Abstracts of Periodical Literature

SIMON PEPPER

JEFFREY A. COHEN, **Building a Discipline: Early Institutional Settings for Architectural Education in Philadelphia, 1804-1890**, *Journal of the Society of Architectural Historians* 53, 2 (June 1994), pp. 139-183. Histories of American architectural education have usually focussed on the advent of university departments of architecture shortly after the Civil War, but prior to that there were a number of institutions sponsoring or projecting architectural programmes of various sorts that were attended by scores of future architects and builders. In Philadelphia these included schools of architectural drawing, lecture series, and schools of architecture in a fuller sense. Among the most prominent figures involved as instructors, lecturers, organisers or students were Owen Biddle, William Strickland, John Haviland, T. U. Walter, G. Parker Cummings, and John McArthur, Jr. This paper surveys several of these programmes, which complemented office training for many architects and builder-designers of the nineteenth century. (See also the entry under Hull.)

H. J. COWAN, **The Growth of Australian Building Technology from its Primitive Beginnings in the 18th century to the Introduction of Steel and Concrete Construction**, *The Structural Engineer* 72, 5 (1 March 1994), pp. 81-86. This paper from a professor at the University of Sydney deals with the problems faced by the first arrivals in the penal colony of New South Wales, who needed buildings but lacked supplies of suitable materials and people skilled in building construction. The first few years after the arrival of the First Fleet in 1788 saw further cohorts of new immigrants (amongst them some delinquent architects) but no supplies to aid building construction. Fifty years were to pass before the first reciprocating steam engine enabled the colonists easily to saw the hard native eucalypt trees, and the first two generations of settlers employed a relatively primitive technology of local brick and stone before the importation of iron – including entire prefabricated buildings – transformed the situation in the 1840s.

DAVID DYMOND, **Transcripts and Commentaries: An Example of Tudor Quantity Surveying,** *Local Historian* 22, 1 (February 1992), pp. 41-2. This note makes known a short but intriguing document in the British Library (BL Harl. 98, f. 129) which seems to be an early attempt at estimating the materials needed for a building project. Although unidentified, the handwriting places it in the mid-16th-century and it could relate to the D'Ewes estate in Stowlangtoft. The detailed calculations assume a large standard brick measuring 10 x 5 x 2.5 inches and a wall 20 inches thick, and estimate how many are needed for a wall 100 ft long and 27 ft high (although the bricks are described as if they are merely piled, with no allowance for bonding or for the thickness of mortar joints).

CAROLINE EARWOOD & SYLWIA MALACHOWSKA, **The Medieval Town of David-gorod, Belarus,** *Antiquity* 67, 256 (September 1993), pp. 534-547. David-gorod, now in the state of Belarus, is a medieval wood-built settlement, largely dating from the 12th and 13th-centuries, with surprisingly well preserved buildings, streets and objects – all constructed

entirely in timber – and first excavated in 1937-38 by the Panstwowe Muzeum Archeologiczne of Warsaw. Each building, roughly square in shape, was constructed of coniferous tree trunks, laid horizontally one upon another to form walls. At the corners the upper part of each beam was notched a short distance from the end, the trunks being laid alternately from each of the two opposite walls. Early buildings were roughly 3.3 m square, the later ones between 4.5 and 5 m square, with thresholds some way above ground level and the timber floors – sometimes as high as the fourth beam from the floor. Gaps between beams were stuffed with moss and the outer surfaces plastered with a mixture of dung, wood and bark fragments. The beams of one building were marked with cuts to record their positions, suggesting that they were prepared outside the town, probably when felled, ready for later assembly (similar numbering systems being known from early-medieval Minsk). No hearths of ovens were found inside the buildings. A sand-filled timber rampart fortified the town and enclosed an area approximately 100 m x 110 m.

