

The Arch Shapes of Medieval Masonry Bridges in Great Britain

It is thought that the earliest masonry bridges in Great Britain, to have left coherent surviving structures, were built in 12th century, i.e., over 800 years ago. Over the next few centuries, the shapes of the bridge arches changed with time. A fairly broad brush approach to arch shape was followed, when drawing up the tabulations posted on the website, <https://historicbridgesofbritain.com/>, and the relevant item in the 2022 *Review of the Compendium – Addendum*, continued that approach, while altering the mode of presentation, to highlight the dependence of arch shape on build-date. In this document, the approach is refined, essentially by increasing the number of recognised arch shapes. I considered seriously the possibility of also distinguishing between stilted and unstilted arches, where the stilt is the vertical jamb, on a pier or abutment, from which the arch springs. The difficulty lies in the fact that all shallow segmental arches, and many pointed arches can be regarded as stilted to some degree, and the decision as to whether the jambs are long enough, to make it appropriate to invoke that description of a medieval bridge, is never as clear-cut as for a 19th century railway viaduct. So in this presentation I consider only the arch shapes, employing the listed categories, namely;

Label	Arch Shape	Comment
S-C	Semi-circular	Romanesque but also later bridges, which might be described as Deep Segmental
P	Pointed	Gothic, might be 2-centred, triangular
Se	Segmental	An arc of a circle intercepted by vertical jambs
PSe	Pointed Segmental	Pseudo-Gothic, a segmental arch with voussoirs near the crown altered to give a point
4-C	4 Centred	Tudor, a pointed arch, defined by arcs of 4 circles
SSe	Shallow Segmental	Can be 3-centred, or elliptical, differences in detail at interceptions with the jambs

In the Tables, on the following pages, the quoted build date is the date of completion of the earliest arch which still stands in coherent shape.

Table 1. Arch Shapes on Standing Bridges Built in the 12th and 13th Centuries

County	Bridge Name	Build-Date	Arch Shape
Durham	Elvet	1160 - 1250	S-C/P
Durham	Framwellgate	12 th C	S-C
Northumberland	Morpeth Chantry	13 th C	PSe
Northumberland	Old Tyne	13 th C	P
Yorkshire	Baysdale Abbey	13 th C	P
Yorkshire	Butterton	13 th C	P
Yorkshire	Fountains Abbey Infirmary	12 th C	S-C
Yorkshire	Scarborough Castle	13 th C	Se
Yorkshire	Otley	1228	Se
Yorkshire	Wetherby	1233	S-C/P
Bedfordshire	Harrold	12 th C	S-C
Bedfordshire	Sutton PH	Mid-13 th C	P
Cambridgeshire	Huntingdon	c1300	P
Essex	Coggeshall	13 th C	P
Lincolnshire	Lincoln High	1160	S-C
Lincolnshire	Stamford	12 th C	S-C
Northamptonshire	Geddington	1250	P
Northamptonshire	Thrapston	13 th C	P
Nottinghamshire	Nottingham Castle	1255	P
Suffolk	Bury St. Edmond's Abbot's	13 th C	P + SSe/PSe
Gloucestershire	King John's	1190	P
Shropshire	Shrewsbury Old Welsh	Mid-13 th C	S-C/P
Hampshire	Fordingbridge	1286	P
Hampshire	New Alresford	Early-13 th C	P
London	Clattern	Late-12 th C	S-C
Oxfordshire	Banbury	13 th C	P
Oxfordshire	Radcot	13 th C	P
Oxfordshire	Wallingford	Mid-13 th C	P
Surrey	Elstead	13 th C	PSe
Surrey	Lower Eashing	13 th C	PSe
Surrey	Somerset	13 th C	PSe
Surrey	Tilford - North-East	13 th C	PSe
Surrey	Tilford – North-West	13 th C	PSe
Surrey	Unstead	13 th C	P
Wiltshire	Bradford-on-Avon Town	Late-13 th C	P
Wiltshire	Salisbury - Harnham	1244	P
Cornwall	Lostwithiel	Late-13 th C	P
Devon	Barnstaple, Long	1280	P
Devon	Clyst St. Mary	Early-13 th C	S-C
Devon	Old Exe	1196 -1214	S-C/P
Devon	Larkbeare	13 th C	P
Gwent	Monnow	13 th C	S-C

