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## Abstracts of Periodical Literature

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SIMON PEPPER

GIDEON BIGER AND NILI LIPHSCITZ, **Regional Dendrohistory and Timber Analysis: The Use of Wood in the Buildings of Nineteenth-Century Jaffa**, *Mediterranean Historical Review*, 6, 1 (June 1991), pp. 86-104. In an arid country, such as Palestine, the use of wood as a building material is closely related to other historical factors. The identification of the wood species used for construction in nineteenth-century Jaffa enabled the authors to trace the geographical origin of this material (to Asia Minor) and to explain the changes which followed the appearance of the steamship off the coast of Palestine, the presence of foreign colonies, changes in building styles, and building activity around the port of Jaffa. The authors suggest that timber analysis could be applied elsewhere to establish the phases of urban development.

DAVID BROOKE, **The 'Great Commotion' at Mickleton Tunnel, July 1851**, *Journal of the Railway and Canal Historical Society*, XXX Pt 2, 145 (July 1990), pp.63-67. The history of the construction and operation of the British railway system in the nineteenth century contains several episodes in which established companies used physical force to deter potential rivals. What distinguished the seizure of Mickleton Tunnel in 1851 was the presence at the head of one of contending parties of the great engineer, I.K. Brunel, who here came within a hair's breadth of ruining a reputation already tarnished by his high-handed actions in 1837 (when the progress of the GWR had been threatened by recalcitrant landowners). In his efforts to remove a tunnelling contractor whose delays threatened progress on the Oxford, Worcester and Wolverhampton Railway, Brunel marshalled an army of 2,000 navvies to throw the contractor off the site, and the ensuing riotous confrontation was only controlled by magistrates with a large force of armed police.

DAVID BROOKE, **The Criminal Navy in the West Riding of Yorkshire**, *Journal of the Railway and Canal Historical Society*, XXX Pt 7, 150 (March 1992), pp.365-72. The labour forces (and their employers, see above) of civil engineering projects acquired a reputation for disorderly behaviour during the construction of canals. This paper draws on the West Yorkshire archives, Wakefield, for its data on the crime waves and attempted preventive measures that accompanied works on canal, railway and tunnelling projects, as well as the civil disorders that so often afflicted the towns which formed the base areas for major nineteenth century construction enterprises.

CAROLINE A. BRUZELIUS, **ad modum franciae: Charles of Anjou and Gothic Architecture in the Kingdom of Sicily**, *Journal of the Society of Architectural Historians*, L, 4 (December 1991), pp.402-420. The ruined abbeys of S. Maria di Realvalle and S. Maria della Vittoria in southern Italy attest to the use of French Gothic architecture as part of a policy of cultural and political domination over the kingdom conquered by Charles of Anjou in 1266. The Angevin registers document

the King's emphasis on *Frenchness* in all details and provide the names of many of the French masons and sculptors who worked on the royal building projects, as well as the programme of coercion of local unskilled labour into the 'foreign' projects that celebrated the Angevin victories at the battles of Benevento (1266) and Tagliacozzo (1268). Although this rigid imposition of a distinctive French architecture and culture lasted only a short while after the conquest, the artificial nature of the programme may well have contributed to the exceptionally thorough documentation of the projects, which are clearly a rich seam for students of all aspects of medieval construction and its administration.

JOHN CROOK, *The Pilgrims' Hall, Winchester. Hammerbeams, Base Crucks and Aisle-Derivative Roof Structures*, *Archaeologia*, 109 (1991), pp.129-159. The roof of the so-called Pilgrims' Hall, Winchester, now dated c.1308, has long been recognised as one of the earliest surviving examples of hammerbeam construction. It is surprising, therefore, that the complete medieval structure known as the Pilgrims' Range – of which the Pilgrims' Hall forms rather less than half – has not previously been investigated in detail. The outstanding significance of the Range in the study of early medieval structural carpentry is that it included four major 'aisle-derivative' roof truss types in a single building: a true aisled truss, a base cruck truss, two hammerbeam trusses, and at least one raised aisle truss. The existence of continuous longitudinal members (arcade plates, cornice plates and a central purlin) show that the entire roof was erected in a single campaign.

