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Would the Real *Undagi* Please Stand up? On the Social Location of Balinese Architectural Knowledge

The 'beautiful structures of wood and stone' (Lansing 1983:51) which constitute the traditional architecture of Bali are one of the more visible signs of the tenacity of tradition on the island, and a consistent source of pride to locals, delight to visitors and profit to tourism operators. While there is a substantial body of literature on the other arts in Bali, that on architecture is surprisingly sparse. Such literature as there is – English and Indonesian, popular and scholarly – tends to recycle, sometimes less than critically, a few themes that have been fairly well-worn for over sixty years. These are: a system of orientation to cosmic axes, a three-fold hierarchical division of space, a corresponding layout of buildings within courtyards, and a system of measurements based upon the human body (Budihardjo 1986:30-75; Covarrubias 1994:263-70; Eiseman 1990:8-10; Hinzler 1995:8; Hobart, Ramseyer and Leemann 1996:47, 91, 98-101; M. Hobart 1978:6-13; Kagami 1988:1-31; Waterson 1990:1, 97, 121). L. Howe (1983:137) stresses the less common, often overlooked idea that buildings have 'life'.

Implicit in these accounts is the notion of an architectural tradition – a regular, more or less predictable set of standard forms and practices, a system of knowledge embodied in architectural form and practice. Less clear,

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however, is where this knowledge is stored and how it is applied in practice.

Some of the literature refers to a figure known generically as 'the traditional Balinese architect or, in Balinese, *undagi* [...]' (Eiseman 1990:9; see also Budihardjo 1986:49). In practice, however, such persons are somewhat elusive: in all the time I have spent around temples, many of them undergoing renovations, I have never yet met anyone describing themselves or referred to by others as an *undagi*. Likewise, when a Japanese scholar trying to find 'a traditional Balinese architect called *undagi*' in order to seek expert assistance for the construction of a traditional house was finally introduced to one such specialist, the latter turned out to be '[...] not an architect, but [...] a specialist in carving [who also] had much experience planning and constructing house-yard temples and pavilions, as well as in decorating them with stone and wood carvings' (Kagami 1988:3).

This kind of experience accords well with M. Covarrubias' classic account of Bali in the 1930s, according to which '[...] there is no special class of architects, and the sculptors are in charge of designing, directing and even working themselves in the construction of a temple, assisted by a number of stone- and brick-workers' (Covarrubias 1994:82). It also accords with references to the design and construction of buildings by multi-media artists such as Gusti Nyoman Lempad (Vickers 1989:140-2). This ambiguity is reflected in the various definitions of *undagi* in a range of local publications, namely as an '[...] architect-priest. Literally [...] resourceful and eminent person' (Budihardjo 1986:107), a 'specialist in building or architecture' (Jiwa 1992:60), a 'carpenter (*tukang kayu*)' (Kersten 1984:624), a 'builder (*tukang bangunan*)' (Kamus 1989), or a 'person with expertise in carpentry and building' (Patra 1985:138).¹ An *undagi*, it seems, is neither a universal part of the design/construction process nor an unambiguous person or function.

Another repository of knowledge often referred to in the literature is a category of texts known generically as Asta Kosala Kosali, 'textbooks for traditional architects' (Kagami 1988:16; see also Hinzler 1995:6).² It is apparent from the literature that these texts appear in many different forms, more or less comprehensive, often overlapping in content and possibly even copied from each other, but essentially similar in content (Howe 1983:136-7; Kagami 1988:16; Soebadio 1975:87). They contain such information as 'regulations relating to the design and construction of houses, places of worship, rice

¹ There is a considerable technical vocabulary specific to Balinese architecture, some of which it seems desirable to use in this discussion. Approximate English translations are provided at the first use of each word, after which it is used untranslated. Most terms are Balinese; Indonesian words are indicated as such.

² Interpretations of this title vary. According to Hinzler, 1995:7, and Soebadio, 1975:2, it is derived from the Sanskrit *hastakausalā* (skill + hand = handicraft). An alternative interpretation is discussed below.

storage bins, barns of various types etc. [... from] the primary stage of selecting and cutting the timber to the [...] ceremonies for the opening of a new building' (Soebadio 1975:87; see also Eiseman 1990:9; Hinzler 1995:7).

How these texts are used, however, is less clear. According to Howe they are '[...] available to anyone should one wish to consult them but in practice this is limited to the priests and specialists who have a competence in the language of the manuscripts' (Howe 1983:137). Traditional texts in general, originally in the form of *lontar*-leaf manuscripts, are considered as embodiments of supernatural power (*sakti*), and access to them and the knowledge they contain is restricted not only by literacy in the language involved but also by social rank, spiritual preparedness, and physical ownership (Hobart, Ramseyer and Leemann 1996:182; Eiseman 1990:138-9). Although some of the Asta Kosala Kosali texts have been transliterated, translated, and made widely available, most have been retained for generations within particular families (Kagami 1988:16), and there is evidence that, like other texts, some are jealously guarded by their owners. Who, then, uses these texts, and how?

According to Howe, '[...] in general carpenters and builders do not learn what is in the texts by reading them [...] they acquire their knowledge by being taught by those already conversant with the trade [...] the rules and regulations [...] are known independently of the texts and constitute a body of knowledge which [...] forms an integral part of village lore.' (Howe 1983: 138.) H. Kagami, in a similar vein, questions '[...] the extent to which these rules are grasped by the architect' and notes that their 'description might be incomplete or incomprehensible [or that] the architect might just ignore the rules' (Kagami 1988:16). Both authors stress the need for study of actual building practices to resolve the ambiguous relationship between texts, practitioners, and practices, and proceed to report on their own findings.

Howe presents a model of house form and design/construction process in which he argues that these are organized around an overall logic of progressively arranging space, articulating components, and performing rituals in ways that ensure a free flow of life force through the house in a manner analogous to that in other areas of Balinese culture. His account, though meticulously detailed, is fairly generalized (based on materials from Pujung, upper Gianyar) and does not provide any indication of the personnel involved or the ways in which design decisions are made.

Kagami, on the other hand, describes in greater empirical detail, but without theoretical reflection, the process of construction of a single house, erected in Japan by a team of Balinese builders. The process and logic of design/construction were essentially similar to those described by Howe, although Kagami reports minor differences of detail and terminology, presumably as a result of regional differences between the builders and the specific circumstances of the house in question. The basic design decisions to do with lay-

out and overall dimensions appear to have been made by the head builder in consultation with other senior members of the team. The body used as basis for measurement was, somewhat surprisingly, not that of the patron/owner but of the head builder. One matter which becomes particularly evident in Kagami's account is the extent of discretionary decision-making on the part of the builders. While the rules seem to delineate a set of principles and a hierarchy of options and criteria for choosing among them on the basis of certain factors – including the social rank of the owner, economics, availability of materials, and specific local conditions – builders are constantly exercising their own judgement to achieve an optimal balance between these factors.

While Howe gives an impression of a system of knowledge embodied in practice and Kagami of on-site decision-making processes, several issues remain unclear. These include the relationship between the knowledge recorded in texts and the practices described, the training and the source of knowledge of the builders, the role of priestly expertise in the process, and, of course, the lack of any trace of *undagi* either as a title or as a function. It is towards a further understanding of these matters that our research has been directed, on which this article reports.

