Measurement and metaphor:

THE DESIGN AND MEANING OF BUILDING 3 AT FISHBOURNE ROMAN PALACE

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The line of thought presented in this article was prompted by a practical exercise, organized by the author, at Fishbourne Roman Palace in the summer of 1999. The main aim of that work was to elucidate how the surveyors and architects of nearly two thousand years ago had laid out the ground-plan of a Roman building (which we call 'Building 3'), uncovered between 1995 and 1999. That functional aim was achieved relatively quickly and easily. However, in reading more widely on the subject of Roman architectural practice, it became evident to me that there were other layers of meaning, apart from the geometry of ground-plans and specifics of Roman units of measurement. Considering the writings of Vitruvius prompted ideas about how the builders and users of Building 3 might have employed symmetry, experienced harmony, and read different metaphors into that particular masonry building. Indeed, the very units of measurement could have been drawn from the metaphor of the human body. These concepts are presented in this article. These ideas are stimulating, and even provocative; they suggest new and different ways of looking at a whole range of Roman buildings and this article reveals a potential for further enquiry, in the hope that in due course someone will realize that potential.

The Roman architect Vitruvius wrote his ten books on architecture (*De Architectura*) during the principate of Augustus. They formed a treatise on the architecture of the day and may have informed some students and practitioners of contemporary architecture wherever fine Roman buildings were required in the Empire. That is not to imply that the tenets espoused by Vitruvius were always slavishly adhered to; indeed, there is little evidence to suggest that his ideas were influential and that his text was read and followed by other architects. There is a question mark over how much of Vitruvius' writing actually reflected Roman architectural practice. Vitruvius was trying to define how architecture should be, rather than how it was.

In one of the farthest provinces of the Empire, at a place now called Fishbourne, near Chichester, an architect[1] in the middle years of the 1st century AD was busy designing a building that, superficially at least, seems to owe something to the tenets found in the writings of Vitruvius. The complete ground-plan of this building (Building 3 - 'B3') was revealed during excavations conducted by the Sussex Archaeological Society between 1995 and 1997, showing it to be a building of classical style and symmetrical characteristics. This article debates the extent to which the writings of Vitruvius[2] illuminate the design and significance of building B3.

FOR VITRUVIUS SYMMETRY IN BUILDINGS WAS VITALLY IMPORTANT

> Symmetry is a proper agreement between the members of the work itself, and relation between the different parts and the whole general scheme, in accordance with a certain part selected as standard. Thus in the human body there is a kind of symmetrical harmony between forearm, foot, palm, finger, and other small parts; and so it is with perfect buildings. Vitruvius Book I, 3

> The design of a temple depends on symmetry, the principles of which must be most carefully observed by the architect. They are due to proportion. Proportion is a correspondence among the measures of the members of an entire work, and of the whole to a certain part selected as standard. From this result the principles of symmetry. Without symmetry and proportion there can be no principles in

> the design of any temple; that is, there is no precise relation between its members as in the case of those of a well-shaped man.
> Vitruvius Book III, 1
>
> There is nothing to which an architect should devote more thought than to the exact proportions of his building with reference to a certain part selected as standard. After the standard of symmetry has been determined . . . Then, lay out the ground lines of the length and breadth of the work proposed, and when once we have determined its size, let the construction follow this with due regard to the beauty of proportion . . .
> Vitruvius Book VI, 2

In Vitruvius' view, symmetry was a critically important concept in the design of any prestigious building, and particularly in one that was to have religious significance. Symmetry encompassed the complementary, yet distinct, principles of measure, ratio, proportion, number and shape (Wilson Jones 1989, 124). Symmetry was also conducive to harmony. A symmetrical building was like the body of a well-shaped person and Vitruvius clearly saw a symmetrical building as a metaphor for the perfectly proportioned and balanced human body. The general concept of symmetry is an extremely ancient one and the term originates from the Greek word *SUM-METRIA* that means 'measuring together', or 'due proportion' and has been attributed to the Greek sculptor Polykleitos from the 5th century BC. However, general architectural symmetry is clearly much older and can be appreciated in the design of many earlier structures, from a variety of cultures around the world.[3]

In the Greek civilization, and many others subsequently, the presence of symmetry in objects and works of art was considered to be the ideal and the most aesthetically pleasing form. Ancient Greek mathematicians and philosophers alike studied symmetry because they felt it was central to understanding the apparent 'harmony' of the world. Plato and Aristotle believed that the tapestry of the planet and the rest of the universe was laid out on a perfectly symmetrical framework. Greek physicians believed that symmetry (or balance) was also the key to health and well-being. This conceptualization of symmetry representing perfection is still strong today; and symmetry, in one form or another, is prevalent in every culture and is regarded by some religions to be a manifestation of divine works.

