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My case study deals with architectural education, or the education of architects, and I believe that some basic terms which are relevant to this discussion should be clarified now.

First, what is meant by architecture?

Architecture is any shelter or enclosure, grand or mean, good or bad, erected at any time, for any social purpose, anywhere, and by any individual or group.

Second, what is meant by architect?

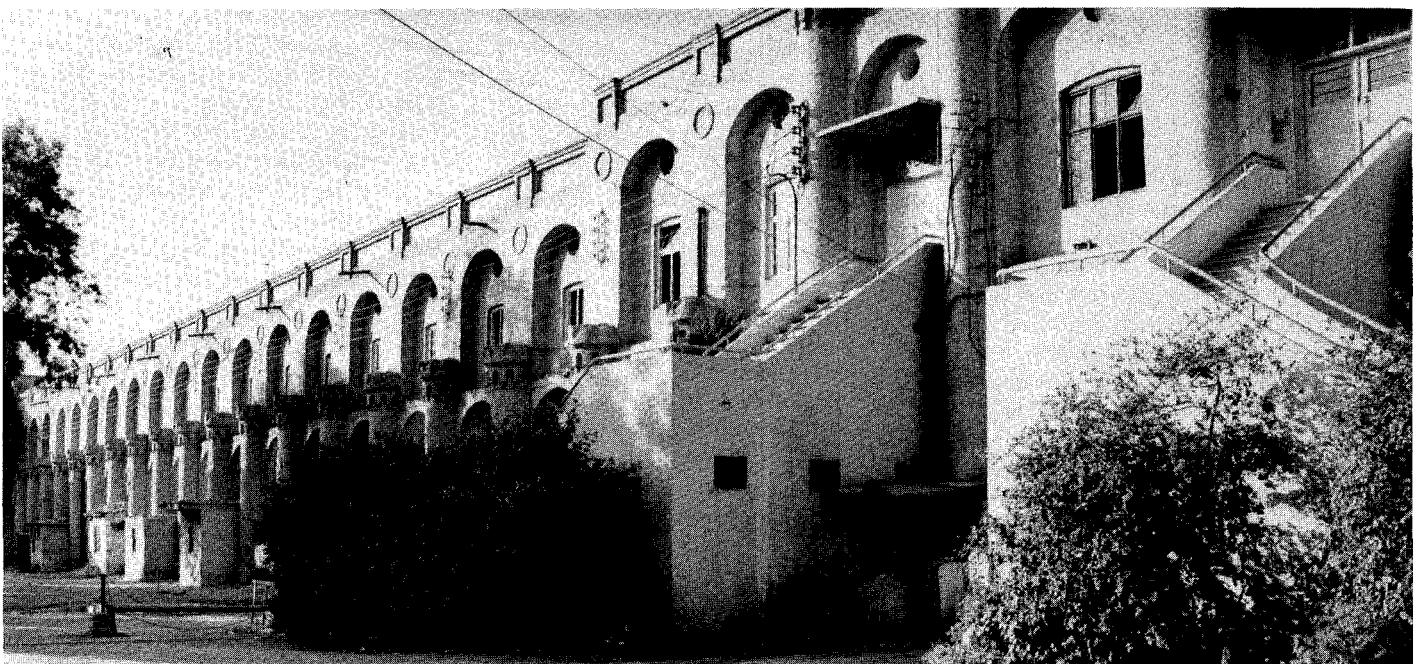
Since, in contemporary production, the processes of building have been segmented into design and implementation and since performance task allocations have likewise been separated into designer, worker and manager, the term architect, for the purpose of my thesis, can be identified with the totality of building operations carried out by all the performers.

Finally, what is meant by education and architectural education specifically? Education in architecture, and for that matter education in general, can be viewed as the transmission of the values and accumulated knowledge of a particular society to an individual, so that the individual can learn the culture of that society, mould his behaviour in the ways approved by the adults in that society, and prepare himself for his eventual role in that society as a performer and/or recipient.

The object of education, therefore, is not only to transmit certain values and accumulated knowledge to prepare a performer for his future role in a given society, but also to prepare the recipient for his equally vital role in that society. The roles of performer and recipient are interdependent in that neither can function effectively without the other. Moreover, their interaction must be balanced in order for the consummation of

the productive process itself to be effectual, which means that the quality of the end product should satisfy the needs and the values corresponding to those needs expected, or aspired to, by the recipient.

By these three definitions I have not limited the concept of the architect and his education and performance to that of the university graduate in architecture, who shall be referred to as the academic architect. By extension, architecture implemented under the supervision and according to the designs of academic architects shall be called academic architecture. In contradistinction to this I shall define the totality of building implementation as architecture in general, and shall further designate any architecture implemented by other professions according to the particular profession involved. For instance, buildings implemented by and according to the designs of engineers or master builders shall be referred to, respective-



A typical traditional Baghadi house whose integrity and sensitivity of design are still apparent, despite the poor maintenance by the present owners who use the house for storage only

Photo R Chadirji

ly, as engineers' architecture and master builders' architecture.

