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A BACKGROUND TO RESTORATION OF MONUMENTS IN SOUTHERN INDIA (MEDIAEVAL HINDU TEMPLES)

Introduction

The magnificent heritage of Hindu Temple Building in Southern India is in many ways analogous to Western Europe's heritage of Romanesque and Gothic Church Building. The creative floruit was contemporaneous, the material of construction — stone — is the same. The religious faith which motivated the buildings still survives (at least in externals) as the official cult. However the creative, artistic impulse forming the buildings is long dead. In this fashion the buildings survive variously; sometimes as functioning metropolitan centres of worship; sometimes as remote village halls sera — derelict; sometimes as deserted and abandoned ruins. The interweaving of social, historical and aesthetic conditions is thus closely parallel in the two regions.

In Western Europe for the last century, Romanesque and Gothic churches have been recognised as "monuments" requiring careful "conservation and restoration". And over this period there has been continuous development in the rationale, the principles and the practice of this "Conservation and Restoration of Monuments".

Presently, partly at the instance of "internationalism" extensive programmes of conservation and restoration are advocated for the Mediaeval Temples of Southern India. In view of these circumstances it is not unreasonable to suppose

that some outline of the aims and operations of the Restoration of Monuments as it has been developed in Europe may help in assessing the nature of the problems in the projected work in South India. Certainly it would be regrettable if this extensive work were undertaken without endeavouring to determine what aims, principles and purposes were relevant to its particular circumstances, but were allowed to proceed on no other footing than superficial imitation of practices in existence elsewhere.

Monumentality and the Rationale of Restoration of monuments

According to modern European thought an architectural monument is a seemly construction which reminds the understanding (*monere + mens, cf Denkmal*) of some significant human experience. Its definition thus involves the concept of transmission of associations across a passage of time. That is a monument can be viewed in two instances, an aesthetic instance by virtue of its composition, and an historic instance by virtue of its human associations. That is all true monuments are more or less viewed as historic monuments, they may be designed as such or they may achieve the condition by the operation of history itself.

This conception of monumentality stands at the basis of all European thinking concerning the restoration of monuments. It derives from the character of the culture. The humanist spirit of Western Culture finds expression in Individualism and Historicism. The virtue of the human individual is acted out in history, and it is in the historical record that this virtue is embodied for edification. It is within this framework that the monument is valued for itself as an individual human achievement its worth lies in its individuality—and of this individuality the West is expertly conscious. Once the character is changed the worth of the

monument is vitiated.

The care the West bestows on its monuments proceeds from this regard for the monument *qua* monument, and aims at retaining and maximizing the quality of monumentality manifested in them by revealing and displaying the original fabric with all its intrinsic, artistic work and historical interest. This aim is effected by removing material which is foreign to the monument and by re-integrating, as far as possible, all the material which is proper to the monument. "Conservation and restoration" achieves its purpose by operating on elements of the fabric of the building. It deals with the original building materials so that this material proclaims its meaning. "Conservation and restoration" does not operate directly with meanings, it does not seek to superimpose some new aspect or meaning into the fabric or to present the fabric in a light other than that which is proper to its design and history. All such measures are reprobated in European practice as "falsification", either artistic or historic.

In sum, it may be said that restoration work is motivated by a regard for, and carried out in the interests of the monument—i.e. in the interests of the monumental quality of the building itself. The work is not carried out in religious, political or commercial interests although such may be served by the work. Certainly these interests should not be allowed to condition restoration work to the detriment of the interest of the monument *qua* monument. This, of course, represents an idealised statement, pertaining to aspirations rather than achievements and even the aspirations involve many conflicts. However it must be appreciated if anything of underlying significance is to be recognised in the manners and modes of European Restoration of monuments.

It is apparent that what has been said so baldly here provides the basis for endless philosophising, since it involves

both the theory of aesthetics and the theory of history. Although it is not possible to inquire further into such issues one thing must be emphasized. The concept of monumentality outlined above is a socially conditioned one and is in no way of universal validity. The significance of this fact for the restoration of monuments in general is basic.