Our research, conducted from October to December 1999, consisted of on-site observation of a number of building projects, mostly in and around Ubud, inspection and documentation of a range of buildings, mostly temples in various parts of Bali, and interviews with a variety of people with acknowledged expertise in building design/construction.³ The focus of our investigations was on temples rather than domestic architecture, on the grounds that it was here, in the acknowledged highest form of traditional architecture, that we might expect to find the greatest concern with the relationship between practice and principles established by tradition. It was here also that we might expect to see the greatest influence of textual authority and the exercise of something resembling an *undagi* function.

While our work is not explicitly or systematically comparative – which would be beyond the scope of this essay – it is underpinned by implicit comparison with three other traditions familiar to us in various ways: South Indian temple construction, generalized ideas of 'Austronesian' spatial organization, and equally generalized notions of 'western' architectural prac-

³ We express here our gratitude to all the people mentioned in the text who stated a wish to be named, as well as numerous unnamed *pemborong*, *tukang* and labourers on various sites, several of whom went far beyond the call of duty to provide us with information. MacRae's research was funded largely by Massey University and Parker's by the University of Washington, Tacoma Founders' Endowment Fund. We are grateful also for the detailed suggestions provided by two anonymous readers for *Bijdragen tot de Taal-, Land- en Volkenkunde*.

tice. This triad of architectural traditions coincides with the three main areas of influence evident in Balinese architecture.⁴

Temple building: Ubud 1999

One of the fruits of the tourism-based economic growth of Bali has been a florescence of religious practices, which has involved, and indeed necessitated, the renovation, enlargement and in some cases complete rebuilding of temples in which religion is practised.⁵ This has been particularly evident in Ubud, which is a centre both of tourism and of what might be described as conspicuous traditionalism, manifest especially in temple-based ritual. Since around 1990, at least seven major public temples within the central Ubud area have undergone major renovation, as have countless household temples. Further afield, the traditional elite of Ubud have sponsored and arranged the renovation of at least six temples in the Wos Valley, upstream of Ubud, contributed to the renovation of other temples elsewhere in Bali, and played a major role in the construction of new Balinese-style temples in East Java and Kalimantan.⁶

In late 1999 there were renovations of varying scale at various stages of construction in a number of temples in and around Ubud.⁷ These projects were undertaken nominally by the respective villages (*desa adat*) but all involved hired labour and varying amounts of input in the form of material sponsorship and advice from Puri Ubud (the (palace of the) hereditary rulers of Ubud). The main construction work in all cases was carried out by paid labour of various kinds. The skilled work was done by professional trades-

⁴ Our knowledge of these areas is derived from, respectively, Parker's research in South India, the published results of the Comparative Austronesian Project at the Australian National University, and our experience as owners, renovators, designers and builders of houses in the United States of America and New Zealand. While this triad of influences may seem somewhat over-stated, there is evidence (to be discussed in a forthcoming publication) that traditional Balinese architecture may fruitfully be understood, and is indeed thought of by *undagi* and *tukang*, as an amalgam of indigenous and Indic elements. While the influence of western architecture is more evident in domestic buildings, since the *Stijl Kantor* of the 1930s, its influence on temple construction remains largely technical and pragmatic.

⁵ For general descriptions of Balinese religion, see Covarrubias 1994, Geertz 1973:175-81, and Warren 1993:36-8, 141-46, and of temples, Boon 1979, Lansing 1983, and MacRae 1997:179-84.

⁶ For a general description of Ubud, Puri Ubud, and its programme of temple construction, see MacRae 1997.

⁷ The temples involved were: Pura Dalem and Mrajapati in Ubud, Pura Dalem Puri in Peliatan, and the Pura Dalem of the nearby, ritually connected, villages of Bentuyung, Tegalantang and Bunutin. All the temples under renovation at this time were Pura Dalem, temples associated with the spirits of the dead. This struck us as interesting, but we were assured by several people that this was a coincidence of no particular significance.

men (*tukang*) employed in a number of ways. Some were employed by contractors (*pemborong*) with contractual responsibility for portions of the work, defined by either trade (for example, stone masonry) or particular structures, such as pavilions (*bale*) or shrines (*palinggih*). Others were employed on an individual basis either directly by the *desa adat* or by the sponsors of particular structures. In all cases their wages were calculated on a daily basis, but were paid either weekly, fortnightly, monthly, or on completion of the project. Daily rates varied according to trade and skill, from as low as Rp. 10,000 for unskilled labour to Rp. 45,000 for the most highly skilled work such as that of head carpenters and carvers.⁸

Building work is conventionally divided into five main trades, usually practised by separate *tukang* under separate contracts.

1. Masonry, known as *stijl Bali*, literally 'Balinese style'. This is sometimes distinguished into the work of constructing external walling (*tembok*) and stone bases of *bale* and *palinggih*. The usual materials for these are a soft red brick (*bata merah*), soft grey volcanic stone (*paras*), and a harder conglomerate stone (*paras batu*), used mainly for uncarved external walling, and the concrete blocks (*batako*) used mainly in structural work, to be concealed beneath more valuable materials.
2. Carpentry, performed by *tukang kayu* and involving the erection of the timber superstructure, from posts (*tiang*) to roof framing, and the construction and/or installation of wooden shrines.
3. *Ukiran* (carving), including the decorative carving of both timber and stone. *Paras* is so soft that it is carved with the same tools and using essentially the same techniques as wood. Wood is considered more difficult material, however, because of the complexities of the grain, so that *tukang* able to carve wood are regarded as being 'automatically' able to carve *paras* as well. In practice, however, most carvers tend to specialize to a degree, largely in accordance with local tradition, based on the availability of one or other material. Consequently, contracts for wood and stone carving are sometimes given separately.
4. Roofing (*atap*), ideally using thatch, generally the pale-yellow grass *alang alang* (*imperata cylindrica*) with the black, hair-like sugar-palm fibre *duk* (*arenga saccharifera*), which is preferred for the most important *palinggih*. In recent years thatching materials have become scarce and expensive, and clay tiles (*genting*) are increasingly used for the larger and less ritually important *bale*, especially those in the outer courtyards.
5. Painting (*cat*) of the woodwork, using mostly red paint, but usually also *pelitur* (literally 'polish', but referring to clear varnish) and, most importantly, gold-leaf (*prada*) application.

⁸ At the time of research there were approximately 8,000 rupiah to the \$US.

Figure 1. The five main trades

a. Masonry

b. Carpentry

c. Carving

d. Roofing

e. Painting

As well as these five main trades, there are demolition, excavation, foundation, paving and tiling, plumbing, and electrical work, which tend to involve a less formal division of labour, often using either local expertise or hired labour under local supervision. Unskilled labour, like most heavy, dirty and dangerous work in the more affluent parts of Bali, is done largely by non-Balinese immigrant labourers, mostly young single men from East Java, at daily rates of around Rp. 10,000. Aside from the self-professed dislike of the people of Ubud for this kind of work, and the willingness of the newcomers to work for relatively low wages, there is a tendency to regard these people as naturally and culturally more suited to this kind of work. As one of the members of a committee employing them on a major project in Ubud put it: 'They have plenty of time for this sort of work because they do not have any ritual responsibilities like us'.

The (once central) role of the members (*krama desa*) of the *desa adat* itself in the material building process is reduced to occasional sessions of collective labour (*gotong royong*) for tasks requiring many hands but neither particular skill nor great effort. Members with special skills often work full-time on local temple projects, without pay or at subsistence rates. More generally, however, *krama desa* have stepped back from the role of builders to those of owners, patrons, fund-raisers, and managers of the building process. The *krama desa* are represented, for the purposes of a particular building project, by a works committee (*panitia karya*) elected by the *krama* for the purpose of designing, funding and managing the project.

