THE TRAINING OF ARCHITECT-RESTORERS

INTRODUCTION

The confusion and uncertainty at present reigning in university education all over the world make it particularly difficult to carry out an exhaustive survey of the situation and trends in regard to the teaching of the historical disciplines in faculties of architecture.

But for our deep-rooted belief in the value of culture and the importance of the inheritance of the past to human life, present and future, if only as a link in the chain of the development of human civilization, we would be tempted to question the validity of the efforts being made, and of the importance attached to imbuing the persons dealing with the artistical and historical treasures of the past with an ever greater sense of critical responsibility.

We should not anticipate conclusions, however, and start with preconceived ideas. The validity of this Unesco survey lies in the objective serenity with which it is undertaken and this constitutes the sole guarantee of the validity of any conclusions we may come to.

We must admit that a greater and more clamorous importance is given to the gangs of youths, the " contestatori " wether by conviction or for reasons of convenience, whereas there are more numerous and responsible groups of youths who not merely recognize and affirm the value of the culture and monuments of the past, but even go so far as to accuse past generations — in particular ours, spanning the past thirty years — of that deliberate indifference to cultural values which is characteristic of these years of the Twentieth century, and the shameful destruction of cultural treasures.

It is essential, for an impartial understanding of the present situation, to look for a moment at the past, and consider what part the study of history has played in the training of architects, applying the term " architect " to all those who are engaged in the planning and construction of buildings, and who thus contribute to the transformation of town and landscape concomitant with the spread of man's influence on our planet.

THE TRAINING OF ARCHITECTS IN THE PERIOD BEFORE THE ESTABLISHMENT OF THE " SCHOOLS

The training of architects, in the long period preceding the establishment of schools in the true sense of the word, consisted mainly in learning how to make architectural drawings. It was not util later, in the " schools " that the study of the history of architecture was added to the syllabus.

It was at the beginning of the Renaissance that the history of the architecture of the past began to be considered as a subject for study; and in addition to studying architectural drawing, considered by the Vitruvian Academy as an essential part of the training, architects from all over Italy, and above all Florence, began to make a detailed examination of the classical edifices revealed by the excavations carried out in Rome. Another, quite different source of information was provided by the series of notebooks, dating back to the Middle Ages, containing details of the dimensions of classical buildings and characterized by the empirical approach of mediaeval society, in marked contrast to the methodical, scientific research of the early Renaissance surveys.

The " scientia " of the mediaeval artisan had very little in common with science in the modern sense of the word, even though the architect, alone among artists, was admitted to the study of the Arts of the Quadrivium, which included arithmetic and geometry, whereas the skills of painters and sculptors were classified as " artes mechanicae ", not belonging to the superior Liberal Arts. It was only with the coming of the Renaissance that this empirical " scientia " began to be transformed into science in the modern sense of the term and from then onwards the survey of ancient monuments constitued one of the most important features in the training of architects. There exists a large volume of documentation on this subject, including both individual monographs and architectural treatises, covering the period from the Fifteenth to the Nineteenth century. Outstanding examples (apart from Alberti's treatise, the drawings of which have been lost) are the works of Francesco di Giogio, Sangallo, Serlio, Palladio, Scamozzi and Vignola, whose work concentrates on factual detail and memorized notes rather than visual representation such as is to be found, on the other hand, in the treatise of Du Cerceau and Delorme, which bear witness to the influence of the Renaissance on French architecture in the late Sixteenth century.

From the Seventeenth century onwards, with the invention of printing and the development of the art of engraving, architectural surveys, or the graphic representation of monuments, become more realistic and

more conventional: instead of being merely factual notes, they become elaborate drawings, like those made in Rome by Etienne Duperac at the end of the Sixteenth century.

Nevertheless, the prime importance of architectural surveying for purposes of training was recognized in the first training centre, established with the founding of the French Academy of Architecture in Paris in 1671; the Director, François Blondel, was the author of the " Cours d'architecture " (1675-1683), which was produced for the Academy, and constitutes a veritable textbook on the subject.

The Enlightenment brought further encouragement to the advocates of architectural surveys, though they assumed a less technical character with the development of the taste for townscape painting (Canaletto and Guardi); whereas the work of that consummate master of architectural drawing, Gian Battista Piranesi, reveals the beginnings of a new type of interest in the past, which was to develop into the Neo-classical school. In this context, an important part was played by Gaspard Monge whose " Leçons de géométrie descriptive ", by codifying the rules of geometrical representation, led to the adoption of universal criteria for the drawing of plans and surveys and, subsequently, the standardization of terminology. In this period, too, an important contribution was made by the French Academy, with Jean-Paul Le Tarouilly's two sovereign works — " Les Edifices de Rome Moderne " and " Le Vatican et Saint-Pierre de Rome " — whose influence on the development of artistic taste cannot be overestimated.

As regards technical architectural training, the *Corps des Ponts et Chaussées* established in 1716, with Jacques Gabriel, the President of the Academy of Architecture, as Inspector-General, was transformed, in 1747, into the *Ecole des Ponts et Chaussées,* the oldest school of engineering in Europe and the archetype of the Eighteenth century polytechnical schools. The establishment of this school, together with that of the *Ecole Polytechnique* in 1794-1795, consolidated the rift between the engineer and the architect, which was to become the predominating feature, and often a cause of dispute, of the organization of teaching in the Nineteenth century, particularly in the Anglo-Saxon countries.

The craze for the excavation of ancient monuments during the first half of the Eighteenth century, and the subsequent analysis of classical monuments gave rise to two different schools of thought; the romantic-naturalist school, which found its champion in Goethe and later developed into analytical positivism; and the classical, historical school represented by the works of Winckelmann and Milizia. Those of the first school interested in nature mainly as the environment of man, concentrated on the pre-historical and mediaeval epochs, and regarded monuments as a part of the environment, important for their emotional and picturesque element rather than their artistic value. The classical school, on the contrary, was concerned mainly with the acquisition of knowledge and with the study of Greek and Roman architecture; the most mature and striking examples of this school are to be found in the monumental works of Canina.