The west identifies an architectural monument as a work of human art and history, and its care for monuments devolves from this double recognition. Other societies with different concepts of history and art will view such buildings with a different understanding and are thus not naturally prone to care for them in the western way. For example if a society does not recognize in the fabric of a temple anything to the purpose of an "historic monument", but regards it, ideally, as a vehicle for the abiding exaltation of the deity, then although the word restoration may be used, it will not be used in the western sense. Suppose the temple is still functioning as a place of worship, here restoration will mean splendid renovation. If the temple is an abandoned ruin, then restoration will mean, first of all, reconsacration. It is not to be expected that ancient Egyptians should have cared for their monuments in the same way as Contemporary Europeans. Likewise much thought is demanded before it can be recommended that other societies of the present day should adopt European manners in the care of their monuments. This proceedings may become necessary but it is not an axiom.

General issues in the Restoration of Monuments

Whatever the understanding of the rationale of restoration may be, conflicts and frustrations are endemic to its practice. Monuments are public property and it is society which commissions works of restoration, thus it is within the framework of the social purpose that the restorer must operate. It is proper

for him to seek to influence and inform this social purpose to the best of his ability, but he is unable to disregard it. The culture and sensitivity of society in the final instance conditions the restoration of monuments. In this connection, however, such sensitivity is the antithesis of uniform. It comprehends that of professional students of architectural history, cultured lovers of art and architecture, holiday crowds and tourists. No measure of restoration will please all.

Of equal diversity are the monuments which may become the subjects of restoration. At one extreme are vestigial ruins, often revealed only after excavation. Here the work of conservation and restoration is closely affiliated with archaeology. At the other extreme there is the instance of a modern building destroyed by some sudden calamity, where restoration is entirely architectural in conception. It is difficult, indeed perhaps entirely unrealistic and academic, to attempt the framing of principles intended to apply equally to both these and to all intervening categories of monuments.

Nevertheless, in spite of these diversities and divergencies, some statement of principles is necessary. Recognition of such instances, categories and distinctions is vital in disciplining programmes of Conservation and Restoration. However it will be found seldom that their application to any given issue is non-controversial. Always the restorer will be left with the element of choice founded on taste which will constitute his creative art.

Something has been said concerning the nature of a "monument". To define and limit a given monument, i. e. the subject method of a scheme of restoration, is never easy. It reaches out into time and space and takes its character from both. In this connection any limits are more or less artificial and likely to be disputed. The greatest practical difficulty in restoration is where to stop.

As siting constitutes a most important part of architectural design, so the "ambiance" forms part and a most vital part of the monument. It may well prove the crucial factor in a scheme of restoration and be much more difficult for the restorer to manipulate than the fabric of the monument itself. Yesterday's wilderness is today's metropolis and vice-versa, and such developments must, in the main, be accepted by the restorer.

Likewise with the temporal associations. These form a principal ingredient in the monumentality of the building and are the concern of the restorer as much as any other ingredient. The restorer must be conscious of three different aspects in which time impinges on the building and his work, viz:

- (a) the epoch of the design and construction,
- (b) the interval during which the years have passed over the building,
- (c) the present epoch of its restoration.

Indifference to anyone of these temporal aspects will vitiate the work of restoration. Manifestly the restorer must present a finished work which will indicate clearly the period of the building's origin; but no less must the restored building proclaim its measure of years. If it should appear to have been built yesterday it has been diminished in monumentality. Finally the restorer will not be allowed to forget that he is working for the needs of the present day. Restoration knows no magical caverns where one steps wholly into the past. These are for fair-ground and picture shows.