Table 2. Arch Shapes on Standing Bridges Built in the 14th Century

County	Bridge Name	Build-Date	Arch Shape
Grampian	Balgownie	c1380	P
Tayside	Old Bridge of Earn	1329	S-C
Cumbria	Kirkby Lonsdale	1365	Se
Cumbria	Warcop	c1400	Se
Durham	Barforth Chapel	14 th C	P
Durham	Newton Cap	Late-14 th C	PSe
Durham	Sherburn House	1335	Se
Durham	Sunderland	c1350	S-C
Durham	Yarm	Late-14 th C	P
Lancashire	Edisford	1339	P
Lancashire	Whalley	14 th C	S-C
Northumberland	Prudhoe Castle	14 th C	P/S-C
Northumberland	Warkworth	Late-14 th C	Se
Yorkshire	Fountains Abbey Mill	14 th C	P
Yorkshire	Helmsley Rye	14 th C	P
Yorkshire	Kildwick	Early-14 th C	P/Se
Yorkshire	Ripon	1309	P/Se
Yorkshire	Roche Abbey	14 th C	Se
Yorkshire	Wakefield	Early-14 th C	P
Bedfordshire	Turvey	14 th C	P
Buckinghamshire	Newport Pagnell North	1380	P
Buckinghamshire	Thornborough	14 th C	P
Derbyshire	Bakewell	Early-14 th C	P
Derbyshire	Derby St. Mary	14 th C	Se
Derbyshire	Dove	14 th C	P
Derbyshire	Egginton Monks	14 th C	Se
Derbyshire	Swarkeston	14 th C	P
Essex	Waltham Abbey	14 th C	SSe
Lincolnshire	Crowland Trinity	1390	P
Lincolnshire	Utterby PH	14 th C	Se
Lincolnshire	West Rasen PH	1310	SSe
Norfolk	Castle Rising	14 th C	P
Norfolk	Norwich Bishops	1341	Se
Norfolk	Potter Heigham	1380	P
Norfolk	Wiveton	Early-14th	PSe
Northamptonshire	Charwelton PH	14 th C	P
Northamptonshire	Ditchford	14 th C	S-C
Northamptonshire	Irthlingborough	14 th C	P
Northamptonshire	Thorp Waterville	14 th C	Se
Northamptonshire	Thrapston	14 th C	P
Nottinghamshire	Old Trent	1364	P
Rutland	Duddington	Late-14 th C	P
Rutland	Wakerley	Late-14 th C	P
Suffolk	Toppesfield	14 th C	P
Cheshire	Chester Dee	1387	P/S-C
Herefordshire	Goodrich Castle	Early-14 th C	P
Herefordshire	Lugg	14 th C	P

County	Bridge Name	Build-Date	Arch Shape
Herefordshire	Mordiford	14 th C	P
Herefordshire	Stretton Sugwas	14 th C	P
Staffordshire	Eccleshall Castle	14 th C	P
Warwickshire	Coleshill Blyth	14 th C	P
Dorset	Crawford	Late-14 th C	S-C
Dorset	Lyme Regis Buddle	14 th C	P
Kent	Aylesford	14 th C	P
Kent	East Farleigh	Early-14 th C	P
Kent	Laddingford	14 th C	P
Kent	Len	14 th C	P
Oxfordshire	Lower Heyford	14 th C	P
Oxfordshire	New	14 th C	P
Wiltshire	Bradford-on-Avon Barton	14 th C	P
Devon	Dart	14 th C	PSe
Devon	Horrabridge	Early-14 th C	P
Somerset	Dunster Gallox	14 th C	Se
Somerset	Haselbury	14 th C	P
Somerset	Stanton Drew	14 th C	P
North-East Wales	Holt	14 th C	Se
North-East Wales	Llangollen	14 th C	P
Isle of Man	Rushen Abbey Monk's	14 th C	P

