Heard and Seen

DIMENSION, PROPORTION AND DESIGN

Proportion theory, like horse racing, either leaves people quite cold or becomes addictive. One man looks at a painting, an architectural façade or a sea-shell; notes that its arrangement pleases his eye, enjoys it for a while, and leaves it at that. Suggest to him that there may be some ascertainable, some measurable *raison d'être* for the satisfaction he feels, and he will be bored or even hostile: he prefers that such agencies shall remain mysterious. But one in many thousands will react differently. Sensing that some subtle order underlies any visual pleasure in which relationship of parts to a whole is involved, he will busy himself with dividers, compass and set-square until he has found, or thinks he has found, the regulating principle. The experience, it is not too much to say, will be intoxicating. Has he not formulated and made plain what to the generality of men is impalpable, has he not put salt on the tail of the Bird of Beauty and held her in his hand?

But let him beware! He is already irredeemably an addict: having once seen the complexities of a design resolve themselves into a crystalline diagram on his drawing-board he will be avid for a repetition of the experience. And unless he is gifted with scientific detachment and an uncommon scrupulosity in the weighing of evidence, he is on the way to becoming, not so much an addict, as a monomaniac or crank. For, having discovered what may well be a valid formula for a particular case or class of cases, he will be tempted to give it universal application and in so doing to falsify data, ignore the designer's intentions, and turn a blind eye to significant discrepancies. His case will then be little better than that of the Baconian or the predicter of the future from the pyramids of Egypt, or the promulgator of Lost Atlantis.

'If one takes the trouble to delve into some of the proportional analyses of the "poor old Parthenon" (to quote Theodore Cook) published from Penrose's days on (1851), it will be seen that almost anything can be proved: that the design was based on the Golden Section (Zeising, 1854), on commensurable ratios (Pennethorne, 1878), on triangulation (Dehio, 1895), on the ratios of small whole numbers (Raymond, 1899), on root-five rectangles (Hambridge, 1924), on Greek modules (Moe, 1945), and so forth'.

Thus writes Professor Wittkower in an article in the winter, 1960, issue of *Daedalus*. Somewhat ruefully, Wittkower notes the present lack of consensus, particularly among architects, as to the validity of proportion systems in general and as to the relative merits (if systems are to be regarded as valid) of Pythagorean-modular, root-rectangle-modular and technological-modular approaches: but is himself inclined—as how should so great an authority on Renaissance architecture not be—to come down on the system-favouring side

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as against to the Romantic-subjective. He adduces in support the much younger science of perception psychology:

'It has been found that in animal as well as human behaviour symmetrical and regular forms—forms, in other words, which can be expressed in terms of simple mathematical relations—are seized upon. The human brain is capable of ordering the most complex sensory stimuli and shows a clear preference for simple mathematical patterns'. (*ibid.* p. 213).

To the present writer this last consideration would by itself suffice to decide the issue. The arguments against proportion theory in the end all boil down to a denunciation—often enough merited, no doubt—of its doctrinaire, aprioristic or insensitive application: in a word, of crankery. Either that or they are the outcome of old-fashioned Romantic 'artiness'—the view that to analyse a beautiful thing is to destroy its aesthetic potency: that understanding and enjoyment are irreconcilables. The music critic Hans Keller in a recent BBC 'Monitor' programme went so far as to assert precisely that 'enjoyment is a function of understanding'. To those of us who agree with him the whole subject of proportion is thus very much alive, and new contributions to it, if they avoid the aberrations mentioned above, are warmly welcome.

Two British investigators have recently published studies, the one general and the other specialized, but both of so conscientious, exact and level-headed a nature as to indicate that the era of the crank is indeed behind us. In *The Theory of Proportion in Architecture* (Cambridge University Press, 1958), Mr P. H. Scholfield, in the course of an admirable general survey, does a particularly useful job in unravelling certain obscurities in Vitruvius which seem to have defeated even Sir Isaac Newton.

Mr B. G. Morgan's book[1] is specifically concerned with the geometry of Gothic design. Nor has he been content, as some earlier theorists were, to use 'Gothic' as a blanket term covering every edifice with pointed arches from St Denis to Milan Cathedral—and then to impose a generalized principle on all the regional and evolutionary variants involved. Instead he has limited his scrutiny to English Gothic, and in particular to a comparison between the buildings of the King's Master Masons designed in a relatively continentalizing taste on the one hand, and those of the 'provincial' tradition on the other. To certain royal Master Masons (Henry de Reyns, Henry Yevele, Robert Vertue *et al.*) secure attributions can be made, and biographical details concerning them (so much for the 'anonymity of the medieval artist!') are known. These details Mr Morgan compendiously gives, then proceeds to a careful examination and tabulation of the principal dimensions of their buildings.

It emerges, among other things, that architects in the royal as opposed to the 'provincial' tradition showed a marked preference for nave-section ratios which would given an impression of great height, irrespective of actual

[1]*Canonic Design in English Medieval Architecture*, by B. G. Morgan; Liverpool University Press; £2 2s.

magnitude. But no module of length, no 'preferred dimension' is discernible. So the author falls back on the conjecture that . . . 'if a regulating system of design existed, it might well have been based on some elaboration or extension of the geometrical practices which infused the craft of masonry, and the possibility that these dimensions are geometrically related should therefore be examined'. At this point he has a veritable inspiration as to the significant clue. Several representations survive (on brasses, etc.) of Master Masons with the insignia of their office, among which is notable an L-shaped instrument known as a mason's square: and an actual example, made of iron, was discovered at Liverpool in 1957. Implicit in the geometry of these squares, the two types of which Mr Morgan closely analyses, are certain proportions related to the Golden Section and the equilateral triangle as well as to the square and double square. Their mathematical coherency would perhaps be questioned by root-rectangle purists such as Jay Hambidge: but clearly they could be used to govern and give visual consistency not only to the general design of a building in terms of plan and elevation, but also—if put into the hands of the man on the scaffold as a working tool—even the smallest phases of detail.

This Mr Morgan very convincingly, and with a wealth of diagrams, argues to have been the case. He reproduces engravings—very fine ones—of important plans, sections, elevations and details, and superimposes upon them in red the *tracés regulateurs* he has developed from the mason's square. The whole is a fascinating and original work of detective investigation, acutely conceived and brilliantly carried through. It is, moreover, admirably presented in terms of layout, typography and illustration. No addict (as defined above) can afford to be without it. And it can be warmly recommended to any other architecturally-interested persons whose feeling for Gothic goes beyond a Walpolian enthusiasm for the twilit medieval—those, in fact, for whom it will be a pleasure rather than a disappointment to discover that the architecture of the Middle Ages, no less than the theology, had a strong basis of regularity and method: one, moreover, that legislated ingeniously for individual creative freedom and invention.

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