JOHN CROOK AND YOSHIO KUSABA, *The Transepts of Winchester Cathedral: Archaeological Evidence, Problems of Design, and Sequence of Construction*, *Journal of the Society of Architectural Historians*, L, 3 (September 1991), pp.293-310. As has long been recognised, the transepts of Winchester Cathedral show evidence of several changes in design during the first forty years of their existence. Soon after building began a decision was made to add towers at the corners of each transept, and modifications were carried out so that the original structure would be made strong enough to support the towers. The tower project was eventually abandoned, but the discontinuation of the transept towers imposed on the builders a compromise design for the clerestory fenestration. The result was a syncopated treatment of the interior arcade openings, a type of double-bay system which binds the two adjoining terminal bays on the clerestory level as they exist today. The collapse of the central tower in 1107 was followed by the rebuilding of the two adjacent transept bays and the introduction of more advanced detailing: rib-vaulting and scalloped capitals, some with acanthus foliage. These archaeological details permit a refinement of the chronology of the transept construction.

PHILIP DIXON, COLIN HAYFIELD AND BILL STARTIN, *Baguley Hall, Manchester: The Structural Development of a Cheshire Manor House*, *Archaeological Journal*, 146 (1989), pp.348-422. Baguley Hall near Manchester has long been recognised as one of the finest surviving medieval halls in the north-west of England. As part of an extensive English Heritage programme of repair to the standing structure, opportunity was taken to make a more detailed study of its timber-framing and also to excavate within and immediately outside the building. As a result, this paper seeks to modify the existing published accounts of the hall's

timberwork, outline its likely structural sequence, and provide details of the aisled hall that preceded it.

M.H. GOULD, A. JENNINGS AND R. MONTGOMERY, *The Belfast Roof Truss*, *The Structural Engineer*, 70, 7 (7 April 1992), pp.127-9. Following its development in the mid-19th century (first publication 1866) by a Belfast roofing company specialising in asphalt coated 'felt' roofs, the barrel roof supported on timber Belfast trusses was to become widely used for industrial buildings and aircraft hangers in the late-19th and early-20th centuries because of efficiency and economy for covering large clear spans. In this short article the different forms of timber trusses used in so-called Belfast roofs are described. The authors, all from the Department of Civil Engineering, Queen's University, Belfast, would welcome further information on surviving Belfast trusses.

ALAIN GUERREAU, *Edifices Médiévaux, Metrologie, Organisation de l'Espace a propos de la Cathedrale de Beauvais*, *Annales ESC*, 47, 1 (Janvier-Février 1992), pp.87-106. This article by an officer of the CNRS-CRH was prompted by the recent publication of Stephen Murray's *Beauvais Cathedral. Architecture of Transcendence* (Princeton University Press, 1989). It provides a (generally very favourable) commentary on Murray's book, and *inter alia* some interesting points on the low priority given by medieval constructors to *orthogonalite*, *parallelism* and the very idea of the right angle. The references will be valuable to all those interested in medieval construction.

D.F. HARRISON, *Bridges and Economic Development 1300-1800*, *Economic History Review*, XLV, 2 (May 1992), pp.240-261. For many years historical orthodoxy has maintained that early eighteenth-century roads were poor, and that those of the Middle Ages must have been worse. The lamentable state of the road system reflected the underdeveloped state of internal trade. The author uses data on bridges, as an index of the state of the road network they served and, although his prime interest is in the influence of the communication system on the national economy, he has marshalled an impressive amount of information on the number of Medieval and Early Modern bridges in this country, their location, size, traffic bearing capacity, quality, and the various materials used in their construction for the period 1300-1800. All of this will be of great value to historians of bridge construction technology.

ADRIAN JARVIS, G.F. Lyster and the Role of the Dock Engineer, 1861-1897, *The Mariner's Mirror*, 78, 2 (May 1992), pp.177-199. George Lyster (1821-1899) succeeded the Hartleys (Jesse Senior and Junior) as Engineer to the Mersey Docks and Harbour Board in 1861, and passed on his office to his son on retirement in 1897. This article by the curator of Port History at the National Museum and Galleries on Merseyside provides a highly critical account of George Lyster's career in one of the principal dock engineering posts in the country, dealing with his failures as much as achievements, but by doing so providing the real insights into the reality of late nineteenth-century construction management which are often missing from the more sanitised accounts.

PETER ELLIS JONES, *Migration and the Slate Belt of Caernarfonshire in the Nineteenth Century*, *The Welsh History Review*, 14, 4 (December 1989), pp.610-629. Demand for roofing slate for the nineteenth-century building booms created a 'new' industry in North Wales which – unlike so many others – reinforced the ethnic Welsh character of the area by setting up chains of in-migration from other areas of rural Wales. The dispersed pattern of slate quarries meant that the immigrant labour force lived in small, village-scale communities, thus avoiding the loss of language and culture that so often accompanied industrial developments of this kind.