Table 3. Arch Shapes on Standing Bridges Built in the 15th Century

County	Bridge Name	Build-Date	Arch Shape
Borders	Melrose Abbey Lade	15 th C	Se
Borders	Peebles	15 th C	Se
Borders	Dryburgh Abbey	15 th C	P
Central	Stirling	15 th C	S-C
Dumfries & Galloway	Dumfries	1431	P
Dumfries & Galloway	Dundrennan	15 th C	Se
Fife	Guardbridge	1419	Se
Grampian	Huntly Castle	15 th C	S-C
Lothians	Maidens	Late-15 th C	Se
Lothians	Rosslyn	15 th C	Se
Strathclyde	Brig O'Doon	15 th C	Se
Strathclyde	Kerelaw Castle	c1500	Se
Strathclyde	Old Bridge of Ayr	15 th C	P
Tayside	Alyth PH	c1500	Se
Tayside	Brechin	15 th C	PSe
Tayside	Muthill	15 th C	S-C
Cumbria	Eamont	1425	Se
Cumbria	Furness Bow	15 th C	S-C
Cumbria	Monks (Roman)	15 th C	P
Durham	Aldin	15 th C	SSe
Durham	Balder	15 th C	P
Durham	Chester New	15 th C	P
Durham	Croft Bridge	15 th C	P
Durham	Stanhope	15 th C	S-C
Lancashire	Manchester	1421	P
Lancashire	Peel Hall	15 th C	Se
Northumberland	Felton	15 th C	Se
Northumberland	Lesbury	15 th C	P
Northumberland	Rothbury	c1490	S-C
Northumberland	Twizel	Late-15 th C	Se
Yorkshire	Bow Bridge	Late-15 th C	S-C
Yorkshire	Coverham Abbey	15 th C	P
Yorkshire	Elvington	Early-15 th C	Se
Yorkshire	Howden	15 th C	P
Yorkshire	Kexby	1420	Se
Yorkshire	Kilgram	15 th C	Se
Yorkshire	Killinghall	15 th C	Se
Yorkshire	Kirkham	15 th C	P
Yorkshire	Knaresborough	15 th C	P
Yorkshire	Marske	15 th C	Se
Yorkshire	Pickering	15 th C	Se
Yorkshire	Rotherham	15 th C	P
Yorkshire	Settle	Late-15 th C	4-C
Yorkshire	Sheffield Lady's	15 th C	P
Yorkshire	Wensley	15 th C	P
Yorkshire	Wilberfoss	15 th C	PSe
Bedfordshire	Arlesey	15 th C	P
Bedfordshire	Bromham	15 th C	S-C
Bedfordshire	Tymhill	15 th C	Se
Cambridgeshire	Alconbury	15 th C	4-C
Cambridgeshire	Huntingdon Nun's	15 th C	P/Se
Cambridgeshire	Spaldwick	15 th C	P

County	Bridge Name	Build-Date	Arch Shape
Cambridgeshire	St. Ives	15 th C	P/PSe
Derbyshire	Cromford	Late-15 th C	4-C
Derbyshire	Darley	Late-15 th C	P/Se
Derbyshire	Matlock	15 th C	4-C
Derbyshire	Mayfield Hanging	Early-15 th C	P
Derbyshire	Melbourne New	15 th C	P
Derbyshire	New Mills	Late-15 th C	Se
Derbyshire	Rowsley	15 th C	P
Essex	Hedingham Castle	1496	P
Essex	Pleshey Castle	Early 15 th C	P
Leicestershire	Aylestone PH	15 th C	P/Se
Leicestershire	Belgrave	15 th C	Se
Leicestershire	Cotes	15 th C	P
Leicestershire	Enderby PH	15 th C	P
Leicestershire	Medbourne PH	15 th C	Se
Norfolk	Hunstanton Hall	1497	S-C
Norfolk	Newton Flotman	15 th C	PSe
Northamptonshire	Braybrooke	Early-15 th C	P
Northamptonshire	Everdon	15 th C	P
Rutland	Collyweston	Late-15 th C	P
Suffolk	Boxted Hall	Late-15 th C	P
Suffolk	Cavenham PH	15 th C	Se
Suffolk	Moulton	15 th C	SSe
Suffolk	Moulton PH	Early-15 th C	P
Cheshire	Little Moreton Hall	1450	P
Herefordshire	Hereford Wye	15 th C	4-C
Shropshire	Clun	1450	Se
Shropshire	Ludford	15 th C	Se
Staffordshire	Walton	15 th C	P
Warwickshire	Bidford	Early-15 th C	P
Warwickshire	Bretford	Late-15 th C	4-C
Warwickshire	Furness	Early-15 th C	S-C
Warwickshire	Grendon	15 th C	P
Warwickshire	Marton	1414	P
Warwickshire	Stare	15 th C	P/Se
Warwickshire	Stratford Clopton	1480	P
Warwickshire	Warwick Castle Old	15 th C	P
Worcestershire	Eckington	15 th C	Se
Worcestershire	Powick	Early-15 th C	Se (skew)
Worcestershire	Tenbury Wells	15 th C	S-C
Dorset	Christchurch Place Mill	15 th C	Se
Dorset	Christchurch Town	Late-15 th C	S-C
Dorset	Cornford	15 th C	P
Dorset	Fifehead Neville	15 th C	P
Dorset	Holme	15 th C	Se
Hampshire	Hyde Abbey	Late-15 th C	P
Hampshire	Stony (Anjou)	15 th C	P
Isle of Wight	Carisbrooke	15 th C	Se
Kent	Hadmans	Late-15 th C	P
Kent	Herstfield	Early-15 th C	P
Kent	Yalding Town	15 th C	P
London	Eltham Palace	Late-15 th C	4-C
London	Fulham Palace	Late-15 th C	P
Oxfordshire	Abingdon	Late-15 th C	4-C