Bilateral symmetry, particularly in the vertical plane, is the easiest to perceive (Rock 1973; Corballis & Roldán 1974; Fox 1975). The next easiest to detect is symmetry in a horizontal plane, and then diagonal symmetry (Palmer & Henenway 1978). Symmetry can be detected in several planes, therefore indicating that this process of perception is very flexible. It appears that humans mentally rotate images to the vertical axis and then assess symmetry (Shepard & Metzler 1971), hence there appears to be a hierarchy of planes. In the case of standing architecture, however, the vertical emphasis is likely to be predominant. For example, when the front of a Roman temple is viewed from the outside, the bilateral symmetry of the façade is accentuated by the even number of columns. The invisible vertical dividing line separating the two innermost columns is drawn down by the eye from the highest point of the pediment, which itself accentuates the vertical division.

Symmetry, therefore, can be equated with balance, harmony and attractiveness.[4] Studies by evolutionary biologists have shown the important link between fluctuating asymmetry and fitness at the population level, but it has only been relatively recently that researchers have investigated the relations between individual levels of asymmetry and individual fitness. For example, Parsons (1982) found that low levels of asymmetry were linked with maximum egg hatchability in *Drosophila*. There have been numerous other accounts of a negative relationship between asymmetry and purported measures of fitness, mainly in fish and invertebrate species. Visual symmetry is paramount for humans. In human populations symmetric human faces are more likely to be found sexually attractive than asymmetric ones (Møller & Swaddle 1997). In this way, the human face can provide another powerful anatomical metaphor for balance, harmony and attractiveness.

BUILDING 3

Building 3 at Fishbourne was constructed in the middle years of the 1st century AD.[5] It was almost certainly constructed on a green-field site. There is slight evidence for a small timber structure beneath it, but this may have been demolished by the time B3 was built. The architect, therefore, was not

constrained by having to fit a building into an already built-up landscape.[6] The famous Flavian Palace at Fishbourne was constructed some 15 to 25 years afterwards (Cunliffe 1998), the front face of the Palace being no more than 25 metres from the west side of B3 (Fig. 1). The only discernible effect on B3 of the construction of the Palace was the demolition of flanking walls that ran to the north and south of B3 from its western end. Archaeological evidence suggests that B3 survived in front of the Palace until the end of the 2nd century AD, while the Palace was eventually abandoned after a serious fire in the last quarter of the 3rd century.

Building 3, from the evidence of its ground-plan (Fig. 2), was designed around an internal courtyard. Its overall *footprint* was that of a rectangle measuring approximately 120 Roman feet[7] (one *actus*) east–west and 72 Roman feet north–south, a ratio of 5:3. The *actus* was the principal measurement of Roman surveyors (Dilke 1971, 82). The symmetry of its layout was emphasized by the construction of identically proportioned rooms in the north-west and south-west corners (Fig. 3). These two rooms are mirrored by equivalent spaces in the north-east and south-east corners, forming the end rooms of a presumed hall-like structure that forms the east side of B3. To the north and south of the courtyard were ambulatories whose internal walls stop in identical positions. The cross-walls of the hall-like structure line up with the internal walls of the identical rooms on the west side of B3. The ground-plan of B3 is, therefore, symmetrical.[8]