Such *panitia* vary in size and complexity according to the size of the *desa* and the project involved, but most are subdivided into separate sections (*seksi*) responsible for such special areas as ritual, provisioning, transport, the arts, security and construction. Key positions are filled by local people with appropriate expertise. However, especially in smaller *desa* outside Ubud, people tend to rely heavily on expertise borrowed from Ubud, via the sponsorship of the *puri*. In most of these cases the senior, and most prestigious, *panitia* position of Pangelingsir (elder), Pangajeng (leader) or Penasehat (adviser) is held by Cokorda Agung Suyasa (hereafter referred to as Ck. Suyasa), head of the Puri Saren Kauh in Ubud, *bendesa agung* (ritual leader) of the collectivity of the Ubud *desa adat*, and the driving force behind Ubud's temple-building renaissance.

Apart from labour employed directly by sponsors, the builders are all employed by the *desa adat* via the *panitia*, or in some cases a key member of the *panitia* with responsibility for organizing and/or supervising labour. In the two current projects in central Ubud, this coordinating and supervisory role is played by an experienced builder and *pemborong* whose family claim to have been architectural advisers to Puri Ubud since they migrated there from Mengwi over a century ago.⁹ He refers to himself modestly, if somewhat misleadingly, as *kepala tukang* (head of the tradesmen).

While the fundamental socio-economic organization of temple building varies somewhat from one case to the next, the principles are fairly consistent and can be easily understood in terms of western building practices. Less easy to apprehend, however, are the methods by which Balinese temples are designed. On none of the building sites we visited were there drawings of any kind; the *tukang* unanimously claimed to be working from verbal instruc-

⁹ Major precolonial *puri* maintained an elite group of artists and intellectuals who provided the specialist services necessary for the running of a kingdom. In the case of Ubud, many of these were refugees from the adjacent allied kingdom of Mengwi, which was destroyed in 1891 (MacRae 1997; Schulte Nordholt 1996).

tions, the precedent of tradition, or by following the example of senior *tukang*. In no case was there any obvious evidence of the transmission of design information to site workers, or even of a design process.

When asked about the design process (*merencanakan, menciptakan*) in general terms, *tukang* tended to be somewhat mystified and either to deny that such a process was present or to assert that it was all done according to invariable tradition, known to all experienced *tukang*. When asked more specifically about the 'decisions' (*putusan*) concerning the size, layout and form of structures, they referred to the 'local community' (*masyarakat*), the *panitia* (or its representative), the *cokorda*, or a *pedanda* (high priest). In other words, *tukang* have a collective sense of themselves as carrying out the plans of others, but an imprecise sense of either the nature or the source of those plans. This is not very surprising. What is more so is their inability to explain (at least in terms we could understand) the means by which they received their instructions.

The polar ends of the process are reasonably clear. At one end there is a *desa adat* (or another body responsible for a temple) with a collective understanding of the size, shape, and style of and the budget for the temple they wish to build, and at the other there are the many *tukang* with the necessary knowledge to build the temple, embodied in their collective practical expertise, who are visibly engaged in building. In between, however, is the exchange of information by which the requirements of the former are transmitted to the latter, or conversely, the embodied knowledge of the *tukang* is harnessed to the aspirations of the *desa*.

The middlemen in this process are the *pemborong* and the *panitia* supervisors, the co-ordinators, or the *kepala tukang*. *Pemborong* tend to have a perception of the system based on their own position in the commercial process: they know who hired them, who gives them their instructions, and who pays them. In most cases this is the *panitia* representative. Some of them also regard themselves as the designer of their particular component of the work on the basis of drawings they have made (*mengambarkan*) of it as part of the process based not only upon costing, but also on the submission of detailed design work.

According to Ubud's senior *kepala tukang*, once he has the design requirements clear in his mind, he draws a plan (*dena*) to clarify his own thinking and to transmit the requirements to potential *tukang*.¹⁰ He offers these plans to selected *pemborong*, asking them to provide detailed design drawings and to quote prices. He has a fairly clear image of the finished structures in his

¹⁰ We use the term 'plan' here not in the popular sense of an architectural drawing, but in the specialized architectural sense of a drawing depicting the layout of the site and/or buildings on a horizontal plane.

own mind, and it is against this, as well as in terms of price, that he evaluates their tenders. Once he has accepted a set of drawings and agreed to a price, a contract is drawn up between him and the *pemborong*, with the drawings serving as the moral/legal basis of this contract. In other cases *pemborong* claimed to have similar drawing-based contracts directly with Ck. Suyasa, though these were presumably for structures which the *cokorda* was sponsoring directly.

So, while the *kepala tukang* plays a role in the design process, translating some kind of conceptual design into a plan and a basis for evaluating tenders, from where does he derive the basic design concept? On the one hand he stresses that it is standard knowledge (*baku*), and in fact almost all cases of temple construction essentially involve the enlargement and rebuilding of existing structures rather than the design and creation of new ones. On the other it is clear that the *kepala tukang* receives his instructions from the *desa adat* via the *bendesa* or the entire *panitia*. They essentially cover the overall plan dimensions, the location, and the size of individual structures, as well as giving a general idea of the standard of construction/finish and the budget. There is a consensus of all parties that while the approval of the entire *desa adat* is necessary, the key players in these decisions are the *bendesa adat* (Ck. Suyasa) and a high priest (*pedanda*, Balinese; Indonesian *pendeta*).

While Ck. Suyasa is widely regarded as having the necessary expertise, experience, spiritual knowledge and access to special texts (Asta Kosala Kosali) to be able to design temples, most people feel that the role of the *pedanda* is essential for lending ritual authority to the process. Ck. Suyasa himself agrees with this, claiming that he could do everything himself, and indeed that he has the right to do so (on the grounds that *satria* such as himself are really the descendants of Brahmana, who took upon themselves the onerous worldly tasks of the conduct of war and government), but that it is more appropriate if the *pedanda* is involved.

Pedanda, not surprisingly, see the situation somewhat differently. Two local *pedanda* we spoke to – one of them only recently consecrated, who did not claim any expertise in architectural matters, the other not generally used in Ubud temple-building projects, although he was experienced as a carver and builder as well as a designer of temples¹¹ – were both adamant about the exclusive right of *pedanda* to the critical job of *ukur-ukuran* (deciding measurements, especially establishing the dimensions of the overall plan, from which all the other dimensions follow).

The layout is based on the unit of measurement known as *depa*, which is defined by the arm span of the person most closely identified with the build-

¹¹ Both these *pedanda* live and work in the neighbouring village of Padangtegal. Puri Ubud uses specific *pedanda* from further afield.

ing. In the case of domestic buildings this is the head of the household, but for a temple most people believe it should be the *bendesa*, the *pemangku* (priest), or the *pedanda* himself. The *pedanda* insisted that it could only be him. In recent Ubud projects the body most commonly used for establishing the *depa* has in fact been that of Ck. Suyasa. The length (uphill-downhill) and breadth (cross-slope) of the courtyards are measured in multiples of the *depa*, customarily one more for the length than the breadth. There are such multiples specified in the Asta Kosala Kosali as more and less appropriate for different classes of building.¹² To these multi-*depa* measurements is added a small increment known as (*pengurip* ((that which provides) life). Specific effects and consequences are believed to follow from particular proportions, orientations and locations of entrances. Next in importance are the location and size of structures in the courtyard, and more especially the spaces between structures, which are determined by using the foot length (*tampak*) as a unit of measurement.