III BIRTH AND DEVELOPMENT OF THE SCHOOL OF ARCHITECTURE

The character of the study of architecture, concentrating originally on the acquisition of factual knowledge of the monuments of the past, either through surveys or through historical research, began to change, between the end of the Eighteenth century and the beginning of the Nineteenth, with the emergence of the first schools of architecture in the modern sense of the term, accompanied by the creation of the new polytechnical schools of an entirely different character: the French *Ecole Polytechnique,* already mentioned, the Higher Polytechnical Schools in Prague (1806), Vienna (1816) and Karlsruhe (1826); and, much later, in the second half of the Nineteenth century, the Italian polytechnical schools. The teaching in the schools of architecture was reorganized, with the development of architectural surveying, now regarded as an essential feature of the syllabus, and the introduction of systematic courses on the history of architecture. The emphasis on the study of history — as with the study of mathematics — still persists to this day, as evidenced by the fact that students of architecture are still required to take a course in history at the beginning of their training. In the first schools of architecture, set up as a result of the reorganization of the Fine Arts Academies, students received a neo-classical training, teaching them to draw their inspiration, as to both form and style, from ancient monuments.

Ancient architecture, taken as the symbol of the art and civilization of the classical epoch, was used by the new architects as the standard model when building for the glorification first, of the Napoleonic empire and subsequently, of the monarchical régimes that arose from the ashes of the French Revolution.

With the development of engineering and the growth of the influence of historiographical studies the contrast between the classical and romantic schools of thought becomes less acute, so that, towards the middle of the Nineteenth century, the clash between romanticism and classicism, intuition and logic, produced the eclectic style of architecture characteristic of the second half of the Nineteenth century. As regards architectural training, the character of the Nineteenth century architecture — first the neo-classical phase, then the phase of historical eclecticism — made it more essential than ever to concentrate on architectural surveying combined with archaeology. Meantime, architectural drawing evolved, with the introduction of the science of draughtsmanship, axonometry, perspective and the theory of shadows, attaining the virtuosity to be found in the work of Percier, Fontaine and Choisy.

In the Nineteenth century the French School in Rome, engaged in a vast undertaking, was in a flourishing condition, while on the other hand the restoration work, much of it arbitrary, done by Canina, Viollet-le-Duc and others, gave an impulse to the production of architectural documentation. The architectural surveys of the end of the century are based on punctiliously accurate research — take, for example, those made by Collignon of the Parthenon, and by Filippo Basile on the curvature of the Greek temples in Sicily.

At the same time, the " individualist " approach to monuments, the tendency to abstract them from their surroundings and concentrate on theoretical research and restoration, culminating in the work of Viollet-le-Duc, affected the field of architectural research during the first decades of the Twentieth century; though the French experts gradually relinquished their lead to the Germans, due to the influence of German philology. Take, for example, the survey made by Stegmann in collaboration with Geimuller; the documentation amassed by Dürm; and the surveys of Albrecht Haupt which though less dramatic and vivid, are more accurate than the French surveys of the preceding century.

As regards the development of architectural training schools, the realization that architecture is both a science and an art (though the emphasis was originally on the element of antithesis between the two rather than on the need for combining them) was reflected, in the Nineteenth century, in the emergence of various different national traditions and systems in the teaching of architecture. In countries with an ancient academic tradition, like France, where a distinction between architecture and engineering had been made at a very early stage, the school of architecture constituted a special section of the *Ecole Nationale des Beaux-Arts*; whereas in the Germanic countries, where higher schools of engineering had been established at a very early date, architecture was taught in a special section of the polytechnical schools.

In Italy, there developed a mixed system, reflecting both the continuing prestige of the Academy and also the nascent polytechnical tradition, originating with the so-called " *scuole d'applicazione* " (advanced technical schools for officers or graduates in engineering) and the higher technical institutes. The earliest of these were the *Scuola d'Applicazione degli Ingegneri* in Turin, established in 1860, and the *Istituto d'Istruzione Tecnica Superiore* in Milan; subsequently, five other similar schools were set up in other parts of Italy. These awarded diplomas of two types : in engineering (civil or industrial), and civil architecture. The course in architecture lasted three years, and was open to students who had completed two years' university studies, and held a grammar-school certificate or technical institute diploma. This system, predominantly theoretical and scientific, tends to produce architectural students lacking artistic training; though the Milan School has always been an exception to this general rule.

The *Istituto d'Istruzione Tecnica Superiore* (higher technical training institute) in Milan, established under a special law of 1859, laid down in a document in 1860 — which to some extent foreshadowed the establishment of the future polytechnical school — that architects are required to undergo a dual training, in both engineering and art, provided in collaboration wiht the Brera Academy. The preparatory course (corresponding to the two-year university course taken by students applying for admission to the *Scuole d'Applicazione*) a part of which includes architectural and decorative drawing, is followed by a three-year advanced technical course organized jointly by the Institute and the Brera Academy, with equal emphasis on artistic and scientific disciplines.

In addition to the above there are still, however, four-year courses in architecture held by the academies, open to students who have completed four years' elementary and four years' secondary schooling (in the Milan Academy, courses are combined with those of the *Scuola dei Capomastri* (College of Master-builders) of the Cattaneo Technical Institute. But they award not professional diplomas in civil architecture, but diplomas for teachers of architectural drawing. This situation produces two different types of architect : those who have studied at the academy are better versed in drawing and the artistic aspects of architecture than the technical side, and are in any case not authorized to undertake any building except under the supervision of a professional, legally qualified architect; and civil architects, technically qualified and skilled, but somewhat lacking in artistic training, especially in the case of those graduating not from the Milan Institute — which works in close collaboration with the Academy — but from the other Italian *scuole d'applicazione*.

This situation has been realized for some time and has formed the subject of various discussions, proposals, and draft laws (such as the one of 1889-1890 proposing the establishment of two independent schools of architecture attached to the Institutes of Fine Art in Florence and Venice, neither of which city has a *scuola d'applicazione*) for the creation of special schools of architecture. It was intended that these schools should be completely independent from the start, both as regards the *scuole d'applicazione* and the academies, the purpose being to remedy the lack of artistic training of the first category, and the lack of scientific training of the second.