These matters, giving rise in themselves to conflicts, lead back to the two-fold nature which served to define a monument—its aesthetic instance as a work of art and its historic instance as a participant in and a record of the passage of time. The proper balancing of these two instances is the formation of the restorer's art. Here the conflicts are manifest, e. g. a grafito of

St. Peter may be suspected to underly a fresco by Raphael. Even more basic is the contrast between the way of art and the way of history—the essence of art is unity and the essence of history diversity. To produce an artistic unity out of a recognisable historic diversity is the triumph of the restorer. And this is to be done in such a way as to involve neither falsification in the art nor in the history of the building. Truly the demands are great.

The monumental quality of a building has been recognized as compounded of art and history. The expression of this monumentality can also be viewed in a two-fold manner: as material and image, structure and aspect. It can be seen that the structure of a monument, the material of its construction, is derived entirely from human art and design. The aspect or image on the other hand, is partly of natural development over the years, since such factors as patina, decay and lighting enter into it.

Ultimately these terms "structure and aspect" etc. are of very general, philosophical application, but they are especially useful and relevant in studying the restoration of monuments. It is important to realize that the one is not a quality of the other, nor are both mutually exclusive subdivisions of the fabric. Rather they are two different instances or ways of regarding the same reality—both being constituted in the physical presence of the monument. Thus they are both equally proper vehicles for the work of the restorer.

Any measure of restoration or conservation can be looked on as being carried out in the interests either of the structure or the aspect of the monument (or both).

This is true whether the operation is one of removal or reintegration. For example modern plaster may be removed

from the face of a wall in order to expose the original aspect of the monumental masonry. On the other hand plant growth may be removed from a stone wall or roof not because it is inimical to the aspect, but because the forces exerted by the growing roots are structurally damaging. In the other type of operation cement grout may be run into the cavities of a decayed stone and mortar wall to consolidate and reintegrate the structure which has become decayed and fragmented. Whereas superficial cavities and cuttings on the face of a stone wall may be plugged with mortared cement, not because these weaken the structure, but because the distressing lacunae damage the aspect of (e.g.) relief decoration.

Here it must be re-emphasized that these various types of operations are all applied to authentic elements of the fabric of a monument. Although of necessity new elements may be added to the fabric, their purpose is solely to sustain and display the original fabric—they are not intended to "add meaning", "create atmosphere", or "give life". They should help the original fabric to speak coherently but should say nothing of themselves, except discretely to identify their own nature, since otherwise they would constitute a falsification of monument's history. The optimum is that they neither seek to add to the effect of the original nor should they distract attention from the effect of the original elements. It is by agency of the original remains that the effects of restoration must be obtained. To form an idea of what the original aspect might have been, or should have been, and to seek to reproduce this by new workmanship and materials is stage architecture and fantasy—it is not restoration.

A postscript may be added pointing out that conflicts may well arise between the interests of the material and the image. Structural requirements may be such as to demand

interventions potentially damaging to the aspect, and exorbitant care may be necessary to prevent or minimise this damage. Conversely restoration or conservation of the aspect may seem to demand measures which are structurally otiose. This is particularly in point where the monument retains fugitive decoration (Mosaics, mural paintings or the like) calling for new roofs or shelters which, from a structural point of view, are totally unnecessary.

As a final tool to assist in understanding the problems of restoration, an effort must now be made to separate out more clearly the types of building which may require restoration work. There are no hard and fast divisions, one group obviously merges into the other. Nor will there ever be consensus of opinion as to which division any particular building belongs. Nonetheless awareness of the following categories may serve to bring needs of any particular monument more clearly into focus

(A) ARCHAEOLOGICAL RUINS: Here it is important to realise that ruins have their own proper aesthetic. The vestigial ruins of a building and the original building are two different entities which must not be confused. It is the archaeological ruins which are being restored and conserved and not the original building. The coherent parts of the ruins are integrated, and the isolated fragments of ruin arranged in a systematic fashion so that the totality is displayed to the best advantage. Equally important is the measure of conservation afforded: for the more fragmentary the remains, the more subject they are to decay. Nothing is so evanescent as newly cleared archaeological ruins. The scattered fragments are exposed on all sides to the action of weathering and they are soon covered over again with earth or plant growth; while their accessibility at ground level renders them liable to damage by animals or vandals, and even to wholesale asportation.

