Architectural education in Algeria

Thesis submitted for the degree of Ph.D

by

Mohamed Salah ZEROUALA
(Architecte d'Etat, M.Phil)

Centre for Architectural Research and Development Overseas

School of Architecture

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University of Newcastle upon Tyne
Newcastle upon Tyne. NE 1 7 RU.

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ABSTRACT

The study aims to bring out the essential steps of the dynamic and evolutionary aspect of architectural education. Dealing briefly with this historical process, the first part will seek to encompass and grasp the overall picture of the training of an architect in the past and the knowledge required to reach this goal.

To extend our view to today's situation, a descriptive and evaluative analysis of the current programmes of selected countries (industrialised and developing countries) and other professions is necessary.

Furthermore, Algeria is presented as a case study where major components involved in architectural education are dealt with principally to detect all the anomalies and to set up suggestions to appropriately improve the present training.

In order to provide guidance for action, a questionnaire was sent to students from developing countries studying in England followed by the interpretation of its results. These results are analysed to give the particular information relating to Algeria as well as to the total situation revealed by the questionnaires. This part is ended by some recommendations as a first step to see that the training of architects in Algeria is more effective.

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INTRODUCTION

INTRODUCTION

Architecture is believed to be not only a part of the cultural superstructure but also the reflection of the essence of a society.

However, in most developing countries, it would be quite wrong to take into consideration the present built environment as the image of the indigenous societies mainly for two reasons:

1. first, almost all main Third World cities underwent severe changes during colonisation, thus their architecture is largely a result of the colonial heritage.
2. second, much image making in the field of architecture undertaken after independence was almost totally the result of foreigners'efforts. Consequently it was a remote hope to expect from alien experts many appropriate achievements from the cultural point of view.

Considering the architect as a social actor more involved than other professionals in shaping the physical environment, we should be more conscious of his social function which has without doubt a special significance.

While the problem of unsuitable environment in developing countries has been attributed to diverse reasons such as inadequate

housing policies, insufficient financing, lack of land...etc, architectural education which I consider as one of the major causes of the present failure, has not been given the attention it deserves. It is true that architectural education in most developing countries was established recently and grew up using imported programmes deeply imbued with Western philosophical ideas. Therefore, bearing in mind the significant role of architecture over the production and the morphological transformation (built environment, space organisation, techniques and architectural forms) it is essential to reconsider the training process in order to synthesise the various and complex aspects of this production.

My experience as a student in architecture in Algeria and in England later, the fruitful constant contacts with other colleagues from developing countries which led to the discovery of the common symptoms of our inadequate training and as a future teacher in architecture were the stimuli generating an interest in this issue. An effort which should be considered as an attempt to call for an architectural educational programme and related facilities to provide students of some developing countries and particularly Algeria, with the knowledge and experience needed to develop the proficiency required for present and future architects.

The study is in fact an outcome of a process of work embracing a literature review of architectural education, the review of the current curriculum in selected countries including Algeria as

a case study, the development and sending of a questionnaire to students from developing countries studying in England, in addition to correspondence and interviews with students, staff and other people involved in education. It aims to diagnose the present architectural education in these countries in order to outline the factors affecting the direction and development of their respective programmes and consequently to reach strategies for a system suited to Algeria.

CHAPTER 1

CHAPTER ONE

THE ARCHITECT AND HIS EDUCATION THROUGH THE AGES

1.1 WHAT IS ARCHITECTURE?

At first sight we all feel that we know what the word architecture means. However, it seems difficult to give an accurate definition even if this word has been used for almost five centuries. Despite the wide range of specifications given to architecture it is hard to come across a satisfactory definition. Here are some examples.

1. "It consists in applying reason to building." (Vitruvius)
2. "It is the knowledge of how to go about using houses and mansions for cover and shelter." (Ibn Khaldoun)
3. "Architecture: art de construire des édifices." (Littré)
4. "As distinguished from mere building, is the decoration of construction." (Sir Gilbert Scott)
5. "L'architecte est un poète qui pense et parle en construction." (Perret)
6. "L'architecture est le jeu savant, correcte et magnifique des volumes assemblés sous le soleil." (Le Corbusier)
7. "Architecture is the art which so disposes and adorns the edifices raised by man... that the sight of them contributes to his mental health, power and pleasure." (Ruskin)

8. "L'architecture est l'expression tridimensionnelle du comportement humain." (Hans Hollein)

9. "L'architecture est la maconnerie ce que la poésie est aux belles lettres." (Ledoux)

10. "The art and science of constructing edifices for human use." (Oxford dictionary)

Nevertheless, a preliminary idea about architecture covering without doubt several fields from Arts, sciences, technology to social behavior, may occur in our mind. Unfortunately, it seems to me that architecture has recently become ultimately a consequence of an uncontrolled technology. This is probably, I assume, due to the fact that creation is mainly based on the factor of time. We need to build quickly. Consequently this attitude implies new methods in transmitting the knowledge which will be more scientific rather than empirical. However how were "architects" trained in the past?

It is believed that architecture is an ancient profession and its antiquity is not in doubt. The relics of the past clearly show us that conventions on architectural practice have been used several millenium B.C. Thus when ever the building which had to be built presented a slight complexity, someone had to conceive it before its erection. This is what architects were supposed to be conceptualizers. Of course both functions (conception and implementation) could be less distinct especially when we deal with vernacular architecture or what some people call anonymous architecture which is the fruit of individual efforts in order to

produce a building in a locally accepted way.

Before proceeding further it would be useful in my opinion to consider the term architect, its origin and its significance.

According to Liddle and Scott Lexicon, it is a Greek word which means in our modern language Master-builder or Chief-artificer. It then appears in several forms, Latin (architectus) used also during Roman days and the Dark Ages, but occasionally in Medieval times in some Medieval documents. In the latter architectus sometimes is merely a man who created or contrived something. However through time, this word has undergone slight modification especially in French, Italian and Spanish tongues until it reachs its modern spelling around the XVIth century (Kaye. B, 1960)[1]. On this occasion it was applied to a professional architect without qualification. But according to the Penguin English Dictionnary (1965) it is defined as:

"One who designs plans for buildings and over-sees their contructions."

Let us see then, whether the architects of selected periods studied here respond to the above description.

If we try to have a look back through the centuries, we will notice that the impact of the architectural profession on the built environment is partial. Only a few prominent constructions (castles, temples, palaces...) are clearly perceptible and emerge from the whole. This lead us to believe that architects were more often

associated with rich and powerful people. This chapter seeks to provide an illustration of the above statement and hopefully tries to describe the way in which architects were trained from the ancient times to the present days.

1.2 ANCIENT EGYPTIANS:

Egyptian art should be seen with a particular interest. It represents in fact the first remaining manifestation or effort of the human brain in this field, born by itself, without dependence on any other civilisation or style. As far as we know, Egyptian art constitutes the most original period of art. By being the most ancient of civilisation, Egypt gave birth to architecture well illustrated by the funerary art. The ever lasting tombs (pyramids) must be the result of a vast experience in architecture. This execution of sacred or prestigious public works gave great importance to the architect. However it is believed that under Pharaonic Egypt, architects were closely related to the priest class, while conservatism was predominant. Besides that, secrets of architecture as a profession were transmitted from father to son encouraging family adherence to the profession (Kostof.S, 1977)[2].

The character of the architecture of a country is largely determined by the natural products available locally (timber, brick, clay and stone). Stone was abundant in Egypt in quantity and quality and was used not only for building and their embellishment but also

for utensils. Egyptian architecture in the main was based on the use of the lintel. The massive walls and sturdy closely spaced columns carry the stone lintel which in their turn support a flat roof. Its beauty depended on proportion, composition, painted pictures and carved reliefs. However these imposing monuments where the technique adopted still remains a wonder to present day engineers, would have been impossible to realise without a tyrannical ruler commanding vast numbers of labourers, obviously slaves.

According to the work of egyptologists, the theory of the architectural design was based on observation and experiment. Using the ruler, the square and triangle as the basic instruments, reinforced by some measurement of human derivation, the plans and elevation drawings were submissive to the bilateral symmetry rules[1] Ignoring the perspective and its usefulness at that time, architects had to draw on papyrus, leather or wood, a ground plan and elevations of all parts of the building in question. This gave just the rough idea of the building and its conception rather than its physical reality.

Despite the wide range of surviving examples of egyptian art, very few of them could lead us to the objectives of our quest. Even though we could assume that architectural education was entirely in the hands of the priesthood and architecture was based on a profound knowledge of geometry.

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[1] In most edifices, symmetry about the main axis was most strongly marked.

1.3 GREEKS:

The Egyptian experience was in fact the source of inspiration which gave Greek architects the confidence for astonishing achievements.

Effectively, even a person uninitiated in the arts cannot be unconcerned about Greek architecture. A close examination of some masterpieces of the Greek period reveals that the Parthenon for instance could have only been achieved by long and patient study. Thus only special training based on scientific as well artistic knowledge could help an architect to erect such a perfect building. But how did they attain this high level of distinction?

According to Briggs (1974)[3], the existence of schools was very unlikely. The most acceptable assumption seemed to be that architects were trained in the Atelier as pupils or apprentices under the supervision of a master. Similar to the egyptian architects, there are numerous cases where the profession was a matter of inheritance.

> "Architecture was, on the whole, an upper-class occupation. Often the inspiration came from within the family, where the father or a brother might be practising as architects" (Kostof.S, 1977)[4].

However, some exceptions did occur where architects were found among slaves (Briggs, 1945)[5].

What ever their status was, we may conclude that Greek architects were highly educated and even learned men with deep knowledge in

science and mathematics as well as in art and construction.

1.4 ROMANS:

In respect to the Roman period and according to Vitruvius'treatise, it seems that roman architects are little better known than their Greek predecessors. The ten books of Vitruvius translated by Professor M.H.Morgan, with the preface on the education of the architect, followed by a wide range of subjects from sites to water supply concluded by astronomy and mechanical appliance, were very helpful.

As far as education is concerned, the architect must have an essential combination of theory and practical application which was the hallmark of the roman architects. In terms of the curriculum, as we may say in modern language, it appears at a first step that the architect should have a general education,

> "Let him be educated, skillful with the pencil, introduced in geometry, know much history, have followed the philosophers with attention, understand music, have some knowledge in medicine, know the opinions of the jurists and be acquainted with astronomy and the theory of the heavens".
> (Morgan.M.H, 1914)[6].

followed by a technical training (design and construction).

> "Architects who have aimed at acquiring manual skills without scholarship have never been able to reach a position of authority to correspond to their pains, while those who relied only upon theories and scholarship were obviously hunting the shadow, not the substance. But those who have a thorough knowledge of both, like man armed at all points

have the sooner attained their object and carried authority with them". (Morgan.M.H, 1914)[7].

Although this statement shed more light concerning the architect's training which was based on theory and practice, there is no other clue showing how architects did actually acquire their knowledge. It is very likely that architectural training was practised by some means of apprenticeship in atelier. This has been inspired by the reform set up by Alexander Severus (A.D 222-25) who established some form of classes where people could send their children in return for payment in kind. However, Romans made no distinction between architect and engineer. This tended to make the architect less of an artist and more of a constructor.

1.5 BYZANTINE AND ROMANESQUE ARCHITECTS:

Byzantine architecture owes its origin to Eastern forms which were developed in Constantinople (Istanbul today). The S. Sophia was the first perfected building built under the emperor Justinian in the sixth century. Byzantine architecture is characterised by the use of dome on a square plan as the central and culminating feature of the building which was to be adapted in Western Europe in the Renaissance (St.Peter's, Rome and St.Paul, London).

The foundation of Constantinople led to an important development in the history of architectural profession. According to Briggs (1974)[8], a need for architects to meet this emergency was seriously felt.

Therefore a training programme of architects was set up under Constantine's measure.

But the most interesting feature in this event is the training of these young architects. A passage of Cassiodorus Variae (translated by T. Hodgkin) ii.5, quoted by Briggs, could be explicit and very informative:

"Much do we delight in seeing the greatness of our Kingdom imaged forth in the splendour of our palace... Take then for this Indication the care of our palace, thus receiving the power of transmiting your fame to a remote posterity which shall admire your workmanship. See that your work harmonises well with the old. Study Euclid- get his diagrams well into your mind; Study Archimedes and Metrobius.
When we are thinking of rebuilding a city, or of founding a fort or a general's quarters, we shall rely on you to express our ideas on paper. The builder of walls, the carver of marbles, the caster of brass, the vaulter of arches, the plasterer, the worker in mosaic, all come to you for orders, and you are expected to have a wise answer for each. But then, yours is all the glory.
Above all things, dispense honestly what we give you for the workmen's wages; for the labourer who is at ease about his victuals works all the better.
As a mark of your high dignity you bear a golden wand, and amidst the numerous throng of servants walk first before the royal footsteps that even by our nearness to our person it may be seen that you are the man to whom we have entrusted the care of our palaces"

This shows us that the architect at that time apart from his high social and official position, studied geometry, natural philosophy, town planning, military engineering and acted as a director of all buuilding craftsmen in all trades and also as their paymaster. In addition, respect for ancient architecture had already appeared.

In short, this architect was versatile and well trained and was a recognised professional man in complete control of building operations.

The Romanesque style grew up in those countries of Western Europe which had been under the rule of Rome. Apart from its Roman origin, from which it took its name, the Romanesque architecture derived mainly from the Byzantine art which let us assume that the "architect" of the Romanesque style was as much a learned man as the Byzantine one.

> "Erecting buildings of the scale of Romanesque churches required trade secrets of geometry and much practical experience in the handling of cut stone and the statics of masonry construction" (Kostof. S, 1976)[9].

As far as their training is concerned and according to the same author,

> " .... travelling bands of masons, stuccoists, glass-makers, mosaicists and the like, they came to site of a major project, often from a long distance away and set up shop. Such a team of experts in the building trade, once assembled, became established as a resident workshop, trained local talent and in time sent out craftsmen elsewhere.
> The masters who rose out of the ateliers as professional designers and clerks of the works now began to acquire a high status and command wide respect (Kostof. S, 1976)[10].

1.6 MEDIEVAL ARCHITECTS:

In spite of the vast amount of literature dealing with medieval architecture, the architect in the middle ages still remains ellusive. During this period the building has been always the fruit of anonymous men under the commonest designation of latin word magister or magister-operis (Belmond.J, 1970)[11].

These creations of master-builder was mainly based on precise

knowledge concerning on one hand with techniques (building materials, process) and on the other with the milieu (geographical, climatic, social and economic factors). This knowledge was gained owing to several experiences where the mistakes were always corrected and the success transmitted from generation to another. However, according to Briggs, this way of transmitting skills was, if not a matter of family inheritance, established under the form of pupilage during an average of ten years while the main topics were masonry and plumbing. Slating, glazing and even carpentry were only accessories to the main structure (Briggs, 1974)[12].

According to the means used in order to erect a cathedral for instance, a conception phase should have preceded the implementation. What ever the type of drawing it was, it is hard to believe that a medieval building with its great complexity has been erected without plans. Thus design which was based on profound experience in geometry did exist during this period (Kostof.S, 1977)[13] and it has been proved owing to the various discoveries far later. One of these fortunate discoveries is the textbook prepared about 1235 by Villard de Honnecourt, a French architect (Pevsner. N, 1983)[14].

1.7 MUSLIMS:

At the same time one should not neglect the impact of Muslim architecture during this period. Islam which rose as a fervent religion in the early seventh century took over a significant part of the world. Arabia, Persia (Iran), Mesopotamia (Iraq), Syria, Palestine, Egypt, North Africa and Spain were successively conquered, wholly or partially, by the Arabs during the seventh and eight centuries; and were then subjected to the influence of Islam.

1.7.1 Case of Egypt and North-Africa:

My choice in dealing with architectural education in this region is not random. My interests are quite evident in terms where these countries illustrating this area have several points in common. Besides being myself slightly familiar with them owing to my Algerian origin, all the countries are Arab, consequently speaking the same language and the majority adopted the same religion: Islam. In addition the culture, the climate and traditions are more and less similar. Above all, as we mentioned before, Egypt gave birth to architecture and became later the second most attractive place for Muslims after Mecca owing to the first organised higher education namely El-Azhar[1] (970 A.D) followed lately by Quayrawan and

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[1] The rivals Caliphs claimed descent from the Prophet and fortified their claim through a well planned state education designed principally for adults and disseminated from a central institution known as Dar-El-Ilm (house of learning). This is now well known as El-Azhar supposed to be the oldest university in the world (970-72) (Tibawi.A.L, 1972)[15].

Al-Zaitouna respectively (see appendix one).

As far as education is concerned, it seems to me that it is essential to take a brief notice of the origin and character of Arab and Islamic educational traditions. Education was divinely ordained and it began with the prophet Muhammed's (peace and blessing upon him) first experience of the divine revelation. He was commanded by the Angel-Messenger: "Read" (Koran, Surat XCVI, verse I). This is the first step in Muslim education history. Illiteracy was prevalent in Arabia before Islam. "The few exceptions where characterised by the few merchants of Mecca who could scarcely conduct their domestic and foreign trade without the rudiments of reading, writing and reckoning. Some of such men were among the first converts to Islam and served as scribes to the prophet or later as high officials in the Islamic state" (Tibawi.A.L, 1972)[16]. Even before Islam, the Arabian tradition was oral. Indeed the Koran itself was first proclaimed orally and transmitted by word of mouth. It took almost a generation for it to be written down in an authorised version. Among the wide range of Hadiths[1] several sought persistently and methodically to impress the value of knowledge and the rewards of learning upon the hearts and minds of the believers.

"Quest for learning is a duty upon every Muslim"

"God eases the way to paradise for him who seeks learning. Angels spread their wings for the seeker of learning as a mark of God's approval of his purpose"

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[1] Sayings of the prophet.

By preaching the new faith, two practical measures of special educational significance were adopted. Literate believers were required to teach illiterates and only literate believers were sent out to new communities that embraced Islam. Thus the profession of Muslim teacher was born and the mosques became the first schools in Islam and eventually the Coran was the first book.

Hence the association of the mosque with education remained one of its characteristics throughout history. The hey day of the mosque as an educational institution extended roughly between the beginning of the second and the end of the third century of the Hijrah[1]. "This period saw also the development of another remarkable Islamic educational institution namely the Kuttab, deriving from the word "to write". There were however two new institutions of learning which appeared during the fourth century. There are Dar-El-Hikmah (the house of wisdom) and Dar-El-Ilm (the house of sciences). These institutions were strictly and exclusively academic; unlike the mosque, there were not places of worship, nor were the academic activities which they performed strictly related to the religious sciences" (Nashabi.H, 1980)[17]. The main distinctive feature which differentiates Dar-El-Ilm from Dar-El-Hikmah is that in the former, prominent interest is given to mathematics and medical sciences while the latter paid great attention to literature and translation. The following century gave birth to a new educational institution known as the Madrassah. This did not stop or limit educational activities either in the mosques or in the private houses of Ulama (Men of Ilm).

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[1]Islamic calendar equivalent to the year 622 of the Christian calendar

With the spread of Islam, cultural fertilisation was obvious. Translation of the "Ancient" philosophy and sciences were gradually undertaken enabling the Arabs to reach their prime. "The institution of the mosque, the kuttab, the academies of Dar-El-Ilm and Dar-El-Hikmah, the madrassah dominated the educational scene in the Muslim city until relatively modern times. Since then, diversity of branches of learning were taught such as Islamic theological sciences, Holy Coran, jurisprudence, commentary, philisophy and applied sciences like medicine, pharmacy, mathematics...etc" (Fathy.I, 1979)[18].

Before colonisation, whether in Egypt or in North-Africa there was no sign of architectural training in a recognised institution and in order to find out how architects were trained it is ideal to investigate on how buildings were designed.

Architecturally speaking it seems that the early Arabs had no specific idea of the role of the architect.

> "The Arabs are quite firmly rooted in the desert and quite unfamiliar with the crafts. Furthermore, before Islam, the Arabs had been strangers to the realms of which they took possession. When they came to rule them, there was no time enough to develop fully. Moreover, the buildings of others, were sufficient for them. Furthermore, at the beginning, their religion forbade them to do any excessive building or to waste much money on building activities for no purposes" (Ibn Khaldoun)[19].

The modest "construction", if we may call it as such, in the

scattered sedentary centres of Arabia represent the vernacular architecture. But once the Arabs developed their varied skills owing to the several conquests, Muslim architecture was born. Since then it became quite hard to dissociate Islamic architecture from religion. When we talk about Muslim architecture evidently we mean more often mosques which are considered Multi-functional places, from worship to the function of parliament.

In the case of Egypt which has undergone the impact of several Muslim leaders, Islamic architecture did develop all through the middle-ages and generally under external influences. Assimilating features from Rome, Constantinople, Persia and even from India, after becoming an elaborate structure of stone under the Fatimids, it underwent further changes due to the intercourse between Egypt and the Crusaders. Later, under the Mameluk sultans the architecture of the mosque reached a higher standard of construction and finally during the Turkish period, it further developed.

Our aim in this work is not to give a historical background of Egypt but to try to describe the way in which architecture evolved. If we have a careful look at the various buildings erected from the Caliphate period to Muhamed Ali, we might discover the ingenuity of the Muslim architects, the typical characteristics of their architecture and consequently a rough picture of their training. A particular interesting aspect of the imperial Abbassid style is to be found in Egypt. Within the garrison town founded by Ibn-Tulun and which was to grow into Cairo, an exceptional monument the El-Quatai mosque (870-9) has been left as a testimony of the Tulinids'dynasty

(see photograph 1).

The mosque, although maintaining the Iraqui principle of a fairly deep hall, also has naves arranged to the Quibla[1] wall. They are set off by a number of rectangular pillars, with corner colonnettes connected by slightly pointed arches which support the trusses of the flat roof. In order to isolate the main place of worship and create more shade, a new feature in this mosque has been added: the Ziyada or outer court that surrounds it on the East, West and North sides. In the centre of the court Sahn stood a small domed building paved with marble and contain a marble basin from the middle of which a Fawwara (fountain) for ablution shot up into the air. This central fountain which became a characteristic feature in Muslim architecture, has a great role as it has been demonstrated in later time, in terms of cooling the hot air. But the main feature of the great new mosque, however, was the introduction for the first time of piers and pointed horseshoe arches in place of the antique columns previously used. The origin of this type of arch is still in doubt. Nevertheless the fact is that feature was applied constructively and systematically. The construction of the walls is of fire-burnt dark red bricks, the mortar is made from lime, obtained probably from the neighbouring quarries and the joint are very thick. This may allow us to state that architects were using local building materials. As the Samara style is also represented in the remarkable stucco and woodwork, there can be no doubt that Iraqui crafstmen were employed (Meineck-Berg.V, 1978)[20]. Later on, several mosques of great

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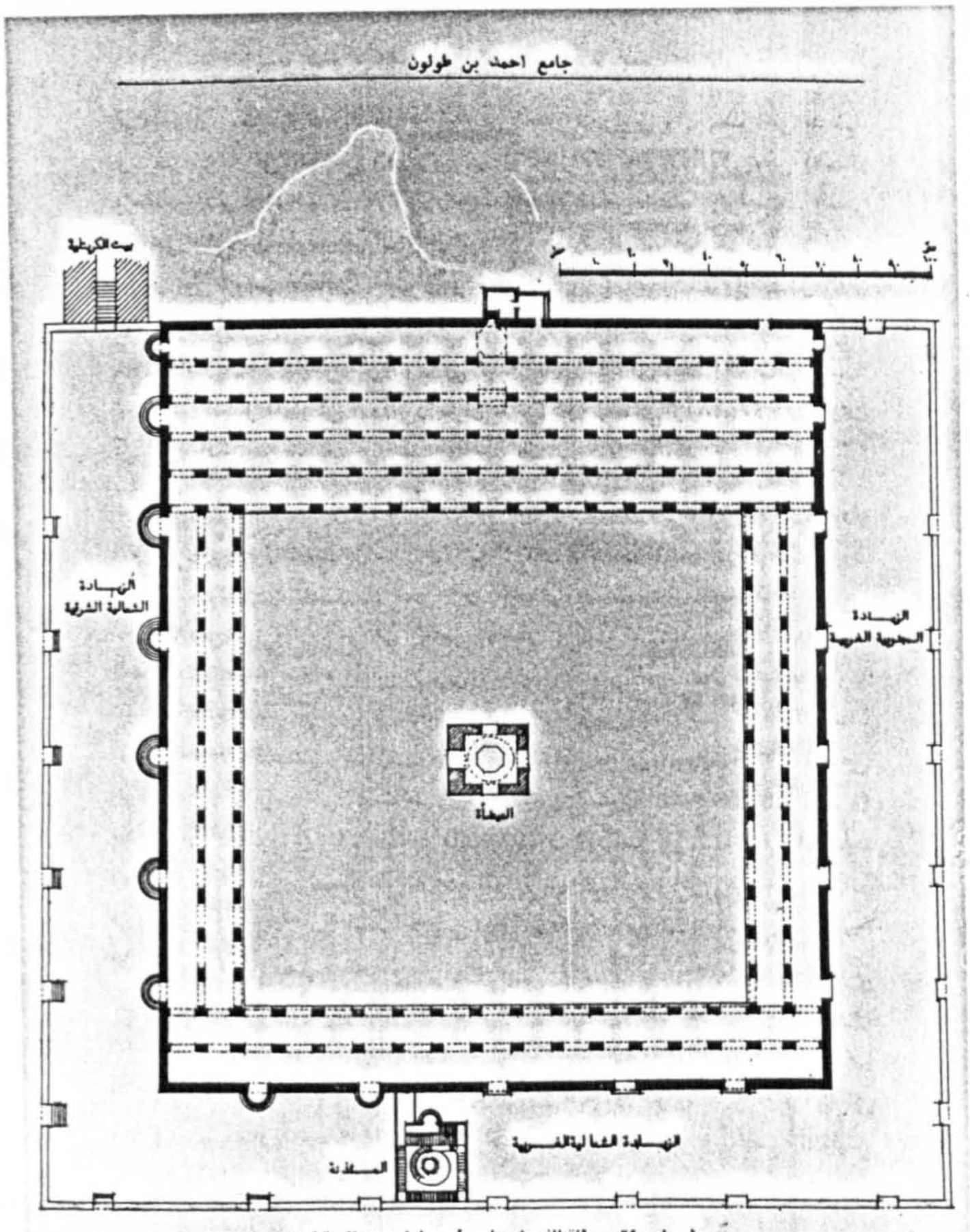
[1]Prayer direction towards Mecca.



ش : ٢٩٠ ـ انقطاع : جامع ابن طولون (المقطم)

Photograph 1: Mosque of Ibn Tulun, Egypt
Source: F. El-Chafii, El Imara El=Islamia Fi Misr, Cairo, 1970. p239.

importance in terms of architecture and history were built. El-Azhar, El-Hakim, El-Aqum until the mosque of Muhamed Ali (see photograph 2 & 3).

The latter is regarded as the symbol of the modern Egyptian state founded by Mohamed Ali. Besides the religious buildings and as an expression of power, palaces, citadels and fortifications were erected. In Islam that function is less easy to isolate since the same features occured in buildings of such types.

Another kind of construction took place during the Muslim period. In 715 a nilometer was erected on the island of Roda, replacing the pharaonic one at Helwan. It was built by a mathematician[1] Ahmed Ibn Mohamed (Briggs, 1974)[21]. The importance that this unique monument had for the economy of the country is enhanced by the unusual architectural treatment.

If this construction was designed by the same man quoted above, it is clear that this mathematician must have been architect and engineer at the same time.

The discussion of Islamic architecture in North-Africa will deal with the area now comprising Morocco, Algeria, Tunisia, Libya and Spain since this region exercised a great influence on architectural development in the Grand Maghreb. These countries are grouped for their historical connections and parallel architectural evolvements.

The earliest monuments dating from the ninth century used many architectural elements from both the Abbassid east and Umayyad Spain.