In the case of Milan, it was arranged by Camillo Boito, in 1908, that the architecture students of the Institute of Higher Technical Training should be exempted from the course on engineering until the beginning of the university course proper, attending special lectures instead. In 1920, on the initiative of Gustavo Giovannoni, the Higher School of Architecture, providing a five-year course of study, was established in Rome;

a little later, with the reform of 1923, the Brera art school was set up; 1926 saw the abolition of the schools of architecture attached to the academies together with the abolition of the title of Professor of Architectural Drawing; and it was in 1926, also, that the Faculty of Architecture was created in the Milan Polytechnical School; and similar faculties were instituted in Florence, Turin, Venice and Naples.

These development marked the final acceptance of the inclusion of modern schools of architecture as part of the university system, not only in Italy but also in the other parts of the world, (albeit with variations due to national traditions), between the end of the Nineteenth and the early part of the Twentieth century. In France, the students of the architecture section of the *Ecole des Beaux-Arts* supplement their studies by working in the office of a " master architect "; in Russia, students attend courses in the Fine Arts Academy and are then sent abroad to complete their studies; in Belgium, architecture is taught at the State university and a number of independent universities, as well as in the architecture department of the Academy; and students are required, in addition, to spend periods doing practical work in an architect's office. The same kind of apprenticeship system exists in Austria, where academic courses in architecture are given in a special department of the Polytechnical School in Vienna, the departments of the Academies and the vocational schools attached thereto. Hungary has a faculty of architecture attached to the university; and Argentina also has a faculty of architecture, in the University of Buenos Aires.

In Germany, the various polytechnical schools have provided five-year courses in architecture since the end of the Nineteenth century; and in addition students are required, in some cities, to do practical work in an architect's office. Switzerland, too, follows the German tradition, and architecture is taught in the polytechnical schools. Sweden has two polytechnical schools where students can qualify as teachers of architecture after a four-year course; those who wish to work as professional architects then go on to complete their studies in the department of architecture attached to the Fine Arts Academy. Spain has Higher Schools of Architecture which award state diplomas.

In the United Kingdom and the United States the system for the teaching of architecture is completely different. In England the schools of architecture (like all other sections of education) are private. But quite a number of them now form part of the Universities, which although not state-controlled are state aided financially in one way or another. Students combine theoretical study with practical work in an architect's office. Subsequently they may be admitted, after obtaining their certificate, to sit the examination for membership of the Royal Institute of Architects. In the United States this system is modified and improved by the existence of large numbers of specialized vocational schools.

As regards the syllabus of architectural studies, the position is as follows : ever since the schools of architecture were first established, the programme of studies has been unsatisfactory owing to the fact that it represents a compromise between two approaches — that of the teachers trained in the Fine Arts Academies and that of those graduating from the polytechnical schools. Neither faction has, however, ever disputed the importance of the study of ancient edifices through the survey of monuments and research on the history of architecture, since a knowledge of the past is considered essential as a basis on which to build the future.

From 1920 onwards, nevertheless, following the discussions on the elimination of eclecticism, the first doubts on the validity of architectural surveys began to be expressed. By 1938 already, students were finding this subject irksome, questioning its formative value, and regarding it solely as an instrument for the restoration of monuments, and nothing more. The results of this attitude were most obvious in the architectural faculty in Rome where, in 1935, architectural surveying was dropped from the syllabus, and was only reinstated in 1949. At the same time, a move was made to include surveying in the course on architectural restoration — an implicit recognition of its importance for restoration work.

The cause of these various attempts to change the character of schools of architecture is to be sought in the evolution of the creative activity of the architect, which first began outside Italy some time between the end of the Nineteenth century and the beginning of the Twentieth. It was at this time that independently-minded architects began to assert their right to originality, challenging the validity of historical research which, they contended, stifled creative activity. This marked the beginning of the reaction against the imitation of historical styles : the methods of eclecticism were discredited, and the need to keep architectural designing and historical research apart proclaimed. The schools were, however, slow to follow this lead, even in cases where the *avant-garde* elements were most vociferous; and it was not until the first decades of the Twentieth century that the teaching of architectural planning in the schools of architecture ceased to be based on slavish imitation of historical styles. Even so, it was a long time before the traditional distinction between " engineers " and " architects " disappeared.

The hidden danger of the eclectic tradition lies in its perpetuation of the distinction drawn between the hedonistic conception of " works of art " and the various important practical elements which combine together in creativeness. This leads to further ambiguities. The traditional classification of works of art by type and style is replaced by a new, but equally arbitrary, method of assessment. The notion of the monument as part of the " personality " of the artist, in the romantic sense, and thus divorced from its surroundings, persists, even though the idea of the monument as a single unit,

detached from its surroundings, has now been discarded. Lastly, the two elements, artistic and technical, continue to be artificially kept apart and regarded as separate factors, regardless of the fact that the two combine to form an architectural unit.

This in turn leads to a conflict between architectural creation and the study of the past, the creative influence of which the *avant-garde* denies. Consequently the historical disciplines, stripped of their didactic-creative elements, assume new forms and historical research adopting a critical attitude tends to be little contemporary trends, only accepting to record them as facts of modern development. This account for the stand taken by the founders of modern architecture, Gropius and Le Corbusier, who denied the importance of the history of architecture and art criticism and set out, with the assistance of the politicians, to make creative activity part-and-parcel of everyday life.

This attempt to build a new culture whilst rejecting the culture of the past, though frequently successful as regards the creative activity of the individual, took absolutely no account of the need for an understanding of historical perspective, which shows that every new development is a link in the chain extending unbroken from the past to the future. But since the importance of history cannot be dismissed completely, there has developed a school of historiography, concentrating solely on the phenomena of the past fifty years; and this, constituting the only source of inspiration, has produced a new type of eclecticism, based on imitation rather than original inspiration and no less stultifying, artistically, than the eclecticism of the Nineteenth century.

This rejection of the past, combined with the mushroom building following on the relaxation of standards due to the new wave of eclecticism, has produced disastrous results we all lament in regard to the conservation of monuments and sites, more especially in towns, where buildings have been demolished and replaced by a substitutive architecture.