GEORGE EOGAN & HELEN ROCHE, **A Grooved Ware wooden structure at Knowth, Boyne, Ireland**, *Antiquity* 68, 259 (June 1994), pp. 322-30. The main subject matter of this paper is the Grooved Ware, a little-known late Neolithic pottery, used here with various votive objects as part of the back fill for a circular wooden post-and-hole structure. Historians of early construction, however, will be interested in the authors' detailed account of the method used for back-filling the post hole pits, which ranged from 66 to 118 cm in depth and between 50 and 80 cm in diameter. The pit was back-filled carefully in three separate portions: in the outer fill, shale, with a limited amount of boulder clay but no artefacts, was packed firmly into the pit; in the area immediately around the post shaft packing stones, brown earth and, most significantly, artefacts, were placed ... It seems reasonable to suggest that tree bark or a similar material was used to separate the two zones. This order of back-filling generally reaches about three-quarters of the way up the pit; the top 25-30 cm was filled with a mixture of boulder clay, brown earth and packing stones to form the upper fill. Deposits of charcoal and red ash were also found in some post-pits, but none seemed to represent *in situ* burning.

KEITH A. FALCONER, **Fireproof Mills – The Widening Perspectives**, *Industrial Archaeology Review*, XVI, 1 (Autumn 1993), pp. 11-26. The author discusses how fieldwork by the Royal Commission on Historic Monuments in England (RCMHE) and others has refined the typology for the development of the fireproof textile mill first put forward by H. R. Johnson and A. W. Skempton in 1956. Details of cast-iron roof framing, the different styles of supporting columns and the problems created by power transmissions are considered. It is suggested that early examples of fireproofing are generally associated with mechanised flax or cotton spinning, the branch of industry most at risk. Falconer's article is the keynote piece in a special number of *Industrial Archiaeology Review* concentrating on mill buildings.

JOAN H. GEISMAR, **Where is Night Soil? Thoughts on an Urban Privy**, *Historical Archaeology* 27, 2 (1993), pp. 57-70. Part of a number dedicated to health, sanitation and foodways, this article addresses the questions so often avoided in otherwise complete studies of urban residential development. The title is prompted by the fact that night soil removal proceedures in 19th-century New York – whether by hand, bucket, or vacuum pump – removes the classic privy deposit beloved of archaeologists. The author's researchers reveal much of interest about the 19th-century laws instituted to control development and protect the well- being of city dwellers, and about contemporaneous attitudes to waste management and the technology available to accomplish this task.

MARGARET M. GERRISH, **The Dock Builders: Dock Navvies at Grimsby in 1851**, *Journal of Transport History* 15, 1 (March 1994), pp. 45-58. Compared to the coverage of canal and railway building operations, very little space has been given to dock construction or to the labouring men who did the work. The author's point of entry into this neglected aspect of Victorian labour history is the fact that many of the major railway contractors were – or had been – dock builders. This two-fold pattern of contracting suggested that many of the men the contractors employed shared their employers' working practice, i.e. that docks and railways were often built by the same firms and the same navvies. The study uses the 1851 census enumeration books of the port of Grimsby to examine this proposition as part of a wider search for the origins, former employment and demographic characteristics of a group of 19th-century dock navvies.

MICHAEL GOULD, **World War I Barrel Roof Hangars**, *Panel for Historical Engineering Works Newsletter* No.56 (December 1992). A large number of aircraft hangars was built during the First World War. The first few were all-wood, side-opening with pitched roofs, whilst the later ones were also all-wood but end-opening with barrel roofs and bow-string trusses. The remaining examples, few of which are listed, are detailed.

RICHARD J. GOY, **To the Glory of God: Building the Church of S. Maria della Carita, Venice, 1441-1454**, *Architectural History* 34 (1994), pp. 1-23. The church of the Carita (founded in the early 12th century) is one of the very few Venetian buildings of the fifteenth century for which detailed building accounts have survived, and this paper recreates the building process by an analysis of these records. The author (whose recent book on the *The House of Gold* has given us a detailed view of the building world of the Middle Ages) follows the story of the rebuilding of the Carita through the account book kept by one of the monks. Dom. Agostin was not himself an architect, but he seems to have interpreted the collective will of the monastic community in matters of design, engaged the master builder for the construction of the walls, a master mason to carve the stonework and, later in the programme, the carpenters who built the roof. The programme itself is chronicled through the disbursement of money for materials, and records of the pious donations which paid for it. Goy has a practising architect's interest in materials and costs, as well as in the sequence and process of building operations – all of which makes his work essential reading for any historian of medieval construction.