Before I proceed with this case study, I would like to bring to your attention the fact that I have deliberately excluded from my definition the aspect of values. I am aware that this omission makes my definitions deficient in some ways, but believe it is justified in view of my intention to limit the present discussion to a single aspect of the production process: I shall consider only the mechanics of the production process or, in other words, the structural properties of what I refer to as the MDI, the mediated dialectical interaction, and shall attempt to relate this interaction to the education of architects in general. Any reference to values and value creation is made with this limitation in mind.

Architectural education as an academic activity began in Iraq in the early 1960s, roughly twenty-five years ago. Prior to this, students of architecture studied outside the country. Iraq's very first architects had therefore obtained their degrees abroad but returned to the country to practise in 1935. By 1955 we had some fifteen Iraqi architects in the country. Today, thirty years later, Iraq can boast more than one thousand architects; the majority of these professionals have been educated in Iraqi universities, but approximately one-third live and practise abroad. The total number of Iraqi architects will very likely be doubled within the next five or six years.

Until the early part of this century, architecture in general throughout Iraq was invariably of good quality. Today — despite the birth and tremendous growth, in the intervening years, of academic architecture as a profession — Iraq's architecture is almost always of poor quality.

How could such a situation have developed? Is it a situation unique to Iraq? Can there be an effective remedy for this situation based on a theoretical approach to the issues involved?

My presentation, which attempts to answer these questions, is in two parts. The first part tries to identify the composition of the

building industry in Iraq and also presents a brief history of that industry. The second part describes and applies to contemporary realities the structural theory of architecture which, I believe, is necessary if the issues we face today in architecture and architectural education are to be properly understood.

Again, before I proceed further, I should pause to clarify what I mean by the structural theory of architecture.

Structuralism in architecture is the understanding of architecture as a social phenomenon or a social process whose end result is, invariably, a material entity which encloses or shelters a particular social activity. There is one fundamental premise to this approach, and the premise is that all styles of architecture derive from one common and definite structural system which underlies the entire social process that is architecture, regardless of period, style or geographic location. Structuralism therefore does not limit its observations to the

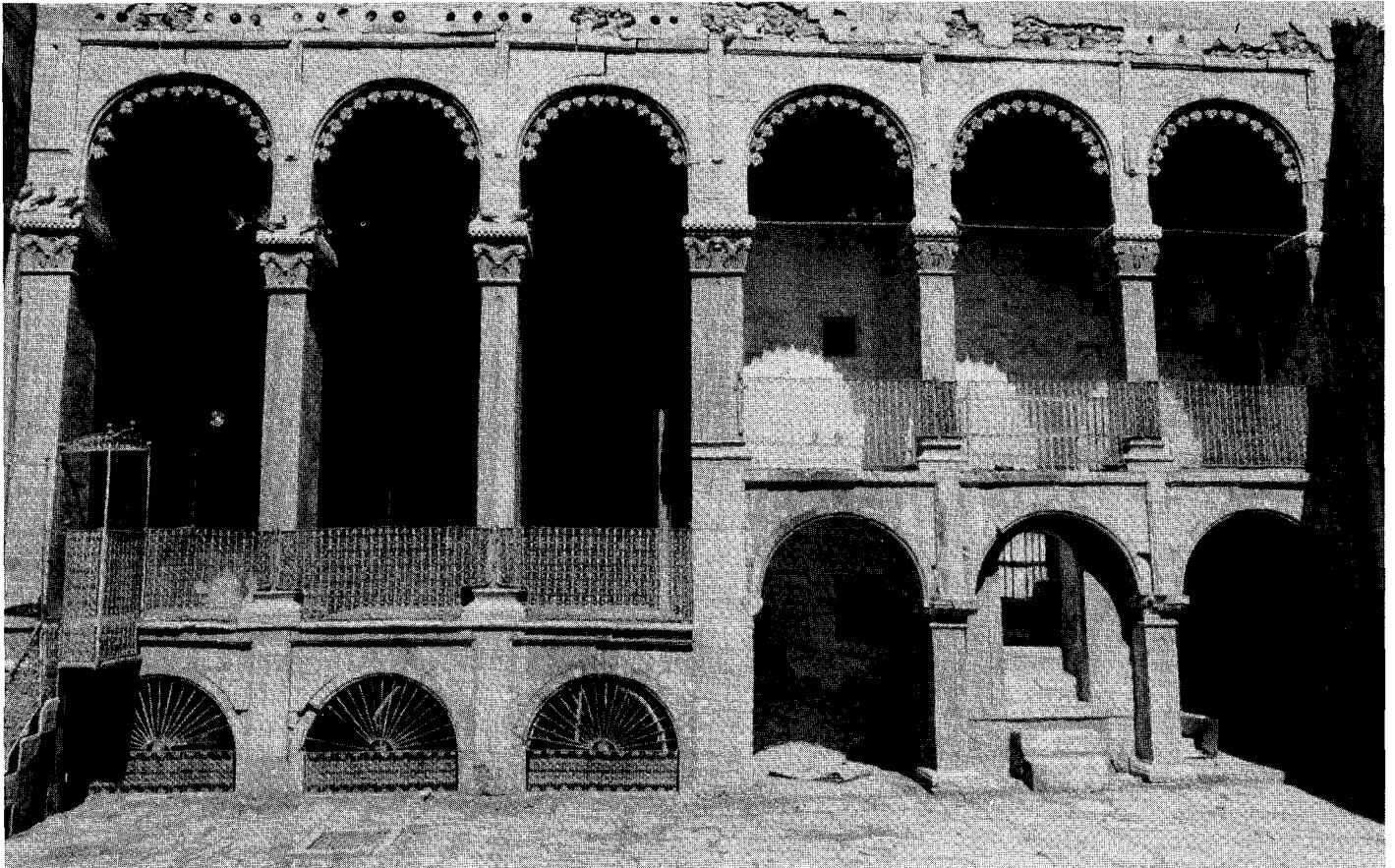
morphology, or styles, of architecture, but rather seeks to understand style by first understanding the inherent structure, common to all styles, of the process of production. It also identifies the characteristics of man's role and consciousness in this process. Structuralism, as described by some of its advocates in some disciplines, may tend to eliminate the human factor by bringing to light the anonymous system of thought without a subject that is present in a particular social phenomenon. This is not my intention, nor is this the way in which I view structuralism in general.