IV BIRTH OF THE IDEA OF THE CONSERVATION OF MONUMENTS AND PROBLEMS OF RESTORATION WORK

It was in the Nineteenth century that consideration was first given to the conservation of monuments. There were two main schools of thought on the subject. The first of these developed in England, as an offshoot of the romantic-naturalistic movement, combined with sociological and moralistic conceptions; and produced the artistic school impersonated by Ruskin which turned from industrial civilization to take refuge in archaeology in the narrowest sense. This was the seed from which the great school of English and German archaeologists sprang.

France and Italy, on the contrary, on the basis of the research carried out by Viollet-le-Duc, which extended the study of the classical and mediaeval world, treated ancient monuments as something divorced from their environment, worthy of conservation on account of their own intrinsic artistic value. It is this " individualist " attitude to monuments that produced the academic monumentalism of a period guilty both of functional technicity and also of urban reconstruction of a kind which has done so much damage to the structure of our ancient cities, such as — to quote the supreme example — Haussmann's reconstruction of Paris.

These two schools of thought are at the root of the new attitude towards monuments, and the new theories on the subject of their restoration which developed at the end of the Nineteenth century on the strength of a general determination to reconstruct ancient cities to meet the new requirements made of them. And they led to the emergence of two different theories of architectural restoration : the archaeological theory, based on analysis and philological research; and the interpretative theory, based on a subjective artistic approach and frequently involving the construction of additional parts.

Viollet-le-Duc, as the champion of the interpretative school, maintained that those setting out to restore a monument must put themselves in the place of the original architect, and try to imagine how he would have solved the problem with which they are faced. The aim : to reconstitute the monument in its original stylistic unity.

As to the urbanistic side of the question, Camillo Sitte explained that the purpose is to recreate the original setting, so as to " restore to the modern city at least some of the values admired in ancient cities ".

The chief exponent of the other theory of restoration, the so-called " scientific " (analytical-philological) one, was Gustavo Giovannoni. Restoration, he contended, must be based on known facts, not hypotheses, and include the addition only of such neutral elements as are necessary to complete the general character of the original and conserve everything of artistic and historical value. Architects took no part in this cultural dispute; they were convinced that our civilization had no interest in the matter, and that restoration was being taken over increasingly by specialists. They therefore left it to the art historians, the critics, the archaeologists and the architect-restorers to decide whether monuments should be restored and how this should be done, treating the site of ancient monuments as a kind of no-man's-land in which to make formalistic experiments.

Only the architects of the United Kingdom did not take this philistine attitude, but based their work on archaeological research : whilst in Italy, Camillo Boito took the same line, but his was an isolated case.

Boito, in his writings, spoke constantly of the importance of the relation between existing and future building; and it was he who, in 1883, requested the Congress of Architects and Engineers in Rome to include the

rural Roman sites in the monuments to be protected by the legislation than being drafted.

Shortly afterwards, in 1889-1890, the said draft law (which remained at the draft stage) for the establishment of special schools of architecture also proposed the establishment of a chair for the study, conservation and restoration of monuments, to supplement the courses held by the *Istituto d'Istruzione Tecnica Superiore* in Milan.

Practically speaking however, architects, faced with the need for meeting the demands of a rapidly evolving world, paid less and less attention to the problems of conservation. Jugend Stil, Art nouveau, Modern Style — all were romantic, naturalist movements, arising from recognition of the need for finding new forms of expression in contradistinction to official academics (neo-classicism and eclecticism).

Then also, there was a tendency, headed by Antonio Sant'Elia and Otto Wagner, to rebel against the standards of the past; though this made very little headway in Italy which, on the contrary owing to a curious deviation of the archaeological tradition, witnessed the Roman neo-monumentalism of the Fascist period. The passion for discovering monuments for study at one's convenience led to the ill-omened destruction of connecting links and an architectonic creation which took its inspiration from the ancient monuments solely for their superficially formal value and effects of style merely as a cover for soulless, academic building. This pretext was used to justify the demolition of important historical monuments, and pseudo-Roman models were used in architecture in place of rational forms.

It was not until 1930 that the importance of architectural planning as a whole was recognized. The interest of students shifted from great to what is known as " minor " architecture, i.e. town planning, though limited always to the single constitutive element and concentrated on the picturesque aspect rather than on the nature of a construction as part of a vast whole. Important in this connexion is the series of studies on the dwelling house in Switzerland, published in thirty volumes by the Swiss Association of Engineers and Architects.

This new emphasis on architecture as a whole and on the relation between monuments and domestic building led the specialist to take a wider view of the problem of conservation, which now became a part of town planning, under the general programme designed to enhance the effective value of all " property ". This inevitably entailed a return to the recognition of the importance of historical research.

V. RETURN TO HISTORY AND ORGANIZATION OF ARCHITECTURAL TEACHING

In recents years architects, deploring the break with historical tradition due to the pursuit of technical functionalism, have reverted to the study of the past. This had immediate repercussions on creative architecture, but only at the superficial level, leaving the structural values unchanged. The perfunctory study of a limited period of the past, that is to say, of examples of recent building, led to a revival of the ornamental details of the Liberty style, used purely formally in a mistaken attempt at modernization — a result of the essential superficiality of the two conflicting trends — negation and revival of historical values alike, without a deeply genuine interest. This return to tradition, being due merely to one of the crises endemic to artistic progress, produced no more than a few sporadic, individual results, not sufficiently important to lead to the founding of a new school.

The question of the need for a return to history is infinitely more far-reaching. The return to history is necessary when it corresponds to a deeply-felt creative need to apply the values of the past in building for the future; but not when it is made for purposes of form and convenience, as in the case of the " new modern " school.

Be this as it may, the return to history, superficial though it was, requires mention here because of its repercussions on the schools of architecture where, for several decades, courses on the history of architecture had been purely factual in character, no attempt being made to give them any formative value.

This underestimation of the importance of history is probably due to the bogey of eclecticism, the jumble of styles against which the leaders of architecture at the beginning of the Twentieth century protested. Also, the historical attitude to events has blunted our critical spirit, inclining us to passive acceptance, and hampering our capacity to choose freely the lines on which to build our future. Hence the differences of opinion not only on the methods of teaching history in faculties of architecture, but even on the advisability of teaching this subject at all. There are some who advocate simply combining a certain amount of history with the study of every discipline.

