed.

Between Settle and Skipton the alignment of the mapped road fits the bridlepaths and roads on the Ordnance Survey maps very well as far as Gargrave but less well from Gargrave to Skipton. A detailed study of the development of this road has already been provided by Brigg,³ who draws attention to several minor and easily overlooked deviations. Before Gargrave, for instance, the scale of Warburton's map is too small to reveal the very slight difference between his road and the present road over Coniston Moor, which was the outcome of a nineteenth century turnpike improvement.⁴ Nevertheless, the difference between the two roads is

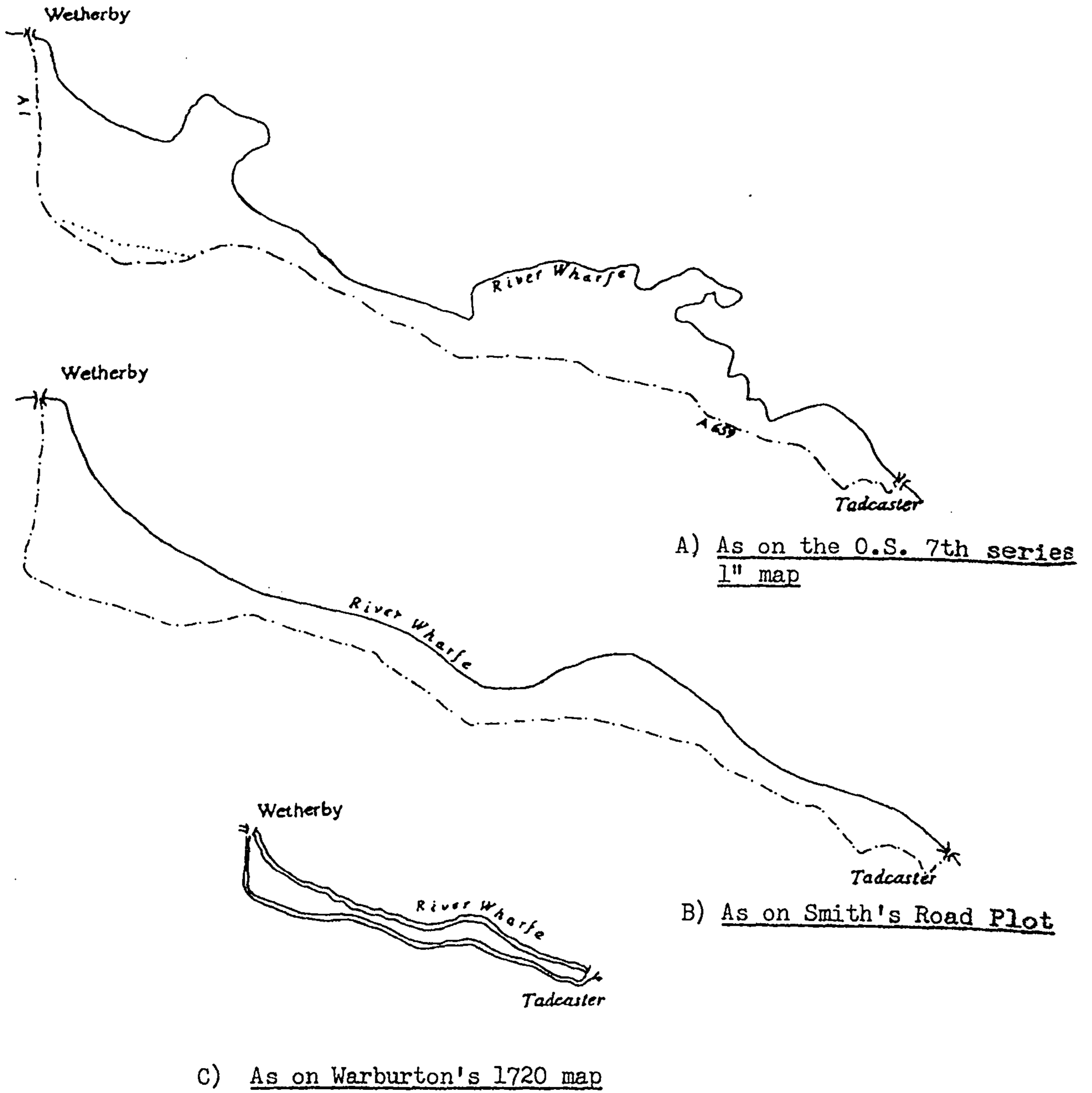
1 MS.912, ff.337-340

2 MS.895, f.156

3 Brigg (1927)

4 *ibid*, p.41

Figure 52 The Road and River between Wetherby and Tadcaster
Warburton, Smith and the Ordnance Survey



Scales: Warburton $2\frac{1}{2}$ miles to the inch
 Others 1" to the mile

apparent from the field notes.¹

Beyond Gargrave the poor fit of the map in relation to any present alignment proves to be a result of the first serious error to be detected in Smith's work, namely a bearing which is quite impossible. The road was, in fact, basically the same as the present A65 as far as the minor road via Thorlby and Stirton into Skipton. It is significant that a single error in measurement can make it impossible to interpret correctly from the resulting mapped representation an otherwise very accurate survey. Fortunately the error is obvious when the field notes² and road plot³ are compared with the Ordnance Survey map.

Between Skipton and Addingham, and again at Harewood, the map is sufficiently clear to record the significant differences in alignments between the surveyed roads and the present main roads. As elsewhere, Smith's field notes not only confirm these differences but also add much detail.

As Figure 52 shows there can be no doubt that Smith's road surveys provided for the draughtsman representations of adjacent rivers. The middle illustration is traced from the road plot⁴ and the bottom one traced from the printed map. Comparison with the Ordnance Survey representation (Figure 52.A) shows that Smith's survey method provides only a general impression of the river course. In particular, it is evident that the exact relationship of the road to the river cannot be relied upon as a guide to the position of the road.

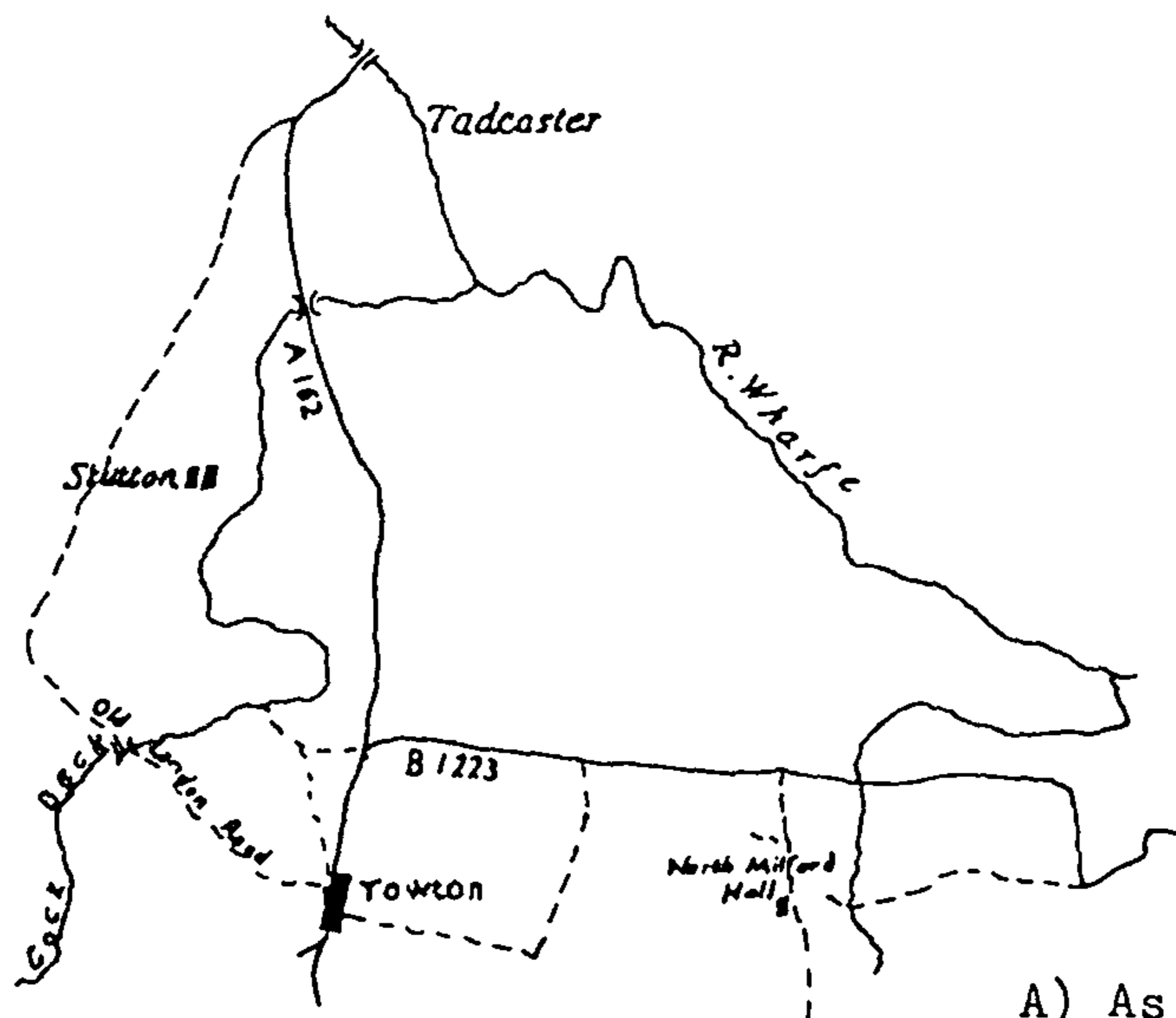
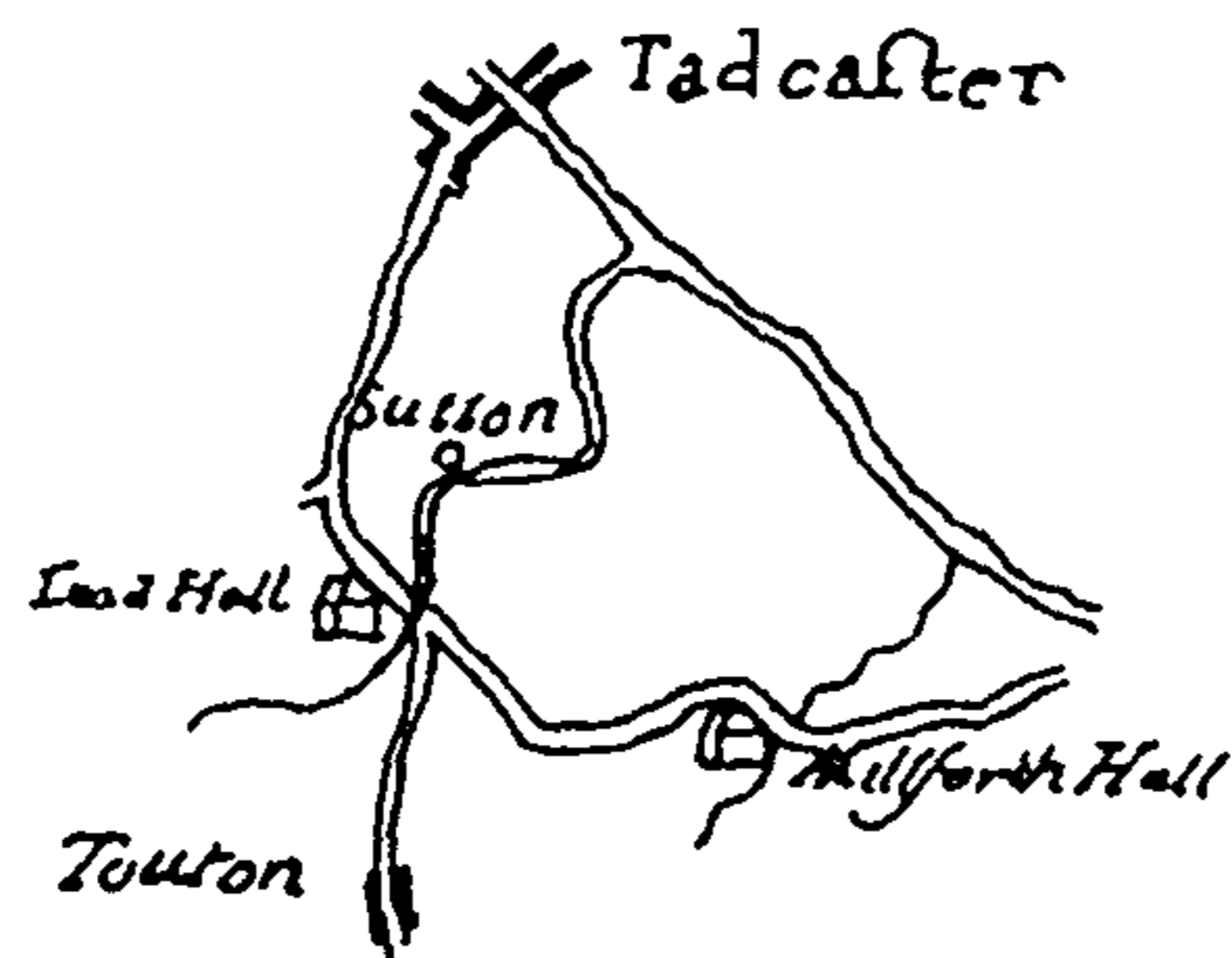
Fortunately the standard of Smith's road surveying was such that the alignment can be found simply from the road itself. It is clear, for example, that Smith's plot from Wetherby to Tadcaster fits the present A1 and A659 almost exactly. Indeed, the only exception is where Smith's road follows a boundary line just to the north of the present main roads (Figure 52.A).

1 MS.912, f.343-346

2 *ibid*

3 MS.895, f.157

4 *ibid*, f.160

Figure 53 Tadcaster towards Cawood. Warburton and the Ordnance SurveyA) As on the O.S.
7th series 1" mapB) As on Warburton's 1720 map

Scales: Warburton $2\frac{1}{2}$ miles to the inch
O.S. 1" to the mile

The second section of Smith's roads which presents difficulties of map interpretation because of survey error is the section between Tadcaster and Cawood (Figure 53). Here the difficulties are compounded by the complete disappearance of part of the road and the inclusion of one of Ogilby's roads on Warburton's map.

Comparison of Warburton's map (Figure 53.B) with the Ordnance Survey representation (Figure 53.A) shows that the map road does not fit the present main roads, the A162 and B1223. Figure 53.A records all the lesser lanes or paths given on the 1" map. As far as Cock Beck and from Milford Hall eastwards, these lesser ways do fit the road shown on Warburton's map reasonably well. The position of the crossing of Cock Beck is confused by the misplacing of Lead Hall which should have been mapped some one and a half miles south of Towton. This error with the Hall confirms that the road link mapped from Towton to Cock Beck (Figure 53.B) was copied from Ogilby's strip map because he too places Lead Hall at precisely the same erroneous point in relation to Towton.

Recourse to the field notes¹ confirms the alignment of the road as far as Cock Beck and also beyond Milford Hall, but between these two places it proves to be inadequate. At the Cock Beck bridge Smith's survey records a junction to Sherburn which suggests the alignment of the road to Towton. This would place Smith's road to the north of Towton yet both the plot² and the bearings actually fit the alignment of the Old London Road into Towton. Whether the road entered Towton or not it is surprising that Smith's survey should have made no reference to it at all. The absence of a reference to Towton at least helps to explain why the mapped road goes nowhere near the village. From the field notes and plot information the draughtsman had no reason to portray the route as passing through or near to Towton.

At Towton, or just to the north, the survey records a junction with a road running north to Tadcaster along the line of the present A162.

1 MS.912, ff.79-81

2 MS.895, f.160



From that point, which was certainly south of the Bl223, the survey testifies that the road went to just north of Milford Hall. From that Hall the road can be clearly followed again even though it is no more than a path at present. The Hall is recorded at precisely 33 poles from the road and the crossing of the beck is called Mr. Leeds' Wath.¹ On Jefferys' map of 1771 the owner of the Hall was named as Edward Leeds.

Jefferys' map does record a possible alignment from Towton to the Hall and also an alignment from Cock Beck bridge towards the Bl223. Thus, the evidence indicates that Smith either made a directional error at Cock Beck bridge or that he overlooked the village of Towton. At Gargrave, the true alignment of the road could be discovered conclusively from the survey records but unfortunately the same means of verification cannot be used here. As at Gargrave, the draughtsman cannot be blamed for the ensuing mapped errors.

The present A1041 between Selby and Camblesforth on the road to Snaith is very much straighter than the mapped road. Camblesforth Common was not enclosed until after the date of Jefferys' map. The meandering road depicted by Jefferys is similar to Smith's survey plot² and together they confirm the correctness of Warburton's map representation even though the alignment is only partially discernible on the Ordnance Survey maps. A detail of importance missed by the draughtsman is that the river Aire, before Snaith, was crossed by Carlton Ferry.

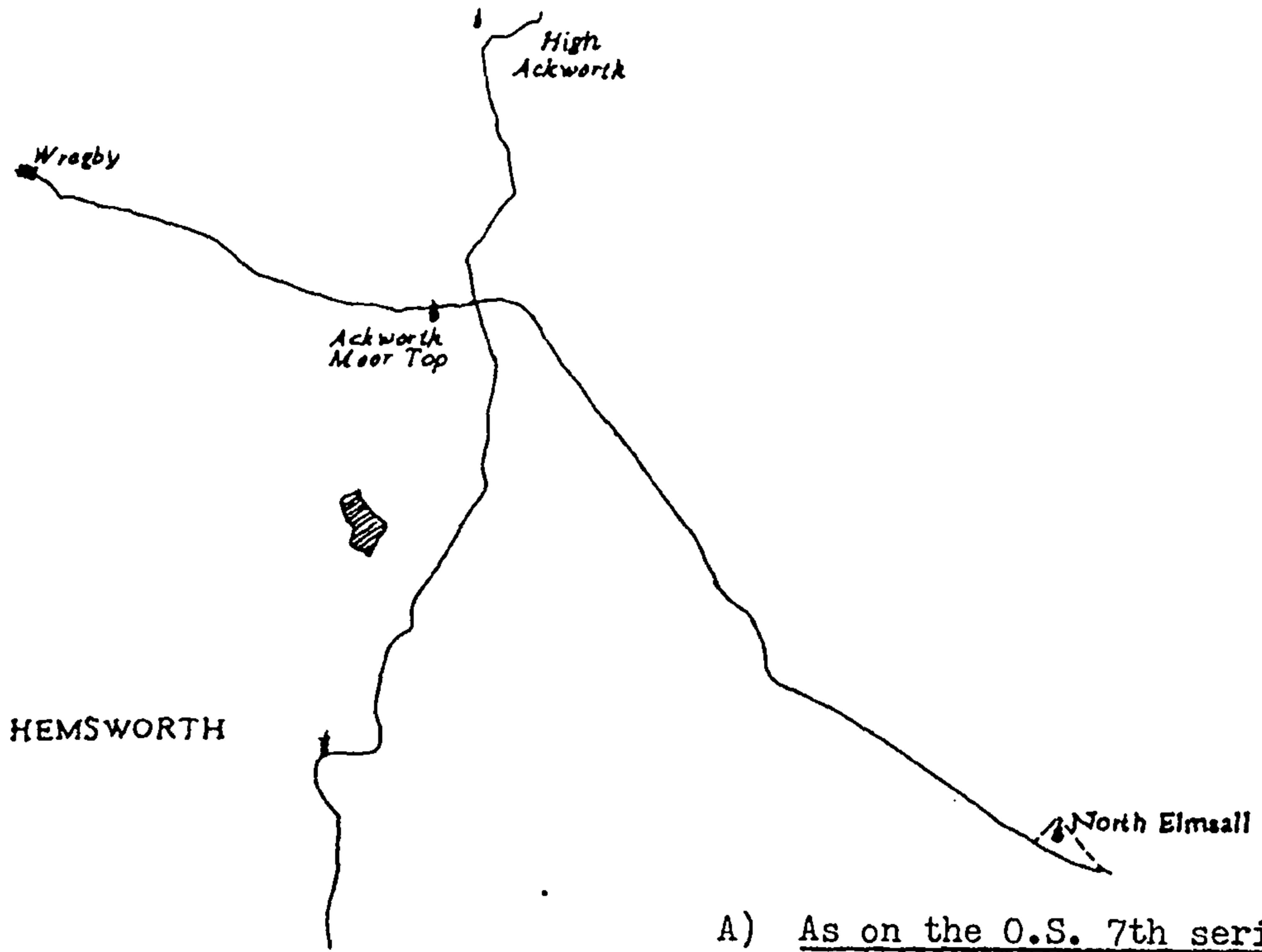
Today there are two main roads between Thorne and Hatfield (Figure 54 . The A1146 looks like a relatively recent direct alternative to the circuitous A614/A18 roads. Nevertheless, Warburton's map also records a double route and as Figure 54 shows the surveys³ prove that the roads are almost the same as the 'A' roads. Smith took the longer route which

1 Wath. A ford.

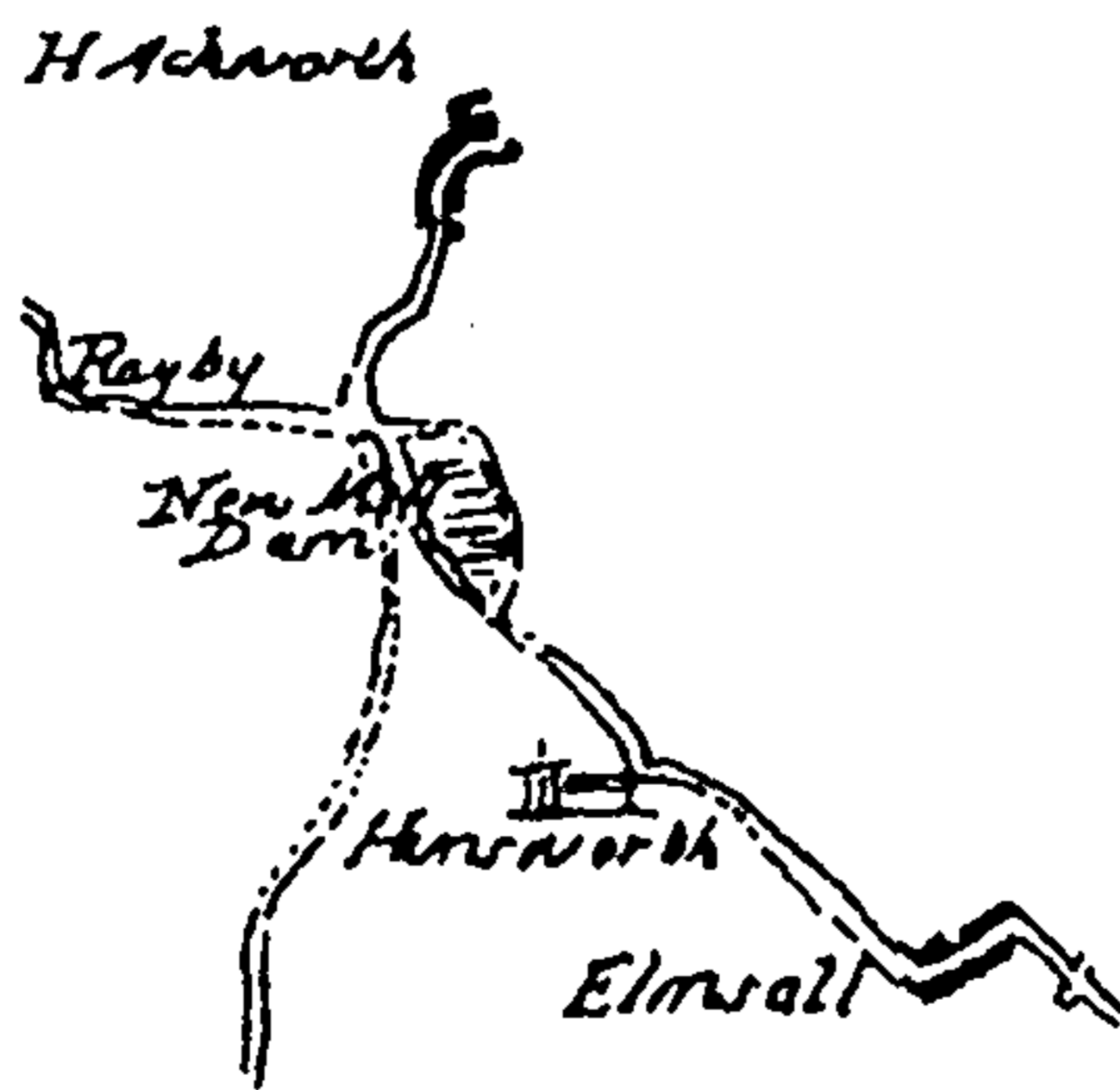
2 MS.895, f.161

3 MS.912, ff.88-91, *ibid* ff.199-201

Figure 55 Hemsworth and New Mill Dam. Warburton and the Ordnance Survey



A) As on the O.S. 7th series 1" map



B) As on Warburton's 1720 map

Scales: Warburton $2\frac{1}{2}$ miles to the inch
 O.S. 1" to the mile

differs from the modern route only by missing the A614 link. The direct route along the A1146 was surveyed by Bland a little less than a fortnight later.

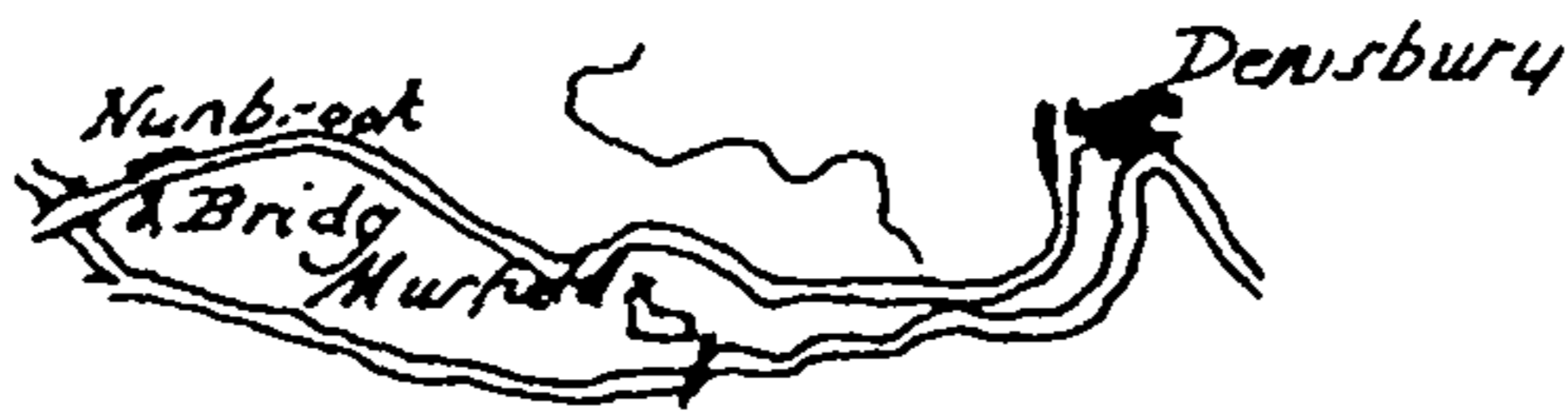
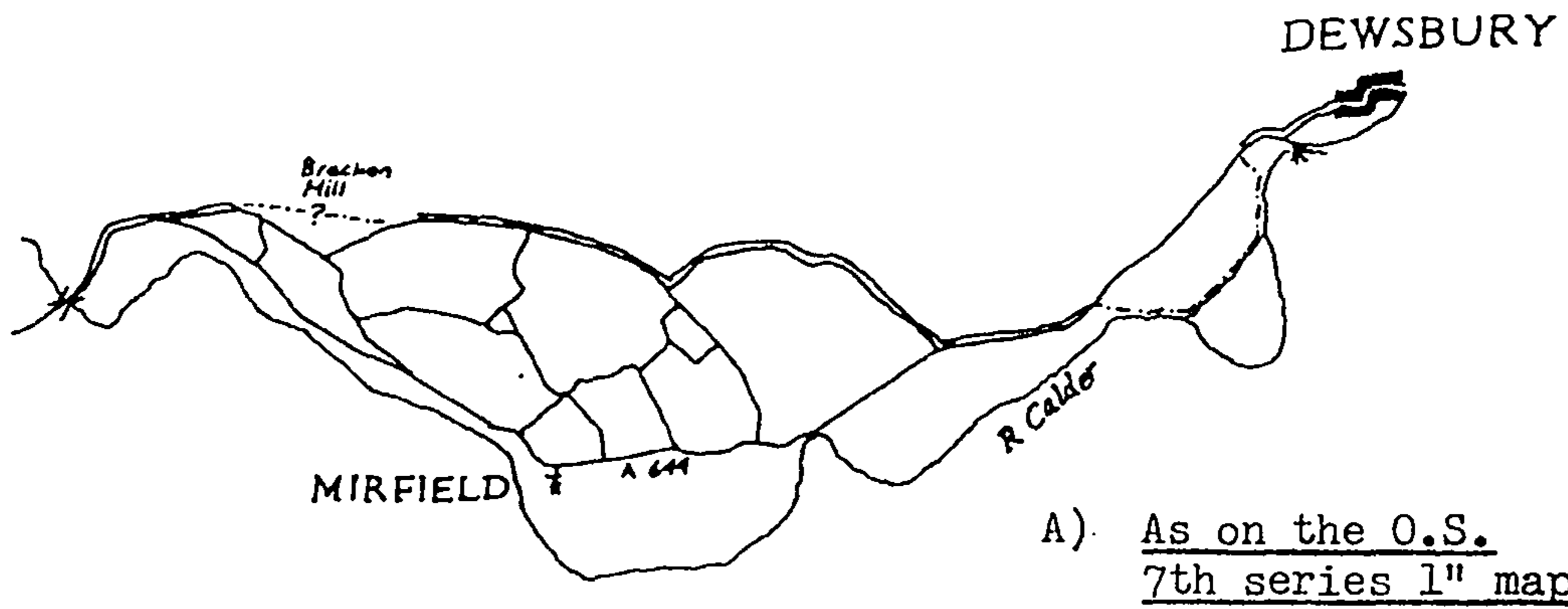
The area depicted in Figure 55 illustrates the confusion that can arise when the various aspects of a survey are not sufficiently integrated to ensure that the map can be correctly drawn. Figure 55.A depicts the most relevant features on the Ordnance Survey map. With the addition of the old road through North Elmsall - dashed on Figure 55.A - it can be seen that the present main roads look very similar to the pattern of the roads on the Warburton map (Figure 55.B). The position of Hemsworth and New Mill Dam on Warburton's map are potential sources of confusion but this is obviated by the survey notes, which confirm that the apparent similarity between the road alignments is, in fact, basically sound. Hemsworth is correctly recorded in the survey notes on the surveyed road north to High Ackworth,¹ not on the road from Elmsall.² Strangely, no reference to the position of New Mill Dam has been found either in the road survey notes or in the Observation station notes. Where the draughtsman gained that information from is not known. He managed to place the Dam approximately correctly in relation to Hemsworth but incorrectly relative to the other information on the map and particularly the roads.

In parts of the West Riding interpretation of the roads surveyed by Smith and indeed by Bland is now made difficult by nineteenth and twentieth century urbanization, so that direct comparison of Warburton's map with the present Ordnance Survey maps is far from easy. The difficulty of determining which, if any, of several possible urban roads could be the one mapped by Warburton is further increased by bad draughtsmanship. For example, immediately outside Leeds, Woodhouse is recorded on the Bradford road instead of the Otley road and Sheepscar is depicted where Woodhouse is located instead of its correct position on the Wetherby road.

1 MS.913, ff.55-61

2 MS.912, ff.91-96

Figure 56 Part of the road and river from Elland to Dewsbury.
Warburton and the Ordnance Survey



Scales: Warburton $2\frac{1}{2}$ miles to the inch
 O.S. 1" to the mile

The historian of roads has no alternative but to work directly from the field notes and, if necessary, to compare them with Jefferys' map of 1771 and the first edition of the Ordnance Survey maps. Even so, once the surveyed roads have been identified from the field notes, comparison with the mapped representations confirms that the map roads are reasonably accurate in planimetric terms. As is the case elsewhere on the map it is detail other than the roads themselves which is often incorrectly mapped.

A road surveyed by Smith in this area which is particularly difficult to interpret is that running from Elland, south of Halifax, via Dewsbury to Wakefield. The plot of this road is missing but by re-protracting the detailed field notes¹ it is possible to rediscover the survey alignment. The middle section (Figure 56) presents the greatest problem. North of Mirfield the re-protracted road fits the minor road with the exception of the short length past Bracken Hill. Jefferys' map of 1771 records this section as unenclosed and also shows Smith's alignment north of Mirfield and also the new turnpike, which coincides mostly with the present A644.

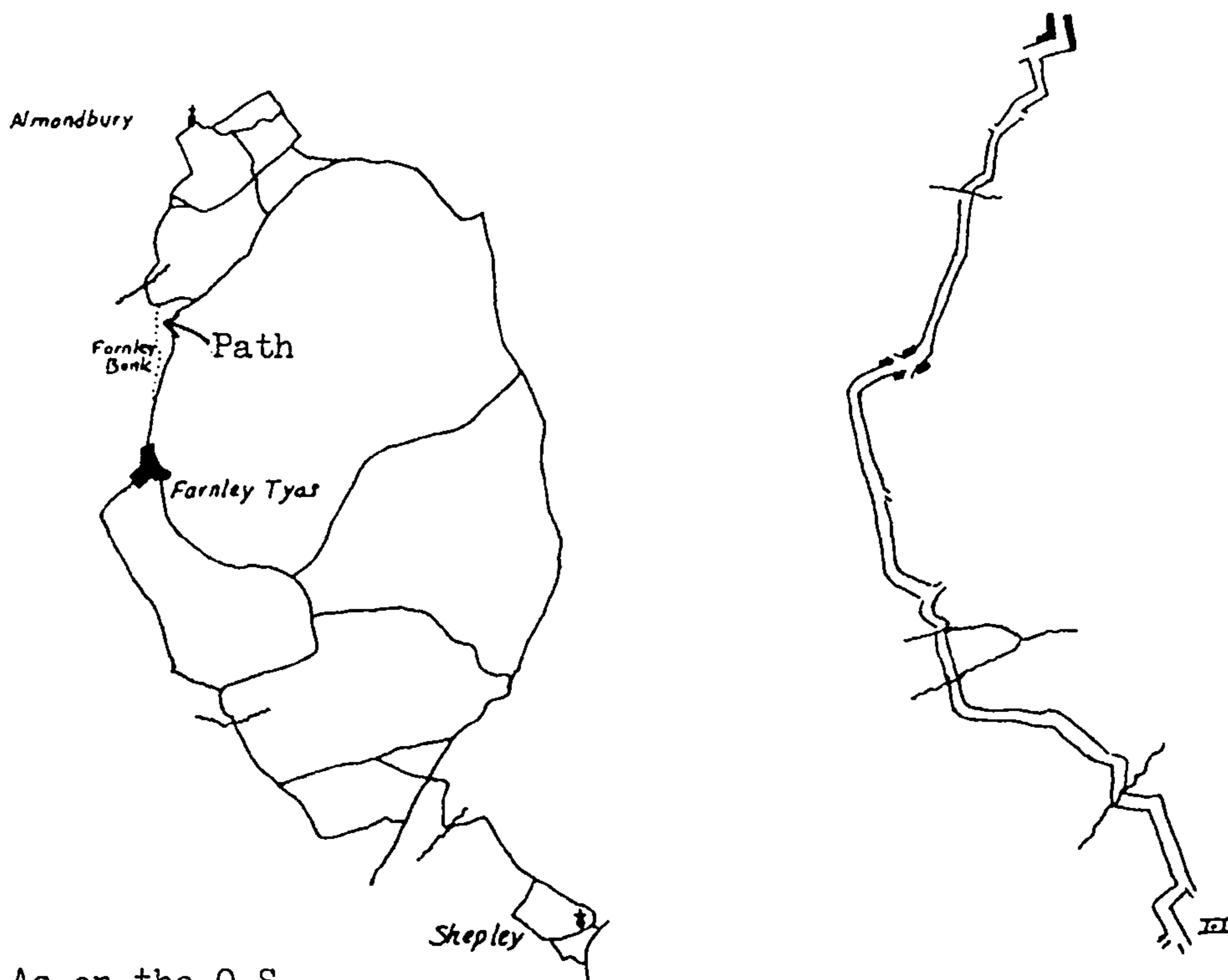
For the last mile into Dewsbury the mapped road would appear to be similar to the A644 but the re-protracted survey places the road in the vicinity of the new Calder-cut, much closer to the river itself than the map suggests. That the relationship of the road to the river on the printed map is once again wrong is confirmed by Saxton's 1600 town plan of Dewsbury.² This manuscript map explicitly names "The way from Mirfield to Dewsbury". The road clearly follows the same alignment as Smith's survey. Indeed, where Smith's road turns away from the river side into the line of the present A644 Saxton's plan notes that "under this in the water was the high way".

In some of the more remote areas credit must be given to Smith's

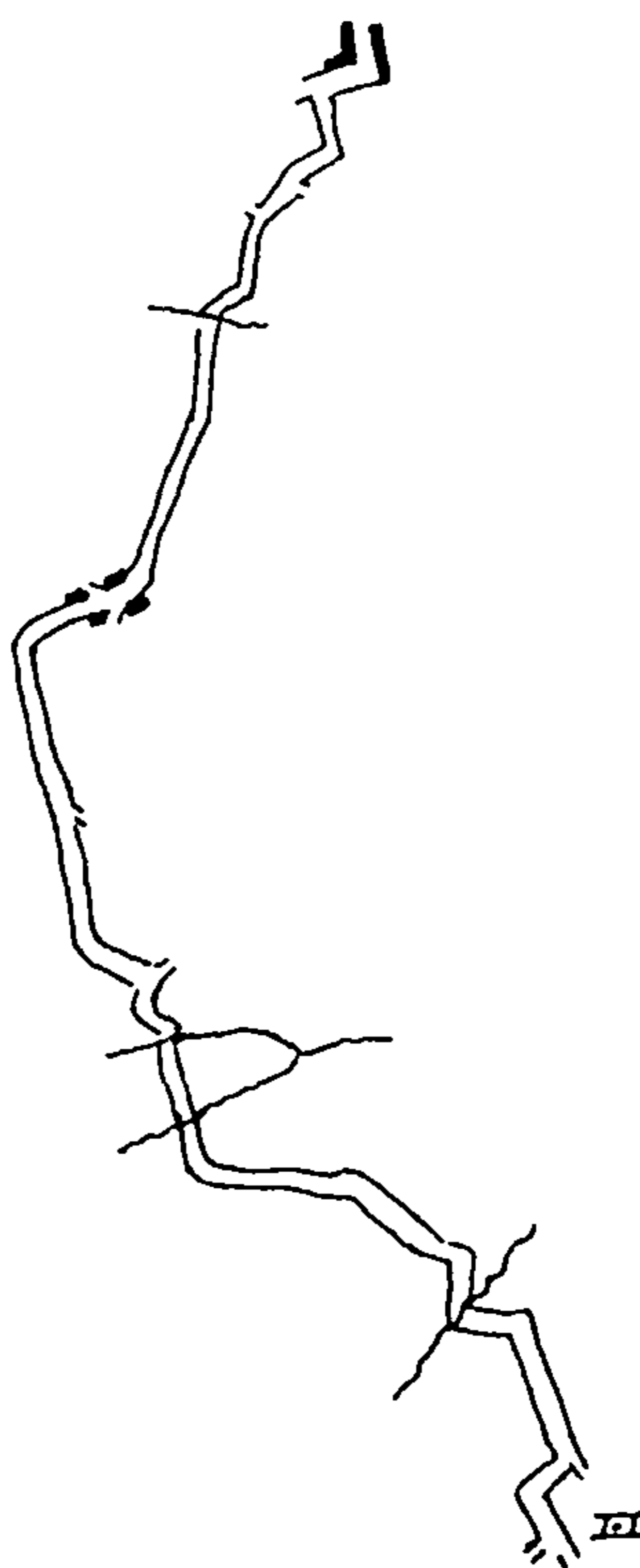
1 MS.913, ff.14-20

2 Illustrated in Rawnsley (1970)

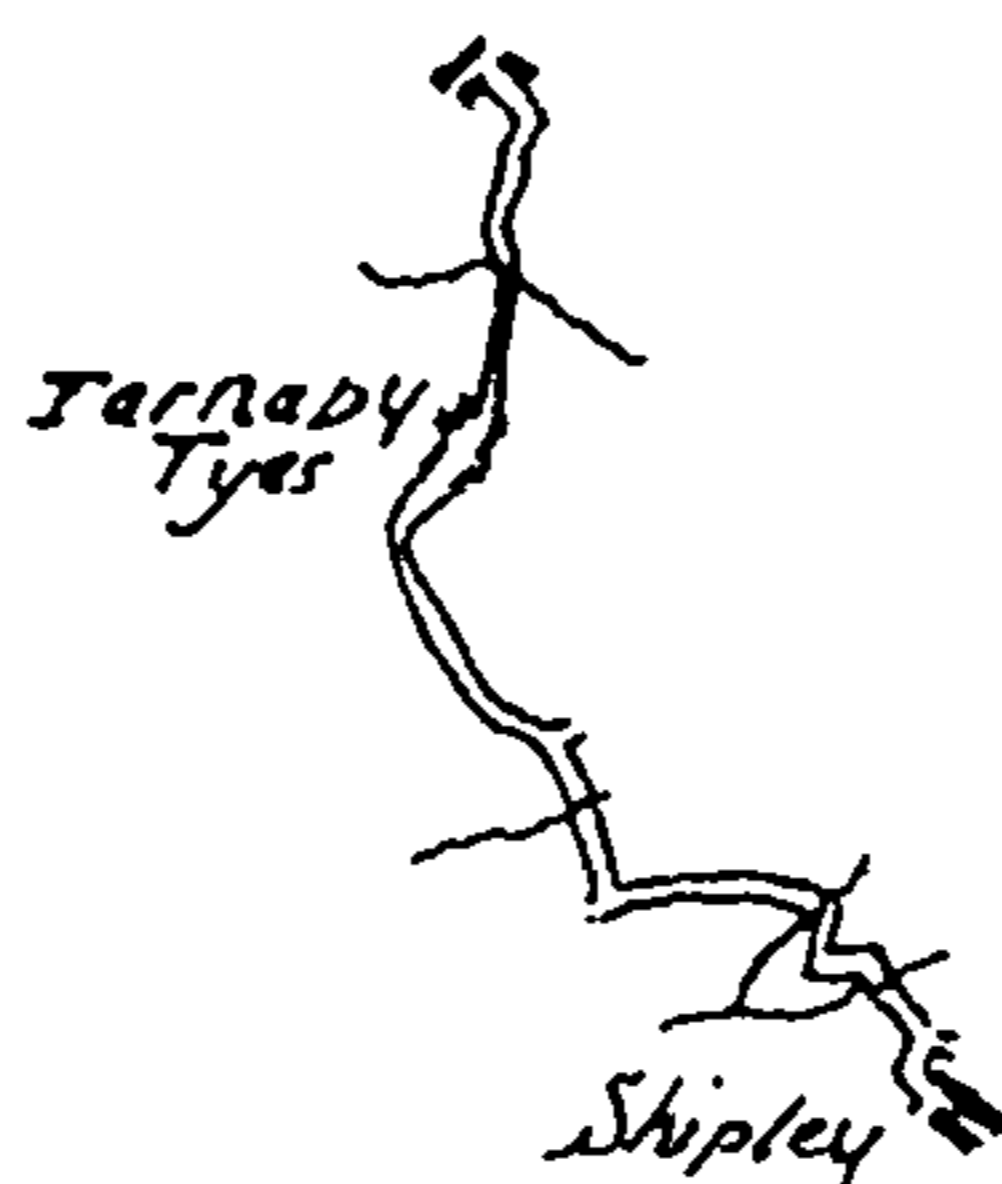
Figure 57 Almondbury to Shepley. Warburton, Smith and the Ordnance Survey



A) As on the O.S. 7th series 1" map



B) As on Smith's Road Plot



C) As on Warburton's 1720 map

Scales: Warburton $2\frac{1}{2}$ miles to the inch
Others 1" to the mile

guides in selecting the right way. For example, in the area between Almondbury and Shepley (Figure 57) on the road from Huddersfield to Penistone, examination of the complex lane structure as shown on the present Ordnance Survey map does not provide an obvious direct route.