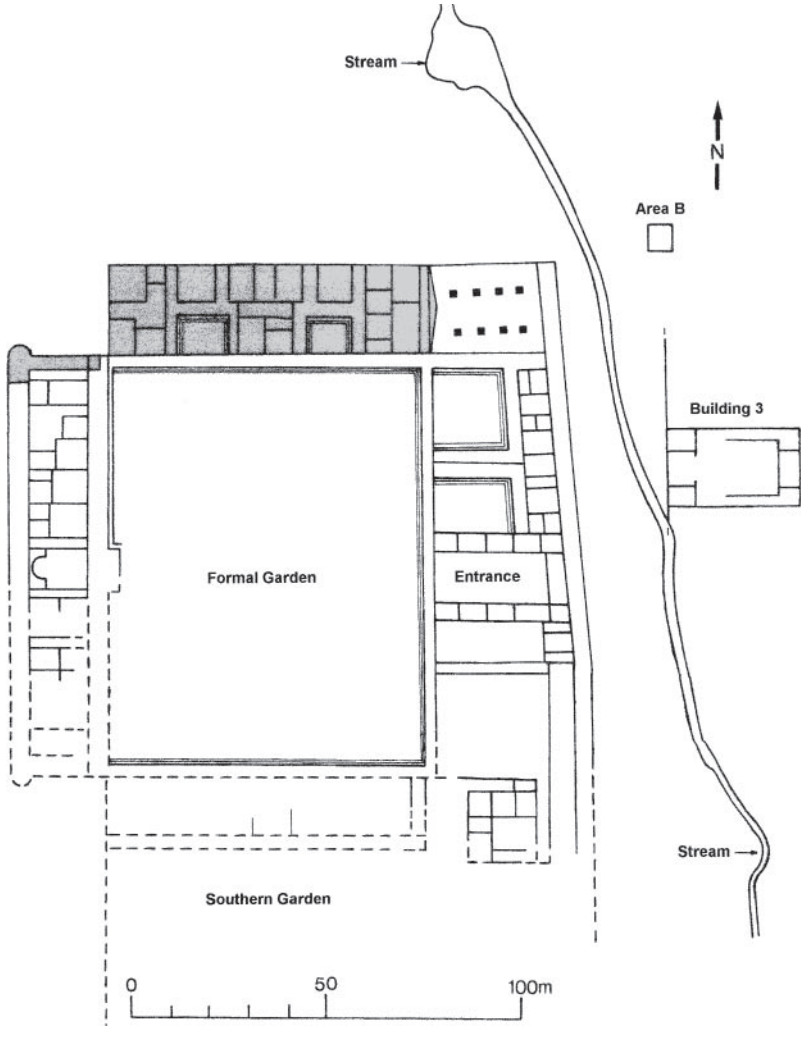

Fig. 1. Fishbourne Roman Palace and the location of B3 in relation to the Palace. Shaded = areas beneath modern cover building; Dashed = conjectured wall lines.

FOR VITRUVIUS THE HUMAN FORM WAS THE SOURCE OF KEY MEASUREMENTS

> Further it was from the members of the body that they derived the fundamental ideas of the measure . . . the finger, palm, foot and cubit.
>
> The perfect number the ancients fixed upon was ten . . . ten is naturally perfect being made up by the fingers of the two palms . . .
>
> And further, as the foot is one sixth of a man's

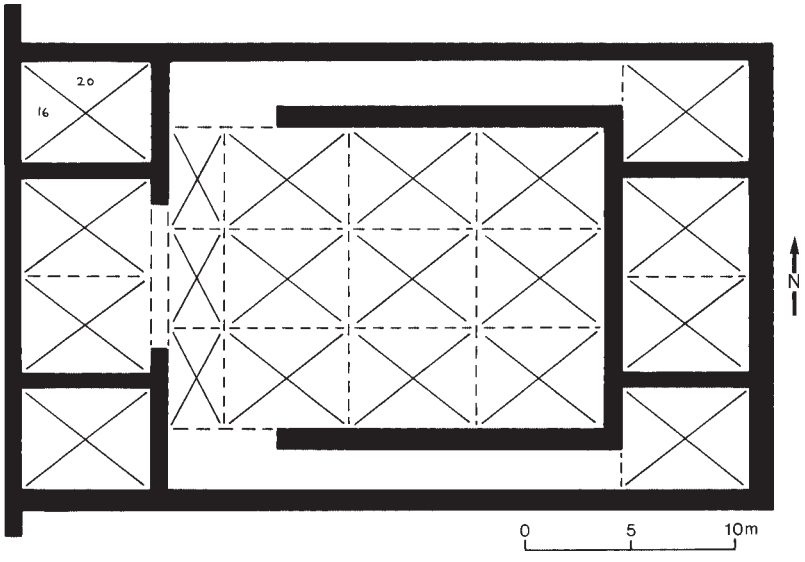

Fig. 2. The ground-plan of B3 with multiple surveying units of *16 by 20* Roman feet superimposed.

> height . . . they *[the mathematicians]* held that this was the perfect number *[i.e. six],* and observed that the cubit consisted of six palms or of twenty-four fingers.
>
> But later, observing that six and ten were both of them perfect numbers, they (our countrymen) combined the two and thus made the most perfect number, sixteen.
> Vitruvius Book III, 1

The numbers 6, 10, 16 are, therefore, significant numbers (along with the number 24) and measures to be used in the layout of properly proportioned buildings. Indeed, a measuring rod of 10 Roman feet was known as a *decempeda* (Dilke 1971, 73). In a study of 26 large buildings in Rome, constructed between 100 BC and AD 500, it was noted that multiples of these numbers (in Roman feet) could be discerned underlying the design of the selected buildings (Wilson Jones 1989). The preferred multiples chosen coincided with the finished edges of the walls.

The assumed design drawings of B3 were presumably worked up around the basic requirement of having the correctly-sized internal spaces for the activities and functions that the building was destined to contain. Inevitably, there would have been a hermeneutic interplay during the design process, between internal spaces and external dimensions and proportions, which were resolved once the two were deemed to be in balance.[9] Once the scaled design drawings of B3 were approved, the standard method of translating the drawings into reality on the ground would, presumably, have been to lay out the outline ground-plan of the building first (i.e. the external faces of the outside walls — a simple rectangle), and then lay out the internal spaces. The standard piece of surveying equipment was the *groma* (Adam 1994, 10), an instrument designed to make the laying-out of right-angles easy, although difficulties were probably encountered in windy conditions (Adam 1994, 13). The chosen location at Fishbourne would have been subject to the wind occasionally, but nothing out of the ordinary. Evans (1994, 151) makes the valid point that Vitruvius does not mention the *groma* and that a more accurate and simple way of achieving right-angles on the ground would have been through the use of a wooden '3-4-5' triangle, or set-square, known as a *norma*. The green-field site was reasonably flat, both in antiquity and now, so there would have been no complications relating to surveying or measuring over sloping ground once right-angles had been established. The lines of the external wall faces were probably measured out using lengths of rope or rods marked out in multiples of Roman feet.