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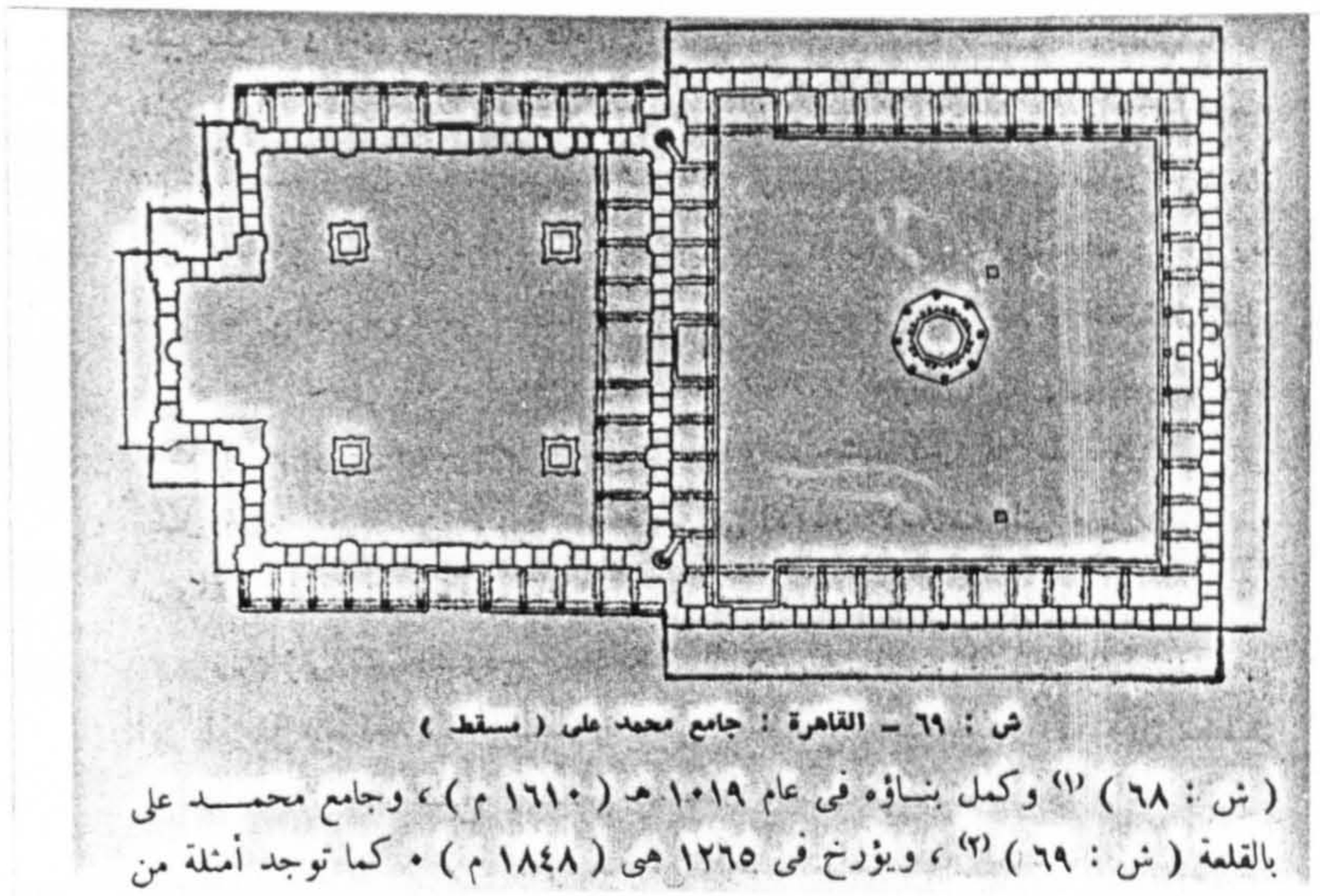
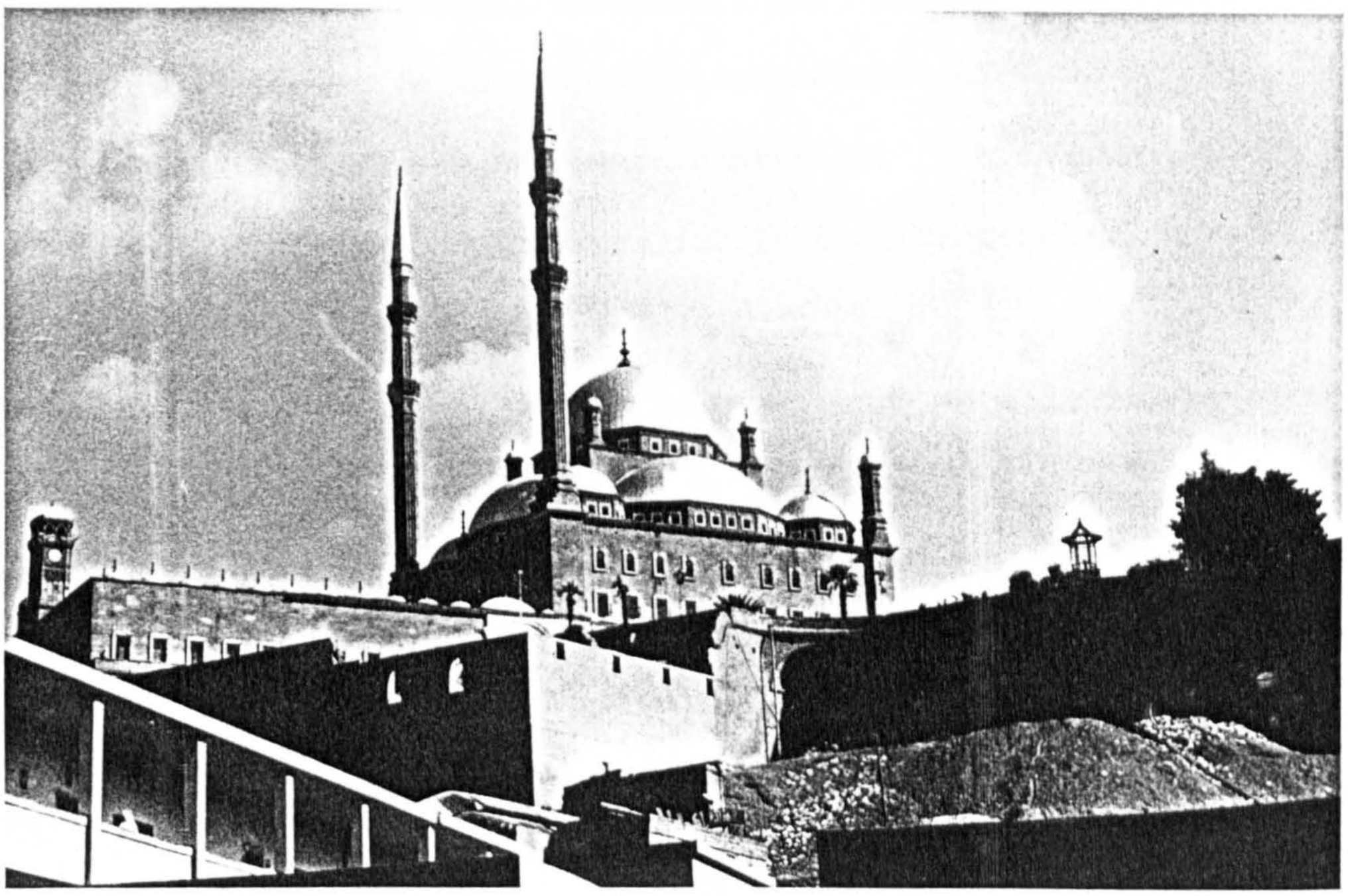
[1]Architect, engineer or geometer is not specified



ش : ٦٩ ـ القاهرة : جامع محمد على (مسقط)

(ش : ٦٨) [١] وكمل بناؤه فى عام ١٠١٩ هـ (١٦١٠ م) ، وجامع محمـــد على بالقلعة (ش : ٦٩) [٢] ، ويؤرخ فى ١٢٦٥ هى (١٨٤٨ م) • كما توجد أمثلة من

Photograph 2: Mosque of Muhammed Ali, Egypt (Layout).
Source: F. El-Chafii, El Imara El=Islamia Fi Misr, Cairo, 1970. p126.



Photograph 3: Mosque of Muhammed Ali, Egypt
Source: Author

With the devastating invasions of the Hilal Arab tribes after the eleventh century, Morocco became isolated remaining under the same Muslim Spain influence. This ensured constant artistic contact especially under the Almoravids and Almohads (see chronology p28).

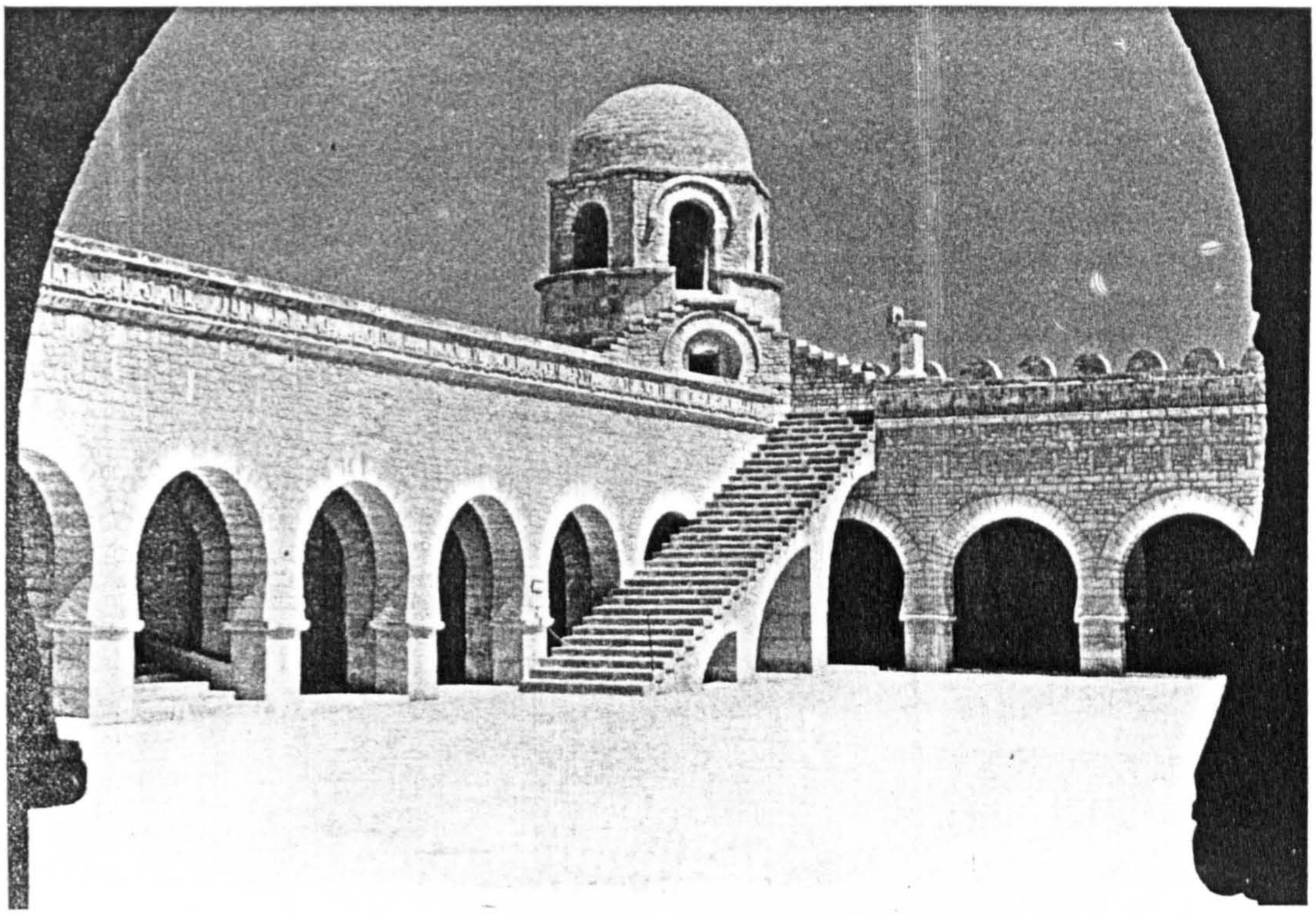
As a consequence of the decline of Muslim Spain in the thirteenth century, the isolation of Morocco from the rest of the Islamic world increased. Despite the coming of the Ottomans, the Western Maghreb cut off by mountains did not experience the Turkish domination. However the presence of the first indigenous North-African dynasty, the Aghlabids, was well illustrated by the mosques at Quayrawan, Sousse in Tunisia (see photograph 4 & 5).

These major monuments display a clarity and uniformity of concept in the disposition of internal arcades, low roofs, courtyards with square multi-storey minarets, vast rectangular enclosures, that was to become universal in subsequent centuries. This simplicity of architectural form was also expressed in other constructions such as fortress, palaces ...etc.

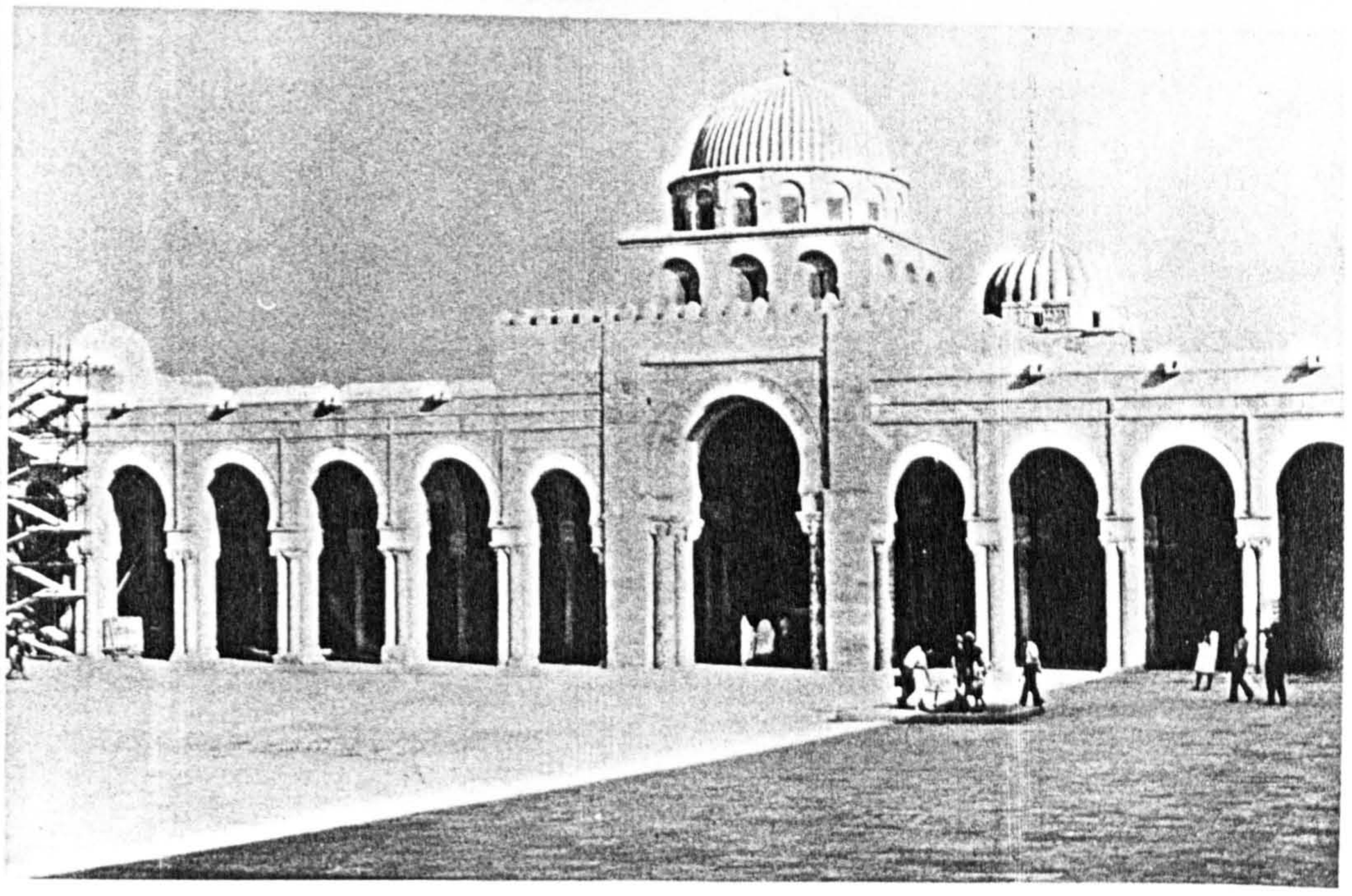
Civic hydraulic works (cistern of Quayrawan) were landmarks of the Aghlabids (see photograph 6).

During this period buildings were characterised on the exterior by large unadorned expanses of masonry and brickwork. Limited decoration is applied in carved stone, stucco and wood, testifying to close artistic contacts with both the Eastern mediterranean and Spain.

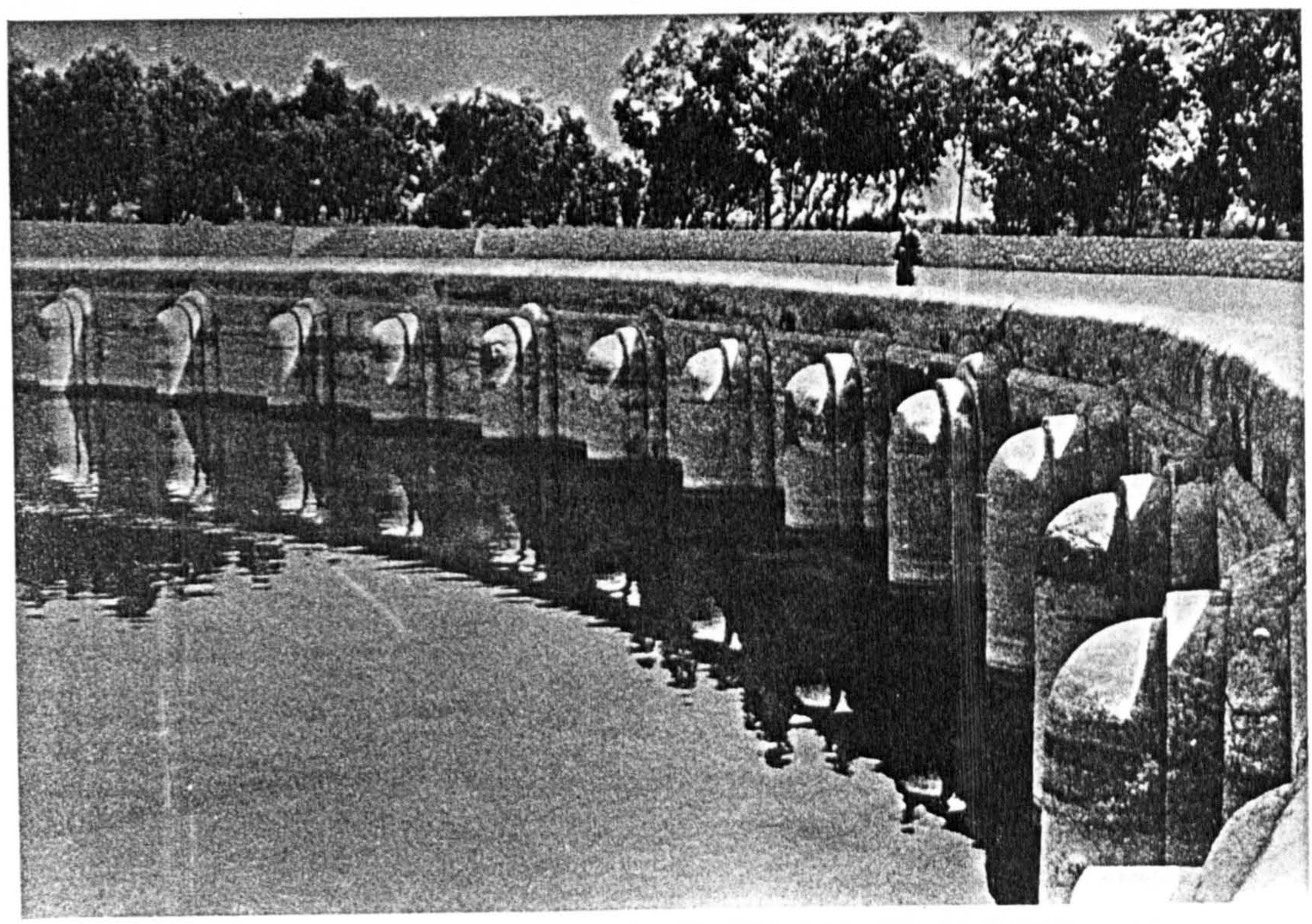
The architecture of the Fatimids, Zirids and Hamadits during the following centuries was austere and monumental. Mosques and palaces



Photograph 4: The great Mosque, Sousse, Tunisia
Source: A. Hutt, The Islamic architecture in North-Africa, London, 1977. p35.



Photograph 5: The Great Mosque, Quayrawan, Tunisia
Source: Idem. p58.



Photograph 6: Cistern of Quayrawan, Tunisia

Source: Idem. p64

are characterised by recessed arched niches breaking up the wall. The great Berber dynasties, the Almoravids and Almohads in Morocco allowed North-African architecture to develop its most characteristic expression. Different arched shapes and lobed forms to create complex interlacings on monumental scale are found in carved stone for city gateways (Rabat and Marrakech), minarets (Tlemcen, Rabat and Marrakech), and in stuccoed brick for the interior arcades of mosques. The Muquarnas[1] became well spread for vaulting arches and niches in shallow relief. Generally speaking, there was little effort for exterior facades apart from imposing portals and high minarets. Decoration, on the contrary played an important role in architecture during subsequent Marinid and Sa'dian dynasties. Use of chiselled stucco, timber marquetery and glazed tile-mosaic was prevailing. Mosques and palaces were covered with green-tiled painted roofs while pools within the courtyard or garden were the evidences of the great influence from Spain.

However the Turkish impact was more felt in Algeria rather than in Tunisia and Libya. Palaces and private houses of Algiers, Tunis and Tripoli are the illustrations of the very sophisticated urban life.

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[1] Corbelling feature (stalactite).

CHRONOLOGY

EGYPT			NORTH-AFRICA		
Caliphal	period	639-61	Idrissid	period	789-926
Umayyad	"	661-750	Rustamid	"	777-909
Abbassid	"	750-868	Almoravid	"	1056-1147
Tulinid	"	868-906	Almohad	"	1130-1260
Ikhshid	"	934-69	Marinid	"	1197-1465
Fatimid	"	969-1171	Sa'dian	"	1511-1659
Ayyubid	"	1171-1250	Alawid	"	1631-
Mamluk	"	1250-1517			
Ottoman	"	1517-1805			
Muhammed Ali		1805-1953			

Source: Architecture of the Islamic world, edited by George Mitchell, London, 1978. pp216 & 223.

1.7.2 Domestic architecture:

It is agreed that prestigious buildings characterised by their uniqueness, permanence and luxury of construction represent only a minor proportion of total building activity at any period. Besides,

> "Because of their status and massiveness of construction, such building tend to survive while associated domestic and utilitarian complexes of a contemporary date are destroyed. To consider monumental architecture without these associated complexes is to create an unbalanced and perhaps erroneous impression of the nature and development of Islamic architecture and its relationship to the society that founded it" (Petherbridge,G.T, 1978)[22].

In addition and as long as it was from vernacular building technologies, with their intimate knowledge of local materials, that the better known monumental construction was derived, it is

essential to investigate the neglected architecture and traditional building techniques.

While the religious buildings and palaces were evolving through time, the dwelling on the contrary seemed unchanging. Very few differences between the oldest surviving houses and those built recently on traditional lines, may appear. However, how can we explain this apparent standstill if we may call it such? The dwelling-place remained simple and was different from the neighbour's because this family was larger or richer. Within the same village, region or a city, the tissue was homogenous. The houses were almost identical[1]. The "almost" expressed the guarantee of an attractive, subtle diversity. The popular science was only using what was available. In the Aures (Algeria) houses were in stone, in the Sahara they were in burnt sand bricks. Thus in each region, the time allowed man to be familiar with the local building materials enabling him to reach the simplest expression more often elegant which illustrates his own "architecture". However, does that allow us to say that man was his own architect and even his own mason? To answer the question it would be interesting to put forward an analogy to the problem. I had the opportunity to see some craftsmen working on carpets in Algeria, Tunisia and Egypt lately and I was amazed by the products achieved by these illiterate people. Portraits, scenery, scenes representing important historical events were carried out where color, expression and scale were perfectly combined. However, to satisfy my curiosity

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[1] The design principle was the same, differences were apparent only in terms of sizes and decoration.

I have been told that this work is not done by every body. Thus just special people may attain such masterpieces. In addition, skill is often a matter of inheritance if not taught in a kind of institution. Then, although it is a traditional job, skill has to be learned. I think in the case of vernacular architecture the process is almost the same. Building techniques were to be taught or transmitted from father to son.

This pure intention, almost forgotten nowadays, made the old buildings or the recent ones built with an ancient spirit, as a topic more important that those created by the so-called modern architects and engineers. Although many writers have described at various times the Arab dwelling and its configuration within the urban setting, very few contemporary architects have their inspiration from vernacular architecture, especially when dealing with a country where the local culture is alien to them. Le Corbusier for instance was well inspired by the M'Zab and the Casbah (Algeria).

> "on sait comment le conseil municipal Francais de
> l'époque...,non seulement refusa les plans proposés
> mais demanda au préfet l'arrestation de ce fou (Le Corbusier)
> génial qui avait seulement voulu durant treize années
> de sa vie, adapter à des moyens modernes le génie de
> ces qualités permanentes d'architecture et d'urbanisme
> qu'il decouvrait en la Casbah et en Algérie" (SNED, 1970)[23].

The majority meanwhile consider this attitude as retrogade and westernisation is regarded as modernisation.

In order to refresh our memories, I would like to present a brief

description of the Arab house and its relationship with its surrounding. Within the region studied here, one sees best that the climate first, then traditions were the main factors in arranging spaces. The impact of these factors also felt on the facades owing to the openings which were using for seeing, coming in/out and lighting. The mode of construction was mainly based on the location and the geology of the site.

The dominant emphasis is on domestic privacy and segregation of women. The Arabic name Sakan from Sakina[1] and 'the word for women Harim in turn related to Haram[2] denote the family living quarters. The segregation of women is well felt and physically manifested in various forms of barriers. The screened balcony or Mushrabya or small openings high in the wall allows the female occupant to view the outside without being seen (see photograph 7 & 8).

These openings also perform the important function of modifying the climate. The men's reception (or guests) rooms tend to be located adjacent to or directly accessible from the entrance lobby[3] of the house so that visitors do not violate the harem.

However while the living space in European houses is rigid, rooms are usually allotted to a specific activity, the Arab one is more flexible. Rooms can be used alternately for eating, sleeping, recreation and domestic tasks. This flexibily is also reflected in the absence of the cumbersome furniture and the interiors are also characterised by changing diurnal and seasonal patterns of use.

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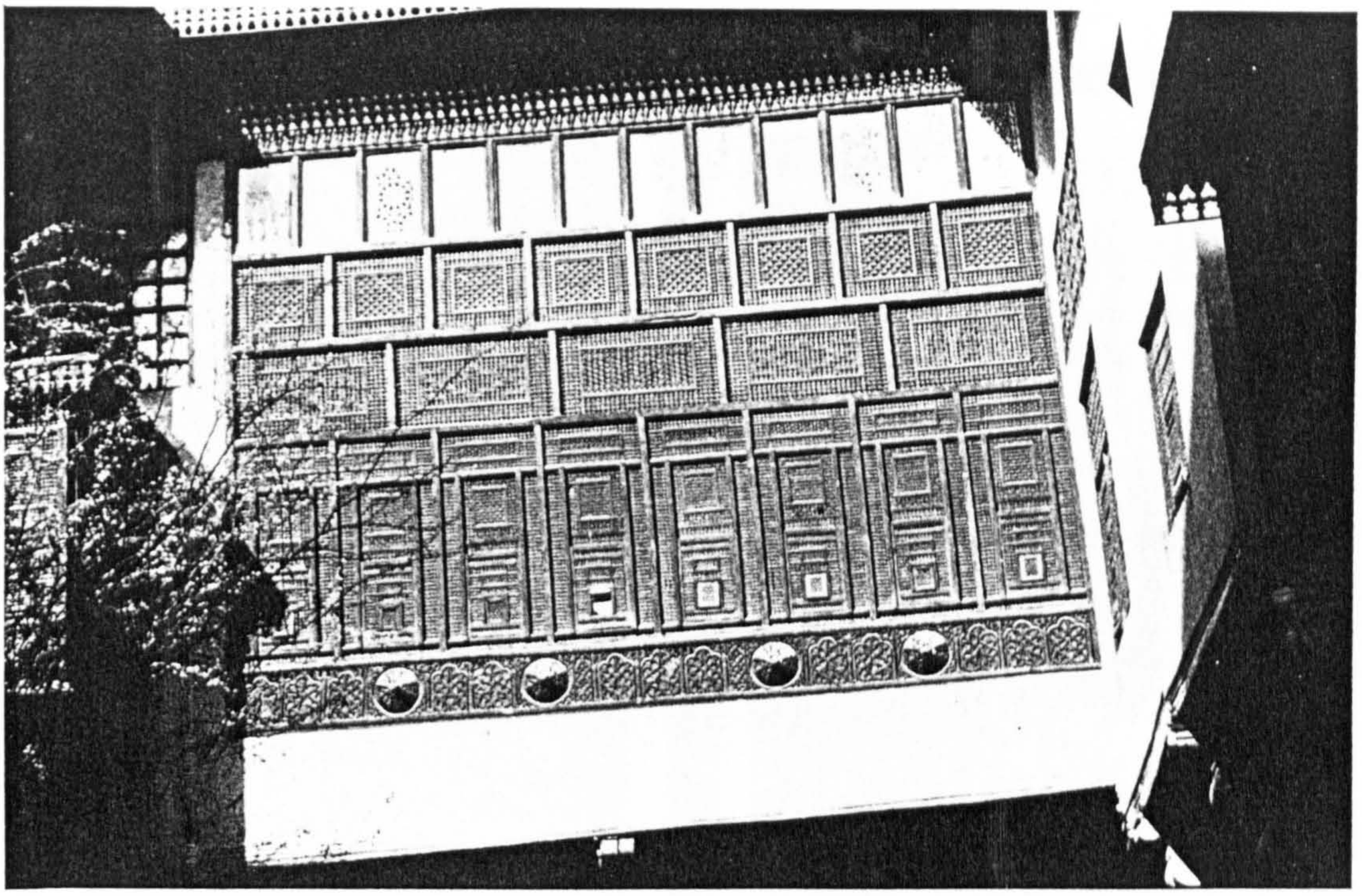
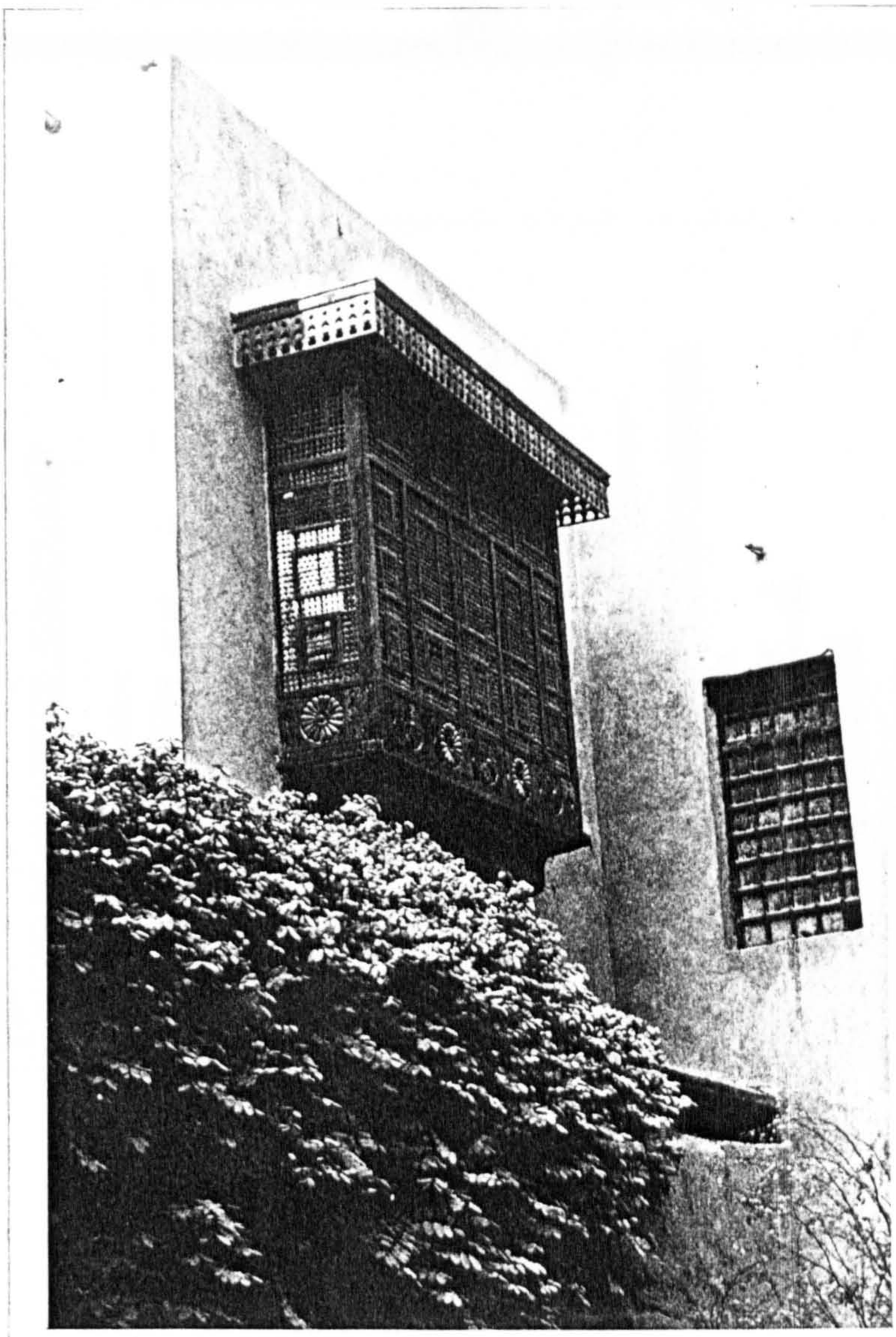
[1]peaceful and holy
[2]Sacred area
[3]Called Skifa in North-Africa





Photograph 7: Mushrabya or window, Egypt
Source: Author

Photograph 8: Small windows in North Africa

Source: Mustapha Benhammouche.