The numerous bends on the actual road ensure that a detailed survey such as Smith's can be readily interpreted. The tracing of the road plot¹ (Figure 57.B) confirms this. Farnley Bank is the only point at which Smith's plot does not fit the Ordnance Survey map precisely. Crump,² in his study of the roads of this area, was doubtful whether the old road followed the present line or the path marked in Figure 57.A . Smith's field notes³ give no cause to doubt that, as his plot shows, the old road followed the path up Farnley Bank.

Again the draughtsman can be criticised for poor copying of the information provided about the streams. Interestingly the lower of the two streams on the plot, though not shown on the present Ordnance Survey map, lies in a clearly marked valley.

An exceptionally long section of road which cannot be related from Warburton's map directly to the Ordnance Survey 1" maps is one of some three miles beyond West Luton on the road from Malton to Bridlington on the Wolds. Comparison with the field notes⁴ and the road plot⁵ shows that the roads in the area have been markedly altered. The former alignment, though no longer extant even as a footpath, can be confidently identified on the basis of Smith's alignment and survey details, which records hills on the road coinciding with the contour patterns on the Ordnance Survey map.

From Hunmanby north to Whitby it is clear that most of the coast has been copied from Smith's road plot.⁶ Unlike Brown's road plots and

1 MS.895, f.164
2 Crump (1968) p.134
3 MS.913, ff.27-32

4 *ibid*, ff.82-92
5 MS.895, f.216
6 *ibid*, ff.220, 224-225

much less detailed survey, Smith's coastal information was sufficiently good to ensure that the printed map provides a reasonable representation of the relationship of the road to the coast. Thus, whereas Brown's sea shore route from Bridlington to the south was mapped in places more than a mile inland Smith's sea shore route across Robin Hood's Bay is correctly mapped.

Across the North York Moors from Whitby to Stokesley, Smith's route is of interest chiefly because the alignment differs so markedly from the present main roads. Thus on the road to Stokesley Smith leaves the line of the present A171 to follow a track over Gerrick Moor to Commondale.

Smith completed his road surveys with the road from Boroughbridge to York. This survey¹ is of interest for three reasons. First, it provides a new survey of a road mapped by Ogilby in 1675.² Second, it records quite precisely the junction to Knaresborough between Green Hammerton and Kirk Hammerton, thus confirming the otherwise uncertain line of Ogilby's road from York to Knaresborough.³ Third, this road was travelled for about one mile in the opposite direction when Smith surveyed the road from Wetherby to Easingwold.⁴ This last circumstance is of importance in that it confirms the consistency of Smith's accuracy and detail. On both surveys the road junctions are recorded at precisely the right point and correctly named. The fit of the surveys with the Ordnance Survey representation is equally precise.

Bland's surveys

Although Bland's road surveys are not as consistently precise as those of Smith, there are only a few instances in which the printed map representation presents serious problems of interpretation. Most of the

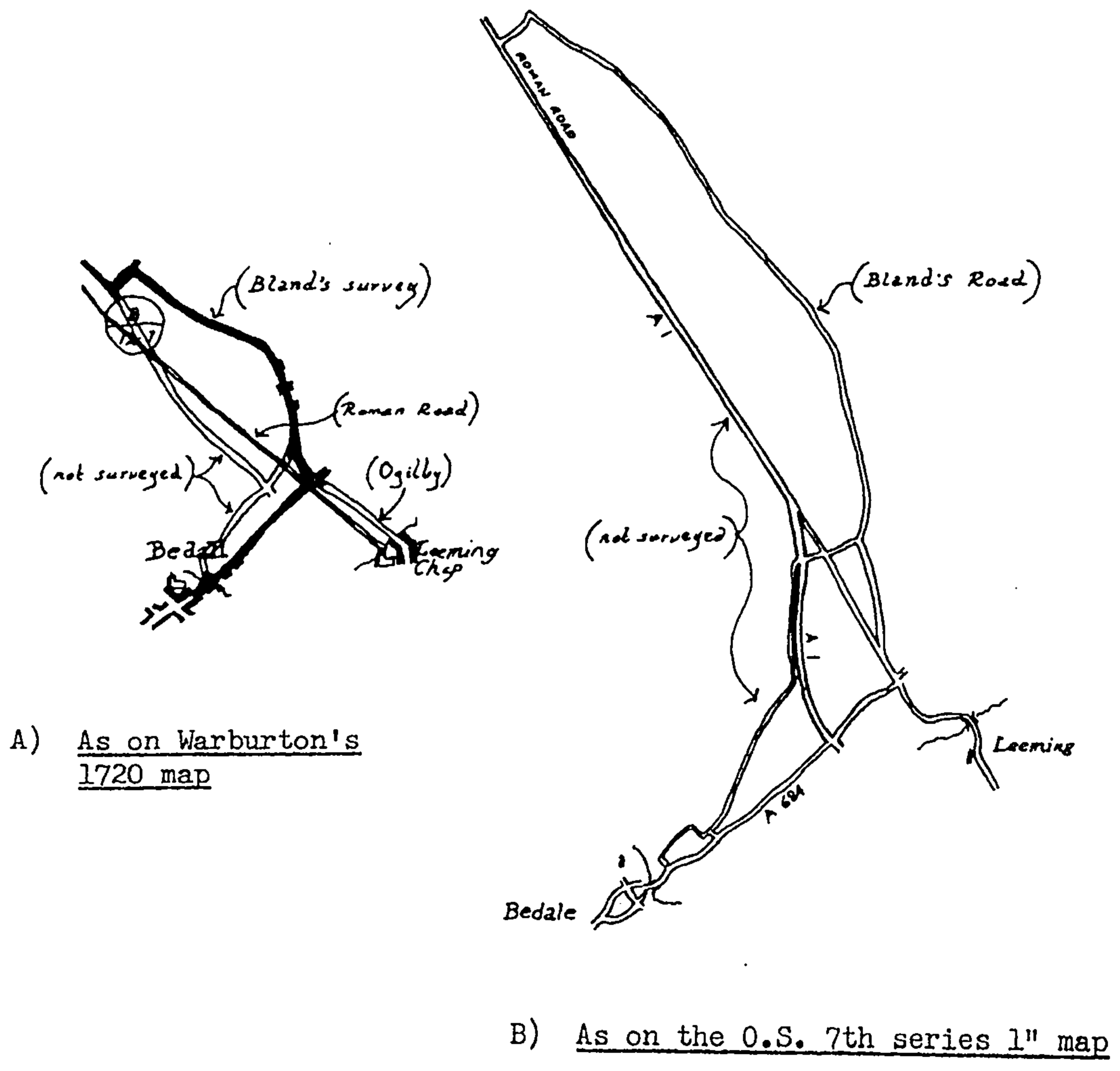
1 MS.913, ff.301-309

2 Ogilby (1675) Plate 8

3 *ibid*, Plate 88

4 MS.913, f.65-73

Figure 58 Bedale towards Richmond. Warburton, Bland and the Ordnance Survey



Scales: Warburton $2\frac{1}{2}$ miles to the inch
 O.S. 1" to the mile

problems posed by Bland's work can be resolved in the light of the assessment of Brown and Smith's roads. Thus, for example, on the road from Northallerton to Yarm, the village of Picton is depicted as being adjacent to the road on the west instead of its correct position about $1\frac{1}{2}$ miles to the east. If Picton village is ignored, however, the shape of the mapped road can be correctly fitted to the present lanes as recorded on Ordnance Survey maps.

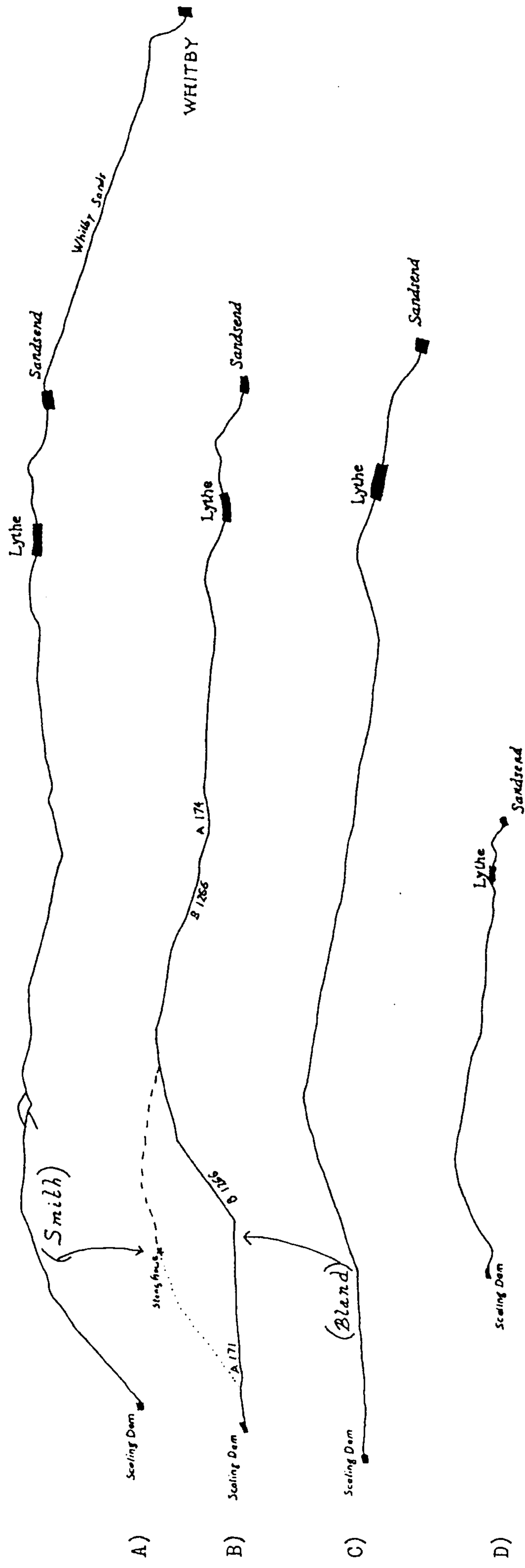
A more complex example provided is Bland's very first survey from Bedale to Richmond (Figure 58). Comparison with the Ordnance Survey map (Figure 58.B) shows that Bland's road on the printed map can be related to the present A684 and the minor road to the north-west. Warburton's map also shows a confusion of roads in the area. The details of Bland's survey¹ are important for two reasons. First, the junctions in the field notes fit precisely the line of the Roman road and former line of the A1 into Leeming and therefore prove that the Roman road representation on Warburton's map is only diagrammatic. Second, the route used by Bland, and the absence of any evidence for the surveying of the other routes in the area by Warburton's surveyors, are sufficient justifications for ascribing to Ogilby's Road Book survey² the link between Leeming and Bland's road and for ascribing the other roads in the area to the draughtsman.

The draughtsman causes confusion with the map by placing the mileage disc (Figure 58.A) on the unsurveyed route rather than on Bland's surveyed road. The source of this unsurveyed route could have been the junctions on Bland's survey. It is clear that the draughtsman had little idea of the relationship to Bland's route of the alternative route from Bedale to Richmond. With hindsight the evidence points to some version of the minor road north of the A684 (Figure 58.B) and thence on to the Roman road. Why Bland's guides did not recommend the Roman road is a question that cannot be answered from the maps alone.

1 MS.912, ff.4-8

2 Ogilby (1675) Plate 95

Figure 59 Scaling Dam to Whitby. Warburton, Smith, Bland and the Ordnance Survey



- A) As on Smith's Plot
- B) As on O.S. 7th series 1" map
- C) As on Bland's Plot
- D) As on Warburton's 1720 map

Scales: Warburton 2½ miles to the inch; others 1" to the mile

Bland's survey from Guisborough to Whitby can be usefully compared with Smith's survey in the reverse direction which covered much of the same road.

Between Guisborough and Scaling Dam the plot of Bland's survey reveals that his general standard of work was slightly lower than that of Smith. The junction leading to Stokesley on Smith's road is not recorded by Bland. By contrast, Smith records precisely the junction with the road shown by Bland to Guisborough.

Beyond Scaling Dam the point of interest resides in the different routes taken by the two surveyors; of these only one was mapped. The alignments taken from the road plots show that Bland (Figure 59.C) took a line very similar to the present A171, B1266, A174 route.^{1,2} On the other hand, Smith³ (Figure 59.A) clearly travelled via Stang Howe on an alignment which is not now recorded, but which can be seen as a path from Stang Howe to the line of the B1266. Smith not only records a tiny alternative path but also gives the junctions equivalent to the present B1266. The alignment as mapped (Figure 59.D) suggests that the draughtsman used Bland's survey for this route. Thus in this instance the printed map presents only one of two confirmed roads.

Of Bland's roads one of the most difficult to interpret from the map, or even from the field notes, is the way from Knaresborough to Otley.⁴ The actual alignment merits a great deal of attention by the historian of roads; for although Bland's survey is good enough to fix the approximate line it is clear that very little of this route of some dozen miles has survived.

Bland's survey does, however, highlight some appalling draughtsmanship in this area which makes the map itself of very limited value as a tool for discovering the true alignment of the road. The river and stream representations have to be ignored because they are so patently inaccurate. More seriously, only one of the three adjacent places shown, Pannal Church, is

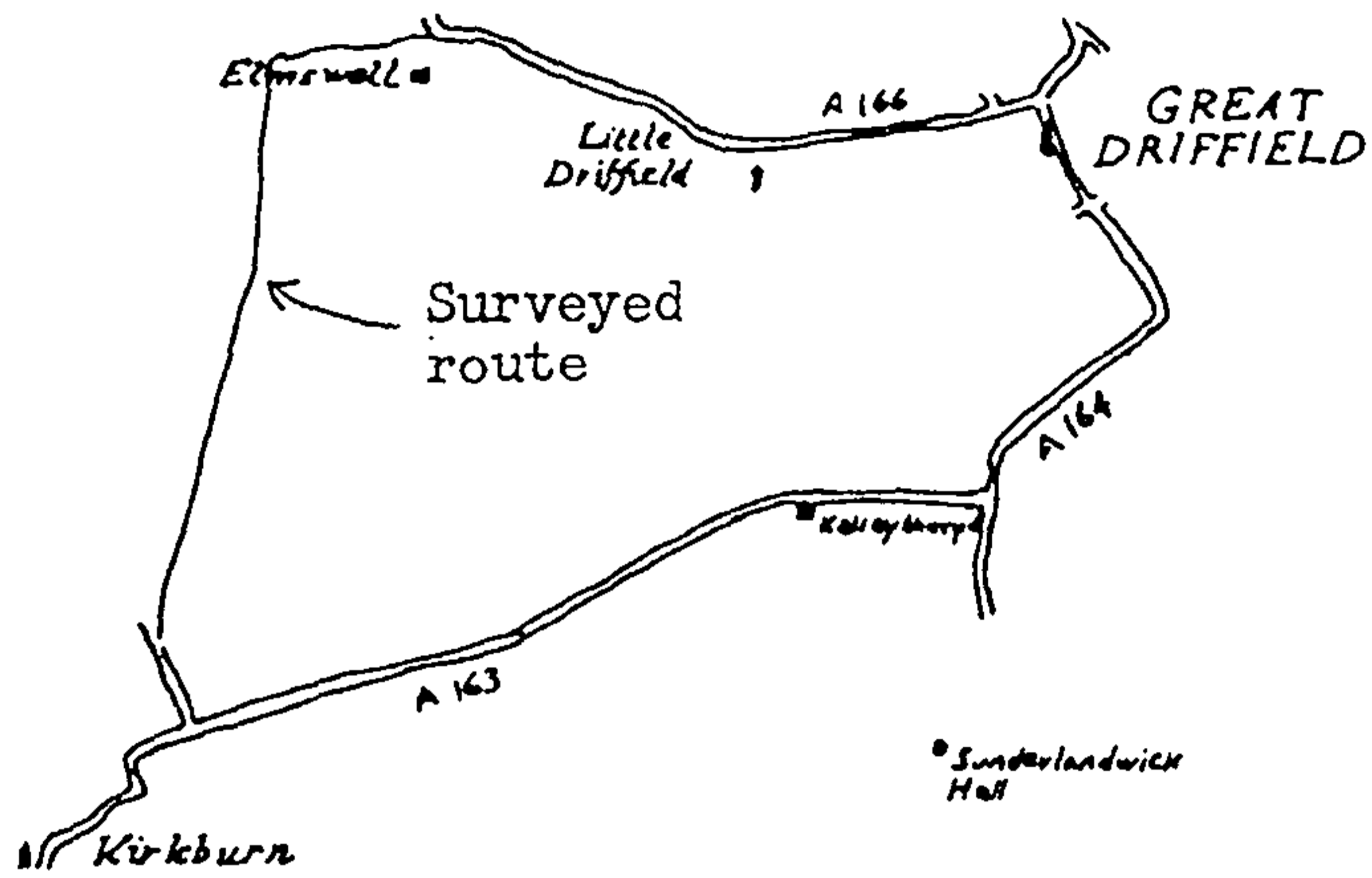
1 Between Sandsend and Whitby both Bland and Smith travelled the shore.

2 MS.895, f.171

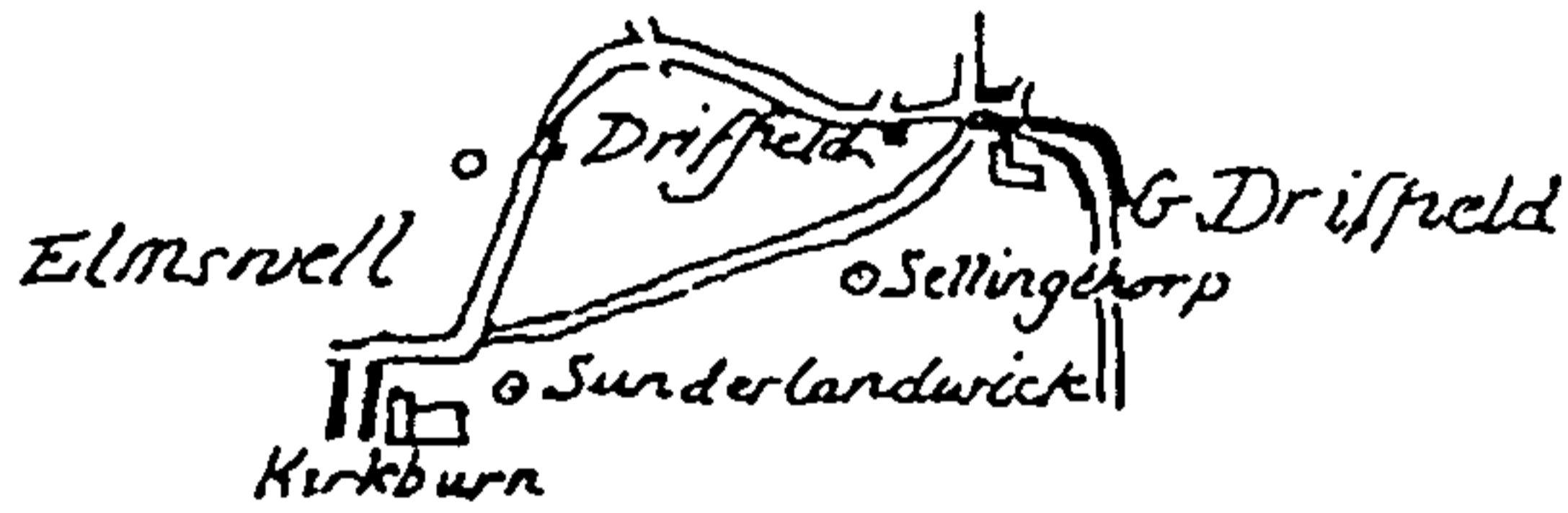
3 *ibid.*, f.217

4 MS.912, ff.185-187

Figure 60 Kirkburn to Great Driffield. Warburton and the Ordnance Survey



A) As on the O.S.
7th series 1" map



B) As on Warburton's
1720 map

Scales: Warburton $2\frac{1}{2}$ miles to the inch
O.S. 1" to the mile

located even approximately correctly. Of the other two places, Rigton is mapped to the south of instead of to the north of the road and Leathley Hall whose position is of crucial importance, is not only on the wrong side of the road but over a mile to the east of its true position.

This difficulty can be compared with that posed by Brown's coastal road from Bridlington to Hornsea.¹ The interpretation of both routes is complicated by road, by survey and by draughting problems. In both instances, parts of the road have definitely disappeared from the landscape. Had both roads been surveyed by Smith, the greater detail and accuracy thus provided would have eased the task of the draughtsman and, indeed, that of the modern interpreter. Again, had the overall survey been more integrated the errors of relationship on the printed map would have been less serious. Finally, even allowing for the weakness of the survey, the draughtsman committed avoidable mistakes. That both routes straddle separate sheets of the printed map highlights the draughtsman's inability to match up all the survey information.

As was the case with Smith's roads across the Wolds, so too Bland's roads present problems largely because the roads have been significantly affected by enclosure. This is particularly true on the route from Market Weighton to Kilham.² Paradoxically where the map provides two routes between Kirkburn and Great Driffield it is the least likely alignment that proves to be the surveyed road.

The surveyed road (Figure 60) is very circuitous and now partially a minor lane whereas the unsurveyed route, at first sight, approximates to the more direct A163/A164 alignment. Two errors on the map are the relationship of the surveyed road to Elmswell and also its relationship to Sunderlandwick. It is significant that whereas the surveyed road fits the Ordnance Survey alignment, albeit on very minor route-ways, the

1 Vide supra pp.295 et seq.

2 MS.913, ff.172-180

unsurveyed route enters Great Driffield at the north end of the town on no discernible alignment. The details given in Bland's survey provide no clues at all to the existence of such a direct way either as mapped or on the modern alignment.

Ogilby's roads on Warburton's map

Figure 39 illustrates which sections of Ogilby's Yorkshire roads were not re-surveyed for Warburton's map. In fact no less than 30% of all the Yorkshire roads shown by Ogilby were re-surveyed by Warburton. This entailed a survey of some 177 miles. On the other hand, Warburton's map does not show Ogilby's road from Tadcaster to Thorne nor his road from Clapham to the county border.

On two of Ogilby's roads only about two miles were re-surveyed. These included lengths of road on the plan of Malton and the entries into Whitby and Scarborough. By contrast, 45 out of 93 miles of the Yorkshire section of Ogilby's London to Berwick road were re-surveyed; so too were 22 out of 42 miles of the London to Flamborough road; 35 out of 75 miles of the York to Lancaster road; and the greatest proportion re-surveyed, 29 out of 34 miles on the Whitby to Durham road.

For all these sections the information in Warburton's field books can be very usefully compared with Ogilby's strip maps. Indeed, Warburton's information was of considerable utility in the interpretation of Ogilby's strips.¹ Warburton's draughtsman clearly reproduced Warburton's surveys where the road was the same as Ogilby's. The principal difference between the field book road plots and Ogilby's strip map representation of the same roads is that Ogilby's roads appear straighter. As has been shown, however, that is a consequence of differing survey methods rather than of

1 Vide supra Chapter Six

of real difference in road alignments. Brown's surveys are the ones which most resemble those of Ogilby in their lack of detailed planimetric accuracy.

From the experience of these re-surveyed sections, it is clear that Warburton's map does not simply plagiarize Ogilby's Road Book. For the other 70% of roads for which no re-survey was made it is nevertheless, equally apparent that although the roads were indeed copied from Ogilby, this was not done entirely without carrying out checks, as Crump erroneously claims.¹

With the obvious exceptions of Ogilby's failure to show the right angle turn through Staxton on the York to Scarborough road and Warburton's road from Tadcaster to Thorner, Warburton does not show any significant re-alignments of these roads. There is, though, ample proof that he improved on some of the information provided earlier for these routes. For example, Entercommon is added to the road from Northallerton to Durham. Again many spellings are changed as is the case for example, with Beaseck, to the north of Beverley, which was changed to Beswick.

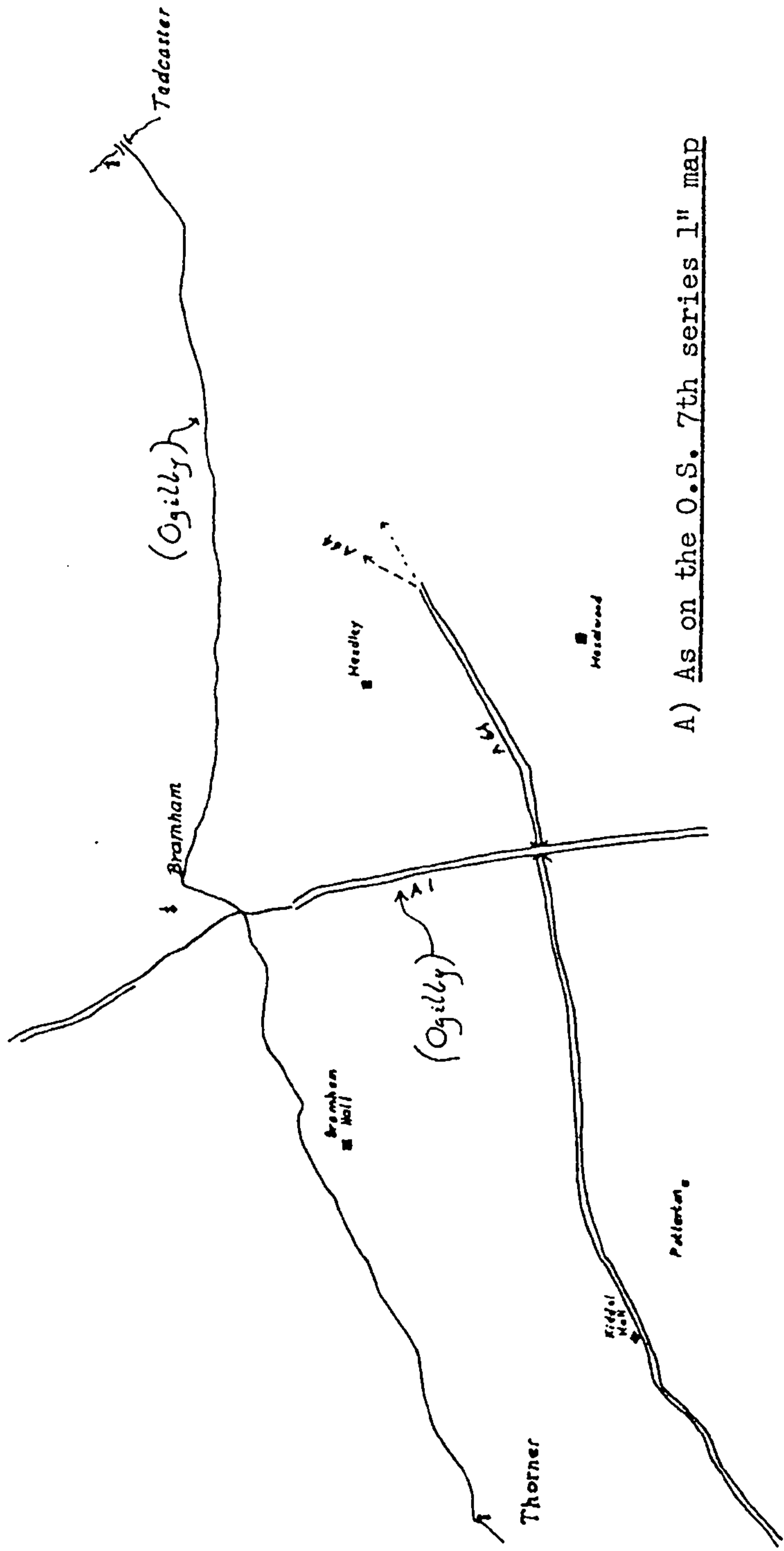
Elsewhere on Warburton's map too, it is obvious that his draughtsman did copy Ogilby's information uncritically. Two examples of such copying are the misplacing of Lead Hall near Tadcaster and the inclusion of the spurious place name "Shaley" north of Halifax.

The sources for Warburton's improvements to Ogilby's roads on the unsurveyed sections cannot be conclusively determined; it is however, most likely that the information was gained during the Observation station surveys and as a result of Warburton's own travels in search of subscribers.

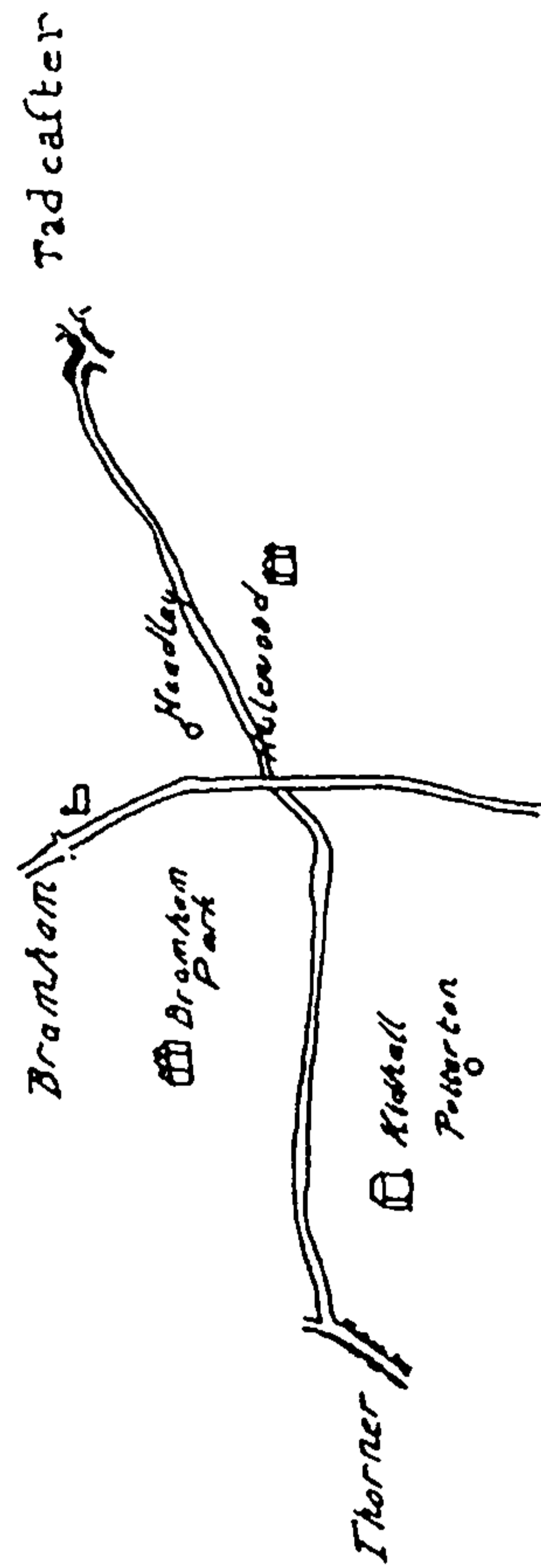
The facts that sections of Ogilby's roads were superimposed on Warburton's map and that attempts were made to correct them without re-surveying create problems for the interpreter. Three examples will suffice.

1 Crump (1928) p.398

Figure 61 An Unsurveyed Route between Tadcaster and Thorner: comparison with Ogilby's 1675 Road Surveys and the O.S.



A) As on the O.S. 7th series 1" map



B) As on Warburton's 1720 map

Scales: Warburton 2½ miles to the inch; O.S. 1" to the mile

Around Allerton Maulverer and Whixley the draughtsman failed to relate the newly surveyed roads to those taken directly from Ogilby, but once the failure is appreciated interpretation is straightforward. Less obvious is Warburton's mapped representation of the surveyed road from Middleham to Aysgarth and the Ogilby road from Middleham to Settle. The map depicts two distinct roads leaving Middleham when in fact both routes used the same road for the first mile or so.

The third illustration is the Tadcaster to Thorner road (Figure 61). This example is particularly intriguing, for although Warburton's map is incorrect the significant change of alignment of this route across the present A1 may well be based on a true state of affairs. The issue is confused on Warburton's map because he does record a Roman road roughly on the line of Ogilby's Tadcaster to Thorner route.¹

The new alignment of the route as mapped by Warburton (Figure 61.B) crosses the present A1 on the line of the present A64 (Figure 61.A). Between the A1 and Tadcaster the present 'A' road turns northward onto the line of Ogilby's route but there is also a minor road which heads directly for Tadcaster. By contrast, to the west of the present A1 there is no vestige of a road such as that which was mapped by Warburton to Thorner. Indeed, Warburton's link from the present A1 to Thorner is unquestionably wrong.

The justification for Warburton's crossing of the present A1 to the south of Bramham comes from Ogilby's representation of the A1 route, which clearly records at this very point the cross roads "to Leeds ... to Yorke".² From Ogilby's portrayal of the York to Leeds road via Bramham, Warburton's draughtsman knew that this route at least went through both Tadcaster and Thorner. Thus by combining the correct cross roads and the reasonable

1 This is not shown in Figure 61.B

2 Ogilby (1675) Plate 95

assumption that both Tadcaster and Thorne were on this route as well, the draughtsman, by chance, produced a route which was partially correct.

Today the route through Bramham is no longer used. Indeed by 1771 Jefferys' map records that the southern route had been turnpiked in preference to the Bramham route. That in 1675 Ogilby should have surveyed the Bramham route but clearly marked the alternative southern route and that Warburton should have attempted to depict this route in preference to the Bramham route might be evidence for a change of route usage in the period 1675 to 1720. Between Tadcaster and Leeds the first settlement encountered by a traveller taking the more remote southern route would have been Seacroft, at a distance of some 9 miles. Ogilby's route, by contrast, had the attraction of including both Bramham and Thorne with about 3 miles between each place, before Seacroft was reached.

Unsurveyed routes on Warburton's map of Yorkshire

The unsurveyed routes consist of a large number of short routes and a few longer ones (Figure 39). Without the knowledge of the field book evidence it is not possible to identify these routes conclusively simply from their representation on the map. Indeed, some of the surveyed roads look less convincing than a few of these unsurveyed routes.

Difficulties of recognition are enhanced by Warburton's efforts, presumably deliberately, to disguise these routes. For instance, many of them are depicted with spurious details such as 'measured' miles, 'open' and 'enclosed' sections and 'junctions'.

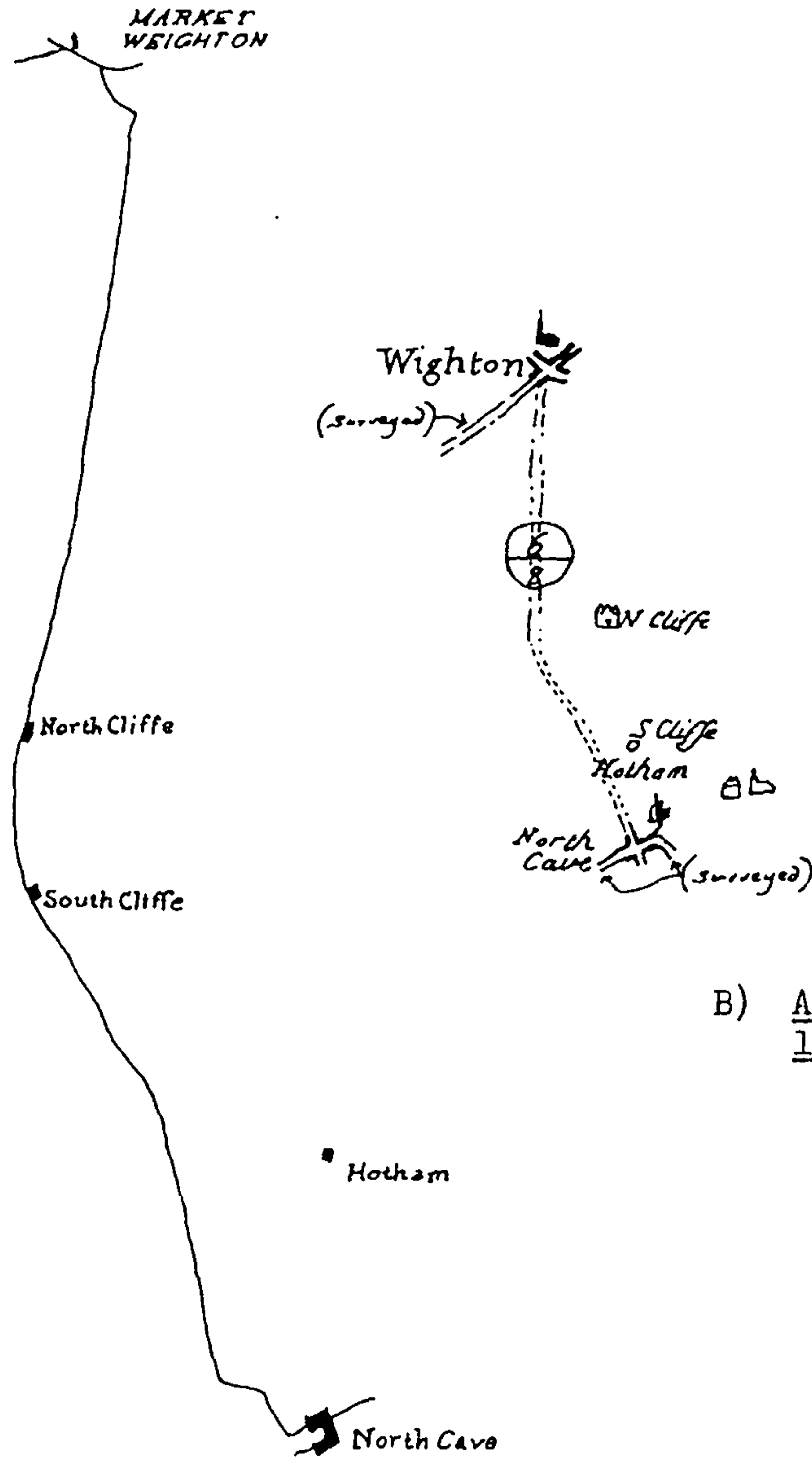
These routes do not depict actual road alignments as is the case with

the surveyed roads but they need not be rejected out of hand. Many can be shown to provide evidence of genuine roads. Three immediate sources for these routes can be pinpointed. The most important evidence for these routes is the recording of details about junctions in the field notes for the surveyed roads, and their citation also in Ogilby's strip maps. Since the destinations of routes from these junctions and turnings would have been provided for the surveyors by their guides, the further the destination, the greater the possibility of both error in the guessed alignment of the road and of the possibility that there existed more than one route to that place from the junction. The second source of evidence is the testimony of the routes implied by the Observation survey circuit. The third source is Warburton's journal, in which he recorded the routes he took while seeking subscribers.

The degree of certainty with which these mapped routes can be related to alignments on the ground is affected by the precision with which the turnings off the surveyed roads can be located. This is also influenced by such considerations as the length of the route, and whether both of its ends can be fixed. A further factor to be taken into account is whether the area concerned has been subsequently altered by enclosure or by drainage schemes, as for instance in Holderness.