FREDERICK P. HEMANS, **Construction of the Classical Doric Column**, abstract reported in 95th Annual Meeting of the AIA, *American Journal of Archaeology* 98, 2 (April 1994), p. 314. Numerous theories have been proposed on how Greek architects designed and calculated the size, proportions and entasis of a Doric column composed of drums. In the 1989 excavations at Isthmia a large quantity of debris was recovered from the from the finishing of the columns of the classical temple of Poseidon that helps to explain many of the key stages of the process. The debris consists of over 3,000 pieces of poros stone removed when the columns were fluted. On the surface of several fragments from the tops of drums a carved notation was found filled with red paint. The notation consists of a series of vertical strokes followed by a letter that appears to specify the vertical position of each drum and the column to which it was assigned. Pieces from the lower end of the drum have an arrow to indicate which end was to be installed up. The consistency and smoothness of the curvature show that a lathe was used to cut the surface of the drums. At the top of the drum, the lathe was used to carve a fascia that may indicate the amount of entasis each drum would require in its final dressing. Finally a series of marks show the position of each flute.

JUDITH S. HULL, **The School of Upjohn: Richard Upjohn's Office**, *Journal of the Society of Architectural Historians* LII, 3 (September 1993), pp. 282-306. The office of Richard Upjohn (1802-78) has long been recognised as an important force in mid-19th century United States architecture. Its large size compared to that of Alexander Jackson Davis, who worked alone, and its early concern with the development of professional standards, distinguished it in the still-pre-professional building world. Upjohn himself is chiefly remembered as the Gothic revival architect of Trinity Church, Wall Street (1839-46) and the first president of the AIA. Teaching young architects was another key aspect of Upjohn's office. This article discusses the character of the office as well as its occupants in order to explain the nature of this educational enterprise and its legacy which includes a number of distinguished late-19th-century architects such as Solon Beman, Leopold Eidlitz, and Charles Babcock as well as Richard Mitchell Upjohn, his son, and many lesser figures. (See also entry under Cohen.)

R. J. MAINSTONE, **Engineering a Cathedral**, *The Structural Engineer* 72, 1 (4 January 1994), pp. 13-14. This paper is a summary of Dr Roland Mainstone's concluding remarks at the conference "Engineering a Cathedral" held at Durham in September 1993. The full set of papers is published by M. J. Jackson, *Engineering a Cathedral* (London, Thomas Telford, 1993).

D. McQUILLAN, **Dredge Suspension Bridges in Northern Ireland**, *The Structural Engineer* 70, 7/7 (April 1992). James Dredge of Bath patented his concept of chains of reducing thickness and inclined hangers in the 1830s. Five bridges of this type were built in Ulster; four examples survive and they are described and their current condition highlighted.

BERNARD NURSE, **Planning a London Suburban Estate: Dulwich 1882-1920**, *The London Journal* 19, 1 (1994), pp. 54-70. Between 1882 and 1920 Dulwich was transformed from a rural hamlet to join the built-up suburbs of London, at least around its boundaries. Landed estates on the peripheries of expanding cities have generally been seen to be tightly circumscribed by commercial realities and ineffective in resisting contrary pressures. It is possible to examine this view in Dulwich, for the Dulwich College Estates produced sufficient records over a long period of time to show whether their policies made any difference to the character of building in the area. Analysis of the Governors' minute books, correspondence with would be developers, the Charity Commissioners and, later in the period covered, with the local authority (Camberwell) give many valuable insights into the economic and political realities of development in one of south London's most extensive suburban estates.

MICHAEL MORRIS, **Towards an Archaeology of Navvy Huts and Settlements of the Industrial Revolution**, *Antiquity* 68, 260 (September 1994), pp. 573-84. Around any great construction enterprise, whether Victorian railway viaduct or contemporary motorway, there will be a passing scatter of huts and buildings, swept away when the project is complete and the builders have moved on. Before mechanisation and the ability to transport workers daily from their homes to the site, large construction meant large numbers of hands and large temporary settlements which have left their archaeological trace. This article gives an overview of the different phases and sizes of navvy-based construction operations for the canals (1760s-1830s), railways (1830s-1880s) and the larger public works projects of the 1880s to the 1930s. It reviews the different types of barracks, shanty-towns and planned temporary settlements which catered for the needs of the navvies who – despite their devil-may-care image – generally worked and lived in bleak conditions.