As I see it, structuralism shows us that architecture as style, or style in architecture, cannot be genuinely understood if we limit our analysis to comparative and descriptive methodologies. Rather, structuralism contends that it is only by understanding the process of production as a mediated interaction between man and matter that the true characteristics of any style can be under-



Baghdad, a structure typical of the late 1970s.

Photo: R. Chadirji.



A typical multi-storey building of the early 1960s in Baghdad, designed by a civil engineer

Photo R. Chadirji

stood. If and when we understand the basic structural characteristics of production, then it will be possible to generate a scientific appraisal of architecture which will enable us to plan both for the education of its performers and for its production.

Iraq at the end of the last century was a poor country which had not really recovered from a devastating succession of wars and invasions that had spanned some six hundred years. Although it should be mentioned that no large-scale projects had been undertaken during that time, the country's architectural traditions until the late nineteenth century remained live and effective nonetheless.

Generally speaking, this situation prevailed in Iraq until the First World War, at which point there were still no proper professional, or 'academic', architects in the country. In the early years of this century nearly all building activities were carried out under the control and direction of local craftsmen — stonemasons, carpenters or bricklayers, for example — who perpetuated the traditions and aesthetic values of their individual craft in their broader role as master builders. Building activities included the manufacture of materials, the design and selection of building elements, site management and co-ordination and, finally, the manufacture of the equipment itself. In this process the mas-

ter builders also created new aesthetic values for their own satisfaction, and the quality of their work was consistently good.

However, another situation was developing during this same period: Iraqi engineers and foreign engineers within Iraq began to prepare designs, and foreign architects would sometimes, if only rarely, design major public buildings for Iraq. The work of these academically trained professionals was also almost always good.

During the First World War, architecture in Iraq entered a new phase. The British had arrived in the country at this point, and among them were some very capable

academic architects who resolved to couple their own talents with those of the Iraqi master builders. From 1920 to 1924 this combined effort produced, in most cases, an architecture of admirable quality. At the same time, British efforts that were not undertaken jointly did not always succeed

In the 1920s modern technology introduced major innovations which would soon affect not only the use of materials and their manufacture, but also basic work methods. Gradually the role of the local master builders in the production process became subordinate to the role of the academically trained newcomers — the British architects and both the Iraqi and British civil engineers — who were versed in the new technology. The skills of the traditional masters deteriorated correspondingly and the resulting change in their professional status was to bring about a loss of social status as well.

By the end of the 1930s, British architects were no longer foreign expatriates residing in the country but rather visiting consultants; Iraq had been producing its own civil engineers for some time; and Iraqi architects, recently graduated from various European universities, were returning home and beginning to play a vital role in the building process.

All these factors contributed to the development of a rupture in the Iraqi building industry in general which consequently polarised production, as a process, into two different camps, with the traditional master builders in one camp and the new academic professionals in the other.