Errors in the relative location of villages are more of a problem when interpreting these routes than is the case for the surveyed roads. With the latter, save for a few exceptions the alignment of the road on the map accurately represented the real alignment irrespective of the position of the adjacent places. That is, for the surveyed roads, the mapped alignment proved to be largely independent of places not actually surveyed as part of that road survey. For the unsurveyed routes, in which the actual shape of the mapped representation cannot provide an alignment recognizable on the ground, even grossly mislocated places cannot be so readily rejected

Figure 62 An Unsurveyed Route from North Cave to Market Weighton.
Warburton and the Ordnance Survey



B) As on Warburton's
1720 map

A) As on the O.S. 7th series 1" map

Scales: Warburton $2\frac{1}{2}$ miles to the inch
 O.S. 1" to the mile

as evidence for the course of the road.

All the unsurveyed routes on Warburton's map have been examined in detail. As a result it has been found that by comparing them with possible roads as shown by the Ordnance Survey maps and by Jefferys in 1771, the least possible lines can be readily discerned and discarded; while many others can be narrowed down to probabilities. Examples of both impossible alignments and probable roads have been illustrated with reference to Warburton's re-alignment of Ogilby's road from Tadcaster to Thorner.¹

A second example of an unsurveyed route is that between Market Weighton and North Cave (Figure 62). Apart from the Market Weighton exit, the mapped representation (Figure 62.B) appears to fit the present minor road alignment quite well. The mileage disc adds to the impression that the route as mapped could have been surveyed. However, both North Cliffe and South Cliffe are inaccurately located relative to Market Weighton and North Cave; and since neither place is on the road as is the case today, clearly something is amiss.

Inspection of the evidence for the surveyed roads through North Cave and through Market Weighton shows that a junction is recorded as indicating a road leading to Market Weighton from North Cave but not vice versa. As can be seen in the illustration, no junction is, in fact, shown at Market Weighton for the mapped route stops at the town symbol and does not join the road. This would explain the difference between the present road entry into the town and the way as mapped. Since the route was not travelled by the surveyors it is also not surprising that both North Cliffe and South Cliffe are erroneously located.

The precise line of the route implied by the road junction at North Cave and depicted so inadequately on Warburton's map has not been definitely

1 Vide supra pp.334,5

discovered. The present minor road, for instance, was not recorded as such until the third edition of Jefferys' map in 1800.

Elsewhere extant estate maps provide conclusive evidence of the road alignments from survey routes at the date of Warburton's map. Two good examples are the estate maps of the Cowtons which were surveyed in 1718 and 1719;¹ and for the area around Thornton Watlas near Masham, a map of 1719.²

The fact that so many unsurveyed routes were included in Warburton's printed map is a reflection of his awareness of their importance as part of the landscape. In the assessment of Ogilby's strip maps of the Yorkshire roads it was proposed that the junctions recorded on those roads could be used in an attempt to construct the implied network of lesser roads. Warburton's unsurveyed routes to a large extent represent his efforts to construct the implied network of roads from his own surveyors' road plots. Examination of these field notes and plots, however, reveals that many more junctions were surveyed than were recorded on the printed map; and many of these can be precisely located. Thus, by working directly from these surveys it should be possible to add considerably to our knowledge of the network of minor routes and roads in Yorkshire in 1720.

1 N.Y.R.O. ZDG(A)XIV 1718/19
2 N.Y.R.O. ZAL 6/6 1719

Corrections to the printed map. An early state.¹

That errors can be found on a map surveyed in the early eighteenth century need occasion no surprise. Yet it is an encouraging sign that the cartographer often attempted to reduce the number of such errors before general publication of the map. Such is the case with Warburton's map of Yorkshire. The evidence for this is largely the result of the discovery of a hitherto unknown and unassessed earlier state of the 1720 map.

This earlier state was identified from a large portion of the West Riding section of this map preserved in the Wentworth Woolley Manuscripts Collection.² Comparison of this portion with the equivalent portions of the Warburton map in the Whitaker Collection reveals more than twenty points of difference, thus confirming the existence of two versions. Close inspection of the complete map shows that many of the corrections made to the plate were very crude. For instance, the village of Middleton, south of Leeds, had been located immediately above "Lingwell" on the early state and is still partially discernible in that location on the later map.³

Changes on the full map include the following: for example, other re-locations, the addition of places such as Woodchurch;⁴ and the addition of parks and park fences.⁵ Since most of the changes are made to those parts of the map closest to Wentworth Woolley it is likely that the owner of that seat had been supplied with one of the first impressions of the map, or perhaps only the surviving portion, in order that he might advise Warburton on any necessary alterations.

The practice of asking the gentry to correct new maps was not unique. Ogilby had asked for correspondents for this purpose in the 'Advertisement'

1 Whitaker (1933) refers to a copy incomplete with respect to the heraldic details surrounding the map.

2 MS.68 Wentworth Woolley, Brotherton Library, University of Leeds.

3 (W.C.C.270)

4 Woodkirk

5 At Byram Park, near Ferrybridge

in the preface to his Britannia of 1675.¹ Again, it is claimed that Morden's maps of 1695² had been corrected on the same basis. Much later, in 1800, a similar claim was made for the third edition of Jefferys' map of Yorkshire.³ The discovery of the Wentworth Woolley state of Warburton's map not only confirms the existence of this practice by example, but will reveal, in the person of the owner of the seat, the instigator of the alterations.

The discovery of this version prompted a detailed inspection of the full map in order to determine whether there were any other areas of the county which revealed evidence that the places had been re-worked. To this end the Warburton map in the Bodleian Library⁴ was studied because it presents detail much more clearly and sharply than the map in the Whitaker Collection and therefore presents a truer representation of the condition of the plate. Evidence for the two other Ridings also reveals that some features were altered. In the North Riding just south of Yarm several changes are discernible, such as the re-positioning of the name Scarth Wood. In the East Riding the most obvious alterations occur near Withernsea and around 'Lonesbrough' Park.⁵

The crucial significance of the earlier Wentworth Woolley state is that although the changes made point to weaknesses, the very fact that corrections were made suggests that problems of interpretation posed by the maps cannot be dismissed out of hand as errors. Again, where details such as parks and fences may have been added there is good reason for accepting them as being reasonably accurate, though not necessarily

1 (W.C.C.240)

2 (W.139)

3 (W.286)

4 Gough Maps Yorkshire 12

5 The Bodleian Library also contains an unidentified map of Richmondshire dated 1722. This, in fact, proves to be a very close copy of part of Warburton's map omitting all the roads except Roman roads. The copier did not think it necessary to alter any of the rest of Warburton's information. (Gough Maps Yorkshire 20)

planimetrically correct. Finally, in retrospect, some of the corrections could have been recognised without recourse to the earlier state simply because of the crude way in which the plate had been reworked. This being so, it ought to be possible to recognise such evidence of the existence of former states of other printed maps even if no earlier state is extant. For this purpose the study of Warburton's map provides three general pointers. The most obvious pointer to an earlier state is the presence of faint markings on subsequent prints as a result of incomplete erasure. A second clue is provided by the re-location of place names cramped amidst or superimposed on other detail, such as the woodland at Middleton. A third clue is the addition of information engraved in a different style, as was the case with a paling around Byram Park.

Some Conclusions about Warburton's map

It is convenient to write about "Warburton's" map. Nevertheless it is clearly a work of composite authorship, engraved from both field materials and secondary sources. The field materials themselves prove to be the work of at least three surveyors, each with his own degree of accuracy. Thus, to expect a simple answer to any question about the reliability of the map as a source of topographical information betrays an unawareness of the precise nature of the map.

Many of the limitations of the map could have been discerned even if no field evidence had survived. Thus, for instance, errors in the location of places and the often totally unfounded representation of streams can be discovered by simply comparing the map with the present Ordnance Survey maps.

For the historical geographer of Yorkshire these field notes are of crucial significance in enabling the printed map to be separated into its component parts and thus enabling him to interpret the map with confidence. They reveal, for instance, not only which features were surveyed but also how accurately they were surveyed and then mapped. For the unsurveyed features these materials make it possible to pinpoint the sources of the content; whether copied from earlier works, whether based on general knowledge or merely the result of guesswork.

A further advantage is that the much more detailed testimony of the field notes can be studied in preference to the map. Work on the field materials also suggests various possible avenues for further study. One is that it would be feasible to reconstruct from these materials a very much better representation of the topography than was achieved by Warburton's draughtsman. This could be undertaken using the Ordnance Survey maps as a base on which to plot the Warburton survey information. Another approach would be to use once more Warburton's observation stations and compare where possible the sites observed by his surveyors with those visible at present.

Use of the survey material also enhances our understanding of map compilation and the relationship of Warburton's map to Warburton's surveys can be applied to the assessment and use of other maps. The comparisons with Saxton's county map of Yorkshire and with the portrayal of Ogilby's roads through Yorkshire are two examples. Attention has already been drawn to the remarkable accuracy and completeness of Saxton's settlement distribution. Again, examination of the field notes and plots of Brown, Bland and Smith proved to be of considerable assistance in the understanding of Ogilby's not dissimilar strip maps.

For the historical cartographer it is also this last point that is of greatest interest. Especially significant is the extent to which the final

printed map proves to be a compilation of materials which were neither explicitly interrelated in the survey nor capable of correct compilation by the draughtsman. Indeed, the draughtsman was confronted with problems when attempting to reconcile conflicting items of information. From the Observation Station notes he had very accurate bearings but far too few cross references, while distance 'measurements' were little better than poor estimates. From the Road Surveys he had data ranging from Smith's excellent work to Brown's sometimes less than adequate surveys. From all this disparate material, the measured survey material, survey material from the Journal and the various secondary sources, the draughtsman somehow had to produce a map. Although the draughtsman can be blamed for many of the errors on the printed map it is evident that he deserves our sympathy and understanding for occasionally the tasks with which he was confronted were impossible.

A lack of unity in the composition of the map explains why many a map is not susceptible to broadbrush techniques of analysis. Particularly is this true of those techniques in which an attempt is made to correct obvious planimetric inaccuracies. For instance, time and again the surveyed roads prove to be planimetrically very accurate indeed and this, despite the inaccurate placing of adjacent settlements and often totally inadequate representations of rivers. The 'obvious' approach to interpreting a road alignment on a map is to relate that alignment to the adjacent settlement. If that settlement is clearly plotted inaccurately the sensible first step would appear to be to eliminate these errors and then to adjust the roads accordingly. Analysis of Warburton's map shows however, that settlements and roads could be entirely unrelated on the map for the simple reason that the draughtsman's data were originally equally unrelated. Thus, if features such as settlements and roads cannot be interpreted readily in relation to each other the solution may reside in assessing each feature independently;

to adjust the map's basic planimetric framework is liable to cause further confusion rather than assist in interpretation. The field notes confirm that on the map very accurate and reliably portrayed features could be juxtaposed with those placed in a hopelessly inaccurate and unreliable manner.

Warburton's map can be described as a map of contrasts. Accordingly there are few useful general comments that can be made about it as a source of topographical information. In terms of new information it is indisputably a major source presenting the first full county survey of Yorkshire since the publication of Saxton's map in 1577. Much of that new information is both accurate and reliable: much, however, is not. There, therefore, remains the problem for the map user of separating the one type of information from the other; a task for which the present analysis provides the principal guidelines.

Additional maps of use as sources of topographical information between Warburton's 1720 map and Jefferys' 1771 map

This period is the first in which a new survey, albeit a survey of only part of the county, is included as an additional source. This is the map by Dickinson, a particularly welcome addition because it was published roughly half way through the period in 1750. Given the availability of this map and the Key maps by Warburton and Jefferys, the contribution made by the other three additional maps appears all the more limited. Yet even this limited contribution merits some consideration.

i) 1724 (W.168) Moll's County map and Riding maps

The roads depicted on the county map are not merely those shown by Ogilby, as was claimed by Whitaker,¹ since they include Warburton's Pickering to Scarborough road. Beyond the edges of both this and the Riding maps are various notes and drawings of antiquarian interest. On the county map is a plan of the three Devil's Arrows and "The Place where a 4th stood 2.2 foot (sic) high". The site of the three arrows is depicted on Warburton's map but this is the first use of a plan as part of a printed county map since Speed published his maps with town plans on in 1610.

On the Riding maps the only added topographical detail is an unenclosed road to "West Pitts" lead mines five miles north of Barnard Castle in the county of Durham. No corroborative evidence has so far been discovered to confirm either the location of the pits or the road. Thus this may prove to be an instance of a spurious addition to give an impression of originality. This additional 'information' is placed just beyond the county border in a position where it would clearly attract the eye.

ii) 1750 (W.203) Bowen's County map and Riding maps

The relationship between Bowen's map and Warburton's map of 1720 is very close indeed. The smaller scale of Bowen's maps produces a very marked concentration of detail but the excellence of the engraving prevents any impression of overcrowding. Indeed, this fine engraving, and some obvious corrections to some of Warburton's errors such as the inclusion of the Ouse & Derwent Wapentake in the North Riding instead of the East Riding, give a false impression of the reliability of the maps.

Evidence that Bowen's work is limited can be shown by the slavish copying of almost all his content from Warburton's map. It is significant,

1 Whitaker (1933) p.54

for instance, that though Bowen corrected the Ouse & Derwent Wapentake boundary on the county map his North Riding map actually includes that Wapentake. Again Bowen copied Warburton's often appalling river alignments including the representation of the river Don, despite the fact that Bowen had personally engraved new surveys of some of the rivers.¹

The significant additions to Bowen's maps are the numerous informative topographical and historical notes which supplement the maps. On the West Riding map for example, details indicate matters such as recommended vantage points for good views as at Haslewood, and reference to the millstone trade from Bawtry. The letters 'R' and 'V' are added to churches to distinguish rectories and vicarages.

Bowen's East Riding map and the North Riding map share the distinction with Dickinson's map of being the first to record turnpikes in Yorkshire. In the East Riding those recorded are the turnpikes from Hull to Beverley; from Hull to Anlaby and Kirk Ella; and from Hull to Bilton and Hedon. All these turnpike roads are named as such on the map and depicted by three as opposed to two parallel lines. From comparison with Warburton's map it is evident that Bowen has simply added a third parallel line to Warburton's alignments of the pre-turnpike roads.²

On the North Riding map a turnpike is shown extending from Boroughbridge south to the vicinity of Allerton Maulverer, that is the line of the present A1. Placed next to the road from Green Hammerton to Boroughbridge on the map is a note indicating that this "Roman Way is Turnpike (sic) to Piercebr." The Turnpike Acts for these two roads were passed in 1745 and 1750.³

Since only these few turnpikes were recorded by Bowen it may be

1 For instance Palmer's "A Survey of the River Dunn". Illustrated in
 2 Warburton's field notes confirm the alignments on his map. /Willan (1965)
 3 Pawson (1977) Appendix

suggested that the map trade was not as yet particularly informed about the turnpiking of roads. Even the 1767 reprint of these maps remained unchanged in this respect and this despite the fact that in Yorkshire some twenty Turnpike Acts had already been passed by 1750.

iii) 1750 (203A) Dickinson's map of the "South Part of the County of York"¹

This important yet rarely acknowledged map covers an area roughly from Wakefield to Snaith along the rivers Calder and Aire and south to the Derbyshire and Nottinghamshire borders at a scale of one inch to the mile. Although the map does not cover even one complete Riding it represents an area greater than the historic county of Rutland and one similar in size to the two historic counties of Bedfordshire or Huntingdonshire.

On the left hand edge of the map is an alphabetical list comprising most of the places mapped, including the country seats and their owners. All the places are readily locatable by means of a simple reference system. On the right hand edge of the map are two significant features, namely a Key and a column giving topographical and historical notes. The Key adds to the claims of the title that open and enclosed areas are differentiated and that parish boundaries are shown.

As might be expected given the identity of the sponsor, the topographical notes inevitably mention the Marquis of Rockingham's chief seat, Wentworth House, now Wentworth Woodhouse. The notes also give some insight into the limitations of the map with respect to industry, particularly in the area around Sheffield which is described as "A very large and populous

1 "A New and Correct Map of the South Part of the County of York by Actual Survey Shewing the true Situations of the Several Towns, Noblemens, and Gentlemens Seats; The Courses of Rivers and Rivulets, present Roads, Roman Ways, Castles, Ancient Abbeys and Priorys, Parks, Woods, Hills, Lakes, Collieries, and other Minerals. Taken at the Cost of the most Honble. THOMAS Marquess of ROCKINGHAM by J. Dickinson Anno 1750." (engraved by Parr). (Bodleian Library. Gough Maps Yorkshire 30)

Town of great trade for Cutler Ware: there being much Ironstone dug in this part of the Country which is also well furnished with Wood, Water, and Coals for Working and Manufacturing it. The River Don upon which the Town Stands is Navigable within a few miles of it and about the Town is very thick set with Water Wheels, Forges, etc."

Initial inspection of the map suggests that much of the apparent topographical detail might amount to no more than artistic embellishment. Not only are the main roads less accurate than the surveys of the same roads by Warburton in 1720 but the many minor roads give the impression of being so generalized as not to have been surveyed at all.

Further inspection shows that although the degree of planimetric accuracy of the map is less than satisfactory, by comparing the detail with the Ordnance Survey maps using Jefferys' map of 1771 to provide information for an intermediate date, much of the detail can be confirmed as providing a genuine, if planimetrically weak, representation of the topography. This conclusion is based on the comparison on all these maps of the representation of the main roads, the minor roads, the parks, the woods, the commons, the rivers and streams. The most important clue, however, to Dickinson's level of planimetric accuracy and hence potential for useful interpretation was obtained by comparing the road surveys of Warburton in 1720 with Dickinson's map.

Warburton's road surveys, and especially those of this area which were made by Smith and Bland, with few exceptions portray every detail of the present alignments even when the road concerned is no more than a track. It is reasonable to expect that a road which is the same today as it was in 1720, as indeed on Jefferys' map in 1771, will also have been the same in 1750. Given this the extent to which Dickinson's record is a less precise record can be gauged with confidence. In effect, the assumption can be made that detail on Dickinson's map which is similar to that on both Jefferys'

map in 1771 and the Ordnance Survey maps is more likely than not to be genuine. Nevertheless, this detail by Dickinson may be a weak representation of the same topographical information as portrayed by Jefferys and the Ordnance Survey rather than the result of chance similarity of artistic embellishments or of a precise representation of features which had been subsequently changed.

In only one respect is the map detail predominantly artistic. This is in the representation of enclosed areas by means of fences and trees. The Key simply records that: "The Inclosures by Fences & Trees, those places which are most plain are Commons or open Fields". If it is accepted that this is an attempt to present a generalized representation of enclosed areas rather than an attempt to depict specific fields, Dickinson's portrayal of the region can be taken as a genuine record, as is created by comparison with Jefferys' open and enclosed areas. The large number of minor roads and the 'parish' boundaries, facilitate interpretation by supplying numerous points of reference.

One other feature which is suspect is Dickinson's representation of the Roman road "Rickeneild Street Way" for although several of his Roman details can be confirmed this road does not appear to be based on anything more reliable than hearsay.

As a contribution to our knowledge of the topography of this portion of the county the map represents a major step forward, adding considerably to the detail of Warburton's map some 30 years earlier. Indeed the map includes a few local details not even recorded by Jefferys some 20 years later. For example, Dickinson's map has a few additional minor roads and some very specific items such as lime-pits and wells.

Although the map is best interpreted in the light of the understanding gained from comparison with Warburton and Jefferys' maps it can, nevertheless, then be used, at the risk of some circularity of argument, as an

aid to further understanding of those maps themselves; for once the planimetric weakness of Dickinson's map is appreciated the map detail can be compared and contrasted with that on the other two maps.

As a contribution to the development of the cartographic representation of Yorkshire two points stand out. The map evinces a method of survey between Warburton's and Jefferys' styles. For instance, neither Warburton's survey method nor the scale of his map permitted the amount of detail shown by Dickinson; but it was not until Jefferys' survey that that detail was surveyed and mapped with sufficient accuracy to enable the majority of the features to be interpreted at first sight. Furthermore, this map provides further evidence of the effect of costs on the development of regional mapping; clearly from the standpoint of the patron, the Marquis of Rockingham, the venture was not intended to make a financial profit. The motives of the Marquis may have been to show off his extensive estates, but in so doing he added to the amount of topographical information shown on Yorkshire maps. It is possible that his properties were shown in greater relative detail than those seats of other neighbouring land owners. It is, however, ironic that the engraver, Parr, managed to perpetuate an error by naming the Marquis' own park at Wentworth House as the "PAPK": even wealth cannot guarantee cartographic infallibility.

iv) 1764 (W.224) Kitchin's County map and Riding maps

Kitchin's map of Yorkshire shows that a county map is not necessarily a mere reduction of the accompanying Riding maps. For instance, Rise Park recorded on the county map is absent from the East Riding map. Again the first mapping of a route over Yeddingham Bridge between Malton and Scarborough is shown on the county map but not on the Riding maps. Conversely the more obvious route from Pickering to Scarborough shown on the Riding map is omitted from the county map.

Three of the four maps which add to our knowledge of the topography of Yorkshire between the time of the maps of Warburton and Jefferys contribute only a small handful of significant items. That this was the case may be due to the fact that after the advances made by Warburton there was little scope for further improvement in the eighteenth century except at a great cost. Indeed, the majority of all the maps in this period reveal no attempt whatsoever to improve on Warburton's map.

Dickinson, in conjunction with the Marquis of Rockingham, provided an improvement by adopting a new combination. They used a larger scale of one inch to the mile and mapped a smaller area than their predecessors - smaller than either the whole county or even a Riding. Yet Dickinson, like Bowen, in effect admitted defeat by adding to the face of his map lengthy topographical annotations. The demand for more and more detail on maps and greater planimetric accuracy could not be satisfied without a very much more rigorous approach to surveying than had hitherto been evident in the mapping of Yorkshire as a County. Such a rigorous approach was provided by Jefferys' scientifically based survey, but this was undertaken some twenty years after Dickinson's survey and more than fifty years after the production of Warburton's map.

CHAPTER EIGHTPERIOD FOUR: JEFFERYS' MAP OF 1771/2 TO 1816Introduction

In this period was produced the first scientifically based survey of the county of Yorkshire. Indeed, even the most cursory inspection of Jefferys' 1771/2¹ map is sufficient to show that the cartography is of a much higher standard than that of any previous map of the county. This standard and also the scale of one inch to the mile facilitate comparison of the detail with the maps published by the Ordnance Survey.

The value of Jefferys' map lies not only in the information on the 1771 map but also in the abundance of new information engraved on the reprints of 1775 and 1800. By its very presence this new detail prompts further investigation. Some changes, for example, may reflect developments in the countryside but others may be a response to mistakes on the previous prints. Indeed, genuine corrections of mistakes help to explain many of the problems encountered on the earlier maps. Hence examination of the 1775 map and 1800 map is an integral part of the assessment of the 1771 map.

As with Warburton's map there is some evidence of the way in which Jefferys' map was made. An understanding of Jefferys' methods and possible sources provides some initial guidelines for the assessment of specific topographical details. Accordingly this evidence is considered first.

1 Hereafter referred to as 1771

The making of Jefferys' map

The chief source of information on Jefferys' method is contained in the manuscript inventory entitled "Catalogue of Drawings and Engraved Maps, Charts and Plans the property of Mr. Thomas Jefferys Geographer to the King 1775".¹ Regrettably, the present location of the basic survey materials listed in this catalogue is not known and, in fact, they may no longer be extant.

The catalogue materials can be divided into the two categories of primary and secondary sources. The former include references to survey maps and plans of Yorkshire. The latter comprise earlier engraved maps and plans which were almost certainly referred to by Jefferys. Many of these engraved works are available for study. However, as the catalogue reveals, Jefferys' cartographic interests extended far beyond his map of Yorkshire. Hence the possession of other Yorkshire maps does not inevitably make them sources for his own Yorkshire map.

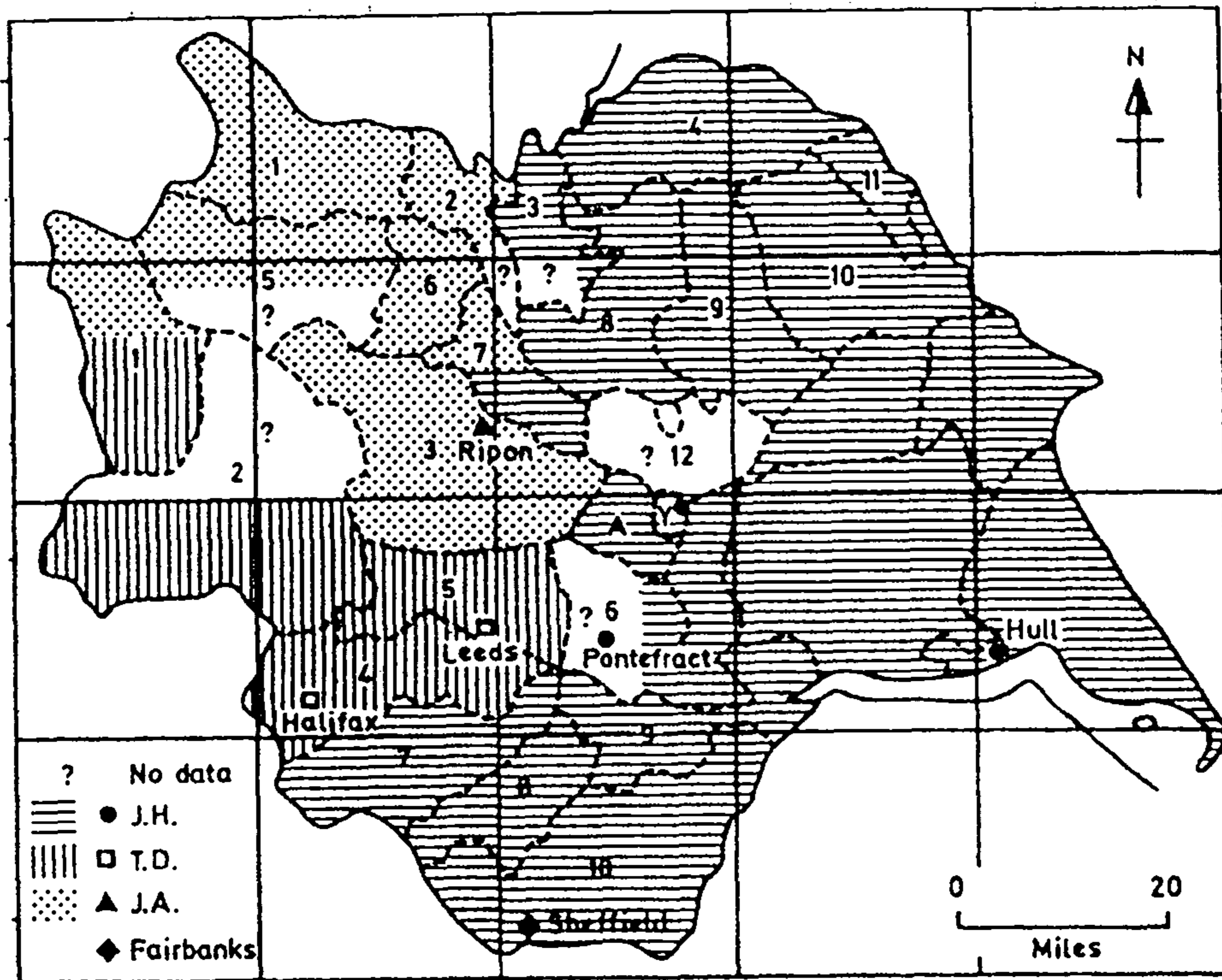
The primary sources

The fourth item listed in folio ²3 part 8 of this manuscript catalogue is a "General sheet of the Triangles relating to the survey of Yorkshire". The remainder of the catalogue evidence for the survey is contained in folio 3 part 9 and 10 and in folio 5.

This information reveals that the county was surveyed by three principal surveyors, each responsible for a separate area. Both the triangulation and the topographical surveys were undertaken by the same surveyors within each area. The triangulation is confirmed by statements

1 R.G.S. 7.G.11

2 Folio: in this catalogue each 'folio' actually comprises several pages.

Figure 63 Jefferys 1771: the three Surveyors' areas

Grid as on original

Wapentakes

- | | |
|-------------------------|---------------------------|
| 1) North Riding: | 2) West Riding: |
| 1. Gilling West | 1. Staincliffe & Ewcross |
| 2. Gilling East | 2. Staincliffe |
| 3. Allerton Shire | 3. Claro |
| 4. Langbrough | 4. Morley |
| 5. Hang West | 5. Skyrack |
| 6. Hang East | 6. Barkston Ash |
| 7. Hallikeld | 7. Agbrigg |
| 8. Birdforth | 8. Staincross |
| 9. Rydale | 9. Osgoldness |
| 10. Pickering Lythe | 10. Strafforth & Tickhill |
| 11. Whitby Strand | Y. York |
| 12. Bulmer (and Crayke) | A. Ainsty |

J.H. = J. Hodskinson

T.D. = T. Donald

J.A. = J. Ainslie

N.B. 1) West Riding, 7, 8, 9 and 10 dated 1769

2) Subdivided wapentakes are shaded diagrammatically

in the form " ... a series of triangles relating to ... surveyed by ...". The topographical survey is identified by entries such as "drawing of the Wapentake of ... surveyed by ...".

The instruments and methods used by the surveyors are not stated but the method quoted by Jefferys on his map of Bedfordshire published in 1765 was probably the same. On that map Jefferys states that "the great Angles were taken by the Theodolite and the Roads were measured by the Chain and Transcribed on the Plain Table in the Field".¹

Figure 63 , compiled from the entries in this catalogue shows that it does not provide a complete picture of the survey. For the North Riding and West Riding it is clear that the Wapentake was the basic unit of survey. A few entries, however, record drawings of only part of a Wapentake. Pickering Lythe for instance, was surveyed in two parts by "J.H."² and more interestingly, Hellikeld Wapentake was surveyed partly by "J.H." and partly by "J.A."³ Similarly, Staincliffe & Ewecross Wapentake was undertaken by "J.A." and "T.D."⁴ Bulmer Wapentake is the only one not mentioned at all. By contrast the East Riding was not broken down into smaller areas, at least as far as can be judged from the catalogue evidence.

The determination of the date of each survey in so far as that may differ from the date of publication of the printed map is an important contribution to the assessment of the map as a source. Only four of the Wapentake surveys listed are dated.⁵ Even so, the general progress of the survey can be recreated. The title sheet of Jefferys' map⁶ claims

1 Rodger (1960) p.viii

2 J. Hodskinson

3 J. Ainslie

4 T. Donald

5 Wapentakes 7, 8, 9 and 10 dated 1769. Vide Figure 63

6 Plate XX

that the map was surveyed in the years 1767, 8, 9 and 1770. The catalogue provides the initials of the three surveyors and since they are named on several other county maps¹ on which the dates of survey are recorded it is possible to limit the length of time during which each could have been working in Yorkshire.

In 1767 and 1768, the first two years of the Yorkshire survey, both J. Ainslie and T. Donald were surveying in Buckinghamshire.² In 1768 Ainslie went to Westmorland.³ Thus only J. Hodskinson was available to commence the Yorkshire survey in 1767. As the dated survey entries place him in the south-west in 1769 it is logical that he surveyed the north-east and the East Riding in the years 1767 and 1768.

The survey of the rest of Yorkshire cannot have been started before 1768 and as Ainslie had gone to Westmorland in that year it is probable that Donald would have commenced his surveying first and almost certainly in 1768. Then Ainslie would have entered Yorkshire from Westmorland in 1769.

In 1770 Ainslie surveyed Studley Park in the West Riding.⁴ That was probably undertaken after the county work. Indeed, the county survey cannot have continued far into 1770 because in that year both Ainslie and Donald began the task of surveying Cumberland.⁵

From this evidence it is possible to identify tentatively the surveyors of the areas for which the catalogue provides no direct information. For instance, the west part of Barkston Ash and Bulmer Wapentakes can be ascribed to Hodskinson (Figure 63).

1 Rodger (1960)
 2 Ibid p.2
 3 Ibid p.5
 4 R.G.S. 7.G.11, f.3 part 10
 5 Rodger (1960) p.4

The interest in this account is twofold. First, as was the case with Warburton's surveyors, the standard of each surveyor can be significantly different, with a weak surveyor posing most problems of interpretation. Accordingly it is useful to know which areas were surveyed by which men. Harley and Harvey¹ undertook a random sample test on the trigonometrical accuracy of Jefferys' map and found that the variation was not related to the terrain as might be expected; that is it was not better in the Vale of York and worse in the more mountainous areas. The best area in the sample proved in fact, to be the remote upland north-west. Figure 63 suggests that one reasonable explanation would be that Ainslie achieved the highest standard of accuracy. By contrast, the greatest number of necessary corrections to the 1800 reprint, including two major resurveys, lie within the areas surveyed by Hodkinson. The implication is that problems of interpretation can be more readily resolved in terms of poor surveying in Hodkinson's areas than elsewhere on the map.

The second interest is that the date of the information recorded on the printed map can be fixed more accurately than is implied by statements such as 'sometime between 1767 and 1770'. The most marked juxtaposition of dates on the map is that between Hodkinson's work in the North Riding dating from 1767 onwards and Ainslie's adjacent survey completed as late as 1770, some three years later.

Only one further reference to primary sources in the catalogue is of significance for the Yorkshire map. Folio 5 lists plans of cities and towns in England. Jefferys' Yorkshire map includes, round the periphery of the county map, town plans of Ripon, Hull, Sheffield, Leeds, York and Scarborough. Hull, altered on the 1800 map is the only plan changed at all. Jefferys' catalogue records that he possessed drawings

1 Harley and Harvey (1973) Introduction

of Halifax and Leeds by Donald, Hull and Pontefract by Hodkinson, Ripon by Ainslie and Sheffield by W. Fairbanks.

Of these surveys, only Fairbanks' Sheffield is dated to 1771, although it had been started in late 1770.¹ There is no reference to the survey of Scarborough but it is in Hodkinson's area and in the same style as the other town plans executed by Jefferys' surveyors. That the Sheffield plan on Jefferys' map was made by Fairbanks and not by one of Jefferys' three surveyors need not be doubted. It is referred to in the catalogue as being in both manuscript and printed form. It is stylistically very different from the other town plans in three basic ways. The scale is given in feet rather than chains. It alone includes a "reference" list to the main buildings and the built up area is depicted both more delicately and with more detail.

Comparison of the Sheffield plan on the map with the section of Fairbanks' field drawing leaves no doubt that, as expected, the plan on the map has been generalized. That being so, a detailed study of the original with the engraved plan should be very valuable in assisting in the interpretation of contemporary town plans for which the more detailed field notes are not extant.

The secondary sources

Possible secondary sources recorded in the catalogue include two copies of Warburton's map of 1720,² a copy of Dickinson's 1750 map of South Yorkshire³ and plans of the intended canals from Leeds to Selby and Stainforth to the river Trent. More local sources are referred to

1 Harley and Harvey (1973) illustrated

2 f.3 part 8

3 Ibid part 10

separately for each Riding and are listed as follows.¹

North Riding²

- i) An engraved plan of the Manor of Healaugh in Swaledale; showing the limits of the Inclosure, Common pasture, Moors or Commons reduced from a survey by Richard Richardson 1770.
- ii) An engraved plan of Crack Pott Hall Farm and the adjoining commons.³
- iii) An engraved plan of the rivers Swale and Ouse from Richmond to York surveyed by Richard Ellison and William Palmer 1735.
- iv) An engraved plan of the river Swale from Morton Bridge to its junction with the river Ure and from thence to Widdington Ings upon the river Ouse also the brook from Bedale to the Swale surveyed 1767.⁴
- v) An engraved plan of the brook Cod Beck from Thirsk to the river Swale taken by Richard Firth, and resurveyed by Isaac Milburn 1767, also a profile of the intended canal.

East Riding⁵

- i) An engraved plan of the low Grounds between Muston and Malton which adjoin the rivers Derwent and Harford, and the courses of these rivers surveyed by Isaac Milburn.
- ii) An engraved map of the wolds in Yorkshire surveyed by John Hayes 1744.⁶

1 This includes all the Riding references as listed

2 f.3, part 9

3 N.Y.R.O. Engraved Jefferys 1772

4 Ibid " " 1767

5 f.3, part 9

6 Printed in Philosophical Transactions 483 (1747) p.541. It is a very simple map to illustrate an article on the Roman station Delgovitia. It shows Roman roads. Appended to an article by Drake. (Vide W.180) in: Burton (1747)

West Riding¹

- i) An engraved plan of Bramham Park the seat of Lord Bingley in the Wapentake of Barkston Ash surveyed by Joseph Wood.²
- ii) An engraved plan of the river Aire etc. over Brotherton Marsh.

The contribution of these secondary sources to the Yorkshire map

Although not all the items listed above have been studied because their present whereabouts are not known - if indeed they are extant - they can be divided into two types: linear maps, engravings of rivers and canals; and areal maps, ranging in scale from Warburton's county map to the plan of Bramham Park.

Linear maps

It is reasonable to assume that the canal plans and, indeed, Acts were used both in the making of the 1771 map and in the revisions of 1775 and 1800. Such an assumption explains the erroneous representation of canals and also the additional correct canal detail on the later reprints.

For instance, the "intended" canal from Leeds to Selby³ was incorrectly superimposed on the 1775 map and then corrected in 1800. The 1800 map also includes the other listed "intended" canal from Stainforth to the river Trent.⁴ In the 1771 map the Leeds to Liverpool canal is annotated "intended".

1 f.3, part 10

2 Illustrated in Hussey (1967) Ch.X

3 Listed in f.3, part 2

4 Ibid

The three North Riding river plans may also have been canal or navigation proposals since they include a "profile" of the river and they relate to specific stretches of river which were improved in the late eighteenth century.¹ There is, however, little evidence that the plans of the Malton area or Brotherton Marsh affected the drawing of Jefferys' map.

Indeed, two points suggest the limited value of the river maps as opposed to canal plans for Jefferys. First, no difference is obvious in either the accuracy or the representation of the river sections covered by the plans. Since there are errors on Jefferys' map on some of these sections copying could be readily demonstrated if the river engravings were discovered. Second, and more significantly, nearly all the stretches of river referred to are also Wapentake boundaries. Indeed, the Swale and Brotherton Marsh sections were boundaries of Wapentakes surveyed by separate surveyors. Since the Wapentake has been shown to be the main units of survey (Figure 63) it is unlikely that Jefferys' own surveyors would not have recorded these rivers with sufficient accuracy for his purposes of constructing a complete map of Yorkshire. The plans listed in the catalogue may have been compared with the surveyors' work but it is at least equally possible that Jefferys' possession of them was simply due to his intention to sell them to the public.

Areal maps

As the basis of Jefferys' map was a fundamental survey of the whole county on a scale and a level of accuracy never attempted before in Yorkshire for the production of a county map, the usefulness of earlier smaller scale maps to Jefferys was limited. There is no evidence that

¹ Hadfield (1972) pp.102-3

Jefferys directly copied details from either Warburton's map or that by Dickinson. Indeed, given the manifestly lower standards of those maps Jefferys would have been unwise to do so.

The presumably larger scale plans listed in the catalogue, Healaugh Manor and Crack Pott Hall Farm, have not obviously influenced the county map. Basically this is because even at Jefferys' scale little more than the bare outline of commons and moors can be shown; the incorporation of any additional estate map detail could hardly be justified for this scale.

Even so, the most likely sources which Jefferys would have used are the landscape park plans since several parks are recorded in great, if not entirely accurate, detail on his county map. To have surveyed them during the county survey would have been very time consuming. If the surveyor could merely record the outline and leave the internal detail to be copied from an earlier or contemporary plan this would have saved much effort.

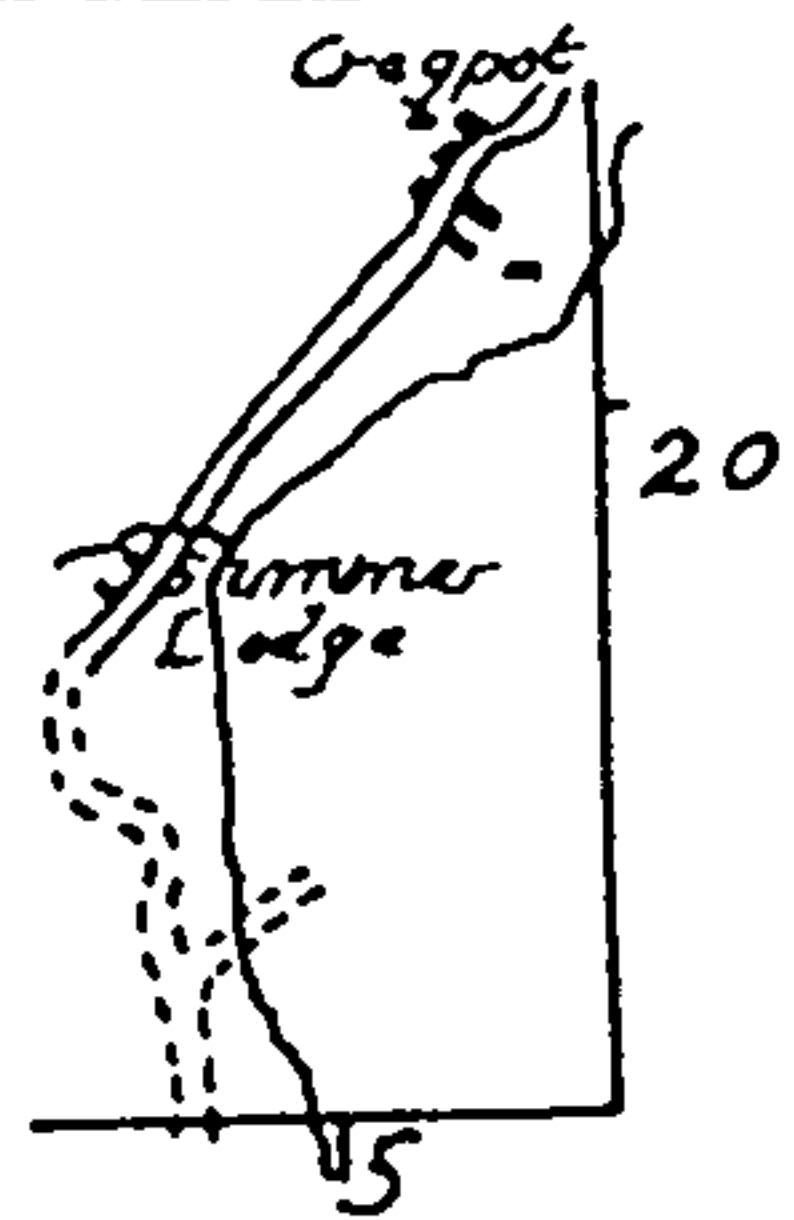
Unfortunately, like canal plans these landscape park plans could merely portray proposals. The execution of such plans might have been not only at a much later date but also in a modified form. Hence the evidence for parks demands very cautious interpretation. The representation of Burton Constable Park, for instance, predates Capability Brown's work but the significance is not only that Jefferys depicts this before it was completed but that it was never completed as mapped. Comparison of the manuscript map of Norwood in 1756¹ with the first edition of the Ordnance Survey map proves that details of the landscape extant in 1756 were still present in the early nineteenth century and, precludes Jefferys' stylized representation of the park and woods.