(B) RUINED MONUMENTS: This category is probably that most readily associated with the "Restoration of Ancient Monuments" in popular understanding, and is where the principles and conventions of restoration can be applied most directly, without the need of qualification or special interpretation. It comprises those structures where sufficient of the fabric remains to hand, so that the original form of the building is, or can be made, recognisable — i.e. it is the original building which is the subject of the restoration work.

The untutored error here, against which all the principle of restoration are directed, is what may be called "Total reconstruction". For example it is quite possible to reconstruct entirely the Parthenon, and indeed such a project has been successfully executed in the U.S.A. at Nashville, Tennessee. However if this work were to be carried out on the Acropolis at Athens, the authentic surviving fabric would be digested by the new work and the "monument" would disappear. It is precisely these circumstances which caused Ruskin in his "Seven Lamps of Architecture" to characterise Restoration as "the worst manner of Destruction". Nonetheless important ancient monuments are still being destroyed in this way.

(C) LIVING MONUMENTS: This term may be monuments which, created by forces no longer surviving in society, themselves still survive in social use, fulfilling more or less the function for which they were designed. Obviously for the most part they are religious monuments since religion, by definition absolute and unchanging, long outlasts other social characteristics.

The restoration of these monuments when they become squalid and dilapidated presents great problems arising out of conflicting interests. The building has a double personality, it

is both an historic monument and a functioning church, or the like; it is by no means necessary that restoration work dictated by the claims of the monument *qua* monument will prove desirable or even acceptable to the current functional interest. Every effort will be made to make it so—and this further complicates the restorer's programme. However sometimes the conflicts are so pronounced that the building must assume entirely or predominantly one character to the detriment of the other. If the building is an extensive complex, a solution may be found in partition, i.e. by setting aside some elements to be restored and conserved as a monument and confining the functional aspects and their interests to the remainder. For example some apartments in an historic castle or baronial house may be maintained as a monument open to the public, while the family continues to dwell in the residue.

(D) MODERN MONUMENTS: This small group may be considered separately mainly for logical reasons, since it provides instances which qualify markedly the validity of the general principles of restoration. The present age, as all others designs and erects its monuments, and these, on occasions are damaged and destroyed. Since the artistic tradition which created such monuments is still living—i.e. architects and craftsman still work naturally in the idiom of the building—repairs may be carried out or the monument totally reconstructed without involving any historic or artistic falsification. The new work may be matched up as closely as possible with the old and a normal building inscription will meet the claims of history.

An outline of practice in the conservation and restoration of masonry structures.

(A) Planning the work — The Programme and Specifications.

A project of Conservation and Restoration is like any other building project, and one of consequence can no more be tackled hand over fist than can the building of a temple. Obviously then the first stage in a project of conservation and restoration of a monument is to establish the programme. This must be clearly written out.

First must be defined, the subject matter of the project and what the operation is designed to produce. Is the subject e.g. archaeological ruins to be conserved and displayed in the most meaningful fashion; or is it a functioning temple where the monumental aspects are to be restored and conserved, but not to the prejudice of its current religious use etc., etc

Then, since work of restoration and conservation is designed to ameliorate an existing construction in a certain interest, the next stage is crucial. It must be clearly defined and written out, exactly what is unsatisfactory in the present condition of the structure with respect to the interest to be served. If there is nothing which can be pointed out specifically as unsatisfactory, why then nothing needs to be done!

Finally when the unsatisfactory aspects of the monument have been detailed, then the proposed remedial operations must be specified in corresponding detail. Statements like "This has to be renovated completely" or "This may be renovated to the extent necessary" are useless and potentially mischievous.

(B) The Treatment of Māsonry Structures.