The Islamic house has usually a single entrance which does not give access to the domestic quarters, but leads into a vestibule as a passage with a right angle turn which makes the court impossible to be seen from outside (see photograph 9).

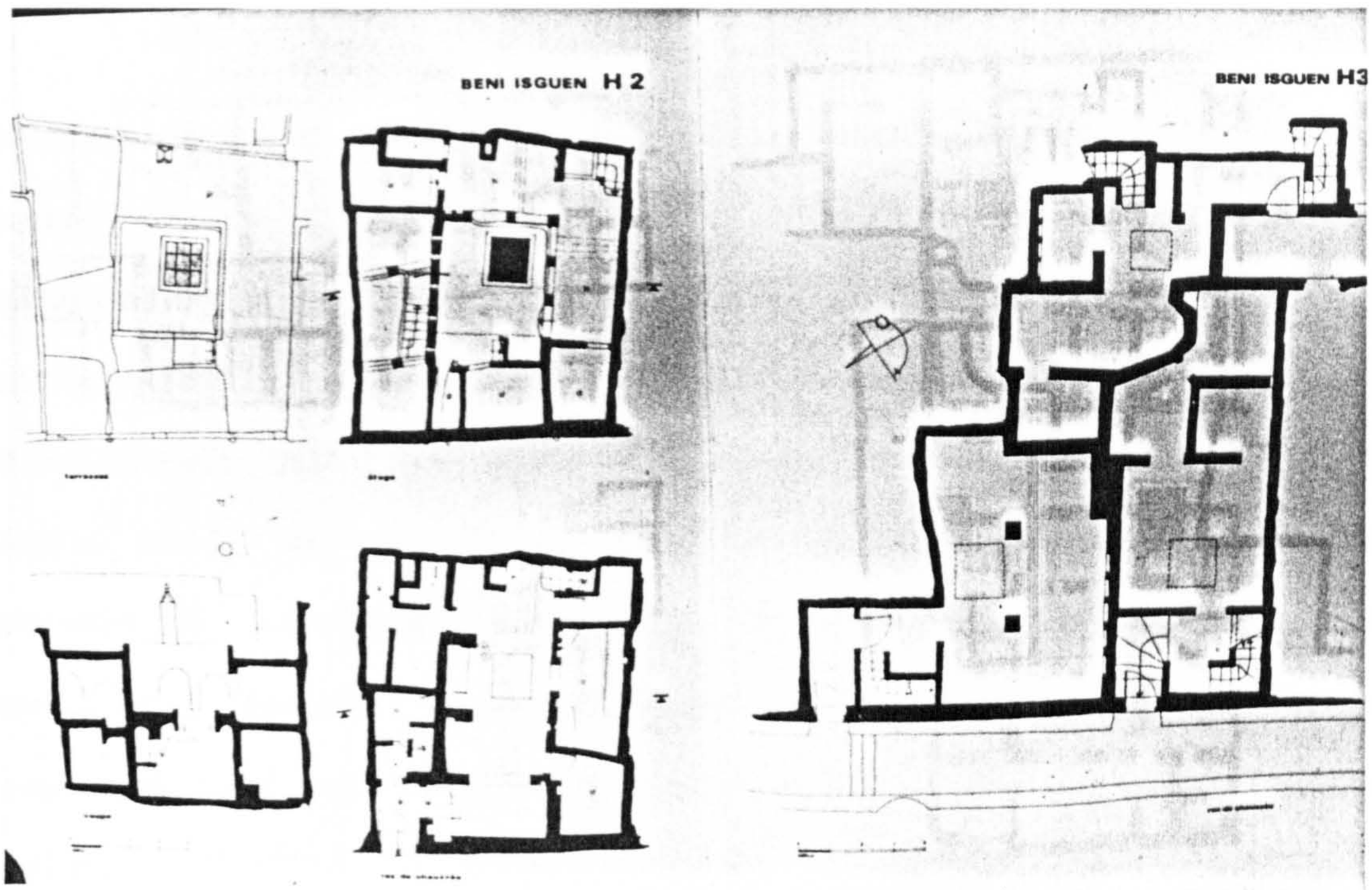
Also it has a role of noise insulation. Depending on the family wealth and inspiration, the main door is usually of wood and highly decorated. However, it happens that a second entrance (often in rural areas) leading to a cul de sac, may be used exclusively by the women who can meet in the private outside and avoiding thus the veil and the traditional costume.

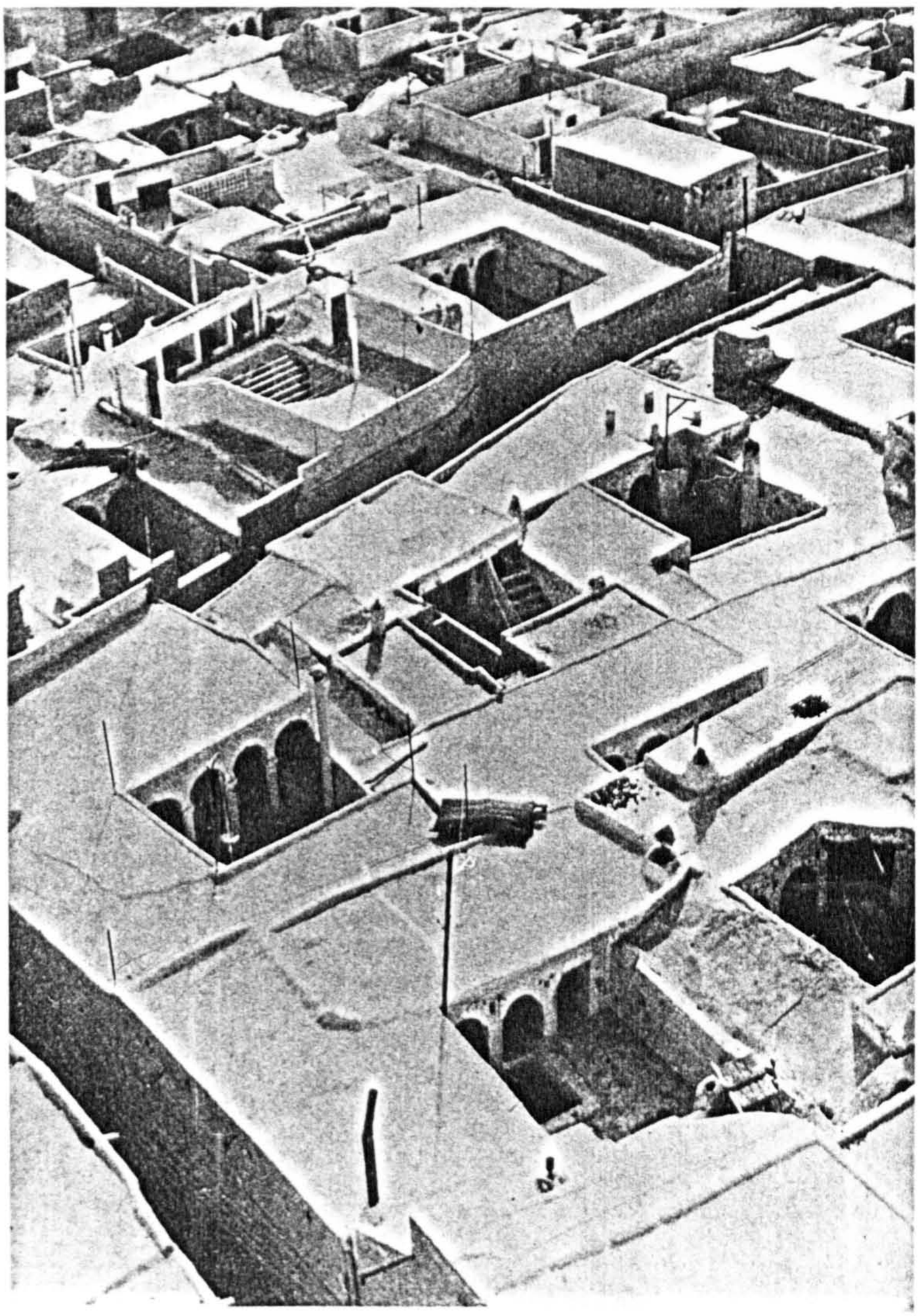
Another design component which appears in the Arab house is the courtyard (see photograph 10).

This enclosed and introverted space formed within the dwelling itself is the place where the family is free to work or relax in security. Besides, it performs an important function as a modifier of climate in hot arid areas and out doors activities are protected from wind and sun. The interior courtyard serves both as light-well in a building type that restricts exterior windows, and as air-well into which the cool, dense night air sinks.

Traditional buildings materials however, are intelligently used. Due to the capillary effect, earth, stone and wood absorb water which can then evaporate from their surfaces and thus hinder the interior air from being rewarmed by convection.

In dealing with the urban setting, the main feature which characterises the Islamic city is essentially the tripartite system of public, semi public and private spaces varying in degree of





Photograph 9:
Skifa or vestibule
in North Africa
Source: Author

Photograph 10:
The coutyard in
the Arab house
Source: S.N.E.D,
L'Architecture
Algerienne,
Collection
Art et Culture
Madrid, 1970. p60.

accessibility and enclosure. The public which is more often the domain of men comprises the facilities such as central bazaars, workshops, mosques, caranvanserais, cafes and Hammam[1]. The quarters as semi-public spaces are reached by central streets bordered by relatively tall buildings. Off these streets in turn branch the narrow black walled alleys and cul de sac onto which open the doorways of individual dwellings. This organisation which is not fortuitous, reveals a hierarchical concept of access and enclosure responding perfectly to the practical social life of the Islamic society.

1.7.3 The Muslim architect and his training:

Despite the careful look taken at Muslim architecture and the associated vernacular architecture, writing about Muslim architects is still a difficult task. This is mainly due to the scarcity of documemts and the changes occuring from country to country and one century to another. However what was the formal training of architects in Islam in any period? We know very little about it. At first sight it seems that appropriate school of architecture did not exist. In several cases the profession of architect was a matter of heridity following the Islamic tradition, and the training was based on apprenticeship in most period and places. But it is quite apparent that a number of men bearing titles can reasonably be identified with architect rather than just master like those of

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[1] Public bath.

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[1]Public bath

of Western counterpart. This has been helped out by the different names given to the Muslim people involved in crafts and building activities. I came across several identifcations such as at-tayyan (the mason), ajjur-tarrash (brick layer), el-banna (constructor), mi'mar (builder), al-wakil (superintendent), ustadh (master), el-muhandas (geometer). Thus specific titles are allocated to appropriate people dealing with specific tasks. However, three terms commonly used to designate architects, mi'mar, banna, muhandas, though not synonymous, do not seem to carry explicit distinction. That is why we came across muhandas el-banna as the appropriate equivalent of the architect. On the other hand, this implies once again that the architect should have been an engineer at the same time. Nowadays, in Arab countries, the distinction is clearer. muhandas (not the original meaning of geometer) represents the engineer and the architect is more likely known as muhandas mi'mari, coming from imara which means building.

However, Butros El-Bustani's investigations(1977)[24] dealing with the root word that generates a host of terms associated with our concern led to the word Umr.

Umr which in English means life and existence and also enjoyment of life, seems to be our key of reference.

Imar is then the activity which strives to provide the necessary condition for the sustenance of human life and its well-being.

Imara is the profession which deals with the activity of providing suitable physical environment that will embrace the necessary means for the existence, sustenance and well-being of human life.

Mi'mari is the person who is involved in the activity of **Imara.**

Umran is the generic term that refers to the total environment, shaped and managed through the action of man, encompassing the totality from particular space required for a need or activity of man to the whole universe that enveloped this space. Back to architectural education,

> "It is hard to believe that the great masterpieces of Islamic architecture could have been achieved without the disciplined cultivation of design skills over a long period, together with training in geometry, mathematics, applied mechanics and drawing"
> (Lewcock.R, 1978)[25] .

Ibn Khaldoun speaks of the importance of geometry for architects in his Muqqaddima[26]. In addition, there is ample evidence for us to be certain that architectural drawings and design techniques have been used in erecting most Islamic monuments. These means of construction were probably inherited from the Ancient world owing to the vast number of translations undertaken by the Arabs. It seems that every single task related to building has been fully tackled. Masonry, faience, cabinet making, metal work and the like, to even building regulation. The latter considered as "the basic principles and guidelines of the building process and its framework which derived from the essence and spirit of Islam".

"Kadis and religious scholars were the men in charge for setting building regulation to be followed in the activities of urbanism" (Hakim, B. S, 1986)[27].

Should not we take this vast and rich experience into consideration

in order to "faire renaitre" our architecture and identity?

Briefly then, climate, geography plus man's hand and spirit had led during several centuries to dwelling responding amazingly to its user's needs. This process carefully adopted involving different professions from craftsmen to architects created an adequate if not a perfect environment.

Since colonisation, Most of Muslim cities are falling to pieces. The invading fleet of western population during colonisation or the "experts" brought after independence are altering the so-called indigenous architecture profoundly. This has been of course worsened by local architects who were more often trained abroad or following inadequate imported curriculum within their native countries. As a consequent result, in the near future a moorish construction in Algiers for instance will be as much a curiosity to Algerians themselves as to the European tourists.

It is true that modern building materials and modern techniques should be useful, but in my opinion this heritage which is the reflection of people and history should be taken as a basis of any "modern" innovation. These young Arab architects should bear in mind the purety and quality of their own architecture. Progress and new building materials are offering more comfort and better adaptation but they must find the best solution which is hard when the main idea is misunderstood. Today everywhere in the world, professionals are deep in their research seeking for new solutions which unfortunately often came as irrelevant due mainly to their carelessness of local parameters. Young Arab architects who have from now on all the

modern means should know that the lesson should be drawn from their past.

1.8 THE RENAISSANCE:

The Renaissance brought a sudden and complete change in European history, while the roots belonged to the antecedent period. As far as architecture is concerned, personal creation took a greater place comparing with the collective one which lasted about five centuries. Architecture did not take birth any more from experience on the site, but from personal thoughts. It was only at that time when the word architect has been fully created:

> "...il faut rappeler que le mot architecte a été inventé de toutes pièces en 1510"(Belmond.J, 1970)[28] .

Even though the architect could not reach his full merit. This has led to the isolation of the architect from the Maitres macons which made the difference slightly distinct. Consequently the architects had to work with the people able to understand them, thus creating an elite working for an elite.

1.8.1 Italy:

In Italy the Renaissance of architecture provides a wealth of talent. But looking through their lives from Brunelleschi to Vignola, and taking into account Vasari's testimony, it seems that they did not learn architecture in a real school. Most of the Italian architects appeared to have been apprenticed or articled to an architect in practice. But the most interesting statement that Vasari gave us of an architects's training relates to Bartolommeo Genga, a son of an architect. His training lasted nine years, studying arts during two years, design and painting during three years strenghtened by two months of perspective taught by his own father. The last four years have been spent in measuring and drawing in Rome.

During this period when architects often came from the upper and professional classes, training continued to be essentially by means of pupilage or apprenticeship, reinforced by extensive exercises in measuring and sketching of Roman antiquities. By the last stage of the Renaissance, Rome became the pole of attraction for architectural students coming from other parts of Italy and even from abroad. This was mainly due to the influence of the architectural academy which was reorganised in 1577 (Briggs, 1974)[29]. This institution was meant to be a centre of artistic culture and intended to further the education of painters, sculptors and architects. Once again, the affinity between these three arts remained unbroken. Further schools were established later in Bologna, Venice, Naples, Turin, Milan...

However the architect continued to be a versatile man:

> "The design of fortification, theatrical properties and scenery, gardens and bridges formed a part of the architect's normal duties" (Briggs, 1974)[30].

By looking at lives of all great Italian architects of the seventeenth century we may claim that they all carried on general practice in the modern sense.

1.8.2 France:

In France the architect's work was well illustrated by many buildings which have been since held worthy to the rank as national monuments and considered as real masterpieces of art at the same degree as a painting or a sculpture. Then the architect became an artist. And in order to bring the new "independent" architect to heel and to make the separation with the medieval craft association more obvious, the Royal Academies were created (Allsopp, 1955)[31]. Hence a new system of architectural education took place and Paris became an attractive centre for teaching the arts. However information about their training is not abundant, but we may assume that a French architect at this period studied the Orders, perspective, geometry and mathematics; and possibly mechanics and other branches of science too (Briggs,1974)[32]. Nevertheless, there were great similarities between both systems of education the French and the Italian humanist movement. This was confirmed by the

establishment in Rome of the French academy for training artists (Allsopp, 1955)[33], while it took five years for a "student" to obtain the artist's requirements (Ward.W, 1911)[34].

1.8.3 England:

England was the last country to fall under the influence of the Renaissance movement, this through France and Netherlands. It is only after a century after the "rebirth style" in Florence that the Renaissance made its appearence in England. English architecture of the latter half of the seventeenth century was mainly led respectively by Inigo Jones and Christopher Wren. It was during this period that the function of the architect emerged (Kaye. B, 1960)[35].

As we are much concerned with their training rather than their status, it would be worth to investigate in which way genius architects such as Jones and Wren were educated. Generally speaking, pupilage or apprenticeship in an architect's office seemed to be an adequate and recognised form of training for the architectural students (Kaye. B,1960)[36]. And the ideal architectural education at the time quoted by Kaye[37] was as follows:

"But lest any should imagine it is easy for an architect to be thus accomplished, especially if he has had all Advantages of Education, and pursued his Studies with the Vigour he ought, and omited no Opportunity of Improvment; I shall in the next Place enquire, whether there is any Probability of a Person's being thus far qualified. And in order to do this, let us make the following Supposition, and trace him the several Stages of Life. When an Infant, he very early discovers an extraordinary Genius for Drawing, and particularly for

Drawing of buildings for Civil use; his Parents, willing to encourage this propensity to the study of Architecture, are determined to educate him accordingly; They place our young Gentleman, from Time he can speak to the Age of about Fifteen, under the Tuition of the most eminent Masters, where he improves himself considerably in Drawing, learns to write, makes no small progress in Arithmetic and Geometry, attains likewise to a tolerable Proficiency in the Latin Tongue, and has some little Knowledge of Greek; he makes also no small Improvements in French, and is enabled to speak it with Fluency; which from its universality we may reasonably suppose will be no small advantage to him on his travel. His now, having received a liberal education, articled to an eminent Architect, to whom is given a very handsome Premium, in order that the Youth may fully qualified; his Master who is a conscientious Person, is determined that the young gentleman shall want no instruction which it is his power to give him; accordingly, the first year or two, he instructs him how to reduce to practice those rules of arithmetic and geometry he has learned at school, by applying them to the mensuration of several Artificers Works, taking Care at the same time that he improves himself in his Drawing, and particularly in every Branch of it relating to Architecture. When about two or three years are elapsed, the Youth is taught to design, to draw correctly the Plans, Sections and Elevations of all Kinds of Edifices; his Master desirous nothing shall be wanting to complete him, has proper Persons to give him all necessary Instructions in his absence; and our Youth is instructed in Mechanics, Hydraulics and Perspective, which we may reasonably suppose take up much of his time; and in order that he may not forget his French, which I observed before would be of great Use to him in travelling, Foreigners are employed to teach him those sciences in French. He is now drawing near the latter part of the time he was articled for, and his Master, in order to complete hid education, and form his Taste, takes an opportunity of either sending or taking him abroad; if he himself cannot go with him, he takes Care to place him with a Person equally qualified to instruct and assist him: the youth makes now the Tour of France and Italy, &c. inspects all the ancient Remains of Architecture, measures and makes accurate Drawings of the Ruins, as well as of their original State; studies their Proportions; searches into their Antiquity, explores the Materials of which they are composed, and the Manner in which they are put together, and makes every Observation that is likely to prove of the least Utility: When this is done, he turns to the Works of the Moderns, examines them carefully, compares them with the ancient Works, marks their difference, and improves upon both in his own Designs: Thus he proceeds, 'till he has informed himself of every Thing curious and useful among the Works of either the Ancients, or the Moderns. He now returns Home, at the Age of about two or three and Twenty, after having made the very best use of his Travels, and in a Time after commences Busines for himself, and is by Profession an Architect.

I am persuaded no one will think I have allowed too much Time for our Architect to qualify himself in those Things I suppose him Master of, and which are necessary for a complete Architect to know; and yet.

after all the Advantages of Education, the strength of Genius, and the severity of a close application, he is still amazingly deficient; he know nothing of the practical Part of Business, is almost totally unaquainted with the major Part of the Materials used in Building, is a Stranger to their Nature, their Use, Their Value &c.; He has but little Knowledge of the several Tools, Utensils, and Machines used in Building, and not knowing the practical Part of the several Artificiers Works, he cannot fix their Value; and I will venture to assert, if our Architect was now to attend to the practical Part of the Bricklayers, Carpenters, Masons, Plasterers, Plumbers, and Glaziers Work, &c. he would be so far from ever being fully qualified, that, while he was attending to one Branch, he would losing another; not to mention that his Attention to the Artificiers Works would infallibly erase from his Mind almost every Thing he had learned in his younger years, and he would be in Process of time, for want of practice, be almost as Great a Stranger to Drawing and Designing as he had never learned either.
If this is the Case, it must follow, that those who do not thus improve their Time must be still more deficient; and that those who would wish to improve every Moment, yet if destitute of these Advantages and Opportunities, they too must be in the same Predicament. ["An essay on the qualifications and duties of an architect", attributed to George Dance the Younger, RIBA, 1935, 648]. Whatever our opinion could be on the quality or expenses of such

training which resembles amazingly to what Vitruvius suggested, it seems to me that very few architects at that time could afford to enter such courses. According to Briggs[38] less than half of the twenty four architects selected as representatives of the eighteen century had been apprenticed in an office. Wren for instance who had a rather scientific training, was a scholar mathematician astronomer. Such knowledge at Oxford developed his constructive power. He started the study and practice of architecture very late until he had the opportunity in 1663 to repair St.Paul's cathedral (Fletcher, 1975)[39]. Wren who came under the French influence, strengthened his training by travelling to France where he met his great contemporaries (Bernini, Mansart...).

Back to Jones, who was more under the Italian influence seemed that

he had not had an extensive education and all his talent in architecture depended greatly on travelling. Later and owing to Wren and Inigo's followers in the case of England, architectural societies started to appear while the motive seems to have been the need to exchange ideas, and improve the educational facilities. The educational system was still based on pupilage during six years and students could supplement the instruction they received at masters'offices, at the Royal academy of arts created in 1768 (Kaye. B, 1960)[40].

> "It is clear that the main business of training young architects was carried out in the offices where they were articled".

1.8.4 19th and the first quarter of the 20th century:

Like the Renaissance, the industrial revolution had its impact on society. New means of production, new system of communication. and rapidly growing population made the society economically dependent to a large extent upon trade and industry. It was a period of activity and ardour. Progress and reform took place in all departments of life.

As for architecture, the whole subject of education came under discussion and suggestions that some kind of formal education should replace office training. The main turning point in the development of architectural education in Britain for instance took place after the Franco-British conference held in 1920 in Paris and the first

Industrial Congress held at RIBA (Kayne.B,1960)[41].

Changes took place in terms of length and curriculum until the school system of teaching architecture appears to have achieved a firm footing in every civilised country, while the roots belonged to the French methods of Les Beaux Arts.

At this point it would be interesting to present a brief description of the evolution and tradition of the Beaux Arts principles.

"The Ecole des Beaux Arts was founded as Ecole Royale des Beaux Arts in 1819. It became an architectural section descendant of school conducted by the Academie Royale d'Architecture (1671-1693). Then several different names were allocated to the school respectively: Ecole Speciale d'Architecture (1795-1799), Ecole Speciale de Peinture, Sculpture et Architecture (1799-1807), Ecole Speciale d'Architecture (1795-1799), Ecole Imperiale des Beaux Arts (1807-1814) and Ecole Nationale et Speciale des Beaux Arts after the World War I" (Derew. D. E, 1980)[42].

The architectural designs made in Paris for two and half centuries up to 1968 (see section 2.1.3) by competitors for the Grand Prix de Rome[1] are of particular importance for the history of architecture because they constitute an expression of one of the basic approaches to architectural design, namely that of the academic architect.

The term academic implies that architecture is regarded essentially

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[1]Annual prize of Academie, included pension (scholarship) at Academie de France in Rome which was founded in 1696 by Louis XIV.

as a fine art in which principles of formal composition stemming from the classical tradition are considered of first importance. In other words, the most important aspect of the architect's training is mainly based on the study of compositional theory and traditional principles of formal design. These principles are exemplified in great buildings or architectural books of the past especially those of the classical tradition.

The teaching method comprises school organised lectures, competition programmes, administered juries, helped by a library and a gallery of prints and casts. But the centre of the students'world was the atelier or studio where competition projects were worked out under the supervision of a "patron" (design professor) who would have been a practising architect. Each "patron" ran his own atelier.

Because of the undoubted success which the Ecole des Beaux Arts achieved in training architects, its influence spread far and wide, affecting nearly every country in the world. Although this reputation began to decline in the 1920's and 1930's, ideas ultimately taking roots from the Beaux Arts educational system continue to play an important role in architectural education.

With the establishment of university and other courses, covering all aspects of architectural training, the end of the pupilage (see sections 1.6, 1.8.1 & 1.8.2) system was in sight. Hopefully I will try to describe the different current systems of teaching architecture in several countries in the following sections.

1.8.5 Conclusion:

This has been just a kind of putting the clock back in order to see the architectural education passing solely from talent, to apprenticeship, to the academy and then to schools and universities. Looking back at the different steps he made through the long agès we have traversed, the architect seemed to gradually consolidate his status within the society and found institutions to further his knowledge and interests. However, taking into consideration the factor of time and the architect's status and role during these periods, it would be hard to reach a paradigm of training common to all periods. Nevertheless some points common to most architects may be distinguished.

Firstly, the architect must be born with a taste for the arts and must have a real enthusiasm for his work. In other terms it is question of gift and motivation. Secondly, the achievements and successful actions of most of the famous architects were due entirely to their ability, ambition and perseverance; say aptitude. Third the majority if not all of them seemed to be well equipped with knowledge of many branches of study and varied kinds of learning. But facing the ever increasing complexity of building operations it is very doubtful that contemporary architects could practice such a variety of arts.

> "by the end of the nineteenth century architectural practice had become so complex that it was virtually impossible, even in the best sort of office, to train a pupil adequately in all the ramifications of his profession" (Jenkins, 1961)[43].

In spite of that, this quick review might help us in order to make some suggestions for the future.

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CHAPTER 2

CHAPTER TWO

SOME ASPECTS OF ARCHITECTURAL EDUCATION AND ITS EVOLUTION IN VARIOUS COUNTRIES

As we have seen precedently, architectural education has been an active area of interest especially in Western world during the last centuries. However, this chapter will briefly review the considerable changes and expansion which have taken place during the last century in theory and practice of architecture. Hence, it seems to be appropriate to examine in some relevant details alternative systems operating in the area concerned in order to reach eventually appropriate ideas which might lead us to suggestions meeting closely the real context (needs) of the architectural education in the third world and especially in Algeria.

2.1 IN INDUSTRIALISED COUNTRIES:

> "Formal architectural education in Europe and North America has a complex heritage of ideas and institutional consolidation" (Knowles.A.S)[1].