There are two further points that need brief consideration here. The first concerns the necessity of any drawn small-scale design, assumed to be a preliminary before any work on site was undertaken. While the process of translating from scale design to site works is taken as granted in contemporary architectural practice, we need not assume such a process in antiquity. The ground-plan of B3 is of such simplicity that a mental template may have sufficed. In practice (*see* below), the time taken to lay out the ground-plan of the building at a scale of 1:1 (actual size) was negligible and it may have been

just as quick and more realistic to lay out and change dimensions on the ground.

The second point concerns the overall accuracy to be anticipated in the layout of wall-lines for buildings. Evans (1994) has enumerated various stages in the process where inaccuracies might have crept in. Roman measuring rods could contain errors and the calibration on a measuring rod from Caerleon was more than 20 per cent in error; it is assumed that long wall-lines were laid out using cord and this could vary in length depending on how wet or dry the conditions were. Right-angles were clearly a requirement in rectangular buildings but, in practice, there are numerous examples of building plans from Roman Britain where they were not achieved,[10] probably through lack of adequate supervision; on occasion, different work-gangs might have been responsible for different parts of the same building, with inevitable discrepancies resulting.

Fig. 3. The excavation of B3 — the western range from the north; the nearest room has internal dimensions of *16 by 20* Roman feet. Scales are 2 metres.

Given the overall shape and size of the building, and the ratio of 5:3 of the external walls, it is possible to superimpose a variety of smaller rectangles of varying sizes onto the ground-plan of the building. In trying to read off the correctly-sized multiple, we are trying to identify the *certain part selected as standard*[11] that is often mentioned by Vitruvius (Book I,3; III,1; VI,2 - *see* above). There is no way of doing this other than on an empirical basis and to assume, by a best-fit procedure, that we have chosen the specific size of multiple used by the Fishbourne architect. There are inherent dangers in this since it necessitates that our logic equates with the logic of architects some 2000 years ago. However, that said, the most obvious *certain part selected as standard* when looking at the ground-plan of B3 is the rectangle defined by the internal wall-faces of the identical rooms on the north-west and south-west of the building. This is a rectangle measuring 16 Roman feet (north–south) and 20 Roman feet (east–west).

When this multiple is superimposed on the ground-plan of B3 its relevance is striking. It can be seen that the *16 by 20* unit forms the internal space in all four corners of the building (Fig. 2). It can also be appreciated that the larger spaces down the east and west sides of the building are formed by two *16 by 20* units. Furthermore, the internal courtyard is formed by three such units north to south, and by nearly three and a half east to west. The only internal area of the building that does not respect the *certain part selected as standard* appears to be the width of the north and south ambulatories, which are 6.2 Roman feet. The walls themselves seem to have been designed as 2 Roman feet wide.[12]

To test the hypothesis, volunteers, under the guidance of one of the excavation supervisors, laid out the foundation plan of B3 during the 1999 excavation season at Fishbourne Roman Palace. It became obvious that use of the *groma*, while visually Roman to volunteers and visitors alike, was time-consuming and potentially inaccurate. It is much more likely that the architects would have used Pythagoras' theorem to define right-angles on small-scale projects involving short distances. The procedure then followed was simple. The four external corner-points of the ground-plan of B3 were fixed and lines between them taped out. A second line was then marked some two Roman feet inside the outer line, so that the line and width of the four external walls were visible. Measuring-rods of 20 and 16 Roman feet were then used to lay out the four corner internal spaces. Internal walls of approximately two Roman feet thick were added around these four corner spaces. At this juncture the lines of all the walls in B3 could be marked out, with the exception of the north and south internal ambulatory walls. Two further measurements were required from the

Fig. 4. The excavation of B3 — the eastern range from the south; note the square pit in the central room. Scales are 2 metres.

inside faces of the north and south external walls in order to fix the positions of the ambulatory walls. In summary, the complete ground-plan of B3 was marked out accurately by untrained volunteers in under three hours.[13]

One final significant structural element in B3 supports the argument of the significance of the figure 10. In the southern part of the central room on the eastern side of the building, a square pit was dug in the first half of the 2nd century AD. The floor of the pit (Fig. 4) was carefully lined with massive, irregular slabs of greensand stone, probably quarried from the Isle of Wight. The pit was of no great depth (about 400 mm) and seems to have functioned as an under-floor storage area (presumably accessed by a trap door in the wooden floor above it), or as an internal pool. The external measurements of the floor of the pit are as follows:

North side	9.93 Roman feet
East side	9.89 Roman feet
South side	10.33 Roman feet
West side	9.96 Roman feet

It seems likely that this feature was laid out using a *decempeda* and a *norma*.