This would, obviously, be acceptable only as an addition to the teaching of history as a separate subject, but not as a replacement for it.

The idea that the study of history has a direct formative value is now coming into its own again. History studies the trends which produce a certain type of architecture, thus giving an indication of the principles to be adopted for building in the modern world.

This brings us back, roughly, to our original definition of the value of history : it has a direct bearing on the architectural building of today, in the same way as the history of ancient styles had a bearing on the development of eclectic architecture, thus possessing a formative value. It follows that the history of architecture should be treated not as an aspect of the history of art but, rather, as a study of the organization of the world as a whole in relation to the needs of man. This is an all-embracing conception of architectural activity,

on the lines of the definition given by Morris in 1881, who described it as the sum total of the changes and modifications made to the surface of the Earth in accordance with human needs.

This implies rewriting the whole history of architecture so as to trace, civilization by civilization, century by century, all the human activities which went into the making of each particular townscape and suburban scene, constituting these essence of architecture.

An analysis of this kind is in line with the new attitude to architectural construction, concerned with towns as a whole rather than individual monuments. What interests us is the work not of the individual architect but architectural ensembles, the character of the towns in which man can live, rediscover his real roots and assert his own individuality.

The word " rediscover " is not inapt, since it is a question of rediscovering something which has disappeared and which we must find again if man is to recover the equilibrium which, for some decades past, he has lost and to which he aspires with an anxiety he cannot overcome.

Let us turn now to the subject of the old cities which man in the past decades has contrived to disfigure by introducing, in monuments or groups of monuments, modifications which appeared revolutionary but which, in fact, were nought but incertain gropings, stemming from indecision combined with a morbid need for self-assertion and using abundant resources without moral justification.

What is needed, therefore, is a new attitude towards the history of architecture, backed by new documentation and fresh historical research, designed to reconstitute the " monument " and the circumstances of the construction of an architectural edifice, and " place " it in its historical context.

In this connexion, it should be noted that the rationalist mentality of French critics, the positivism of German scholars and the empiricism of the English and Americans are all equally vitiated by preconceived historical notions.

It is impossible, without an intimate knowledge of current artistic developments, to acquire a true understanding of the art of the past. Similarly, the only way to grasp the essence of modern art is to turn back again to a study of the art of the past.

The appearance, in any civilization, of a rift between the artist and the critic, the culture of the past and of the present, is invariably symptomatic of a certain lack of unity and sanity, inimical to both creative activity and to a critical understanding of the past. Such, unfortunately, has been the position for the past fifty years, despite all the praiseworthy efforts made by certain outstanding personalities to heal the rift.

It is clear, from a glance at the history of the recent past, that one of the chief dangers is nationalism in art. To split history up into geographical divisions is not acceptable because it fails to take account of the links which have always existed between the different civilizations and creates the false impression of a series of isolated, mysteriously labyrinthine worlds, an impression which does not stand up to critical analysis.

The history of architecture cannot be divorced from art criticism, any more than authentic culture can be divorced from life : in fact no phenomena can be considered in isolation.

Similarly, the new study of the history of architecture must cover the monuments of the past as well as those of today.

We need to evolve a new method of interdisciplinary research, giving due prominence to certain features of special importance for town planning, and indicating how the methods used in ancient times for the distribution of limited architectural spaces can be applied for planning urban agglomerations in modern Italy. We need, further, to revive our awareness of the aesthetic values of fabrics, of the architectural arrangement of space, of materials and colours. And this entails taking fresh stock of the whole subject.

To sum up : the study of history is an essential part of the training of modern architects, serving three different purposes :

(1) to enable students to discover their own creative inclination through making a detailed and comprehensive study of past civilizations and of the lessons to be learned therefrom;

(2) to give students a study in depth of that period of the past which is to be their field of work, with a view to bringing ancient cities to life again as part of overall architectural planning;

(3) to qualify students to restore ancient monuments, however noble or modest they may be, and, without detracting from their artistic value, to fit them into the framework of the life of today and tomorrow.

To serve this purpose, the history taught in faculties of architecture should be as follows :

1. *Study of art criticism and general art history,* taken in the context of the development of the other arts (including the so-called " non-figurative " arts — poetry and music), and concentrating on the artist as a product of a specific period and civilization; this study should be combined with a study *of the history of architecture,* the two being designed to comply with the principle of conveying knowledge and developing taste simultaneously.

The study of architecture in the context of the other arts, and more particularly the visual arts, taken with special reference to the aesthetic aspect and to the visual importance of monuments and architectural settings, would give future architects a keener appreciation of the beauty of the forms, shapes, dimensions and colours of the ancient monuments with which they will later be dealing.

2. *Historical study of the whole development of architecture in the past,* with close reference to political history and the evolution of town planning, including

›oth a general, overall survey of the question and a pecial detailed chronological study of specific periods. 'his constitutes an entirely new branch of study, ffording infinite possibilities for critical research in co-›peration with other disciplines and other faculties.

Γhis co-operation with other disciplines must inevitably hange the form of history-teaching which, instead of oncentrating, in the traditional way, on facts, names ›f kings and details of wars, will be concerned with he really important elements of various periods, the tructure of society and the evolution of thought, social onditions, production, human relations, the law and he ideals of the time. Students must learn to view ıistory not merely as a closed spectacle, of which they an only have a passive knowledge, but as a drama full ›f problems which still have significance for the man ›f today and tomorrow, who must constantly reinterpret hem afresh, as guidance for his own activities.

t is essential, in schools of architecture, to link the ›ast with the future, by combining the study of history ınd the teaching of architectural designing, with the ıim of producing architects capable of disregarding ›oth fashions and conventions. Indeed, the study of ırchitecture should concentrate not merely on the formal ıspects of edifices but also on the world they represent, aking them as historical evidence of a specific civi-ization at a specific stage in its development.

Γhe purpose of architecture is to impose order on man's surroundings, and provide him with a suitable setting. Γhis involves adopting certain cultural, technological ınd spiritual options, and making certain modifications o the landscape.

3. *Study of the history of architectural methodology* including the " rudiments of architecture " and the " surveying of monuments ", so as to cover both the artistic and the technical aspects of architectural creation, relating not merely to the individual monument, but to its whole setting. With this end in view, the study will include the social and economic aspects of architecture, and notions of town planning.