OLGA PALAGIA & ROBERT STEVEN BIANCHI, **Who Invented the Claw Chisel?** *Oxford Journal of Archaeology* 13, 2 (1994), pp. 185-197. The tools and equipment used in building work and its finishing trades are an important but neglected aspect of construction history. This article discusses the introduction of the claw chisel in early stonemasonry and sculpture. Claw chisels are particularly suitable for dressing large horizontal areas, and mark an intermediate stage between blocking out with a point and modelling with a flat chisel. The tool was thought to have been invented in 6th-century BC Greece for the needs of marble carving, of which Egypt had none. The Egyptians generally worked granite and other hard stones by pounding and abrasion; their tools for cutting soft stone were originally of copper, later of bronze, while the Greeks cast theirs in iron for carving marble. Until recently no trace of the claw chisel had been found outside Greece before the 6th century BC. The discovery of its distinctive markings on a tomb of 7th-century Egypt in soft limestone, now suggests not only that the Greeks borrowed it from the Egyptians, but also that it was not originally a marble worker's tool. The article provides much valuable information on early stone-working methods.

PATRICIA PREECE, **Some Eighteenth Century Chain Surveyors: the Work of the Beddings of Bucklebury, Berkshire**, *Local Historian* 23, 4 (November 1993), pp. 218-27. The author's work on woodlands and their management brought her into contact with a number of estate surveys by William Bedding of Bucklebury, and his son, Robert, who were active as rural surveyors in late-18th and early-19th-century Berkshire. Her paper provides much useful information on the instruments, working methods and fees charged by small-time country professionals.

ANN PRIESTER, **Bell Towers and Building Workshops in Medieval Rome**, *Journal of the Society of Architectural Historians*, LII, 2 (June 1993), 199-220. Thirty-five medieval bell towers, along with dozens of churches such as S. Clemente, S. Crisogno, S. Maria in Trastevere and S. Lorenzo fuori le mura, survive as testimony to a boom in ecclesiastical construction in Rome during the twelfth and early thirteenth centuries. This article focusses on those bell towers, using computer database analysis of their architectural and decorative features to investigate the nature of building workshops in medieval Rome. A comparison of a number of variable features among the bell towers, such as masonry techniques, cornices and decorative details, uncovered patterns of similarities and differences which may be attributed to workshop practices. Four distinct groups of bell towers are identified on the basis of these features, which suggest the existence of four workshops of brick masons active in this form of construction. Finally, the article addresses specialisation within medieval Rome's building industry, the circumstances behind a rapid decline around 1200 of bell tower building, and the fate of the workshops that built them. By the early thirteenth century prestigious architectural commissions (such as the cloisters at the Lateran and S. Paolo fuori le mura) were given to marble workers rather than to brick masons.

THOMAS RUTLEDGE, **A 12th-century Building on the London Waterfront**, *London Archaeologist*, 7, 7 (Summer 1994), pp. 178-183. An unusual medieval foundation technique is described, from a mid-12th-century building in London's Vintry, the heart of the Anglo-Norman wine trade. The trench footing just over 1m wide and originally about 0.7m deep had been lined with radially-split beech logs up to 1.2m long, laid across the trench, with the space between the ends of the cleft wood and the edge of the cut packed with chalk rubble. The horizon was sealed by a levelled layer of gravel and chalk packing up to 100mm thick. Over this were set large timber baulks up to 6m long and 0.5m wide,

box-halved in straight-grained oak, laid in pairs along the trench to serve as sole plates for masonry walling. The building probably served as a small stone warehouse, and the author suggests that the unusual timber construction of the foundation may have been of foreign origin.