FOR VITRUVIUS A SYMMETRICAL BUILDING WAS METAPHOR FOR THE HUMAN FORM

> In the human body the central point is the navel. For if a man be placed flat on his back, with his hands and feet extended, and a pair of compasses centred on his navel, the fingers and toes of his two hands and feet will touch the circumference of a circle described therefrom. And just as a human body yields a circular outline, so too a square figure may be found from it.
> Vitruvius Book III, 1

> It appears that the ancients had good reason for their rule, that in perfect building the different members must be in exact symmetrical relations to the whole general scheme . . . they were particularly careful to do so in temples of the gods, buildings in which merits and faults usually last forever.
> Vitruvius Book III, 1

The first of these quotations was famously made flesh in a drawing by Leonardo Da Vinci (Fig. 5). Given the emphasis placed by Vitruvius on the human form as template for a perfect building, it is instructive to wonder whether such an awareness was conceptualized by Roman architects or, if not by them, then by the 'ancients'.

In Tilley's (1999) *Metaphor and Material Culture*, he argues that linguistic metaphors are not confined to poetry or high-level prose but form a fundamental construct in the way human beings verbally communicate. Metaphors are, therefore, basic and omnipresent. Metaphor involves comprehending an entity from the perspective of another (Tilley 1999, 4); for example, the understanding of a building from the perspective of the human form. Metaphors possess enormous expressive power in three distinct ways; through inexpressibility, they give form to ideas about the world that are impossible or difficult to convey in literal language; they offer compactness, in that they provide verbal shorthand; and they portray vividness in that they are striking images, easily recalled. Just as linguistic metaphors are impossible to avoid in our daily verbal communication, so too can material culture of all kinds (from the arrangements of monuments in the landscape to the shape of a pot) be imbued with metaphorical meaning and relate to other entities. The human body has long been recognized as a rich

inspiration for metaphors for many elements of material culture, including architecture, and architecture has, itself, stood as a metaphor for elements of the social and cosmological worlds (Tilley 1999, 37–41ff.).

To what extent, then, can the ground-plan of B3 be understood in metaphorical terms?[14] Its symmetry makes it difficult to be precise about the location of entrances to the building. There are no obvious doorways or openings and the method of constructing the foundations seems to have been one of laying foundations of constant depth around all the perimeter of the building, irrespective of the architectural features to be built directly above them. The main entrance/exit could have been from the west or east, or conceivably both. Entrances from either the north or south sides seem more unlikely given the presence of the ambulatories.

- A particular metaphorical reading of B3 would identify the courtyard with the body of the building, just as the nave of a church is often referred to as the body of the church. By extension, the ambulatories would equate with the arms of the building, with the four identical spaces at the four corners being equated with the hands and feet of the structure. Given the uncertainty of which way the building faced, it is difficult to be precise about which rooms might have been hands and which feet.[15] The same uncertainty affects the placing of the head of the building, which could have been in either of the larger spaces at the east or west end of the structure.

- Another metaphorical reading of the layout of B3 might suggest symbolic binary associations between opposing sides and ends of the building.[16] The building is aligned directly east–west and it is possible to extrapolate further these metaphorical associations as follows:
  left-hand : evil : north/west :: right-hand : good : east/south.
  If the building was viewed internally from the west, then it is conceivable that the southern and eastern aspects were conceptualised as 'good' with the northern and western as 'bad'.[17] It is noteworthy that a Roman augur, before observing the auspices, had to ensure he was facing east or south (Dilke 1971, 86).

- The anatomical metaphors could also function in other ways. Skin and orifices serve as media for the exchange and separation of individuals from the world outside, and the inner from the outer self. The orifices permit or prevent passage or contact (Tilley 1999, 38). In such a way individuals using B3 may have perceived the external wall-faces as the skin of the building, and the entrance its mouth, through which they passed to enter the body of the structure.[18]

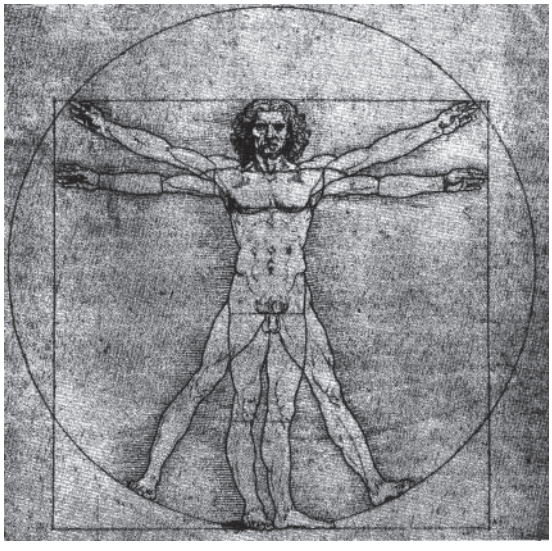

Fig. 5. Leonardo Da Vinci — Diagram of human proportions. *c.* 1485–90.

