'We must be patient and work for the future, so that we do not leave our prospective colleagues a legacy of mutilated indecipherable monuments,' wrote archaeologist, Philip Barker. Barker was referring to the situation where sites are poorly investigated and the analysis and interpretation based on inadequately recorded evidence. Although Barker was directing his comments to archaeological excavators, the sentiments can equally apply to practitioners in the field of building conservation.

Recording

The saying 'Archaeology is destruction' is well known to all archaeologists. It refers to the process of excavation where the buried deposits and features are removed and the relationships between them destroyed in the process. Emphasis on recording has long been an essential component of archaeological excavation work because of this very fact. The responsibility is on the excavator to work carefully and to keep accurate and concise records of these deposits and features and the relationships between them. If one fails to do this the result will be what Barker describes as a mutilated and indecipherable monument.

The key exercise in archaeological excavation is to identify and order the stratigraphic relationships between the various deposits and features. These relationships occur where one deposit or feature either lies above another or is cut through by later digging. By ordering these deposits and features in the sequence in which they occurred one builds up a history of the activities in a particular location or site. Similarly the key exercise in investigating standing structures is to determine the sequence of construction, destruction, alteration, repair, etc., and to place this sequence in a chronological framework. As archaeologist, Peter Coutts, wrote, 'old buildings tell tales,' and there is little point in discussing a structure's place in social, technical or even architectural history if that place is erroneous due to an incorrect 'reading' of the tale the building has to tell.

Although there is a vast amount of structural data that can be recorded, it is the data which provides evidence for the sequence and dating of activities, in combination with a record of the spatial arrangement and relationships of a structure, which should be the basic minimum recording level.

This data consists of:

**Stratigraphic relationships** - The relative position of an element to its adjoining elements with respect to its being introduced earlier or later than those elements. These relationships are usually indicated by the junctions between elements and by disruptions in fabric and changes in materials, construction technologies, style, wear patterns and the manufacturing technologies of the materials. This exercise is complicated on timber structures because the indications can be very slight. The very nature of timber allows it to be transformed in situ with the result that fabric can be removed and introduced with little or no apparent disruption to the surrounding fabric. Changes in the above attributes may also be non-existent. In these cases the stratigraphic relationships themselves may be the only indicators of sequential construction.

**Manufacturing technology of building materials** - This refers to the technology used to produce the various materials in the structure. For example the marks on undressed timber members indicate the technology - adzing, splitting, pit-sawn, circular-sawn, etc. - used in producing the members.

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1. The structural recording system, showing relationship between the three Registers, the data derived from archaeologically excavated sub-surface fabric and historic material, and the samples, drawing and photographic records.

Construction technology - The method by which elements are put together or attached. This would include construction joints, nail types, timber sizes, etc.

Materials - The materials of which the structure is constructed. They indicate which were available at the time of construction and their possible source.

Style - Stylistic attributes include form, layout, design and the ornamental detailing.

Direct dating - This includes manufacturer's and builder's marks, date marks, plaques or stones, graffiti and artifacts such as coins or newspapers found in stratigraphic positions.

Wear and use patterns - These provide evidence of the functions that were carried out within the structure. Also included in this category would be the patina on the surface of elements which may indicate the length of time the element has been in use.

The examination of the stratigraphic relationships produces a sequence of the order in which elements were introduced. The dating of this sequence is provided by examining the other types of evidence. One can either produce date ranges or determine the earliest possible date for the introduction of an element or group of elements. To the above evidence from the structure itself can be added the evidence derived from historic source material (documents, illustrations and oral testimonies), sub-surface material excavated archaeologically, and comparative research. No one type of evidence should be solely relied on. All available evidence should be considered and synthesised in any analysis of a structure. An incomplete and possibly incorrect picture will be
produced by limiting the investigation and record-
ing to one or only a few of the above.

The recording of this data is important if the struc-
ture is threatened by destruction, conservation or
redevelopment. The data must be recorded in a
methodical and rigorous way. A methodological
approach is illustrated in Figure 1. This depicts
the system devised at the Port Arthur Historic Site
by the Port Arthur Conservation Project, and which
the National Trust in New South Wales is currently
employing on its properties undergoing conserva-
tion works as part of the Trust's Bicentennial
Programme.