County	Bridge Name	Build-Date	Arch Shape
Oxfordshire	Burford	15 th C	Se
Oxfordshire	Culham	1422	P
Oxfordshire	Ock	15 th C	P
Surrey	Shere PH	15 th C	Se
Sussex	Durford	15 th C	S-C
Sussex	Stopham	1420	S-C
Sussex	Woolbeding	15 th C	Se
Wiltshire	Coombe Bissett PH	15 th C	P
Wiltshire	Lacock	15 th C	P
Wiltshire	Salisbury Crane	15 th C	Se
Wiltshire	Salisbury Milford	15 th C	P/Se
Wiltshire	Staverton	15 th C	P
Cornwall	Greystone	1437	S-C
Cornwall	Helland	Early-15 th C	P
Cornwall	Horse	1437	Se
Cornwall	Launceston St. Thomas PH	Late-15 th C	P
Cornwall	Panters	15 th C	4-C
Cornwall	Plusha	15 th C	PSe
Cornwall	Resprynn	15 th C	PSe
Cornwall	Ruthern	15 th C	4-C
Cornwall	Tideford	15 th C	P
Cornwall	Treverbyn Old	1412	P
Cornwall	Wadebridge	Late-15 th C	P
Cornwall	Yeolm	Mid-15 th C	P
Devon	Aveton Gifford	1440	PSe
Devon	Bideford	Late-15 th C	P
Devon	Ellerhayes	15 th C	P
Devon	Harford Tavy	15 th C	P
Devon	Holne	15 th C	S-C
Devon	Holne New	15 th C	Se
Devon	Plym	15 th C	Se
Devon	Rothern	15 th C	PSe
Devon	Staverton	1413	PSe
Devon	Stoke Canon	15 th C	Se
Devon	Taddiport	Early-15 th C	Se
Somerset	Bradford Hele	15 th C	P
Somerset	Bradford on Tone	15 th C	4-C
Somerset	Bruton PH	15 th C	PSe
Somerset	Dulverton Barle	Late-15 th C	P
Somerset	Dulverton Hele	15 th C	4-C
Somerset	Harpford	15 th C	P
Somerset	Load	15 th C	P
Somerset	Murtry	15 th C	PSe
Somerset	Tun	Late-15 th C	4-C
Somerset	Wyke Champflower	15 th C	P
East & South-East Wales	Abergavenny	15 th C	P
East & South-East Wales	Bridgend New Inn	Late-15 th C	P
East & South-East Wales	Bridgend Old	1452	Se
East & South-East Wales	Leckwith	Late-15 th C	P
North-East Wales	Betwys y Coed Pont-y-Pair	15 th C	Se
West & South-West Wales	Kidwelly	Late-15 th C	P/S-C
West & South-West Wales	Pont Spwdwr	15 th C	P