IAN SHAW, **Pharaonic quarrying and mining: settlement and procurement in Egypt's marginal regions**, *Antiquity* 68, 258 (March 1994), pp. 108-119. Although much research has been devoted to the monuments and funerary equipment of pharaonic Egypt, little attention has been paid by archaeologists and historians to the procurement of the raw materials essential to these two aspects of their culture, despite many surviving ancient texts recording these activities. Ian Shaw's article surveys the main quarries for different construction stone (granite, sandstone, limestone, basalt, travertine and gypsum) as well as mines for gold and semi-precious stones active in various periods of exploitation. The evidence of private and public sector workers' accommodation in temporary encampments or permanent settlements is reviewed. The Middle Kingdom miners' fortress at Wadi el-Hudi and the rectangular walled quarry settlement at Qasr el-Sagha are illustrated.

JOHN SHEAIL, **'Taken for Granted' – The Inter-war West Middlesex Drainage Scheme**, *The London Journal* 18, 2 (1993), pp. 143-156. Improved transportation, the establishment of light industry and the cheap money of the 1930s all fuelled the dramatic expansion of London's suburbs between the wars. Estates of three-bedroomed, semi-detached houses spread rapidly across the hitherto open landscape, and the wastes from these houses soon brought about a crisis in the management of the local rivers and streams. Flooding and pollution were the inevitable and predictable consequences of the inter-war building boom, and this article provides a valuable review of the legal mechanisms available to the local authorities, as well as insights into the politics of environmental management in the early days of town and regional planning. The controversy surrounding the Middlesex County Council's plan for a sewage treatment works at Syon Park forms the core of the paper. Here regional environmental interests were opposed by the nascent "Heritage" movement in an instructive early example of the NIMBY (not in my back-yard) phenomenon.

N. A. F. SMITH, **The Roman Bridge-Builder: Some Aspects of His Work**, *The Structural Engineer* 71, 9 (4 May 1993), pp. 160-165. One of the Institution of Structural Engineers Star History Lectures, this paper is a thoughtful survey of the state of knowledge of Roman bridge-building techniques. The author, an engineer from Imperial College, makes use of archaeological publications and his own engineering expertise to discuss some of the more practical aspects of Roman bridge-building in different provinces of the empire, as well as the historical issues of the speed and chronology of technical diffusion.

PAULA SPILNER, **Giovanni di Lapo Ghini and a Magnificent New Addition to the Palazzo Vecchio, Florence**, *Journal of the Society of Architectural Historians* LII, 4 (December 1993), pp. 453-65. In a previously unnoticed provision of 1371, the Signoria and Councils of Florence approved a plan to construct an addition to the Palace of the Priors, now known as the Palazzo Vecchio. This article analyses the main features of the provision, including the financing of the project, the selection of a building committee, and the appointment of the architect Giovanni di Lapo Ghini as superintendent of the work.

J. STOPFORD, **Modes of Production Among Medieval Tilers**, *Medieval Archaeology* XXXVII (1993), pp. 93-108. In early construction history it is often difficult to separate

do-it-yourself building and materials production from the operation of a market in which specialist suppliers or fabricators sold their services. Using the scattered evidence of production of floor tiles in the 13th and 14th-centuries as the focus of his inquiry, the author discusses the implications of alternative modes of production by intinerant workers, intermittent producers and settled production sites. Itinerants travelling long distances suggest limited supply and transport insufficiently developed to distribute goods. Settled sites suggest stronger markets and transport access for raw materials and distribution as well as capital. Part-time tile production could alleviate the uncertainties of agriculture but, for the consumer, severely limited the supply of goods. Evidence from a number of production sites will interest historians of construction materials.

R. J. M. SUTHERLAND, **Active Engineering History**, *The Structural Engineer* 72, 13 (5 July 1994), pp. 205-212 and discussion pp. 213-216. Part of the Star History Lecture series of the Institution of Structural Engineers, this paper and its discussion is a thoughtful analysis of the role of history in the training and professional development of Structural Engineers. Some interesting comparisons are drawn between the different methods employed in the training of engineers and architects, the latter group having generally relied more heavily on history in their training, albeit more for its cultural aspects than for specific lessons learnt.