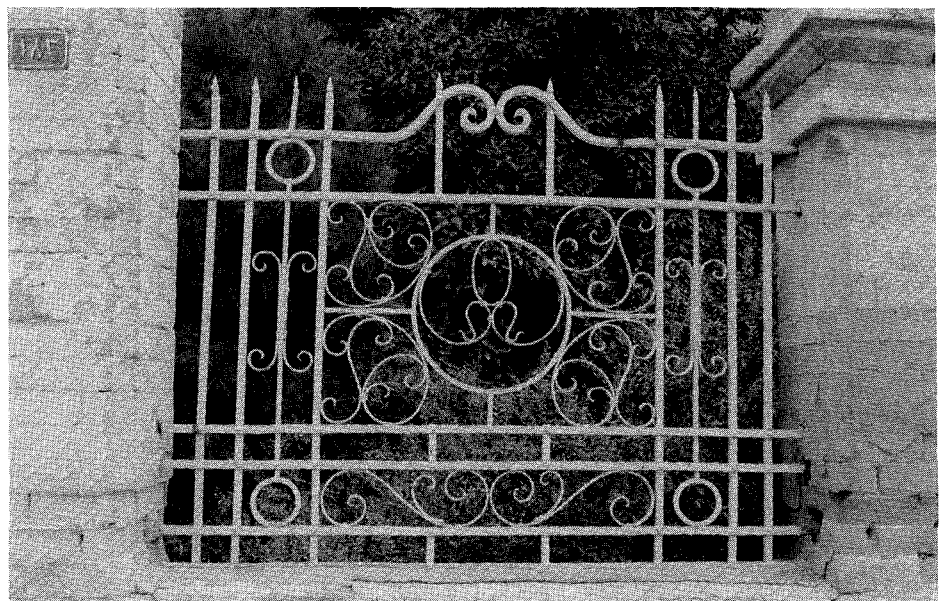
Although they continued to be in direct contact with the processes involved in the manufacture of materials, Iraqi master builders were losing ground technically to the spreading influence of three basic developments. These were:

1. The introduction of new materials such as concrete and steel framing.
2. The introduction of new methods of design and calculation.
3. The importation of new design aesthetics.



After World War I, local craftsmen implemented designs from the West in collaboration with, and under the supervision of, Iraqi civil engineers

Photo R. Chadirji.



Iron grillwork showing sensitive interpretation and excellent workmanship of the post-World War I era

Photo R. Chadirji



*A government office in Basra, designed by British architects in the 1920s in collaboration with local craftsmen
Photo R Chadiji*



*House built in Baghdad in 1934 by British expatriate architects who did not utilise local craftsmen
Photo R Chadiji.*

Unquestionably, these developments went beyond the master builders' professional capabilities. Nevertheless, and this must be underlined, the greater part of building implemented in Iraq remained under the supervision and controlling influence of these traditional craftsmen.

The second camp was represented by the new academic professionals of whom I have already spoken. Of the members of this group as a whole, one can list three characteristics:

1. They were university graduates.
2. They used scientific methodologies in their designs and building procedures.
3. They were not only aware of the universal aesthetic values being generated at that time in the West, but also incorporated some of them into their designs

However, their academic training in fact isolated these professionals to some degree from the building industry at large. As a result they did not keep completely abreast of new developments in the manufacture of building materials and in on-site implementation methods, and the more numerous the developments, the more isolated they became. This negative relationship grew more significant in the following decade, as we shall soon see

The overall situation notwithstanding, and in spite of the fact that the entire production process at this time was constantly being subjected to new technologies, new social requirements and new aesthetic values, both camps managed to produce fairly good work during the years immediately preceding the Second World War.

From the outbreak of World War II until the Revolution of 1958, architecture and the building industry in Iraq deteriorated further. Many factors contributed to this general decline. I would like to mention a few which, in my opinion, pertain directly to the present discussion

Factor 1: A steady increase in the importation of materials. This increase aggravated a situation already existing wherein new materials were routinely incorporated into pro-

duction without ever having been tried locally.

Factor 2: The rapid expansion of local industrialised manufacture of building materials such as bricks, concrete blocks and metal windows. This factor implies the introduction of new technology without local involvement.

Factor 3: The introduction of modern methods of site management and implementation. Again, this factor implies the introduction of new technology without Iraqi participation in the establishment of such technology. In other words, the rationale of this new technology was not locally oriented.

These three factors therefore subjected local production to new technologies and new methods of management which the local building capability was not yet ready to assimilate, and thereby created entirely new problems for the country as a whole to deal with in adapting itself to the environmental, social and even cultural transformations these factors engendered.

Factor 4: The increased isolation, as mentioned earlier, of academic architects from the bulk of building production. By their formal education, by the social status associated with this education, by their proven professional capabilities and by the steady increase in their number, academic architects in Iraq had become the country's design elite. But their privileged status removed them even further from production realities overall. As they grew more and more isolated from the industry, production in general, which was now managed entirely by civil engineers or traditional master builders, itself became increasingly isolated from the professional influence of architects. It was a complex situation and one which could not be avoided because of the intrinsic characteristics of the status of the modern architect.