Hence Jefferys' catalogue provides two important guidelines for

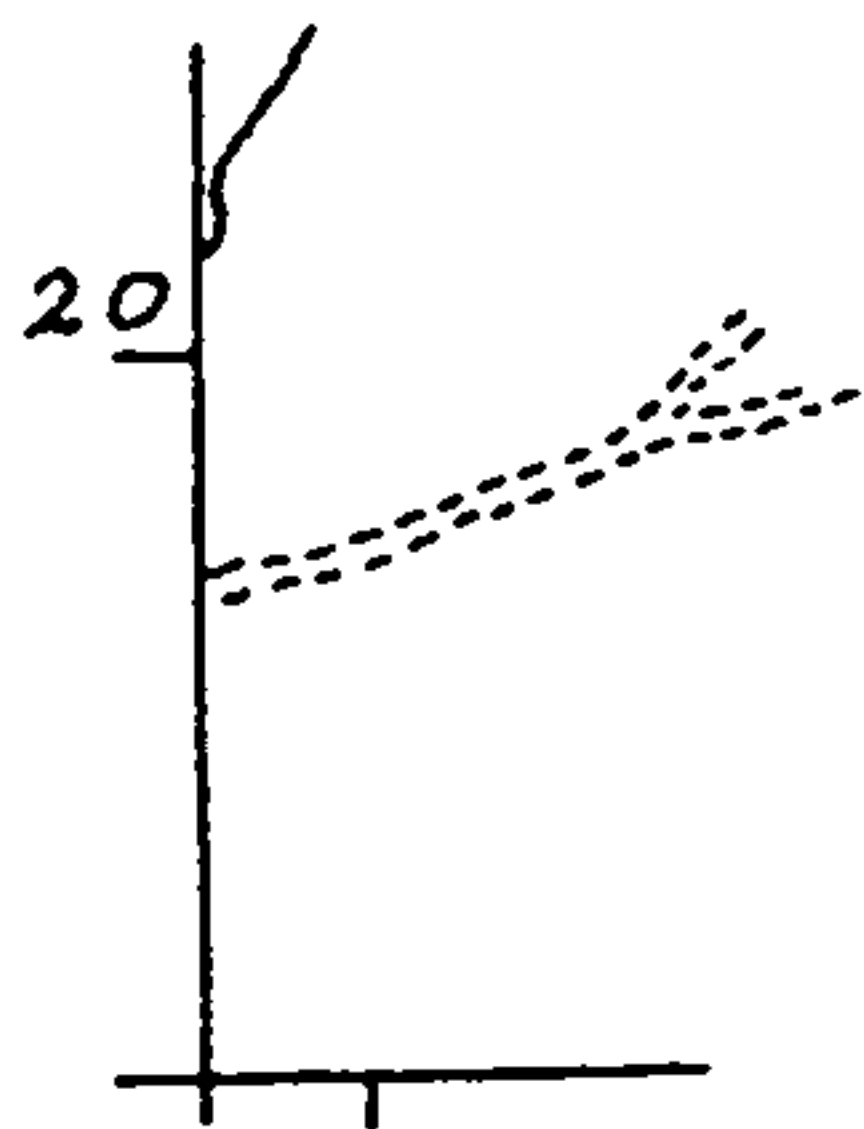
1 H.R.O. DDCC G2(2)

Figure 64 Jefferys' 1771 map: errors at the Plate edges

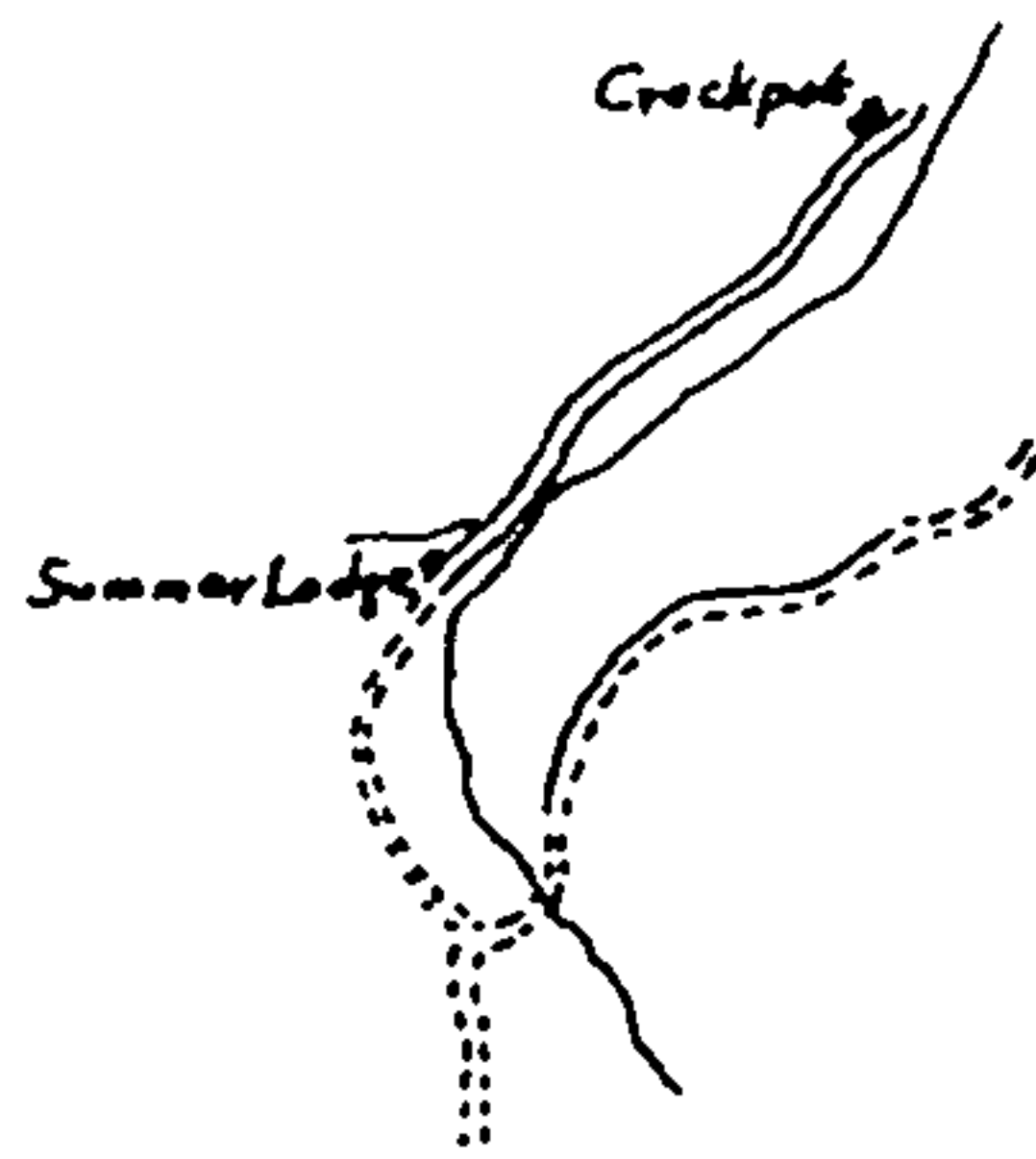
A) An unconnected road



As on Jefferys 1771, Plate I

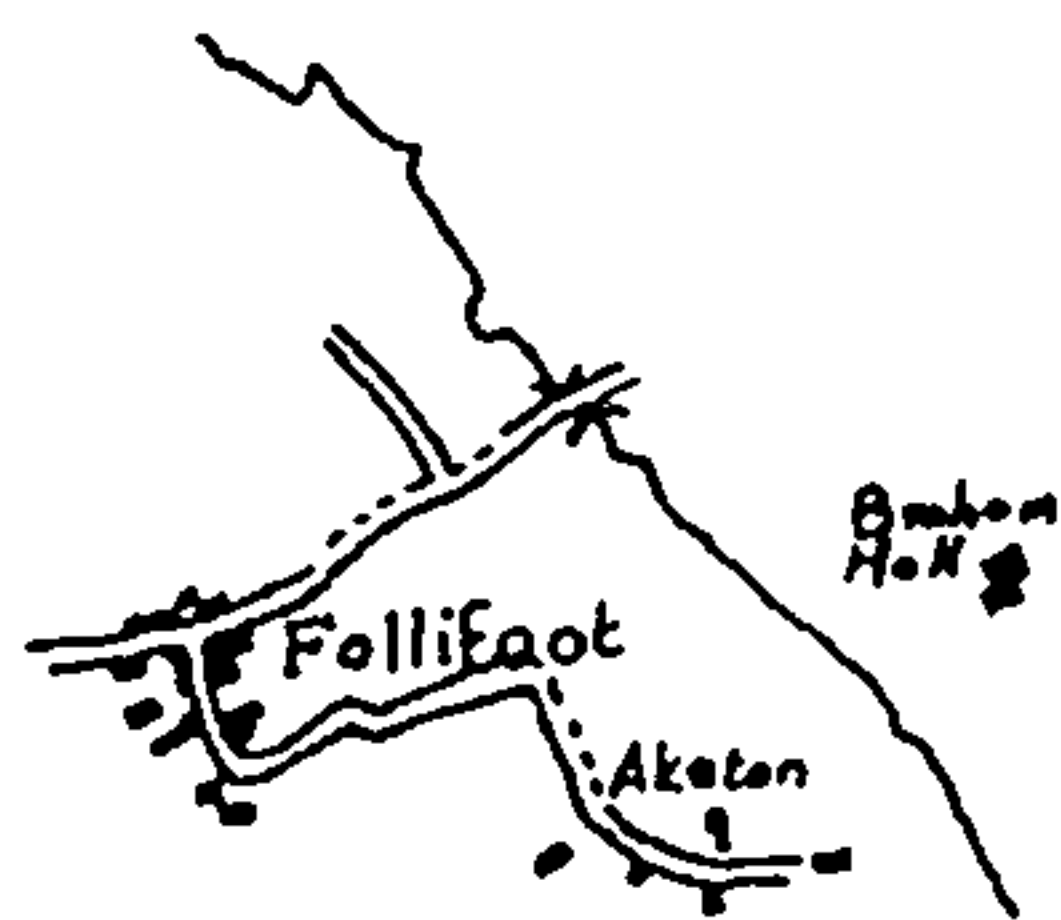


As on Jefferys 1771, Plate II

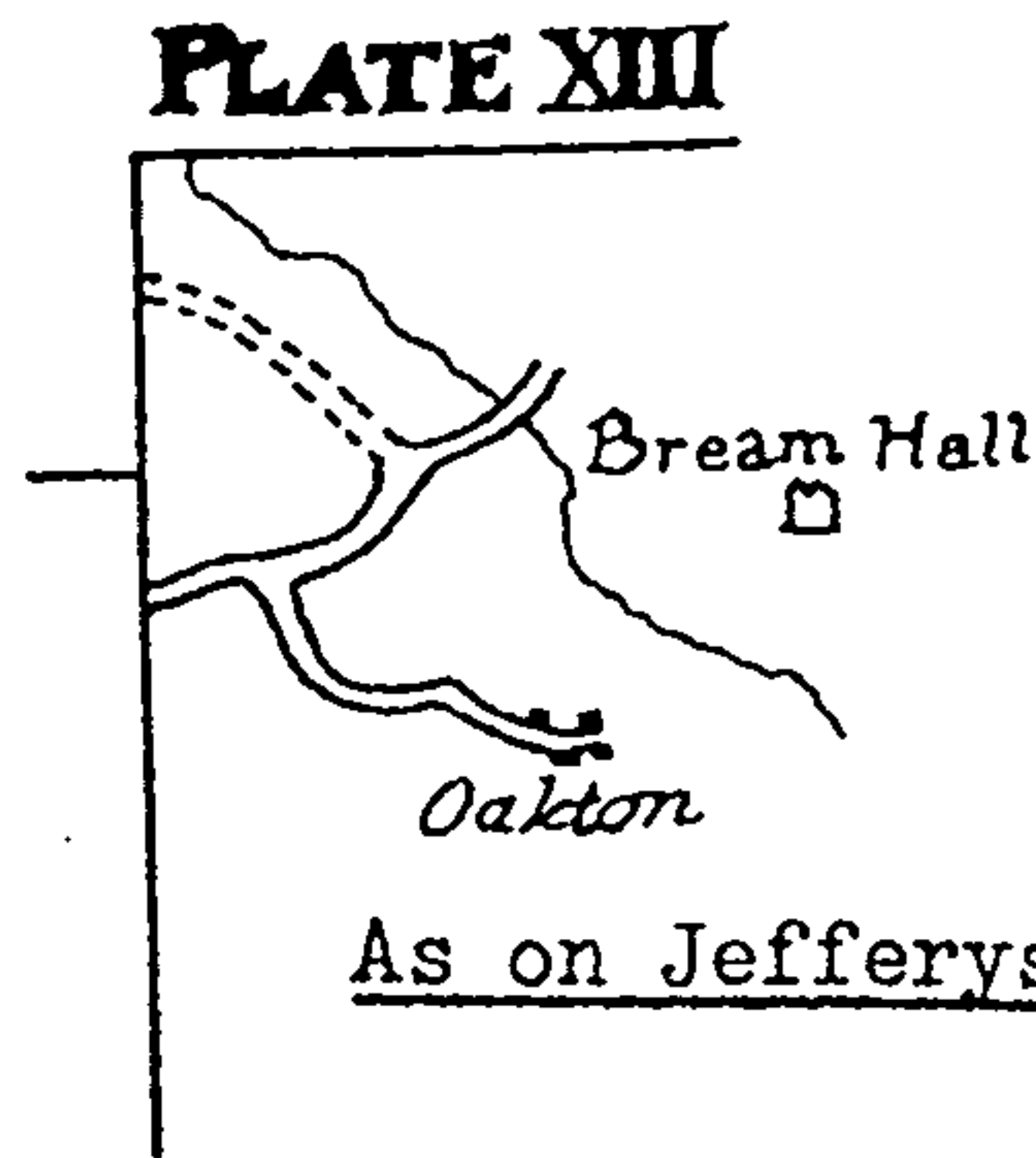


As on O.S. 7th series 1" map

B) A missing village



As on O.S. 7th series 1" map



As on Jefferys, 1771, Plate XIII

Scale: for all maps 1" to the mile

the assessment of the topographical content of his map of Yorkshire. Specific problems can be related to the work of specific surveyors. Linked with this is the evidence that specific areas can be dated to within one year. The second guideline is that the representation of both parks and canals cannot be assumed to have been derived from measured surveys by Jefferys' own surveyors.

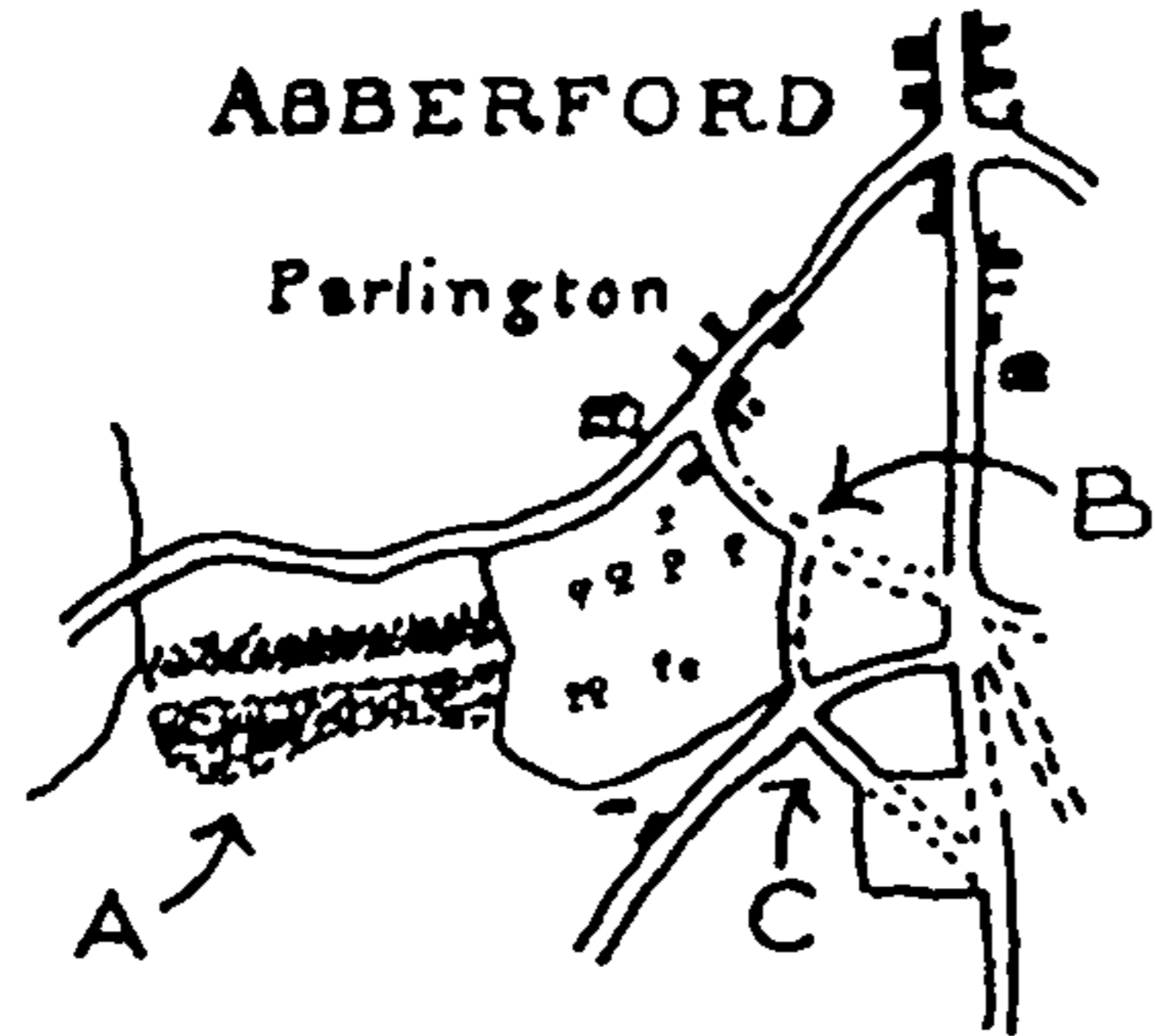
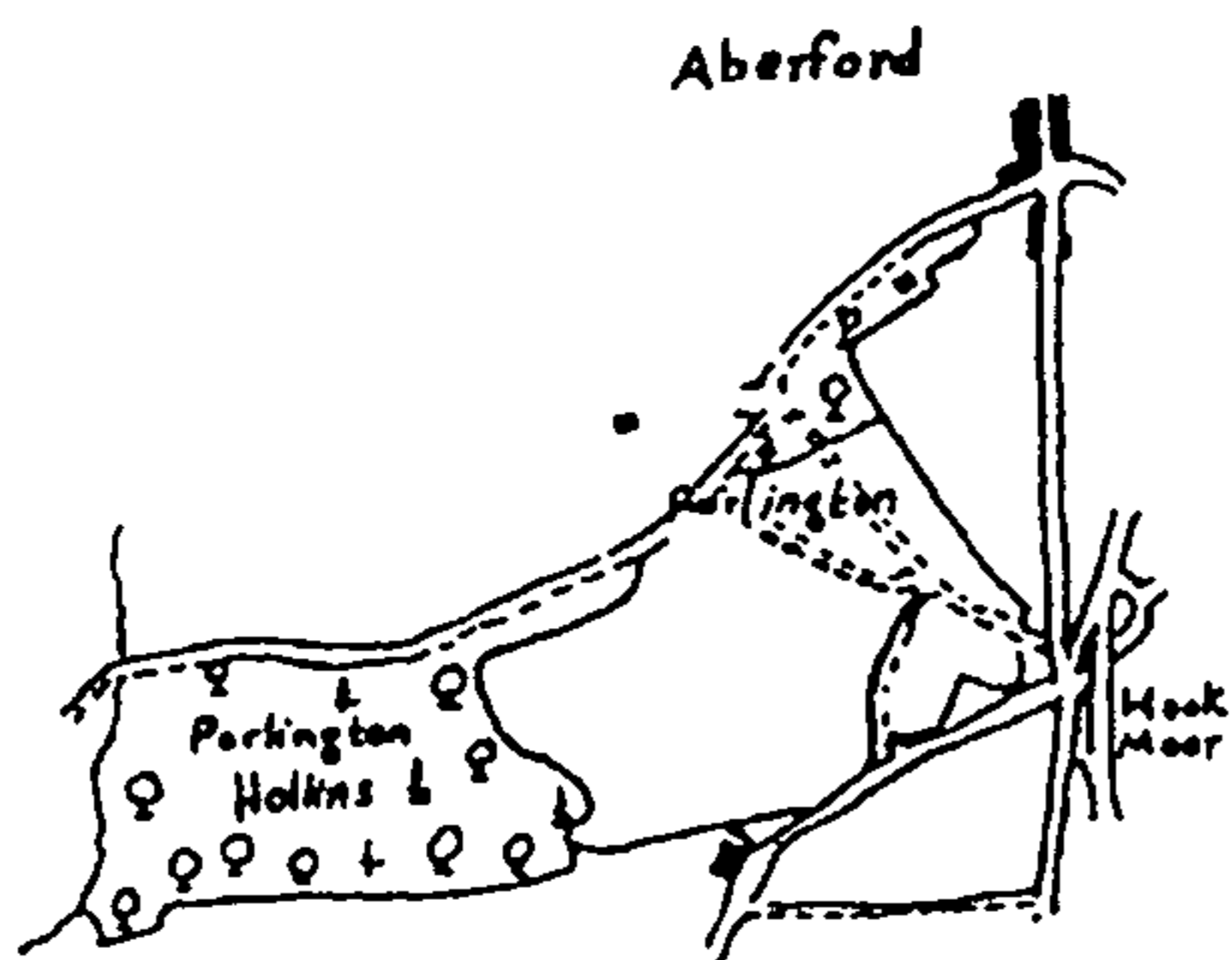
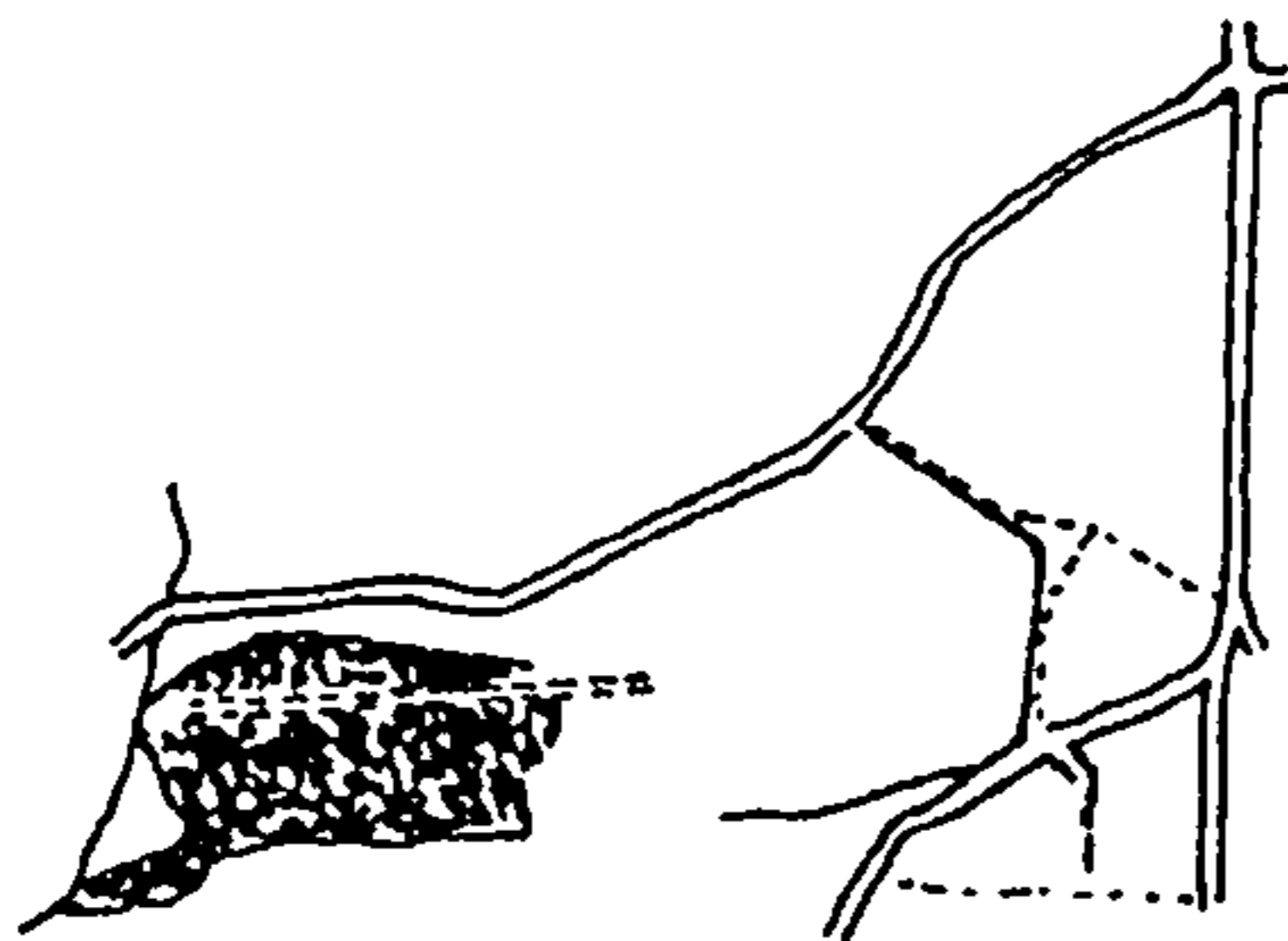
The 1771 Map

Assessment of the reliability of Jefferys' map is paradoxically both easier and more difficult than for Warburton's map of 1720. It is easier in so far as a much higher proportion of the map can be readily related to the present Ordnance Survey maps. It is more difficult in that Jefferys' map contains numerically many more features which cannot be identified confidently on the Ordnance Survey maps.

A few problems can be rapidly solved in terms of definite errors. Careful examination of the edges of the 'plates' or sheets comprising the whole map reveals errors which can be ascribed to the draughtsman or engraver rather than to the surveyor. For instance, Figure 64.A illustrates a failure to extend a road from one plate across to the next. More remarkably Figure 64.B depicts the omission of a whole village. Study of the 1800 map highlights areas of definite weak surveying on the 1771 map.¹

The evidence of variation in the level of accuracy within the map offers a key to an efficient approach to the interpretation of specific problems on the 1771 map. Such an approach would include the following three stages. The first stage is to confine the problem by identifying

1 Vide infra pp.374 et seq.

Figure 65 Aberford. Jefferys and the Ordnance SurveyA) As on Jefferys 1771B) As on O.S. 7th series
1" mapC) As on O.S. 1" 1st Edition
(1858)

Scale: 1" to the mile

and fixing as many adjacent features as possible. This will reveal the general accuracy of that specific area and in consequence may expose weaknesses of survey sufficient to account for the problem. The second stage is to compare the area and adjacent fixed points with the 1775 and 1800 maps. Third, the area can be compared with the early nineteenth century survey by Greenwood¹ and the first edition of the Ordnance Survey maps. The aim of the second two stages is to determine the date at which the problem of interpretation is removed from the printed map. Thus, if necessary, the task of researching the much less accessible local records is simplified.

This method must be seen in the contemporary context of ever increasing official records concerned with landscape change. The absence of any written evidence of change within problem areas or to the problem features between 1771 and the first appearance of the detail in a recognizable form points to the problem being caused by cartographic error. Hence the onus is on the investigator to provide evidence for genuine topographical change.

Some of the problems inherent in an attempt to assess Jefferys' 1771 map can be illustrated with reference to Figure 65 . This records, to scale, a small area south of Aberford.

Comparison of Jefferys' representation (Figure 65.A) with the one inch Ordnance Survey map² (Figure 65.B) confirms the general accuracy of Jefferys' map. For instance, the three principal linear features, the stream, the road from that feature to Aberford and the north-south road, are readily recognizable on the Ordnance Survey map both as separate features and as spatially interrelated features.

1 Vide infra Chapter Nine

2 7th series

Not all the details can be confirmed so easily. Three are singled out, namely the avenue 'A', the park boundary specifically at 'B' and the lane marked 'C'. For these features comparison with the Ordnance Survey map (Figure 65.B) is of little help. Recourse to the next most accessible record, the first edition of the Ordnance Survey map in 1858 (Figure 65.C) confirms, at a general level, that there was an avenue at 'A', a road at 'C' and that the eastern boundary of the park was precisely at 'B'. The difference between the 'C' road on Jefferys' map and the first edition Ordnance Survey representation can be explained as a diversion of Jefferys' direct route to follow the sides of the enclosure mapped by Jefferys. Only the southern part of this route is recorded on the 7th series 1" Ordnance Survey map.

That the rest of the details such as the precise width of the avenue and shape of the park are also correctly mapped by Jefferys cannot be assumed from this evidence alone. Nevertheless, this comparison with the two editions of the Ordnance Survey maps shows that at least in this small area there is no possibility of discovering serious errors.

An important observation is that the chief reason why the modern Ordnance Survey map (Figure 65.B) does not resemble the Jefferys' map in detail is cartographic rather than topographic. For instance, the avenue and the eastern boundary of the park can still be seen on the most recent larger scale Ordnance Survey maps (for example, the 1:25,000 series). It is ironic that at identical scales Jefferys' map should contain more detail than the modern Ordnance Survey map.

The encouraging accuracy of the linear features, specifically rivers and roads, in the small area near Aberford needs to be placed in the wider context of the whole map.

Comparison of Jefferys' map with Warburton's map shows an obvious improvement in the representation of rivers and particularly the main

rivers. Much of this superiority can be attributed to the importance of many of these rivers to the basic survey as Wapentake boundaries. Many local details prove to be very accurate. For example, near the confluence of the river Aire, the new line of the river Calder which cuts across the old meanders can be readily related to Jefferys' representation. There, and in the vale of Pickering, Jefferys' map does clearly depict the general line of rivers which have since been altered. Even so, a careful study of the precise courses of the main rivers reveals too many instances of obvious approximation to permit the record to be used as conclusive evidence of changes as, for instance, in the shape of the meanders. Differences should be seen in the light of the alterations to the 1800 map to both the river Nidd and river Swale.¹

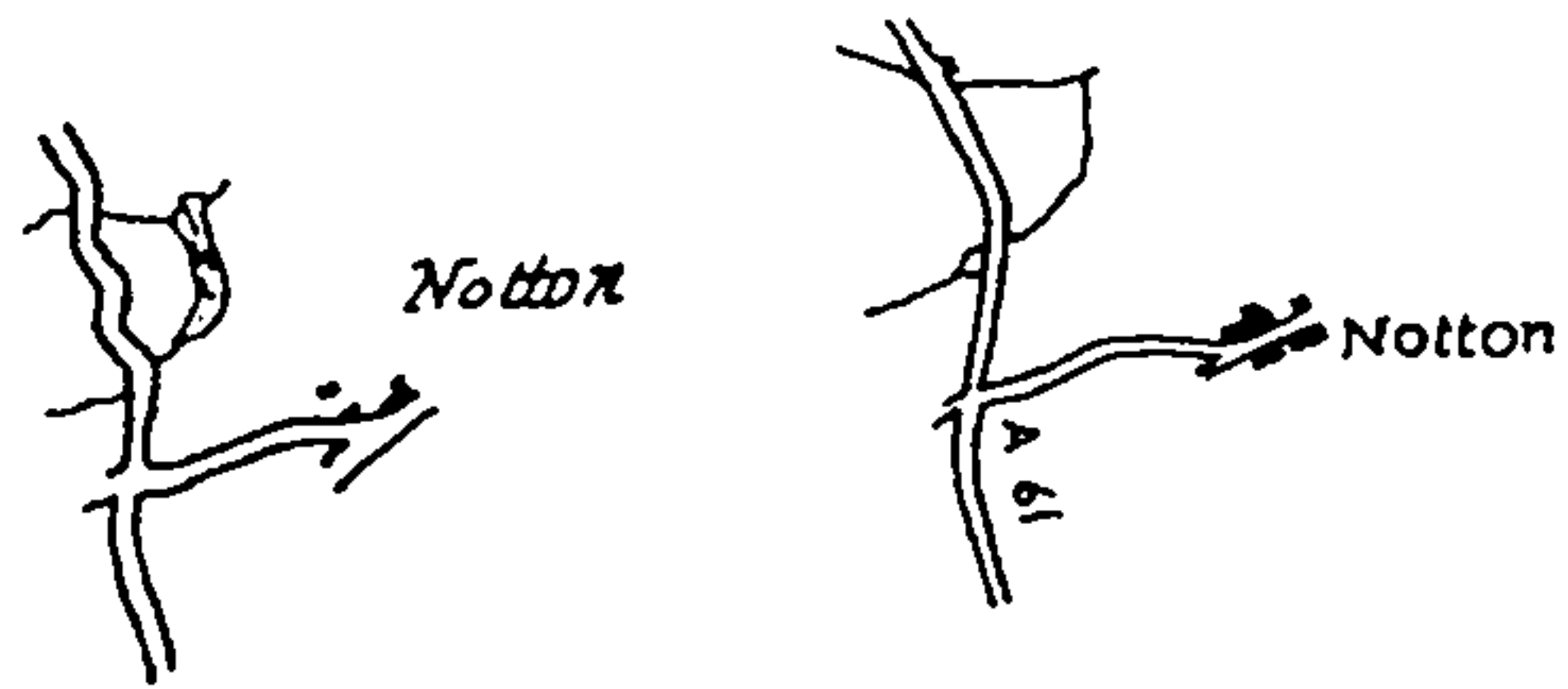
Jefferys' representation of minor rivers and streams does not merit as much respect as the main rivers. Cock Beck, for example, between Aberford and Tadcaster, was certainly partially surveyed since the basic alignment is correct, but the detailed meanderings are largely artistic.

Alterations to the 1800 reprint of Jefferys' map are particularly important in highlighting the weakness of stream representation, especially in the north-east. Many of these adjustments to stream length and detail confirm suspicions about the 1771 map and consequently assist in the interpretation of topographical features previously confused by poor stream representation. In the North York Moors there are several gross errors with rivers, particularly in the vicinity of Kirkbymoorside where it would appear that the draughtsman could not effectively interpret the survey drawings.

Road representation by Jefferys also falls into two classes: those which were main roads in 1771; and those which were minor roads in 1771. Jefferys' main roads are generally of a high degree of accuracy and some

1 Plate viii

Figure 66 Notton. Jefferys and the Ordnance Survey



A) As on
Jefferys 1771

B) As on O.S. 7th series
1" map

Scale: 1" to the mile

of an exceptionally high degree. For example, Figure 66 illustrates a small section of main road which, in detail, does not fit the Ordnance Survey representation. In fact, the series of bends past Notton were formerly on the road and can be confirmed from Warburton's field notes and even earlier from the manuscript survey of Notton by Saxton.¹

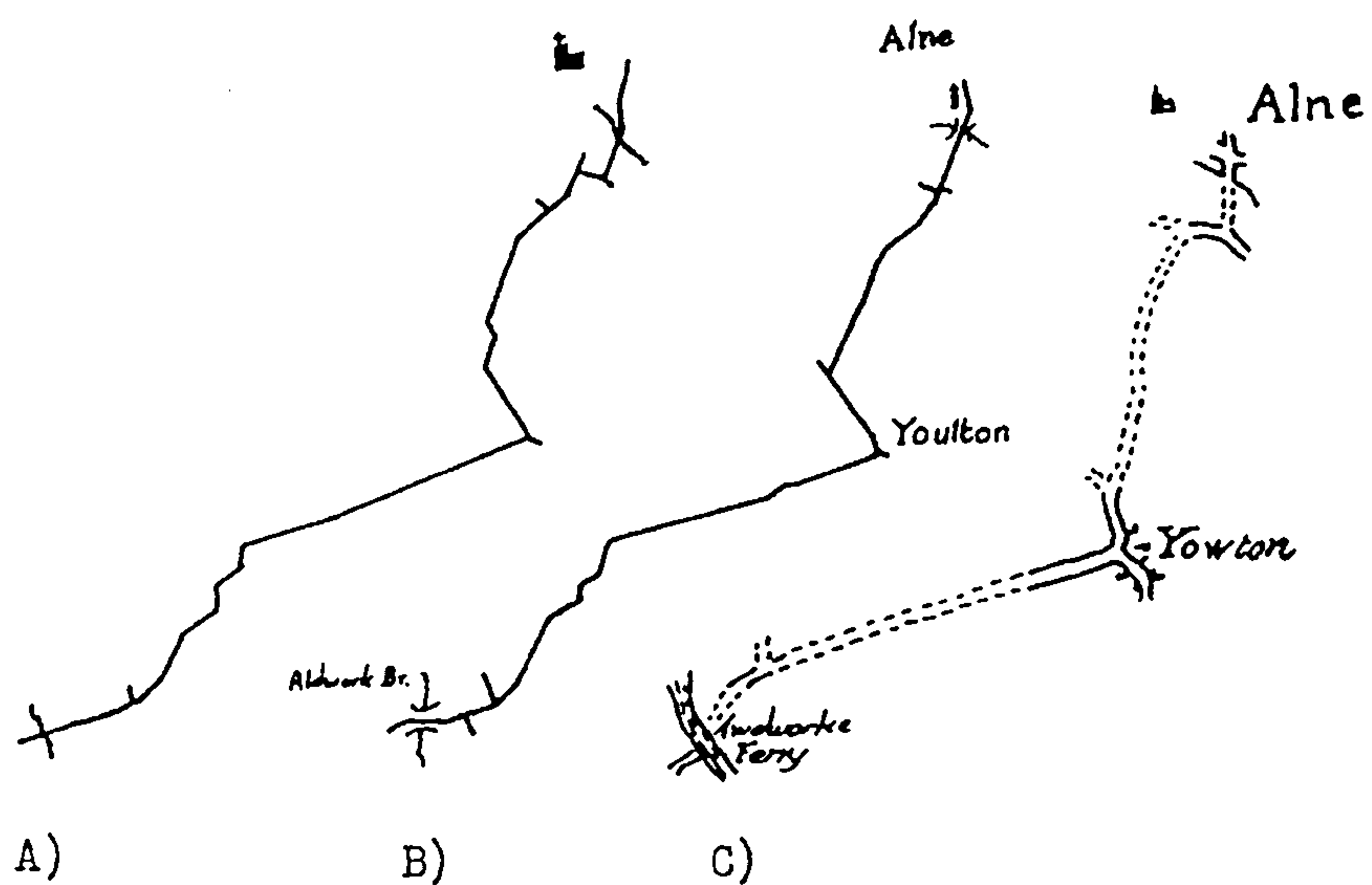
Indeed, a detailed comparison of Jefferys' main roads with all Warburton's field notes proves that rarely does Jefferys' representation present any problems at all. Only a very few sections raise doubts about Jefferys' record. For instance, the relationship of the road between Dent and Ingleton to the stream which occasionally goes under this road is not accurate. Two other examples are more informative because they expose omissions. The shortest of these is the alternative road on the Thorne to Doncaster route. Jefferys maps only the longer way. Dickinson, in 1750,² portrays the road omitted by Jefferys. The second and much longer omission is a road from Egton over the moors to Kirkbymoorside. This road was eventually added to the 1800 map although it is not quite identical to Warburton's road.

These few differences in the main roads depicted by Jefferys and Warburton may reflect change in usage rather than weaknesses in surveying or cartography. What is clear is that some of Jefferys' main roads have declined in importance since 1771. The accuracy with which those roads were surveyed, because they were main roads, has greatly facilitated their recognition on the modern maps and in the present landscape even though some today are no more than tracks. Thus, Jefferys' detailed record of the two roads across Cam Fell from Settle and from Ingleton to Bainbridge can now be related to minor lanes and tracks without any degree of uncertainty at all.