There is no system of conservation and restoration readily available for instant application. Conservation and restoration is not something which can be applied out of a tin or a book. Therefore it is quite impossible to give a breif outline of practical treatment which could be drawn, on directly to meet requirements of any particular project. However as a means of indicating the scope and possibilities of various operations the following notes are provided.

Practical notes on treatment of masonry structures.

I. The first step in any proposed work on ancient masonry is that the areas concerned must be carefully examined for any archaeological, epigraphic, and architectural evidence they may afford (particularly evidence concerning the original condition of the masonry), and this evidence must be properly recorded.

II. Interference of any sort with ancient masonry can be justified only on one or both of the following grounds;

(a) Its appearance is no longer be-fitting.

(b) Its structure is no longer sound.

In any other circumstance tampering with ancient masonry will constitute "destruction".

The appearance of ancient masonry may demand attention because the surface—

(a) has been spoiled by later painting, plastering, pointing, writing, etc.,

(b) has become soiled by soot, chemical deposits, bat droppings, etc., or is covered by vegetation.

(c) is wholly, or in part broken, weathered or decayed.

(d) has wholly or in part disappeared.

The structure of ancient masonry may demand attention because of—

(a) bodily movement due to failure of foundations or to other stresses.

(b) loss of cohesion due to failure of the mortar or other binding device.

(c) displacement, detachment or destruction of some particular elements of the structure.

The causes which give rise to these conditions can be seen to resolve themselves into human and natural ones. Men persistently interfere with ancient masonry by painting on it, cutting or quarrying it away, performing industrial operations on it etc. The natural causes of the deterioration of ancient masonry are these which are of general application in the physical world. Masonry works are broken down in the same way as mountains are broken down, viz., by seismic disturbances, and weathering processes like insolation, erosion by wind and water and the agents they bear including the seeds of plants.

III. Before any act of conservation and restoration is carried out on masonry it must be clearly established —

(a) What is the unsatisfactory condition.

(b) How this came about.

(c) What is the probable agent of causation.

If there is nothing unsatisfactory in the condition of the masonry, then it must be left alone. There is no such thing as general re-conditioning or preservation of ancient masonry (or none known to me).

If the condition of the ancient masonry is recognised as unsatisfactory in one or more respects, a specific effort must be made to improve the situation. Further, if the cause of the

condition is seem to be continuing or likely to recur, then if in any way practical, some effort should be made to inhibit the operation of the cause. But this is by no means always reasonable or possible.

IV. The operations designed to improve unsatisfactory conditions in ancient masonry may be grouped as follows:—

(1) Removing or cleaning away dirt, markings, coatings or extraneous applications or accretions to the surface.

(2) Re-positioning elements of the original masonry which have become detached.

(3) Introduction of new material into the ancient fabric.

(4) Dismantling and re-erection of the original fabric.

These operations are given in the order of advisability. If there is nothing specifically unsatisfactory about the masonry, leave it completely alone. If the unsatisfactory condition can be remedied by removing extraneous additions to the ancient masonry, do this and nothing else. If the original element is available for replacement do not use new material. If the masonry can be dealt with *in situ* do not take it down. In short the best solution to any problem of the conservation and restoration of ancient masonry, other things being equal, is that which involves the least interference with the original fabric.

V. Some cursory outline as may be thought to apply to local circumstances is now given of these operations.

(1) REMOVING AND CLEANING AWAY SUPERFICIAL DISFIGUREMENTS.

In the local sphere by far the greatest bulk comes under this heading. There are two reasons for this. The religious institution has outlasted the artistic tradition which produced its

monuments, and "folk art" has been and is being applied universally to this ancient masonry. As far as is possible this mortaring and painting etc. should be removed mechanically by chipping, flaking and brushing followed by scrubbing with soap and water. Chemical cleaners and removers are to be used only where necessary and under expert advice.