Architectural surveying will be studied in conjunction with drawing, to which it is related, the teaching of both disciplines being designed firstly, to impart a necessary practical skill and secondly — more important — as a means to acquiring a knowledge of history and architectural composition and developing the mentality of the professional architect.

Architectural surveying assumes a different character when considered in relation to town planning; for a precise knowledge of the general layout of ancient cities, based on an imaginative reconstruction of individual monuments, is an essential prerequisite to any operations for the restoration of historical sites.

The teaching of architecture must be reorganized along these lines. It is the only way really to meet the new demands now made on " schools of architecture " and improve the quality of teaching whilst solving the problem of quantity — due to the growing demand for architects to work on town planning, and urban and rural building projects.

The steady increase in the number of young people, all over the world, selecting architecture as a career responds to a real need of society; but it is important to limit the number of people entering the profession, since the growing needs of our society would be ill-served by the production of large numbers of mediocre architects, unable to solve the problems of today, let alone those of the world of tomorrow.

The general cultural education of students of architecture must not be confined to facts, but aim to produce individuals with wide general culture. In addition to the necessary technical professional instruction, it is essential, too, that they should be acquainted with all the multifarious aspects of human life, and the eternal sources of human hopes and sufferings.

It is incumbent on the architect to add to man's great artistic heritage, the concrete reflection of the sum of human knowledge and understanding. Mastery of the profession is not a matter of techniques and skill only, but a means for the expression of a broader vision, for which professional training alone cannot suffice.

We should take as a warning the words of one of the great masters of modern architecture, Louis Sullivan : " ... If, as I believe, true culture is of the utmost utility, in that it implies the possession and application of the finest powers of thought, imagination and sympathy, then the works of a cultured man should reflect his culture in a way that proves that he has used it for his people, and not for his own ends alone : for the welfare and enlightenment of the people as a whole, and not for the enrichment of a single class.

The work of a man of culture should, in short, prove (and it is incumbent on him to produce the proof) that he is a citizen, not a slave; a true exponent of democracy... There can, in a democracy, be only one question to which the citizen is required to reply : how do you use the capacities you possess, for the people or against them ? "

It is to this " true culture " that we should aspire. And, for this, we must not be afraid to turn to history : far from being an obstacle or an impediment, it can render an immense service to those who are capable of using it as a means of widening their horizons and increasing their understanding; those who are able to discern, in day-to-day happening, the eternal pattern linking present and past; those who have learnt from history not to be afraid of looking far ahead, and understood that history is the only means to commanding a broader vision, a wider view, thinking with dignity and acting with courage : the only path, in fact, that leads to hope.

The world of tomorrow must be based on the functions of the past.

Schools of architecture must impart to their students such elements of the sum of human knowledge as are considered necessary for their training : the study and

analysis of the history of the past are essential both for understanding the present and as a basis for planning for the future.

Schools are designed to dispense culture, and not technical training only. They should provide the means of raising students' cultural level and comprehensive education in all the requisite disciplines. Technical instruction should be combined with a grounding in the *humanities*; and it is important, above all, to pay attention to developing all the faculties of man, and to plan programmes in such a way as to further the essential purpose of architecture — the creation of an environment such that the man of tomorrow may realize his potentialities to the full.

In several countries (Belgium, Hungary, Italy, Netherland, Poland, Rumania, Jugoslavia) some courses have been established some time ago, in parallel with the practical and methodological teaching of History of Architecture, reserved to architectural students who want to be theoretically and practically trained for the restoration of historical monuments. Two courses of this kind have been recently organized by Columbia University (U.S.A.); one of them is reserved to students of architecture, the other one to students of history of art.

VI. POST-GRADUATE TRAINING OF ARCHITECT-RESTORERS

The position in regard to special post-graduate training for architects intending to specialize in restoration work was, until a few years ago, highly unsatisfactory in all countries of the world.

There were no special schools for this purpose, with the result that graduates in architecture had to qualify themselves by studying the few works available on the subject, and young architects entrusted with the important responsibility of restoration work were obliged to acquire their specialized training entirely on their own.

The position in countries with the oldest tradition in the conservation of cultural property is as follows : in France, the young architect, after graduating, enters an atelier or the " agence " of a chief architect of historical monuments as an apprentice, and meantime, studies for the competitive examination to qualify as an architect of historical monuments (*Architecte des monuments historiques*).

In the United Kingdom, there are short courses for newly-fledged architects on the various special categories of monuments (churches, buildings, castles, etc.). These courses are open not only to newly fledged architects but to experienced practitioners in architecture and the related professions. There are also practical scholarships of six months run by the Society for the Protection of Ancient Buildings, and a new two-years course of academic and practical instruction at the Institute of Archaeology in the University of London.

In Italy, students have to make individual arrangements for preparing for the competitive examination, on the basis of which official government architects are appointed. There were a few cases, in the past, of young architects being appointed as apprentices in government architectural offices, where their service counted as the equivalent of preparation for the competitive examination; but such cases were few and fare between. Another possibility open to young graduates was to work as voluntary assistants in the restoration section of a faculty of architecture : in every case it was only thanks to their ambition and determination that young graduates were able to obtain any systematic training in this special field.

In view of these shortcomings, common to all countries, the Faculty of Architecture of the University of Rome decided, in 1960, (the initiative came mainly from Professor de Angelis, now titular professor of Architectural Restoration and at that time Director-General of Antiquities and Fine Arts) to organize specialized post-graduate courses on the restoration of monuments. These courses were improved and expanded year by year until finally, in 1966, with the collaboration of the *Centre International d'études pour la conservation et la restauration des biens culturels*, established in Rome, they developed into a specialized International Course for the training of architect-restorers.