Table 4. Arch Shapes on Standing Bridges Built in the 16th Century

County	Bridge Name	Build-Date	Arch Shape
Borders	Jedburgh Canongate	16 th C	Se
Borders	Old Lintmill	16 th C	S-C
Central	Spittal	16 th C	Se
Central	Teith	16 th C	S-C
Central	Tullibody	16 th C	P
Dumfries & Galloway	Bridge of Park	16 th C	S-C
Dumfries & Galloway	Old Bridge of Urr	16 th C	S-C
Fife	Dairsie	1538	P/Se
Fife	Guardbridge Inner	16 th C	Se
Fife	Peekie	Early-16 th C	S-C
Grampian	Bridge of Dee	1527	Se
Grampian	Inglismaldie	16 th C	Se
Lothians	Abbey Mill	16 th C	P
Lothians	Cramond	16 th C	P
Lothians	East Linton	16 th C	Se
Lothians	Musselburgh	16 th C	Se
Lothians	Newbattle	16 th C	PSe
Lothians	Nungate	16 th C	Se
Lothians	Pencaitland	1510	P
Strathclyde	Inverkip	16 th C	Se
Strathclyde	Old Avon	16 th C	Se
Tayside	Lornty	16 th C	S-C
Tayside	Ruim PH	16 th C	S-C
Cumbria	Crook of Lune	16 th C	SSe
Cumbria	Lanercost	1543	SSe
Cumbria	Newby	16 th C	SSe
Cumbria	Penny	16 th C	SSe
Durham	Barnard Castle	Early-16 th	PSe
Durham	Deepdale	16 th C	Se
Durham	Piercebridge	Early-16 th C	P
Lancashire	Higherford PH	16 th C	SSe
Lancashire	Lower Hodder PH	1561	Se
Lancashire	Loyne	Early-16 th C	Se
Lancashire	Paythorne	16 th C	Se
Lancashire	Swanside PH	Early-16 th	SSe
Northumberland	Salters	16 th C	P
Yorkshire	Aldbrough	16 th C	P
Yorkshire	Aysgarth	Early-16 th C	4-C
Yorkshire	Bain	Late-16 th C	PSe
Yorkshire	Boroughbridge	Early-16 th C	PSe
Yorkshire	Catterick	Late-16 th C	4-C/Se
Yorkshire	Grinton	16 th C	P
Yorkshire	Hebden	1510	Se
Yorkshire	Sowerby County	1517	Se
Yorkshire	Thornthwaite PH	16 th C	S-C
Bedfordshire	Bletsoe Castle	16 th C	P
Bedfordshire	Great Barford	Early-16 th C	S-C/P/4-C
Buckinghamshire	Leckhampstead	16 th C	P
Cambridgeshire	Wistow	16 th C	S-C
Derbyshire	Baslow	Early-16 th C	S-C

County	Bridge Name	Build-Date	Arch Shape
Derbyshire	Duffield	16 th C	4-C
Derbyshire	Milldale Viator	Early 16 th C	4-C
Essex	Panfield Hall	16 th C	PSe
Essex	Tolleshunt D'Arcy Hall	1585	S-C
Leicestershire	Bottesford	1580	Se
Lincolnshire	Uffington	16 th C	Se
Norfolk	Cringleford	1520	4-C
Norfolk	Hindringham Hall	16 th C	Se
Norfolk	Kings Lynn Eastgate	1520	S-C/Se
Norfolk	Mayton	Early-16 th C	4-C
Norfolk	New Buckenham Castle	Early-16 th C	4-C
Norfolk	Stanfield Hall	16 th C	S-C
Northamptonshire	Oundle North	16 th C	Se
Nottinghamshire	Eel Pie	16 th C	P
Rutland	Empington Church	16 th C	Se
Rutland	Turtle	16 th C	Se
Suffolk	Ash Street	Early 16 th C	4-C
Suffolk	Crows Hall	1580	SSe
Suffolk	Earl Soham Lodge	16 th C	Se
Suffolk	Framlingham Castle	Early-16 th C	Se
Suffolk	Kentwell Hall	16 th C	SSe
Suffolk	Westhorpe Hall	Early-16 th C	4-C
Gloucestershire	Sturt PH	16 th C	P
Gloucestershire	Tetbury Cutwell	16 th C	P
Herefordshire	Eaton	Early 16 th C	Se
Herefordshire	Moreton	16 th C	S-C
Herefordshire	Wilton	1599	S-C
Shropshire	Stottesdon Prescott	16 th C	Se
Staffordshire	Great Heywood PH	16 th C	Se
Warwickshire	Cole	16 th C	S-C
Warwickshire	Halford	16 th C	P
Warwickshire	Shipston-on-Stour	Early-16 th C	4-C
Warwickshire	Stoneleigh	Early-16 th C	P
Warwickshire	Water Orton	1520	S-C
West Midlands	Hampden in Arden PH	Early-16 th C	P
Worcestershire	Harvington Hall	16 th C	SSe
Dorset	Bradford Abbas	16 th C	4-C
Dorset	Corfe Castle Outer	16 th C	S-C
Dorset	Preston Footbridge	16 th C	SSe
Dorset	Rampisham	16 th C	4-C
Dorset	Stoford	Early-16 th C	PSe
Dorset	Sturminster Marshal	Late-16 th C	S-C
Dorset	Sturminster Newton	Early-16 th C	P
Dorset	Walford	16 th C	P
Dorset	Watford	16 th C	P
Dorset	Wool	16 th C	Se
Kent	Ightham Mote	16 th C	Se
Kent	Sandwich Delf	16 th C	P
Kent	Stephen's	16 th C	SSe
Kent	Teston	Early-16 th C	Se
Kent	Twyford	Early-16 th C	4-C
London	Hanwell	Early-16 th C	P
Oxfordshire	Beckley Park	16 th C	S-C
Oxfordshire	Ickford	16 th C	4-C/SSe