In brief, formal architectural education was initiated by the Royal academies of Europe while the roots belonged first to France (1671) Then the Royal patronage has been substituted by formal institutions most notably the Ecole des Beaux Arts in Paris which constituted the

predominant centre of French architectural education and remained well into the 20th century. Although other schools were inaugurated, their programmes of instruction were closely linked with Paris. In this type of schools, several fields of instruction were taught while the atelier was the source of design instruction. Characters of each atelier however, were the expression of the respectives masters'ideas or personalities. This type of education was then the source of inspiration for other institutions in Europe and America including Latin America until more recently when a new image of education took place: this through the Bauhaus school founded in Weimar in 1919 and then later directed by the German architect Walter Gropius (1883-1969).

The Bauhaus is considered as the turning point in the hystory of design and design education. The main reason concerns the nature of the architectural programme and the ideals it represented.

With Gropius, the school tried to establish a methodology for design through the "the new sciences of art". "Although such attempts had their counterparts in Russia and Holland" (Naylor. G, 1985)[2], what was unique about the Bauhaus, however, is the fact that its ideologies concentrate on the changing concepts concerning the nature and purpose of design in the early twentieth century. The school's fundamental aim was to establish a universal language of form that would represent the elimination of social as well as national barriers.

Because the school inherited the craft ideals of the nineteenth century, the architects, painters and sculptors were considered as

craftsmen in the fullest sense of the word. The programme however, was based on six main categories of craft training:

1. sculpture (including stonemasons, woodcarvers, mosaic workers, and plaster casters).
2. metal work (blacksmiths, locksmiths, founders, metal-turners).
3. cabinet-making.
4. painting and decorating (glass painters, mosaic workers, enamellers).
5. printing (including etchers, wood engravers, lithographers, art printers).
6. weaving.

Instruction in drawing and painting which is listed separately from craft-training included the traditional subjects: landscape, still-life, composition and free hand sketching from memory and imagination. Other topics were included such as design of furniture and practical articles, the design of lettering, the design of exteriors, gardens and interiors. Color, theory, the science of materials and the basic business studies were also to be taught as well as art history[1].

Like the atelier in the school of the Beaux Arts, the workshop was the main vehicle of the Bauhaus teaching method. The students are taught by artists as well as craftsmen. This was fundamental to the Bauhaus theory of education.

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[1]Not represented in the history of styles, but rather to further an understanding of historical working methods and techniques.

Plan of the training programme in Weimar

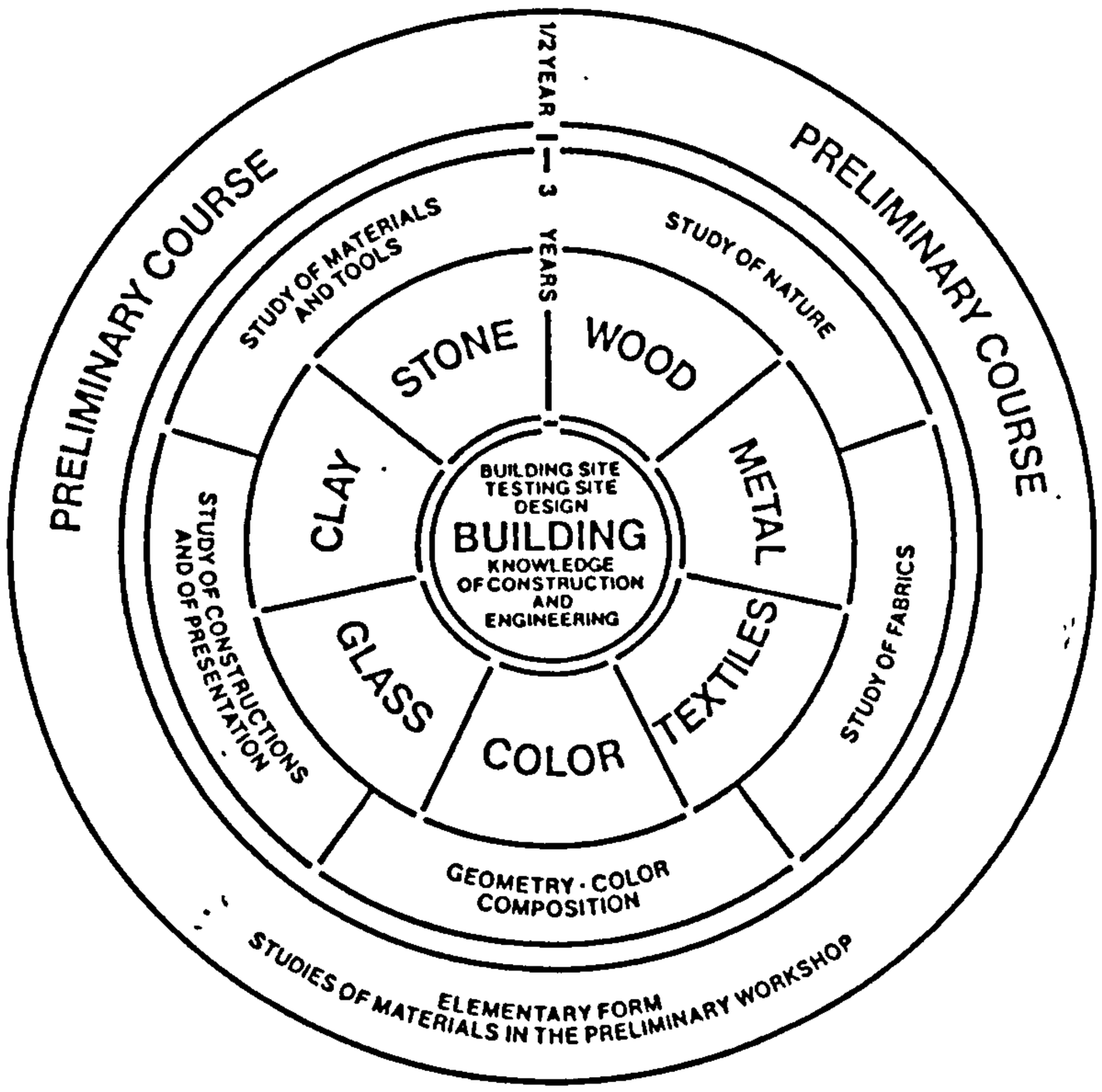


Figure 1: Source: Naylor. G, The Bauhaus reassessed, Herbert press, London, 1985, p73

The re-establishment of the school from an "art" town (Weimer) to an "industrial" town (Dessau) provided Gropius with the opportunity to redefine the aims of the institution:

> "The objective of the Bauhaus program was a modern architectonic art, all-embracing in its scope, to be achieved by exploiting forms and principle discovered through direct shop or field experience in modern materials and modern industrial techniques". (Bannister.T.C, 1954)[3].

This led to the introduction of "laboratories" to identify, test and establish "normes" or prototypes for industrial production which consequently implied standardisation.

When Hannes Meyer was appointed director of the school in 1927, further changes took place but dealing essentially with the teaching methods. He attempted to encourage the students to collaborate on specific projects rather than work individually and create what he called "vertical brigades" so that students in different years worked together and the older students helped the younger ones under the expert guidance of the master.

In 1930, Mies Van Der Rohe was invited to take charge of the school which during his time came under threat of disappearence. The school was then transferred to Berlin in 1932 as a private institution. A year later, and for political reasons, the Bauhaus was dissolved while several disciples of the movement emigrated to England and U.S.A. In both countries, the curriculum of the schools of art and architecture have followed the teaching of the Bauhaus. Consequently, we may say that today, architectural education in Europe and North America is no more than an amalgam or a combination of all those historical events and their dominant ideas.

2.1.1 West Germany:

As an illustration to this statement, it would be wise to examine the current architectural educational programmes in the chosen countries in order to give a better picture of the systems. European schools of architecture are often based in technical universities, such schools in the Federal republic of Germany are

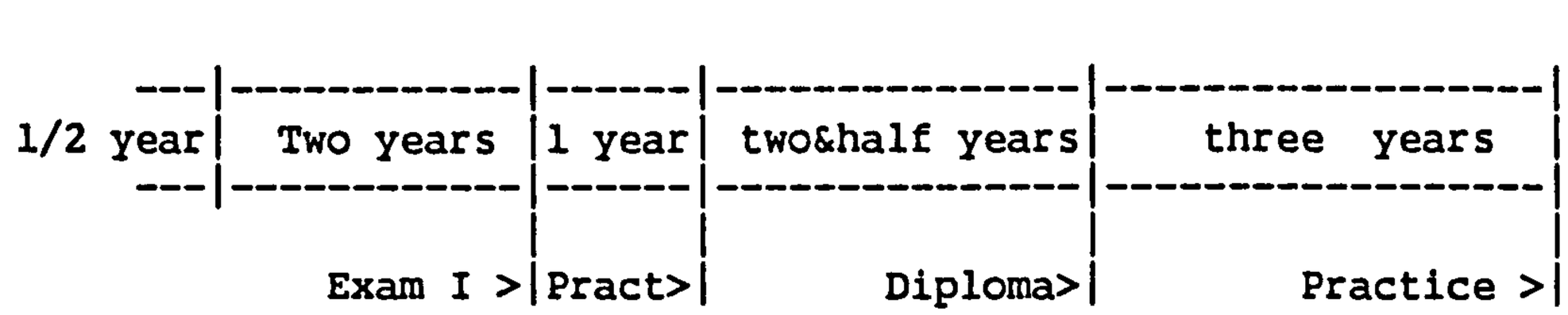
notable for the levels of technical achievements that their students'work demonstrates.

As an instance, German education and training is somewhat different from that in Britain and America.

Taking into account the early picture of the system given by Thorneley.D.G (1961)[4] it does not seem that German architectural training has changed considerably. According to the responses from several schools in West Germany, it appears that the main characteristics of the programme lie in the fact that:

1. it is purposely made simple in order to give students the possibility of extending -voluntarily or at the suggestions of the school authorities- their courses (theory and practice) to allow themselves to reach a satisfactory standard.
2. the teacher/students relationship is very strong and friendly. The professors are expected to be eminent practitioners playing the role of tutor, guide, philosopher and friend of their students.

In looking at more details of the curriculum, the programme usually consists of five essential steps:



a. Three to six months site working before beginning course. This step is not required by all schools.

b. Two years formal education leading to the first examination. The content of these two years is almost entirely devoted to lecture subjects with a minimum of drawn exercises.

c. One year intermediate practice. This period might last longer depending on the student's will and interests. Students however, are asked to provide a certificate from the office validating their practical training and accompanied by a personal report.

d. Two and half years' advanced study to diploma level, this second half of course is spent mainly in the major design projects with a considerable reduction in the number of lectures. This phase usually takes longer. Students voluntarily postpone the submission of their works until they themselves are satisfied.

e. And finally one to three years' practice though not compulsary. After the completion of the course and award of the diploma students are free to enter private practice. But most of them prefer to gain further experience (one to three years) by working in already established offices.

At first sight, it seems that there is a kind of similarity with the practical training in England. However, in practice, the total span is likely to be longer than this, which makes the candidates achieve the architect's requirements around twenty eight years of age. More often they do not qualify until much later.

It should be noted that the practical experience during the post-education period may embrace various tasks, from site work, work with building authorities, research stations, to teaching, all under a competent supervision. Thus the training arrangements for architects in Germany are showing relevant points of special interest to architect's education:

a. The unusual initial six months as an introduction to building on the site. This give a valuable foretaste of the following years' contents.

b. The most obvious advantage of placing most lectures in the first half of the course and virtually all the design problems in the second half, is that the student is better equipped with technical information and more balanced in his out look on architectural matters when he first tackles design seriously.

c. The drawn work completed during the first two years is mostly related to the lecture courses and is completed under a system of very close tuition.

d. Few topics such as advanced building construction as distinct from structural design are not included as a lecture course. Material of this sort would be a part of the early lectures in this subject. Besides, this encourage the students to rely on their own efforts to build their self confidence.

e. The higher minimum requirements for practical work compared with the theoretical courses, four and half years out of nine and the sandwiching of part of this in the middle of the

course.

f. The staff members seemed to be highly qualified with great practical experience.

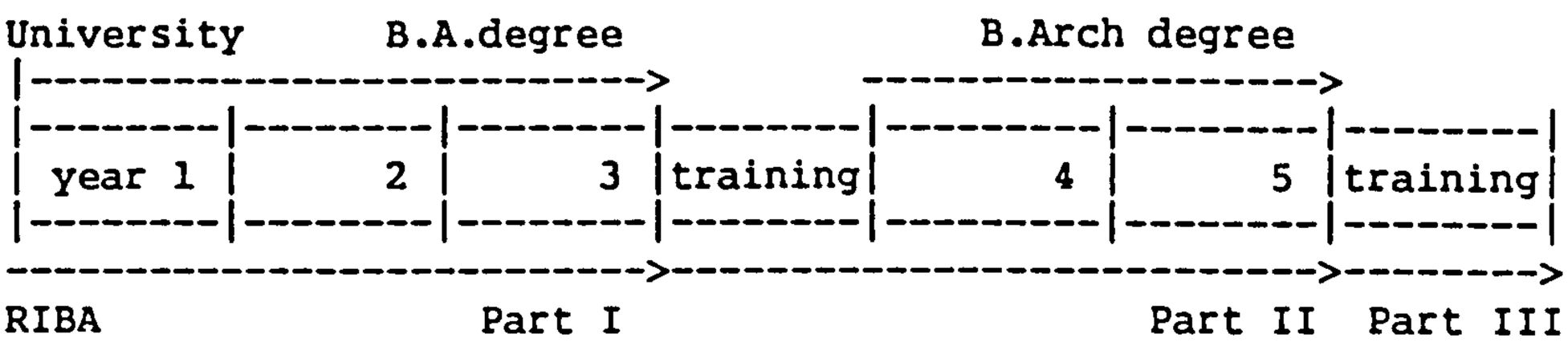
g. The supervision is of great importance, however due to the high staff/students ratio in some schools varying from 3 to 15 or more, it appeared that failure to present schemes for criticism at reasonable intervals during development would lead to the rejection of the scheme at the final presentation.

h. The higher minimum age of qualification which implies that there are no very young architects practising independently.

2.1.2 United Kingdom:

Architectural education is taught in small schools (independent or attached to universities), and polytechnics. These institutions are closely linked with the Royal Institute of British Architects (RIBA), its processes and certification. Generally speaking the schools in the United Kingdom are more consistently structured and generally more attentive to the technical details of construction than are their counterparts in the United States.

To qualify for statutory registration and RIBA membership, a minimum of seven years of higher education and practical training are required. The usual pattern is five academic years and two years of practical training.



The course extends over three years and there is an examination towards the end of each academic year. The degree of B.A (Bachelor of Arts) in architectural studies gives exemption from the RIBA part I examination. It opens the way to careers in architecture and allied activities.

Teaching is largely through studio work design projects supported by lecture courses. The aim is to develop in each student an acute awareness of all aspects of the art of architecture and its attendant technologies. In brief, a typical course would embrace theory of architecture, history of architecture, building technology, stuctures, environmental design, studio design projects with a dissertation in the third year. However, this first degree does not give any professional qualification. After gaining the first degree, students are expected to gain practical experience for at least a year outside the university. Having obtained the degree of B.A in architectural studies, the student is eligible for entry to the two year course leading to Honours of bachelor of architecture (B.Arch). The two years are supposed to prepare the students for a career in architecture by encouraging them to develop their own ideas and

special interests. Accordingly options are offered in order to make the students select their own prefered area of study. As an illustration to this, Newcastle school of architecture offers the following themes:

a. Advanced architectural design and building technology, urban and rural design

b. Advanced architectural design and building technology, professional practice, a dissertation on architectural history or design theory or science as applied to architecture.

The two years finally must be followed by a further year'practical training ended by the final examination which constitutes the full professional qualification recognised by the RIBA.

The first positive character of this scheme which emerge is the practical training. This phase which is divided into two parts is adopted in order to complete the theoretical aspect of the course. Thus twice the student is confronted with the real office making him live all the daily events of a practitioner.

Besides the practice, in some schools, such as Newcastle for instance where high importance is given to design studio, introduce more realism into the course offering the possibility of live and realistic projects within the framework of the studio. This is in fact related to the fourth year students who take part in the professional activities of the project office, a small practising office within the department.

The next most attractive feature is represented by the various links

existing among the different departments of the faculty. The results of research pursued in the building science section are fed into the undergraduate course.

Last but not least, possibilities of options are available which are choosen by students according to their own interests.

2.1.3 France:

As we know, France was the cradle of the formal architectural education owing to the birth of the Royal academy in the seventeenth century. Although the Beaux Arts educational system was for a long time the paradigm of architectural education elsewhere in Europe and United States, the French had to think for a new way of teaching architecture.

In post war, French architects continued to train under the Beaux Arts regime protected from the formal and ideological precepts of Modernism which were prevailing in British schools. But since the tumultuous events of May 1968, French architectural ideas have been subjected to some radical changes. These alterations were based on the following goals:

a. to recover the French cultural heritage,

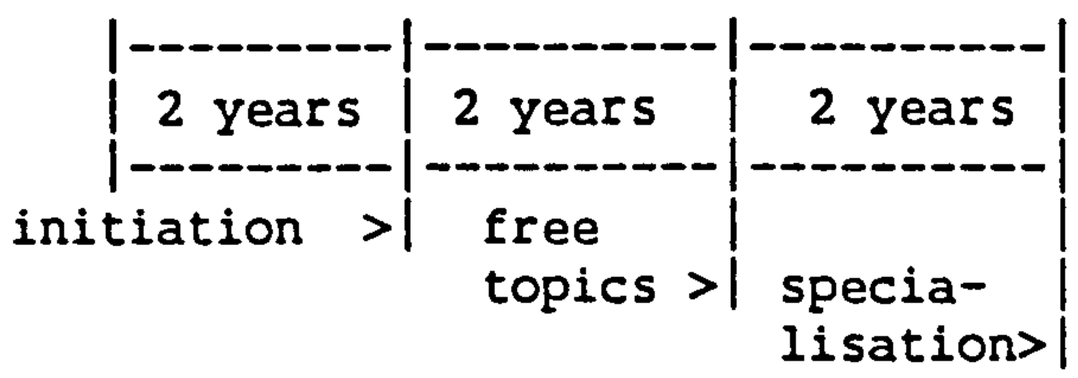
b. to re-affirm an ideological commitment to the social programmes of Modernism and

c. to build an architecture which is particular to France (Haig Beck,1981)[5].

The May 1968 students'riots led to the creation of a new system of

independent, state-financed architectural schools based on Unités Pédagogiques (UP's, eight in all), each offering programmes which addressed current concerns -ideological, formal and technological-. The various UP's each came to be recognised for their particular bias, social housing, building technology, social sciences, space manipulation...etc.

To better understand the UP's system it will be useful to take the UP6 as a sample.



The architectural education in such institution is divided in three main cycles, each cycle lasts two years while the admission to the first year requires the Baccalauréat or equivalent degree. The objective of the first two years lies in the initiation of the student to architecture with special attention given to humanities. The second phase (3rd and 4th years) where the programme is mostly specific to UP6 (art and modelling, humanities, history, building science), offers possibility of options called "free" topics. Finally the last phase (5th and 6th years) is a sort of specialisation and at the same time an initiation to research studies

while a significant freedom is granted to students in choosing their subjects.

I should point out that besides the great concern given to humanities, real projects as pedagogic means, are used in order to make the students live the position of the architect facing the different techniques and all the people's aspirations and their representative organisations.

In addition, a few study trips are included in the programme for comparison and concrete examples. However, although the programme covers the main fields such architecture, humanities, art and modelling, exact sciences and technology, little attention is given to environmental design. Above all, lack of practice seem to be prevailing.

By the end of the 1970's, one cycle of reform has given way to another. The government intervened to reconstitute the UPA's as 23 schools of architecture each following an identical framework of studies which amazingly resemble the Algerian one. Even the length was reduced from six to five years. Besides the anomalies common to the previous training, the present programme has lost its autonomy and choice of emphasis progressively substitued by a standard programme where freedom of actions is very limited[1][6].

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[1] For further details see Bernard. H (1978)

2.1.4 United States of America:

In North America for instance, the scarcity of trained architects was prevailing especially during the expansion of the young republic. Although office training, mostly under the few migrant architects, was the main method of architectural education; more formal means were soon felt necessary. Few attempts have been made, this by incorporating architecture in different schools and polytechnics but without success. It was only by 1866 when the Massachussets Institute of Technology established the first autonomous course of architectural instruction. The first classes started in september 1868 (Bannister.T.C,1954)[7] followed by the university of Illinois, then Cornell university in 1871 and Syracus university in 1873 (Knowles.A.S)[8]. The curricula of these early schools based on four years, aimed at a just balance between the aesthetic and technical aspects of architecture.

With the fall of the Bauhaus under the Nazi stress, many of its representatives emigrated to England and the United states making American architectural education undergo major changes where until recently most schools of architecture taught introductory basic design courses inspired by the Bauhaus model.

At the present time, there are about 97 schools of architecture in the U.S and Canada using three main basic types of education which lead to an accredited degree in architecture:

a. Five years programme,

b. "4+2" programme and

c. graduate programme.

Students in five years schools usually enter directly into the architecture programme during their first year of college and concentrate their major attention on architecture throughout their studies.

Combination "4+2" programme provides a more general undergraduate education programme with a major professional programme in environmental design followed by an intensive two year graduate programme in architecture. The first school to adopt this scheme was the university of California at Berkeley in 1968 (A.C.S.A, 1973)[9]. The degree is called Bachelor of Environmental Design. This alternative was, however, not totally accepted by all the architectural educational institutions. A number of schools prefered to stick to the five year B.Arch programme followed by a year or two of graduate work towards a Master's if desired.

The other formula is mostly offered to students with a college degree who have not previously studied architecture and can enroll in some schools for a full programme of study in architecture generally for three or four years. This is the case of Harvard, Carleton university (Canada) and Cranbrook academy. Graduates of accredited schools of architecture then have to go through a two or three year period of internship before being considered for professional registration in the States and national certification by the National Council of Architectural Registration Boards (N.C.A.R.B).

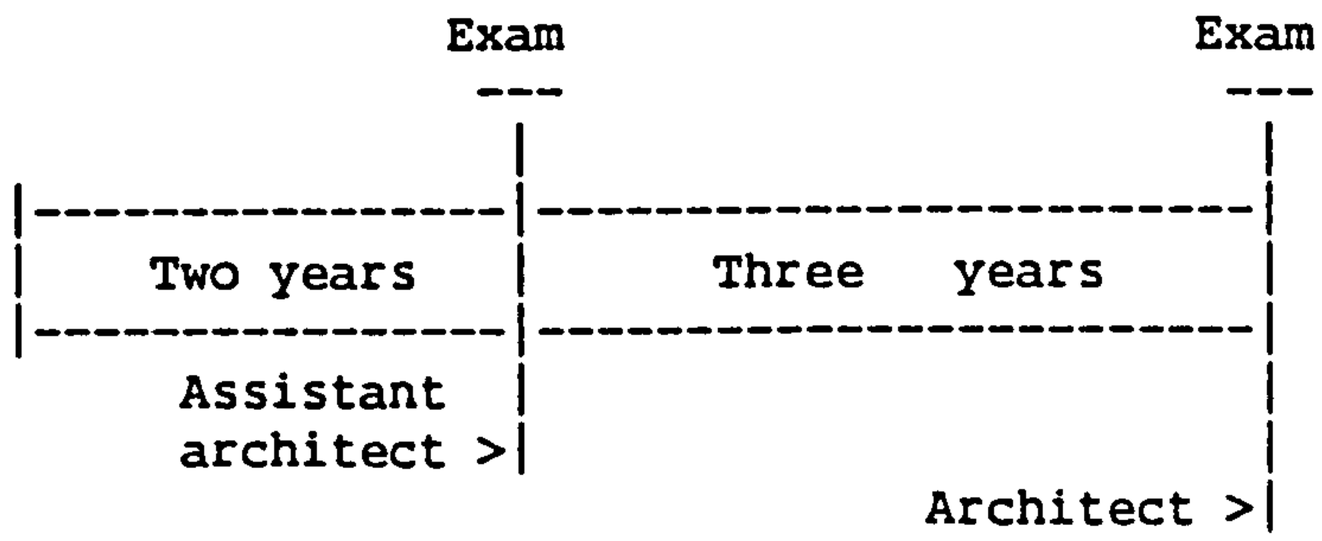
But in the early sixties, another version of training architects

similar to the pattern of medical studies, emerged and known under the notion of clinic. The movement which was more related to urban problems and architectural design, began by the creation of community design centres. As non-profit institutions, their role was mainly to provide architectural and planning services to the disadvantaged. The idea developped further and the clinic was integrated to the school of architecture if not related to it. This gave students the opportunity to work on real projects with real clients and often get paid for it. Thus this concept is not just providing useful services to the communities in need but supplying students with better and more realistic education. Although this notion presents several advantages it does not seem to be willingly shared by all architectural educators. But this attitude does not however, invalidate the valuable idea which underline it.

Schools in the U.S represented by the the Association of Collegiate Schools of Architecture (A.C.S.A), have guarded their diversity of approach, reckoning that their ability to meet new challenges to the profession is lodged in their independence of thought and responsiveness to total conditions.

2.1.5 Belgium:

The example of the Institut Superieur d'Architecture, Saint-Luc, Bruxelles, may be relevant for a special point.
The curriculum is in fact a reflection of the typical five years programme leading to the grade of architect.



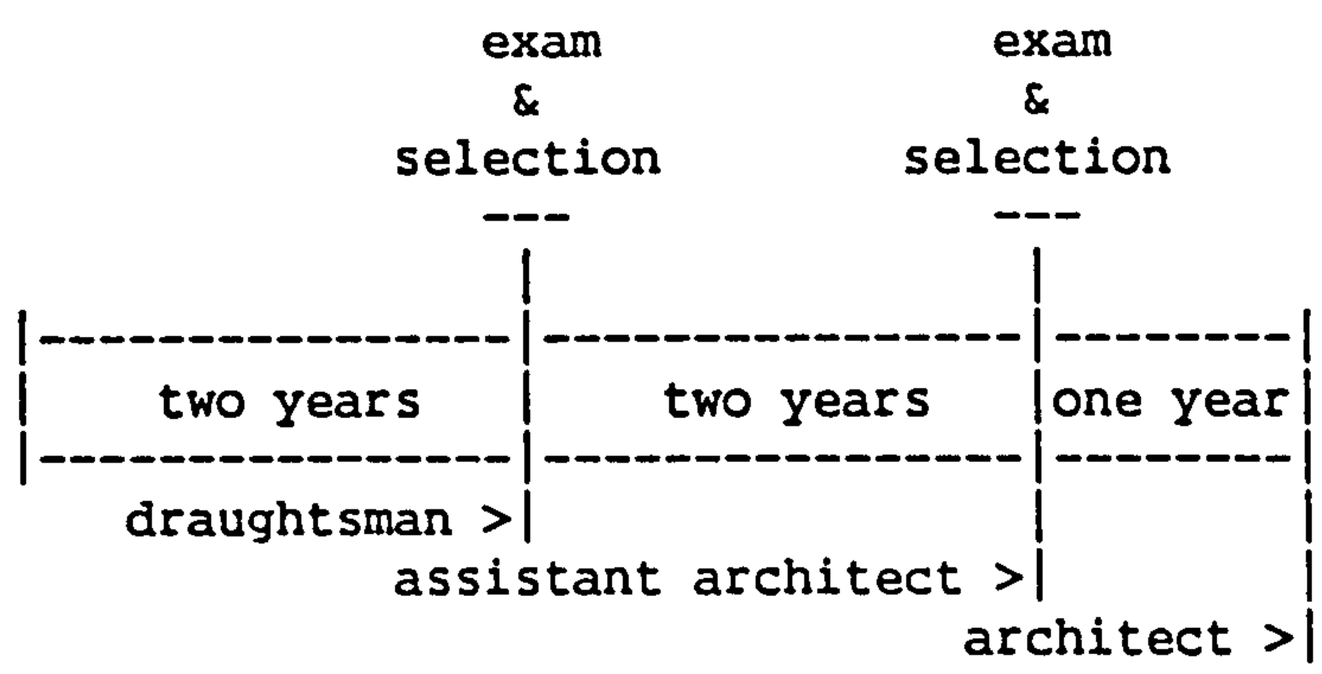
I wish to take the opportunity to show that in order to tackle the lack of practical training, an attempt has made by introducing in the final year special topic called "economic science of the professional practice". This title includes in fact law (related to architects, building regulations, housing law...etc), ethic and management. In my opinion, this could not represent the real atmosphere of the office. Students must undergo the live procedure in order to be confronted with the actual and various situations which would be the stimulus for adequate initiatives. Thus, this method could not be efficient. It may be used briefly as an introductory theme for the complementary office training which is more than advisable.

Nevertheless, a positive point should attract our attention. The training may offer intermediate degree (assistant architect) for people who are not able to carry on their studies. However a chance is given to those students to reach the final degree at any time they wish.

2.1.6 Eastern Europe:

To complete our survey, a look at architectural education in Eastern Europe would be useful.

Architectural education in this region and the Soviet Union is linked to practice in government agencies and is followed directly by a period of government service. As a sample, Roumanian architectural schools have a programme which leads the students through a sort of competition allowing only the best students to go through to the final phase of study ended by the degree of architect.



At the end of the second year a minimum (respectively high) standard is required. Those who fail to reach the desirable level of efficiency have to leave the school holding therefore the degree of draughtsman. At the end of the fourth year another selection takes place and only the brilliant students go through the final stage which leads to the architect degree. The remaining students are

rewarded then with the degree of assistant architect.

The programme which is mainly based on technology, favours in a way the creation of an elite although the argument is supported by the idea of the quality of the graduates. This system in my opinion would have been more interesting if there were any other chances for the draughtsman or the assistant architect to catch up with the other phases of the programme after showing further abilities.