It is for the interpretation and optimization of all these complex matters of proportion that most people readily defer to the expertise of *pedanda*, who claim exclusive rights in this connection. The vertical dimensions and proportions of the various structures follow from the plan dimensions. Even the *pedanda* acknowledged that these could be determined by the *tukang*.¹³ The *undagi*, according to one of the *pedanda*, is simply a *tukang* with sufficient knowledge to decide this secondary level of measurements.

To summarize what appears to be a fairly standard system around Ubud: the fundamental decision to renovate, improve or enlarge a temple is made by the group responsible for it, while the overall measurements are determined by a *pedanda*. The relevant information, which may be summarized in a simple plan drawing, is passed on to the *tukang*, either directly or via a *pemborong*, by a representative of the *panitia*. The *tukang* possess sufficient knowledge of scale and proportion to proceed without further design instructions, although *panitia* representatives supervise and comment on their work and reserve the right to order alterations.

What is obscure in this system is the fact that decisions are required at every stage of the process. Even though all temples are, at one level, essentially the same and there is a massive body of built precedent for every aspect of the design, there are, on closer inspection, almost infinite variations in layout, scale, proportion and, especially, decoration in any given kind of temple

¹² Our references to the Asta Kosala Kosali and other texts are secondary, in that we are familiar with these texts not through our own reading of original *lontar*, but through partial translations and through references to them by our informants.

¹³ Primary among these decisions is that concerning the size and number of the posts (*tiang*) in a given *bale*. There are rules linking these features to the kinds of structure appropriate to the various functions of *bale* and the socio/ritual status of their owner.

or structure (as Covarrubias, 1994:264, noted). These are all the result of continual decisions by somebody.

In some of the accounts cited above this somebody is the *undagi*, playing a role roughly equivalent to that of the architect in western systems: making design decisions, transmitting them to the workers on site, coordinating the contributions of specialist consultants, and making sure that the work is done properly. In Ubud, however, the *undagi* simply does not seem to exist – no workers on site or sponsoring bodies or *pedanda* ever referred to themselves or others as such. The closest equivalent is the *kepala tukang*, who did not refer to himself as *undagi* (although he did not object when we suggested the term might apply to him), but acknowledged that his ancestors had fulfilled this role with respect to the *puri*. He does not, however, play a central part in the design, and especially not in the crucial matter of measurements. He is essentially a project manager. The key design function seems to be divided among the *panitia*, from whose deliberations the conceptual design emerges, and which is widely regarded as being dominated by Ck. Suyasa, the *pedanda*, who determines the master measurements, and the *tukang* on site with their detailed working knowledge. While it is possible to conceptually isolate this decision-making function in the design process, and indeed, to trace its locus in empirical processes in Ubud, there is no evidence of its being concentrated in a single person, let alone of this person being labelled *undagi*.

In search of the elusive undagi

Outside Ubud the *undagi* is no less elusive, as the accounts of Covarrubias, Howe and Kagami attest. Nor does the *undagi* feature in public discussions of architecture. For example, a series of newspaper articles on architectural matters published in conjunction with an exhibition of architecture in the Bali Arts Festival of 1996, in which the principles of traditional architecture and their relevance for contemporary architectural problems are discussed at some length, does not contain a single reference to *undagi* (*Bali Post* 16/30.6.1996). Yet this functionary persists as a shadowy figure somewhere below the surface of the discussion. Few people seem to personally know any living *undagi*. With one notable exception.

Nyoman Gelebet and Ulu Watu

The best-known claimant to the title of *undagi*, with the highest public profile and the greatest official recognition, is Nyoman Gelebet. He is a qualified engineer and teacher of architecture at Udayana University in Denpasar, an

outspoken critic of the excesses of tourism and inappropriate development, a defender of traditional architectural values, a consultant to government and (occasionally) private developers, an architect by appointment to various government temple projects, head of the building section of the official organization of Indonesian Hinduism, Parisada Hindu Dharma Indonesia (PHDI), and a consecrated *undagi* priest.

In late 1999 he was involved in a project of substantial improvements at Pura Ulu Watu, a spectacular and important temple perched on a cliff at the southern tip of Bali. Although nominally under the ritual patronage of Puri Jero Kuta, one of the royal houses of Denpasar, this project is also sponsored by the provincial (Bali) government in recognition of the island-wide religious significance of the temple as a result of its foundation by Empu Kuturan, one of the mytho-historical founders of Balinese Hinduism, and its wider value as a cultural and touristic asset.

Gelebet's position as *undagi* to the temple is a consequence of two factors: on the one hand his contemporary status as the architectural conscience of the island, expert on traditional architecture, and head of the building section of the PHDI, and on the other his claim to descent from former *undagi* of the successive kingdoms ritually responsible for Ulu Watu as well as to initiation into this hereditary function. He explicitly acknowledges both aspects of the *undagi*'s work: the observance of rational principles of architectural design and construction management, and the mystico-ritual aspects of the design process.

Gelebet outlined to us a general model of *undagi*-hood, based upon his own training, which he had to a large degree himself re-invented, as the old traditions were more or less extinct. The core and the foundation of *undagi*-hood is the transmission of knowledge by a senior *undagi*. Such knowledge is specific to a particular temple or to the temples controlled by a particular royal house. This foundation of specific knowledge is overlaid by a layer of more general knowledge gleaned from a study of Asta Kosala Kosali-texts in the collections of senior *undagi*, *pedanda*, and others all over the island. Gelebet himself spent several months translating old texts which are now kept in a public collection in Denpasar. *Undagi*-hood is formally conferred through a ceremony of consecration (*wintenen*) similar to that for other practitioners of the sacred arts. This consecration is also specific to the temple in whose tradition of knowledge the person concerned is consecrated. He is not prevented from practising elsewhere, but must ask permission from the gods of his temple to apply their intellectual property in other contexts. Gelebet's academic training as an engineer-architect is a separate matter. There are architects who are not consecrated as *undagi*, and conversely *undagi* who are not trained as architects. He has chosen to combine the two in a practice that is at once fiercely traditionalist and rationally modernist.

Despite its wide significance, Pura Ulu Watu is limited by the nature of its spectacular location to a very small inner courtyard and a number of fairly small outer courtyards. Increasing pilgrimage-like mass attendances of its regular anniversary ceremonies (*odalan*) by people from all over the island have given rise to overcrowding, long waiting-times, traffic congestion and parking problems. Its increasing popularity as a tourist attraction has aggravated the problems, as well as stimulating the development of a commercial atmosphere which some feel interferes with the religious function of the temple. The aim of the recent project, financed largely by the provincial government jointly with the PHDI and Puri Jero Kuta, was to address all of these problems, which are experienced by many recently renovated temples.