County	Bridge Name	Build-Date	Arch Shape
Oxfordshire	Little Godstow	Early-16th	P
Oxfordshire	Wheatley	16 th C	4-C
Surrey	Leatherhead	16 th C	Se
Sussex	Fittleworth	16 th C	P
Sussex	Habin	16 th C	Se
Sussex	Iping	16 th C	Se
Sussex	Michelham Priory	16 th C	Se
Sussex	Trotton	Early-16 th C	S-C
Sussex	Wisborough Green	Early-16 th C	Se
Wiltshire	Easton Gray	16 th C	P
Cornwall	Berriow	16 th C	4-C
Cornwall	Bodithiel	Early-16 th C	P
Cornwall	Cardinham	Early-16 th C	Se
Cornwall	Clapper	16 th C	Se
Cornwall	Druyton	16 th C	S-C
Cornwall	Gunnislake New	1520	PSe
Cornwall	Higher New	1504	P
Cornwall	Key	16 th C	P
Cornwall	Lerryn	Early-16 th C	4-C
Cornwall	Polwheverall	1572	4-C
Cornwall	St. Austell West	Early-16 th C	Se
Cornwall	Trekelland	Early-16 th C	4-C
Cornwall	Trekenner	16 th C	S-C
Devon	Austin's	16 th C	S-C
Devon	Brent Mill	16 th C	S-C
Devon	Bridford	Early-16 th C	4-C
Devon	Brightley	16 th C	PSe
Devon	Chagford	16 th C	PSe
Devon	Denham	16 th C	PSe
Devon	Fordton	16 th C	PSe
Devon	Huckworthy	Early-16 th C	PSe
Devon	Ivybridge	16 th C	P
Devon	Rushford	16 th C	SSe
Devon	Sheepwash	16th	P
Devon	Sweetham	16 th C	Se
Devon	Topsham Avon	16 th C	P
Somerset	Allerford New	16 th C	P
Somerset	Allerford PH	Late-16 th C	SSe
Somerset	Bolters	Early-16 th C	P
Somerset	Bury	16 th C	P
Somerset	Chew Magna Crickback	Early-16 th C	P
Somerset	Iford	16 th C	S-C
Somerset	Landacre	16 th C	P
Somerset	Lyncombe	Late-16 th C	P
Somerset	Pensford	16 th C	P
Somerset	West Luccombe PH	16 th C	P
East & South-East Wales	Brecon	1563	Se
East & South-East Wales	Clawdd Du	16 th C	S-C
East & South-East Wales	Coity Castle	16 th C	Se
East & South-East Wales	Pont Abercamlais	Early-16 th C	Se
East & South-East Wales	Raglan Castle	16 th C	S-C
North-East Wales	Bangor	Early-16 th C	SSe
North-East Wales	Bro Machno Roman	16 th C	Se
North-East Wales	Rhuddlan	16 th C	Se

County	Bridge Name	Build-Date	Arch Shape
West & South-West Wales	Devil's Bridge	16 th C	P
West & South-West Wales	Pont Dol y Moch	Late-16 th C	Se

Ideally a further Table would have been produced containing bridges built in the 17th century, but the 17th/18th century category introduced to cope with the difficulty of estimating build dates for small pre-modern bridges, makes this a doubtful proposition.

Accordingly I shall move on to analysing the contents of Tables 1 to 4, and to do that, I have produced Tables 5 to 12, which present the numbers of bridges with each bridge shape, built in the time periods, 12th/13th centuries, 14th century, 15th century, and 16th century for each country and region of Great Britain.