The system consists of three registers :

The Register of Structure Elements - records
the physical attributes of each element in a struc-
ture. These include the datable attributes such as
manufacturing and construction technologies,
materials, wear patterns, date markings. This
register also acts as a master index to the other
registers and to any other recording either of the
element or context in which the element appears,
such as photographs or measured drawings. It
also provides an index of any samples taken of
materials such as mortar, brick, etc. Building
terms are standardised by the use of a checklist.

The Register of Surface Treatments - records
the successive layers of paint, paper, varnish,
stain, dirt - 'treatments' - to the surface of various
elements. The sequence of these layers can re-
late to the introduction and removal of various ele-
ments as indicated by the patches, indentations
and ridges which appear on the surface and by
comparing the layers on adjoining elements.
These successive applications are stratified in that
one layer lies above another, and that a layer lies
above an element. As these are stratigraphic
relationships this data is incorporated into the
Register of Structure Evolution.

The Register of Structure Evolution - records
the stratigraphic relationships found within a struc-
ture with the exception of surface treatments
which are recorded in their own register. The
register incorporates relevant data from historic
source material and archaeological excavation as
well as the dating evidence recorded in the
Register of Structure Elements and the
stratigraphic data from the Register of Surface
Treatments. The stratigraphic relationships allow
the elements to be ordered in the sequence in
which they were introduced. This ordering is per-
formed using a matrix diagram, which allows con-
struction programmes and phases of activity to be
easily identified.

The system is based on standardised A4 recording
sheets and efficient indexing. Figure 1 illustrates
the interrelated nature of the three registers and
their relationships to measured drawings and
photography (which primarily record the spatial
arrangements and relationships between elements),
samples, the historic source material and ar-
chaeologically derived sub-surface deposits and
features.

The actual fieldwork can be approached by collect-
ing the relevant data and seeking patterns in the
basis or by hypothesising about the construction
sequence, determining the evidence required to
support or refute the hypotheses, then searching
for and recording that evidence or more likely by a
combination of these two approaches.

Analysis

Analysis of the recorded data should result in a
dated evolutionary sequence for the structure;
i.e., the history of construction, destruction, altera-
tions and repairs and the dates or periods in which
these activities occurred. It is the analysis of the
stratigraphic relationships and of the datable at-
tributes of each element which allows this to be
achieved. The analysis and dating of timber struc-
tures can be complicated by the situation where
sequential constructions are identified but where
the later elements do not differ from the earlier
ones. In this case all the elements would be
dated to the same period. Alternatively if they do
differ, the later elements may not date to any
specific period or may date to the same period as
the existing elements regardless of the differences
in their construction, manufacturing technology or
materials. An example of the former is adzing
work: the same technique and tools have been
used for countless centuries and thus it is impos-
sible to closely date changes to a structure on the
basis of adzed timber work. An example of the lat-
er is the presence of adzed and pit-sawn timbers
in different sections in the structure; although the
stratigraphic relationships may indicate sequential
development the dates cannot be determined on
the basis of the timbers, as both manufacturing
technologies were used concurrently.
Interpretation

Interpretation involves determining the separate construction programmes (by equating the various phases of activity) and offering explanations to account for those programmes.

The first question which must be asked is whether all phases of activity took place as part of one construction programme or took place over successive campaigns. The implications of this are significant, as all other explanations and conclusions flow from the answer. If only one programme is identified, then the different phases are due to either idiosyncrasies of the builder, construction mistakes, changes to the plans or the use of different builders or craftsmen. If successive programmes are identified the phases may indicate a whole range of other explanations.

A general criticism of the discipline of archaeology is that the interpretation of physical remains may tell us more about the archaeologists and their culture than it does about past populations who created those remains. The criticism is also valid in the field of building conservation. For example, the National Trust's properties which were worked on in the 1960s tell us more about that organisation and its attitudes at that time than it does about the past use and occupation of those properties. The problem is highlighted where evidence is missing, as we tend to fill in the gaps with what we feel would have been there (though of course with a degree of educated guesswork based on comparative examples). Where we don't understand the evidence the temptation is to interpret it as evidence of a mistake or idiosyncrasy because it fails to fit into our schemes or ideas. This problem is acute in timber structures where the data is more likely to be ambiguous.

In his conference paper, Martin Davies demonstrated the application of these methods in a case study of 'Dundullimal' homestead at Dubbo, 300 kms. north-west of Sydney. This building is owned by the National Trust and is currently being conserved as part of the Trust's Bicentennial programme.