1 Wentworth Woolley MS.M.48 (1599)

2 (203.A)

Figure 67 Alne. Jefferys, Warburton's survey and the Ordnance Survey



- A) As in Warburton's Field Survey notes
 B) As on O.S. 7th series 1" map
 C) As on Jefferys 1771 map

Scale: 1" to the mile

Jefferys' representation of minor roads must be treated with greater caution. That most were surveyed rather than merely guessed from main road junctions is suggested by their similarity to present roads. The problem for assessment is whether the differences represent genuine evidence of different former alignments such as those which existed before enclosure or whether they represent simply deficiencies in cartography.

A useful test case is Jefferys' minor road from the river Ure through Youlton to Alne (Figure 67.C). Most of the route is recorded as unenclosed. Comparison of the precise alignment with the Ordnance Survey map (Figure 67.B) suggests that between the river Ure and Youlton subsequent enclosure has resulted in a straight route on Jefferys' map being adjusted to comply with new field patterns. Between Youlton and Alne the roads appear to be the same as far as the cross roads and then, before enclosure, to have entered Alne slightly south-east of the present bridge. Most of the route from Youlton to Alne can be compared with the Alne enclosure map of 1795.¹ The whole route, however, was surveyed in detail for Warburton's map as part of the market road from Wetherby to Easingwold. The field survey for this section is illustrated in Figure 67.A. It is immediately apparent that the present alignment of the road between the river Ure and Youlton was already in existence in 1720, fifty years before Jefferys' map.

It is a much more complex matter to compare Jefferys' depiction of the area north of Youlton with Warburton's survey and the Ordnance Survey map. Warburton's survey confirms the general accuracy of Jefferys' representation, particularly the 'dog-leg' entry into Alne. The Warburton survey, however, also reveals an additional kink in the road beyond Youlton which is not present on either Jefferys' map or the modern map.

1 N.Y.R.O. Alne 1795

The above illustration is representative of the degree of uncertainty involved in the interpretation of Jefferys' minor roads. There is a close approximation of roads to present day alignments but with some exceptions. The principal exceptions can be found in some of the longer routes across the wolds such as the route north-west from Bainton towards Wetwang. The 1771 alignment of this route of some five miles is not impossible given the extensive open areas at that date, but cannot now be confidently related to any alignment even on the highly detailed first edition 6" Ordnance Survey maps. What these Ordnance Survey maps do show, however, is the plethora of paths and tracks across this area of the Wolds in the nineteenth century. The presence at that date of so many clearly defined paths in the landscape which do not fit readily into the enclosure road pattern suggests that Jefferys' representation, if correct, ought to have remained vestigially at least for part of the distance. In this particular context it is pertinent to recall that the Wolds were surveyed by the least accurate of the surveyors employed by Jefferys.

The maps of 1775 and 1800

Two major problems need to be overcome in attempting to compare the 1771, 1775 and 1800 maps: the sheer quantity of information to be compared; and the difficulty of assessing the significance of the changes once they have been found.

The first problem is reduced by using the grid squares on the maps to structure comparison. Even so, identification of every change is time consuming and demands great perseverance. Yet, without a clear overview of the types of changes made, the significance of any one change cannot be reliably assessed.

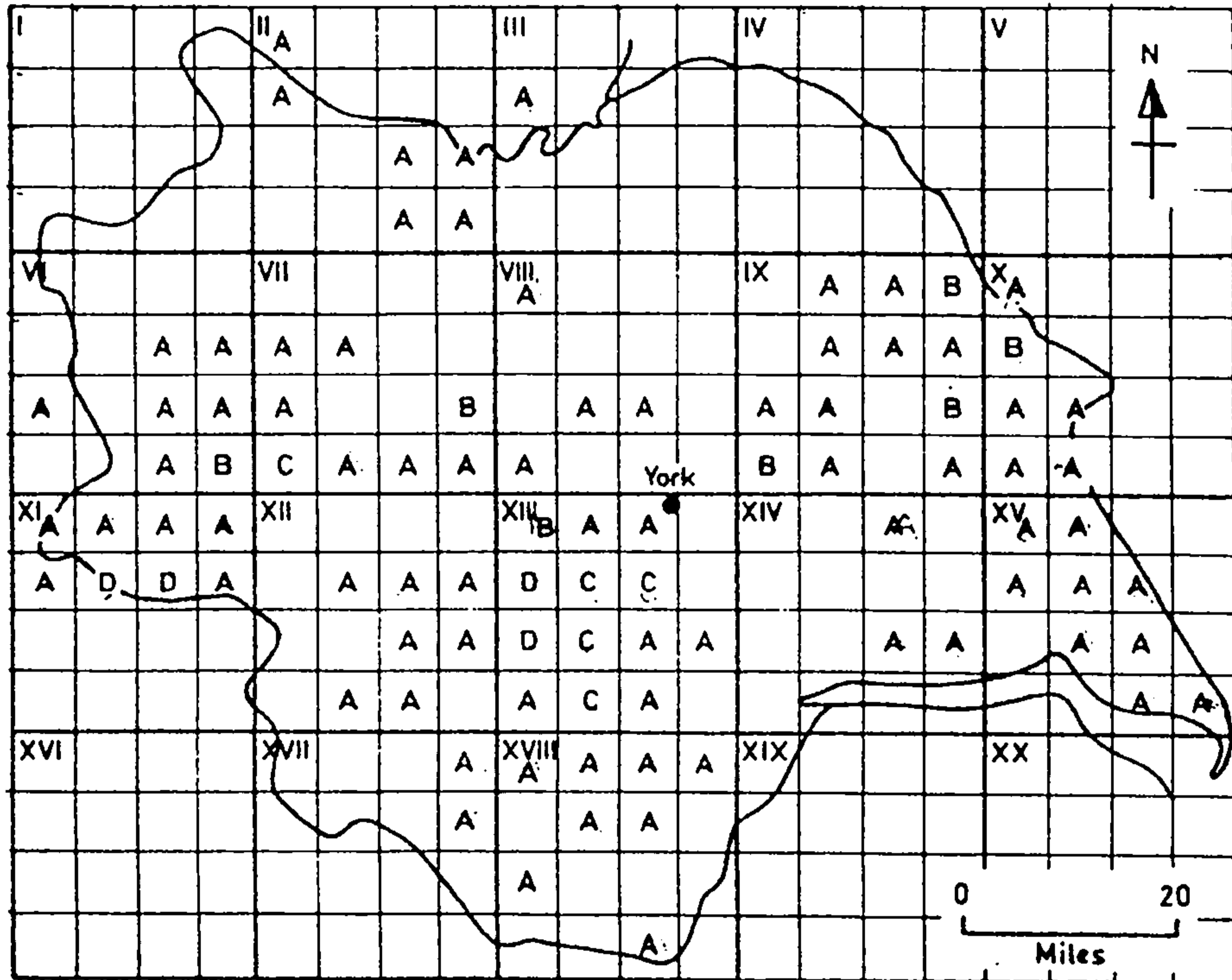
It is not possible to assess the significance of every change. This is not simply because many hundreds of changes need to be assessed against a vast corpus of local records but because it may not prove possible to resolve any one problem conclusively. This could be either in the absence of suitable corroborative sources or the weakness and consequent ambiguity of the original survey and mapped representation.

Furthermore, topographical change on a reprint unfortunately does not always result in a recognizable representation of features. Such problems can be treated similarly to those on the 1771 map by seeking the first date at which the area is recognizable. Again, the source of such changes must also be considered. For instance, the 1800 map includes a note on the "essential corrections".¹ This states that for the 1800 map the sheets of the earlier reprint (1775) were distributed amongst "the Gentlemen of the County" and that a land surveyor was employed to revise the topography. This indicates two markedly different standards of revision. Indeed, within the standard of the Gentlemen's work not only will the accuracy of their "corrections" inevitably vary but the revised map will reflect the differing degrees of enthusiasm with which they undertook their task. Thus the remarkably few alterations on Plate vii of the 1800 map probably point to the presence of an indolent Gentleman rather than to either the intrinsic correctness of the original map or to a lack of change in the topography of that area.

In the following consideration of the 1775 and 1800 maps the emphasis will be on the changes to be found on them and the implications of these changes both for the reliability of these maps and the 1771 map.

1 (W.286) Plate xix

Figure 68 Diagram of all changes on Jefferys' map 1771/2 - 1775



Grid as on original
I-XX original sheet numbers

Number of changes in each square				
None	A	1-4	B	5-8
C	9-12	D	over 12	

Figure 69 Changes recorded on Plate xiii: 1771-1775

A)

6	3	2	-
17	12	-	-
29	12	3	4
2	12	-	-

Total Changes

B)

1	2	1	-
4	4	-	-
9	2	2	3
2	9	-	-

Personal name changes

C)

3	1	1	-
10	4	-	-
16	6	1	1
-	1	-	-

Topographical changes

D)

Wetherby	York
Tadcaster	
Aberford	
Wakefield	Selby
Pontefract	Snaith

Key to places

Grid as on Jefferys' Map

The 1775 map changes

The total number of discovered changes between the first map of 1771 and the 1775 map is 275. That, however, excludes the substantial addition of new information on Plate xi, beyond the county boundary (Figure 68).

The most numerous types of change consist of additions to or changes of place names and the names of people. This shows that one of the main interests of the reviser was not strictly topographical but social. Presumably it was felt that a new lease of life for the map could be most easily achieved by pandering to the pride of the landed classes rather than by either updating or correcting the topographical content.

The distribution of changes was far from uniform either within the county as a whole or within individual plates (Figure 68). No less than 102 of the 275 changes occur in one plate number xiii, but even on that plate there were three completely unaltered grid squares. Thus this plate has been singled out for special consideration.

A comparison of Plate xiii: the environs of Aberford, 1772¹ and 1775

Figures 69.A-C show the distribution of the total number of changes of any kind, the number of changes in personal names only and the number of changes to the topographical content on Plate xiii.

Figure 69.B highlights the extent to which the map can be seen as a social register. No less than 39 out of the total of 102 changes refer to people; and 30 of these names are added to places whose owners were not recorded in 1772. For example, the name B. Thomas Esq. has been

1 Plate xiii is dated 1772

added to Wetherby Grange. Four names have been erased; three in Pontefract and one in Brayton, south of Selby. Furthermore, five names have been changed; for example, that of Sir William Lowther Bart. of Swillington Hall was replaced by that of Lady Lowther.

The latter, and a Mrs. Bland¹ serve to remind us that the landed interests were not entirely a male preserve.

Figure 69.C records the number of changes omitting the personal names and the 19 changes in place name spelling, which leaves 44 differences of potential topographical significance. Differences of spelling emphasise the considerable degree of inconsistency which prevailed at this date.

The first grid square in Figure 69.C records three such 'topographical' changes. Two of these are additional place names, Dalton and Teilby Wood (Beilby Wood). Dalton, the site of a Roman villa is close to the position of the Roman Station "Pampocalia" as shown by Warburton. The Beilby Wood name is less interesting since the wood had been shown by Ogilby in 1675 and was correctly named by Warburton in 1720. The third item is the correct alteration of the note "Abbey in Ruins" to "Mannor House in Ruins" beside Spofforth, that is Spofforth Castle.

The new information in squares 2 and 3 are both interesting with the former naming "Bow Bridge"² and the latter Askham Boggs. To square 5 are added three very small hamlets, Munston, Shipham and Throstle Nest; also added are Beacon Hall, Scholes Grange, an inn, an engine, Hollins Wood, Morgan Cross and one road alteration. The road corrects the line of the way between Barwick in Elmet and the Whitkirk to Aberford road. Shipham is not recorded on the modern Ordnance Survey one inch maps but is shown on the first edition Ordnance Survey map as Shippin House.

1 Named as the owner of Kippax Hall at both dates

2 (Now Rolling Bridge?)

Square 6 names Towton Falls, Hook Moor and Barkston Ash and slightly alters the location of the word 'Turnpike' north of Aberford.

The ninth square, the most substantially altered area, adds halls and places not found on the Ordnance Survey one inch maps such as Well Green south of West Garforth, an Alms House west of that place, and two schools, one in Swillington and the other outside Methley Park. Two minor roads are added and the projected and mismapped Leeds to Selby canal. The erroneous canal representation is also added in squares 10 and 12. Square 10 also includes a "Letter House".

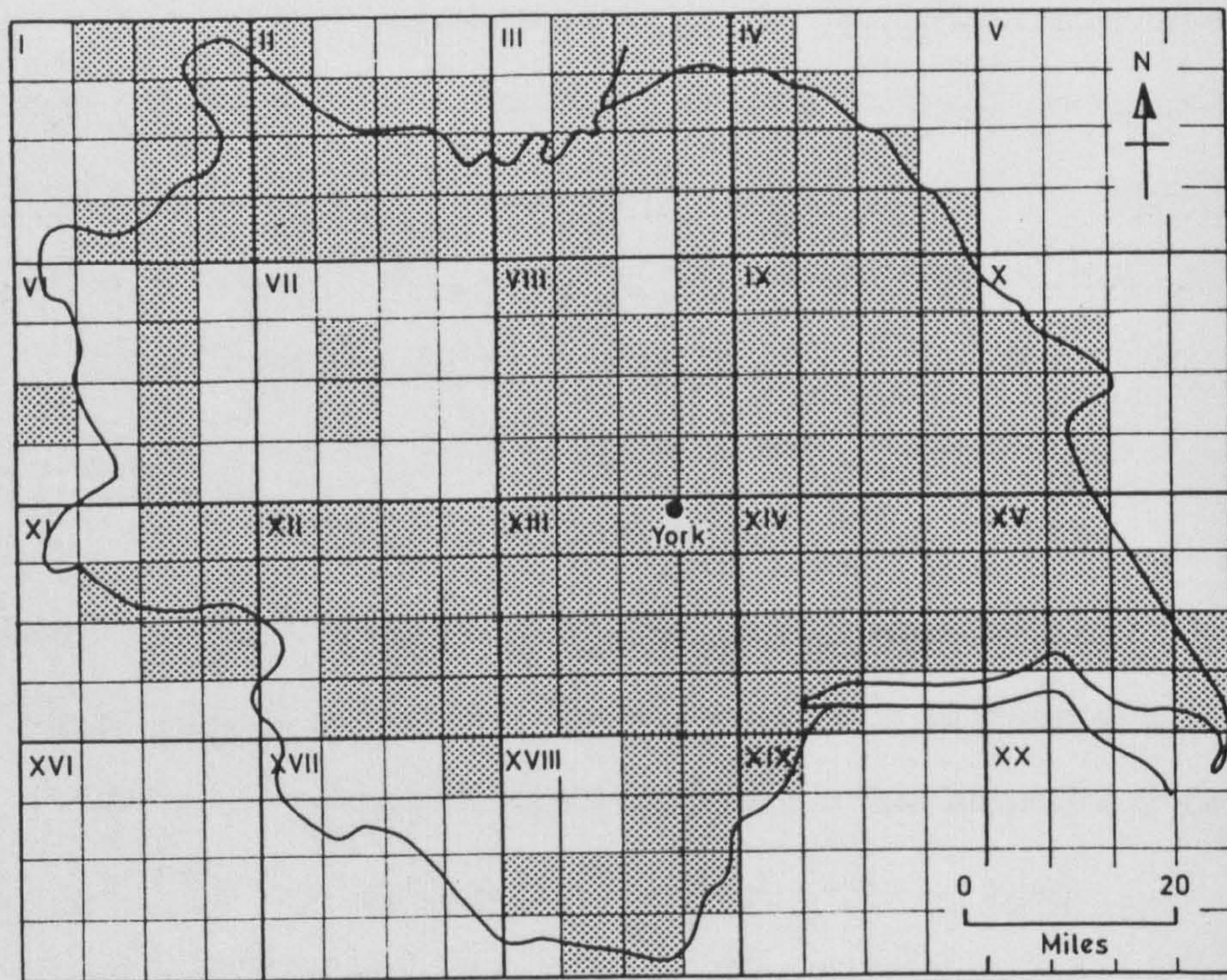
The one addition to square 14 is to Greave Hall (Grove Hall). This is a composite alteration in which the Hall is increased in size, the woods extended and a fence added to the park.

This kind of new information whether on this plate or on the map as a whole is certainly of variable utility. The dominant interest of the 'editor' was in updating personal names and place names. References to woods, warrens, commons and moors add to the general description of the countryside in so far as that information was not either obvious or clearly mapped by 1775. The very few road corrections are clearly not the result of a measured re-survey but they help to solve problems caused by the poor representation of those routes in 1771. The specific references to details such as the inn and the engine merit further investigation.

The 1800 map changes

The most obvious feature is that the number of changes between 1775 and 1800 is very different from that between the 1771 map and 1775 map. Plate i remained unchanged in 1775 but records over 30 differences in 1800. Plates vi, vii, and xvii have the least changes and, of these,

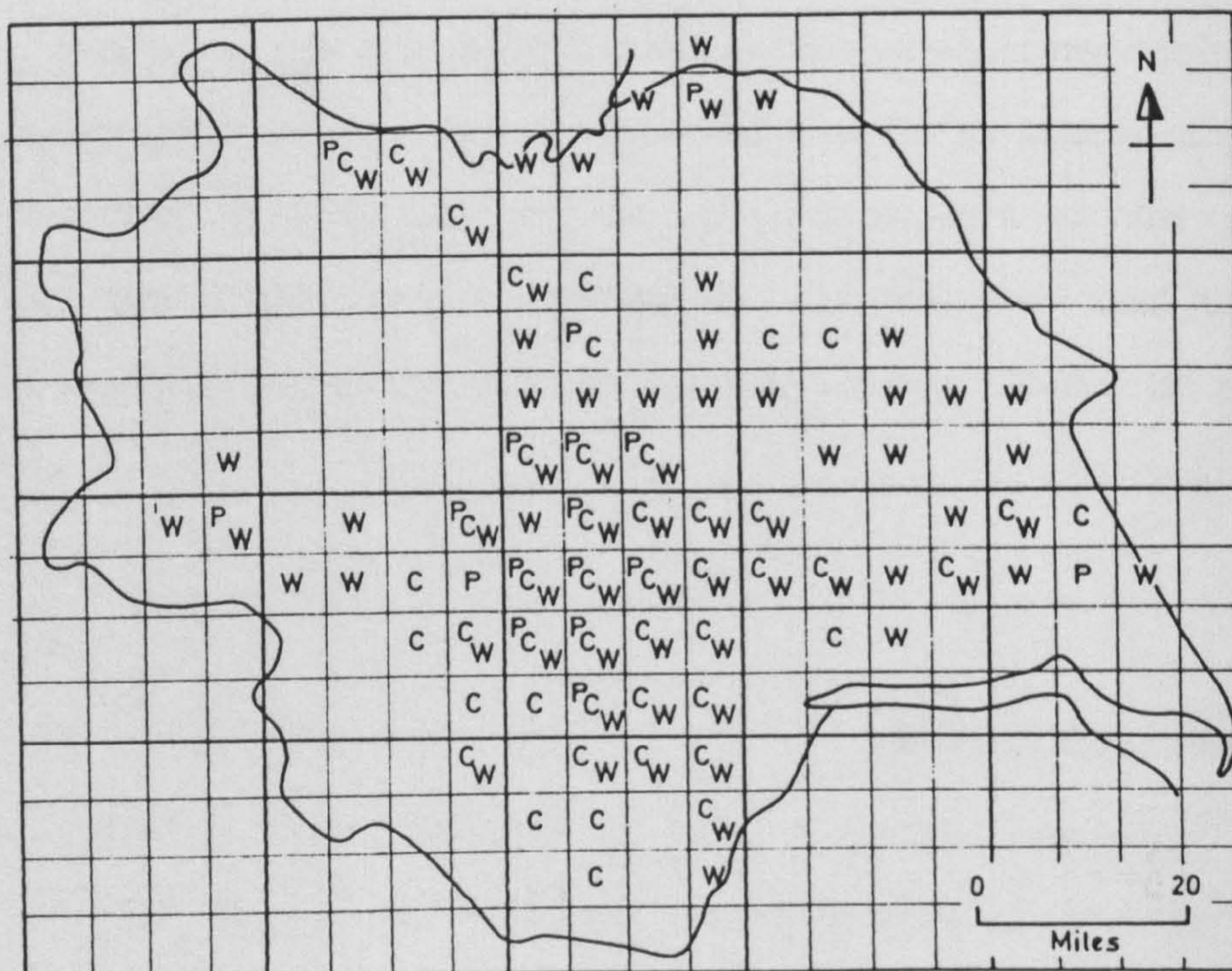
Figure 70 Diagrams of changes on Jefferys' map 1775-1800



I - XX original sheet numbers

Grids as on original

A) Grid squares containing road changes



Changes :-

P. Park C. Common/moor W. Woods

B) Grid squares containing changes to parks, commons & moors, and woods

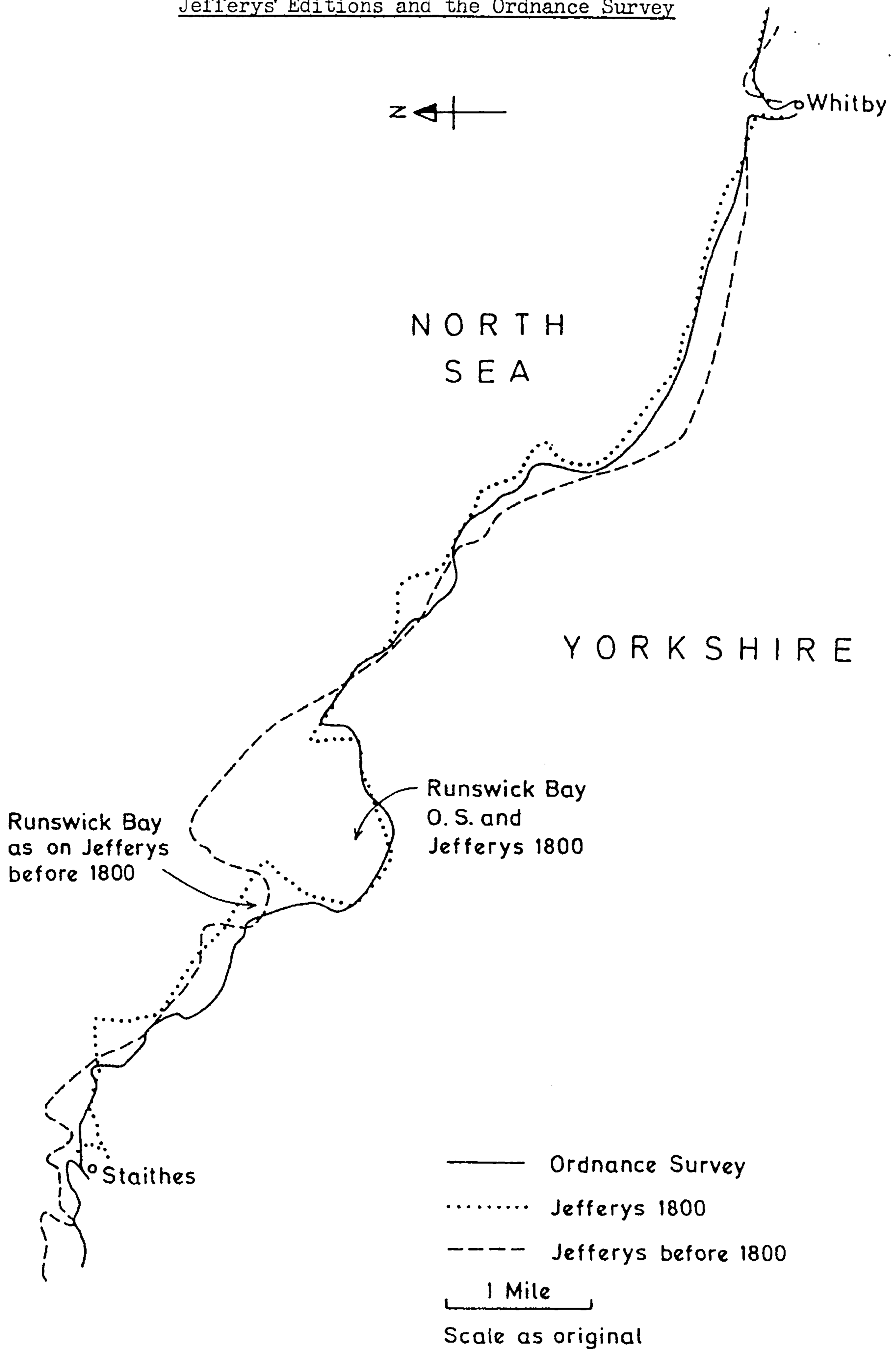
Plate vii is the most remarkable. The lack of change on Plate vii does suggest that this plate is likely to be more anachronistic in 1800 than the rest of the map.

The most numerous changes on the 1800 map are those relating to the roads. Only a few of Jefferys' grid squares do not record road differences, whether additions, removals or realignments (Figure 70.A). Between Figure 70.B which records changes to parks, commons and moors and woods, and Figure 70.A there is a partial relationship since many of the road changes are related to the enclosure of commons and moor areas. The general level of accuracy with which at least the lengths of these commons and moors are mapped can be shown by the frequent coincidence of distinctive lengths of road across these areas which are readily recognizable on the modern maps. The width of these areas is less easily confirmed, though again the coincidence of Jefferys' boundaries with features on the modern maps, including township boundaries, is noteworthy.

The changes on the 1800 map are not only more numerous but also more fundamental than those on the 1775 map, and justify the remarks added to Plate xix of the 1800 map: "Remarks on the present edition of the survey of the County of York. This edition, being the third of the map of the County of York has received very essential corrections from the information kindly communicated by the Rev. George Markham; to whose liberal assistance, by distributing the proof sheets amongst the Gentlemen of the County I am likewise indebted for many useful alterations which could not have been obtained by any other means. The topography of the map has also undergone numerous and extensive Corrections from the care and assiduity of Mr. Francis White Land Surveyor, Yarm, who was employed specially upon the revisal of this third edition of the survey."

One of the major changes is the additional topographical information

Figure 71 The East Coast from Staithes to Whitby: comparison of the Jefferys' Editions and the Ordnance Survey



on Plate xi extending into Lancashire around Colne. The addition is explained as being derived from surveys made for the Leeds and Liverpool canal authorities.

All three editions of Jefferys' map illustrate the relationship of the county map to the development of the Leeds to Liverpool canal. Thus on Plate xi in 1771 the canal is described "intended canal": the Act had only been passed in 1770.¹ By 1777 the canal had been constructed in a westerly direction from Leeds for $33\frac{1}{2}$ miles. Plate xi in 1775 had been altered in response to the progress made by the removal of the word "intended" and a correction to the alignment just beyond Gargrave. The 1775 map, however, misrepresents the proposed extension from Gargrave into Lancashire. This section was not started until after 1790 and it is this section with the surrounding detail which is shown correctly in 1800. The complete canal was not opened until 1816.²

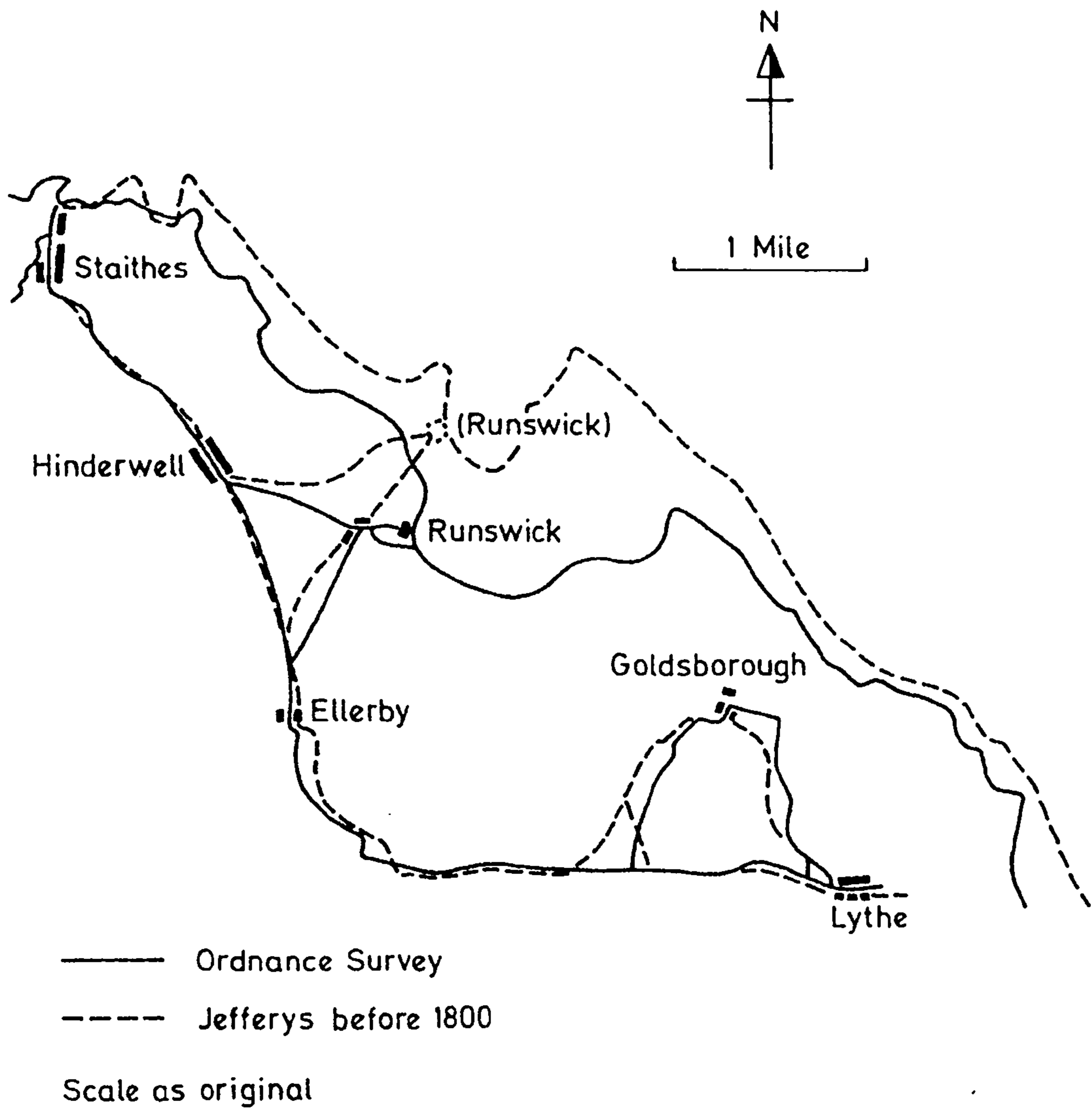
A less obvious change is to Malham Tarn. In Plate vii for both the 1771 and 1775 maps the tarn is crudely drawn but approximates in shape to the tarn at present. In 1800 the tarn was redrawn showing the lake extending further to the west. Such a difference is certainly possible and the correct addition of buildings to the north of the tarn confirms that the site was visited if not actually surveyed.

Two fundamental re-surveys are worthy of more detailed consideration. The first is the radical re-survey of the north-east coast between Staithes and Robin Hood's Bay. Figure 71 shows the 1" Ordnance Survey coast line from Staithes as far as Whitby and also the coast as drawn on the 1771 map and the unaltered 1775 map and the re-surveyed 1800 representation. The biggest problem for the original surveyor was clearly Runswick Bay.

1 Atkinson (1974) Vol.1

2 Ibid

Figure 72 The relationship between the roads and the coast on Jefferys before 1800: comparison with the Ordnance Survey



By contrast the new survey of the coast was of a high standard throughout.

Comparison of Figure 71 with Figure 72 is revealing. This second Figure shows the Runswick Bay portion of the coast but is a direct superimposition of the 1771 map onto the Ordnance Survey map using only the alignment of the main road from Staithes to Lythe and not the coast itself. It suggests that to a large extent the coast and road surveys were independent here. The only poor fit between the road and settlement is at Runswick itself. Thus, as with Warburton's roads it can be seen that roads can be traced and aligned independently from their position relative to other features such as the coast. Staithes, Hinderwell, Ellerby, Lythe, the road between them and also the Goldsborough loop road, fit the Ordnance Survey very closely indeed despite the coastal error. The exception is illustrated by Runswick where the other features - in this case the coast - impinge on the road and settlement and therefore compromise and, in consequence, error, was forced upon the draughtsman.

The second re-survey is the area north-west of Selby on Plate xiii where the villages of Little Fenton and Wiston, badly disorientated up to 1775, have been correctly re-surveyed and re-mapped for the 1800 map. Wistow and the encompassing detail had been placed almost one mile too near to Selby.

Both these re-surveyed areas illustrate the problem that there can be no single method of interpreting this type of map. The coastal error only affected the minor roads to Runswick; but in the more complex route network north-west of Selby the Wistow and Little Fenton errors brought in their train yet more errors. Thus the problem of interpreting the route between Wistow and Selby caused by the foreshortening of the distance is paralleled by the concomitant elongation of the distance between Wistow and Cawood.

Not all the "corrections" even on the 1800 map enhanced accuracy. For instance, although the Whitby coast was improved, change to the last mile of the river Esk through Whitby is not an improvement. Similarly, Sunk Island, represented very differently in 1800, cannot be taken as a true portrayal of this area at that date since Tuke's survey of Holderness in 1786¹ shows the area in a more advanced state of consolidation into the mainland. Again, the newly enclosed road into Alne is re-engraved but incorrectly takes the old bridge over the river.²

Lack of change on the 1775 and 1800 maps can present problems as serious as some of the changes. This is particularly true of features for which the symbol representations can hide as much as they reveal. The record, for instance, of mineral workings and watermills on the 1771 map raises questions which cannot be answered from the map alone. For example, the symbols fail to indicate the size or extent of these features. Indeed, it is disconcerting to find more mill symbols in Sheffield on the county map than on the very much larger scale town plan depicted on Plate xi. Furthermore, Allison³ has identified several definite omissions of watermills in the East Riding from the 1771 map.

The lack of change to these features in the 1775 and 1800 map compounds these uncertainties at these later dates. By 1800, at least, it is reasonable to assume that Jefferys' map cannot be treated as a reliable record of the extent of these features. If history revealed that the development of such industrial activity was simply accumulative then the limitations of the 1775 and 1800 maps in this context would be simply ones of omission. That, unfortunately, is not the case and hence it is possible that the 1775 and 1800 maps record workings and mills which had ceased to operate.

1 Vide infra pp.392,393

2 Vide supra p.373

3 Allison (1970)

Additional maps of use as sources of topographical information between
Jefferys' 1771 map and Greenwood's 1817/18 map

The wealth of detail introduced onto printed maps of Yorkshire in response to Jefferys' map of 1771 presents an enormous problem for anyone attempting to assess the reliability of these later maps as sources of topographical information. Although the majority of the maps in this period have been classified as either of some value, or as of no value for the specific purpose of use as sources, a residue have had to be described simply as being of "possible use". Since most of these maps were made by Cary, one of his maps is used to illustrate the problems.

The task of assessment is somewhat alleviated by the fact that with one exception all the maps of both definite and possible use are clearly derived directly or indirectly from Jefferys' map. As such they ought to be used only in conjunction with Jefferys' map. The difference between those maps which have been assessed as of definite use and the others is that the former contain information which is new, correct and useful, while the latter contain information which has not yet been proved to be either correct or useful and may not even be new but cannot be confidently rejected as being definitely of no value as topographical records.

- i) 1773 (W.244) Backhouse's 'A Map of the Meetings belonging to the
Quarterly Meetings of Lancashire, Westmoreland, Cumberland,
Northumberland, Durham & York'

One of the first cartographers to acknowledge the Society of Friends or indeed any nonconformist church, was Ogilby in 1675, some 25 years after the society was founded by George Fox. For instance, Ogilby depicts "the Quakers Sepulture" at Bruntcliffe,¹ just south of Leeds.

1 Ogilby (1675) Plate 89

Backhouse's map records both the location of the Quarterly Meetings and the routes between them, but very little else. The map claims to show the "roads" with "measured miles". In fact, the links between the Meetings are highly diagrammatic. The distances appear to be mostly measured in a straight line from another map such as Jefferys' 1771 map. Routes which would most probably have followed a turnpike are given the same mileage as recorded on those roads by Jefferys. For example, seven routes converge on Shipton, a village north-west of Market Weighton, and those from Beverley, $11\frac{1}{2}$ miles, and from York, $16\frac{1}{2}$ miles, clearly represent the turnpikes. Though not in the mainstream of topographical mapping, Backhouse's contribution is of considerable interest to the geography of religion.

- ii) 1787 (W.263) Cary's County Map and maps of the North Riding, the East Riding and the West Riding (in two parts), and reprints
iii) 1793 (W.273); iv) 1809 (W.311); v) 1812 (W.320)
In: Cary's New and Correct English Atlas

These maps, comprising a whole county map and separate Riding maps, are careful reductions of Jefferys' 1771 map. The greatest number of changes to this series of maps occurred in the 1809 maps. Indeed, these maps were re-engraved but the style remained substantially the same.

Despite the amount of different information on the maps of this series their usefulness as maps is strictly limited to the extent to which the changes throughout the series inspire further study. This is because for this information, principally those concerning turnpikes and canals, the maps fail to answer the questions of exactly when these features were completed. The dates for both are more reliably obtained from the Acts of Parliament and Trust Records and the routes are more precisely marked

on later maps. The text, which also varies throughout the series, provides further topographical information such as lists of the principal seats.

Cary's North Part of the West Riding 1812 (W.320 part)

An illustration of the problems in interpreting a map which cannot be readily accepted or rejected

Whitaker¹ records this as a reprint of a map first published in 1787. The 1787 map had been reprinted in 1793 with changes to the imprint, the spelling of Clitheroe and the status of two roads. One of these, the Settle to Ribbleshead turnpike, was reinstated as a turnpike in the next reprint in 1818.

It is clear that it needs to be treated with caution since it is a reprint of a map which is basically 25 years old. An essential consideration therefore, must be the reliability of the first edition of 1787.

The map first appeared in a work claiming to be "A New Set of County Maps from Actual Surveys". Whitaker² does not even hint that this map is not the direct result of a survey by Cary. However, from all manner of detail on the map there is not the least shadow of doubt that the 1787 map and all the Yorkshire maps in this work are copied very closely from Jefferys' map. Cary even copies Jefferys' mistakes, such as the omission of Follifoot village between Harrogate and Spofforth. Thus the "Actual Survey" from which this 1812 map was derived is Jefferys' survey of 1771 some forty years earlier.

It is necessary, therefore, to compare the 1812 map with Jefferys'

1 Whitaker (1933) p.113

2 Ibid p.91.

map and the Ordnance Survey maps to assess whether the differences do represent real differences in topography by 1812. Four aspects of the map are considered, the roads, parks, canals and the naming of features.

The turnpike roads of Cary's map are straighter and smoother than on Jefferys' map. Comparison with the Ordnance Survey representation proves that this does not indicate a real improvement in the roads but rather that Cary's representation is more diagrammatic, which is partially the result of Cary's smaller scale. Where Cary has a turnpike not recorded on Jefferys' map from Harrogate via Rudding Hall to Spofforth it is found that such a road never actually existed and is clearly an error. Roads which were correctly improved on Jefferys' map of 1800 such as the roads from Ingleton to Settle or from Keighley to Colne, remain on Cary's 1812 map in the pre-1800 state.

As with the roads, most of the differences of park representation can be attributed to scale but there are errors of shape, as at Broughton park, shown correctly by Jefferys in 1800 but still shown in the earlier state by Cary in 1812. Cary also places the woods south of, instead of north of, the hall. Cary does at least, however, add correctly an unnamed park (Scarthingham) to the hall shown by Jefferys. Cary's ignorance of the 1800 improvements to Jefferys' map is confirmed by the representation of the Leeds to Liverpool canal west of Skipton still in the uncorrected state.

The naming of features on Cary's map shows inconsistencies. Thus he correctly adds the name 'Norton Tower' to Rilston Park but whereas Jefferys places the tower correctly within the park but does not name it, Cary places it outside the park. 'Clitherow' on Jefferys' map is changed to Clitheroe but Saxton, near Tadcaster, is incorrectly altered to 'Caxton'.

Detailed study of this map, one quarter of the whole county, shows

that it is almost entirely copied from Jefferys' map. Where there are differences, nearly all can be explained by scale, style or error. The remaining few corrections which do record actual changes or new information are strictly limited in number.

Thus, despite all the detail of Cary's map it is clearly unreliable as a picture of the West Riding in 1812; yet it cannot be totally rejected. Its limitations can be put into better perspective by the very accurate new survey of Yorkshire published only five years later in 1817/18 by Greenwood.

The study of Cary's 1812 map shows that neither the splendour of engraving nor quantity of detail is necessarily indicative of a reliable map. Even in the nineteenth century the imprinted date can deviate as much as forty years from that of the basic information.

vi) 1787 (W.264) Tuke's County Map and reprints vii) 1794 (280A);
 viii) 1816 (W.329); and ix) 1786 (264A) Tuke's Holderness map

Tuke's county map, in four large sheets, is of greater importance for the historical geographer than Whitaker would suggest.¹ Whitaker ascribed all the information, except for the correcting of the Selby canal route, to the 1775 reprint of Jefferys' map. He does note the new plan of Hull, but not the considerable number of additions, particularly to the East Riding portion.

Tuke had, in fact, surveyed Holderness in 1786² and comparison of that map with Jefferys' 1775 map shows genuine improvements to the minor roads, to the drainage representation, and most noticeably to Sunk Island. All these changes are shown on Tuke's county map. The Holderness map is

1 Whitaker (1933) p.92

2 (264A) illustrated in Rawnsley (1970)

also significant in claiming to give the actual distance in 1786 from several villages to the sea on a coast subject to rapid erosion.