Gelebet's solution, which is being implemented in stages, was firstly to construct a new intermediate courtyard (*jaba tengah*) capable of accommodating 2000 worshippers, where the latter could perform preliminary prayers before proceeding in smaller groups to the inner sanctum. This courtyard, which was due to be completed for the *odalan* in early 2000, is largely of white coral, relatively unadorned, relieved only by a couple of small trees. The focal point is a single *palinggih* (literally 'sitting-place' – a 'seat' for a visiting deity), which at first sight appears to be a *padmasana* (a kind of meta-*palinggih*, nominally for the one god of whom the others are manifestations), but which actually combines the three primary forms of a *gedong* (enclosed room), *candi* (tapering tower), and *padma* (seat) in what Gelebet regards as an example of appropriate innovation based firmly on traditional principles.

The *bale* within it and a nearby *wantilan* (meeting-hall), while traditional in form, are built completely of reinforced concrete with roofs waterproofed with a bland grey synthetic rubber membrane. This is because of the violent winds to which the area is subject, the ravages of the local monkey population on traditional thatch roofing, and the fire risks caused by frequent lightning strikes in the area. This innovation Gelebet also regards as a legitimate compromise between tradition and rational pragmatism.

Further plans include relocating the entire parking area and creating facilities for commercial activities and tourism some distance from the temple. Gelebet also plans to rehabilitate what he believes to be the original pedestrian approach on an axis in which a group of hillocks serves as a natural 'gateway', similar, at least conceptually, to the built gateways of temples. This latter element he refers to as 'returning to (original) concept'.

Gelebet's conception of *undagi*-hood is thus somewhat eclectic: at once traditionalist and modernist. He moves constantly between, and seeks simultaneously to integrate, several sources: the practical rationality of modern architectural design principles and practices, the numerological, spatial, and calendrical rules embodied in the Asta Kosala Kosali texts, and the mystical esoteric sources of divine guidance and inspiration.

Universitas Dwijendra

Although he is the foremost spokesperson for traditional architecture, Gelebet teaches in a Department of Engineering in a state university that is more committed to ideals of rational modernism than traditionalism. Another, private university, Dwijendra, has a school of architecture in which a course in traditional architecture is offered as an option for final-year students. Its staff consists of three conventionally trained architects with an interest in and commitment to traditional architecture. They see themselves as providing a sound technical and design basis, as well as a grounding in traditional architecture for students wishing to proceed with the more esoteric kind of training that they need to become *undagi*. To date, relatively few students have chosen this option, and even fewer have proceeded with the esoteric post-graduate course of training.

The head of this school, Gusti Bagus Oka, is a locally trained architect who, after graduating, familiarized himself with the art of the *undagi* by the method, learnt from Gelebet, of interviewing old practitioners and studying traditional texts. He has not to date been consecrated as an *undagi* but is following a regime of spiritual discipline towards that end. His colleague Gusti Made Putra has a similar background but has undergone a lesser *wintenen* ceremony, which enables him to study *lontar* texts but not to practise as an *undagi*. They are assisted by a former student, Gusti Ketut Nila, who – despite entrepreneurial talents which have made him a successful commercial designer-developer – takes a deep interest in traditional architecture. All three have been involved in the design of new temples and renovation of old ones, but unanimously defer to *pedanda* in matters of *ukur-ukuran*. They also refer with reverence to the *undagi* of old, in whom they see a model of practico-spiritual attainment which they acknowledge themselves to be unlikely ever to achieve.

In Oka's view, creating a building is like begetting and rearing a child. First the rituals – the wedding – must be performed properly. Then the child must be properly raised and go through a series of rites that will shape it, craft it, properly. This way it will turn out to be one of the people of *dharma* and it won't be evil. Buildings are the same. The analogy between a building and a human being is a frequent theme in the literature on Bali (M. Hobart 1978:8; Howe 1983:139), Southeast Asia (Waterson 1990:129-32), and the Austronesian world in general (Fox 1997).

Like Nyoman Gelebet, all three of these architect-teachers claim to have learnt what they know about *undagi*-ship through private research, seeking out and interviewing old *undagi* all over Bali and reading Asta Kosala Kosali texts. This method of learning has become institutionalized in the school in a way which appears to have originated in Nyoman Gelebet's mode of study-

Figure 2. The design process (reproduced from Nila 1991)

ing and teaching the elements of traditional architecture at Udayana University. Every student is required to carry out a similar research project and to produce annotated sketchbooks summarizing the knowledge they have acquired. These books all have a standard form, recording the elements of traditional architecture in drawings and words. Thus these books reflect an understanding of *undagi*-ship that is shared by these modern Balinese architects, who are striving to document, preserve and re-invigorate *undagi* traditions.

Each student prepares three volumes, reflecting what has become a de facto triad of traditional architectural knowledge, covering measurements (*ukur-ukuran*), the physical construction process, and the rituals associated with building. They are produced in this order, during successive semesters, which implies a corresponding sequence in practice. Nevertheless it is the second volume, on the physical construction process, which provides the

most systematic overview of the concept of *undagi*-ship. The process of building a house is illustrated in a diagram in the form of a flow chart, beginning with the selection of a site and ending with the final *melaspas* ceremony which brings the building to life. The design phase is illustrated by a drawing (see Figure 2), repeated on a larger scale later in the book, of the owner and the *undagi*, seated on the ground, in consultation with each other, but also with the god *Çiwa*, who is shown at a higher level and is personified/represented by a high priest.

Despite his elevated position, the *ciwa*'s actual function is restricted to the selection of auspicious dates and the performance of rites in connection with the building process. *Ukur-ukuran* and the design of the structures in terms of shape and size are the *undagi*'s business. This is consistent with the role of an *undagi* as defined by all the architect-*undagi*, and especially forcefully and unambiguously by Nyoman Gelebet. The *undagi* is skilled in both the *sekala* (physical) and the *niskala* (spiritual) aspects of construction and has the authority to perform all functions except that of selecting auspicious days and performing rituals.

The volume on *ukur-ukuran* begins with a plan showing the layout of courtyards. This is followed by the rules for determining the spacing between structures within courtyards, the widths and heights of posts, other particulars of posts and beams, the relative sizes and positions of roof timbers, the heights of the masonry bases and steps of *bale*, and finally, the details of a *kemulaan* shrine for a family temple. The sources for the earlier stages in the process are almost all textual, namely *lontar* manuscripts, most of them entitled *Asta Bumi* or *Asta Kosali*. The only *undagi* referred to is I.P. Bhaskara, a Brahmana high priest. There is less reliance on texts and more on the opinions of practising *undagi* for the later stages. This would appear to confirm the general impression that it is the overall dimensions that are most critical – and therefore most dependent on textual authority and priestly interpretation.

The third volume, on ritual, begins with a list of auspicious days (*ayuning dewasa*) for each stage of the material/ritual phase of construction. It then describes the appropriate ritual for each stage, detailing the offerings to be prepared and mantras to be uttered, and gives cross-references to the *dewasa ayu* and explanatory notes.

All three teachers at Dwijendra have designed temples of which they are proud, but readily admitted to their own deficiency (and that of their colleagues and students) in the mystico-ritual aspects of *undagi*-ship. This, they said, cannot be taught in a school environment – to learn it takes time and spiritual discipline of a kind that is better adapted to the path of personal search and apprenticeship. They unanimously deferred to the expertise of the *undagi* of old in this respect and referred us to a few remaining living practitioners.

What is striking about this new form of training in traditional architecture

is that, although it is based on a sincere respect, indeed reverence, for the skill of the *undagi* of old and for the texts, its purveyors seek to systematize and standardize what was obviously a highly heterogeneous body of local lore and collate it into a rational system. The method of training is uniform. The (relatively few) sources, both textual and human, are the same and are reproduced in the work of every student. And there is a more or less direct line of descent passing through the two senior staff members at Dwijendra to Nyoman Gelebet, the creator of the new style of *undagi*-hood in modern Bali.