Secondly there is the rapid growth of vegetation in all crannied walls (and even sheer ones). This is, of course, the characteristic problem of the care of masonry in Southern India. In this connection it must be clearly noticed that a reasonable amount of occasional verdure does no harm to the appearance of the masonry. If it likewise did no harm to the structure it could well be left alone. But alas! the forces exerted by plant growth are very great and most damaging to the structure. Thus every effort must be made to eradicate plant growth from the face of ancient masonry. Application of chemicals assist in this process, but fundamentally it can only be properly done by regular manual effort

The superficial mortaring over or "pointing — up" of the hair line jointing of fine masonry in this interest is an abomination. It is much more destructive to the appearance of the masonry than the plant growth, and it is ineffective — the mortaring flakes away and even provides better "lodgment pockets" for the seeds. This practice should be penalised by a fine.

(2) RE-POSITIONING OF DISPLACED OR FALLEN MASONRY.

This is a vital and elementary work in the care of ancient masonry. It is one, however, which in the nature of things is never carried out except by someone trained in this care. This is necessary to recognise where a detached block belongs, and the replacing of it is an expression of scholarly

self-effacement and respect for the past, which comes only with "scholarship".

In the absence of this scholarship, when a missing element is to be replaced convenience of handling is the only criterion governing the choice among various units of original material available. indeed for more likely than the re-setting of any original elements (even in wrong places) is the removal of original elements on the ground that they have become defective or unsuitable, to be replaced by new work. For example stone beams may be removed and replaced by reinforced concrete ones. These are the unpleasant facts of life which must be recognised.

(3) INTRODUCTION OF NEW MATERIAL INTO ANCIENT MASONRY.

There are two aspects to this type of operation; where the new material is to be exposed to view to where it will be hidden within the thickness of the wall. That is depending on whether the operation is being performed because of defective appearance or defective structure of the ancient masonry. Very often the one treatment may involve both aspect.

The insertion of new material in or on the face of ancient masonry for aesthetic reasons, precisely because it is the most generally adverted to by laymen and is one most subject to controversy of a popular nature. Here, above all, must the "restorer" have a clear idea of his subject and aim. At one extreme his subject is a fully functional living building, executed in still surviving techniques of architecture. At the other it is a ruin, fallen and fragmentary, which by reason of the handiwork of time may be far more picturesque than ever it was as a living building.

In the former instance any gaps or damage to face

work will be made good so as to be indistinguishable from the original, for the gaps etc. constitute a blemish. This is "repair" rather than "restoration". In the latter instance the evidence of decay is the charm and is not to be diminished- i.e., even where it may be structurally necessary to plug cavities, the surface must be permitted to retain its broken appearance.

A useful broad distinction can be drawn between what has been called "reparation" and "restoration". With repairs the aim may be legitimately to match up the new work with the old, i.e. to use the same stone dressed in the same manner and, if necessary artificially patinated to give the same appearance. With "restoration", it is a commonly accepted rule that "new work" must always be distinguishable from the original on a reasonable close inspection. However, in no way should it be of a quality strikingly discordant with the original.

The distinction is afforded by the use of different material, i.e. brick or mortar instead of stone or by presenting the same material differently, i.e. different setting, different dressing, different Patination etc; or by setting the new material with its face slightly recessed from that of the original, thus throwing it into the shadow and the back-ground as is fitting. This latter device is almost universally employed when the new insertion is respected in area and is more or less surrounded by the original face of masonry. Small breakages, clefts, gaping joints; etc. which are mortared up are always done in this fashion. New mortar should never be brought flush with the face of old stone, and to smear new mortar over the face of the old stone only constitutes "destruction". Certainly in no case should new masonry ever be set in advance of the original wall face, as nothing must ever be

done which will obscure or confuse the original lines of the building.

The introduction of new material unseen into the body of ancient masonry for structural reinforcement is a factor little appreciated by laymen. However, since it frequently offers an alternative to dismantling and re-erecting, its importance is great. For this reason it is referred to here, although engineering knowledge is necessary to put such things into practice.