Bridge Shapes by Country/Region and Build-Date

Table 5. Scotland

Arch Shape	No. of Bridges	No. of Bridges	No. of Bridges	No. of Bridges
	Pre-1300	14 th C	15 th C	!6 th C
Semi-Circular (S-C)	0	1	3	7
Pointed (P)	0	1	3	5
Segmental (Se)	0	0	9	11
Pointed Segmental (PSe)	0	0	1	1
Shallow Segmental (SSe)	0	0	0	0
4-Centred (4-C)	0	0	0	0

Table 6. Northern England

Arch Shape	No. of Bridges	No. of Bridges	No. of Bridges	No. of Bridges
	Pre-1300	14 th C	15 th C	!6 th C
Semi-Circular (S-C)	4	3	4	0
Pointed (P)	5	7	13	4
Segmental (Se)	2	5	10	7
Pointed Segmental (PSe)	1	3	1	3
Shallow Segmental (SSe)	0	0	1	6
4-Centred (4-C)	0	0	1	2

Table 7. Eastern England

Arch Shape	No. of Bridges	No. of Bridges	No. of Bridges	No. of Bridges
	Pre-1300	14 th C	15 th C	!6 th C
Semi-Circular (S-C)	4	1	2	6
Pointed (P)	8	16	18	3
Segmental (Se)	0	4	8	9
Pointed Segmental (PSe)	1	1	2	1
Shallow Segmental (SSe)	1	2	1	2
4-Centred (4-C)	0	0	3	8

Table 8. Western England

Arch Shape	No. of Bridges	No. of Bridges	No. of Bridges	No. of Bridges
	Pre-1300	14 th C	15 th C	16 th C
Semi-Circular (S-C)	1	1	2	4
Pointed (P)	2	7	8	5
Segmental (Se)	0	0	5	3
Pointed Segmental (PSe)	0	0	0	0
Shallow Segmental (SSe)	0	0	0	1
4-Centred (4-C)	0	0	2	1

Table 9. Southern England

Arch Shape	No. of Bridges	No. of Bridges	No. of Bridges	No. of Bridges
	Pre-1300	14 th C	15 th C	16 th C
Semi-Circular (S-C)	1	1	3	4
Pointed (P)	7	8	14	8
Segmental (Se)	0	0	8	8
Pointed Segmental (PSe)	5	0	1	1
Shallow Segmental (SSe)	0	0	0	3
4-Centred (4-C)	0	0	2	5

Table 10. South-West England

Arch Shape	No. of Bridges	No. of Bridges	No. of Bridges	No. of Bridges
	Pre-1300	14 th C	15 th C	16 th C
Semi-Circular (S-C)	2	0	2	5
Pointed (P)	4	3	14	14
Segmental (Se)	0	1	5	4
Pointed Segmental (PSe)	0	1	7	6
Shallow Segmental (SSe)	0	0	0	2
4-Centred (4-C)	0	0	5	5

Table 11. Wales

Arch Shape	No. of Bridges	No. of Bridges	No. of Bridges	No. of Bridges
	Pre-1300	14 th C	15 th C	16 th C
Semi-Circular (S-C)	1	0	1	2
Pointed (P)	0	1	5	1
Segmental (Se)	0	1	2	6
Pointed Segmental (PSe)	0	0	0	0
Shallow Segmental (SSe)	0	0	0	1
4-Centred (4-C)	0	0	0	0

Table 12. Totals Great Britain

Arch Shape	No. of Bridges	No. of Bridges	No. of Bridges	No. of Bridges	Totals
	Pre-1300	14 th C	15 th C	16 th C	
Semi-Circular (S-C)	13	7	17	26	63
Pointed (P)	26	43	75	30	144
Segmental (Se)	2	11	47	48	108
Pointed Segmental (PSe)	7	5	12	12	36
Shallow Segmental (SSe)	1	2	2	15	20
4-Centred (4-C)	0	0	13	21	34
Totals	49	68	166	152	

Notes:

1. The information presented here concerns bridges with coherent standing elements, and they are only a fraction of the bridges built in the periods in question. Another note in the 2022 addendum, indicates why it is possible to have confidence that broad conclusions drawn from such smallish samples may be applicable to the whole populations.

2. In Tables 5 to 12, account is taken of cases where arches of more than one shape were amongst the earliest built on a bridge. The effect of this is relatively small, but where the total number of 12th/13th century arches is given as 49 in Table 12, they were part of the 42 bridges thought to still stand with coherent elements from that period.