Vitruvius is silent on the individual experiential perceptions with respect to any building. However, many buildings, especially religious structures, are architectural metaphors for various forms of rites of passage. In itself, a rite of passage is a metaphor for equating a passage, or journey, with a specific ritual. Rites of passage are essential social mechanisms for the continuity of individuals (e.g. marriage), organizations (such as admittance to certain bodies, awards) and of societies themselves. Buildings provide physical arenas for such rites. An individual can enter a building by crossing the threshold, be transformed by some experience within, and exit a changed person. Symmetry in buildings helps to reinforce the individual's experience during a rite of passage. The continuity of the individual's passage or journey is emphasized by the similarity of visual perspectives during entry into and during exit from the building; the difference of the individual's subsequent state is emphasized through the contrast

of symmetrical interior and the asymmetrical world outside. Barrett (1994, 14) has made the point that the immediate point of reference for a person's understanding of the world is his own body. This understanding is not brought to the fore when we objectify space (such as the plan of a building) and in so doing remove the individual from it. We must appreciate how architecture encloses the individual, channels movement and focuses the eye. The ground-plan of B3, clearly symmetrical, would have reinforced the efficacy of any rite of passage, whether the individual entered and exited from the same end of the building or, metaphorically more powerfully, entered from one end and exited at the opposite end.[19]

Vitruvius associated symmetry with the design of temples. Since many temples were not destined to be architecturally altered, symmetry is indirectly associated with perpetuity and immortality. Individuals may have experienced this notion of perpetuity from symmetry. By definition, a symmetrical building loses its symmetry once an alteration is made to it, unless those alterations are in themselves symmetrical. It is noteworthy that of all the masonry buildings known at Fishbourne, both the Palace itself and the masonry buildings that pre-dated the Palace, B3 is the most symmetrical. In addition, all the other masonry buildings on the site have a greater variety of room sizes, and all have some smaller rooms than B3. It is striking that B3 was alone in being unaltered during its 150 years of existence and, therefore, may have been associated with notions of perpetuity. By contrast, the building known as M1 (underneath the west range of the Palace) was demolished, the proto-palace baths were incorporated into the Palace proper, and the Palace itself was substantially modified during the 2nd century AD. All the buildings underwent modification except B3.

Lastly, it is worth remembering that archaeologists examining the Roman period, certainly those working in the UK, have invariably the task of dealing with structures that are two-dimensional and known only from their ground-plans. It is important to note that the elevations of structures such as B3 would have provided, by way of architectural components, decorative forms and colour, another rich field of metaphorical experience.

How can we know, however, that Vitruvius, or the architect at Fishbourne, or the users of B3, or even the ancients, might have conceptualized the layout of the structure in metaphorical terms, and particularly in anatomical terms? And if any of these did not consciously know this did they sub-consciously recognize these metaphors? Of course, we cannot know for certain; but we must be aware of the possibilities.

FOR VITRUVIUS HARMONY IN BUILDINGS WAS A FUNDAMENTAL PRINCIPLE

> In the members of a temple there ought to be the greatest harmony in the symmetrical relations of the different parts to the general magnitude of the whole
>
> . . . those who, in constructing temples of the immortal gods, have so arranged the members of the works that both the separate parts and the whole design may harmonise in their proportions and symmetry
> Vitruvius Book III, 2

For Vitruvius, harmony was particularly important and especially so in religious buildings. In itself, of course, harmony (applied to architecture) is a metaphorical concept drawn from the mathematical principles underlying the concordance of different musical notes and transferred to the domain of architecture. It is remembered in the contemporary metaphor of an individual being 'in tune' with the building they happen to be in, or that a building can be 'in tune' with its setting. Harmony in a building is partly the product of symmetry. Viewed from the perspective of the individual standing in the courtyard/body of B3, harmony would have been appreciated by the duality of the eastern and western sides, and by the complementary ambulatories to the north and the south.

Such harmony acts back upon the individual, producing complementary resonances that encourage a feeling of harmony. A perceived architectural balance, therefore, provides a pro-active metaphor that fosters a sense of individual internal balance, a feeling of being in tune with the building. Such effects could be enhanced, especially in religious buildings, by artificial effects such as controlled lighting, scents, iconic visual imagery, statuary, music, colour and decoration.