SUSAN B. TAYLOR-LEDUC, **Louis XVI's Public Gardens: The Replantation of Versailles in the Eighteenth Century**, *Journal of Garden History* 14, 2 (Summer 1994), pp. 67-91. The replanting of the formal garden of Versailles – one of the great symbols of royal absolutism – was the first of several official gestures by Louis XVI's minister D'Angiviller to revive and reorient the monarchical image. This study of Versailles from 1774 to 1776 is intended primarily to make available a wide variety of unknown archival documents and plans demonstrating 18th-century French planting practices and designs. It also offers evidence of the role of financial considerations in determining the fate of the garden early in the reign of Louis XVI, who had inherited from Louis XV a severe cash shortage. The operation focussed on the harvesting of mature timber from the forested parts of the garden, which was sold on to the Navy for much-needed timber thus, at once, yielding a new image as well as a revenue for the depleted Treasury. In the end, Le Notre's original layout was preserved because it proved cheaper to replant the cleared and cleaned areas than to embark on a new scheme.

JOHN CHEVENIX TRENCH, **Another Thirteenth-Century House for Buckinghamshire?** *Records of Buckinghamshire* 34 (1992) pub. 1994, pp. 14-29. Pendyce House, Ivinghoe, is shown to have been an aisled hall with a roof containing crown posts and passing braces. The two-bay hall originally had in-line solar and service bays. There was a pre-crown-post phase in which the aisled hall had a coupled-rafter roof with passing braces, and what remains of this phase probably adds more to Buckinghamshire's scanty tally of thirteenth-century houses. Later, crown posts and a collar purlin were inserted, and later still a base cruck. It is argued that the house was built by, or for, the tenant of the rectorial glebe. Excellent drawings and photographs of the roof construction illustrate the paper.

JOHN R. TURNER, **Sir Walter Scott (1826-1910), Civil Engineering Contractor**, *Transactions of the Newcomen Society* 64 (1992-93), pp. 1-22. From very humble origins and a modest education in Cumberland, Walter Scott was apprenticed as a stone mason, rose

to the position of foreman to a gang of navvies building railways before he was 22 and, by the age of 23, had gone into business on his own account as a contractor and builder in Newcastle. An architypical 19th-century self-made man, his firm successfully prospered in a variety of building and civil engineering projects, his most celebrated undertaking being the construction from 1887 of London's first deep underground railway "tube", the City and South London line, which ran from the Monument to Stockwell and went under the Thames using the Greathead Shield to tunnel through soft soil. Although not himself an inventor or innovator, Scott was an exceptional organiser and businessman, whose estate was worth nearly £1.5 million when it was proved – making him one of only four contractors to have died before the First World War worth more than one million pounds.

CAROLYN VALONE, **Women on the Quirinal Hill: Patronage in Rome, 1560-1630**, *Art Bulletin*, LXXVI, 1 (March 1994), pp. 129-146. Although the matron as patron is of considerable importance in construction history, it has been much neglected until the recent rise of women's studies. Despite a number of legal restrictions on a woman's use of her own money – typically requiring a male relative's consent to major expenditure – women were no less able to afford building patronage than men, and their tendency to outlive the husbands meant that they were often better able to see projects through to conclusion. This article concentrates on the patronage of pious institutions, but the implications are far wider than this.

SAMUEL R. WOLFF, **Archaeology in Israel**, *American Journal of Archaeology* 98, 3 (1994), pp. 481-519. The section on "Roman Roads of the Lower Galilee" reports work done in 1991-92 by Israel Roll and Benjamin Isaac of Tel Aviv University on the military road building programme of c. 69 AD in the Province of Judaea. One of the most important construction projects of the Imperial administration, it involved road stations, commemorative buildings, bridges and milestones as well as the 1,000 Roman miles of permanent way. Sections revealed ten separate elements of construction: (1) bedrock, on which a thin layer of compacted earth was deposited (2), with a thicker layer of fieldstones and wadi pebbles in a matrix of local field soil (3). The main foundation consisted of four layers (4-7) on which the fieldstones (9) of the road were placed. Two sets of kerbstones were used, an upper one (8) bordering the pavement (4.5 m wide), and a lower one (10) bordering the street's foundations (width 7.5 m). Although similar to roads in Italy and the West, this is a much more complex operation than is common in the eastern provinces.