PHILIP MacDOUGAL, *Granite and Lime: The Building of Chatham Dockyard's First Stone Dry Dock*, *Archaeologia Cantiana*, 107 (1989), pp.173-91. Between the years 1816 and 1821 a total of £160,000 (approximately £50m in today's money) was spent on the construction of the then largest dry dock at the Chatham Royal Dockyard, the first in the yard to be built of stone, and one of the first to use a caisson as a watertight door and steam pumping plant to drain the dock. This paper describes the project designed by the noted civil engineer and architect, John Rennie.

BRIAN E. McCONNELL, *The Early Bronze Age Village of La Muculufa and Prehistoric Hut Architecture in Sicily*, *American Journal of Archaeology*, 96, 1 (January 1992), pp.23-44. Excavations since 1982 at Muculufa in south central Sicily have revealed portions of an early Bronze Age village of the Castelluccian culture, dated to the end of the third millennium BC. Constructed on a series of terraces, building structures uncovered in an area comprising roughly 1% of the total area of the village were found to be circular or ovoid in plan and raised in wattle and daub on stone wall socles. Reconstruction of two structures is possible through the analysis of the remains at ground level and the impressions left by the timbers posts, beams and scantlings in recovered fragments of daub. Evidence from a series of at least three levels offers a glimpse of increasing sophistication in architectural design, culminating in the appearance of an archetypal circular hut with an interior bench, a central feature, and a complex supporting structure for the roof.

ANDREA L. MATTHIES, *The Medieval Wheelbarrow, Technology and Culture*, 32, 2 Part 1 (April 1991), pp.356-364. For shifting heavy material on the medieval construction site the usefulness of the humble wheelbarrow can only have been rivalled by the split twig pannier basket and – for heavier loads – the stretcher (or hand-barrow) which allowed two men to lift a platform bed by means of two long handles. Although much more expensive than the stretcher, the wheelbarrow allowed one man to do the work of two and paid for itself within days. In this exploratory article the author uses early archive references, manuscript illuminations, stained glass and murals showing scenes of building construction to piece together the development of the wheelbarrow from its appearance on European construction sites in the early thirteenth century.

JOHN NAISH, *Joseph Whidbey and the Building of the Plymouth Breakwater*, *The Mariner's Mirror*, 78, 1 (February 1992), pp. 37-65. It is remarkable that Joseph Whidbey (1755-1833) has for so long remained in obscurity, despite the fact that he played a key role in the survey of the Northwest coast of America in 1792-94 and

that after his return to England in 1795 began a second career culminating in one of the greatest engineering achievements of nineteenth-century Britain, the building of the Plymouth breakwater. The article describes the epic project which began in 1812 (jointly supervised by John Rennie until his death in 1821) and was not finally completed until 1865. A great deal of information is provided on the costs of marine construction, the re-design needed to adapt the works to resist ferocious storm damage, and Whidbey and Rennie's design for a roll-on-roll-off vessel for transporting heavy blocks of stone to the offshore works.

R. W. RENNISON, *The Improvement of the River Tyne, 1815-1914*, *Transactions of the Newcomen Society*, 62 (1990-91), pp.113-142. A great deal has been written about the early nineteenth-century commercial goods handling dock and warehouse complexes of London and Liverpool. Under the very general heading of 'improvement' this paper describes the improvements to the river Tyne's channel (by dredging, groining, etc.), the construction of docks to supplement the earlier staiths (or loading piers) built and used by the coal-shipping companies, and the construction of protective piers to form what became known as one of the safest harbour entrances on the North Sea coast. The commercial politics of the Tyne's river, harbour and dock facilities are not ignored.

FRANCOIS RICHARD, *Tuileries et Biqueteries en Saone-et-Loire*, *Annales de Bourgogne*, LXII, 1 (Janvier-Mars 1990), pp.25-42. Although limited in scope to the Burgundian department of the title, this paper provides an interesting survey of tile and brick production and distribution from an area which has been active in this field since the thirteenth-century and, as late as the 1870s, was exporting as far afield as the United States. The bibliography will be valuable to historians of building materials.

PETER S. RICHARDS, *Construction Problems: Labour Supply and the Weather*, *Journal of the Railway and Canal Historical Society*, XXX Pt 1, 144 (March 1990), pp.31-35. The manpower demands of mid-nineteenth-century construction operations often competed with agriculture and other employers of rural labour as well as the vagaries of the weather. This paper uses material from the Climatic Research Unit of the University of East Anglia to check the 'subjective' comments of contemporary railroad constructors on the effect of poor weather and labour shortages on the progress of their schemes.