Although Tuke clearly undertook sufficient surveying to justify his claim to be a Land Surveyor as made on the 1787 map, it should be emphasised that not even his map of Holderness was wholly original. Much of the Holderness map is demonstrably copied from Jefferys' map including the inaccurate details of Burton Constable park and the precise shape of the sand banks in the Humber estuary. As a source, therefore, Tuke's map is best studied in conjunction with Jefferys' map.

The 1794 reprint¹ was not known in 1933 when Whitaker compiled his catalogue. It records much new information, including the turnpike diversion between Towton and Tadcaster, completed in 1791 and previously attributed to the 1816 reprint.

Yet further changes appear on the 1816 reprint. The table of heights added to this reprint from Colonel Mudge's Trigonometrical Survey is, however, a reminder of the imminence of Greenwood's survey published in the following year.

- x) 1789 (W.266) Cary's Maps of the West Riding and North Riding in two parts and the East Riding
In 'Britannia'

Like Tuke's 1787 map this is a close copy of Jefferys' 1775 map but unlike Tuke's work there are fewer obvious signs of improvement. As such it is clear that its main value is not as an independent source but as a springboard from which to launch further study provoked by the differences between Cary's map and Jefferys' map.

1 (280A) Bodleian Library. Gough Maps Yorkshire 40.

- xi) 1789 (W.267) Cary's "The Turnpike Roads of Yorkshire" and reprints
 xii) 1791 (W.271); xiii) 1806 (W.301); xiv) 1806 (W.302);
 xv) 1809 (W.312); xvi) 1814 (W.327); xvii) 1817 (W.333)
In: Cary's Traveller's Companion

This series of maps is explicitly intended to depict principally the turnpike roads of Yorkshire. The same limitations and method of approach apply as to Cary's 1787 series.

- xviii) 1801 (W.289) Smith's County Map and reprint xix) 1808 (W.307)

The 1801 map, in four sheets, certainly adds much information to the 1775 reprint of Jefferys' map and needs to be studied alongside the 1800 reprint of Jefferys' map. The 1808 reprint adds only a few more details. As with Tuke's map, Smith closely copied Jefferys' and so comparison is relatively simple.

Dating the information both on the first edition and the reprint of this map is particularly hazardous because the four separate sheets are not given the same imprint. The first edition consists of three sheets including the title sheet dated 1801 and the fourth, the south-east quarter imprinted 1804. Similarly, a reprint in 1841 includes two sheets dated 1836.

- xx) 1808 (W.306) Laurie and Whittle's 'New Map of the County of York'

The relationship of this map to Jefferys' work is via Smith's map of 1801. Therefore specific details can be readily compared and tested with both Smith's and Jefferys' map.

xxi) 1808 (W.308) Cary's 'A New Map of Yorkshire'

In: Cary's New English Atlas

Despite the claims made for originality in the title of the Atlas and the reluctance of Whitaker¹ to admit that Cary's map is not an original survey, there can be no doubt that from the identical replication of practically all the content this is, in fact, a very close copy of Smith's 1801 map.

According to the title of this Atlas the work consists of "A Complete set of County Maps, from Actual Surveys ... on which are Particularly Delineated Those Roads which were measured ... by John Cary". Cary had been instructed in 1794 to survey the Post Roads and to this end was given official assistance.² For the Yorkshire map at least, the relevant roads do not differ from the representations given by Smith and Jefferys.

Thus, on the evidence of Cary's Yorkshire maps he clearly does not merit the encomiums lavished on him by Fordham in his otherwise useful cartobibliography.³ Fordham claims, for example, that Cary stands out from all the best known cartographers from Saxton onwards "as an exponent of the art and science he practised".⁴ Again he states that Cary was "first to combine care and beauty of design, with something really approximate to geographic accuracy".⁵

The attractive qualities of Cary's work cannot be denied. As works of art and as examples of engraving excellence, Cary's maps unquestionably testify to a high degree of craftsmanship. Nevertheless, the historical geographer concerned with the topographical reliability of a map must consider first the possible sources of a map's content rather than its attractiveness or apparent precision.

1 Whitaker (1933) p.108

2 Fordham (1925)

3 Ibid

4 *ibid*, Preface

5 *ibid*, P.xxxiii

CHAPTER NINEPERIOD FIVE: GREENWOOD'S MAP OF 1817/18 TO THE ORDNANCE SURVEY 1857Introduction

Even though Jefferys' map marked a very definite advance in the cartographic representation of Yorkshire there was still plenty of scope for improvement. Much of the gap in standard between Jefferys' map and the maps of the Ordnance Survey for the county was bridged by Greenwood.

Indeed, throughout this final period the county of Yorkshire was gradually mapped by the Ordnance Survey. The first two Ordnance Survey sheets including part of the county were published only seven years after Greenwood's 1817/18 map. A further sixteen years were to elapse before other Ordnance Survey maps of Yorkshire were published, but thereafter they appeared almost annually until 1857. By that date the whole county had been mapped at a scale of either 1" to the mile or of 6" to the mile. Thus the Ordnance Survey standard was achieved on a piecemeal basis across the county rather than at one specific date. To a large extent, however, Greenwood's map anticipates the accuracy and reliability of those maps. All the maps of this final period can be assessed in the light of the on-going influence of the Ordnance Survey. The Ordnance Survey maps themselves are obviously not perfectly reliable and suffer, for instance, from problems of dating; a comment on this aspect of Ordnance Survey maps is appended to this chapter.

Greenwood's map of 1817/18¹

Although a key map, Greenwood's map of 1817 requires little comment simply because it is so similar to the standard of the Ordnance Survey in

1 Hereafter 1817

terms of both accuracy and detail. The similarity of the accuracy is not surprising since Greenwood used the published data from the official Trigonometrical Survey. Greenwood acknowledges his debt to that survey in the title of the map¹ and in the proposals for the map printed in the Leeds Intelligencer.² Thus the map is entitled: "Map of the County of York, Made on the Basis of Triangles in the County, determined by ... Mudge ... and Corby ... in the Trigonometrical Survey of England, by Order of the Honourable Board of Ordnance ..."

The proposal, published in April, merits fuller quotation since it provides further evidence of Greenwood's methods. The proposal claims that "The great Triangles with the Latitudes and Longitudes of the County will be laid down from Colonel Mudge's Trigonometrical Survey, by Messrs. N. and F. Giles, of New Inn, London, as a grand Basis to the general Survey. The Angular Survey of the small Triangles will be made upon that Basis by Mr. C. Greenwood, of Wakefield, under the Inspection of Messrs. Giles, and Mr. C. Greenwood will also superintend the Admeasurement of the full Survey of the County. The drawing of the Original Map for the Engraver will be made by Mr. William Mounsey, of Otley, and the Engraving executed by a first rate Artist under the immediate Inspection of Messrs. Giles and Greenwood ..."³ In a proposal published some three months earlier in January of 1815 it was stated that Greenwood, Mounsey and their assistants had already "commenced their Trigonometrical Operations on the Hills of Craven".⁴

Even if much of the credit for the excellence of the planimetric accuracy must accrue to the Ordnance Survey, credit for the splendid topographical detail must be given to Greenwood and his aids. Again,

1 (W.335) Also quoted in full in Whitaker (1933) p.118

2 Leeds Intelligencer: 2nd, 9th January ; 10th April; 22nd May; 12th June. 1815

3 Ibid, 10th April 1815

4 Ibid, 2nd January 1815

recognition is due to the draughtsman and engraver whose achievement permits the printed map, at a scale of $\frac{3}{4}$ mile to the inch, to be not only highly accurate and detailed but also very clear to read.

Because the standard of Greenwood's map largely anticipates that of the Ordnance Survey maps, Greenwood's map effectively pushes back the date at which map reliability ceases to be a major issue. For the south-east of the county which was first mapped by the Ordnance Survey in 1824 this is only a matter of 6 or 7 years, but for the greater part of Yorkshire the difference is between 30 and 40 years.

Greenwood does not add many new types of feature to the map, although he does markedly improve the representation of features mapped over the previous periods. Township boundaries, for instance, had been portrayed by Dickinson on his map of South Yorkshire¹ but with only a limited degree of accuracy. Comparison of Greenwood's representation of these boundaries with the representation on the Ordnance Survey maps confirms a very high degree of accuracy. This is important because these boundaries can be expected to have had some clear topographical basis and as such their mapping is by implication a record of features which, with the passage of time, may become less obvious.

Comparison of Greenwood's map with Jefferys' map of 1771 and the reprints of that map in 1775 and 1800 greatly assists in the interpretation of these maps. For example, in almost every instance in which weak cartography rather than topographical difference best explains the problems of interpretation on the maps of Jefferys, Greenwood's map supports this assumption by depicting the details in a form immediately recognizable on the subsequent Ordnance Survey maps. Thus Jefferys' details such as the lakes depicted in Burton Constable park are shown correctly by Greenwood.

1 Vide supra Chapter Seven pp.348 et seq.

Similarly, where Jefferys' depiction of the drains of Holderness is unclear, Greenwood removes all doubts. More generally, Greenwood's accurate portrayal of minor roads emphasises weaknesses in Jefferys' representation and thereby provides a key with which to unravel problems posed by such roads.

Despite the obvious high quality of Greenwood's map as a source of topographical information, it is still necessary to stress that caution must be exercised in interpretation. Thus, for instance, a difference in representation of a feature on Greenwood's map and on the first edition of the Ordnance Survey map is not indisputable evidence of a real change in that feature. Fortunately the ease with which the vast majority of features can be compared limits the problems to very localized areas indeed.

Additional maps of use as sources of topographical information between Greenwood's 1817 map and the Ordnance Survey in 1857

As in the previous period the wealth of detail to be assessed on many of the maps has necessitated the inclusion of a few maps "of possible use" which may have to be rejected as sources after further examination. Nevertheless, the assessment and the proper use of all the maps in the period from 1817 to 1857 are greatly facilitated by two considerations. The high degree of accuracy of Greenwood's 1817 map provides a standard almost as good as that of the Ordnance Survey maps. Thus maps published in the intervening years can be confidently compared with and tested against Greenwood's earlier representation and the subsequent Ordnance Survey map representation. Secondly, by 1817, comparative sources, such

as public and estate records, had become very much more comprehensive and plentiful than before. Hence the interpreting problems on maps of this period become increasingly easy to resolve.

- i) 1818 (W.336); ii) 1831 (W.392) further reprints of Cary's maps of 1787 (W.263); iii) 1818 (W.338); iv) 1831 (W.393) further reprints of Cary's map of 1808 (W.308); v) 1819 (W.343); vi) 1822 (W.359); vii) 1828 (W.380) further reprints of Cary's map of 1789 (W.267)

All these reprints of Cary's maps are included because they contain at least a few correct alterations, specifically to the roads. Although some of the changes had been mapped already, these three series are useful in highlighting specific differences.

Nevertheless all these maps have very serious limitations, not the least of which is the increasingly outdated bases. Thus, for instance, on Cary's 1789 map series the representation of parks remained identical from 1789 right through to 1828 despite the new information available from Greenwood's 1817 map.

It will also be appreciated that the scales of these maps, and especially the 1787 and 1789 series, at no greater than 6 miles to the inch, are such that new information on them can be readily tested by comparison with the larger scale and more detailed maps of both Greenwood and the Ordnance Survey.

- viii) 1828 (W.381) Teesdale's Lithographic reprint of Greenwood's 1817 map

Interest in this map resides not only in the many changes made to Greenwood's information, most notably to the turnpikes, but in the record that has survived of the workings of the map trade in the early nineteenth century.

This map occasioned a series of entries in the Yorkshire Gazette newspaper. Having purchased the plates of Greenwood's map, Teesdale placed an advertisement¹ in that paper stating that a map of Yorkshire, surveyed in 1815 to 1817 but now re-surveyed and corrected, was to be published by subscription. To allay fears that ten-year old plates might be worn Teesdale claimed that very few pressings had been taken before because the map had been poorly publicized by Greenwood.

Greenwood responded with a furious letter² accusing Teesdale of trying to hoodwink the public since, he claimed, the plates were badly worn and many copies had been sold.

On the following Saturday³ Teesdale countered this and added the observation "whether the surveys were made ten years since, or one year, is little to the purpose; the limits of places remaining unchanged, and recent improvements admitting an easy introduction".

What appears to be Greenwood's final broadside⁴ accuses Teesdale of being no more than a "Book Keeper" and his companions as being a Grocer and a Seedsman ... "but what appears to me to be the most extraordinary of all is, that the occupant of No.3 Paternoster Row (the publication address given by Teesdale) disclaims any connection with them".

To an extent the excellence of Greenwood's map does justify Teesdale's unabashed use of ten-year old plates. That in itself illustrates the progress made by Greenwood. Nevertheless, Greenwood rightly emphasises Teesdale's purely commercial interest. Hence the map must be treated with caution.

1 Yorkshire Gazette: Saturday 25th August 1827
 2 " " " 18th September 1827
 3 " " " 25th " "
 4 " " Wednesday 29th " "

ix) 1827 (W.386) Bryant's East Riding Map

Whitaker¹ rightly praises this survey of the East Riding as being "practically indistinguishable in style and quality from the one inch Ordnance maps ..." Although Bryant does not acknowledge the use of the Ordnance Survey Trigonometrical data there is little reason to doubt that these data were used. Indeed for the southern edge of the Riding Bryant had the opportunity to check his own topographical work with the published Ordnance Survey maps. It was not until the mid 1850s that the Ordnance Survey published sheets for the rest of the Riding. According to the title of Bryant's map it was surveyed in 1827 and 1828.

x) 1832 (W.401) Reprint of Pigot's 1828/9 County Map (W.383)

In: Pigot & Co.'s British Atlas

As with many of Cary's maps of Yorkshire this one is part of a long series and its main value is in highlighting changes which may or may not prove to be useful.

xi) 1834 (W.415); xii) 1841 (450A) reprints of Smith's County map of 1822 (W.361)

The 1834 map is included on the evidence of Whitaker² who notes that it contains new information. Whitaker, however, also warns of inaccuracies. The 1841 reprint also includes "corrections".³ Both require very cautious use. It can be noted for instance, that the spelling of "Abberford" remained uncorrected even in 1841.

1 Whitaker (1933) p.133

2 Ibid, p.141, 2

3 (W.C.C.307)

xiii) 1834 (W.419) Greenwood's Riding Maps

In: Atlas of the Counties of England

The West Riding and the North Riding maps are explicitly based on Greenwood's 1817 survey map and the East Riding from a survey in the years 1831/2. Remarkably, the reduction in scale to 3 miles to the inch has resulted in little loss of detail, accuracy or clarity. Indeed, this Atlas could be described as the paragon of county Atlases.

Comparing Greenwood's 1834 West Riding map with his 1817 County map, by far the most obvious new feature is the addition of some half dozen mineral lines in the area between Leeds and Wakefield. Unfortunately these are of little use to the historical geographer because their alignments are poor and much more reliable and detailed information is available. At least the map does draw attention to these features.

It is apparent that these lines were not surveyed in any detail for this map and may well have been based on general knowledge. Indeed, the inherent difficulty of accurately surveying linear features could explain why these lines had not been mapped at an earlier date. The Middleton Railway, for instance, was first constructed as a waggonway in 1755 some 80 years earlier. Furthermore, as early as 1812 the first commercially successful steam locomotives began to operate on the line.¹

In the light of these mineral line additions it is surprising that no attempt was made to depict the first public railway in the area, the Leeds to Selby line, since this was officially opened in September of 1834, the year of publication of the maps.² This is particularly so because this line had been mapped,³ albeit very crudely, no less than four years earlier and well before its completion. By early 1834 much of the

1 The Middleton Railway Guide (1978)
 2 Ibid
 3 (W.391)

line had been constructed. Thus Greenwood had the chance to survey it properly and present the first accurate representation of the Leeds to Selby line.

How much of the topography of the East Riding was in fact re-surveyed by Greenwood is not clear. Direct comparison with the East Riding on his 1817 map shows very obvious changes, particularly in the shape of the former Sunk Island. Bryant's survey,¹ published in 1829, however, had shown nearly all the differences recorded on the 1834 East Riding map and in greater detail. It is therefore possible that Greenwood's claim to have re-surveyed the area is merely advanced in order to conceal plagiarism. Nevertheless, it is just as probable, if not even more certain, that Greenwood did indeed re-survey the Riding but there can be little doubt that he would not have started from scratch. Given the fundamental accuracy and correctness of Greenwood's own 1817 survey and of Bryant's 1829 survey, Greenwood could have travelled the Riding with either or both maps and revised them where necessary. The inherent correctness of those earlier works and the smaller scale of the new East Riding map inevitably limits the scope for change on the new map. Hence the implication that the new survey was less thorough than it could have been.

xiv) 1836 (W.431) Fowler's County map

The immediate source of this map is Teesdale's 1828 reprint of Greenwood's 1817 map. Hence the changes can be readily discerned and checked.

1 Vide supra p.402

xv) 1839 (W.441) Franks' West Riding map

In: History, Gazetteer, and Directory of the West Riding

Both the map and the directory are of particular interest to the historical geographer because the work was produced in the Riding and therefore ought to contain the latest information. Franks, not surprisingly, based his map on earlier works but because this map is very detailed it obviously merits careful comparison with the contemporary whole county maps.

xvi) 1843 (W.465) Hobson's County map

This is yet another map stemming from Teesdale's map of 1828 and hence relatively easy to assess. Whitaker¹ has noted that Hobson included the Sheffield to Manchester railway line although it was not completed until two years later.

xvii) 1845 (W.475) Dower's Railway Map of Yorkshire and Lancashire

This work is included on the evidence of Whitaker² on the grounds of its railway information. The title claims that the map differentiates railways in operation from those which were either being constructed or were merely projected. The map also apparently provides dates of completion for these railway lines.

xviii) 1846 (W.481) Newton's County map

This map of "British and Roman Yorkshire" has the authority of Charles Newton of the Dept. of Antiquities in the British Museum. The main interest is in the roads which are divided into ascertained roman

1 Whitaker (1933) p.157

2 Ibid, p.160

roads, ancient roads, and conjectured ancient roads. An example of the second type is a road from York to Boroughbridge crossing the river Ure at Aldwark Bridge. This is one of the roads shown by Warburton as a Roman road.

The Ordnance Survey maps: dating the contents

That the first edition 6" survey far surpasses any previous representation of the county of Yorkshire in both quality and quantity of information is beyond question. For that reason and the fact that the 6" map coverage was completed before the 1" map coverage, the publication of the final 6" sheet of Yorkshire in 1857 has been chosen as the terminal date for this thesis.

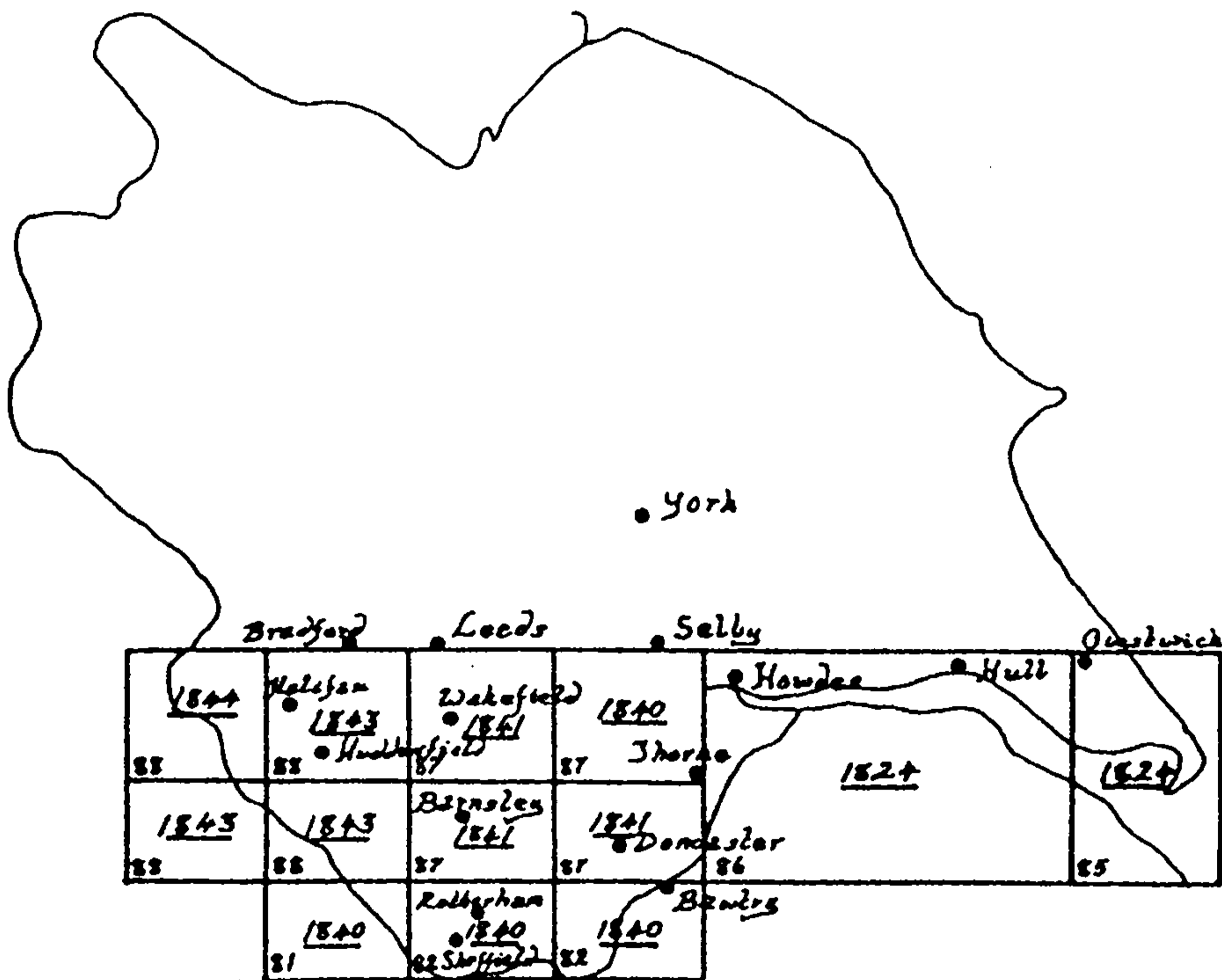
Even on the Ordnance Survey maps there are problems for the historical geographer. Some of these have been considered by Harley,¹ who recommends study of the official field survey maps deposited at the British Library and notes that, for example, these field survey maps record details not on the published maps.

The date of the information is one of the most serious problems. It took 33 years for the Ordnance Survey to produce a complete set of maps for Yorkshire. The publication of the first sheet occurred in 1824 at a scale of 1" to the mile and the last sheet appeared in 1857 at a scale of 6" to the mile.

Earlier surveys such as those by Warburton, Jefferys and Greenwood took several years to complete but none compares with the time taken by

1 Harley (1968a)

Figure 73 Ordnance Survey 1" Sheets Pre-dating the 6" sheets:
Publication dates



Source: W.C.C.292. Complete set, corrected to 1862, but recording the original date of publication.

the Ordnance Survey. In consequence it is not merely pedantic to propose that the Ordnance Survey representation of the county of Yorkshire is strictly a collection of separate maps of small parts of that county rather than an overall picture at a specific date.

This picture presented by the Ordnance Survey is complicated by the national change of policy which resulted in the so called 'Hull-Preston Line'. Below this line the field surveys were undertaken at a scale of 2" to the mile and the maps printed at a scale of 1" to the mile. For Yorkshire this included six sheets, of differing size, published between 1824 and 1844¹ (Figure 73).

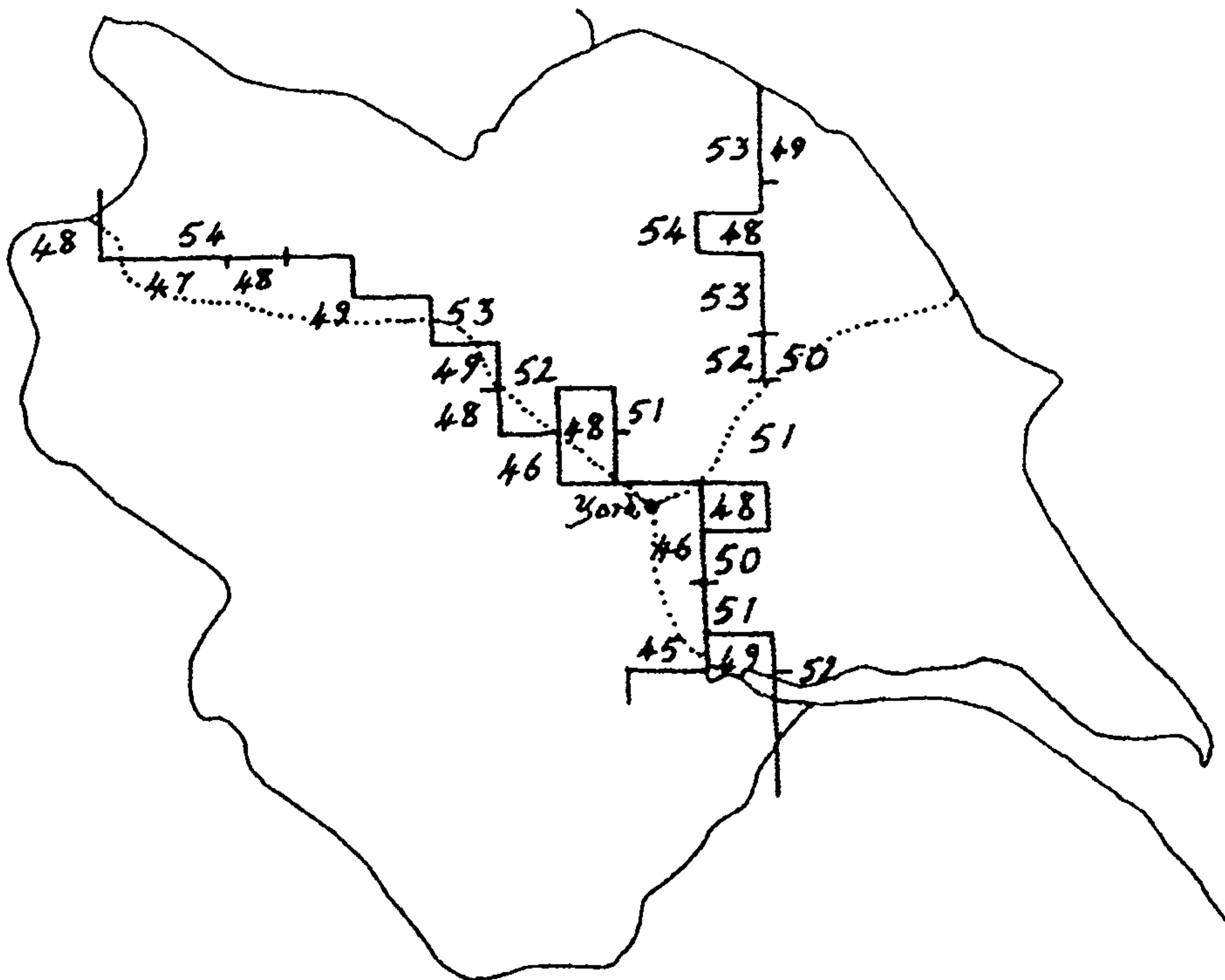
After the policy change, field surveys began afresh at a scale of 6" to the mile and the maps printed at both that scale and subsequently at 1" to the mile. The publication of sheets at 1" to the mile for Yorkshire was not completed until the years 1863-5², some eight years after the last 6" sheet had appeared.

The problem of date is not only related to the time lag between the first and last sheets but applies also within separate sheets. The first 1" maps record the date of initial publication only but the published 6" sheets record both the dates of the survey and of publication. Although many sheets were surveyed within a single year, several took two or more years and the longest from 1848-53.³ This sheet also records the longest gap between the start of surveying and the eventual date of publication, 1848-56. In consequence, if the precise date at which a piece of information was surveyed is crucial then even the Ordnance Survey can be fallible.

These dates on the 6" sheets show that the whole county was surveyed

1 O.S. Sheet, numbers 81, 82, 85, 86, 87, 88
 2 " " " 98, 102 published in quarter sheets
 3 " " number 74

Figure 74 Ordnance Survey First Edition 6". Date at which surveying began; principal anomalies between survey dates of adjacent sheets



Dates: 48 = 1848 etc.

Source: Sets of 6" maps in the School of Geography, University of Leeds and the Leeds Reference Library

at that scale within the years 1844-54. The publication dates range from 1848 to 1857. Study of the dates at which each survey was begun shows that the work on the 6" survey began in the West Riding and finished in the North Riding. The progress of the survey resulted in the surveys of some adjacent sheets commencing many years apart, a phenomenon already encountered with Jefferys' map of 1771.¹ The most serious anomalies between the dates of adjacent sheets can be seen in Figure 74 . The county was surveyed in three basic sections. The earliest portion was effectively the West Riding, commencing at the North Riding boundary and moving generally south. The next area surveyed was the eastern section of the whole county, again starting in the north and working south. Finally, the rest of the North Riding was surveyed. The result was that where the sections of the survey meet the resultant features mapped may differ by as much as 6 years apart.

It is clearly important that these date problems should be appreciated. Nevertheless, in the context of the assessment of earlier printed maps, the difficulties are far outweighed by the many advantages of the Ordnance Survey maps. Indeed, the length of time taken by the Ordnance Survey was a necessary sacrifice without which the precision of representation could not have been achieved.

1 Vide supra Chapter Eight

CHAPTER TENNON PRINTED MAPS OF AREAS WITHIN YORKSHIREIntroduction

A tremendous amount of local topographical detail is one of the characteristics of the Ordnance Survey 6" maps which sets them apart from all the other printed maps of Yorkshire. It is, however, also one of the characteristics which relates them to the manuscript maps. This local detail is one of the main reasons why manuscript maps have proved to be very important aids to the assessment of the printed maps.

Numerous manuscript maps of Yorkshire estates dating from the late sixteenth century through to the nineteenth century having been examined, it can be said with confidence that in general these manuscript maps are both more reliable and easier to interpret than the printed county maps as sources of topographical information. The reasons for this are many and include the need for accuracy on what are frequently records of landownership. Their larger scale is a further advantage.

Since it is usually only the more prominent topographical features that were represented on printed county maps, the use of the larger scaled manuscript maps to test the accuracy of the printed maps presents few problems. Indeed, in many cases, the detail of the largest scaled manuscript maps far surpasses the amount that could possibly be mapped at scales of one inch to the mile or smaller. For instance, the 1692 manuscript map of Danby¹ provides a record of the types of crops grown.

1 N.Y.R.O. ZPT 26/1. (Danby lies two miles east of Middleham on the river Ure)

The written survey accompanying that map, however, reveals that the field names recorded on the map do not necessarily provide evidence of the land use at a specific date. Thus of the five closes, four were meadow and only one arable.

The ways in which the limitations of even manuscript maps can prevent the provision of a reliable picture of the detailed landscape at a given date can be further illustrated by a written tillage agreement¹ of 1563 for Methley, made necessary by the juxtaposition of fallow and sown areas "without anie division" distributed "throughe the whole feilde". This agreement involved the protection of the sown areas or flatts, from the "hurt and distruccion" caused by animals, by the building of temporary fences "on the balke(s) adioyninge thereunto". In such an 'open' field system it is apparent that fencing was very much part of the landscape even if the fences were regularly realigned.

The most obvious limitation of the large scale manuscript maps when compared with the best printed county maps is that the manuscript maps can necessarily only depict a very small portion of the county. To an extent this defect is counterbalanced by the very large number of known manuscript maps. Against that, however, these maps vary in date and very few were compiled in one and the same year.

To illustrate the important part that the manuscript maps can play in the assessment of the printed county maps, two appropriate examples have been selected. In 1711 Joseph Dickinson surveyed the Earl of Cardigan's "Mannor of Hedingley, Kirkstall, and Burley, near Leeds ..."² The resulting large scale manuscript map is used to emphasise the contrast between the depiction of this small area on the printed county maps and

1 Transcribed and printed in Darbyshire and Lumb (1937) pp.82-83.

"TH'AGREAMENTE FOR THE TILLAGE OF THE COMMON FEILDES OF MEATHLEY".

2 Leeds Reference Library. ML (1711) (S.R.)

its depiction on the manuscript map. The topography is of particular interest as one influenced at an earlier date by the activities of the monks of Kirkstall Abbey, and in the nineteenth and twentieth centuries by the development of Leeds.

The second manuscript map records a survey of Skeffling,¹ in Holderness, undertaken by Joseph Bland and Payler Smith in 1721, the year after they had completed the task of surveying the whole of the county of York for Warburton's map of 1720.² As with the manuscript map of Kirkstall, the area surveyed included a monastic site, that of Burstall Priory, and has also undergone subsequent change. In this case, however, the changes are not man-made but result from the ravages of the sea. Moreover, unlike Kirkstall, in 1721 Skeffling was largely unenclosed and provided a different picture of the relationship of the roads to the landscape. Greatest interest, however, resides in the evidence of changes to the coast line; evidence which permits a critical assessment to be made of the testimony of the printed county maps as records of coastal change.

Kirkstall: the representation on printed maps of Yorkshire to 1771.

Comparison with Dickinson's manuscript map of 1711

Kirkstall and the printed county maps

For ease of reference all the printed maps considered are those which are illustrated in either Whitaker³ or Rawnsley,⁴ with the addition of the relevant portions of Warburton's 1720 map and Jefferys' map of 1771.

1 H.R.O. DDCC(2)/G2 Skeffling 1721

2 Smith had also just completed a survey of the Manor of Tyersal (Bradford); reproduced in Grove (1952) pp.219-232

3 Whitaker (1933)

4 Rawnsley (1970)

**CONTAINS
PULLOUTS**

Table 13 The representation of Kirkstall on Printed Maps: 1573-1771

Map	Cartographer	Date	Area	Scale Miles/ inch	Representation
	Lluyd	1573	Y+	20	CRISTAL ; church symbol
W.1	Saxton	1577	Y	4½	CRISTALL ; church symbol; bridge; woods
W.5	Keere	1599	Y	20	church symbol;
W.9	Mercator	1607	Y+	55	
W.10	Hole	1607	W/R	6½	CRISTALL ; church symbol; bridge;
W.20	Speed	1610	Y	6½	bridge; woods
W.20	Speed	1610	W/R	5½	KERSTAL ; church symbol; bridge;
W.37	Bill	1626	Y	14	KERSTALL ; church symbol;
W.81	Jenner	1643	Y	25	KERSTALL ; 'o' symbol;
W.82	Quartermaster	1644	Y+	8	bridge; woods
W.89	Jansson	1646	W/R	5½	KERSTALL ; church symbol; bridge;
W.101	Keere	1651	Y	16	
W.120	Blome	1670	Y	8½	CRISTALL ; 'o' symbol; bridge (south of river)
W.140	Seller	1694	Y	20	bridge
W.138A	Lea/Saxton	1693	Y	4½	CRISTAL ; church symbol; bridge; woods
W.139	Morden	1695	W/R	5	KERSTALL ; church symbol; bridge;
W.151	Overton	1711	Y	6½	bridge; woods
151A	Nicholls	1712		4½	KIRKSTALL; 'o' symbol; bridge;
W.161	Bowen	1720	W/R	25	KERSTALL ; 'o' symbol;
W.162	Warburton	1720	Y	2½	KIRKSTALL ABBY; abbey symbol; village symbol; bridge; woods; Leeds-Bradford road; New Grange
W.169	Moll	1724	Y	12	
W.169	Moll	1724	W/R	11	KIRKSTALL Ab; church symbol; road (as Warburton)
W.194	Rocque	1746	W/R	12	KIRKSTALL Ab; church symbol; road (as Warburton)
W.198	Kitchin	1749	W/R	10	
W.224	Kitchin	1764	Y	13	
W.226	Ellis	1766	W/R	10	road (as Warburton)
W.230	Bowen	1767	W/R	9	KIRKSTALL; church symbol; road (as Warburton)
W.237	Kitchin	1769	W/R	7	road (as Warburton)
W.240	Jefferys	1771	Y	1	KIRKSTALL ABBY; abbey symbol; settlement in rough outline; KIRKSTALL BRIDGE; woods; Leeds-Bradford turnpike; New Grange (W. Wade, Esq.) roads to Headingley etc. 3 mills; mill stream; canal; Aire valley hachured

Area Key: Y+ a map depicting more than the historic county
W/R " " " " " West Riding only
151A depicts an area 20 miles round Leeds

These 29 maps do, however, present a good record of the printed map representation of Kirkstall. The detail on five of these maps is depicted in Figure 76.

Kirkstall is first shown on these maps in 1573 by Humphrey Llyud (Figure 76.A). All that is recorded by Llyud is the word "Cristal" and a church symbol to the north of the river Aire, west of Leeds. Table 13 records the complete cartographical representation of Kirkstall on these 29 maps.

In no less than 12 cases there is no indication whatsoever of the existence of Kirkstall. That this is not simply a matter of scale is illustrated by the presence of Kirkstall on Llyud's 1573 map but paradoxically its absence from Kitchin's much larger scale map of 1769.

Until Warburton's map of 1720, the name, a simple place symbol, the bridge and a vague wood symbol was the total amount of information mapped. Indeed, the existence of the bridge was only recorded on 11 of the 19 maps before 1720 and the existence of the woods was recorded on even fewer maps.

The distinctive contributions to the mapping of the topography made by Saxton, Warburton and Jefferys can be reaffirmed by the findings recorded in Table 13 . Between Saxton's map (Figure 76.B) and Warburton's map (Figure 76.D) no new topographical feature was added to the representation of Kirkstall. Indeed, several maps, including Bill's map of 1626 (Figure 76.C), record fewer features than Saxton's map. Warburton then distinguishes the Abbey and the village, accurately depicts the Leeds to Bradford road with the adjacent landscape hinted at by showing the road as enclosed, and adds the local detail of New Grange. Thereafter nothing new was added until Jefferys' map of 1771 (Figure 76.E).

The dependence of the intervening maps on Saxton's and Warburton's

information is not immediately obvious simply from this very localized area. Nevertheless, the various spellings of Kirkstall and the Abbey (Table 13) do provide useful clues to the possible sources of the derived maps. Thus, for instance, Rocque's "Kirkstall Ab." as printed in 1746 is identical to the spelling on Moll's West Riding map of 1724. Further examination of the two maps confirms beyond doubt that Rocque's map is derived from that made by Moll.

Kirkstall: Dickinson's 1711 manuscript map¹

Dickinson's manuscript map was made to accompany a field book in which, as an annotation claims, "you have the quantity, quality and yearly value, of all the particulars in every respective farm". An index was also provided of the tenants and freeholders and their parcels of land were clearly marked.

A key adds the information that "the Highways are described with double, and the Footways with single pricked lines and both coloured Brown ... The closes and woods are of various colours, which discover their bounds."² Part of this map is depicted in Figure 75.

The scale, greater than 6" to the mile, and wealth of detail makes feasible a thorough test of its basic accuracy. Comparison with the first edition 6" Ordnance Survey maps reveals that there have been changes since 1711 but proves beyond doubt the excellence of this survey. Most of the field boundaries, for instance, are precisely the same in 1711 as in the mid nineteenth century. Again, the shape of Hawksworth

1 " A MAP of all ye Lands belonging to ye Right Hon^{ble}: GEORGE Earl of CARDIGAN, in his MANNOR of HEDINGLEY, KIRKSTALL, AND BURLEY, near Leeds, in ye WEST-RIDING of the County of YORK. Surveyed By, Joseph Dickinson, 1711."

2 Many of the closes have interesting names inviting further investigation, such as the Upper and Nether Kiln Ings, Malthouse Ing, Coal-pit close and even a Cafe close.

Woods, including the penetrating closes, is the same on both maps.

This comparability of information which is the same in 1711 and on the 6" Ordnance Survey maps justifies a greater degree of confidence in the record provided of differences in a few features. The manuscript map, for example, shows with precision the route surveyed by Warburton from Leeds to Kirkstall, the present Burley Road to Kirkstall Hill. It also proves, however, that the new Bradford road, that is Kirkstall Road, lying to the south of the old main road, unquestionably ploughed straight through the former closes and did not even closely follow former field boundaries.

Warburton's map of 1720 and Dickinson's 1711 map

The printed survey nearest in date to that of Dickinson is the map made by Warburton in 1720. Warburton's map stands out amongst printed maps as an important contribution to the representation of Kirkstall (Table 13) but it pales into insignificance alongside this manuscript map. (Figures 75 and 76.D)

Confirmation that Warburton's main addition to the cartographic representation of this area, the road, has already been provided from his own field books.¹ The contribution of Dickinson's manuscript map to the representation of that road is to show the precise scope for variation of the actual way between the adjacent closes.

However, the most important way in which the manuscript map can add to the interpretation of Warburton's county map is in depicting the local detail which is only hinted at by Warburton's enclosed roads. Since this manuscript map pre-dates Warburton's map it can be appreciated

1 Vide supra Chapter Seven

that whatever detail is the same on the Ordnance Survey 6" maps and on this manuscript map must also have been the same in 1720. That is true of the greater part of the detail shown.

Jefferys' map of 1771 and Dickinson's 1711 map

Comparison of Dickinson's 1711 manuscript map with Jefferys' county map of 1771 illustrates the problem that the greater the amount of detail surveyed for a county map the greater the chance of error. Fortunately, this wealth of information usually enables errors to be readily recognized. Thus, although Jefferys' map clearly adds new information to the printed county map record (Figure 76.E) as with the route to Otley along Spen Lane, he misplaces the Abbey to the north rather than to the south of it. Dickinson's representation is correct (Figure 75).