2.1.7 Relevant points to be considered:

Schools of architecture in the various countries differ considerably in size, standard of technical competence and projected roles for graduates of their programmes. Nevertheless, this brief review of what is done in Europe, U.S.A and Eastern Europe suggests a number of points which should be taken into consideration whether for the improvement of the training of the Algerian architects specifically or for suggestions to other developing countries. the features of particular interest are:

1. the early introduction of live experience
2. the concentration of lectures at the beginning of the course while design is tackled later
3. the practical training
4. the sandwich arrangement for practical experience and study
5. the more realism in the training by introducing live projects
6. the need for qualified staff
7. the appropriate staff/student ratio for better results

8. the motivation of the students

9. the importance of environmental design and humanities

10. the strong links between the studio work and related topics

11. the relationships between different departments

12. the possibilities of options at a certain level of the programme leading to:

13. the specialisation and research

14. the possibility of intermediate degrees

2.2 ARCHITECTURAL EDUCATION IN SELECTED DEVELOPING COUNTRIES

Schools of architecture in the Third World have been generally based on the prototype of the colonial system of which they have been part and often staffed by faculty who have studied in the UK, France USA and other countries. Although local educated people are encouraged to substitute foreigners, still the former are often the products of these systems.

There is no doubt that present day architectural education in developing countries is strongly related to history and indeed many of the schools in this part of the world are still applying the curricula introduced a long time ago. Although programmes whether in Europe or in the Third World are being questionned, very few attempts are made in order to make the training of architects adapted to the present day realities and future developments.

> "schools of architecture and physical planning have been closely modelled on, and often maintain affiliation with those of Europe and North America, but do not appear to have come

to grips with the unprecedented task that face them in their own cities" (Wakely.P, 1976)[10].

These attempts, which were mostly the fruit of foreign expertise, were intended to re-organise architectural education so as to be more in line with local socio-cultural and environmental contexts, hence creating significant similarities with european tradition and maintaining western architectural ideas.

In countries like Syria or Lebanon for instance, where the French colonial influence was dominant and even in Turkey or in Egypt where this influence prevailed on a cultural level, some architectural institutions were organised following the Beaux Arts principles. However, in the case of Algeria and Tunisia where the links are even stronger, the new UP's[1] version with slight modifications is adopted. As another model, commonwealth developing countries were previously (and are at the present time in some cases) totally dependent on the mother country for the education and training of their architects and planners. Thus the course in these countries were by and large English in conception.

The oil-rich Moslem countries in the Middle East as a further example where manpower are lacking, implemented architectural educational institutions in accordance with imported western models.

However, with the intention to illustrate these statements, I intend to look more closely at specific and concrete examples which will hopefully help us in our quest.

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[1]Unité Pédagogique.

2.2.1 Thailand:

The architectural education in Thailand although old enough comparatively to other developing countries, does not seem to be responding to the country's real needs. After being established first in 1930 within the National school of arts and crafts, it underwent few modifications related mostly to the length of the curriculum -from three years programme leading to a diploma to a five years study rewarded in the end by the Bachelor of architecture degree. Then by the fifties further alterations took place but this time concerning mainly the content. The programme changed forsaking the Beaux Art principles for the modern architectural educational model.

Despite the great and desperate call for appropriate and more realistic training especially in the Third World countries, no efforts were made to upgrade the programme accordingly. The programme as we may notice is mainly based on technology and Arts and obviously presents several anomalies:

1. small attention is given to economics and environmental studies which are considered as elective subjects.
2. Too much emphasis on technology while indigenous and appropriate methods of construction are neglected.
3. Lack of live projects and use of unrealistic design programmes based on fictitious briefs.
4. Almost all projects emphasise urban location often serving elite groups.

5. A timid attempt to establish a practical training which only lasts 30 days.

One positive point, however, may emerge and represents the little concern about the local architecture which is included in the architectural history framework. Even though, the four hours per week allocated to this purpose is far from sufficient for all the related aspects which are supposed to be tackled.

2.2.2 Sudan

At the university of Khartoum, the curriculum which lasts five years, integrates relevant useful and realistic topics related to rural community developments and small town amenity-building. Besides, students are taught to be aware of their cultural environment with more appropriate solutions to the country's needs. This is achieved through, climatology, environmental studies generally comprising an introduction to sociology with special references to the living habits in Sudan. In addition, Islamic art and architecture are given in the architectural history course.

Similarly to Belgium, an introductory course on professional practice is offered though it does not reflect the real image of the office.

2.2.3 Malaysia

The programme of the department of architecture, faculty of built environment, university of technology, Kuala Lumpur, presents some interesting features. The aim of the programme is to give students a technical background and a training encouraging the personal creative ability with great consciousness of the cultural heritage and the changing needs of the built environment.

Another point which should attract our attention, is the incorporation of religious studies during the first two years.

However as far as the practical training is concerned, it is given enough consideration illustrated by the compulsory office training at the end of, respectively the fourth and final year. Although the practical training seem to be taking place late in the programme, it has in fact a double objective: to provide the students the opportunity to live the real professional prerogatives involved in the process and at the same time to supply competent technical assistance for various government and semi-government agencies.

In addition, and in order to respond to the demand (which is not adequately met) for semi-skilled technicians, the university training programme is geared not only to meet the urgent request for architects but for technicians as well. Students leaving at the end of the third year will obtain the degree of technician while those who leave at the end of the fourth year are allocated the degree of a technical assistant.

2.2.4 Libya and Saudi Arabia

Muslim countries did not escape the West's varying and conflicting views and interpretations on architectural education. These concepts were transfered to the Muslim World simply because the West has been asked to design or develop educational programmes for Muslims too.

In some cases, efforts have been made to reach appropriate programmes by introducing topics related to the countries'culture and religion. This has led to a sort of hybrid conception which is certainly not fully efficient. This could be met in the case of King Saud University where the curriculum emphasises Islamic culture strengthened by few credit hours allocated to history of Islamic architecture in order to make students more aware of the cultural and religious contexts. Eventhough, contradictions with what has been done in design studio and other related topics are prevailing. Modern architecture (or western) as solutions are proudly exposed as students'achievements. This attitude is probably due to:

a. the inefficiency of the teaching method which has led the students to misunderstand the aim -which is to evaluate the past and present and illuminate the future for further human endeavours in the field of art and architecture- behind the Islamic topics.

b. the fact that these young people are not acquainted enough with their own native country or familiar with their own history and culture.

c. the programme (imported) which concentrates strongly on the most advanced technology making the students eager to express themselves and their skills through irrelevant sophisticated buildings.

This explain clearly the present state of the built environment in Muslim countries.

> "In our countries Islamic architecture is dead and Islamic town planning non-existent. Our overgrown urban centres repeat every mistake and shortcoming of the European city which underwent the industrial revolution two centuries ago, as if we are utterly incapable of learning from experience of others. Our homes, our furniture and arts decoration are hotch-potch of all styles, betraying our confused notions of who and what we are. In short, despite all claims to the contrary, to the extend that he westernised himself, the Muslim has in fact barbarised himself. His life has become a conglomeration of styles, discontinuous with his past. He has made of himself something neither Islamic nor Western, a cultural monstrosity of modern times"
>
> (Isma'il Raji Al Farouqi, 1982)[11].

An additional component which on the contrary should be encouraged is the link between architecture department and the building sciences and the integration of computing services to strengthen and enrich this liaison's purposes.

As an example the Libyan programme, which is once again a perfect image of the imported five years prototype, does not unfortunately involve enough credit hours devoted to social, economic factors and religious studies.

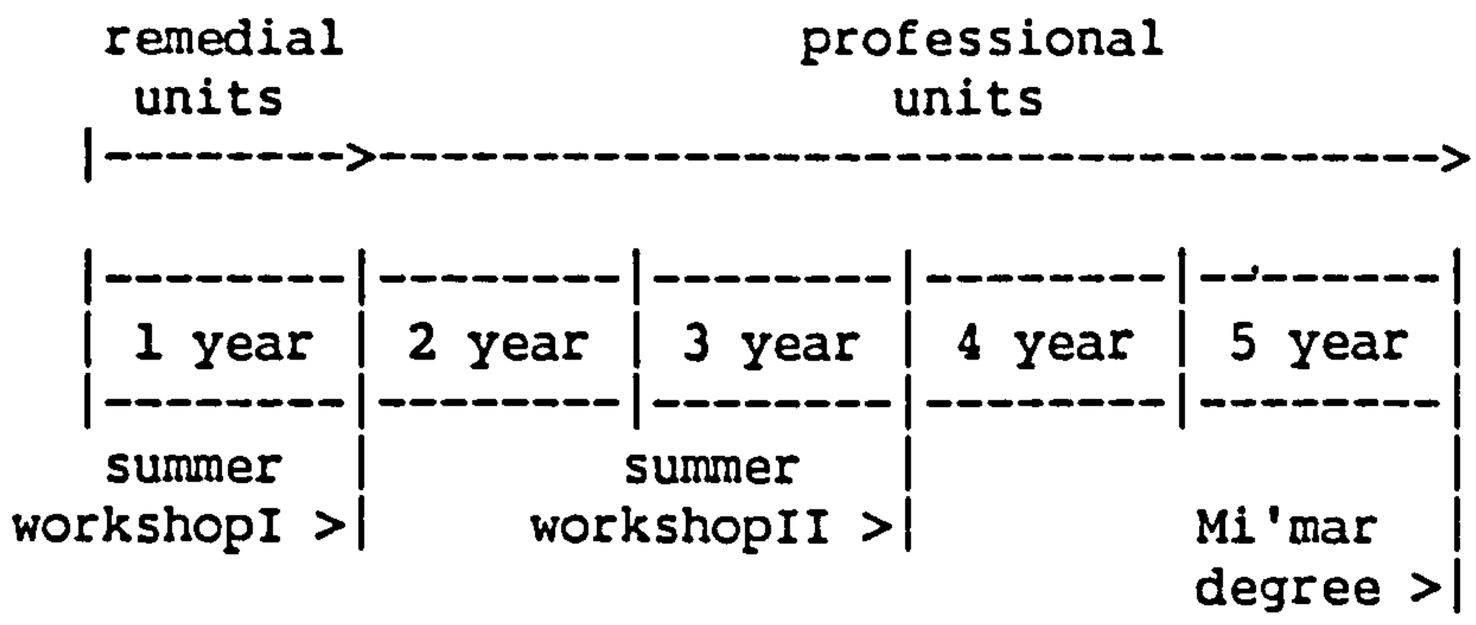
As a further criticism, although attention is paid to environmental control, this aspect is not directly related in any design studio, where such important design criteria could be applied on a project as

an exercise. Besides, it seems that there is no relevance in the hierarchy of the themes taught at different levels of the programme. As an illustration, environmental design should be introduced earlier as a component basis for the design process instead of introducing it in the third year where habits (routine) are already adopted by students.

However in both cases (Libya or Saud Arabia), practical training is absent and all the design exercises are concentrating on urban intervention.

Because the environment of the majority of Muslim countries and especially in the Middle East has been so negatively affected by the international architecture which is blindly seen as progress and modernism, a fervent demand for an environment more realistic and appropriate is generated.

One of the most striking examples representing accurately this enthusiasm is the school of Umm El-Qura (Mecca, Saudi Arabia), where the programme is re-adjusted in order to make it respond to the religious and social needs of the Muslim human being and suitable to the cultural and economic circumstances and potentialities.



The programme as shown above, lasts five years and is, in short, based on the unquestionable principle of Islam as a faith, as a system of thought and as a way of life over the whole area of action in the shaping of the built environment. Consequently Islamic sciences (Fiqh, Acquida, Din, respectively, economic jusrisprudence, system of belief, religion) are conveyed to students in formats designed to strengthen their belief to the principle enunciated precedently. With the Arabic literature, the Islamic sciences are taught in Arabic while the other technical fields are in English. This could be in a way an advantage before any process of arabicisation takes place, in terms where students still practise and improve continuously their mother tongue rather than concentrating essentially on foreign languages which might lead systematically to the impoverishment of the local language and the dependence on foreign literature. Of course, translation of documents is essential to encourage the implementation of a fully Arabic education.

The first year (remedial units) mostly consists of lectures introducing basic architectural vocabulary and its related meaning. Design studio is implemented in the following years (professional units) tackling therefore a variety of subjects different in scale and area (urban and rural).

As positive components which I suggest should be supported in setting up any proposals for architectural programmes, the following points are to be mentioned:

a. the involvement of students in live projects (semestre nine)

b. the concern for rural areas as a field of intervention

c. the introduction of crafts workshops (stone carving and plaster, pottery and ceramic,caligraphy...etc)

d. vernacular architecture is taught within the framework of architectural history

e. the introduction of management courses

f. the use of computing facilities for surveying, building sciences, graphism ...etc

To tackle the problem of practical training, two summer exercise (first and third year) are articled. In fact they do not reflect the real office atmosphere and responsibilities, as we understand it. The eight weeks allocated to each summer workshop deals with a selected site where site surveys, description and analysis of the elements of built environment and evaluation of qualities inherent in that environment are incorporated. The content is in reality a completing exercise to some theories and lecture given during these first years. Thus a practical training in appropriate institutions (offices, schools) is needed. A second disadvantage within the boundries of the programme, reveals the strong concentration on Muslim architecture history under the title of evolution of the human history. I do agree that an important amount of time should be devoted to this issue but on the other hand, cross-cultural and regional investigations could be fertile and necessary as one of the basic students'tools.

2.2.5 Architecture and civil engineering department: university of Malta

As a partial response to almost all our questions and aspirations, the Maltese architectural and civil engineering training is most suitable in principle. The programme is based on the student-worker concept aiming to provide apart from academic training also practical experience.

The present course is spread over seven years, each year being divided into a semestre of five and a half months study followed by one month vacation and another semestre of five and a half months work related to the previous academic training.

The content of the programme is set up in a manner to make the students at the end of their courses, respond to the requirements of an architect and a civil engineer at the same time. Topics are divided into two main streams: architecture and civil engineering.

There is no doubt that an architect should possess knowledge on the various engineer's tasks. However it seems to me that Maltese architectural students are too much conveyed into details of the engineer's prerogatives, while some themes which are vitally important for an architect seem to be given little attention such as social and economic factors which in the present case are understood as the engineer's concern. In fact the whole programme appears to be unbalanced towards the training of the engineers rather than the architects.

However among the desirable characteristics of such a scheme which I wish to draw attention are as follows:

1. The introduction of practical training through the whole seven years.
2. The provision of complementary courses to architecture such as:
   a. urban design and town planning.
   b. landscape architecture.
   c. restoration works.
   d. technical report writing.
   e. professional practice courses.
   f. building quantities and contracting.
3. The close relationships between different departments strengthened by common basic courses for students from different departments. This allow the appreciable contact between different profession.

However it is felt that courses in town and rural planning and landscaping do not have enough impact on students. Therefore it hoped that the intensive training involved in the student-worker scheme should give ample opportunity to students to specialise in these fields.

Another interesting point is the fact that students who join the course have to be sponsored by an employer (government or private industry). The sponsor pays the students according to the government fixed rates (which are on a rising scale) during the whole period of the course. This attitude will in fact, avoid any possibility of material concurrence among the employers. Once the course is completed the graduate will work for their sponsors for a minimum of two years. The sponsor who employs the students assesses their

progress during the phase of work in cooperation with the department. In addition, this policy is planned to meet the demand being created by a constantly expanding industry to fit in with the facilities available in the light of the overall national resources.

Further more, the present system ensures, as far as possible, that the prospects for employment become immediately available and make safe the accessibilty of tertiary education to all by the introduction of allowances (in the form of regular salary) to students enabling them to obtain financial independence and/or contribute to their family budget on commencement of their university studies.

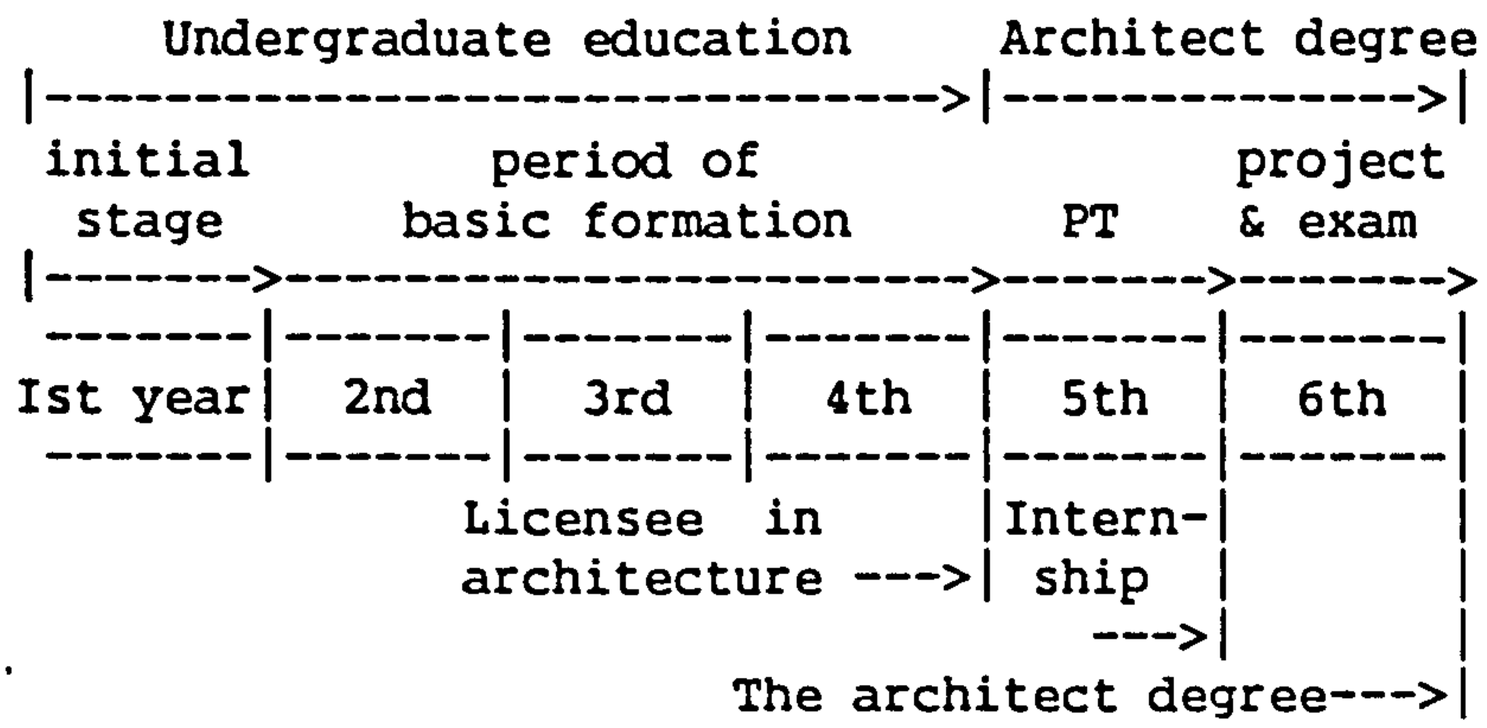
2.2.6 Faculty of architecture and urbanism: Chile

According to the prospectus of the university of Chile, the root of architectural education goes back as far as 1849. From this date up to 1857 the subject of architecture was then created as an autonomous course depending on the mathematics and physics faculty with a plan of three years study.

In 1858, architecture was taught in the university department of the National Institute (Institito Nacional) under the Beaux Arts principles. In 1896, teaching architecture (three years) was back under the responsiblity of the faculty of mathematics and physics.

In 1900, the faculty of architecture and urbanism was created offering a course of four years enlarged with a basic compulsory year. This system was officially approved and adopted in 1918. To

satisfy the modifications in teaching methodology required by students and teachers, a further six year course was implemented. A final alteration did occur in 1984 in response to the internal modifications and conform to the new university law. The present programme could be illustrated as follows:



The training then lasts six years divided into two main parts:

1. the undergraduate education: represented by a period of four years leading to the degree of a licensee in architecture. For the educational purposes, the school is made of basic academic units refered to as chairs. These units are shown as study units orientated to a specific discipline. There are six chairs (architectural design chair, composition chair, history and theory of architecture chair, urban design chair, structural design chair and construction technology chair) and they are the basis for all the subjects of the architectural studies.

2. the architect degree: comprising two years. One (the fifth) related to a practical training which intends to verify the academic training that the students has received during the stage of basic formation. This period is spent in one of the five professional offices gathered in the External Project Centre within the faculty. Students therefore participate in live project under the supervision of the chief architect of the corresponding office.

On completion of this stage, the student starts working for the obtention of his degree (sixth year). This final stage is devoted to the development of an architectural project under the form of a thesis under the guidance of a tutor. The project is evaluated in final examination which will entitle the student to the architect degree.

The curriculum seems to give the necessary subjects to form the architect and those which are part of the integral university formation. The positive features which emerge from such alternative are:

a. The first year which aims to detect students who have better and greater capabilities for the profession and to provide the foundations of the academic professional knowledge.

b. The study of Chilean and Latin-American architecture through the whole fourth year.

c. The options offered during the third and fourth year where students may develop their knowledge in the area of their

interests.

d. The integration of the year practical training before the final year.

e. The provision of live project office belonging to the faculty. This will allow a more effective control over the type work done in the office, the student and its progress.

f. The extra activities of the faculty. Apart from the educational work, the faculty or its components establishes connections with the community with very different objectives such as the divulgement of its studies and research, rendering of services to public and private institutions, cultural extension and, what it is very important for its own renewal and redefinition of its task, the detection of the sense of expectations that such community seeks from their future graduates.

On the other hand, however, a few anomalies would appear:

a. The programme concentrates heavily on technology.

b. Exercises used in the design studio are mostly urban intervention.

c. The fact that each chair is responsible for a special field gives the impression that there is a rigid separation between these chairs which will not give the student the overall balance needed through his exercise.

2.2.7 Summary

Through these few examples of the Third World countries which I hope illustrated the major point of our main concern, the following positive attitudes should be promoted:

a. social studies directly related to the living habits of the country
b. awareness of the vernacular architecture, its social and economic impact, its technology and history
c. Islamic architecture, arts and crafts (for Muslim countries)
d. introduction of projects related to underpriviliged urban and rural communities (especially housing)
e. necessity of live projects
f. integration of practical training as an essential complement to the course aiming to involve students not only in the real office atmosphere but to participate in the country's economy
g. management courses
h. computing
i. possibility of training students for lower degrees (draughtsman, technicians) within the same department
j. work in cooperation with other departments (building science, arts, engineering..etc)

2.2.8 Conclusion

Quite clearly it is admitted in most cases concerning developing countries that architectural education has been derived from the richer countries and consequently must be questioned. As far as we know that the architect must be aware of all the economic and social forces operating in his country and must be provided with a comprehensive knowledge of local technology and materials, the educators should take into account all the essential factors cited above. There is no need to copy blindly western programmes in order to catch up with so-called Modernism. It is wise of course to take into consideration European schools'evolution and achievements as experience rather than a model.

CHAPTER 3

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CHAPTER THREE

COMPARISON WITH OTHER PROFESSIONS

3.1 INTRODUCTION:

Because of our concern and the intention of improving the training of architects in Algeria in particular, it would be appropriate at this point to investigate the training arrangements of other professions which might be taken as examples for suggestions to make the current architectural programmes more consistent and effective.

Although most architects are usually not very keen in drawing parallels (training, role, status...) with engineers, it seems that such comparison is more than obvious and necessary. The aim is to identify the possible similarities and differences and to discuss the existing current problems which lie between architects and engineers. A second comparison which appears relevant is with medicine. Besides the great prestige -which became a myth in my country- allocated to medicine, the training of doctors has methods which are of special interest in the context of our enquiry.

Further comparisons with planners could be in a different manner very useful.

This chapter is therefore devoted to describing some of the most relevant aspects of the systems of training related to these

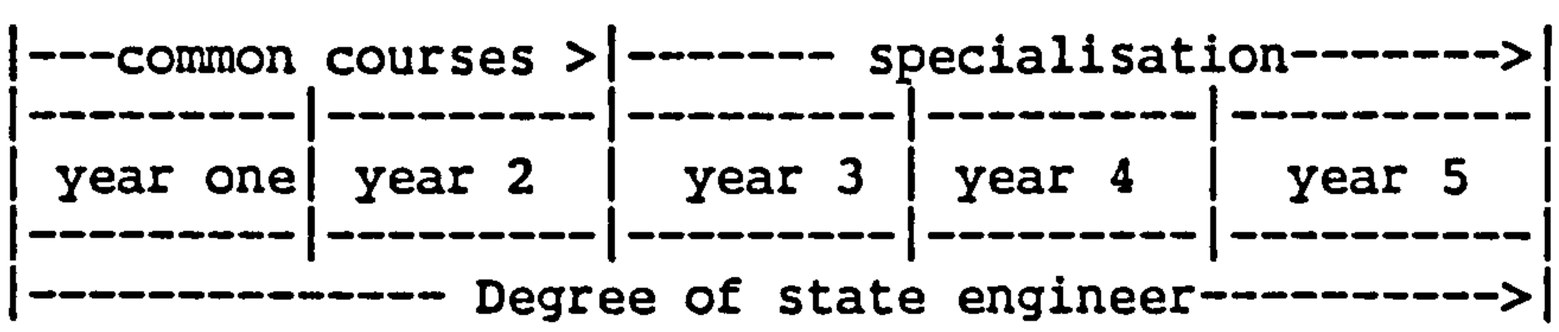
professions with a glimpse of their history, role, eventual involvements and conflicts with architects.

3.2 CIVIL ENGINEER:

Opposed to the architect as a "universal man" who exploits his own specialisation and those of others to meet individual, social and cultural needs, the engineer usually operates in narrow fields (environmental physics, building materials sciences, structure in building, industrialisation of production ... etc) in which he is specialist and where his task is mostly based on formulae. This statement will be further detailed later.

In most developing countries and Algeria is a case in point, civil engineering schools are facing specific difficulties. Most of these institutions are newly established but developing rapidly. Similarly to architecture, these schools depended and in some cases are still depending on foreign expertise. Generally speaking the indigenous engineers who are now in charge of training the new students are young and have not yet gained a wide enough experience. Although the training of civil engineers in Algeria in its turn might need revision it would not be relevant to my study. However a brief description of the training process would be useful.

The formal education of civil engineers in Algeria is based on two main cycles.



The first cycle comprising two years represents the common basic knowledge for all types of engineers.

The second cycle which lasts three years is allocated to specialisation where orientation takes place. At the end of the second year of the first phase, the students are therefore oriented towards their future profession as civil engineer, mechanical engineer, electronic engineer...etc.

In the case of civil engineering, the second phase comprises the topics shown on table 1.

The first impression which one can express is that very few design exercises are scheduled. Within the first part of the academic training, the only two topics allocated for this purpose are FEN 101 and FEN 187 which in fact are dealing essentially with the basic tools of design such as drawing and graphics. The second part comprises three themes in semesters 6, 7 and 8 where students are taught how to represent different parts of a building in plan, elevation and sections with little concern for space organisation. The project dealt with in the final year is more related to civil engineering purposes rather than architecture. Thus Algerian civil engineers do not seem to have an appropriate course in architecture .

NO	Code	INTITUTLE	VHS	PRE - REQUIS
5	FEN102	RESISTANCE DES MATERIAUX I	90	M 020
5	FEN103	THERMODYNAMIQUE	75	M 012-M 020-P 001-C 002
5	FEN105	ELECTROTECHNIQUE GENERALE	90	M 022-P 002
5	M 004	PROGRAMMATION	45	NEANT
5	M 017	INTRODUCTION AUX PROBABILITES ET STATISTIQUES	60	M 002
5	M 023	MECANIQUE II	75	M 020-P 001
6	FEN104	MECANIQUE DES FLUIDES	60	M 001-M 012-M 020-M 022-P 001
6	FEN120	RESISTANCE DES MATERIAUX II	90	FEN 102
6	FEN121	TOPOGRAPHIE	75	NEANT
6	FEN122	DESSSIN DE BATIMENT	60	FEN 187
6	M 018	ANALYSE NUMERIQUE	60	NEANT
6	M 034	STATISTIQUE	60	M 017
6	E.G	ECONOMIE GENERALE	60	
7	FEN129	RESISTANCE DES MATERIAUX III	90	FEN 120
7	FEN130	MATERIAUX DE CONSTRUCTION	30	NEANT
7	FEN131	MECANIQUE DES SOLS I	90	FEN 104
7	FEN133	BETON I	60	FEN 120
7	FEN134	BATIMENT I	60	FEN 122
7	FEN211	GEOLOGY		M 034-P 013-C 017
7	FEN132	HYDRAULIQUE GENERALE I	60	FEN 104
8	FEN135	BATIMENT II	60	FEN 134
8	FEN136	CONSTRUCTIONS METALLIQUES I	75	FEN 120
8	FEN137	ROUTES I	45	FEN 130-FEN 131
8	FEN188	MECANIQUE DES SOLS II	60	FEN 131
8	FEN189	HYDRAULIQUE GENERALE II	75	FEN 132
8	FEN190	BETON II	75	FEN 133
9	FEN124	BETON III	105	FEN 190
9	FEN125	CONSTRUCTIONS METALLIQUES II	75	FEN 129-FEN 136
9	FEN126	ROUTES II	45	FEN 137
9	FEN127	AMENAGEMENT HYDRAULIQUE	90	FEN 188-FEN 190
9	FEN128	PONTS	90	FEN 129-FEN 136-FEN 190
10	FEN123	ORGANISATION DE CHANTIER, STAGE ET PROJET	45	

Table 1: Present civil engineering programme in Algeria

to an awarness level which might guide them in their exact collaboration in the design process and the importance and role of the architect.

Another characteristic of such training which is common to most developing countries, is the lack of practical training which is prevailing. In the case of Algeria, a short period (four weeks) between the two final semesters is dedicated to this goal. To augment this practical need, a few visits to sites are programmed through the second cycle though not sufficient to illustrate the complexity and expected role of the engineer.

As another example, training civil engineers in England is most pertinent. From a personal interview with Dr. Anderson -department of civil engineering, university of Newcastle- it appeared that professional qualification (see table 2 & 3) is based on a programme including an academic education lasting three to four years (full time) -with a desirable sandwich year in practice though not compulsory- followed by varied practical industrial training.