Harmony also works on other levels, and

especially on the setting of buildings in their environment. It is generally accepted as axiomatic that Roman towns were laid out using a grid pattern of streets, and that in many cases (but not all) these grids are aligned with the cardinal axes. The significance of such orthogonal grids can be clearly viewed both in functional terms and from ritual and symbolic perspectives (Wolock 1983, 11–12). Indeed, Rykwert (1976) argued persuasively that these two concepts were intertwined and inseparable in Roman mentality. The actual physical shape of a city was fixed through the performance of rites, and modern functional concepts such as economic factors and drainage were conceptualized in mythical and ritual terms (Rykwert 1976, 31). There was an obvious connection between practical surveying and orientations derived from augury. The training of surveyors under the Empire included cosmology and astronomy (Dilke 1971, 16). Certain terms of surveying were also used in augury, and the *cardo* in a town-planning sense may have had its origin in augury (Dilke 1971, 231). Many Roman and Greek temples were aligned east–west, with their façades facing the rising sun, and with altars outside, to the east of the temple building. The symbolic inferences to be drawn from temple alignments, with the deities facing the rising sun, the source and symbol of rebirth and fertility, seem obvious. Such symbolism carries over into the orientations of Christian churches, some of which were deliberately reversed from their pagan predecessors. Building 3 at Fishbourne, and indeed the Palace itself, and the road system pre-dating the Palace, is set on an orthogonal east–west grid, with B3 aligned east–west. It is possible to argue, therefore, that B3 is orientated to maximize its harmonic concordance with some key celestial bodies.

Vitruvius must have been aware of the ritual significance of the celestial bodies but it was typical of him to privilege the more mechanical aspects of the relationship between heaven and earth:

> The heaven . . . is made up of the constellations and the courses of the stars. The heaven revolves steadily around earth and sea on the pivots at the ends of its axis. The architect at this point was the power of Nature, and she put the pivots there . . .
> Vitruvius Book IX, 1

For Vitruvius the alignment of such structures may have been perceived more as referencing nature as architect, reflecting on humankind as architect, rather than the deities in heaven.

DISCUSSION

This study has attempted to throw light (another metaphor) on the significance of B3 at Fishbourne and to assess the relevance of the writings of Vitruvius for its understanding. I have been careful not to indicate what the archaeological evidence for the functioning of B3 suggests. At the time of writing, it is not capable of definitive interpretation, and, indeed, may always be capable of different interpretations. Suffice to say, at present, that the evidence[20] might support a religious interpretation for B3, something that would find resonances in some of the inferences here drawn from the writings of Vitruvius. However, a more plausible hypothesis is that B3 was constructed by the military. In overall size, and in plan form, the building has superficial parallels with military *principia*. In the context of this article the precise function or functions of B3 are in a sense immaterial.[21] It would be wrong to oppose *religious building : symbolically rich* with *a military building : symbolically impoverished*. The probability is that either building would have been designed, laid out, constructed and used by drawing on the same symbolic vocabulary and grammar.

An underlying theme running through much of this article has been the significance and ubiquity of symbolism and ritual in the design of some Roman buildings.[22] This is not a novel theme. Brown (1961, 9) reminded us that the architecture of the Romans was, from first to last, an art of shaping space around ritual. Conformity in ritual practices was emphasized and enforced by the enclosure of space that was complete and rigid. The worshipper, in the prescribed position and orientation in a building, perceived perspectives of front, back, left, right and centre that were symmetrical and constant. The individual experience of any person in the prescribed position was thus unchanging and capable of being replicated exactly each time, and furthermore the actor's experiences were controlled by an unchanging building. Seemingly more prosaic symmetrical constructions and complexes, such as *fora,* amphitheatres, theatres and circuses, were designed to house temples, deities, and be the settings for religious festivals and processions, incorporating orientations, alignments, symbols and

spaces that facilitated such activities (Brown 1961, 28–9).

The fact that B3 was not modified during its 150 years of existence suggests that it was a significant structure. As discussed, it pre-dates the Palace which was erected some 15 to 25 years later, a short distance to the west. Rather than the Palace being constructed on a green-field site or, more specifically, being constructed without hindrance from any pre-existing structures, it is now possible to argue that the Palace was designed to fit into an area loosely constrained by the existence of the proto-palace to the south and B3 to the east.

Vitruvius never visited Britain and knew nothing about Fishbourne. Indeed, he was dead by the time of the Roman incursions in AD 43. Whether the architect who designed B3 was familiar with the writings of Vitruvius will forever remain uncertain. However, he seems to have adhered to the principles that Vitruvius propounded. Building 3 is the most symmetrical of any building at Fishbourne, either the Palace itself or the pre-palace structures.

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NOTES

[1] Architects, along with surveyors, could be either civilian or military personnel. Certainly architects serving with the military are known from Roman Britain (Evans 1994, 146).