Factor 5: Despite the fact that local master builders still managed the greater part of production throughout the country, they were nevertheless becoming progressively illiterate in the sense that the scientific



House, Basra, 1930s. Local craftsmen were unable to assimilate new technologies and Western architectural features appropriately

Photo R Chadiri



House representative of the standard of work of the new, university-trained Iraqi architects of the 1930s who did not collaborate with local craftsmen and were entirely dependent on imported technologies

Photo R Chadiri

methodologies being introduced by the new academic professionals were rendering the traditional masters' skills relatively obsolete. As a result, the social and professional status of these local masters drastically declined.

Although this list is not exhaustive, the factors I have just mentioned and the effects of their interaction were decisive enough to bring about two major changes in Iraq's building industry after World War II:

First, Iraq lost its own building technology, its know-how and its skills; it also lost its own aesthetic values. To its detriment, the country had become largely dependent on foreign technology and imported values.

The quality of the built environment in Iraq consequently became unsatisfactory. This was the second major change. The bulk of work produced now was banal, crude and sometimes vulgar.

Albeit that a few Iraqi academic architects — among them Mohamed Makiya, Qahtan Awni, Qahtan Madfai, Ellen Jawdat and Jaffar Alawi — produced some remarkable experimental work during this period (which did not fail to elicit official praise from various sources, including the academic milieu and the media), nevertheless, the entire body of this work constituted no more than an infinitesimal percentage of building production in general.

After the Revolution of 1958 and until the beginning of the Iraq-Iran War in 1980, one change in the country's socio-political landscape proved a major determinant in the course of events taking place during that period: I speak here of the politicisation of both the governmental administrative machinery and of the goals and strategies of Iraq's social and economic planning. This politicisation made possible the promotion to decision-making positions of inefficient and unskilled personnel.

Combined with other political and economic factors, this development gave rise to the following socio-political trends in Iraq during the 1960s and 1970s:

1. Inappropriate distribution of the national capital investment consistently generated



Traditional master craftsmen produced good quality work through the 1930s

Photo: R. Chadirji



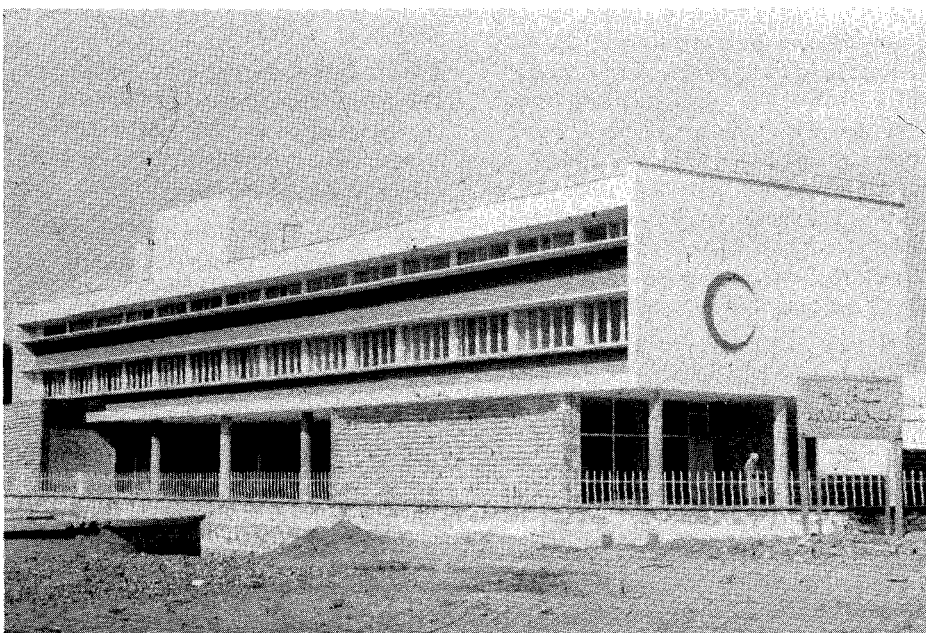
A representative work of local master craftsmen in the mid-1950s.

Photo: R. Chadirji.



A typical 19th-century building, in Mosul, incorporating some Western features but well-assimilated within the local tradition

Photo R Chadirji



E. Jawdat, The Crescent Society Building, ca 1950

Photo R. Chadirji.

extensive rural migrations into the country's urban centres.