Pedanda Bhaskara

All three of the Dwijendra teachers referred us to the same small group of senior living *undagi*, who also figure prominently as sources in the student work-books we saw. One of these masters is Ida Pedanda Gede Bhaskara Simpangan Manuaba of Buduk, near Denpasar. He has for some years been an ordained Brahmana high priest, but previously worked as an *undagi*, a healer, an artist, and a *dalang* (shadow puppeteer). He learned about architecture from various sources, but especially from an expert named Kudu Caduk in Klungkung who, like many *undagi*, specialized in making *bade*, the cremation towers which Gusti Nyoman Lempad also regarded as a pinnacle of Balinese art. Pedanda Bhaskara has a very clear notion of what is entailed in *undagi*-hood, and he expresses this with a preciseness that is the result of some experience in explaining it to foreigners.

We asked him first whether there are any visible signs by which one can tell true *undagi*-hood. He replied that there are three such signs. The first is the sense of freshness, conducive to peace of mind, which you will experience if you go into a house that is built by an *undagi*. Buildings designed by *undagi* are not just material – they affect the occupants mentally and spiritually. An *undagi* has the power to bring harmony or disharmony into the lives of the occupants of a house. The second is a quality that he called *bale inang*, derived from the word '*terang*', meaning 'clarity of vision'. Thus a person sitting in a pavilion can clearly see anyone in any other pavilion, which creates a sense of open, freely flowing space, through which air can also flow freely. The third, derived from the first two, is good family relations. Even if the people living in the house are poor, they will enjoy positive, happy relationships if the house has been properly joined together by an *undagi*. If the people have money but the house is not properly joined together, their relationships and well-being will suffer. These qualities are suggestive of a universal concern with developing principles of good design, which is not restricted to Bali but is reflected in traditions as far apart as Chinese *feng-shui* and the architecture of Frank Lloyd Wright (Wright 1966:175).

According to Pedanda Bhaskara the word *undagi* is derived from the words *unda*, meaning 'joint' (Indonesian *ruas*), and *agi*, meaning 'unifying, bringing together' (Indonesian *menyatukan*). Thus *undagi* means 'he who joins', or more fully 'he who puts the joints together'. No one but an *undagi* would dare to make the joints that hold together the *bale* and its platforms. When a building is joined together, it becomes just like a human body, with a head, body and feet. Then it is given life, just like a person. This is the root of the *undagi*'s art.¹⁴

There is an old Javanese saying about deriving the measurements from the hands and feet: *wijeling sukat sakeng ruas rusnang tangan suku* ('the measurement is derived from joints of the hands and feet'). *Asta* also means 'hand', and *kosala* means 'science, body of knowledge'. *Asta Kosala Kosali* is therefore the science of building with the hands. The idea that it is the name of a specific text is a common misconception; it really refers to a body of knowledge originating from various sources. Pedanda Bhaskara refers to this body of knowledge by the Indonesianized composite Balinese abstract noun *ke-undagi-an*. The ultimate origins of this knowledge are twofold: descent and learning. As someone consecrated by a *pedanda*, on the one hand the *undagi* has received as a gift from god a special ability known as *taksu*, which Pedanda Bhaskara roughly translated with the English word 'charisma'. *Svadharmā*, on the other hand, denotes ancestral knowledge, different from *taksu*, but also capable of generating it.

The third word in the name *Asta Kosala Kosali* refers to the female *tukang* (*pulutuk*). The female part in architectural work comprises the making of offerings.

Knowledge is personified by a beautiful woman (in classical Hinduism the goddess Saraswati), whose husband the *undagi* becomes through consecration (*mawinten*, 'marriage': the marriage of the practitioner to the science). There is thus an esoteric aspect to *keundagian* which revolves around multiple metaphors of sexual complementarity and union. The primary material act of making joints is metaphorically also a sexual act: the union of joints involves the penetration of one by another. So the process of construction is an extended sexual act that brings forth a new being, in the form of a house. That is why male and female, *kosala* and *kosali*, are both necessary. At the start of the building process an inscribed brick (which is considered female) is buried in union with a male *kepeng* figure.

Among the austerities observed by an *undagi* during a major temple pro-

¹⁴ Although none of the people with whom we talked mentioned this, it is customary (and is testified by many *Asta Kosala Kosali* texts) to place timber elements in a direction corresponding to their original direction of growth, that is, with the root end downward and the head end upward – a practice common throughout the Austronesian world (Sather 1993:76; Waterson 1993:230).

ject is abstinence from sexual activity of the ordinary earthly kind. In addition to celibacy, there are restrictions on the cutting of hair and the consumption of meat. These austerities are prerequisite for the mental and spiritual concentration that is necessary for the design process. For a major project they may begin up to three weeks in advance and continue for the duration of the project. From the length of his hair, it is possible to gauge the size and stage of whatever project an *undagi* may be involved in.

With regard to the critical step of deciding the measurements, Pedanda Bhaskara takes a slightly different position from the other informants. According to him this requires the knowledge of both an *undagi* and a *pedanda*. In his own case the two functions are combined in the one person, which is the ideal situation. In most cases, however, the two specialists are required to work in co-operation. While he spoke in terms of complementarity of the two, he reminded us that it is the *pedanda* who consecrates the *undagi*, and not vice versa.

Batubulan Art School and the Sangging tradition

In addition to tracking architectural knowledge through the channels of academic and Brahmanical expertise, we visited an institution of tertiary education which trains artists, including carvers working on temple sculpture. This Sekolah Menengah Seni dan Kerajinan in Sukawati was founded by a group of artists from the nearby village of Guang in the 1970s. Although now mostly retired, the collective vision of these artists determined the emphases of the school, and they remain a dominant influence. We spoke with a group of current teachers at the school, and later with several of the founders individually, including I Nyoman Ritug and I Wayan Balik Riti. They gave a somewhat different perspective on the proper division of labour, knowledge and responsibilities in connection with construction projects.

These persons described themselves not as *undagi* but as *sangging* – a word derived from the root *sanggi*, meaning 'to file', which is also used to denote someone authorized to practise ritual tooth filing. Unlike an *undagi*, who is only a *tukang* working on a temple, the *sangging* is the artist who does the designs. He has been consecrated for this and knows the relevant mantras. He has the authority to perform the first cut on the first joint and the last cuts on the last joint, and also to carve sacred images in temples. He, and not the *undagi*, is the person who knows how to bring an image to life. The *undagi* is only conversant with the practical, *sekala*, part of the work and the *pedanda* only with the *niskala* side, but the *sangging* has a knowledge of both aspects. The *pedanda* is needed, but doesn't do any physical work and only performs the ritual. Likewise the *undagi* works only up to a certain point,

when the *sangging*, who knows the Asta Kosala Kosali, takes over. A *pedanda* may, but usually does not, know the Asta Kosala Kosali. If he does, he may also be called a *sangging*. They acknowledged, however, that practices vary in different places and situations. They also explicitly confirmed our own idea that architectural knowledge is practical knowledge, distributed among many people. No single person possesses all of it. It is collective knowledge that is brought out through discussion, consultation and shared decision-making. In the end, people gather the particular knowledge they need to do the work for a specific project.