3. Although the possibility of performing a detailed analysis of bridge shapes for those built in the 17th century has been ruled out, it is possible to make some qualitative comments. Thus it can be confidently asserted that no 4-centred arches stand, which are thought to have been built then. Fewer surviving pointed or pointed segmental arches were built in the 17th century than in previous centuries, perhaps in the order of 15, but certainly less than 20. Otherwise the surviving bridges, built in the 17th century have segmental, semi-circular, and shallow segmental arches, not of course usually mixed.

4. As regards the qualitative picture of developments of bridge arch shape, the story has to begin in c1150, when the oldest surviving masonry arch bridges in Great Britain were built. They had semi-circular (Romanesque) arches, but by the end of the 12th century, pointed (Gothic) arches were beginning to appear. In this context, comparisons can be made with church arcades; many survive from before 1150, of Norman style with Romanesque arches. It is thought that the first English Gothic arches may have been installed in a church in Devizes in 1130, and a gradual transition to the Gothic style took place over the next half century, and can be followed in many surviving churches and cathedrals; indeed there are a number of arcades with arches of both shapes. We cannot know when the first bridge with Gothic arches was built, because our sample size is far too small, but Old Exe Bridge may be a key marker; built between 1190 and 1214, it has arches of both shapes, and, it seems to have been built earlier than other bridges like that. So it may be reasonable to date the appearance of pointed arches on bridges to the early 13th century, but perhaps occurring later in some parts of the country, than others. Thereafter, fewer bridges were built with semi-circular arches, but the general decline in their numbers seems to have been halted by the 15th century.

5. It seems that segmental arches, with a flatter profile than the other two shapes, (and now the dominant style), also made their appearance in the 13th century, though few were apparently built. Intuitively, they appear less robust, but by later in the medieval period it was realised that if precautions were taken, by ensuring sufficiently thick arch rings, and immovable abutments, such bridges were no more likely to collapse. As a result, through the period before 1600, there was an increase in the proportion of bridges built with segmental arches, and a reduction in the proportion with pointed arches.

6. It is likely that of the other arch shapes discussed here, the pointed segmental, and 4-centred variants represented something of a dead end, as indeed were pointed arches eventually, but shallow segmental arches, sometimes 3-centred or elliptical in detailed shape, had a future, extending past the 17th century.

7. Regional variations on the general picture, which meant that some shapes never appeared, and others had a different development pattern, are not discussed here, but the information required to do this is in Tables 5 to 11.

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Additional Note

In response to a question about whether pointed (Gothic) arches were present in bridges built after 1600, I have extracted the following information from the tabulations on the website. The bridges listed have either pointed or pointed segmental arches.

No.	County	Bridge	Build Date
1	Northumberland	Middleton Footbridge	17 th C
2	Cumbria	Backbarrow	17/18 th C
3	North Yorkshire	Downholme	17 th C
4	Yorkshire (other)	Willow Packhorse	17/18 th C
5	Derbyshire	Froggatt	17 th C
6	Rutland	Ketton	17 th C
7	Norfolk	Rushford	17 th C
8	West Midlands	Bacons End	17/18 th C
9	Oxfordshire	Enslow	17/18 th C
10	Dorset	Sharford	17/18 th C
11	Somerset	Chewton Keynsham	17/18 th C
12	Somerset	Stogursey Castle	17 th C
13	Devon	Bickington Old Bow	17 th C
14	Devon	Denham	17 th C
15	Devon	Gara	17 th C
16	Devon	Jacobstowe	17 th C
17	Devon	Sheepwash	17 th C
18	Gwynedd	Dolgellau Y Bont Fawr	1638
19	Dafydd	Abergorlech Cothi	17 th C
20	Glamorgan	Cheriton Packhorse	17 th C

Making the usual approximation that half of the bridges dated 17/18th century belong in the 17th century, although it has not been possible to determine which they are, leaves an estimate of 17 bridges built in the 17th century with one or more arches pointed.

Adding to the results in Table 12, as shown below, it is clear that the number of survivals, built with pointed arches in the 17th century is markedly reduced compared with preceding centuries, but is still significant. There was none such in Scotland, but otherwise the survivals are mainly found in the periphery of the country.

Arch Shape	No. of Bridges	No. of Bridges	No. of Bridges	No. of Bridges	No. of Bridges	Totals
	Pre-1300	14th C	15th C	16th C	17th C	
Pointed + Pointed Segmental	33	48	87	42	17	227

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