Admission to this course — limited, for purposes of efficiency to a maximum of 35 students — is open to graduates in architecture, each candidate requiring the sponsorship of a qualified person in his own country, to vouch for his qualifications and general suitability. The applications received are sifted out, and the 35 successful candidates are asked to be in Rome at the beginning of November, where they spend the first two months of the course (November and December) studying the Italian language and familiarizing themselves with the local museums and monuments. Assistance is given, at this preliminary stage, by the *Centre International de la Restauration* which, in collaboration with the Italian Ministry of Foreign Affairs, organizes special courses in the Italian language. In addition, the Italian Ministry of Foreign Affairs, UNESCO and certain foreign countries (Belgium, Austria) assist by making available, every year, a certain number of study fellowship, which are awarded on the basis of a competitive examination. The course proper runs from the beginning of January to the end of June.

Students with a regular attendance record are eligible to sit the examinations, held every year at the beginning of June. Successful candidates may then, in consultation with the Director of the School, select a subject for a diploma thesis, to be confirmed by the professor in the candidate's country of origin who has assisted the candidate in the preparation of this work, and who is summoned to the Board of Directors in charge of the School, in Rome, to pronounce on the diploma project.

No candidate is eligible to submit a subject for a diploma thesis unless he has passed the relevant examinations and had his diploma project approved by the Superintendent of Studies.
In practice, therefore, the course lasts two years : the student is required to spend the first year in Rome attending courses, and to pass the final examinations; he then spends the second year in his own country, engaged in study and research for his diploma thesis, with the assistance of a professor of his own nationality, on a subject approved by the Board of Directors of the School in Rome.
The diploma awarded by the Rome School is recognized by all countries, and ranks as a very important qualification for candidates applying for posts as restorers in government departments responsible for the care of artistic and historical monuments in all countries.
The teaching staff of the Rome School includes distinguished foreign specialists in various branches of restoration work, as well as qualified Italian teachers. There are both individual lectures on one particular subject and series of lectures.
Students find this system very satisfactory since it gives them, in a reasonably short time, a complete and comprehensive picture of the position in regard to restoration work throughout the world, the latest experiments in various spheres, the special problems of the moment and the increasingly specific and exacting demands made, with every year that passes, on the authorities responsible, in every country, for the national cultural heritage.
In addition to this advanced training, provision must be made for medium-level training on a regional basis, corresponding to the main geographical regions of the world.
Latin America (Venezuela) already possesses a specialized post-graduate school on the restoration of monuments, organized by an architect, Graziano Gasparini. The course lasts six months, and, in 1967, 3 diplomas were awarded.
In Turkey, there is the Middle East University in Ankara, with a specialized post-graduate course, under the direction of Professor Guran. The course lasts one year and, in 1967, 4 diplomas were awarded.
In Iran, a post-graduate course on the restoration of monuments under the direction of Professor Sampaolese, has been in existence since 1965. The course lasts one year and, in 1967, 2 diplomas were awarded.
In Belgium, there is a specialized post-graduate course at St. Luc School, in Liège, under the direction of Professor H.F. Joway. It lasts two years and, in 1967, one diploma was awarded.
Though it is desirable that regional schools of this kind should be consolidated, expand and extend their programmes so as to provide adequate training for young graduates, steps should be taken to prevent an undue increase in their number, to the detriment of the development of a small group of really first-class schools, geographically so placed as to cater for the world's needs.
It would be advisable, therefore, to distribute these medium-level schools rationally so as to have one for the Far East, one for the Middle East, one for the Near East, one for Latin America and one for North America.
The Rome School should be developed to the maximum, to provide the best possible training for qualified students from regional schools. It should, in short, turn out " master restorers ". To enable it to fulfil this rôle, it must be provided with the resources necessary to institute a Campus, where students and professors can be lodged together and so have better opportunities for discussions and the exchange of views. If better facilities and, above all, more study grants were available, students would be able both to take full advantage of their stay in Rome and also to enlarge their experience by making study trips to the main centres of restoration work in Europe and the Mediterranean basin.
In this, UNESCO, at the instigation of the National Commissions of countries interested in the conservation of their own cultural heritage, could help by adopting a resolution on the subject, at its next General Conference, and deciding to provide the bulk of the resources required.
Italy, for her part, proud of the honour and the responsibility of acting as host to the International School of Restoration, plans to enlarge the International Restoration Centre by the addition of a new academic wing for the school of architect-restorers, equipped with all the necessary facilties.

THE ROME SCHOOL

The post-graduate school for training in the restoration of monuments is attached to the Faculty of Architecture of the University of Rome.
The students at this school have always included a number of foreigners, since many of the students of all nationalities who elect to pursue their studies in Rome are interested in the historical disciplines and the restoration of monuments.
However, the school did not begin to specialize in training for restoration work until 1965, when it came under the patronage of the *Centre International d'études pour la conservation et la restauration des biens culturels*, and so assumed an international character.
In this form, it meets a real demand, which was expressly formulated by a resolution voted in Venice by the IInd International Congress of Architects and Technicians of Historical Monuments, a demand of which the International Council on Monuments and Sites is likewise keenly aware.
Courses are held in Italian, French and English.

The syllabus is divided into five parts, as follows :

1. Theory and methods of conservation and restoration.
2. Urban and rural architectural units, including both sites and monuments, with an introduction to the conception of active conservation measures.
3. Technical aspects of conservation and restoration, technological research, documentation and scientific research.
4. Legislation covering conservation and restoration operations, international activities and administrative organization.
5. Practical work.

Part I is divided into four sub-sections, as follows :

1. Introduction.
(a) Historical survey of the restoration of monuments in different civilizations.
(b) Ethical value of historical monuments in modern civilization.
2. Methodical study of edifices from the historical, artistic and technical viewpoint.
3. General principles for the conservation and restoration of works of art.
4. Theory and methodology of the conservation of monuments; special theory of restoration.

Part II is divided into three sections, as follows :

1. Historical centres ant town planning.
(a) Introduction to methodology.
(b) Saving and reconstituting historical centres; social, legal and administrative problems.
(c) Making methodological analyses of and assembling documentation on historical centres.
(d) Cleaning up historical centres.
2. Historical and natural landscapes.
(a) Protection of landscapes and natural settings.
(b) Presentation of archaeological and prehistoric sites.
(c) Upkeep and reconstitution of gardens.
3. Monuments.
(a) Conservation and restoration of monuments.
(b) Utilization of ancient edifices.
(c) Setting up museums inside historical monuments; museology.