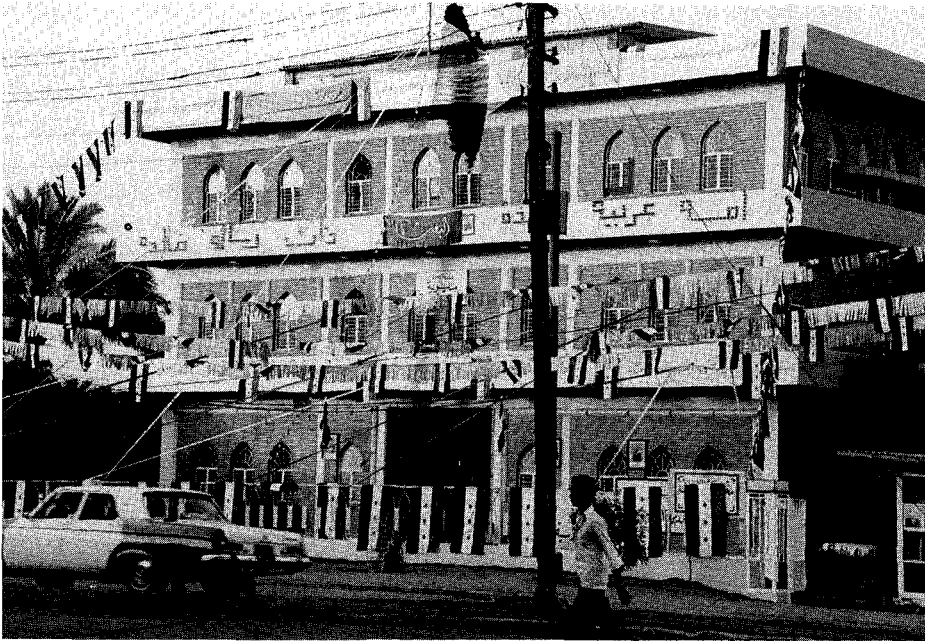
These rural migrations into urban centres eventually required some kind of urbanised built environment to accommodate them. Neither the planning authorities nor the academic professionals were capable of dealing with this demand. As a result, rural builders who were migrants themselves took the situation into their own hands and imbued the cities with their own concept of urbanisation, leaning invariably on their own master builders or on other amateur builders who were relatives or friends and migrants as well.

2. Inappropriate planning for industrialisation made the country increasingly dependent on imported technology
3. A commitment to prestige projects required the importation of unnecessary technology.
4. Politicisation of the academic educational systems caused the quality of education in general to deteriorate.

The cumulative result of these various trends and developments was that, by 1980, Iraq was in a state of total aesthetic collapse. Every professional activity related to the built environment was affected. This situation prevailed in spite of the fact that, by the beginning of the present decade, Iraq had five institutes of higher education offering degrees in architecture and more than seven hundred practising architects

At the same time, repercussions of the new clericalism which was sweeping the Middle East began to manifest themselves, but the extent to which architecture in Iraq was thereby affected has been minimal. However, the trend of employing selected features from traditional architecture is, in the case of Iraq, motivated nonetheless by political requirements. I must point out here that in the present discussion I shall not dwell on any questions related to traditionalism in architecture, to national or religious identification, to ethnic assimilation or other related contemporary issues

Now, before proceeding to the second part of this presentation, I would like to raise a



Erected in Baghdad in the mid-1970s, this building typifies the work of contemporary university graduate architects who have failed to incorporate traditional features within modern designs.

Photo R Chadiji

few questions with regard to the situation of architecture in Iraq as it has been surveyed here.

1. How can an architecture collapse and a nation lose its aesthetic values as well as its technology within a period of fifty years?
2. If a nation loses its aesthetic values, can these be restored by external help — if so, how?
3. Is there a relation between technology and aesthetic values? If so, will a nation that generates its own technology be able to generate its own aesthetic values?
4. In a world of globalised production, can a nation isolate itself and generate its own technology? Is this isolationism desirable?
5. If aesthetic values can be generated unilaterally, what would be the relation between the universal values being created internationally and those being created locally?

In my opinion, these questions should lead us to a theoretical approach to answering them. I would like to explore this approach now, and at the same time apply it to present-day realities. However, in tackling these theoretical issues I shall, as stated earlier, deal primarily with the aspect of production and its relation to education and therefore leave aside, if only for the time being, the question of aesthetic values.

First, I will briefly describe what I call the dialectics of architecture, or the structural theory of architecture as a social phenomenon. Architecture as a social phenomenon cannot be explicitly understood unless we know and understand the inherent structure of its determinants, and the characteristics of the interaction between those determinants. This knowledge will help us comprehend the main characteristics of architecture as artefact, as the end result of the interaction of these determinants. I believe that if we do not have a theory for

architecture which is based on structuralism as a concept, then our concept of architecture will continue to be limited merely to stylistic descriptions and comparative analysis.