Most *sangging* come from *sangging* lineages, which do not, however, possess exclusive rights to the relevant knowledge. One of the founding fathers of the school is from a non-*sangging* lineage, but his father studied and became skilled in many arts, including those of carving and building. One becomes a *sangging* by developing the necessary skills, becoming consecrated, and doing the work, and is not one simply by birth. These informants used the analogy of the Pande clan and their traditional craft as smiths: the true Pande is one who practises the skills of the smith, not just someone who is born into a Pande family. Although Pande usually claim to be Pande purely on the basis of descent, according to Nyoman Ritug the only true Pande is the practising smith. This view was confirmed by Wayan Balik Riti, who, as well as being a practising *sangging*, is an Empu (high priest of Pasek descent) and serves as the priest (*pemangku*) of a Pasek clan temple. Though, according to him, the *sangging* tradition is particularly associated with Pasek descent, what is really important is the work people do, rather than their descent. So it is possible to become a *sangging* by having the knowledge and doing the work of a *sangging*. This idea is consistent with the politics of Pasek identity of recent decades, which has systematically challenged the caste hierarchy in general and Brahmanical priestly privilege in particular (Boon 1977:171-81, 217-8; Pitana 1999; Vickers 1989:148). It is also confirmed by the research of Anthony Forge, who refers to whole villages of *sangging* serving the precolonial court of Klungkung as artists (Forge 1978:7).

Proponents of *keundagian* dismiss these claims altogether, however, referring to the etymology of the term as evidence that the role of a *sangging* is limited to one of finishing, or at most, doing decorative work. A *sangging* can only do the work of an *undagi* if he has been consecrated as one. Also the spiritual dimension of the work distinguishes the *undagi* from the *sangging*: 'A *sangging* can only communicate with humans, an *undagi* has to communicate with god'. The only support for the *sangging* claim among contemporary Balinese came from a surprising quarter: though there are neither *undagi* nor *sangging* operating in Ubud, Cokorda Suyasa also expressed the view that *undagi* are merely tradesmen carrying out instructions, while *sangging* are consecrated designers and master carvers.

Conclusion: The social locus of architectural knowledge

Although the material presented here is in some respects preliminary, it begins to address questions of Balinese architecture which appear to be little understood in the literature and obscured, or at best contested, in Balinese understandings. These may be summarized as follows:

1. The construction of traditional Balinese buildings depends upon a very detailed and complex body of knowledge.
2. This knowledge is not concentrated in any single text or person, but is spread among a number of people in the form of practical working knowledge, rather than systematized theoretical knowledge.
3. The social loci of the two extreme ends of the spectrum of knowledge are fairly clear; it is generally accepted that (a) the various *tukang* have, in various measures, a sufficient knowledge of detailed design, form, proportion and motifs to be able to work more or less unsupervised on even the most important temples, and (b) only *pedanda* have the necessary knowledge and spiritual authority to determine the overall layout and proportions and the size and spacing of the main structures.¹⁵
4. The intermediate levels of knowledge, as well as the transmission of knowledge between these levels, are much more variable, with roles being blurred and subject to considerable local variation.
5. The person known as *undagi* is not a universal participant in the process. Rather, it is appropriate to speak of the application of *keundagian*, a body of knowledge combining the spiritual, artistic and practical dimensions of the design process and linking the work/knowledge of both *pedanda* and *tukang*. The function may be exercised by a person claiming the title of *undagi*, but also by *pedanda* with sufficient practical experience, *tukang* with sufficient artistic and spiritual knowledge, owners and patrons with sufficient hereditary or economic power to lay claim (rightly or wrongly) to such knowledge, or alternative specialists, such as *sangging*, with competing claims to such knowledge.
6. The variability and ambiguity of this intermediate domain of knowledge is marked by considerable conflict between competing claims to 'ownership' of the relevant knowledge. In view of this, it is perhaps surprising that,
7. While (Asta Kosala Kosali) texts are referred to by both *pedanda* and *undagi* to legitimate their claims to ownership of knowledge, they are little used in practice and their contents are little known.

While some of these conclusions confirm and restate earlier observations,

¹⁵ This generalization applies only to temple construction and to the area of south central Bali. To what extent it applies to areas less dominated by Brahmanic orthodoxy is a question for future research.

others open up areas hitherto marked by considerable obscurity. Together, however, especially when viewed through the lens of traditional South Indian architectural practices (Parker 1989), they allow us to identify several distinct models of architectural knowledge/practice and suggest relationships between these. Though perhaps rather speculative, they are presented with a view to further debate and research.

Towards a historical sociology of Balinese architectural knowledge

Balinese architecture and sculpture are not, and probably never were, a homogeneous and static tradition. At one end of the social spectrum, temple architecture was (and in some cases still is) anchored in a court-based tradition in which technical/ritual knowledge and authority were invested in *undagi*, who in precolonial Bali were members of the substantial groups of retainers, including artists and intellectuals, supported by royal houses. The term *undagi* appears to have applied, at least in the cases of Ulu Watu and Ubud, to individuals, families or lineages dedicated to the preservation of a body of technical/ritual knowledge relating to the construction and renovation of specific major temples or other projects of particular royal houses. This knowledge was practical, concrete, and specific to the temple in question. The role of the *pedanda* in this connection is not clear, but appears, in the same cases, to have been restricted to the strictly ritual aspects of the process, except perhaps in the case of *pedanda* who were also consecrated as *undagi*.¹⁶ At the other end of the continuum there appears to have been a relatively loose, ad-hoc system, with members of the community possessing a variety of skills collaborating in the construction and/or renovation of houses and village buildings, including modest altars and temples of more limited, local significance. Here the functions of *undagi* and *pedanda* could be satisfactorily fulfilled by local *tukang* and *pemangku*. In these humble contexts, architectural knowledge and authority are most decentralized, being widely spread among people with a variety of kinds and levels of ability.

On the downfall of the old kingdoms at the beginning of the twentieth century, the kings lost the economic means to support their patronage. This created a 'ritual vacuum' (Schulte Nordholt 1996:259), and indeed, a vacuum in leadership and sponsorship in most fields of culture, including architecture. Temples were neglected and fell into disrepair (Schulte Nordholt 1996: 257), and while individual *undagi* themselves may have survived, the institution became virtually defunct. Just as the performing arts, formerly patron-

¹⁶ In South Indian temple architecture we find the same triad of king, priest and architect (*sthapati*), along with an inherent tension and competition for authority between them.

ized by the courts, came to be restricted to village temples and clubs (McPhee 1947:4-5, 30), the *undagi* function was absorbed by local systems already operating more or less independently of royal courts. Indeed, many *undagi* may well have sought employment in villages or, like the ancestors of the Ubud *kepala tukang*, at courts which had survived the colonial invasion. In other words, the fairly concentrated, court-based *undagi* tradition became a more diffuse village tradition.