Theoretically it is better not to build foreign materials into an ancient structure, as there is always a possibility that some unwonted reaction may develop between two ill-assorted components. That is to say, where possible it is better to strengthen internally with the same material as the original construction. However, with understanding and due precaution foreign materials are incorporated into ancient masonry. Where necessary load-bearing stone walls may be transformed, in part, into framed structures of reinforced concrete or structural steel. The essential thing to notice is that this is done only where necessary and to preserve the original appearance. It is thus the very antithesis of unnecessarily introducing reinforced concrete elements where they can be seen.

One particular method of introducing new material into the core of an ancient masonry structure in order to strengthen it is what is called "Grouting". Cement grout is a fluid mixture of cement which can be run into the interstices of ancient masonry with the result that a structure decemented and honeycombed with voids, can be converted once more into a strong coherent mass. And if proper care is taken there will be no external sign of this operation.

Grouting provides a remedy for situation where one

element of the masonry, the rubble and mortar filling, has decayed. Much graver is the situation where the whole body of the stone work itself is organically diseased. This fortunately is of rare occurrence in rural Indian Temples because of the relatively clean atmospheric conditions.

To some degree it may be possible to reconstitute such diseased stone by chemical means, but this can only be carried out by an expert chemist and the scope and possibilities of the treatment are much more restricted than appears to be the popular impression. Certainly there is no magic substance which can be applied to, injected into, or infused into stone so as to rejuvenate or guarantee it long life. Such ideas are "quackery"; generally speaking the only effect they will have is to spoil the appearance of the masonry.

(4) DISMANTLING AND RE-ERECTION OF ANCIENT MASONRY.

It should be evident that *this method of dealing with the defective masonry* is that of the last resort. However, many instance of its operation are in evidence locally. The intention of this operation is that after completion the masonry unit is structurally sound and presents exactly the same appearance as before the operation with the exception of such defect as have been remedied. The process is thus entirely different in aim and organization from demolition of the original structure and the building of a new structure with the material so obtained.

Although dismantling and re-erecting has a two fold name, the operation has four components of equal importance, viz.,

1. Recording.
2. Dismantling.

3. ° Storage.

4: Re-erection.

The various units of masonry must be each identified with a number, and their position shown on a measured drawing. The blocks must be broken from bond and removed from the wall. They must be stored so that the position of each block is known and each block is immediately accessible. The blocks must be taken from storage and rebonded together in their original order and disposition according to the manner recorded.

Equal precautions must be taken during each of these phases so that the visible faces of the masonry are not disfigured. Thus numbers must be painted or inked only on non-visible parts (until such parts become accessible temporary numbers can be chalked on the faces of the blocks).

During the repeated handlings crowbars or wire slings must never come into direct contact with the face of the stone, and protection of the faces may be necessary during storage. If blocks are defective structurally they should be consolidated during storage. No block should be set into the re-erected wall in a defective condition. Finally it can only be repeated, this operation is a very demanding one if carried out properly, and is not to be recommended if alternative *in situ* treatment is possible.

Conclusion.

In view of the widespread and increasing concern for "Restoration and Conservation" of monuments, two factors may be mentioned by way of timely conclusion.

The demands placed on an effective Restorer are very considerable. He must combine the creative imagination of an

architect with the critical scholarship of the art-historian or archaeologist; and he must possess a diversified technical cognisance. Most significantly he must be imbued with true enthusiasm for the monuments placed in his care. Such persons are not readily available.

Secondly the words Conservation and Restoration in themselves do not mean magic. All that is material is subject to decay, stones and men alike. By intelligent research methods may be discovered to stay or slow down this decay, but these results are limited in time—they are all more or less temporary. Just because 20th Century man is scientifically concerned with conservation and restoration of ancient structures, it does not mean that he can bring the state of any material back to its condition when set in place nor that he can keep it in this condition indefinitely. Sometimes results can be achieved which will last for more or less limited time. Results can not always be achieved. And no results can be guaranteed for ever.