Architecture as a structural problem can be analysed as follows:

Any object of architecture as artefact is a material substance which is the end result of a process of transformation from a raw state to a state of repose. In that state of repose, the artefact manifests itself to us as form. Form is no more than what we see and what we feel towards a material substance as artefact.

To be more explicit: Before raw matter becomes an artefact — that is, before we can perceive it as form — it must be processed. For example, a piece of wood is processed by a sculptor to become a piece of sculpture; wood and mud and stone are processed by a builder to become a house. A finished artefact is therefore the final phase of a process that is consummated and has come to a state of repose. This state of repose manifests itself to us as form as a result of what we see and of what we feel towards it as a material entity.

The function of this process of transforming raw matter into a finished product is to change the physical properties of certain selected materials with the intention of satisfying a definite human need.

Fundamental to this process is the interaction between two poles, with each pole acting as a determinant in the process. The process cannot be activated without the presence and active role of both determinants.

The first determinant is social need, whether it be the need of the individual or of society at large. This determinant comprises both the utilitarian and the emotional or, to put it differently, the corporal and the spiritual.

The other determinant is social technology.

Each of these determinants is composed of a set of constituents. The constituents of social need fall into three categories of functions, namely: the utilitarian, the symbolic and the aesthetic. On the other hand, the con-

stituents of social technology fall into four basic domains: man's knowledge and skill, the availability of materials, the actual physical properties of the materials and, lastly, the social capability — both economic and political — of activating the other domains.

The intensity and quality of the role each determinant plays in the process of interaction are conditioned by a society's emotional and socio-economic circumstances, which will also condition the complexity and intensity of the various constituents of which the two determinants are composed. The priorities and aspirations of an individual or a society at large will act as adaptive factors. I shall stress here that every interaction is mediated by the individual, whether acting alone or in a group, and that therefore the particular role of the individual is pre-eminent.

Furthermore, if the production of the form of an artefact is repeated; if, by this repetition, the form is socially established and becomes a preferred form; and if the form is then abstracted, that is, if it is wholly or even partly isolated from its own particular need, then and only then can it acquire the status of style.

From this it follows that the inherent quality of a style is conditioned by the quality of the interaction between the two determinants. From now on I shall refer to this interaction as the mediated dialectical interaction (MDI).

We could proceed from here and infer that, as long as man is conscious and clear about his own needs and preferences and about how to manipulate matter to satisfy them, the dialectical interaction will be sound. In this case, 'sound' means that the inter-relationship between the constituents of both determinants is a harmonious one, whether these constituents are inherent to the society, are foreign and already assimilated, or are capable of being assimilated by that society. In such a situation the end product itself is sound and balanced and possesses physical properties such that we assess the product to be, finally, of good quality.

However, the reverse is also true. An MDI — or mediated dialectical interaction — which is imbalanced will produce an end product of inferior quality. The possibility thus exists of having superior and inferior quality. If we translate this phenomenon in terms of form, then we have superior and inferior styles.

Now, let's consider present-day realities in the light of the theoretical structure I have just described and examine how this is related to architecture in general.

As mentioned earlier, contemporary Iraqi architecture, or most of what is being built in Iraq today, is crude, banal and vulgar. However, this was not the case only a half century ago.

What happened, therefore, to the performer? Or, to be more specifically pertinent to this case study, what happened to the education of the performer to allow for the bulk of his production to be vulgar and crude?

Why, at this particular time in history, is there a change in the quality of creative production, a change which is unprecedented in the history of all styles of all products of the Iraqi people?

The question should be more emphatic: Did a flaw occur somewhere in the MDI, the process whereby the artefact is conceived, produced and consumed? If so, what would be the factors responsible for creating this flaw, and how and why did it occur at this particular phase in the history of Iraqi culture?