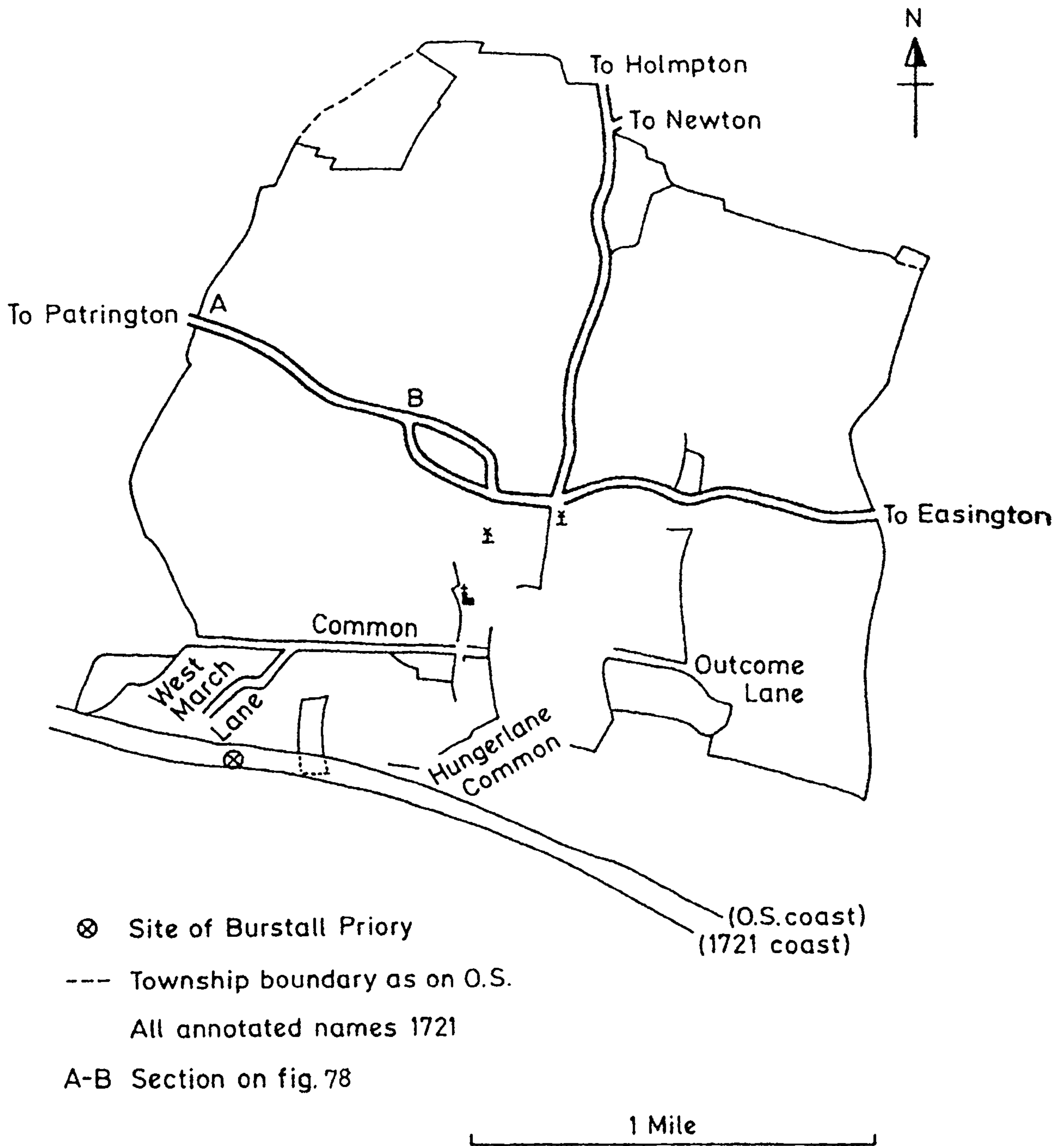
All the other additions to the Kirkstall area made by Jefferys can be related to the Ordnance Survey maps without recourse to the manuscript map. As with Warburton's map, the manuscript map detail depicts the field pattern which could not be shown on Jefferys' smaller scale county map.

Conclusion

Until 1711 the representation of Kirkstall on printed county maps could have been almost as easily expressed verbally as in a cartographic form. Words, however, could not possibly be substituted for the detailed representation recorded on the manuscript map.

Strictly, the 1711 map makes Warburton's Kirkstall information redundant, since what Warburton depicts in 1720 is mapped more accurately and in greater detail on the former map. Even so, the close accordance

Figure 77 Skeffling: Features on the 1721 Manuscript map immediately comparable with those on the Ordnance Survey 2¹/₂"



of the dates in fact enhances the utility of Warburton's map as a source of evidence. The relationship of the enclosed road to the fields, sometimes tightly confined by the narrowness of the intervening space, sometimes with considerable leeway between hedges set far apart, and the comparison of this information with the road surveys in Warburton's field survey materials enables the other surveyed roads on Warburton's map to be interpreted more confidently at this very localized level.

Skeffling, 1721:¹ A pre-enclosure estate map by Bland and Smith in an area of coastal erosion

The pre-enclosure map of Skeffling by Bland and Smith accompanies a field book recording the area and quality of the various lands or strips, part of Edward Bee's estate. Since the scale is larger than 6" to the mile and the map portrays an abundance of detail, its basic accuracy can be readily tested. Without doubt the very high standard of the field book surveys provided by Bland and Smith for Warburton's county map is also apparent in the Skeffling map. This map does not, however, suffer from the processes of compilation, draughting and engraving associated with that much more complex county map.

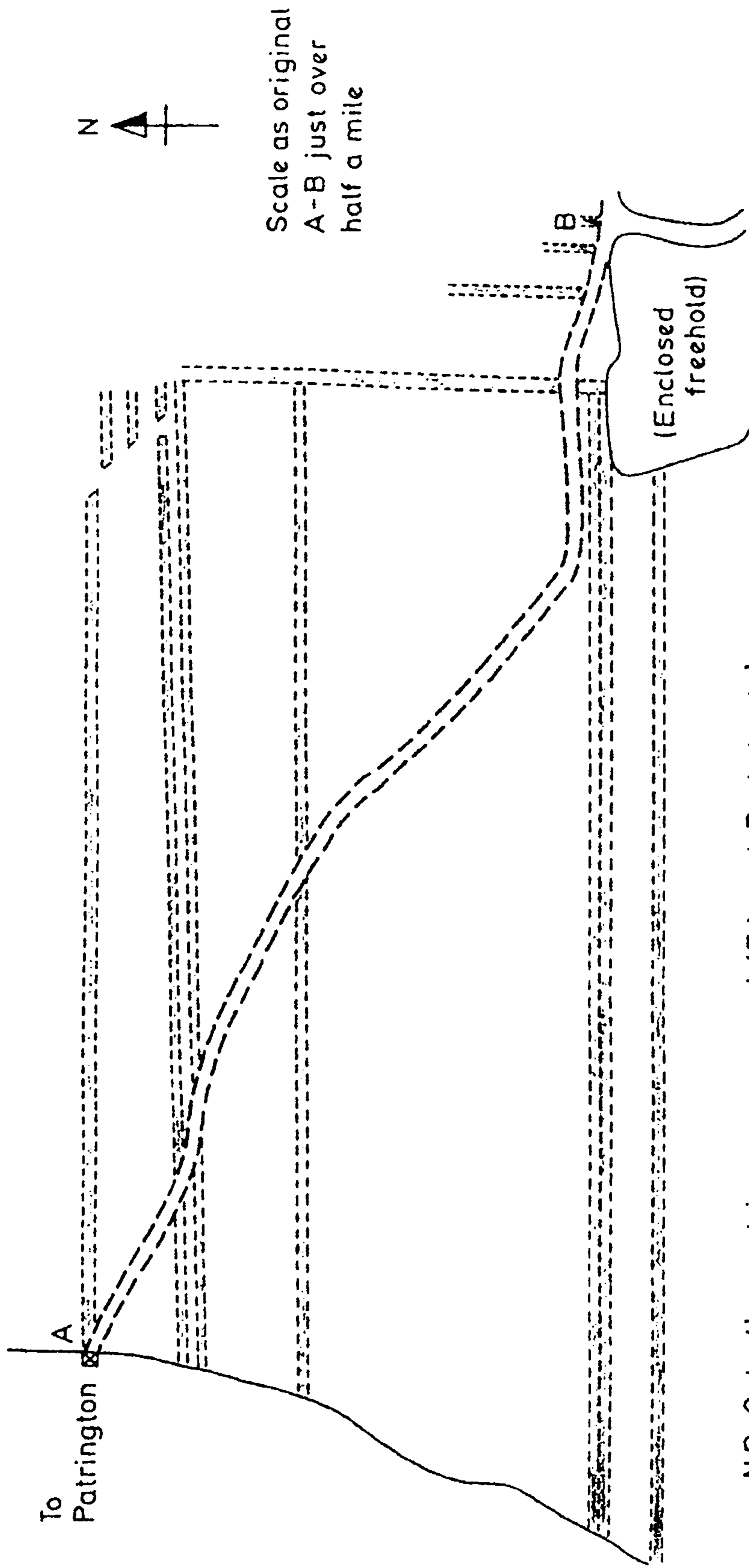
Figure 77 shows which features of the 1721 map can be seen on the 2 $\frac{1}{2}$ " Ordnance Survey map.² The enclosure of the village, awarded in 1765, accounts for many of the differences between 1721 and the Ordnance Survey map.

Two distinct types of road-landscape relationships can be

1 "A MAP of Certain Lands at Skeffling; In Holderness in the County of YORK. Being Part of the Estate of EDWARD BEE Gent. Surveyed & Delineated by Joseph Bland & Payler Smith A.D.1721".

2 Provisional edition T.A.31 (1953) and T.A. 32 (1947)

Figure 78 Skeffling 1721: The Open Road crossing the strip system



N.B. Only these strips were mapped (Edward Bee's lands)

discerned from comparison of the roads which are the same on the 1721 map and on the Ordnance Survey map (Figure 77). The first type of road-landscape relationship is illustrated by the Holmpton road and by the discontinuous sections of roads to the south of the village. These are roads which in 1721 were demonstrably constrained by boundaries. The Holmpton road was, itself, the boundary between the West and East open fields; Outcome Lane ran between two freehold enclosures; and the Common and West Marsh Lane followed lines of drainage. Enclosure did not alter the alignment of any of these roads.¹

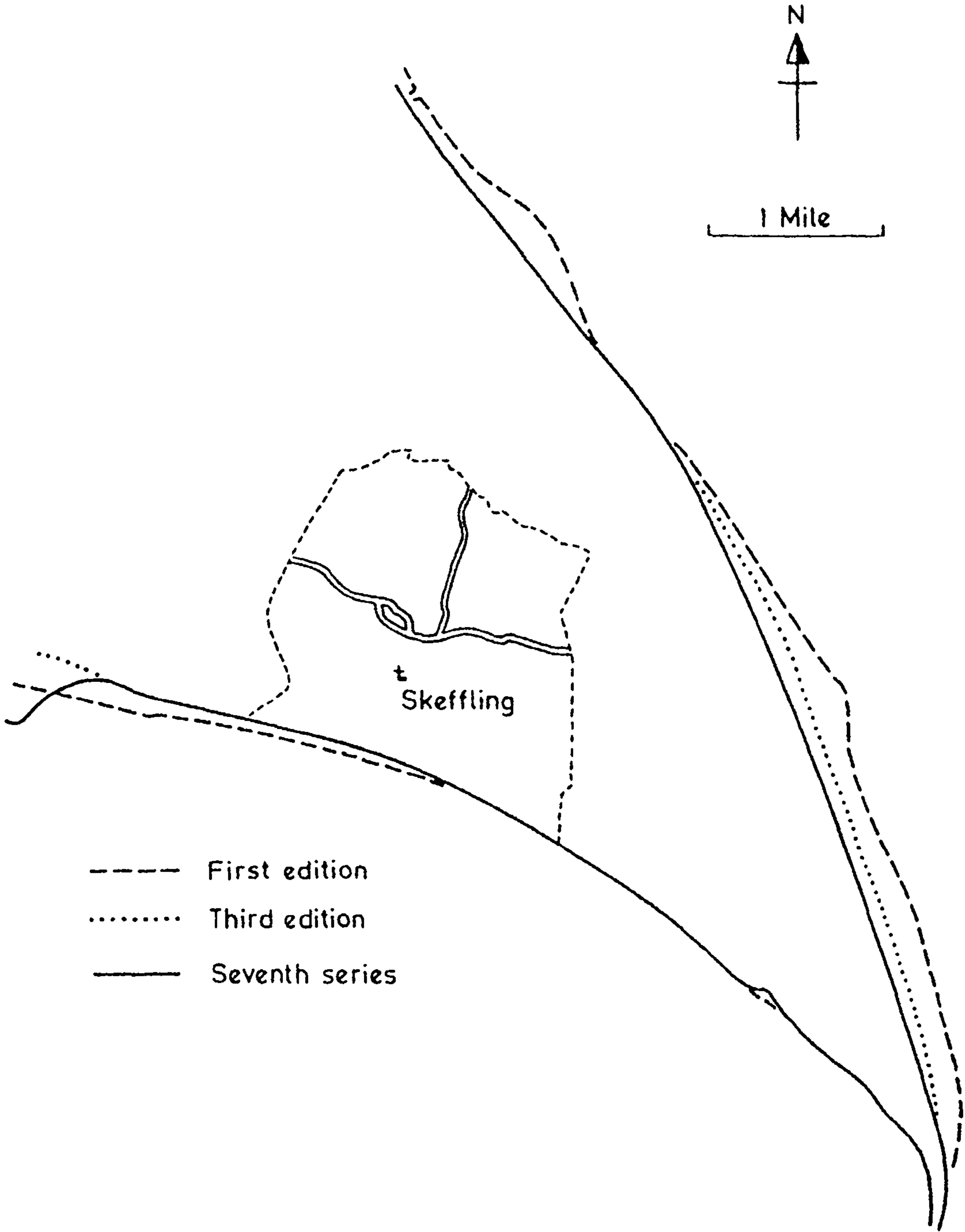
The second type of road-landscape relationship is illustrated by one road, the main through route from Patrington to Easington. As with the first type the alignment of the road was not affected by the enclosure. In this case, however, the manuscript map shows that the road did not follow any boundary at all. Its course was neither parallel to nor at right angles to the open field strips. Rather it was aligned diagonally across them.

Section A-B (Figure 77) of this road is depicted at the original scale in Figure 78 . This shows the open road from the gate 'A' at the township boundary across the West Field to the edge of the village at 'B'. The map records only the lands or strips held by Edward Bee but it is clear that in only one place, that just west of the village, does this road run parallel with a strip.

Recognition of these two types of road-landscape relationships is important for the interpretation of open roads on the smaller scale printed county maps. While in the first case, roads were clearly constrained by boundaries and thus the continuity of these roads becomes intelligible in terms of these constraints, in the second example the road appears to have no relationship to pre-existing boundaries. The continuity of the latter type in this village prompts further investigation.

¹ The limited effect of Parliamentary Enclosure on roads has also been demonstrated in parts of Buckinghamshire. Jones (1975) unpublished.

Figure 79 Skeffling: Coastal Erosion as recorded by the Ordnance Survey maps



That this diagonal path was not even straightened with the enclosure of the village suggests that there were very good reasons for not 'improving' it. But if that is so, it is interesting that the strips should be apparently so unrelated to the road alignment.¹

Coastal erosion and the manuscript map of Skeffling

Figure 79 records the changes which took place to the physical form of the Holderness coast as depicted by the 1" Ordnance Survey first edition, the third edition and the seventh series. To the east of Skeffling a sliver of coast about one third of a mile wide has been lost over the period. The Humber coast, to the south of Skeffling, has experienced a more complex history than has the east coast, with evidence of both erosion and accretion. Even though the dangers of attempting to measure precise coastal changes from successive editions of Ordnance Survey maps are well known,² it is clear that some measure of the order of the change is provided by these maps. This can be demonstrated by examination of such details as the progressive loss of roads at Kilnsea.

On the 1721 map the Humber coastline appears to have been presented with some degree of artistic licence and cannot be accepted as a precise survey. Nevertheless, there is sufficient information on the manuscript map to prove that since 1721 the Skeffling coastline to a depth of some 100 yards has been eroded away. The two features which enable this measure of change to be assumed are the locations of Burstall Priory³ and a readily identifiable rectangular enclosure (Figure 77).

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- 1 There is, for instance, a distinct hillock immediately north of this road, named Scabert Hill in 1721, now Scarborough Hill; the strips cut straight across this feature. The alignment of the road effectively avoids the hill.
 - 2 Carr (1962) p.137. "Evidence before the Royal Commission on Coastal Erosion" (etc.)
 - 3 Named "Burstall Abbey" by Bland and Smith

Figure 80 Skeffling and Burstall Priory. Warburton 1720



As on the original

The Priory on the manuscript map is shown as being on the very shore line in 1721. In the same year it was portrayed in the identical situation, as a ruin, by Samuel Buck in one of his engravings. The relevant section of that engraving is printed in Poulson's "History of Holderness" published in 1840.¹ Poulson noted that the priory had been "swept away by the frightful encroachments of the sea".² He also recorded that the 1765 enclosure award made provision for the changing coastline.³ Today there is no sign whatsoever of the former priory.

The rectangular enclosure near the priory extended further south than on the Ordnance Survey map and between it and the shore line there lay three clearly surveyed strips of land named respectively as "Panes", "Bank" and "Wast".

Comparison of Warburton's printed county map and the 1721 manuscript map

Comparison of the area shown on the 1721 estate map by Warburton's surveyors and the same area on the 1720 county map (Figure 80) brings out three main points. That the road on the county map does not look like the present road can be explained on the grounds that it was not surveyed for the county map. Had it been surveyed then its alignment should have been the same as that of the 1721 map and hence that of the present road (Figure 77). It is also apparent that the relationship of "Burstall Abby" to both Skeffling itself and the coast is wrong on the county map and that in consequence, Warburton's map does not provide a reliable record of the state of the coast in 1720.

These two considerations and the oversimplified representation of the village on the county map justify the conclusion that on the county

1 Poulson (1840) Vol.II, p.497

2 *ibid*, p.505

3 *ibid*, p.498

map the Skeffling area can be deemed to have been represented diagrammatically rather than planimetrically.

The manuscript map as evidence for the misuse of printed county maps

The manuscript map of Skeffling unquestionably stands in its own right as a unique source of topographical information. Used in conjunction with the 1719 manuscript surveys of the east coast made by Warburton's surveyors for his county map, the Skeffling map can be used further to provide a more general pointer to the utility or otherwise of contemporary printed maps for purposes of coastline representation.

Comparison of the coastlines and village sites on many of the printed county maps of Yorkshire before the nineteenth century does suggest that the rates of coastal erosion or accretion hitherto postulated are highly improbable. Warburton's county map, for instance, places Burstall Priory about half a mile inland in 1720 when, in fact, it was already in ruins on the very edge of the shore.

Unfortunately this point has not always been appreciated. Thus, Thomas Sheppard, in his studies of the coastline of the East Riding, was clearly unaware of the limitations of the printed maps of Yorkshire as sources of evidence.^{1,2} In his work "East Yorkshire in Plan and Chart", Sheppard states that Bowen's map of 1750 is "very carefully drawn (my emphasis), and confirms the evidence supplied by other maps of the period that Spurn was shorter and broader than it is today".³ Careful drawing is not, however, an infallible guide to reliability. The maps of Blaeu and Jansson, for example, were rejected as sources of topographical information despite the excellence of their art work.⁴ In fact,

1 Sheppard (1912)

2 Sheppard (1913) pp.40-68

3 *ibid*, p.59

4 *vide supra* Chapter Four p.63

Sheppard was unaware that Bowen's map was not even the end product of an original survey. It is evident that Bowen's topographical information was copied directly from the map by Warburton produced 30 years earlier.¹ Sheppard does not even mention this map. Furthermore, the line of the Humber estuary and Holderness coast on Warburton's map had in turn been copied from Collin's map of 1693. Thus in 1750 Bowen's representation was nearly 60 years out of date. Again, the testimony of the Skeffling map has added to the evidence that even Warburton's county map cannot be used as a reliable record of the position of the coast. It is also unfortunately true that the "other maps of the period" used by Sheppard are also unsuitable sources because, like Bowen's map, they are derived from Warburton's map or even from Saxton's map. It follows that subsequent close copies of Warburton's map must also be rejected as sources of information about coastal change.

Non-printed maps and printed maps: some conclusions

Rarely is there a simple choice between a printed county map or a local manuscript map. Many years separate some of the printed county maps of Yorkshire which can be used as sources of topographical information, but for a specific locality no manuscript map might be available before the nineteenth century. Thus it is essential that the printed county maps be interpreted and used as fully as possible in their own right. Comparison with manuscript maps helps to achieve this in two ways in particular.

First, the larger scaled and more detailed manuscript maps can

1 Vide supra Chapter Seven

provide, for specific localities, conclusive evidence of both change and continuity of topographical features between the date of the manuscript map and the 6" Ordnance Survey maps in the nineteenth century. Such features can then be used to test the accuracy and reliability of the printed county maps published in the intervening years.

Second, the greater understanding of both the printed maps and the manuscript maps gained from such comparisons emphasises the value of treating them as complementary rather than alternative sources; for there is a chance that the smaller scaled and less detailed printed county maps should too readily be assumed to be the poor relation. Effective interpretation of specific local areas shown on printed county maps but for which there are no extant contemporary large scale manuscript maps is enhanced by a detailed understanding of the relationship between the topographical representation on that printed map and on contemporary or nearly contemporary manuscript maps of other areas covered by that same printed map. It is evident, however, that even the manuscript maps need to be assessed carefully before they, too, can be used as topographical sources.

CONCLUSIONS

The conclusions to be presented are best seen in the light of the contribution they make to a line of thinking which essentially provided the *raison d'être* for this study.

Many people are interested, for various reasons, in the evolution of the landscape. In so far as such interests are concerned with recent developments, particularly those which have taken place since 1850, topographical maps produced by the state and especially large scale ones, provide invaluable sources of evidence. They do so because they form part of a formally planned system for recording the landscape, a system working within defined standards of accuracy. The confidence with which the Ordnance Survey maps can be used and their ready accessibility stand out in marked contrast with those maps which by chance have survived in archive repositories.

This immediately poses the question as to whether, when cartography was privately organized, printed county maps can perform a similar function. This is an important consideration since these county maps also have the inestimable advantage of ready accessibility. Assessment of the printed maps of Yorkshire as sources of topographical information can be seen, therefore, in the context of this broader theme.

From a corpus of some 550 printed maps of Yorkshire it has been shown that only 60 can be classified as genuine sources of topographical information. The reasons why no less than 85% of the maps have been rejected as being demonstrably unreliable sources of information are presented in summary form in the classification. Of the six classes no less than five comprise reprinted maps or derived maps. This results

from the fact that the vast majority of the printed maps of Yorkshire prove to be what can be termed 'publishers maps' rather than 'surveyors maps'.

The content of maps which are reprints or derived maps is to a large degree a duplication of features recorded on earlier maps. Thus this content is not strictly a portrayal of the contemporary topography of the county. It is because this is the case that, in any consideration of the reliability of the topographical content depicted, the question of the contemporaneity of the map content must take precedence over the assessment of the planimetric accuracy of the features portrayed. This is true throughout the period of investigation from 1577 to 1857, but it is most obviously so after the publication of Jefferys' map in 1771, when the predominantly high planimetric accuracy and hence apparent reliability of much of the content of maps is often merely inherited from Jefferys' work. Such is the case with many of Cary's maps which were copied from Jefferys' map. The greater the period of time between the date of a derived map or a reprint and the original map, the greater the probability that much of the content will be unreliable because it is no longer contemporary. Paradoxically, analysis of Ogilby's strip maps has shown that even planimetric inaccuracy is not necessarily a criterion for assuming unreliability.

The importance of emphasising the contemporaneity of the content of each map is also apparent when attention is turned to the further assessment of maps initially classified as useful. For instance, although the complete classification can identify maps which are demonstrably unreliable, it is not possible to classify useful maps as unambiguously reliable. Even some of the very best maps based on original surveys, such as Ogilby's maps and those by Warburton or Jefferys, also include content copied from earlier works. Again, since most of the useful maps

are reprints or derived maps their utility as sources of topographical information is strictly limited to the new and significant features shown on them.

Awareness of this predominance of copied content is of crucial significance when assessing the genuine new content of the useful maps. The importance of appreciating the chronological distribution of the useful maps, therefore, cannot be overemphasised. This distribution (Figure 1) reveals that genuine new representations of the county or even of specific features or areas were provided very infrequently indeed until about 1785. Thus, when assessing the significance of the new content of maps greater caution needs to be exercised than if such maps were the norm rather than the exception. For many of the years in the period of study there is literally no contemporary portrayal of the county despite the publication of numerous maps. With such large gaps between reliable maps it is evident that even the best maps need to be assessed very carefully. For example, it is no longer reasonable to argue, as has been done by earlier workers, that the inclusion of a park on a printed map for the first time indicates "that the park had reached a certain size".¹ Indeed, such a statement erroneously assumes that the county had been reliably mapped at frequent intervals; moreover, it underrates the significance of the role of the subscriber as a factor influencing the inclusion of details about his property.

The temptation to consider only maps which immediately stand out from those available is to be avoided, since the context of any one map in the whole body of printed maps is demonstrably of crucial significance; and without knowledge of their context errors of interpretation can readily be committed. Thus, on the one hand the maps such as Cary's, which are

1 Coates (1966), p.468

finely engraved and in which much of the content can be easily compared with the Ordnance Survey representation, are likely to be overrated. On the other hand, a map like Warburton's which is relatively poorly engraved and has obvious planimetric defects, is likely to be seriously underestimated as a source of information. Indeed, it is the lack of a total approach to the whole body of maps available which accounts for many of the ways in which the printed maps considered in this thesis, have been hitherto misused.

The graph depicting the chronological distribution of all the printed maps (Figure 1) viewed in conjunction with the analysis of the useful maps in Part 2 of the thesis, gives a guide not only to which maps can be used at all as sources but also to the reliability of specific features on each map. This latter consideration is particularly important since it has been shown that on many maps only one or two features make a genuine contribution to our knowledge of the county at a given date; the rest of the content of such a map must be rejected as wholeheartedly as the content of a completely unreliable map.

By uncovering the various stages in the production of each map it has proved possible to elucidate the range and complexity of the human factors involved. For the unaltered reprints which were published in topographical books, such involvement may have been very limited indeed, particularly if the maps were merely adjuncts to the text. By contrast, the complexity of the human involvement is most evident with Warburton's map of 1720 where the exceptional survival of much of his source materials allows for fuller understanding. The end product, the printed map, is shown to be a compilation of contributions by many people. These included three surveyors, each with a different standard of accuracy and dependent on the knowledge of their guides. To the surveyors' work was added Warburton's own non-measured information from his journal. The role of

the draughtsman was also very significant and occasionally crucial, particularly when he was responsible for combining disparate information, some measured, some unmeasured from general knowledge and some from earlier maps. Similarly it can be demonstrated that the maps produced by Ogilby, by Jefferys and by Greenwood were the result of more than one hand.

Given the diversity of these contributions it is understandable that biographical details about each cartographer are likely to be of limited value as an aid to the assessment of 'their' maps. Particularly is this the case where these maps were reprints and published in topographical works and hence influenced by the publisher. Indeed, the reverse may be more true; in other words the study of the maps of a specific Yorkshire cartographer may contribute more to our understanding of the cartographer, than study of the cartographer to the understanding of his maps. In this sense as an aid to biography every printed map may be useful, including those maps which must be rejected as sources of topographical information.

The contention that the map might tell us more about the man than vice versa can be illustrated by comparing Warburton and Cary. The general impression presented of Warburton is of an unattractive character who attracted criticism not only in his own lifetime but also subsequently as from Gough in 1780¹ and from Brown in 1900.² Indeed, Warburton suffered the ignominy of being ejected from the Royal Society in 1750 for non-payment of arrears.³ At first sight his rather unattractive map appears to reflect his character. By contrast, Cary has attracted as much praise as his maps;⁴ and in fact there is no doubt that as a map publisher and map engraver, Cary was excellent. Nevertheless, on closer analysis, it is Warburton's map which proves to be of greatest value as a source of

1 Gough (1780) Vol.II, p.62

2 Brown (1900)

3 Correspondence with the librarian of the Royal Society. Ref.LIB.5/
NHR/JM (11th February, 1976)

4 Fordham (1925)

topographical information. Many of Cary's maps are demonstrably of no use for topographical purposes.

Once the content has been identified as being both new, and not obviously spurious, it is necessary to determine whether this content is portrayed planimetrically or merely diagrammatically. Clearly the fundamental issue here is the source of the new content. Yet there is no simple relationship between the source and the mapped content. For instance, in the case of newly derived maps or reprints with new content, if the new content were obtained from non-measured information much would depend not only on the general accuracy and reliability of that information but also on the accuracy of the original or base map and the skill with which the draughtsman added the new information. If the source were a measured survey, the problem is complicated by the probability that even within one surveyor's work, differing standards of accuracy could have obtained. The most obvious discrepancy is that between the surveying of point features and the surveying of the very much more problematic linear features. The latter presented the greatest difficulties for the surveyors even in the late eighteenth century; as is instanced by the representation of canals on Jefferys' map of 1771.

In some cases, however, the reverse may have been true. Such was the case with Ogilby, whose maps reveal examples of both very good and very poor planimetric accuracy in the depiction of the roads. Again, on Ogilby's maps in many instances the point features, namely the adjacent settlements, prove to be very inaccurately positioned and much less accurate than the road itself. Furthermore, Warburton's map contains some very accurate roads alongside hopelessly inaccurate river representations.

Since it is not always possible to determine the source of the new content it is useful to be able to apply a test which is not dependent on assumptions about the source. Overlapping or duplicated details provide

evidences for such tests. For Yorkshire these tests are made easier because of the existence of a large number of separate riding maps which were often published by the same individual at the same time as were whole county maps. Fortunately, many of the printed county maps were also published in atlases of all the counties, so the incidence of overlap was likely to be increased.

Comparison of the overlapping details on Saxton's maps has brought out the way in which the very same features could be mapped differently. Similarly, overlap on the separate sheets of the Quartermaster's map reveals discrepancies in the alignments of the added routes shown on different sheets. Again, analysis of sections of roads depicted more than once in Ogilby's Britannia provides a yardstick for the general interpretation of the roads. In all such cases, study of the duplicated detail enables the testimony of the complete map to be interpreted with greater confidence.

It is with Warburton's map that comparison with the field materials permits the most detailed understanding to be achieved of the printed map. In terms of methodology it becomes apparent that no general approach is feasible for Warburton's map. The map is seen to be one of marked contrasts both between the types of sources used and the standards of accuracy within each source. For instance, examination of the road surveys and the observation station surveys reveals very precise distance measurements on the roads, yet mere guesses of distance from the observation stations. At first sight all these deficiencies point to the unreliability of Warburton's work. In fact, however, by increasing our understanding of the process whereby the map was compiled they increase the value of the map as a source. Again, the utility of overlapping detail should be stressed; in this case with the repetition of information about roads in the field notes. Analysis of this information, in turn, facilitated the

interpretation of Ogilby's maps, thus demonstrating the extent to which analysis of one map can assist in the study of another map. Indeed, time and again the comparison of one map with another proved crucial to a proper understanding of each map as a source of topographical information.

It is evident that large scale manuscript maps are of relevance as aids to the assessment of the printed maps of Yorkshire only after printed maps with new content have been identified. Manuscript maps themselves pose problems of reliability but even so they serve two important functions in particular; the identification of obviously erroneous new content on contemporary or later printed maps in cases where the greater detail of the manuscript map and the replication of its features on the large scale 6" Ordnance Survey maps of the nineteenth century preclude the representation on the printed map; and the infilling of detail for specific localized areas, thereby emphasising the relative incompleteness of the printed map.

Unlike the printed map, however, the typical larger scale manuscript map covers only a very small area. Accordingly the manuscript map is not so much an alternative source as a complementary source. Especially useful are the early manuscript maps that evince continuity of features over the centuries until the publication of Ordnance Survey maps.

Finally, it should be emphasised that the present study makes an important contribution to our appreciation of the reliability or otherwise of the printed maps of the other counties of England and Wales over the same general period.

The great size of the county of York is perhaps the most obvious reason why the contribution made by the knowledge of Yorkshire cartography may be atypical. Even the smallest of the former ridings, the East Riding, was greater in area than several of the historic counties such as Surrey and Worcestershire. It is therefore possible that the county of

Yorkshire was surveyed in less detail than other counties. Again, reprints of maps were possibly revised much less frequently simply because of the sheer magnitude of the task. One response appears to have been that several Yorkshire surveys were limited to parts of the county as was the case with Bryant's East Riding map and Dickinson's map of South Yorkshire. One consequence is that subsequent whole county maps incorporating the results of such partial surveys will portray content of varying dates since other parts of the county were less recently surveyed.

The size of the county has further implications for the scale of the printed map. The map of the smallest historic county, Rutland, could be printed at a scale of 1 inch to the mile on one sheet of paper covering less than 2 feet square. To produce a 1 inch map of Yorkshire was an undertaking of a very different order, necessitating the printing of twenty sheets covering an area of some 10 feet by 8 feet.

These divergencies between Yorkshire and other counties notwithstanding, there are several pointers to suggest that there are also many similarities between the various English and Welsh counties. Consequently the methodological approach adopted for the maps of Yorkshire and particularly the classification devised, will make a substantial contribution to the assessment of the reliability of the printed maps of other counties.

At a general level this can be argued on the basis that by far the greater proportion of the printed maps of Yorkshire were published not as isolated maps but instead in works such as atlases and topographical books which included maps of all the counties. Thus they are predominantly 'publishers maps' rather than 'surveyors maps'. What is true of the nature of printed maps of Yorkshire published before the maps of the Ordnance Survey will, therefore, be true, by extension, of the other counties. The fact that a map of another county was produced by the same person as a map of Yorkshire is not conclusive evidence of a similar method

of compilation. Nevertheless, it is strong presumptive evidence that this is the case. In the same way it could be argued that similar problems of interpretation will apply in different counties.

In these respects, the concept of map content is of crucial significance, it is essential to determine the contemporaneity or otherwise of that content. Indeed, any assumption that the reliability of a printed county map can be assessed adequately simply by comparing the planimetric accuracy with the Ordnance Survey maps without first ensuring that the content is contemporary is likely to result in erroneous conclusions. Furthermore, it is apparent that it is not sufficient to describe a map as reliable without specifying precisely which features are reliable.

Here the exceptional size of the county of York may again be of significance. For instance both Warburton's map of Yorkshire and Jefferys' map of Yorkshire required the labours of three surveyors. The different standards of each surveyor and the problems posed thereby for the draughtsman, help to explain why there are significant variations in the degree of reliability with which features on the map, or areas covered, are portrayed. Such considerations need not necessarily apply to other counties where the work of survey was undertaken by a single surveyor. In fact, however, in a number of counties, several maps were the outcome of the work of more than one surveyor. If the greater size of Yorkshire exacerbates some problems of assessment it also helps to create an awareness of the potential complexity of the problems posed by assessment of any map.

Skelton's recommendation that growth curves be constructed to depict the progress of cartography, has been adopted in this thesis,¹ (Figures 1 and 2). Its adoption is likely to prove invaluable

1 Vide supra Chapter Four pp.50,54

when seeking to assess the significance of the new content on a printed county map of other counties. Again, with counties other than Yorkshire it is to be expected that application of the classification devised for the printed maps of Yorkshire will produce a not dissimilar percentage of genuine source maps distributed in the same general chronological pattern.

Harley has stressed the need for more detailed investigations of the processes of map making.¹ The foregoing assessment of the printed maps of Yorkshire provides a specific response to his plea. It has confirmed the validity of his plea but, in so doing, this same assessment has illustrated the complexity of the issues involved. In other counties, as in Yorkshire, such a task will certainly involve the assessment of the relationship of each map to all earlier printed maps of the same county.

Perhaps the most important conclusion to be derived from this investigation of the maps of Yorkshire is that there is absolutely no short cut to the assessment of any one printed county map of any county. Without an investigation of all the printed maps of a county, along the lines undertaken here, it is clear that the evidence of any one map is open to serious misinterpretation.

There is an ever present temptation to avoid the almost sisyphian task of rigorously comparing and analysing every printed map of a county. Nevertheless, before the coming of state cartography, there is no valid alternative if printed maps are to be used with confidence as sources of topographical information. The need for such a total approach to the assessment of the reliability of printed county maps can be summed up in the words of Pope:

"A little Learning is a dang'rous Thing;
 Drink deep, or taste not the Pierian Spring:
 There shallow Draughts intoxicate the Brain,
 and drinking largely sobers us again."²

1 Vide supra Chapter One p.24

2 An Essay on Criticism, lines 215-218

APPENDICES

APPENDIX 1LIST OF ALL PRINTED MAPS OF YORKSHIRE CONSIDERED IN THIS THESIS: 1577-1857

The numbering of all the maps in this appendix is based on the entry numbers in Whitaker's catalogue.¹ The entry number, if any, of preceding and subsequent printings of each map, however, have been included to facilitate further comparison and use of the maps. All entries with the suffix 'A', except 320A and 364A, are additional to Whitaker's 1933 catalogue. Most of these are, in fact, listed in the Whitaker Collection Catalogue.²

The cartographer, engraver or map publisher's name, the area and the scale are given only for the first editions and for the maps classified as useful sources of topographical information.

The area abbreviation "Y+" denotes a map depicting an area greater than that of the county itself.

The scales were measured from the maps themselves before the statute mile became the norm (about 1720 for Yorkshire maps). At scales between 10 and 20 miles to the inch the scale has been given to the nearest mile; over 20 miles to the inch the scale has been given to the nearest 5 miles.

To avoid unnecessary confusion the reprints of Ogilby's maps and the other Road Books discussed are not listed. (Whitaker (1933) does not list Road Books.)

1 Whitaker (1933)

2 Whitaker (1947)

Catalogue Number. Preceding and subsequent entries	Date	Cartographer	Area	Scale Miles/inch	Useful Maps Classification
-/1/77	1577	Saxton	Y	4½	Basic
-/2/	1590	W.B.	Y	55	
-/3/4	1595	Mercator	Y+	14	
3/4/6	1595				
-/5/29	1599	Keer	Y		
4/6/7	1602				
6/7/8	1606				
7/8/11	1607				
-/9/12	1607	Mercator & Hondius	Y+	55	
-/10/19	1607	Hole	W/R	6½	
			E/R	6½	
			N/R	6½	
8/11/14	1608				
9/12/15	1608				
-/13/20	1608	Speed	W/R	5½	Significant Derived
			N & E/R	5½	"
11/14/21	1609				
12/15/16	1609				
15/16/17	1609				
16/17/18	1610				
17/18/24	1610				
10/19/69	1610				
-/20/26 } 13/20/26 }	1610	Speed	Y	6½	Significant Derived
14/21/22	1611				
21/22/23	1613				
22/23/25	1613				
18/24/33	1613				
23/25/30	1616				
20/26/27	1616				
26/27/28	1616				
27/28/35A	1616				

Cont'd ...

Catalogue Number. Preceding and subsequent entries	Date	Cartographer	Area	Scale Miles/inch	Useful Maps Classification
5/29/32	1617				
25/30/31	1619				
30/31/36	1619				
29/32/39	1620				
24/33/34	1621				
33/34/61	1621				
-/35/	1622	Drayton	Y	-	
28/35A/40	1623				
31/36/38	1623				
-/37/	1626	Bill	Y	14	
36/38/41	1627				
32/39/48	1627				
35A/40/53	1627				
38/41/42	1628				
41/42/46	1628				
-/43/44	1628	Mercator & Hondius	Y+	30	
43/44/45	1628				
44/45/49	1629				
42/46/47	1630				
46/47/52	1630				
39/48/85	1630				
45/49/50	1630				
49/50/54	1630				
-/51/55	1630	Mercator	Y+	25	
47/52/56	1631				
40/53/86	1631				
50/54/59	1631				
51/55/65	1632				
52/56/57	1633				
56/57/58	1633				
57/58/60	1634				
54/59/64	1634				
58/60/63	1635				
34/61/68	1635				

Cont'd ...

Catalogue Number. Preceding and subsequent entries	Date	Cartographer	Area	Scale Miles/inch	Useful Maps Classification
-/62/66	1635	Langeren	Y	55	
60/63/71	1636				
59/64/100	1636				
55/65/119	1636				
62/66/80	1636				
-/67/70	1636	Jansson	Y	6½	
61/68/	1637				
19/69/	1637				
67/70/72	1637				
63/71/74	1638				
70/72/73	1638				
72/73/79	1638				
71/74/75	1639				
74/75/78	1639				
-/76/	1639	Mercator & Blaeu	Y+	65	
1/77/138	1642				
75/78/	1642				
73/79/89	1642				
66/80/	1643				
-/81/104	1643	Langeren & Jenner	Y	25	
-/82/116	1644	Quartermaster	Y+	8	
-/83/84	1645	Blaeu	Y	6½	
			W/R	5½	
			E/R	3½	
			N/R	4½	
83/84/87	1645				
48/85/106	1646				
53/86/107	1646				
84/87/88	1646				
87/88/91	1646				
-/89/90	1646	Jansson	W/R	5½	
			E/R	3½	
			N/R	4½	
79/89/90	1646				

Cont'd ...