The partial vacuum in indigenous authority created by this change and by the shifting power relations of the colonial period allowed new groups to assert claims of architectural knowledge/authority. Firstly, the patronage of the Brahmana caste by the Dutch colonial regime enabled Brahmana to assert claims of various kinds (Vickers 1989:132, 147-55) which most likely also extended to knowledge/authority in architectural matters. In the post-colonial period the Brahmana dominance of the provincial government and civil service and of religion enabled them to appropriate the office of *undagi*, which was more or less vacant, through the Parisada (Hinzler 1995:4). Secondly, a variant of the court-based *undagi* model appears to have become associated with local branches of Pasek lineages, in which technical/ritual knowledge is invested in consecrated specialists called *sangging*. It is known that in precolonial times whole communities of *sangging* artists were patronized by at least one of the courts. Like the Brahmana, but in competition with them, local Pasek groups took advantage of the opportunities presented by the crisis of authority in the colonial period to advance their own claims in a variety of fields. The bold assertion of their prestige and authority in architectural matters that we encountered in contemporary South Bali can be understood, at least in part, in this political context and in light of the specific opportunities offered by the decline of the *undagi* office in the twentieth century. The contemporary *sangging* model displays a greater emphasis on centralized expert authority than the relatively ad-hoc community-based model, though a lesser one than the *undagi* model.

More recently, in the unique environment of Ubud – culturally overheated, fuelled by tourist dollars, and politically and ritually dominated by the *puri* – the extraordinary flowering of temple building has engendered a new form of organization. The king (Ck. Suyasa) has reclaimed his precolonial prerogative as patron of temple construction, but without re-instating the office of *undagi*. Instead, he has usurped aspects of this function himself, supplementing his own knowledge of design and ritual with that of carefully selected *pedanda* and using the *kepala tukang* as his on-site agent.¹⁷

¹⁷ There is a precedent for recent developments in Ubud in the career of Gusti Putu Mayun, ruler of Blahkiuh, in the colonial period. Like Puri Ubud in the tourist era, he mobilized various kinds of symbolic capital, including temple construction, to build up a new kingdom (Schulte Nordholt 1996:229-30, 245, 269-71).

The picture has been further complicated over the past few decades by the professionalization of the building industry. The models based on claims to tradition have been augmented as a result of the hiring of professionals to perform many of the more skilled tasks. In this post-colonial, fragmented architectural environment the office of *undagi* is re-emerging at the interface between an imported modernist academic model of architectural practice and a growing tendency to self-consciously objectify 'traditional Balinese culture'.

This tendency to reify Balinese culture is particularly strong among educated Balinese, who tend to approach Balinese tradition as if it were a static phenomenon in need of the intervention commonly labelled 'conservation'.¹⁸ This model supports a perception of tradition in terms of fixed rules, customs, and policies and thus felicitously converges with the bureaucratic organization of knowledge and power favoured by official institutions and government agencies such as the PHDI and the universities. These institutions are structurally predisposed to approach 'traditional culture' in terms of their own modes of organization and operation. Where architectural knowledge was once primarily incarnated by the living persons of the *undagi*, *tukang*, *pedanda*, or *sangging*, the norms of academia and the bureaucracy tend automatically to privilege the authority of knowledge in an impersonal, objectified form, especially that of the written text.

Unlike the ancient Balinese (or Indic) texts, which were conceived as being literally alive and hence a kind of counterpart of the *undagi* (or, in South India, *sthapati*) as a vessel of sacred power/knowledge incarnate, texts in modern academic notions are regarded as static physical objects, devoid of all but metaphorical liveliness – and even that sort of liveliness is conspicuously absent from the dry technical accounts of the Asta Kosala Kosali (and Indian Silpasastras). The modernist academic treatment of textual sources supports the implicit characterization of the 'traditional culture' of which these texts supposedly are a reflection as something static and structurally opposed to 'change'.

While the Asta Kosala Kosali did not function in the past as recipe books for use in concrete practice, today they are being selectively enlisted in the service of an imaginative reconstruction and codification of *keundagian*. Indeed, it is not difficult to imagine that one day the *undagi* will have to be not only consecrated but also licensed to practise on the basis of academic credentials and a demonstrated knowledge of the (supposedly) ancient rules

¹⁸ The recent Bali Cultural Heritage Conservation Project, implemented by a team of international consultants funded by the World Bank in cooperation with a number of senior Balinese academics, exemplifies the kind of 'knowledge transfer' through which this model of culture has infused Balinese thinking from the 'top down'.

laid down in some authorized version of the Asta Kosala Kosali. Such a development would be profoundly ironic, yet entirely consistent with the centralist model which the *undagi* represents.¹⁹

Our final remarks concern the relationship between the contemporary trends identified here and 'Balinese tradition'. Do these trends testify to inauthenticity or to the long-heralded demise of genuine Balinese culture? Is the re-emergence of the *undagi* in academic garb an adaptive response to altered circumstances, consistent with the long, inherently flexible tradition of Hinduism? Or is it yet another example of the commodification, museumization, and touristification of Balinese culture? Objective answers to these questions are not, we submit, supplied by the ethnographic material. They are very much dependent on the way one chooses to look at the matter. Generally, however, we can say that, from the perspective of an outsider, tourism and the modern bureaucracy appear to be potent constitutive, if not virtually determinative forces in contemporary Balinese life. From this point of view the self-consciously reconstructed, academically defined *undagi* may

¹⁹ Such an official objectification of traditional culture has, in fact, already taken place to some extent in South India. Here the Hindu Religious and Charitable Endowments officials of the Tamil Nadu state government issue licences to 'government approved *sthapati*', thereby re-classifying them as an exotic kind of 'building contractor' qualified to 'bid' for government-sponsored temple projects. Needless to say, licensing here is extremely problematic for professional administrators, and is liable to give rise to accusations of 'corruption' by unsuccessful applicants in an atmosphere where old loyalties, family reputations and personal relations often seem to prevail over abstract, impersonal procedures. It is a process whereby official decisions made supposedly on the basis of 'merit' – measured in part against a body of impersonal, textually derived information valorized as ancient, 'true' and 'authentic' – ostensibly displace the kind of authority that is based on caste, practical experience and personal reputation (Parker 1989). In a like way Hindu reformers in South India, many of whom are affiliated with twentieth-century anti-Brahman political movements, have used modernist, academic adaptations of ritual texts to challenge the authority of Brahman temple priests, who, like sculptors and temple architects, acquire their knowledge not primarily from written texts but by the practical *guru-kulam* (guru's family) method – a local variant of what might be loosely called 'apprenticeship' (Presler 1987). South Indian reformers have been increasingly successful in replacing, usually with good intentions, personalized authority (the 'guru' as the incarnation of a body of knowledge and skills) and practical, family- or 'caste'-based methods of learning with impersonal authority and abstract codes derived from academically edited and standardized texts. These texts, which were hand-written on palm leaves in highly corrupt Sanskrit and once occurred in bewildering variety, were worshipped in family shrines as embodiments of divine knowledge and were ritually copied every few generations. There is no evidence that they were ever used as teaching manuals or practical guides in early times, and they have not been used as such in living memory, except at certain government-run schools founded with the aim of restoring, purifying and preserving tradition. Hence one unforeseen consequence of the academic editing, standardizing and publishing of these texts has been an ironic modern reification of 'authentic' traditions, used by local government agents against practitioners for whom variants of these traditions are not yet reified but are still a way of life (*dharma*).

appear to represent a radical break with the past. From a local point of view, however, there does not seem to be radical discontinuity between the touristic or bureaucratically reified aspects of Balinese life and the non-touristic aspects, such as the way of life in the family compound or ritual performances in temples far removed from the tourist circuit. These tend to be experienced by Balinese themselves as continuations of the practices of the past. From such a local perspective (for example that of Nyoman Gelebet) the *undagi* does not represent a formalized, picturesque, romantic reinvention of an eroded tradition, but the adaptation of a significant function to ever-changing historical circumstances.

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