The academic programme which leads to two possible degrees, comprises in the first year a wide range of civil engineering subjects including a study of civil engineering materials, the mechanics of fluids, surveying and theory of structures.

the second year is more design-oriented and includes the design of civil engineering works and further studies of materials, soils and hydraulics. As a complement, study of mathematics, engineering

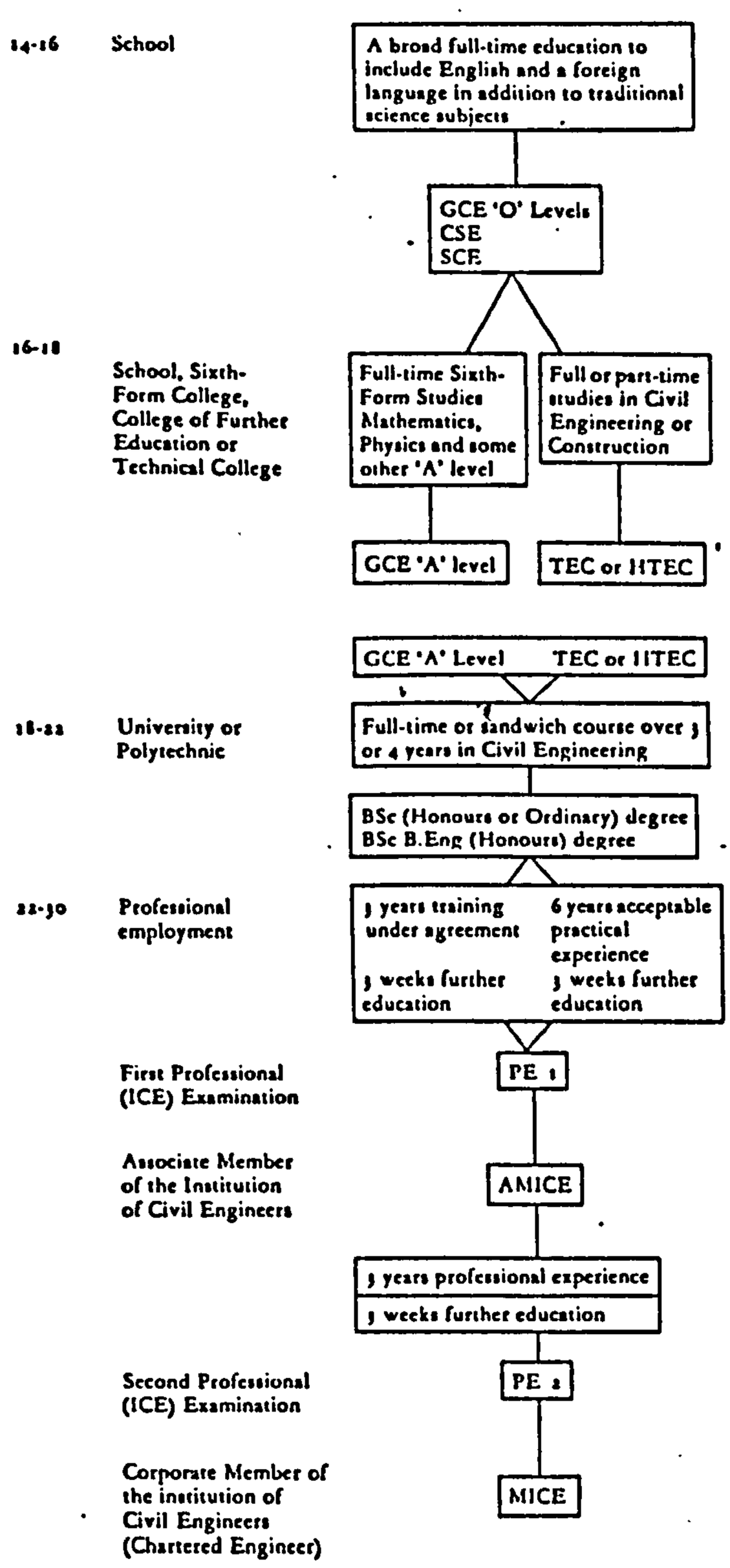


Table 2: Education, training and professional examination

Source: Civil Engineering prospectus,
University of Newcastle upon Tyne, pp 4-5.

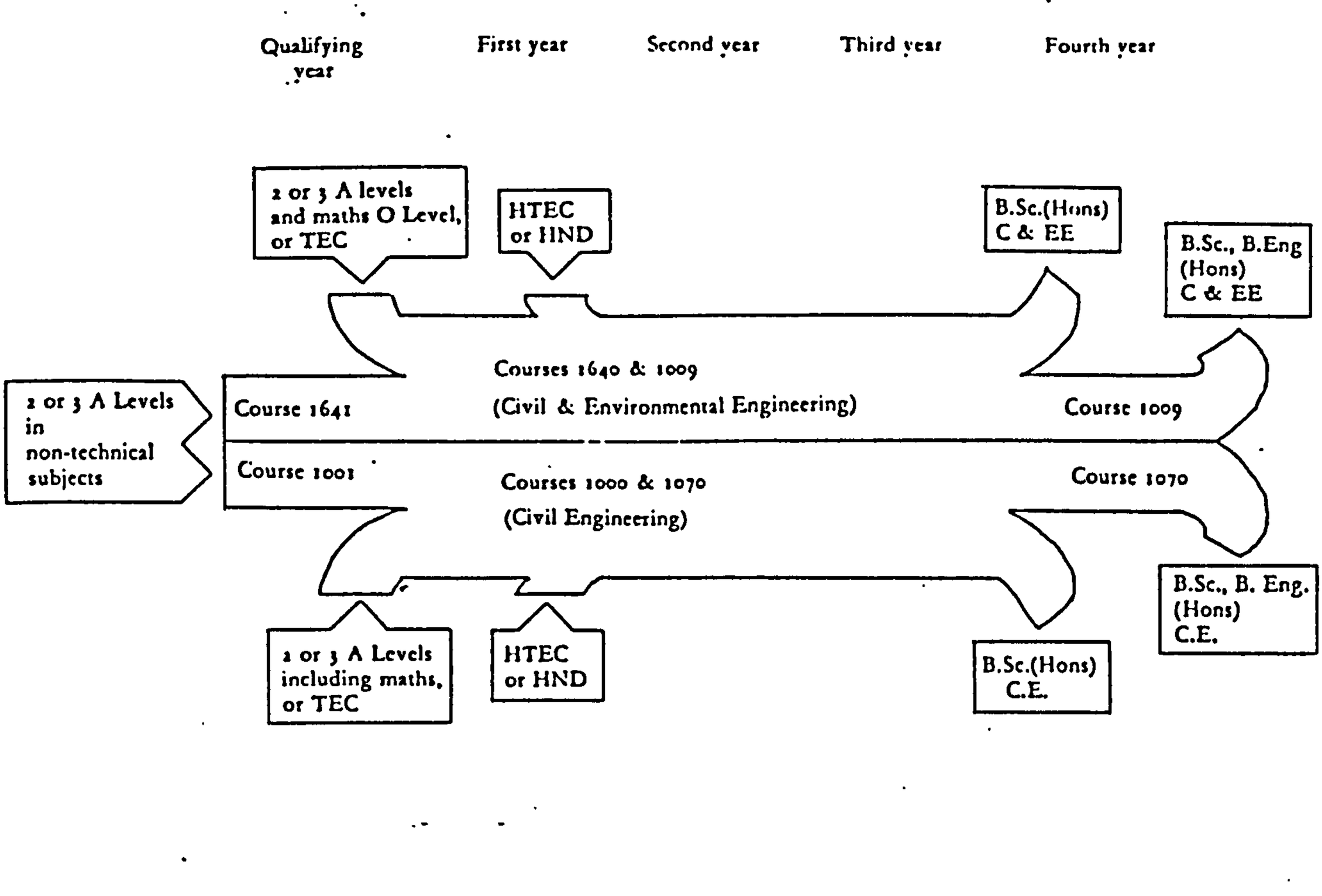


Table 3: Requirements, courses and qualifications

Source: Civil Engineering prospectus,
University of Newcastle upon Tyne, p 10.

geology and theory of stuctures are provided.

During the third year all students will continue studies in the "core" subjects of structural, geotechnical and hydraulic engineering. At the same time introduction to economics and civil engineering practice takes place. At this stage, options as future specialisations are offered:

1. computer-aided design
2. geotechnical engineering
3. hydraulic engineering
4. public health
5. structural engineering
6. transport engineering.

At the end of this phase, students are awarded the degree of B.sc in civil engineering. I should point out that throughout all years, project design work, laboratories, and fieldwork are supposed to play an important role.

After a selection, depending essentially on the standard of the trainee, students admitted to the four-year B.sc, B.eng (hons) will be having courses on techniques of projects engineering and man-management as well as civil engineering practice and engineering economics. Advanced analysis and design within the chosen optional speciality are included and each student would carry out an industrially oriented project.

From this brief description of the different stages of the civil engineer's training in Newcastle (U.K), a few interesting points could be noted:

1. the possibility of introducing an early optional practical training within the first four years.
2. the involvement of students in industry, while office experience is expected to include design, planning, specifying and estimating. Site experience which includes supervision, interpretation of drawings, setting out, measuring up, testing materials, surveying, site exploration...etc.
3. the two options offered for practical training:
   a. three years under a competent supervision or
   b. six years acceptable personal experience.

On the other hand, a number of disadvantages seem to be emerging and are as follows:

1. although the design process appeared to be the main function, and opposed to architects, very little design work is proposed in the first three years.
2. important topics such as sociology, history, art, environmental design...etc are excluded. Thus there is no equivalent to the architectural requirement of evidence of ability to design.
3. the exercises used as a vehicle for design through the academic training are often based on specific and existing examples which give the students a sort of standard solutions (recipes) making therefore their creative ability very weak.

"le réflèxe premier de l'ingénieur est d'arriver à se ramener à

un problème déjà résolu, pour lequel il dispose des solutions toutes faites (Deswartes.S, 1980)[1]."

4. the practical training depends heavily on industry and because of the non-involvement from the school in this part, choice of appropriate offices, control of students progress...etc could be unsatisfactory.

However, it is rather appropriate at this point to raise and try to clarify the ever lasting conflict existing between architects and engineers.

Owing to the new techniques, architecture has been offered great possibilities during the last few decades. These achievements which were not always a success, seemed to be the result of the combination of art, science and technology where architects and engineers were involved. It is in these respective shares of participation from which architects and engineers'arguments took root.

Architects'impact in the past was limited. His intervention considered purely artistic and prestigious, was essentially dealing with individual buildings (churches, palaces...etc), serving therefore a minority. Meanwhile engineers were more involved in the scene of public works which they believe to be the utilitarian architecture (roads, bridges...etc) gaining systematically a great esteem and power from government and people leading to the feeling that architects had a minor if not a useless role. This attitude was firmly established when some engineers left their so-called social

art and were involved in the pure art[1]. This intrusion was the real start of the architect-engineer debate which reached its culminating point during the second half of the XIXth century. It is only when buildings for public use had to be provided such as housing for instance that engineers failed to fulfill the task. The call for architects was ultimate. Thus an unwilling engineers'recognition of the architects' necessity appeared, putting consequently the engineer almost off the stage.

In order to reappear and re-evaluate their role, engineers adopted new attitudes claiming the acknowledgement of their vital contribution to architecture. In other words architects could not have reached the present success without the special structures offered by engineers. The success does not always involve a special structure, and this is well witnessed by the architecture of the past. Hence it seems that sometimes the architect's final image of the creation may depend on the engineer's knowledge and advice and this is true and cannot be denied. On the other hand this dependency is no more than partial because the stucture is no more than a means to put in a concrete form an idea which is born jointly with the architectonic conception of the whole.

Besides, the modern conception of the engineer finds it origin in the XVIth century deriving directly from the word engine.

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[1]These terms, in my opinion, were deliberately used by engineers to show that their works (roads, dams...etc) are for the benefit of people while architects'works were mainly serving a minority (private houses, palaces...etc).

Consequently the engineer's profession is far younger than the architect's one. In Vitruvius' treatise (see chapter one) when talking about architecture, engineering and building seemed to be the architect's prerogatives. And as far as civil engineering is concerned, this profession is even younger. The first engineer carrying this title appeared to be the English John Smeaton in 1750 (Deswartes.s, 1980)[2] while in France the profession was well structured in 1930 (Deswartes.S, 1980)[3]. Following this statement how could such profession substitute and deny the architect's role?

Through his creation, the architect always takes into consideration all the resources and means available, some of which depend on the techniques. Is it possible, in this case, that architects possess enough knowledge covering both techniques and form?

In my opinion, and this has been proven by an unlimited number of architects, the architect has been trained to serve this purpose, from creator to organiser, and we should be aware that such knowledge is not just basic but complicated and sophisticated. And opposed to architects, engineers are taught to calculate structures ignoring therefore all the necessary ingredients (space organisation, color, light, scale, design, social factors...etc) which are the essence of any piece of architecture.

Bearing this in mind, could it be possible to meet an engineer who would be more than just a calculator?

This is very possible and it will belong to the lot of exceptions. Most of the time the engineer is considered as the qualified person who calculates the technical problems. The engineer creator which is very rare is the one who seeks new solutions with its related expression, quality and economy. Still, this innovation only deals with a part of the architecture. Of course engineers could be more involved than architects depending on the type of projects. This the case of building dams and bridges for instance.

On the other hand, one might ask why an engineer could not be a designer as good (or better) as an architect?

This could be achieved, but in order to reach this eminence the engineer has to complete his knowledge with other skills lacking in his training.

> "le role de l'ingénieur de structure, à moins qu'il ne soit lui-meme un architecte, consiste surtout à transformer en hypothèses les propositions imaginatives de l'architecte. Ce role revet certes une grande importance mais reste secondaire (Albert.E, 1971)[4]."

There is no doubt that the process of creation for the architect and the engineer are very different. This is mainly due to their respective training which leads them to tackle the problems in different manners.

> "On peut dire que dans le domaine sphérique ayant pour centre le programme à réaliser, l'ingénieur évolue dans un cone, l'architecte, lui, tient en main l'ensemble des faisceaux; il a la vue d'ensemble indispensable à l'économie du tout (Albert.E, 1971)[5]."

Today's buildings rely extensively on very sophisticated techniques and consequently need specialists dealing with the various activities involved in the process. Among these specialists, the civil structural engineer belongs to the team surrounding the architect whose prerogative is to coordinate the team's work in order to insure the implementation of the adopted solution and to the civil engineer to enrich without altering it. Thus the matter lies in the concept of collaboration rather than status recognition.

There is no doubt that the two professions are clearly distinct and the engineering is a specialisation of a part (with probably a major importance) of the architect's task.

The architect is the man of the unique while the engineer is the man of the repetition.

3.3 PLANNERS:

Although the training of planners is relatively recent in Algeria which means it is under continuing discussion, I thought it would be worthwhile to study the background of this profession and its evolution in Algeria.

As mentioned in the following chapters, Algeria inherited a French university structure and as far as planners are concerned, their training takes place only through post-graduate studies for students trained originally in other disciplines such as sociology, economics, geography, architecture...etc. This system appeared to be

inadequate due essentially to the time involved and the confusion related to the role of the trainee when he enters the profession.

Since 1962, a rapid development occured in this short period creating severe social and spatial changes. Bearing in mind this phenomenon and within the framework of its policy "developpement tout azimuths" the country seems to be aware of the necessity of a coherent and thoughtful space organisation. This has led to the creation, in 1971 and officially adopted in 1978, of the degree of geographer with an option in planning.

This department aims at a multidisciplinary training lasting four years while the basic component of the programme is the geographer's comprising options such as:

1. regional and urban planning
2. physical planning
3. cartography.

The most interesting innovation however, lies in the creation of the Centre National d'Etudes et de Recherches pour l'Amenagement du Territoire which depends on the Organisme National de la recherche Scientifique and combines research and training.

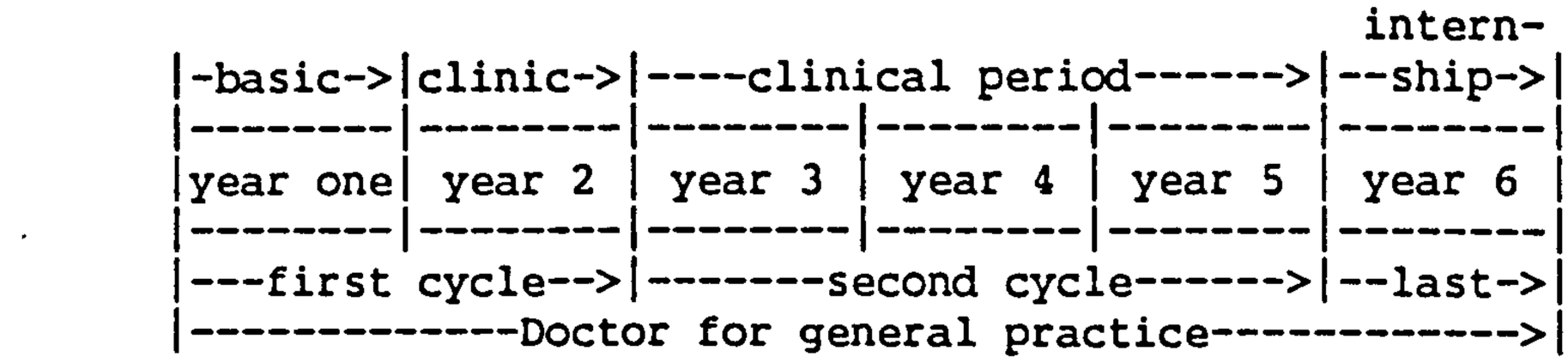
The C.N.E.R.A.T provides most of the practical training by involving students in their real field in connection with the centre's research.

This process presents advantages in terms where students are encouraged to acquire methods in the concrete field concerning their

future profession. In addition, as research is given as much priority as practice, students are urged to be familiar with research methodology. This double-purpose system is strengthened and enriched by regular contacts with experts from industrialised countries in order to constantly upgrade the training process.

3.4 MEDICINE:

Medicine has been always seen as the most prestigious profession in the world. Like architecture, this profession deals with people. Consequently, and besides being one of the oldest profession in Algeria, it is imperative to examine carefully how doctors are trained in order to respond to the ever changing needs of people. In medicine, the undergraduate period is six years, divided into three cycles though there is no rigid line in time between the pre-clinical and clinical periods.



During the first year of the first cycle students are given bio-medical principles which are in fact common to dentists,

veterinarians, doctors...etc.

The second year or pre-clinical period is illustrated by courses in theory and laboratory work.

In the course of the clinical period (three years) students or externes as they are called, are mainly hospital based and brought into contact (twice a week) with medical, surgical and other categories of patient under supervision. For this purpose a system of small groups is established following a rotation through the different specialities. These groups are headed constantly by a maitre-assistant and at regular intervals by a professor.

After completing the pre-clinical and clinical stages, a further practical year or internship in the hospital is necessary. The student or interne is therefore exempt from theoretical studies and is just following practical training through the different services. The satisfactory completion of this year supported by a small thesis representing a research work, is a condition for the award of the degree of doctor in medical studies.

This title will enable him to go into general practice, first within state institutions for the period of five years and as a private practitioner later.

Those who intend to further their studies as specialists, must go through a national competition, a test which selects the best students for the respective specialities. It should be noted however, that there is no student sent abroad for higher degrees in medicine and the specialist is not allowed to practice privately.

In short, medical training in Algeria may differ from architectural training in two main points. First the length of the training last six years while architecture needs five (full time), besides being introduced early in the training process (fifth semester) practical experience plays a great role in the training of doctors. This practice is expressed by its significant proportion to theory during the six years. As a result of a series of interviews with educationists, doctors and students, it appeared that the adoption of such a scheme depended heavily on the theoretical training of students in science at secondary school. On the other hand, in architectural schools students come from secondary school with little knowledge that is relevant to the architectural course which follows. Automatically more time in theoretical studies is needed. However, one disadvantage which clearly comes into view is the fact that a great proportion of medical doctors had just covered all the subjects needed for their practice rather than learned the right attitudes of mind and abilities to use this knowledge.

3.5 SUMMARY:

In my opinion the most attractive points then, which appeared in the training of engineers planners and doctors are:

1. the introduction of the optional year's practical experience within the first three years for engineers.
2. The importance allocated to practical training and research

methods for planners

3. The regular contacts with foreign academic institutions which are necessary for the improvement of planners' training.
4. the much earlier introduction of life experience to medical students and the high ratio of practice to theory over the full six years.

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L'architecture et les ingénieurs, edition du Moniteur, 1980. p16

[2] Deswartes.S
idem. p14

[3] Deswartes.S
idem. p14

[4] Albert.E
"Positions respectives de l'architecte et de l'ingénieur de structure" in L'Architecture d'Aujourd'hui, 1971. p97

[5] Albert.E
idem. p97

Programmes consulted:

Training programme for: Algerian engineers
medical doctors
planners
English engineers.

CHAPTER 4

CHAPTER FOUR

EDUCATION IN ALGERIA

4.1 EDUCATION BACKGROUND:

Before the French invasion and owing to the existence of the principal university centres or Madrassah[1] established in Tlemcen, Mazouna, Constantine and Bejaia, the literacy rate of the Algerian population was quite high. A military report dated 1834 states, probably with reference only to those areas then under the French control but still not without exaggeration, that all villages had schools and that all Arabs knew how to read and write (Tibawi.A.L.1972) [1].

These universities were offering traditonal education dealing mainly with Muslim law, theology, geography, mathematics, astronomy and Arabic grammar. This was the fruit of the Ulamas'long and exhausting task which was revived later by the Association of Reformist Ulamas[2]. This association of scientists was founded in 1931 by sheikh Abdelhamid Ibn Badis in Constantine, a learned man in theology. Besides, some 130 so-called free schools[3] were established enrolling about 50,000 students (A.S.Knowles.1976)[2]. The brightest students from the Madrassah had the chance of pushing further their studies

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[1]Mosque or institution attached to the mosque where free higher education is offered.

[2]Knowledgeable men.

[3]Koranic school. Students aged between 6 to 13 are taught Koran. The teacher is paid through donations given by the parents.

(post-graduation) at the university of Quarawiyin in Morocco, el-Zeitouna in Tunisia or El-Azhar in Egypt.

After 1830, date of the beginning of the colonial occupation, the French adopted the expected attitudes leading systematically to the destruction of all cultural and social institutions among which were the university centres. Consequently, French replaced Arabic as the language of administration and Arabic was relegated to religious use. This led to an elitist educational system to train the minority and to spread French culture.

In 1962, the French deserted their jobs leaving behind a vacuum. The former structure of production and the former government collapsed without setting up another which had to face the future. Besides, as the majority of the Algerians were excluded from the educational system, and the French held nearly all administrative, managerial and academic posts during the occupation, the independent country had neither technical knowledge nor basic necessary know-how. At that date less than one Algerian in ten was enrolled in a school or training programme which would equip him to assume these duties.

> "à la fin de l'année scolaire 1961/62,
> 10% seulement des enfants Algériens
> sont scolarisés et peu d'Algériens
> fréquentent l'université, (Z.Lahcen.1982)[3].

Bearing in mind the acuteness of the situation and wanting to free itself from underdevelopment, the new Algerian government perceiving

education as an important tool of government and people, gave it prompt attention. Consequently huge efforts were required to make education and training programmes more democratic and responsible to the needs of the new country, while the main goal was to educate as many as possible as soon as possible.

This concept has been well illustrated soon after by a new reform based on the establishment of compulsory general education for children up to 16 years old. Hence as a first step towards a rebirth of the Arab-Islamic identity which has been denied for more than a century, Arabic was introduced into the educational system, although French was given priority as the first language to bridge the gap between older and younger generations and smooth the transition between the two systems.

Recognising that the cultural level and technological power of people constitute the best base for economic and social development and that political freedom is depending essentially on the development of men, the diffusion of scientific knowledge and the development of modern technology, the independent government invested a huge amount of money in the construction of schools, middle and secondary level and in the establishment of universities for higher training. In addition scholarships were constantly made available for training students abroad.

4.2 THE REFORM:

If during the first years of independence the main goal was to educate as many people as possible, quality of education itself later became the most difficult problem. Despite the huge investments and efforts, disparities between cities, urban and rural areas in terms of number of schools and qualified people provided, were obvious. Consequently a new reform has been adopted:

4.2.1 Pre-university education:

As a heritage from French education, the preuniversity education has been traditionally divided into two main levels:

- primary school: for children aged six and lasts six years and this leads to the "éxamen d'entrée à l'enseignement moyen" (admission examination to intermediate education).
- secondary school: divided into two cycles; the intermediate lasting four years and the final of three years period ended by the baccalauréat in the appropriate specialisation such as mathematics, science or humanities (literature).

Until 1975-76 a compulsory system of basic schooling (enseignement fondamental) lasting nine years and including the years of primary and middle schooling was put into effect. The idea was based on two key concepts:

a) nine years programme

b) polytechnical education.

Although enormous efforts have been made to encourage scientific and technical training, the standard of mathematics and scientific thinking in the old system (general education) had led to several failures. That was the major reason in pushing the authorities to implement technical and scientific topics through the whole programme of basic school. At the end of the ninth year the student, with the marks required may be enrolled in the former final cycle of the secondary school. The latter is provided either in technical institutions which prepare students for the "diplome de technicien supérieur" (baccalauréat technique) or in "lycées" which offer the three specialisations quoted above.

4.2.2 University education:

Few years before this innovation (1971), the university system of education underwent some changes.

Like the primary and secondary schools, the legislation that applied to Algerian higher education was mainly inherited from the French period. To tackle the problem of the French elitist educational system, to give more attention to the university as the production of men of the future and to challenge the modern world, a new higher education reform was more than necessary.

In 1971, the new reform was initiated under its originator Mr. Benyahia former minister of higher education and scientific research. Within the framework of the cultural revolution, the role

of the reform was essentially concentrated on:

- reviving the Arab language as the national language
- providing scientific and technological education
- accepting foreign influences and thus modernisation of action and thoughts
- promoting a modern concept of Islam as a religion of progress and social equality
- democratising education
- reviving a national Arab-Islamic culture in all its manifestations
- spreading ideas which express the socialist attitude of the country

Meanwhile the goals were:

- to make the university into a training and a problem-solving institution in order to accelerate the socio-economic development of the nation
- to expand the university's tasks beyond those of mainly training graduates
- to revise programmes so that the student will be trained to understand and rectify the problems of the nation and also to implement recent developments in all fields of science and technology
- to promote knowledge and use of the national language
- to modernise the methods of teaching in order to increase the output of students
- to orient students towards interdisciplinary transfer, in order

- to develop a sufficient number of specialists in fields where manpower is needed and to avoid an overproduction of professionals of lesser need.

4.2.3 Institutions:

Sponsored by the ministry of higher education and scientific research,universities, university centres and a number of specialised higher educational institutions are the most common places where higher education is offered (see table 4).

At the beginning of the seventies, three cities welcomed students from geographically different origins. These include the university of Algiers founded in 1909, the university of Oran founded in 1967 and the university of Constantine founded in 1967.

Today, with the multiplicity of such high educational centres based on one within each wilaya[1] several problems among which, access to higher education within the native place, migration, housing ...etc, are intended to be solved.

Despite good will and the intention to solve the regional disparities other problems were likely to arise such as: students belonging to one university feel completely isolated from those studying in other wilayate. Besides, the old universities are in a manner better equipped in terms of facilities and staff which makes the new ones less attractive.

In addition, different ministries are responsible for institutions of higher learning which train students in fields of study corresponding

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[1]Territorial and administrative division.

	Higher educational Institutions	starting date	Planned or under construction
	Algiers.	1909	
UNI	Oran (Es senia)	1966	
VER	Constantine	1969 a	
SIT	H.Boumedienne	1974	
IES	(Algiers)		
	U.S.T.Oran	1974 a	
	Annaba	1975	
S	E.N.A.(Algiers)	1966	
C	E.N.S.Kouba	1970	
H	(Algiers)		
O	E.N.S.E.P.	1970	
O	(Es senia,Oran)		
Ls	E.P.A.U.	1970 a	
INS	I.N.A.(Algiers)	1966	
TIT			
UTEs	I.T.O.(Oran)	1966	
	C.U.Tlemcen	1974	
	C.U.Tizi-ouzou	1974	
U	C.U.Tiaret	1978	
N	C.U.Sidi-b-Abbes	1978	
I	C.U.Setif	1978 a	
V	C.U.Mostaganem	1978	
E	C.U.Batna	1980	
R	C.U.Biskra	1982 a	
S			
I	C.U.El-asnam		"
T	C.U.Djelfa		"
Y	C.U.Laghouat		"
	C.U.Ghardaia		"
C	C.U.Tebessa		"
E	C.U.Medea		"
N	C.U.Saida		"
T	C.U.Mascara		"
R	C.U.Bechar		"
E	C.U.Jijel		"
S	C.U.Skikda		"
	C.U.Bejaia		"
	C.U.Guelma		"
	C.U.Bouira		"
	C.U.o.e.Bouaghi		"

Legend:
U.S.T:University des Sciences et Technology
E.N.V:Ecole Nationale de Veterinaires
E.N.A:Ecole Nationale d'Administration
E.N.S:Ecole Nationale Superieure
E.N.S.E.P:Ecole Nationale Superieure des Etudes polytechniques
E.P.A.U:Ecole Polytechnique d'Architecture et d'Urbanisme.
I.N.A:Institut National d'Agronomy
I.T.O:Institut Technologique d'Oran
C.U:Centre Universitaire
a : Architectural education provided

Table 4: Higher educational institutions under the responsibility of the ministry of higher education

Source:compiled by the author.

to the particular concern of the ministries (see table 5). Although this seems to be unusual especially in Europe, this process is commonly used in Arab countries (Libya, Saudi arabia, Qatar, Irak). The idea behind is to let other fields of study be more known in order to avoid the overproduction of qualified people in the same profession. The only disadvantage which could be seen lies in the fact that competition (salary offered, social facilities, study abroad...) may take place. But as long as all the institutions are under the control of the state the differences are insignificant.

To meet the great need for trained semi-skilled people in various fields, special institutes of technology were created. These are mainly based on providing an exceptional training strictly related to the objectives set up in order to develop the country. However access to this type of education is mostly reserved to young people who left the schools and are without baccalaureat and consequently could not be enrolled in universities.