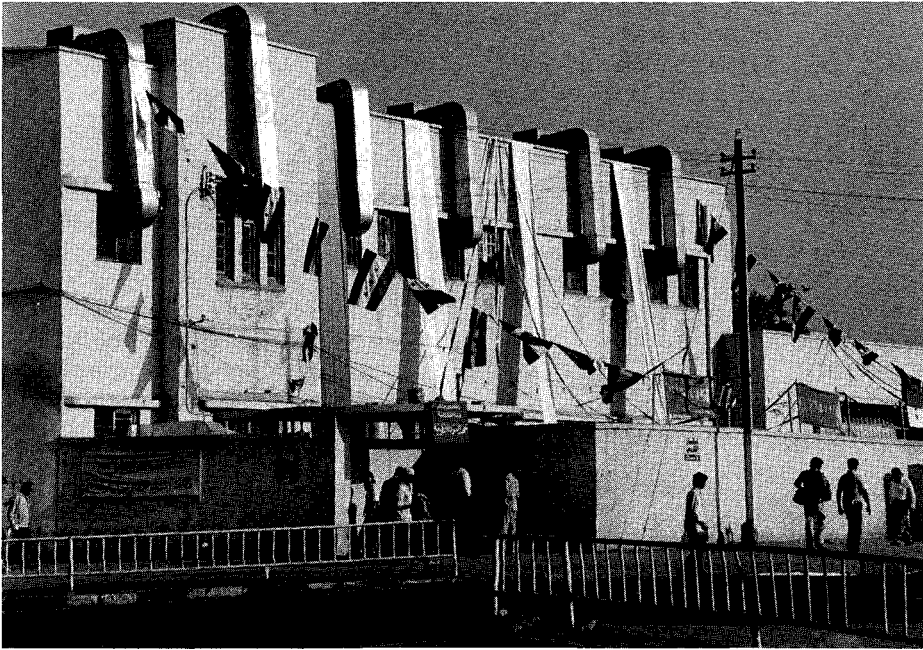
I believe that, in fact, a flaw did develop and that the forces which created it are twofold. First, there are the universal factors which have already had an effect on most if not all cultures everywhere in our era. I am going to leave these out of the present discussion and mention only that universal factors are a consequence of the general progress of architecture in broad terms. This aspect of cultural development and its effect on architecture I have treated in two of my books, where I tackle the problem of the change that occurred in the mode of production during the early nineteenth century as one factor, and the globalisation of production,

economics and culture in general and their impact on universal architecture as another. But here my concern is limited to the particular, or local, factors of disruption in the balance of the MDI

1. The first local factor of disruption, which is related directly to the social technology determinant of the MDI, is the economic necessity of importing new building technologies. The pace at which these technologies have been introduced into Iraq has overwhelmed traditional indigenous technology and in fact, virtually obliterated it. One consequence of this situation is that the new contemporary national culture which is slowly emerging in Iraq is dependent on these imported technologies, to the extent that it finds itself not only incapable of absorbing and assimilating them, but also incapable of creating new appropriate technologies of its own.

2. The second local factor of disruption in the MDI is associated with the determinant of social need: Iraq's social structure and social customs are changing at a rate and with a momentum such that the country cannot articulate the many and varied requirements that would constitute this determinant of social need; in other words, Iraq cannot articulate its preferences. This second factor alone has created unprecedented anarchy in virtually all the social institutions, and particularly in those involved with the official planning and private marketing of building types.

3. The third factor of disruption in the balance of the MDI is related both to social need and to social technology in that it is generated by the combination of imported social technology and new life-styles. This is the factor of the introduction of new values. In the case of architecture, if new values — whether they are imported or created locally by contemporary Iraqi architects — are not adequately assimilated by the national culture as a whole, then the disruption and, indeed, complete disappearance of traditional indigenous values, or what is left of them, could occur. The creation of new values for the country could also be impeded.



Building, Baghdad, 1978, showing the failure of local technology to incorporate modern air-cooling systems within its designs

Photo R Chadirji

These three factors indicate how, and to what extent, in the specific case of Iraq, the interaction between the two determinants of the MDI has become seriously flawed.

A few concluding remarks:

It is my opinion that for any architecture of excellence to be produced at any time, the culture which is to generate it must have an articulated social need. Secondly, this culture must have its own social technology — that is, its own scientific knowledge and production methodologies. Lastly, it must have its own values: the utilitarian, the symbolic and the aesthetic values of which I have spoken.

As we have seen in the first part of this presentation, the present situation of architecture in Iraq is a direct result of the fact that, over the past fifty years, Iraq not only lost its own technology but also lost the ability to articulate its own social need. Conse-

quently its traditional values, and the new values which are emerging in Iraq today, are in a state of discord and confusion.

I believe that this situation can be remedied effectively if we understand that the preliminary step towards any architectural excellence is the achievement of a balanced interaction between the determinants of social technology and social need. In turn, a balanced MDI would enable the creation of new and sound values. Without the inherent presence of these new values, there cannot be a general architecture of worthy quality.

If we accept the thesis that the quality of architecture is determined by the quality of the mediated dialectical interaction which takes place during the critical phases of production, then we must realise that the education of both performers and recipients is a major constituent of the MDI and, as such, plays a crucial role in the production process. Furthermore, a sound under-

standing of the basic characteristics of the MDI would enable us to formulate an appropriate educational philosophy, and thereby establish whatever programmes and strategies are necessary to implement such a philosophy.

However, in formulating an educational philosophy for architecture we must keep in mind exactly what we mean by architecture: in my opinion, architecture in this context means architecture in general, as described at the beginning of this presentation. Moreover, it must be understood that by education we mean a process in which both the performers and the recipients participate, and whose objective is not to produce an isolated body of professionals of a particular status, implementing designs which are, ultimately, inappropriate, but to achieve a general architecture worthy of the society in which that architecture is produced.