EDWARD SARGENT, *The Planning and Early Buildings of the West India Docks*, *The Mariner's Mirror*, 77, 2 (May 1991), pp.119-141. The congestion in the Port of London at the end of the eighteenth century and the events leading up to the first wave of dock buildings at the beginning of the nineteenth have been covered by Professor Skempton (notably his book on William Jessop and his papers to the Newcomen Society). This article provides an account of the buildings erected around the West India Docks during the first thirty years, and which survived almost complete until the Second World War. The construction work of the engineers Ralph Walker, George Gwilt (1800-04), Thomas Morris (1804-11), John Rennie (1809-21) and John Rennie Junior (1821-3?) is described.

N.A.F. SMITH, *The Pont du Gard and Aqueduct of Nimes*, *Transactions of the Newcomen Society*, 62 (1990-91), pp.53-80. The bridge and aqueduct over the river Gard near Nimes is one of the best known, often copied and most extensively published of surviving Roman engineering achievements. Even so, this paper manages to enlarge our understanding of the project by prompting discussion of the many remaining problems: the question of its dating (early Augustan or late 1st century AD?) the surveying methods used and the evidence of errors and compensatory design; the role of the *castellum* at the Nimes end of the watercourse (flow gauge or, more simply, a device to control water level?); the absence of siphons over the river gorge and the possible role of the third tier of arches. A written contribution from Professor Wisliki concerns the cranes likely to have been used in the bridge construction.

D.F. STENNING, *Early Brick Chimney Stacks*, *Essex Archaeology and History*, 20 (1989), pp.92-102. Early brick chimney stacks are notoriously difficult to date with any accuracy. Previous enquiries concentrated on dimensional, or other physical characteristics of the bricks, on plan locations, or the particular form of mantel beam mouldings. This paper is the outcome of a prolonged search of Essex and western Suffolk to discover other factors of comparable significance, resulting in the compilation of lists of chimney stacks with common distinctive features stylistically related to the innovative brick mansions of the mid-fifteenth-century. The decorative features discussed should provide new criteria for dating stacks and for understanding the reintroduction of brick as a construction material for significant structures in the eastern counties. Contemporary phenomena, such as smoke hoods and masonry 'fire walls' are also considered, shedding possible light on the spread of architectural concepts.

D.A. STOCKER, *The Archaeology of the Reformation in Lincoln. A Case Study in the Redistribution of Building Materials in the Mid-Sixteenth Century*, *Lincolnshire History and Archaeology*, 25 (1990), pp.18-32. Despite the obvious and profound impact of the Reformation on the spiritual life of this country, there has been relatively detailed work by archaeologists and urban historians on the physical consequences of the demolition of monasteries, churches and chapels – events which offered considerable opportunities for the re-use of building materials as well as the development potential of vacated sites. This paper concentrates on the archaeological effects of the Reformation in a city where useful and rare documentary and physical evidence has been preserved, mainly because of the city council's assumed responsibility for the post-Dissolution dispersal and re-use of the fabric, finishes and fittings of no less than 18 redundant parish churches and one chapel between 1530 and 1560.

MAISIE TAYLOR, *Flag Fen: the Wood*, *Antiquity*, 66 (1992), pp.476-98. Progress reports on the research into the waterlogged prehistoric residential platform discovered ten years ago at Flag Fen, near Peterborough, include a study of the platform's construction, the various timber types employed and the methods used to fell, reduce and join them using mortice, tenons and lap joints but, as yet, no evidence of pegs or lashing.

ANTHONY S. TRAVIS, *Engineering and Politics: the Channel Tunnel in the 1880s*, *Technology and Culture*, 32, 3 (July 1991), pp.461-97. Recent surveys and present tunnelling experiences suggest that on technical grounds alone the Channel Tunnel stood a good chance of success when actually started at the beginning of the 1880s. Its rejection by the British Parliament in 1883, and for many years afterward, derived from an obsession with Napoleonic military tactics and strategies at the War Office, as well as from moves toward 'splendid isolation' as European affairs became increasingly menacing in character. The author explores the background to these events, assesses the competence of tunnelling machines and actors, and examines the influence of both military and parliamentary committees on what might otherwise have become an outstanding example of a civilian technological project.