One should point out that in order to express the importance given to these institutions the Algerian state decided to implement prestigious buildings often designed by internationally well known architects such as O.Niemeyer in Constantine, Tange in Oran and Algiers, Zweifel in Annaba, Skidmore, Owings and Merrill in Blida and Devecon Oy in Setif (see photograph 11).

The erection of such monumental universities which were supposed to welcome between 15,000 to 20,000 students have failed to achieve this target. Besides, the design itself is seen to be inadequate.

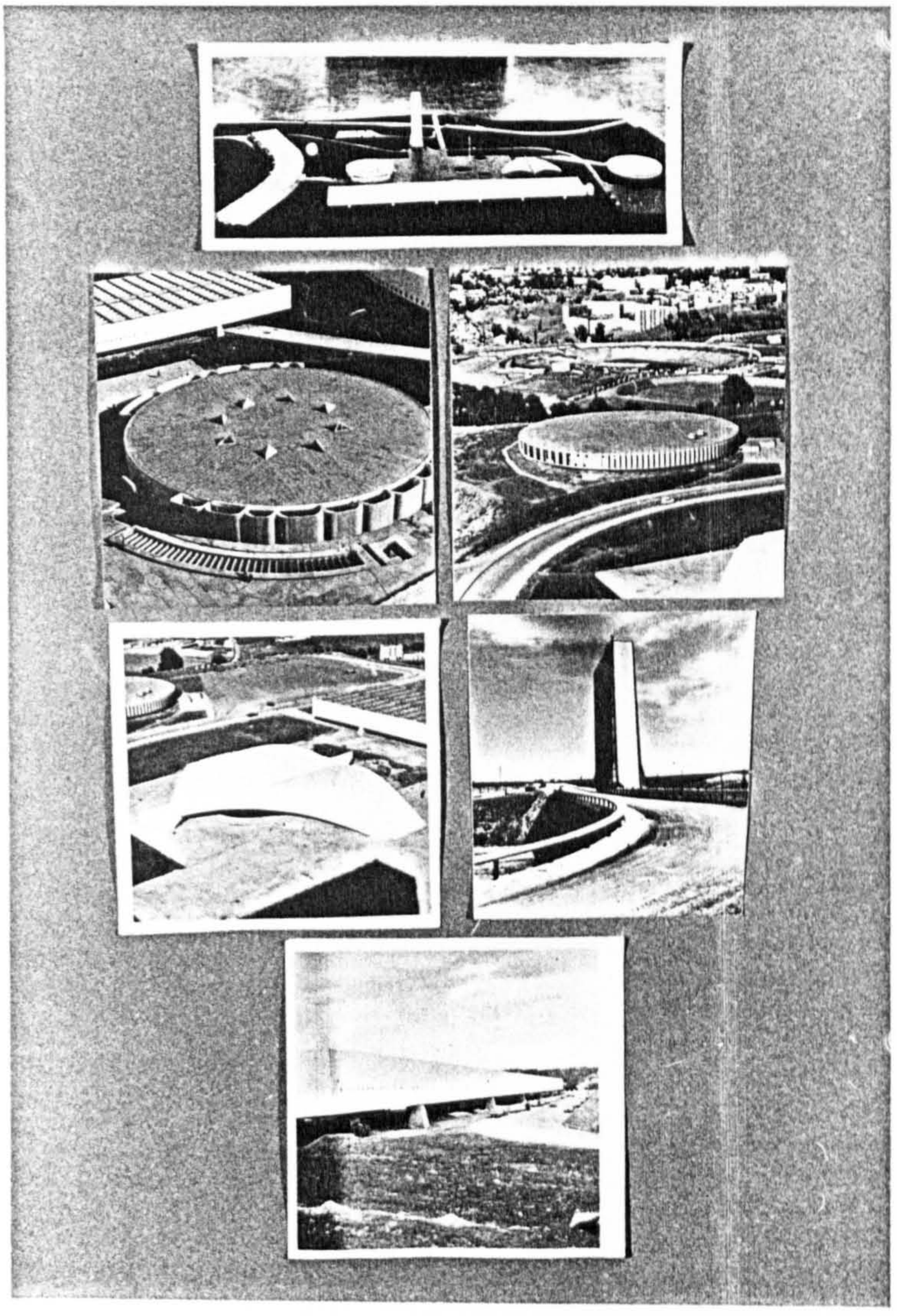
Source : O G S

MINISTERE DE TUTELLE	TYPE D'ETABLISSEMENT	FORMATION DISPENSEE	EFFECTIF DES ELEVES EN FORMATION AU 12 12 78 TOTAL	AU 12 12 78 DONT FILLES	AU 12 12 79 TOTAL	AU 12 12 79 DONT FILLES
AGRICULTURE ET REFORME AGRAIRE	I.T A. - I.T A S.	Ingénieurs d'Application	2 013	115	1 352	29
	I.T.M A.	Techniciens	2 635	-	2 189	4
	C.F P. Agricole	A T.A. - A T.S. et O S	1 033	1	1.164	
			5 681	116	4 705	33
INDUSTRIE ET ENERGIE	Instituts	Ingénieurs - Techn. Sup.	4 045	193	3 164	160
	Centres de form. de Soc Nt	Techniciens à O.S.	2 895	169	1 854	129
	Ecoles, Complexes		6 940	362	5 018	289
TRAVAIL ET AFFAIRES SOCIALES	Instituts	Ingénieurs et Techniciens	1 510	-	2 820	
	I.N F.P A.	Formateurs	411	40	1 092	130
	C.F.P.A. Adultes	Ouvr Spécialisés à Techn	16 506	2 007	16 560	1 526
		Ouvr Qualifiés à techn	18 427	2 047	20 472	1 658
TRAVAUX PUBLICS	Ecoles d'Ingénieurs	Ingénieurs	668	33	572	29
	C.F. des Techniciens T P.	A T S. Techniciens T P.	435	-	552	1
			1 103	33	1.124	30
HYDRAULIQUE	I.H.B.	Ingénieurs	-	-	-	
	C.F. des Techn. Hydraul.	A T.S. - Techniciens	421	-	88	
			421	-	88	-
TRANSPORTS	I.H E.R (Météo)	Ingénieurs	204	10	232	9
	I.S M. Maritime - Pêche	Tech Sup à Ouvr Qual.	172	-	388	
	S N C.F A.	O Q des Chemins de fer	246	-	321	
	S.N.T.R.	O Q. Route	52		321	
			874	10	939	9
INTERIEUR	E.N.A.	Cadre Sup Administration	519	58	581	54
	C.F A.	Cadres Moy. et Agt. Tech.	6 967	1 472	6 974	1 508
	Police-Prot Civile-Transmis	Tous Niveaux	1 224		1 192	
			8.710	1.530	8 747	1 562
POSTES ET TELECOMMUNICATIONS	I.T.T.E.	Ingenieurs, Techniciens	-	-		
	Ecoles Centrales des P.T.	Agents Techniques	19	-	565	32
			19	-	565	32
FINANCES	I.T.F.C. Ecole d'Application	Cadres Supér. et Moyens	90	8	416	14
			90	8	416	14
PLAN	I.T.P.E.A.	Ingénieurs d'Application	454	52	419	56
	C E.R.I.	Ing Informat. et Techn.	674	75	549	97
			1.128	127	968	153
COMMERCE	I.T C. et I.T F	Cadres Sup. et Moy.	489	35	555	69
	C.C I. et Ecoles	Comptables - Dactylos	2 251	443	2 360	828
			2.740	478	2 915	897
TOURISME	I T.H. - I.S H T.	Techniciens et Tech Supe	498	9	425	5
	C.F H.	Agents Techniques	60	-	99	
			858	9	524	5
INFORMATION	Instituts - Ecoles	Formation Artistique	687	244	898	329
	C.F. de la R T A	Techniciens	-	-		
			687	244	898	329
JEUNESSE ET SPORTS	C N E P S. - C N S CREPS	Encadrement Sportif	441	14	378	16
	P S. - E F C S	Encadrement Jeunesse	294	53	286	73
			735	67	664	89
SANTE PUBLIQUE	I.T.S P.-E P M Ecol Cadres	Para Médicaux	1 415	654	888	507
	Formation Permanente	Para Médicaux	1 612	866	557	252
	E.F.M. - E.P M.	Maitre d Enseig Para Med	5 664	2.944	4 999	2 377
			8 691	4 464	6 444	3 136
ENSEIGNEMENT SUPERIEUR	Instituts	Ingénieur T S	1 262	140		
	Ecoles	Ingénieur T S	3 114	833	2 937	16 720
	Universités - Centres		7 924	2 597	65 479	
			12 300	3 570	68 416	16 720
HABITAT	INFORBA			-	113	5
	Centres	Techniciens T P.	892	7	1 093	22
			892	7	1 206	27
EDUCATION NATIONALE	I T E	P E M Instituteurs	-	-	12 932	
TOTAL GENERAL			69 796	13 072	137 041	24 981

Table 5: Higher educational institutions under other ministries

Source:Annuaire statistic de l'Algérie, 1980. p146

*one interesting point which is to be drawn from this table is the training of students for different degrees, from workman to the engineer.



Photograph 11: University of Constantine: Algeria by O. Niemeyer
source:Author

Too cold, too large, too expensive and totally in contradiction with the reform spirit which is intended to favour the modular system and small working groups.

In addition, the construction of the teaching spaces, university cities, restaurant, library ... etc are not only proving to be irrelevant but the process of building them is often delayed and does not keep pace with the ever increasing number of students. Thus, new proposals for such institutions should be put forward in order to fulfill the goals set up by the reform.

4.2.4 Admission requirement:

Admission to the university requires in general the "baccalaureat" in the appropriate specialisation. Entrance examinations are given to the applicants who did not receive the baccalaureat but completed secondary schooling and to those students who wish to enter a field different from their specialisation. While some faculties or higher professional schools require besides the baccalaureat or equivalent qualification, distinctions and competitive examinations (concours).

This last condition has been introduced when the planners or administrators felt that new students were more attracted by professions which are so-called liberal. Each year the Algerian universities are producing around 1300 doctors in medical studies, pharmacists, dentists and almost the same number for lawyers, architects and engineers. Paradoxically, other branches, although

vital for the national economy are very little appreciated. This is the case of geology, geography, sociology, economics...etc. (see table 6)

INSTITUTES	No of students
Biology*	2326
Dental school	665
Pharmacy	338
Veterinary	279
Medical school	2272
Geology	377
Physics	198
Mathematics	262
Chemistry	236
Architecture	1199
Computing	256
Technology**	1098
Languages	634
Psychology	441
Law	1171
Literature	574
Economics	771
Social studies	758

* premedical studies
** engineers included

Table 6: Number of students in the different institutes

Source: Bulletin statistique. University of Constantine. No 5. 1984/85 p74.

In fact this typical students' attitude is mainly the result of lack of information about different fields of study offered and their role for the nation. Besides university prospectus or booklets are non existent and the existing official documents are beyond the reach of students.

However there is no discrimination on the basis of sex, creed, or religion. In order to encourage adults and war veteran education, there is no age limit at any higher education institution. Algerians and foreign students can register at any university or institute provided they meet admission requirements.

4.2.5 Administration and control:

Apart from the institutions sponsored by specialised ministries, administration, financing and teaching in all other higher educational institutions are under the responsibility of the ministry of higher education and scientific research. In respect to the authority within the university, the rector (vice chancellor) who is the single director, is appointed by decree of the head of government. The rector may be aided by one or several vice-rectors and constantly assisted by a council of institutes (conseil d'instituts) composed of the directors of all institutes.

Although the university has financial autonomy, it does not have academic authority. Diplomas and degrees are established by the

head of the government while programmes of study, examination regulations, requirements for diplomas and degrees and the awarding of degrees are the responsibility of the minister of higher education and scientific research.

Teaching staff and students prerogatives in the management of the university are very limited and concern only the application of government regulations. However, students and teachers meet in the academic coordinating committees to deal with problems such as duration of employment, examination schedules and elaboration of laboratory groups. On the advice of the rector, recommendations to the ministry of higher education can be made by the academic committees.

In the other categories of higher education institutions such as specialised institutes and schools, the director who is appointed by the head of the government has the same duties as the rector.

4.2.6 Programmes and degrees:

Algerian universities offer a full range of academic study. Among the most important measures adopted within the limits of the reform, is the reorganisation of studies from a university year with a single serie of examination in June, a system which leads to a high failure rate, into two semesters with better student performance evaluation. This is based on a modular system of study which allows

greater flexibility in the programmes and possibility of eventual training[1] Degrees and programmes depend on the field of study (see table 7).

Duration of studies
(previous education: 12 or 13 years, baccalauréat)

years	2	3	4	5	6	7	8
Education			L				
Arts		LE	L/DES		M		D
Fine Arts		Di					
Architecture				Di			
Economics,accounting and jurisprudence		C	L				D
Political sciences			Di				
Commercial sciences		Di					
Natural and exact sciences		LE	L/DES		M		D
Medical sciences							
Medicine							D
Dentistry							Di
Pharmacy							Di
Veterinary							D
Agriculture							Di

C capacite en droit, D doctorat, DES diplome d'etudes superieures

Di diplome, L licence d'enseignement, M magister

Table 7: Profile of higher studies

Source: World list of universities XV edition under Algeria heading, International Association of universities.

[1]Training, means here practical experience which is a part of the architect's professional equipment given at schools or outside schools.

4.2.7 Financing and student financial aid:

Higher education is entirely financed by the state which annually determines resources and public expenditure. The recurrent budget is allocated annually for expenditure related to personnel and administration at all levels of education under the ministry. According to the presidential decree of December the third 1971, the following outlines are delineated:

- tuition in Algerian institutions of higher education is free.
- subsidies are provided by the government for books, supplies, registration fees and insurance. However students pay an annual registration fee of 55 Algerian Dinars and 12 A.D for insurance.
- conditions for scholarships, advanced wages (presalaires) and practical training are the responsibility of the ministry.

The scholarship which is based on the financial means and the nature of the study is allocated by the state to students. The amount of scholarship varies from a monthly allocation of 460 A.D for theoretical studies to 560 A.D for technical ones. Scholarship recipients after completion of their studies are required to work during a certain period of time in the state civil service administration. This requirement extends to all students.

In the case where the field is given national priority advanced wages are available for students. This is related namely to technological sciences, agronomy, veterinary sciences ...etc.

Financial aid constitutes a manifestation of a close relationship between industry and higher education. National industrial societies

may give subsidies for training and are responsible for the advanced wages of certain high technicians in their field of speciality.

In addition holders of scholarship and advanced wages have automatic access to student housing. Due to the acute shortage of student housing at the present time, access to such facilities is now only available for students whose origins are not local.

The students residence and restaurants are run in each university city by a special centre called C.O.U.S (Centre des oeuvres universitaires sociales). 3/4 of its budget is subsidised by the state. The rest is provided by fees from students for room and board.

4.2.8 Students social background and access to education:

Although no studies have been made on the socio-economic background of Algerian students, it seems that education has reached all the remote areas and all social classes. This is due mainly to:

- the extension of education even to the rural areas
- the systematic distribution of student grants to low-income groups at intermediate and secondary schools.

In addition the percentage of women students has grown considerably. Women are the majority at the institute of social sciences and foreign languages, numbering almost 90% of total enrollment. In medicine and biology approximately it is 40% (see table 8).

However, women students do not seem to be very keen on technological subjects. Only 5% have been enrolled.

Field of studies	Number of students		
	male	female	Total
social sciences, humanities, literature	2887	1496	4383
exact sciences & technology	2995	680	3675
biology & medical studies	3365	2115	5880

Table 8: Proportion of male and female enrolled in the different fields of studies

Case of the university of Constantine

Source: Bulletin statistique, university of Constantine No 5. 1984/85 p75.

4.2.9 Teaching staff:

Four distinct teaching ranks exist:

- Assistant
- Maitre-assistant (lecturer)
- Maitre de conference (senior lecturer)
- Professeur (professor).

Although the titles seem to be very clear, their prerogatives are still confusing. This is probably due to the lack of staff which makes the teacher honored with one of these titles encroach on some body else's functions. According to the official texts, which set the conditions of their recruitment, duties, remunerations and requirements for their promotion, the assistant who is required to

hold a master degree (M.A, M.Sc or M.Phil) is in charge of practical and laboratory work. An assistant cannot serve more than three (or four years) and must resign if he is not promoted. In fact at the present time this rule is not fully respected and the assistant may just need his diploma and is called assistant stagiaire (assistant trainee). He will gain his "assistant" title after four years of teaching.

A maitre assistant, who must hold a doctoral degree, supervises laboratory studies or gives lecture under the supervision of a maitre de conference. Yet, this is not applied. A maitre-assistant requires at the present time just a master degree and one year experience.

The docent or maitre de conference lectures, supervises research for the Ph.D or a doctorat in sciences, or conducts research. Here again, a docent may need just a Ph.D degree to reach that title.

The professeur lectures and undertakes or supervises research.

A commission which is constitued by elected representatives of each rank and representatives delegated from the ministry of higher education and scientific research, determines the promotion of each teacher which is based on scientific and academic achievements.

4.2.10 Research activities:

To be concerned with research, a state agency (O.N.R.S) the National Office of Scientific Research was created in 1974. Led by a director general who is nominated by presidential decree, this office consists of research centres spread through the country most often attached to universities. Each of which specialises in a particular scientific or technological field. Their programmes are set up by the government which approves a plan of scientific research submitted by the national council of scientific research presided over by the minister of higher education and scientific research. The council in turn is composed of representatives elected or designated from state agencies, universities and public associations. Its responsibilities are shared among seven commissions, each in charge of a particular area of science.

Most of these scientific personnel involved in these centres are teachers who are employed by the university and are permanent researchers.

Expenses of such enterprises are insured through the National Office of Scientific Research. However, agreements may be concluded with national societies who assure financing of the research.

In addition, universities can finance, within the limits of their own budget, research of an academic character not provided in the national plan of scientific research but judged relevant enough to the preparation of doctorates.

4.2.11 Arabicisation, Algerianisation and cooperation:

The 130 years of French colonisation have left Algeria profoundly affected by a policy of obscurantism making the local people's personality handicapped through their own language, history and culture which were for a long time denied or depreciated.

After the independence and in order to resuscitate the national identity, personality and authenticity, profound intellectual and moral changes were essential:

> "La décolonisation politique et économique serait inopérante sans une décolonisation des esprits" (J.P.Durant.1976)[4].

Among those changes, the Arabic language was one of the major components favouring the regain of the Algerian identity. Apart from a minority of French-speaking Algerians who were slightly reluctant towards Arabicisation and adopting therefore a pessimistic attitude based on the inefficiency and inadequacy of Arabic for scientific and technical education, each single Algerian is fully aware that Arabic is the language of the state.

To be honest, despite the huge efforts made to achieve this goal, French is still used as the language for communication among the majority of educated people. But this is not a sufficient reason to forget about our own heritage.

In my opinion this is a normal step of the process which we have to go through. Sciences and technics are just a package of formulae, signs and symbols which we can translate or even borrow. Certainly

there are some fields such as nuclear physics which are not accessible to Arabic and even to other secondary languages (A.Cheriet.1983)[5] but gradually Arabic should be introduced in order to expect, acceptable results but to be realistic certainly not in the near future.

But no one can deny the fact that arabicisation is making great progress especially among the youth. Effectively, schooling was the main vehicle to give this enterprise roots. Today arabicisation is a daily reality; in all the primary schools, pupils are taught in Arabic and secondary schools are almost fully converted to Arabic. Besides the university at the present time has the possibility of offering study of a number of fields in the national language. This refers mostly to social sciences.

To illustrate the effective progress of Arabicisation I should mention that all mass-media are, if not in Arabic, in both languages. On the other hand, there is no inconvenience in learning other languages. On the contrary, besides the shortage of Arabic literature, learning foreign languages will help especially in dealing with research, international meetings etc... However, "other languages" does not mean just French. This may lead to what Cheriet.A calls:

> "le bilinguisme dangereux" which is not the availability of teachers and books but the one which is put as a principle based on subjective factors rather than objective (A.Cheriet,1983)[6].

French should not be understood by the future generation as a component of our culture. It should be as English or German a mean to translate texts for any purposes. Besides, people will never improve their Arabic as long as they are excessively relying on their French.

It is true that the process of arabicisation has been relatively slow and the time and degree of its succesfull completion seem to be hard to forecast, but at least this must lead us to raise questions about its contents, means, methods, steps, and conception.

Despite the good will stimulating the authorities to make a "fully Algerian" university (see table 9), the educational planners are faced with one related difficulty: shortage of qualified teachers of science and technology.

	Lecturing staff
Algerians	1307
Foreign	380
Total	1687

Table 9: Proportion of foreign lecturers in the university of Constantine

Source:Bulletin statistique, university of Constantine No 5.1984/85 p103.

Consequently Algeria must in the meanwhile appeal to international cooperation which is illustrated by agreements with several countries. These agreements include exchange of teachers, students and cultural information. Each year more than two hundred visiting professors lecture in Algeria for varying period of time.

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CHAPTER 5

CHAPTER FIVE

ARCHITECTURAL EDUCATION IN ALGERIA

5.1 ARCHITECTURAL EDUCATION BACKGROUND:

Architectural education in Algeria was first established at the single school of "les Beaux Arts" during colonisation at Algiers. The students belonged, thus to the department of architecture in the school and applying therefore the same programme as "Les Beaux Arts" type in France based essentially on the study and imitation of great monuments and arts of Greece, Rome, Renaissance ...etc.

At the end of 1970 the Ecole Polytechnique d'Architecture et d'Urbanisme (E.P.A.U) was founded offering a six years curriculum based on a fair mixture of imported programmes.

Owing to the new higher educational reform established in 1971 and officially adopted from 1975, the programme was reduced to five years leading to a more simple system based on semesters rather than years sanctionned at the end by the degree of Diplome d'Architecte d'Etat.

Facing the ever increasing urban population and all the associated problems such as housing, urbanisation, rural development ...etc, need for professionals was seriously felt. Consequently new architectural institutions were established.

In 1973 the "Institut d'Architecture, d'Urbanisme et de Construction" (I.A.U.C) was set up within the university of Constantine followed in 1975 by Oran and Setif and lately, owing to the creation of "centres

universitaires"[1] in each wilaya[2], by Tlemcen, Blida, Biskra and others which are still under construction or organisation.

5.2 OBJECTIVES AND PHILOSOPHY OF THE D.E.A:

As being stated in the official texts relating to the creation of E.P.A.U, the programme in architecture involves students in studying all the components leading to the profession of the architect.

The architectural education which is aiming to produce trained people with professional and cultural knowledge, is based on cumulative experience provided through a series of design exercises dealing mainly with the philosophical, psychological and sociological man's needs. In addition these design exercises are supposed to offer a wide range of knowledge concerning materials, building technology and environmental technology. Last but not least, students are encouraged to develop their own learning process owing to their own judgement and creative ability.

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[1] Small universities where generally 1st and 2nd year of some study fields are offered.

[2] Territorial and admistrative divisions.

5.3 ADMISSION REQUIREMENTS:

At the beginning of their establishment, the architectural schools or institutes were used to welcome newcomers who are holding the baccalauréat of sciences or mathematics without any other specification. These last few years, some institutes like Constantine for instance, are now insisting upon the baccalauréat of mathematics type or of sciences with entrance examination. The latter is supposed to be a preliminary test to select the students showing an aptitude for architectural studies from the large group of applicants.

In fact this is not the main objective. First the test itself based on knowledge of mathematics and physics is not the most suitable way of finding students' aptitude for architectural profession. Second, lack of staff and space force the authorities to limit the number of new students' registration in architecture. On the other hand, and in order to encourage people to stay within their native wilayate, other institutes such as the new ones (Setif, Tlemcen, blida ...etc) offer the possibility of enrolling students without any restriction apart from the baccalauréat of sciences or mathematics.

5.4 SCHOOLS OF ARCHITECTURE: CASE OF CONSTANTINE:

The recognised schools of architecture fall into three main categories; those in universities, those in polytechnics and those in university-centres. In the latter, the institution is only offering just the first two years of the programme, which is probably due to the lack of space or/and staff.

As long as these schools are under the responsibility of the ministry of higher education and scientific research, which means that all these architectural institutions are using the same single programme, I felt that it would be more useful and accurate to use Constantine as a sample in order to better analyse the architectural courses and all its related components.

In Constantine, third city of Algeria, education of architecture is offered in the department of architecture included within the institute of architecture, town planning and construction which in turn is integrated to the university.

The M.E.S.R.S[1] recognised the courses of architecture in 1973 and full recognition was granted in 1975. Since then a new building for the school of architecture has been planned. Studies have been achieved but the implementation is still suffering. Today, just a tiny skeleton of one building is appearing.

The first architectural students enrolled in 1973 were using just two rooms within the university Ain-El-Bey which in turn was not fully

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[1]Ministry of higher education and scientific research

completed. One of the rooms was used as a design studio or workspace and the other was allocated for lectures. The students who numbered twenty two, had the advantage of using all the other premises of the university in case of need (labo-photo, slide projector, screens, library, refectory...etc).

New comers and lack of space did force the director of the institute to move in 1975 temporarily to the medersa (old school of law) located in the old part of the city (Medina). During the following year a new transfer was necessary. The institute was finally set up within the old military barracks which were converted to educational spaces shared by several departments (veterinary, dentistry, geography, geology, architecture, construction, town planning).

5.5 DEPARTMENTAL PREMISES:

Despite the several transformations of the small part allocated to the institute to satisfy the the needs of appropriate spaces, for numerous reasons they did not lead to the desired results. The department of architecture having at its disposal huge dormitories at the ground and first floor changed into workspaces or design studio are, besides of being inadequate, already overcrowded. In fact these workspaces are multi-functional. They are used as drawing spaces, model workshops, critique rooms and occasionally for lectures which are supposed to be held in the half dozen of classrooms located at the second floor. A black board is the only means available, av-equipment as well as possiblity of showing films

and slides are totally lacking. Hence help from av-department at the main university (4 km away) is more than needed. However borrowing is always a difficult task due mainly to the bureaucratic procedure. A storage room adjacent to a small seminar library are provided in the ground floor and just above, insignificant spaces (one as a workshop and the other as a lecture room) were the town planning post-graduate students'quarters.

Technical staff and offices (photo laboratory, model workshop, xeroxing ...etc) are non existent. Students have to use private facilities which are financially beyond their reach. The administration offices are occupying a small building shared by the different existing departments, slightly isolated from the institute. Most of these defficiencies are common to all architectural educational institutions in Algeria. Naturally teaching suffered and is still suffering in such conditions.

5.6 STUDENTS:

A few years after the starting date of the institute, the number of students in architecture has greatly increased (see table 10). Besides being slightly more "known", architecture as a liberal profession is regarded as a very lucrative one.

The present number of students does not really correspond to the estimations or expectations established by the head of the department. For political or other reasons, the institute has to welcome a certain number of new comers each year.

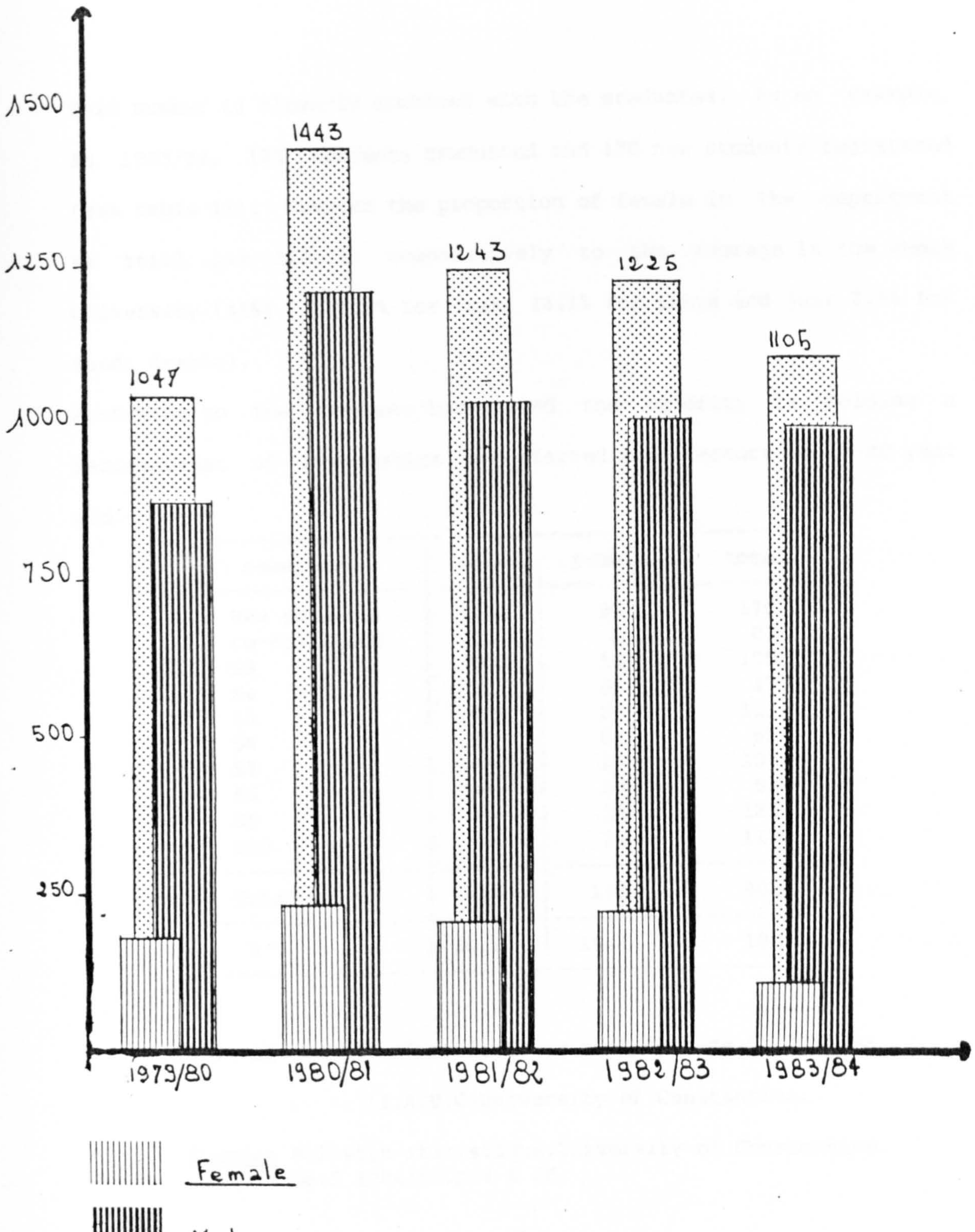


Table 10: Annual number of undergraduate students in architecture

Source:Bulletin statistique , university of Constantine

No5, 1984. p64

This number is cleverly combined with the graduates. As an example, in 1983/84, 123 students graduated and 170 new students registered (see table 11). However the proportion of female in the department is still low (19.1%) comparatively to the average in the whole university (45%). (30.9% for Irak, 24.1% for Libya and just 2.5% for Saudi Arabia).