Catalogue Number. Preceding and subsequent entries	Date	Cartographer	Area	Scale Miles/inch	Useful Maps Classification
89/90/91A	1646				
88/91/94	1647				
90/91A/92	1647				
91A/92/93	1647				
92/93/99	1647				
91/94/95	1648				
94/95/96	1648				
95/96/97	1648				
96/97/98	1648				
97/98/109	1648				
93/99/102	1649				
64/100/ -/101/173	1651 1651	Jansson & Keer	Y	16	
99/102/103	1652				
102/103/105	1652				
81/104/108	1657				
103/105/135	1659				
85/106/113	1662				
86/107/118	1662				
104/108/115	1662				
98/109/110	1662				
109/110/111	1662				
110/111/112	1663				
111/112/114	1664				
106/113/121	1666				
112/114/117	1667				
108/115/124	1668				
82/116/128A	1671	(Quartermaster)	(Y+)	(8)	Significant Reprint
114/117/154	1672				
107/118/122	1673				
65/119/ -/120/	1673 1673	Blome	Y W/R E/R N/R	8½ 7½ 6½ 5½	

Cont'd ...

Catalogue Number. Preceding and subsequent entries	Date	Cartographer	Area	Scale Miles/inch	Useful Maps Classification
-/120A/	1675	Ogilby	Strip maps	1	Basic
113/121/	1676				
118/122/123	1676				
122/123/131	1676				
115/124/129	1676				
-/125/126	1676	Morden	Y	55	
125/126/128	1676				
-/127/130	1676	Redmayne	Y	55	
126/128/133	1676				
116/128A/137	1676	(Quartermaster)	(Y+)	(8)	Significant Reprint
124/129/132	1677				
127/130/	1677				
123/131/141	1680				
129/132/	1680				
128/133/201	1680				
-/134/136	1681	Blome	Y	13	
105/135/150	1683				
134/136/156	1685				
128A/137/206	1688				
/137A/	1687	(Saxton)	(Y+)	(8)	Significant Reprint
77/138/138A	1689				
138/138A/160	1693	(Saxton)	(Y)	(4 $\frac{1}{2}$)	Significant Reprint
-/139/157	1695	Morden	W/R	5	Significant Derived
			E/R	3 $\frac{1}{2}$	"
			N/R	5 $\frac{1}{2}$	"
-/140/142	1694	Seller	Y	20	
131/141/149	1696				
140/142/144	1696				
(143 now 138A)					
142/144/146	1701				
-/145/147	1701	Morden	W/R	12	
			N & E/R	15	
144/146/251	1703				

Cont'd ...

Catalogue Number. Preceding and subsequent entries	Date	Cartographer	Area	Scale Miles/ Inch	Useful Maps Classification
145/147/148	1704				
147/148/175	1708	(Morden)	(W/R; N & E/R)	(12:15)	Significant Reprint
141/149/152	1710				
135/150/153	1710				
-/151/152A	1711	Nicholls	Y	6½	
-/151A/	1712	Nicholls	'20 miles round Leeds'	4½	Significant Derived
149/152/186	1713				
151/152A/238	1714				
150/153/155	1714				
114/154/	1715		(Y. only)		
153/155/166	1715				
136/156/158	1715				
139/157/164	1715				
156/158/159	1716				
158/159/178	1716				
138A/160/196A	1720				
-/161/163	1720	Bowen	W/R	25	
			N & E/R	25	
-/162/-	1720	Warburton	Y	2½	Basic
161/163/165	1721				
157/164/207	1722				
163/165/167	1723				
155/166/	1724		(Y. only)		
165/167/174	1724				
-/168/169	1724	Moll	Y	12	Significant Derived
			W/R	11	"
			E/R	5½	"
			N/R	7½	"
168/169/171	1724				
-/170/	1726	Palmer	(40 miles round York)	16	
169/171/182	1728				
-/172/	1728	Overton	Y	4	
101/173/	1729				
167/174/176	1730				

Cont'd ...

Catalogue Number. Preceding and subsequent entries	Date	Cartographer	Area	Scale Miles/ Inch	Useful Maps Classification
148/175/181	1731				
174/176/177	1731				
176/177/179	1734				
159/178/	1735				
177/179/197	1736				
-/180/190	1736	Drake	Y	6½	
175/181/	1738				
171/182/195	1739				
-/183/184	1741	Badeslade	Y	25	
183/184/185	1742				
184/185/187	1742				
152/186/238	1743				
185/187/188	1743				
187/188/191	1744				
-/189/192	1744	Cowley	Y	17	
180/190/	1745				
188/191/194A	1745				
189/192/	1745				
-/193/	1746	Simpson	W/R	12	
			E/R	7	
			N/R	10	
-/194/210	1746	Rocque	W/R	12	
			E/R	11	
			N/R	10	
191/194A/	1747				
182/195/209	1747				
-/196/202	1748	Osborne	Y	14	
			W/R	14	
			E/R	13	
			N/R	13	
160/196A/	1749				
179/197/204	1749				
-/198/199	1749	Kitchin	W/R	10	
			E/R	7	
			N/R	12	
198/199/	1749				

Cont'd ...

Catalogue Number. Preceding and subsequent entries	Date	Cartographer	Area	Scale Miles/ Inch	Useful Maps Classification
-/200/205	1749	Kitchin & Jefferys	Y	25	
			W/R	16	
			E/R	14	
			N/R	19	
133/201/ 196/202/ -/203/211	1750 1750 1750	Bowen	Y	5	Significant Derived
			W/R	4	"
			E/R	3	"
			N/R	4	"
-/203A/- 197/204/208 200/205/245 137/206/ 164/207/241 204/208/214 195/209/ 194/210/217 203/211/216	1750 1751 1751 1752 1753 1753 1753 1753 1753	Dickinson	South Yorkshire	1	Basic
-/212/236	1753	Kitchin	Y	17	
-/213/283	1754	Bickham			
208/214/222	1759				
-/215/239	1759	Gibson	Y	50	
211/216/220	1760				
210/217/223	1762				
-/218/248	1762	Bowen & Kitchin	Y	6	
			W/R	5½	
			E/R	3	
			N/R	5	
-/219/ 216/220/225	1762 1763	Bowen	Y	8½	
-/221/ 214/222/	1763 1764	Seale	W/R	10	
			E/R	7	
			N/R	7½	

Cont'd ...

Catalogue Number. Preceding and subsequent entries	Date	Cartographer	Area	Scale Miles/ Inch	Useful Maps Classification
217/223/ -/224/231	1764 1764	Kitchin	Y	13	Significant Derived
			W/R	10	"
			E/R	6½	"
			N/R	8½	"
220/225/229 -/226/227	1765 1766	Ellis	Y	14	
			W/R	10	
			E/R	6½	
			N/R	9	
226/227/228 227/228/232 225/229/247 -/230/250	1766 1766 1767 1767	E & T Bowen	Y	12	
			W/R	9	
			E/R	6	
			N/R	8	
224/231/ 228/232/233 232/233/234 233/234/243 -/235/ 212/236/ -/237/259	1768 1768 1768 1768 1768 1769 1767	Gibson	Y	18	
		Kitchin	W/R	7	
			E/R	7½	
			N/R	7	
152A/238/ 186/238/ 215/239/252 -/240/242 207/241/ 240/242/246	1770 1770 1771½ 1772 1772½	Jefferys (Jefferys)	Y	1	Basic
			(Y)	(1)	Significant Reprint
234/243/249 -/244/	1773 1773	Backhouse	Y+		Significant Derived

Cont'd ...

Catalogue Number. Preceding and subsequent entries	Date	Cartographer	Area	Scale Miles/ Inch	Useful Maps Classification
205/245/256	1775				
242/246/286	1775				
229/247/253	1777				
218/248/254	1777				
243/249/	1777				
230/250/258	1777				
146/251/	1777				
239/252/	1779				
247/253/257	1780				
248/254/275	1780				
-/255/260	1784	Conder	Y	14	
245/256/261	1785				
253/257/262	1785				
250/258/	1785				
237/259/	1785				
255/260/276	1786				
256/261/	1787				
257/262/274	1787				
-/263/273	1787	Cary	Y	11	Significant Derived
			W/R	6	"
			E/R	6½	"
			N/R	9	"
-/264/280A	1787	Tuke	Y	2	Significant Derived
-/264A/	1786	Tuke	Holderness		Basic
-/265/283A	1788	Cadell	Y	-	
-/266/298	1789	Cary	W/R	2½	Significant Derived
			E/R	3	"
			N/R	3½	"
-/267/271	1789	Cary	Y	7½	Significant Derived
-/268/281	1790	Aikin	Y	-	
-/269/282	1790	Lodge	Y	11	
-/270/272	1791	Harrison	Y	8	
267/271/301	1791	(Cary)	(Y)	(7½)	Significant Reprint
270/272/	1792				

Cont'd ...

Catalogue Number. Preceding and subsequent entries	Date	Cartographer	Area	Scale Miles/ Inch	Useful Maps Classification
263/273/295	1793	(Cary)	(Y;W/R;E/R;N/R)	(11:6:6½:9)	Significant Reprint
262/274	1794				
254/275/	1794				
260/276/284A	1794				
-/277/285	1794	Rennie	W/R	-	
-/278/322	1794	Neele	E/R	7½	
-/279/288	1794	Tuke	N/R	-	
-/280/	1794	Aikin	W/R	10	
264/280A/329	1794	(Tuke)	(Y)	(2)	Significant Reprint
268/281/287	1795				
269/282/	1795				
213/283/	1796				
265/283A/	1796				
-/284/304	1796	Baker	W/R	7	
			E/R	7½	
			N/R	10	
276/284A/	1798				
277/285/	1799				
246/286/	1800	(Jefferys)	(Y)	(1)	Significant Reprint
281/287/290	1800				
279/288/	1800				
-/289/296	1801	Smith	Y	2½	Significant Derived
287/290/313	1803				
-/291/297	1803	Butters	Y	25	
-/292/293	1803	Luffman	W/R	65	
			E/R	65	
			N/R	65	
292/293/303	1803				
-/294/330	1803	Cooke	Y	25	
			W/R	20	
			E/R	20	
			N/R	14	
273/295/311	1804				
289/296/296A	1804				

Cont'd ...

Catalogue Number. Preceding and subsequent entries	Date	Cartographer	Area	Scale Miles/ Inch	Useful Maps Classification
296/296A/307	1804				
291/297/	1804				
266/298/300	1805				
-/299/	1805	Luffman?			
298/300/	1806				
271/301/302	1806	(Cary)	(Y)	(7½)	Significant Reprint
301/302/312	1806	"	"	"	Significant Reprint
293/303/	1806				
284/304/	1806				
-/305/	1806	Laurie	Y	14	
-/306/314	1806	Laurie & Whittle	Y	5	Significant Derived
296A/307/337	1808	(Smith)	(Y)	(2½)	Significant Reprint
-/308/319	1808	Cary	Y	2½	Significant Derived
-/309/326	1808	Cooper	Y	14	
-/310/328	1808/9	Cole	Y	6½	
295/311/320	1809	(Cary)	(Y:W/R:E/R:N/R)	(11:6:6½:9)	Significant Reprint
302/312/315	1809	(Cary)	(Y)	(7½)	Significant Reprint
290/313/	1809				
306/314/334	1809				
312/315/321	1810				
-/316/348	1810	Miller	Y	35	
-/317/385	1810	Rowe	Y	3½	
-/318/327A	1810	Wallis	Y	10	
308/319/338	1811				
311/320/336	1812	(Cary)	(Y:W/R:E/R:N/R)	(11:6:6½:9)	Significant Reprint
273/320A/	1812				
315/321/327	1812				
278/322/	1812				
-/323/342	1812	Neele	W/R	10	
			N/R	9	
-/324/325	1812	Wallis	N/W	6½	
			S/W	6½	
			S/E	6½	

Cont'd ...

Catalogue Number. Preceding and subsequent entries	Date	Cartographer	Area	Scale Miles/ Inch	Useful Maps Classification
324/325/345	1812				
309/326/369	1813				
321/327/333	1814	(Cary)	(Y)	(7½)	Significant Reprint
318/327A/344	1814				
310/328/331	1815				
280A/329/	1816	(Tuke)	(Y)	(2)	Significant Reprint
294/330/339	1816				
328/331/340	1816				
-/332/	1816	Faden	Y	2	
327/333/343	1817	(Cary)	(Y)	(7½)	Significant Reprint
314/334/376A	1817				
-/335/381	1817/18	Greenwood	Y	12/5	Basic
320/336/354	1818	(Cary)	(Y;W/R;E/R;N/R)	(11:6:6½:9)	Significant Reprint
307/337/356	1818				
319/338/357	1818	(Cary)	(Y)	(2½)	Significant Reprint
330/339/368	1818				
331/340/347	1818				
-/341/349	1818	Langley	Y	12	
-/342/346	1818	Neele	E/R	6½	
323/342/346	1818				
333/343/355	1819	(Cary)	(Y)	(7½)	Significant Reprint
327A/344/344A	1819				
344/344A/422	1819				
325/345/	1819				
342/346/389	1819				
340/347/438	1820				
316/348/372	1820				
341/349/	1820				
-/350/423	1820	Dix	Y	5	
-/351/	1820	Hodgson	Y	40	
-/352/373	1820	Hall	W/R	20	
			E/R	15	
			N/R	18	
-/353/	1820	Wallis	Y	35	

Cont'd ...

Catalogue Number. Preceding and subsequent entries	Date	Cartographer	Area	Scale Miles/ Inch	Useful Maps Classification
336/354/365	1821				
343/355/359	1821				
337/356/378	1821				
338/357/379	1821				
-/358/360	1821	Neele	Y	11	
355/359/367	1822	(Cary)	(Y)	(7½)	Significant Reprint
358/360/366	1822				
-/361/400	1822	Smith	Y	5½	
-/362/	1822	A. Smith & Fowler	W/R N & E/R	5 5½	
-/363/364	1822	Langdale	Y	8½	
367/364/314A	1822				
364/364A/	1822				
354/365/377	1823				
360/366/	1823				
-/366A/	1824- 44	Ordnance Survey	South of 'Hull- Preston'	1	Basic
359/367/374	1824				
339/368/371	1824				
326/369/375	1824				
-/370/410	1824/8	Ebden	Y	6	
368/371/387	1825				
348/372/469	1825				
352/373/376	1825				
367/374/380	1826				
369/375/384	1826				
373/376/395	1826				
334/376A/407	1826				
365/377/392	1827				
356/378/450A	1827				
357/379/393	1827				
-/379A/	1828	Depping	Y	50	
374/380/	1828	(Cary)	(Y)	(7½)	Significant Reprint
335/381/	1828	(Greenwood/ Teesdale)	(Y)	(12/5)	Significant Reprint
-/382/	1828	Pass	Y	14	
-/383/396	1828/9	Pigot	Y	8½	

Cont'd ...

Catalogue Number. Preceding and subsequent entries	Date	Cartographer	Area	Scale Miles/ Inch	Useful Maps Classification
375/384/	1829				
317/385/388	1829				
-/386/	1829	Bryant	E/R	1	Basic
371/387/	1830				
385/388/394	1830				
346/389/	1830				
-/390/500	1830	Teesdale	W/R	14	
			E/R	14	
			N/R	14	
/391A/391	1830	Hoare	Y	6½	
391A/391/397	1830				
377/392/	1831	(Cary)	(Y;W/R;E/R;N/R)	(11:6:6½:9)	Significant Reprint
379/393/414	1831	(Cary)	(Y)	(2½)	Significant Reprint
388/394/399	1831				
376/395/409	1831				
383/396/401	1831				
391/397/402	1831				
-/398/411	1831	Creighton	Y	6½	
394/399/408	1832				
361/400/415	1832				
396/401/416	1832	(Pigot)	(Y)	(8½)	Significant Reprint
397/402/	1832				
-/403/517	1832	Cobbett	Y	-	
-/404/	1832	Dawson	Y	9	
-/405/	1832	Cary	Y	5½	
-/406/412	1832	Hall	Y	10	
376A/407/	1833				
399/408/421	1833				
395/409/424	1833				
370/410/436	1833				
398/411/426	1833				
406/412/417	1833				
-/413/	1833	Hall	Y	12	
393/414/	1834				
400/415/	1834	(Smith)	(Y)	(5½)	Significant Reprint

Cont'd ...

Catalogue Number. Preceding and subsequent entries	Date	Cartographer	Area	Scale Miles/ Inch	Useful Maps Classification	
401/416/425	1834	Kemp	W/R	16	(Significant Derived) Basic (Significant Derived)	
412/417/428A	1834		E/R	7½		
-/418/430	1834		N/R	9½		
-/419/	1834	Greenwood	W/R	3		
			E/R	3½		
			N/R	3		
-/420/	1834	Rodwell		-		
408/421/454	1835	Creighton				
344A/422/428	1835					
350/423/488	1835					
409/424/434	1835					
416/425/444	1835					
411/426/437A	1835					
-/427/449	1835		W/R	10		
		E/R	6½			
		N/R	9½			
422/428/	1836	Fowler			Significant Derived	
417/428A/429	1836					
428A/429/458	1836					
418/430/448	1836					
-/431/519	1836		Y	2		
-/432/437	1836	Moule	W/R	10	Cont'd ...	
			E/R	7½		
			N/R	9		
-/433/435	1836	Walker	W/R	6½		
			E/R	3½		
			N/R	6		
424/434/443	1837					
433/435/452	1837					
410/436/439	1837					
432/437/440	1837					
426/437A/447	1837					
347/438/	1838					
436/439/446	1838					

Cont'd ...

Catalogue Number. Preceding and subsequent entries	Date	Cartographer	Area	Scale Miles/ Inch	Useful Maps Classification
437/440/442A	1838				
-/441/511A	1838	Franks	W/R	5	Significant Derived
-/442/475A	1838	Tymms	W/R	-	
			E/R	-	
			N/R	-	
440/442A/459A	1839				
434/443/445	1839				
425/444/451	1839				
443/445/455	1840				
439/446/470	1840				
437A/447/457	1840				
430/448/463	1840				
427/449/	1840				
-/450/524	1840	Franks	N & E/R	5½	
378/450A/476	1841	(Smith)	(Y)	(2½)	Significant Reprint
444/451/456	1841				
435/452/459	1841				
-/453/	1841	Archer	Diocese of York	11	
421/454/487	1842				
445/455/	1842				
451/456/467	1842				
447/457/468	1842				
429/458/462	1842				
452/459/480	1842				
442A/459A/460	1842				
459A/460/492	1842				
-/461/	1842	Wyld ?			
458/462/472	1843				
448/463/479	1843				
-/464/493	1843	Dugdale	Y	7½	
-/465/466	1843	Hobson	Y	2	Significant Derived
465/466/473	1843				
456/467/477	1844				
457/468/471	1844				
372/469/	1845				

Cont'd ...

Catalogue Number. Preceding and subsequent entries	Date	Cartographer	Area	Scale Miles/ Inch	Useful Maps Classification			
446/470/ 468/471/490 462/472/478 466/473/483 -/474/	1845 1845 1845 1845 1845	Becker	W/R E/R N/R	8 $4\frac{1}{2}$ 7	Significant Derived			
-/475/	1845	Dower	Y+	9				
442/475A/ 450A/476/ 467/477/489 472/478/482 463/479/ 459/480/497 -/481/	1845 1846 1846 1846 1846 1846 1846	Newton	Y	4				
478/482/491 473/483/484 483/484/ -/485/	1847 1847 1847 1847							
-/486/(525) 454/487/498 423/488/ 477/489/496 471/490/ 482/491/523 460/492/502 464/493/ -/494/513A	1848/ 1848 1848 1848 1848 1848 1848 1848 1848					Johnson O. S. 6"	Y Y	12 1/6
-/495/	1848					Murray	W/R & Lancs. E/R W/R E/R N/R	10 $5\frac{1}{2}$
477/496/499 480/497/501 487/498/506 496/499/516	1849 1849 1850 1850							

Cont'd ...

Catalogue Number. Preceding and subsequent entries	Date	Cartographer	Area	Scale Miles/ Inch	Useful Maps Classification
390/500/507	1850				
497/501/508	1850				
492/502/509	1850				
-/503/	1850	Knox	Y	13	
-/504/	1850	Stevenson	Y	13	
-/505/	1850	Goodwill	Y	16	
498/506/514	1852				
500/507/	1852				
501/508/	1852				
502/509/	1852				
-/510/	1852	Bone	Y	12	
-/511/	1852	Collins	Y	-	
441/511A/	1853				
-/512/	1853	Phillips	Y	5	
-/513/520	1853	Monkhouse	Y	-	
			Y	-	
494/513A/	1854				
506/514/515	1854				
514/515/	1854		(N/R only)		
499/516/522	1854				
403/517/	1854				
-/518/	1854	Hutton	Y	-	
431/519/	1855				
513/520/	1856				
-/521/	1856	Sunter	Y	6	
516/522/	1857				
491/523/	1857				
450/524/	1857				
(486)/525/	1857	O. S. 6" Index Sheet	Y	4	

APPENDIX 2UNSEEN PRINTED MAPS OF YORKSHIRE, 1577-1857

This appendix includes works which have not been inspected for the present study and cannot be classified. Mostly these are works recorded by Whitaker¹ as being only possible or probable Yorkshire maps. The existence of such maps is indicated by extant maps of other counties by the same cartographer at the same date.

If the unseen map is a reprint and the state of the map both before and after it is identical then it can be assumed that the unseen map will also be identical. Thus, for instance, the possible reprint in 1728² of Moll's Yorkshire maps can be assumed to be the same as the first edition in 1724³ since the subsequent reprint in 1739⁴ is identical to that first edition. Such maps can be classified even though they have not been inspected.

As with any map all these unseen ones must be considered in relation to the preceding and subsequent basic maps. In this context the maps which have not been inspected between Greenwood's map of 1817/8 and the Ordnance Survey in 1857, if extant, would be at best of very limited value.

Only nineteen works or possible works have had to be listed as unseen and unclassifiable. None of these occurs in the first two periods, only two between 1720 and 1771/2, four between 1771/2 and 1817/18 and thirteen in the final period.

1 Whitaker (1933)
 2 (W.171)
 3 (W.168)
 4 (W.182)

A) Unseen Maps in Warburton's Period: 1720 to 1771

- i) 1738. (W.181) Reprints of Morden's maps of 1701 (W.145)

These maps are almost certainly the same as the 1731 reprint (W.175) which had added nothing of significance to the previous reprint of 1708 (W.148) which pre-dates Warburton's map.

- ii) 1745. (W.190) Reprint of Drake's map of Roman Roads in 1736 (W.180)

A possible reprint. Many of the roads on the 1736 maps were certainly unreliable.

B) Unseen Maps in Jefferys' Period: 1771/2 to 1817

- i) 1794. (W.274) Reprints of Bowen's map of 1750 (W.203)

The preceding reprint in 1787 (W.262) had not been updated even in the light of Jefferys' map of 1771/2. This reprint is therefore unlikely to be of much use.

- ii) 1805 (W.299) Luffman

A possible work. Luffman's other Yorkshire maps of 1803, 1805 and 1806 are circular and very small with a diameter of less than two inches.

- iii) 1810 (W.317) Rowe. First Edition. Yorks. 3.5 miles to the inch

The 1829 reprint of this map was updated. Since that map (W.385) is very detailed it would be interesting to compare it with this first edition.

iv) 1812 (W.323) Neele. First edition

There is some doubt about the origins of these maps.¹ The reprint in 1818 (W.342) is definitely not a reliable work. Thus there is little reason to expect the 1812 maps to be of any use as sources.

C) Unseen Maps in Greenwood's Period: 1817/18 to 1857

i) 1821 (W.356): ii) 1827 (W.378): iii) 1846 (W.476) Reprints of Smith's map of 1801 (W.289)

These three reprints of Smith's map are not likely to be of significance because the first edition pre-dates Greenwood's map by nearly twenty years.

iv) 1822 (W.363) Langdale. First Edition. Yorks. 8.5 miles to the inch

This newly derived map replaced Cary's map in the Topographical Dictionary. For that reason it would be worth inspecting. Its value, however, will be limited by comparison with Greenwood's 1817/8 map.

v) 1824-8 (W.370) Ebdon. First Edition. Yorks. 6 miles to the inch

From the evidence of the 1833 reprint (W.410) it is clear that the topographical information will be limited. Apparently only the Parliamentary information was altered in 1833 as a response to the 1832 Reform Bill.²

vi) 1830 (W.387) Reprint of Cooke's map of 1803 (W.294)

If extant this work will be of no use. The maps of the first edition range in scale from 14 to 24.5 miles to the inch.

1 Whitaker (1933) pp.114 and 121

2 *ibid*, p.140

vii) 1835 (W.425) Reprint of Pigot & Son's map of 1828/9 (W.383)

This map can be rejected as a source because the subsequent reprint in 1839 (W.444) has only railway line differences with respect to the 1834 reprint (W.416). These are unreliable. The map cannot be classified because it is not known whether these cartographic changes were made in 1839 or on the unseen map of 1835.

viii) 1840 (W.448): ix) 1846 (W.479) Reprints of Kemp's maps of 1834 (W.418)

An intermediate reprint in 1843 (W.463) shows only railway changes. Hence the 1840 maps can be rejected but not classified. The 1846 maps are also unlikely to be of topographical significance. The 1846 maps should possibly be dated 1845 as in the Whitaker Collection.¹ If so, then they can be definitely rejected.

x) 1842 (W.459): xi) 1846 (W.480) Reprints of Walker's maps of 1836 (W.433)

These can be rejected because the next reprint in 1849 (W.497) only records rail additions to the content of the first edition. However, these maps cannot be precisely classified because it is not clear on which map or maps the alterations were first made.

xii) 1842 (W.461) Wyld

Whitaker² has compared the maps of the other counties by Wyld to Cary's maps which were first published in 1787 (W.263). If Wyld did produce a map of Yorkshire it is highly probable that it would be of no use at all.

xiii) 1853 (W.517) Reprint of Cobbett's map of 1832 (W.403)

The first edition was described succinctly by Whitaker³ as "A crude and distorted outline map ..." This reprint can be confidently rejected as a source.

1 (W.C.C.190)

2 Whitaker (1933) p.155

3 *ibid*, p.138

APPENDIX 3WARBURTON'S COLLECTION WITHIN THE LANSDOWNE COLLECTION

Thirty-one manuscripts in the Lansdowne Collection contain material relating to Warburton. Four of these, MSS. 886, 887, 888 and 918 are concerned with his collections for Sussex and Bedfordshire and are relevant only in that, like the Yorkshire collections, they include the printed maps of Speed, Blome, Morden and the strip maps of Ogilby.

Of the twenty-seven manuscripts on Yorkshire four only contain definite survey materials and can be called Survey Books or Field Books; these are MSS. 895, 911, 912 and 913.

The order of the Warburton materials in the Lansdowne Collection is both confusing and confused with survey and possible survey materials interspersed with Warburton's later collections for a proposed history of Yorkshire. MS. 1219 includes his own very inadequate catalogue of these which are basically MSS. 889-899 excluding 895. MS. 889 includes the printed Yorkshire maps of Saxton, Speed, Blome, Morden and Overton. MS. 898 contains another printed map, Nicholls' map of 20 miles round Leeds and MS. 897 includes the most interesting 1639 manuscript map on vellum of Hatfield Chase by Josias Acerlebout.

It is reasonable to assume that all these Yorkshire maps would have been studied by Warburton. However, apart from their presence in the collection, definite evidence that Warburton did use these specific maps is limited to a manuscript correction to one of Ogilby's maps, and occasional memoranda such as concerning "Ye Old Maps" ... "Lonsbrough 3 miles to much East" (MS. 911; f.311).

Some of the manuscripts after number 899 also contain information possibly used for the survey and map such as a list of places in the North

and East Ridings (MS. 915), an essay on Roman Roads (MS. 903) and heraldic notes (MSS. 901, 919).

Insight into the commercial aspect of the venture is provided in MS. 916 which includes a detailed list of the subscribers with the amounts paid and owing. For instance, a Mr. Hilyard was responsible for the sale of 116 maps and had delivered 72 for which he had received first payments (MS. 916; f.1, ff.61-4). A letter from Hilyard shows that he had problems selling all the maps (MS. 1219; f.102). The cost of the maps was £1.2.6 with a first payment of 11/3 (MS. 916; f.1).

Manuscript 914 is an impressive volume of Buck's Yorkshire Prospects made at the same time as Warburton's survey. This includes detailed views of many Yorkshire towns and Seats. Recently this volume has been reproduced in facsimile.¹

MS. 895

This volume contains material dated before, during and after the survey in both printed and manuscript form. The most important folios are folio 126 Warburton's Proposal; f.228 et seq., the Yorkshire sheets of Ogilby's Road Book; f. 237 et seq., rather poor manuscript surveys of the rivers Ouse, Aire and Calder; ff.138-150 "Mr. Brown's Survey Book" giving many protracted roads at a scale of one inch to the mile; ff.154 et seq., many more road surveys interspersed beyond f.200 with calculations for the construction of the map.

MS. 911

This is the largest manuscript and is in four volumes. The most important section in the fourth volume consists of Warburton's Journal. The manuscript begins, however, with Warburton's own book list revealing possible sources for his methods, for instance Love's 'Geodesia'² and

1 Buck (1979)

2 see Richeson (1966) p.126-9. Love's Geodaesia was published in 1688.

Laurence's Survey Guide.¹ Speed, Ogilby, Morden and other cartographers are also listed. Folio 86 lists Ogilby's market towns and f.307 notes some errors on early maps. This volume has many memoranda on Roman Roads and other topics including one recording Warburton taking up residence in Bedale, in the North Riding, on 3rd November 1717 for a rent of £12 p.a. (f.166). The next page is a list of "Directions to Mr. Colley about views" commencing on the 4th of November from Bedale to Thirsk and then via Pickering, Whitby, Guisborough, Northallerton and on the 14th, back to Bedale. Like Brown (MS. 895), Mr. Colley's name occurs only once. It is presumed that Mr. Colley's purpose was to select suitable points from which the surveyors could take bearings.² A list of such station sites however, is not directly related to the actual survey routes and must have been provisional plans (f.289). Two other surveyors, Bland and Smith are named both here and several other times in MSS. 912 and 913.

Other practical aspects of making the map recorded in this manuscript include a list of items to be purchased "for the Yorkshire map" (f.166) such as one large thin folio for plotting the roads and a tin box for maps. Evidence that Warburton sought information from Ralph Thoresby is contained in notes concerning bridges and local family pedigrees (ff.81 and 121). A final example, also from f.121, is a list of phrases of use in discussing works of art; possibly evidence of Warburton's efforts to impress the gentry in order to secure subscriptions.

MS. 912

This and the following volume contain actual field notes. MS. 912 includes instructions to both Smith and Bland and the text of the roads measured by them, the text of observations taken from the observation stations and an extensive treatise on surveying.

It is clear that this volume contains several field books bound

1 see Richeson (1966) p.150. Lawrence's Guide was published in 1716.

2 Alternatively Colley may be connected with Buck's Prospects (MS.914)

together; separate field books commence at ff.127, 219, 241, 317 etc. and as the following will illustrate, they are not in either chronological or logical order.

The text for Bland's survey from Bedale to Leeds is found in ff.2-34 and from Leeds to Barnsley in ff.175-207. Between these is the complete text for Brown's roads (ff.40-71). The complete text for Smith's surveys from Bedale to Harewood are found in ff.317-353 and from Harewood to Leeds in ff.74-110. This volume also contains the text of all the bearings and observations taken from the Observation Stations and these are also mixed. Stations 1-54 from f.241: stations 55-81 in ff.127-159: stations 82-103 from f.211 and finally stations 104-118 from f.105.

MS. 913

This volume contains the full text for Smith's surveys from Leeds to Northallerton (ff.4-125) and then on to York (ff.290-301); also for Bland's survey from Barnsley to Skipton (from f.129 and then to Bedale (from f.243). Affixed to the first page of this volume are two receipts. One is for the cost of a guide used by Smith for the long survey from Leeds to York via Easingwold, Scarborough etc: the other is for Smith's wages received the very day after he finished his survey, on July 28th, 1718 (£3.16.7, signed P. Smith).

APPENDIX 4

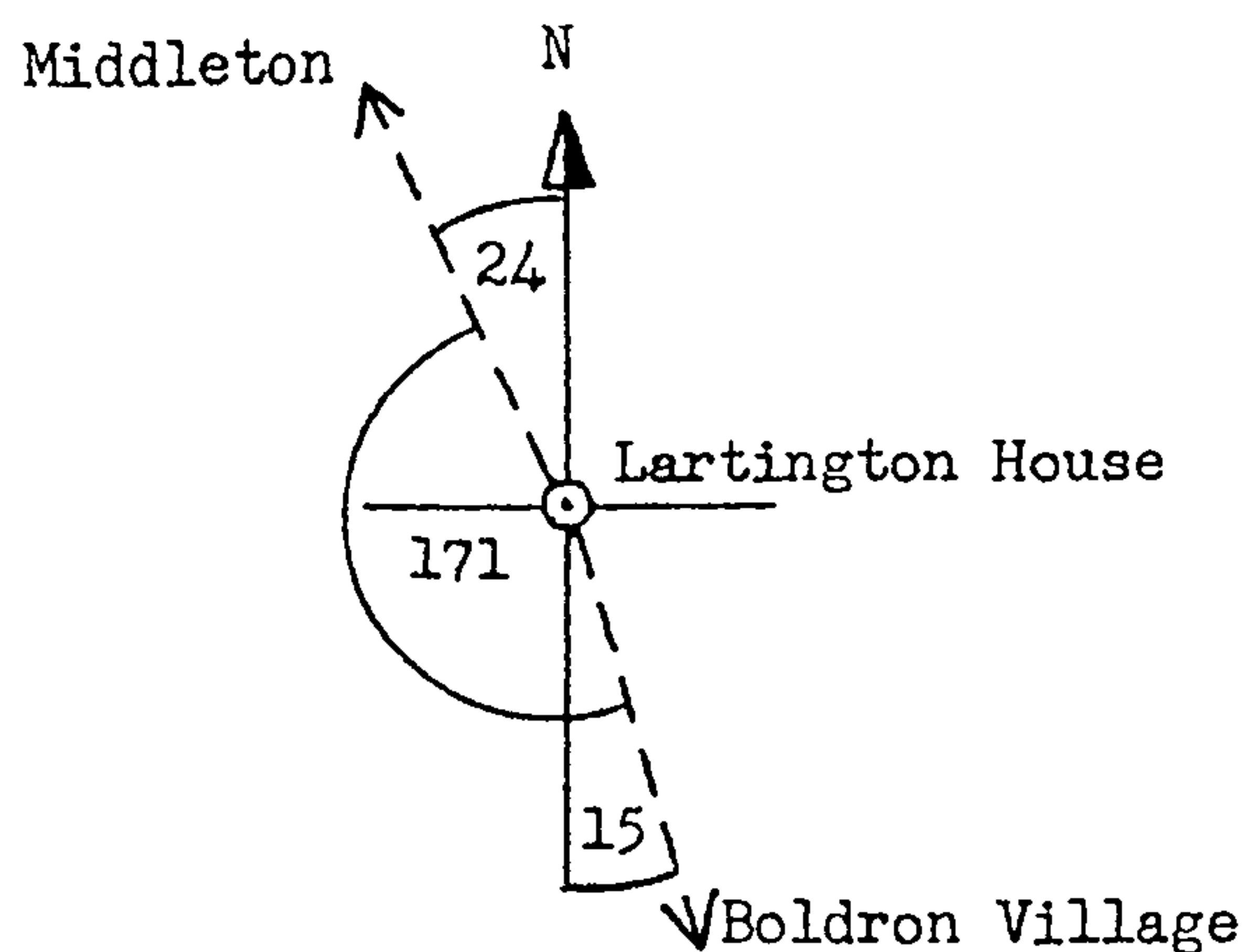
PLACES USED FOR TESTING THE RELATIVE LOCATIONAL ACCURACY OF THE SETTLEMENT
ON THE PRINTED MAPS OF SAXTON AND WARBURTON AND ALSO WARBURTON'S FIELD NOTES

Angle Number	Apex of each Triangle: Observation Station and Number	Places to which bearings were taken in Field Book
1	Lartington House 14	Boldron Village Middleton
2	" " "	" " Romaldkirk
3	Melsonby Church 19	Cleasby Eppleby
4	" " "	" " Piercebridge
5	" " "	" " Manfield Church
6	Egglescliffe Church 21	Kirklevington Chapel Preston
7	" " "	" " Maltby Village
8	Sheriff Hutton Castle 106	Flaxton Town Sutton-on-the-Forest Church
9	" " " "	" " Whenby Town
10	" " " "	" " Terrington Town
11	Crayke Church 107	Stillington Church Farlington Town
12	" " "	" " Sheriff Hutton Castle
13	" " "	" " Yearsley Town
14	" " "	" " Oulston Town
15	Thirsk Church 109	Topcliffe Church Pickhill Town and Church
16	" " "	" " Knayton Town
17	" " "	" " Felixkirk Church

Example of calculation from Warburton's field notes:

Boldron Village: SE15 from Lartington House
Middleton: NW24 " " "

∴ Relative angle based on Lartington House is 171 degrees.



APPENDIX 5BROWN, BLAND AND SMITH'S SURVEY DATES, 1718-1719a) BROWN (Lansdowne MS.912; ff.40-71)

Commenced Bedale to Thirsk 17 November 1718
 Surveyed York to Easingwold 22 December 1718
 Only these two dates are recorded in the Field Book.

b) BLAND (Lansdowne MSS.)

(i) 912; ff.2-34

Commenced Bedale to Richmond	10 April 1719 (Friday)
Richmond - Northallerton	11 " "
Northallerton - Yarm	13 " "
Yarm - Guisborough	14 " "
Guisborough - Whitby	15 " "
Whitby - Egton	16 " "
Egton - Kirkbymoorside	17 " "
Kirkbymoorside - Malton	18 " "
Malton - Helmsley	20 " "
Helmsley - Stokesley	21 " "

(ii) 912; ff.175-207

Stokesley - Thirsk	23 " "
Thirsk - Ripon	24 " "
Ripon - Ripley	27 " "
Ripley - Knaresborough	28 " "
Knaresborough - Otley	28 " "
Otley - Leeds	29 " "
Leeds - Pontefract	7 May 1719
Pontefract - Snaith	8 " "
Snaith - Thorne	9 " "
Thorne - Doncaster	9 " "
Doncaster - Barnsley	11 " "

(iii) 913; ff.128-289 interspersed with other materials

Barnsley - Wakefield	12 May 1719
Wakefield - Pontefract	14 " "
Pontefract - Selby	14 " "
Selby - Howden	16 " "
Howden - Hull	19 " "
Hull - Hedon	19 " "
Hedon - Beverley	20 " "
Beverley - Market Weighton	21 " "
Market Weighton - Kilham	23 " "
Kilham - Bridlington	23 " "
* Kilham - York	23-25 May 1719
York - Selby	28 " "
Selby - Aberford	29 " "
Aberford - Leeds	29 " "
Leeds - Bingley	1 July 1719 **
Bingley - Keighley	2 " "
Keighley - Skipton	3 " "
Skipton - Pateley Bridge	4 " "
Pateley Bridge - Ripon	6 " "
Ripon - Masham	7 " "
Masham - Middleham	8 " "
Middleham - Askrigg	9 " "
Askrigg - Leyburn	10 " "
Leyburn - Bedale	11 " " (Saturday)

* Bland returned from Bridlington to Kilham to recommence surveying. Note also the dates appear to be unlikely from Market Weighton to the start of the York road (in one day).

** Both Bland and Smith spent the month of June in Leeds.

c) SMITH (Lansdowne MSS.)

(i) 912; ff.317-353

Commenced Bedale to Leyburn	10 April 1719 (Friday)
Leyburn - Reeth	11 " "
Reeth - Askrigg	11 " "
Askrigg - Sedbergh	13 " "
Sedbergh - Dent	14 " "
Dent - Ingleton	15 " "
Ingleton - Settle	15 " "
Settle - Skipton	16 " "
Skipton - Otley	No date
Otley - Harewood	" "

(ii) 912; ff.74-110

Harewood - Wetherby	No date
Wetherby - Tadcaster	20 April 1719
Tadcaster - Cawood	20 " "
Cawood - Snaith	22 " "
Snaith - Thorne	23 " "
Thorne - Doncaster	24 " "
Doncaster - Wakefield	25 " "
Wakefield - Leeds	27 " "

(iii) 913; ff.4-125

Leeds - Bradford	7 May 1719
Bradford - Halifax	8 " "
Halifax - Wakefield	9 " "
Wakefield - Almondbury	11 " "
Almondbury - Penistone	12 " "
Penistone - Barnsley	13 " "
Barnsley - Sheffield	14 " "
Sheffield - Rotherham	15 " "
Rotherham - Tickhill	16 " "
Tickhill - Doncaster	16 " "
Doncaster - Rotherham	18 " "
Rotherham - Pontefract	19 " "
(to Leeds not surveyed. Already done by Bland 7 May 1719)	
Leeds - Wetherby	8 July 1719

Wetherby - Easingwold	9 July 1719		
Easingwold - Malton	10 " "		
Malton - Bridlington	13-14 July 1719		
Bridlington - Scarborough	15 " "		
Scarborough - Whitby	21-22 " "		
Whitby - Stokesley	22-23 " "		
Stokesley - Northallerton	24 " "		
(iv) 913; ff.290-301			
Northallerton - Boroughbridge	25 " "		
Boroughbridge - York	27 " "		End of Survey

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