ROGER B. ULRICH, review of M.K. and R.L. Thornton's 'Julio-Claudian Building Programmes: A Qualitative Study in Political Management' in *Journal of the Society of Architectural Historians*, L, 3 (September 1991), pp.314-7. The Thorntons' book attempts to provide a picture of the economic conditions of the early Imperial city of Rome through an analysis of public works projects undertaken by the first emperor, Augustus, and his Julio-Claudian successors (from Tiberius AD 14-37 to Nero AD 54-68). The analysis is based on the premise that public building, although representing only one segment of the Imperial budget, can be used as a reliable indicator of the larger economic trends. Public building, it is argued, 'is the engine that drives the private economy' generating secondary and tertiary employment for those who feed, house and otherwise service the workforce. The reviewer takes issue with Keynesian premises and much of the argument and evidence adduced by the authors. This lengthy review, and what is clearly a provocative book, need to be read together.

BARBARA A. WATKINSON, *A Case Study on the Revival of Stone Quarrying in the Late Eleventh Century: St. Florent, Saumur and Notre Dame, Noyers*, *Journal of Medieval History*, 16 (1990), pp.113-128. One aspect of the late eleventh-century economic expansion in the west of France was that the abbeys of the region embarked upon an ambitious programme of construction. Many houses decided to rebuild their abbey church, while the numerous small chapels and churches they received from the newly emerging class of *casatellans* were rebuilt to serve as priories. For the abbeys of St. Florent, Saumu (Maine-et-Loire) and Notre Dame, Noyers (Indre-et-Loire) texts survive that throw light on the intricate social and economic relationship that ultimately provided the abbeys with sources of building stone. The exploitation of quarries was intimately associated with the proliferation of towns, and the abbeys depended upon secular bequests of both towns and quarries to carry out their construction programme.

DAVID T. YEOMANS, *British and American Solutions to a Roofing Problem*, *Journal of the Society of Architectural Historians*, L, 3 (September 1991), pp.266-272. The roofing of buildings in which a vaulted or domed ceiling projects above the level of the wall plate presents a structural problem because a continuous tie-beam cannot be used. British and American carpenters adopted quite different solutions to this problem. The British solution was to use a raised tie-beam, and variations on this theme were adopted by a number of carpenters from

the seventeenth to the nineteenth centuries. It also appears in both British and American carpenters' manuals. In the roofs of a number of Connecticut churches, however, the tie-beam is divided and arranged in the form of a scissors. This type of structure has a structural advantage when used in association with light walls of brick or timber. These roofs form a group associated with Ithiel Town, who was probably responsible for the design.

## Book Reviews

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### Constructing Chicago

DANIEL BLUESTONE, 1991

London and New Haven Conn. Yale University Press.

235pp. illust. £28.00

ISBN 0-300-04848 3

Daniel Bluestone's book constitutes a significant contribution to a large literature on Chicago's urban development and architecture. *Constructing Chicago* focuses upon public architecture, examining the development of parks, churches, skyscrapers, civic architecture and the City Beautiful movement. These themes taken together embrace the period from the city's founding in 1830 to the 1909 plan for Chicago. Bluestone challenges the popular conception of nineteenth century Chicagoans as entirely consumed by materialism, arguing that wider cultural sentiments motivated public building development and park layout. By situating Chicago architecture within its wider social context Bluestone argues that the skyscraper ceases to be conceptualised as the modernist product of the 'Chicago School' architects but, rather, fits comfortably with contemporary civic design.

The clear social and cultural emphasis of Bluestone's central thesis is rigorously expounded in the six chapters of his book. Beginning with urban parks the author traces their expansion during the latter half of the nineteenth century. He reveals the continuity between the early devotees of private horticulture, the tradition of public promenading and the development in the late 1860s of public parks. He argues that the provision of parks reflected an urbane ideal as much as a nostalgia for rural life. They were designed to provide an alternative realm to commerce, where class conflict in the sphere of production could be mediated, while simultaneously raising the land values of surrounding affluent residential neighbourhoods. Bluestone emphasises the extent to which the intention of park promoters to integrate all social classes and to create civic unity was never realised, the park movement serving to establish the cultural ascendancy of bourgeois values.

The addition to the social and economic function of parks Bluestone elucidates their physical significance in the physical planning of the city. He argues that the park and boulevard system helped to define a new physical and metaphorical boundary for the city, containing and excluding commercial activity. In Chapter Two this planning theme is pursued further in examining different park designs. The author examines the ways in which park planners shaped nature as a commodity, producing an idealised urban environment where social activity could be channelled and influenced. Beginning with the 'prairie-like simplicity' of the South Park plans produced in 1870, Bluestone traces the developments in park design to the more formal designs of The West Parks and the boulevard system. He concludes that divergent interests were at work in the nineteenth century park movement between the provision of landscapes for solitude and the allocation of space for the massing of large crowds.

Bluestone's thorough analysis of the nineteenth century park movement is provocative in challenging the conventional interpretation of urban parks as 'retreats'