[2] It is acknowledged here that this article is forced to place an undue reliance on the writings of Vitruvius, simply because it is the writings of Vitruvius that survive. Vitruvius himself was heir to, and a part of, a long Greco-Roman tradition, which used architecture to express ideas about form and harmony with nature. All quotes from the writings of Vitruvius in this article are taken from Hicky Morgan 1960.

[3] See, for instance, the plan and reconstruction of the funerary temple of Mentu-hotep 1 at Thebes, in Upper Egypt dated to approximately 2000 BC (Manley 1993, 31–7).

[4] Much of the information in the last three paragraphs has been derived from the important work of Møller & Swaddle (1997) cited in the bibliography. In particular the information on symmetry and asymmetry has been taken from their web site (referenced in the bibliography):

Chapter W1 The biological importance of imperfect symmetry.

[5] The evidence for the dating of Building 3 will be presented in full in the forthcoming excavation report. Readers wishing to know more about the interim results of the excavation are directed to the web site of the Sussex Archaeological Society — www.sussexpast.co.uk.

[6] There were other buildings in existence, probably to the west under the later Palace and possibly to the east. However, there do not seem to be any contemporary buildings close to B3 and so it is assumed that the architect was not constrained by a pre-determined plot-size for the structure. Indeed, the flanking walls that run north and south from B3 suggest that the building may have been situated in a much larger enclosure, implying that B3 was largely surrounded by planned open spaces.

[7] The Roman Foot used here is the *pes monetalis*, equivalent to 0.296 metres.

[8] It is important to point out that Building 3 is the most symmetrical of all the masonry buildings at Fishbourne, both the other two pre-palace structures and the palace itself (Cunliffe 1998).

[9] It could be said that this process of designing internal spaces, then viewing the architectural whole, then revising the shape and size of the internal spaces and so on, is a procedure common to much architectural practice. Building 3 was constructed on a green-field site with no apparent physical constraints (in the form of adjacent structures) restricting the overall size of the building. The oscillation between internal and external measurements could be allowed to move without restrictions until the design of a 'balanced' structure was achieved.

[10] For example, in House III S at Caerwent (Wacher 1974, 385).

[11] The assumption here is that this phrase of Vitruvius refers to a common fixed length, or modular shape of fixed dimensions, that was used in the planning and ground-surveying of any building.

[12] It is interesting to note that symmetrical qualities and a standard unit of measurement have been detected in recent excavations at Grateley South Roman Villa in Hampshire. A massive aisled hall has been examined which was divided into a nave and side aisles by pairs of vertical timbers. The plan of the building was strictly modular, the timbers being spaced exactly 20 Roman feet from each other and 10 feet from the wall faces. This suggests that the timber frames may have been pre-fabricated and the walls built only when the frames were in position (Barry Cunliffe pers. comm.).

[13] In suggesting that Building 3 was laid out using this modular approach I am following Evans (1994). However, the difference in our approaches is that I have chosen large modules based on whole numbers of Roman feet. Evans proposes much smaller modular units (e.g. based on 2'6" in respect of the baths at Cowbridge, South Glamorgan) which are not whole numbers.

[14] In exploring this question I am not suggesting that the same or other metaphors could be applied to any other Roman building. I think the approach adopted here would repay further study, however, when applied to other Roman buildings.

[15] It is important to underline here that the whole point of metaphors is that they should not be read too literally. The head of a nail looks nothing like a human head but most people know what is meant by the expression.

[16] Leach (1976, 7) compared the binary opposition of human cognition to the binary coding of computers. The purpose of universal cultural logic was to impose observable boundaries on a world where in reality things merge into one another. According to Leach the human mind suffers anxiety when confronted with ambiguous boundaries and therefore the imposition of binary oppositions helps to make sense of the world.

[17] There are echoes of such associations in other cultures. In ancient China walls of the idealized capital city faced the four quarters of the compass; execution grounds were sited on the west and north (i.e. bad) sides of the city (Loewe 1990, 196). When a Fijian built his house, its form reproduced the structure of the culture in microcosm. The 'chiefly side' faced the sea, the 'commoner side' faced the land (Layton 1997, 95).

[18] The Roman house, for instance, was entered through 'jaws' (*fauces*), but had 'wings' (*alae*) and the atrium (according to Varro) was derived from the Latin for black (*ater*) (Mark Grahame pers. comm.).

[19] I am not saying here that all rites of passage are confined to buildings. Clearly they are not. What I am saying is that the artificially created interior of a symmetrical building, contrasted with the unsymmetrical world outside it, could enhance an actor's perceptions of moving from one state to another.

[20] The evidence for a putative religious interpretation is supported by the location of the building, in front of the later palace, rather than by any artefactual evidence. The small number of diagnostic artefacts lend more support to a military interpretation.

[21] What is significant in the context of this study is the fact that Building 3 is symmetrical, whereas all other Roman masonry buildings at Fishbourne are less so.

[22] This is especially true for some major public buildings such as temples, amphitheatres and fora.