Part III is divided into eleven sections, as follows :

1. Causes of deterioration of monuments.
2. Stability of monuments and means for consolidating them.
3. Ancient and modern technology of structures and building materials :
(a) Mediterranean region.
(b) Central and Northern Europe.
(c) Tropical countries.
(d) Middle East.
(e) Far East.
4. Diseases of building materials and care of these materials :
(a) Stone.
(b) Baked clay, mortar and plaster.
(c) Wood.
(d) Metals.
5. Laboratory techniques.
6. Special practical problems and techniques :
(a) Ground and foundations.
(b) Humidity in buildings and methods for remedying it.
(c) Protection against vibrations.
(d) Protection against biological agents (vegetation, insects).
(e) Protection against fire.
7. Archaeological research :
(a) Excavation methods.
(b) Methods for taking soundings and borings.
8. Technique of topographical and architectural surveys.
9. Photogrammetry :
(a) Theory.
(b) Exercises and practical applications.
10. Use of aerial photography in archaeology and the study of monuments.
11. Methods of conservation and restoration of mural paintings, stained-glass windows and articles of furniture :
(a) Mural paintings.
(b) Stained-glass windows and articles of furniture.

Part IV is divided into four sections, as follows :

1. Principles of legal protection and comparative law.
2. Administrative principles.
3. International regulations governing artistic heritage.
4. Drafting specifications and organization of work.

Part V lists the practical exercises students are required to complete in the course of the year. They are as follows :

(a) study a monument and prepare a survey of it;
(b) assist in making borings and carrying out excavations, under the supervision of a specialist;
(c) visit monuments and restoration workshops, under the supervision of professors or assistants;
(d) spend periods doing practical work in a restoration workshop.

There can be no doubt that the establishment of the International School for Specialized Training in Architectural Restoration responds to a real need, deeply felt by all countries, for qualified experts to deal with all the problems arising in connexion with the care of monuments. All countries possessing monuments which they desire to conserve and hand down to posterity are interested in ensuring the functioning and improvement of this important school.

Action taken to promote the establishment of regional schools and develop the International School in Rome would, therefore, be consonant with Unesco's universal mandate in regard to the protection of cultural property and would, at the same time, represent a fulfilment of the responsibility which our civilization owes to the future.

Pietro GAZZOLA,
President of ICOMOS
(Verona).

RESUME

LA FORMATION DE L'ARCHITECTE RESTAURATEUR

Dans le rapport sur la formation de l'architecte restaurateur, il a été considéré avant tout ce qui est la position des valeurs de la culture et le rôle que l'héritage du passé joue dans la vie de l'homme d'aujourd'hui et de demain.

Il a paru nécessaire, pour bien situer le problème, d'effectuer un bref retour en arrière afin d'examiner quels étaient les rôles et les effets de la préparation historique dans la formation des architectes, en englobant sous ce vocable tous ceux qui, d'une façon ou d'une autre, conçoivent et créent des édifices et contribuent ainsi à cette transformation du paysage urbain et rural dont s'accompagne l'emprise grandissante de l'homme sur notre planète.

Une première ébauche d'analyse concerne la formation de l'architecte avant la création des écoles spéciales. Un autre chapitre est dédié à l'étude de la constitution et du développement des écoles d'architecture. Successivement, ce sont la naissance du concept de la conservation des monuments et les problèmes que pose leur restauration qui forment l'objet du quatrième chapitre. On arrive ainsi à peu près à l'année 1930, époque à laquelle on commence à introduire la compréhension du « tissu urbain » et à considérer le lien monument-environnement, qui ouvre une vision plus large du problème de la conservation. On est maintenant à l'échelle des villes, dans le cadre de la programmation générale qui vise à donner à chaque bien sa valeur effective. Une telle orientation impose désormais le retour aux études historiques.

C'est là le sujet du cinquième chapitre, duquel il appert que l'étude des disciplines historiques constitue, pour la formation de l'architecte, une nécessité absolue pour atteindre à trois fins différentes :

I. La définition de sa ligne créative par l'étude panoramique approfondie des témoignages du passé considérés comme le produit d'une civilisation déterminée et, comme tels, susceptibles d'exercer une action formative;

II. La pénétration en profondeur du « tissu » constitutif du passé dans lequel il est appelé à agir afin de revitaliser les vieux ensembles urbains dans le cadre d'une vision organique de la planification territoriale;

III. La capacité d'intervention sur les édifices antiques, nobles ou modestes qu'ils soient, afin de les réanimer sans en amoindrir leur charge culturelle tout en les adaptant à la vie d'aujourd'hui et de demain.

Pour parvenir à ce but, le type d'enseignement en matière de disciplines historiques dont nous avons besoin aujourd'hui, est le suivant :

1. Enseignement de la critique et de l'histoire générale de l'art parallèlement à un cours d'histoire de l'architecture, de façon à respecter le critère d'une interdépendance de développement et de compréhension;

2. Une étude historique du cycle complet du développement de l'architecture dans le passé, intimement liée à l'histoire politique, à l'évolution de l'urbanisme et au développement de la civilisation;

3. Un enseignement pratique et méthodologique de l'histoire de l'architecture en liaison avec les « éléments d'architecture » et le « relevé des monuments » de façon à établir un parallèle entre le phénomène artistique et les autres composantes indispensables à la création (considérée non seulement en tant qu'entité individuelle, mais dans le contexte du monument).

Après avoir constaté que la culture technique doit se doubler d'une culture humaniste, on passe à considérer la préparation post-universitaire de l'architecte restaurateur, qui fait l'objet du chapitre 6. Il s'agit d'écoles qui existent en Belgique, en Iran, en Turquie et au Vénézuéla.

Le dernier chapitre est dédié à la description des programmes de l'Ecole de Rome (*) qui, auprès de la Faculté d'Architecture de l'Université et avec la collaboration de l'UNESCO par le truchement du Centre International d'Etudes pour la Conservation et la Restauration des Biens Culturels, constitue ce qu'il y a de mieux jusqu'ici dans le secteur de la formation des architectes spécialisés dans la restauration des monuments et des sites, et dans la réanimation des centres historiques considérée dans le sens le plus vaste et plus international du terme.

(*) *Voyez plus loin, p. 99 sv. (N.d.l.R.*