According to the students'background the majority is holding a baccalauréat of mathematics and started architecture as 18-20 year old.

semesters	male	female	total
New students	140	30	170
re-registred	03	0	03
S3	90	19	109
S4	42	05	47
S5	88	23	111
S6	60	02	62
S7	80	27	107
S8	48	03	51
S9	91	34	125
S10	93	24	117
Total	730	172	902
%	81.1	19.1	100

Table 11: Number of students in architecture in 1984/85

(I.A.U.C)University of Constantine.

Source: Bulletin statistique.University of Constantine. No:5 1984/85.p64 & 86.

5.7 STAFF MEMBERS:

At the moment the teaching staff for the ten semesters groups is inadequate and even the office has the minimum required personnel (see table 12).

	Number of lecturers					
	P	MC	MAT	MAS	AS	AC	Total
Foreigners	03	03	28	20			54
Algerians			05	02	117		124
Total	03	03	33	22	117		178

P = Professeur, MC = Maitre de conference
MAT = Maitre assistant titulaire, MAS = Maitre assistant stagiaire
AS = Assistant stagiaire, AC = Assistant contractuel.

Table 12: Number of lecturers in I.A.U.C. University of Constantine

1984/85

Source: Bulletin statistique,university of Constantine.
No:5,1984/85. p104.

The majority of foreign teachers are -if not allocated to specific subjects such as history, urban demography...etc- responsible for design for the final semesters (S8, S9, S10) or post-graduation tasks.

It is true that the number of Algerian architects has increased, but this is, in my opinion, a consequence of the algerianisation which is intending to avoid the import of foreign staff. In addition, lack of staff forces the educational planner to enroll young and newly graduated architects as teachers. That is why the majority of Algerian teachers are just "assistant stagiaires", which means they are holding just the Diploma.

In other terms when recruiting teachers, competence, practical experience and teaching skills are not taken into account.

> "A teacher's mastery of subject matter and methods cannot be won either easily or overnight; it is rather the accumulated results prolonged and searching thoughts and experience" (Bannister.T.C, 1954)[1].

Besides, a relatively large part of the time of staff is spent in secondary matters (borrowing a-v equipment, finding adequate room for a film projection...etc) from an academic point of view, although they are necessary for the smooth running of the department.

An additional constraint which seems to be critical is the fact that foreign teachers spend a long time to be familiar with the new educational system. Consequently the division of tasks leaves much to be desired and an onlooker is given the impression that much time is wasted in determining which task belongs to whom. As a result, a foreign lecturer who was solicited to teach one specific topic may find himself forced to lecture another subject or undertake prerogatives which are beyond his capacities.

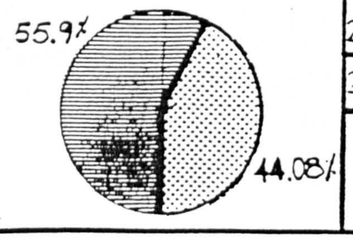
5.8 THE CURRICULUM:

5.8.1 Underdeveloped curriculum:

At first sight theoretically the curriculum itself seems to be quite sound. A range of subjects such as: mathematics, physics, literature, sociology, economics, structural engineering, materials and construction, history and philosophy of architecture, environmental control, professional administration, building economics, drawing, modelling and design, is taught intending to give the student basic skills as the necessary tools to use in his future professional life (see table 13).

CURRICULUM ANALYSIS

TOTAL	STUDIO HOURS per WEEK	LECTURE HOURS per Week	TOTAL	SUBJECTS AREA EMPHASIS credit:hour — SOCIOLOGY + ECONOMY	ENVIRONMENT	SCIENCES	TECHNOLOGY	DESIGN	ARTS	SUBJECTS	Codes	SEMESTERS
										MATHEMATICS 1	M.550	
										PHYSICS	P.550	
										GEOMETRY & PERSPECTIVE 1	M.551	S_1
										THERM, HYDR, ACCOUSTIC	P.551	
28	10	18	28			6	4	16		INTRODUCTION TO ARCH	HDM.101	
										TOTAL		
										MATHEMATICS 2	M.552	
										SPACE ANALYSIS	GEOG.603	
										GEOMETRY & PERSPECTIVE 2	M.553	S_2
										TECHNOLOGY OF BUILD MAT 1	FEN.601	
										ARCHITECTURE 1	HDM.102	
26	14	12	26		2	4	4	16		TOTAL		
										URBAN DEMOGRAPHY	ILSR.601	
										INTRODUCTION TO ECONOMICS	ICT.103	
										CONSTRUCTION 1	FEN.602	
										TECHNOLOGY OF BUILD MAT 2	FEN.603	S_3
										ARCHITECTURE 2	HDM.103	
28	14	14	28	2	2		10	14		TOTAL		
										ARCHITECTURAL HISTORY 1	HDM.104	
										SOCIOLOGY 1	ILJ.101	
										CONSTRUCTION 2	FEN.604	
										BUILD MAT STRENGTH 1	FEN.605	S_4
										HOUSING	HDM.105	
27	14	13	27	3			8	14	2	TOTAL		
										ARCHITECTURAL HISTORY 2	HDM.106	
										METHODS OF SOCIAL SCIENCES	ILJ.103	
										CONSTRUCTION 3	FEN.606	
										BUILD MAT STRENGTH 2	FEN.607	S_5
										INFRASTRUCTURE	ICT.103	
										PROJECTION 1	HDM.107	
31	14	17	31	3			12	14	2	TOTAL		
										ARCHITECTURAL HISTORY 3	HDM.108	
										SOCIOLOGY OF HOUSING	ILJ.601	
										SERVICES 1	FEN.608	
										STRUCTURE 1	FEN.609	S_6
										PROJECTION 2	HDM.109	
29	14	15	29	2			11	14	2	TOTAL		
										URBAN GEOGRAPHY	GEOG.604	
										SPACE & ARCHITECTURAL FORMS	ILJ.602	
										SERVICES 2	FEN.610	
										STRUCTURE 2	FEN.611	
										ARCHITECTURAL HISTORY 4	HDM.110	S_7
										ARCHITECTURE 6	HDM.118	
30	12	14	30		2		8	16	4	TOTAL		
										SERVICES 3	FEN.612	
										STRUCTURE 3	FEN.613	
										TOWN PLANNING 1	HDM.111	
										ARCHITECTURE 7	HDM.113	S_8
24	16	8	24		2		6	16		TOTAL		
										SERVICES 4	FEN.616	
										COMPUTING 1 or	INF.005	
										TOWN PLANNING 2	HDM.112	
										SPECIAL CONSTRUCTIONS +	FEN.614	
										TECHNOLOGY or	HDM.114	S_9
										IMPLEMENTATION	HDM.115	
29	22	7	29			2	5	22		TOTAL		
										COMPUTING 2	INF.601	
										URBAN HYDRAULICS or	FEN.616	
										SPECIAL STRUCTURES +	FEN.617	
										TRADITIONAL ARCHITECTURE or	HDM.116	
										SPECIAL PROGRAMMES or	HDM.117	
										TOWN PLANNING or	HDM.119	
										RURAL ARCHITECTURE or	HDM.120	S_{10}
										PREFABRICATION	HDM.121	
27	22	5	27		3	2		22		TOTAL		



279	SOCIO-ECON & ENVIRONMENT= 7.5%		TECHNOLOGY= 30%		AESTHETICS= 62.3%		
279	10	11	16	68	164	10	GRAND TOTAL

ARCHITECTURAL COURSE AT PRESENT PROVISION

In reality, we may notice on one hand, that despite the clear recommendations made for each subject purposes, mentioned in the curriculum, misunderstanding and lack of coordination between the year themes are prevailing. As an illustration to this, the role of architectural history which has been brought in, in order to illustrate the evolution of technology, is completely missing. Besides, it is surprisingly lacking essential topics like Islamic architecture, its history and evolution, local traditional architecture and vernacular architecture[1]...etc which in my opinion are relevant to our society and culture. How could we build the future if we do not know our past?

> "with the study of local vernacular has come the realisation that many traditional technologies are still relevant while some can be adapted to achieve better durability" (Danby.M, 1983)[2].

Sociology and economics as another instance, are not closely linked to architecture. Worse than that, students are given just a superficial coverage of these theories which are too much concentrated on the study of various economic systems while Islam, the essence of a Muslim country is partially if not fully misunderstood. Consequently should not we introduce Islam's system of thought as pertinent topic in the curriculum?

On the other hand, a careful look at this curriculum will ultimately

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[1]these topics have been included in the middle eastern schools for many years.

lead us to the obvious conclusion that it is, with regards to Algeria, no more than a blind copying of western educational system having few diversities which are often misleading.

Above all, little care has been given to environment. Teachers, whether local or from overseas adapt foreign methods which are unsuitable for the local environment. Consequently, students' architectural expression is far from the Algerian culture.

> "Often because the architect comes from or has been educated into a social and cultural setting quite different from that of people he builds for, he has difficulty intuitively understanding their needs."(Zeisel,1975)[3]

This is just to bear in mind that students have rarely been stimulated or thaught to look to their own cultural traditional pattern of life and the country's economic context. Worse, students are totally alien to their current and real problems like rural-urban migration, inequality, poverty, urbanisation process, country's development, resources, energy, and building codes which are without doubt the controlling factors that limit or at least affect the design of any project.

5.8.2 Unbalanced curriculum:

Architecture is generally considered to be a profession demanding extensive knowledge and skills which in fact are well exemplified by the different curriculums existing in the great number of schools in the world. However, from the Algerian programme

analysis, it is made clear that emphasis are put on design and technology with a great deal of time spent in drawing while economics, sociology and environmental studies which have been proved important subjects, are given very little attention.

Because of the lack of specialised staff, chronology of topics is not always respected. Students are taught what is available. In the case where themes are optional, due to the same previous reason, they became compulsory.

I should point out that this reform was aiming to produce competent trained people strengthened by compulsory short period of practice on behalf of the university in order to familiarise the students with the practice. Unfortunately up to now, none of these actions have been taken probably due the absence of financial or organisational means or simply to carelessness and ignorance. Thus, schools seem to be irresponsible. Then, for what is intended to be a professional training as well as an education the gap is too great. Can theory and practice be separated? should not we involve students in live projects?

> "Academic projects are first and foremost teaching devices intented to give maximum educational results in a minimum of time. Nevertheless, it is possible and profitable to design each project to give the student an illusion of reality and thus motivate and prepare him so that later, entrance to real situations will be smooth and natural without abrupt adjustments"
> (Bannister.T.C, 1954)[4].

To tackle the lack of practice, few conscious students who are eager to learn more about their profession, try to work during summer

vacation in national or private offices which makes them earn besides knowledge and practice some money, "joignant l'utile à l'agréable". However some educationists or professionals may find this small experience a waste of time, because these students are told to work as draughtsmen or because the most of the office's staff are too busy to pay any attention or to participate in the educational system of the trainee. It is evident that students lack the means to integrate theory and practice, nevertheless we should not abandon this students'initiative. On the contrary, it should be developed to an alternative which becomes an integrated part of the curriculum and provide efficient professional practice.

Last but not least, not only is the curriculum designed to equip the students with the knowledge and ability required for the professional practice of architecture but to give him a cultural education to enable him to make the right use of this knowledge and ability as well. This is extended through the different topics offered, seminars, conferences, colloquiums, public lectures... etc. Unfortunately, it seems that there is no room for such events. Even relationships between different departments (sociology, economics, town planning, arts, civil engineering...) which are related to architecture, are lacking. Thus, students are not really motivated or curious to discover the sustaining and compelling forces of their times and comprehend the intellectual and spiritual environment in which they live.

5.8.3 Teaching methods:

The teaching method practised, whether in the low, medium or higher educational system, still goes on in its old ways. Yet, despite the teachers'efforts to develop new teaching methods, the general existing manner is dictation and delivery.

Due to carelessness, lack of experience or lack of appropriate recommendations, students are not involved in the process of learning which might help them to learn by themselves once they leave the school. Besides, teachers are most likely teaching what and how they themselves have been taught. Consequently, the design as a learning process has never been envisaged in its whole sense. At the same time, the lecturer's principal task which is to encourage the student to observe and design his own process of learning, is hindered. The project system which was supposed to have the advantage of permitting each student to work at his own pace and is therefore highly flexible and adjustable, is on the contrary predefined. The tutor is more likely to impose his own idea upon the disciple eclipsing therefore the students'ability in order to reach a quick solution or a product. In addition, the majority of the teachers are themselves cut off from vigorous practice or research which make the situation even more difficult.

5.8.3.1 Case of the fourth semester:

As long as the first two years of the curriculum are considered as the basic of the architectural training, it would be wise to choose

the final semester of this cycle as a relevant sample for further investigations. Besides, housing, which has been allocated great importance for the architect, is tackled within the framework of the atelier(design studio).

This semester is organised around five topics, architectural history number one, sociology, construction number two, building materials'strength and atelier number three.

The Atelier which is prerequisite to semester five, will deal essentially with Algerian housing and its evolution from the pre-colonial period to the after independence period.

Housing in other countries is supposed to be studied not in details, but through books and seminars suggested by the teachers concerned.

Housing in Algeria will be analysed through its political, sociological, economic, demographic, cultural and psychological components while the results will be illustrated by design propositions.

The work is divided into three main steps:

- analysis and suggestions
- sketching
- project.

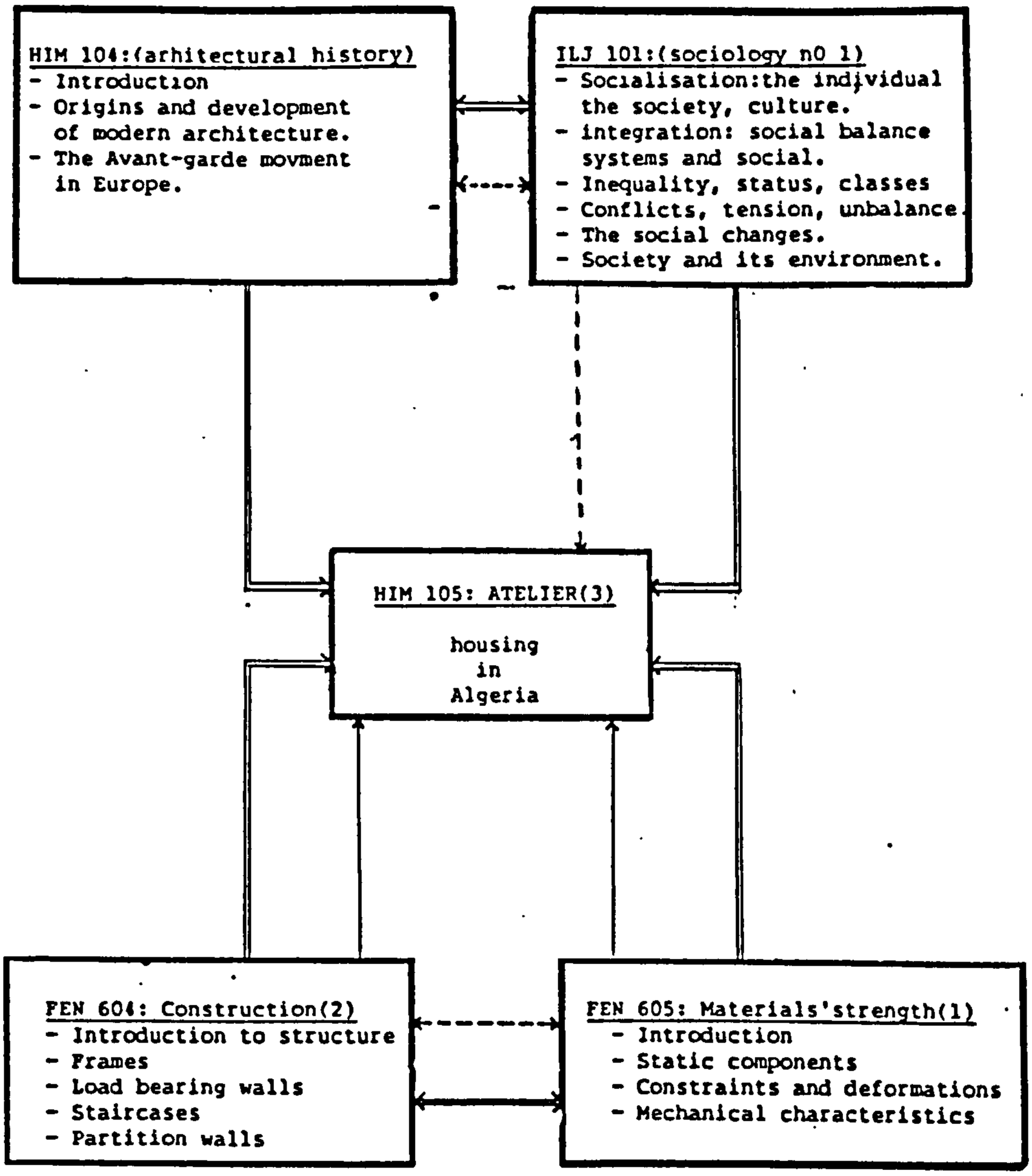
However the atelier is supposed to be the main spine to which other topics strictly connected to housing are articulated.

This process is intended to combine related subjects into a single integrated course. Thus materials and methods of construction and structural theory are linked together, or construction and intermediate design, or construction and equipment, or theory and

history or even graphics and design. Although the experiment seems to be stimulating (if under able teachers), the danger is that the teachers'special interest and talents may even cause neglect of some topics. Besides, all these exercises depend a great deal on extensive reading on assigned texts.

According to the following diagram (see table 14), the above statement does not seem fully respected.

Effectively, sociology and architectural history are not related to housing. Him.104 could be more appropriate if themes suggested were for instance dealing with the housing type existing and its evolution in the three periods mentioned previously. As I said before, the student is forced to rely on interpretation of the general literature of the field. In construction and structural theory, adequate texts are available but in the case of history, no satisfactory texts exist. Automatically a true understanding of historic monuments and their meaning can only be gained from a competent architectural historian. Similarly, ILJ.101 would have been more appropriate if it was intended to create the interest of students to undertake sociology research concerning the profound changes that Algerian housing underwent.



⟹ Strong relations which are supposed to exist.

Existing relations between the different topics:

——→ strong

- - -→ weak.

Table 14: Subjects taught in semester four

However, I should mention that sociology(2) which is more appropriate for housing is taught during the following semester. Besides, even technological topics such as FEN 604 or FEN 605 are not connected to each other and not well related to the atelier.

Within the framework of the atelier (project work), students are given a brief which states a problem accompanied by parameters and steps to follow within which they are to design a solution to it (see appendix two). In this way, students are not offered any opportunity to give or elaborate their own judgement. In other terms, not only is the problem predefined but the solution to it is anticipated as well. This will inevitably lead to uniformity of the presentation and the familiar products (solutions) which amazingly resemble those found in magazines and those elaborated by students of the previous year.

Above all, the teaching method is still relying on lecturing.

> "with regard to lectures, it is worth noting that when students listen to a discourse within their range of understanding and take the customary notes, they are rarely able to recall more than 40 per cent of the essential information" (Leiah.M, 1968)[5].

This pedagogic spoon-feeding assumes that the role of the teachers is

to prepare these students -who most of them have never been in touch with at least a real brick due to the lack of practical training or site visits- for several written examinations and unrealistic projects which are often finished in appearance and where huge efforts have been made in creating an attractive aesthetic. The

single alternative for teachers then, is to give formal lectures and studio assignment making the student fully occupied with little time for research, information collecting...etc.

Closely connected to teaching methods and the syllabus are textbooks. It is worth mentioning the small variety of texts in vital subjects. Even teachers themselves do not seem very keen to prescribe books for reading. This is worsened by the inappropriate student/teachers ratio. As an average, in each atelier 9 to 18 students are allocated to a teacher[1] . This makes the dialogue between teachers and students almost inaccessible leading unfortunately to very little chance for tutors to discover and develop eventual students talents to the maximum.

Let us ask ourselves what would be the best means to use in order to improve the teaching methods? Which topics should be tackled and in which semester? How could you make the personal contact between teacher and pupil stronger and efficient?

There are, I think, enough arguments to generate an awareness to these acute problems.

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[1]The same number of staff is allocated to each semester regardless the number of students which explains the different staff/student ratio in each atelier (see table 11 p145).

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CHAPTER 6

CHAPTER SIX

THE ARCHITECT TODAY

Once graduated, the Algerian architects have to face two alternatives:

a. They could be involved straight from the school in the real professional life facing all the tasks which would be very likely hard for them to perform or

b. they could push further their knowledge through post-graduate studies in Algeria if available or abroad.

6.1 THE PROFESSIONAL LIFE:

At the present time there about 1450 architects registered as professionals to the U.A.A (Union des Architectes Algeriens) spread through different areas as follow:

6.1.1 Government sector:

According to the law no 84.17 of the 11th February 1984 related to the civil service, all Algerian architects[1] have to work within state agencies for the duration of five years[2]. The aim behind the civil service is the distribution of existing qualified

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[1]Architects as members of the national army, official representatives of the party and sons of the martyrs are exempt.

[2]Two years of military service are not included. This phase should be done before the age of thirty.

human potentialities within the framework of the national strategy dealing with the national or regional development. After the accomplishment of these duties, the architect is offered two options:

a. to offer his services to the public sector or

b. to work as a private practitioner.

According to the recent figures given by the U.A.A[1], it appears that most architects work for the government in various agencies dealing with a variety of tasks such as: planning, urbanism, housing, research ...etc. It is true that such jobs offer a wide range of experience but we should not neglect the fact that their educational background cannot surely make them able to play such important roles.

6.1.2 Private sector:

The Algerian architect in this case is less involved than in the government sector. Most of the private offices are mainly dealing with private houses or very small projects. Besides, private architects are supposed to be controlled in terms of amount of work rather than the quality.

The more interesting projects in terms of scale and their impact on the Algerian user are often allocated to foreigners who are alien to our culture and automatically from whom we can not always expect appropriate solutions. This attitude inevitably creates within the Algerian architects a feeling of lack of confidence.

However in both cases (private or government sector), the title of

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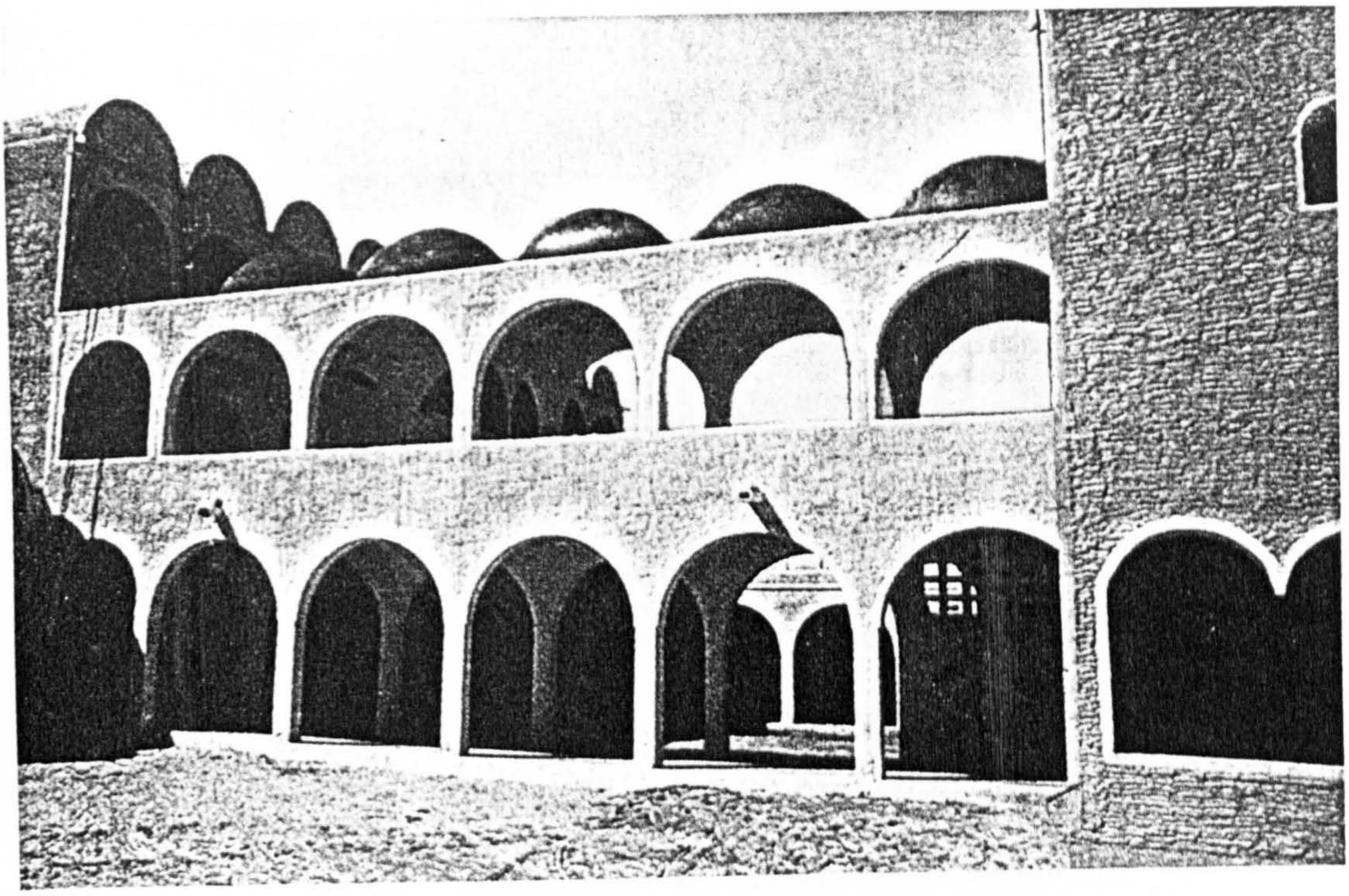
[1] Union des Architectes Algeriens.

"architect" is not really fulfilled.

The degradation of the architectural heritage, the chaotic development of individual construction and the perpetual architectural mediocrity are the results of these architects efforts who are eager to produce "modern" buildings denying or simply ignoring the culture, traditions, and climate..., factors which did not attract their attention during their training.

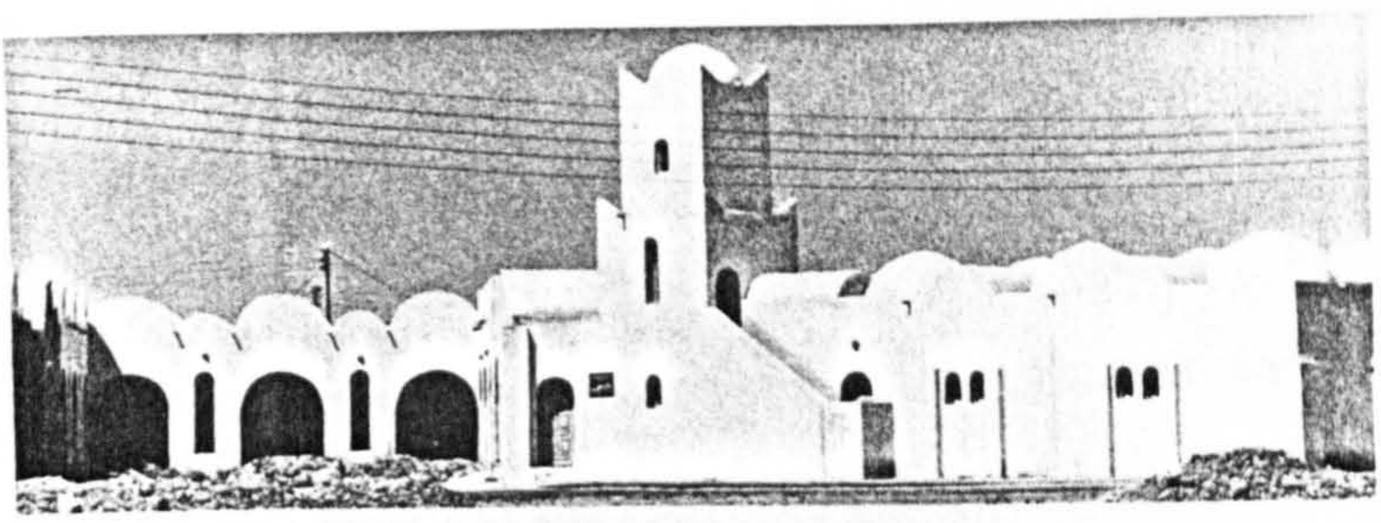
We cannot deny that architecture by Algerian architects appeared late and rather isolated in the cultural and political reality but this does not mean that we should not be aware of the importance of the problem. Significant attempts, in my opinion, have been made by Hadj Bouchama Abderhmane to illustrate what Algerian architecture should be. Although his architectural impact only affected the design of buildings directly related to a religious function. Some foreigners as well tried to contribute in the same way by encouraging the idea of Algerian identity. This is the case of El-Manyawi (Egyptian) brothers'works which were closely connected to the Islamic past without contradicting present day conditions (see photograph 12 & 13).

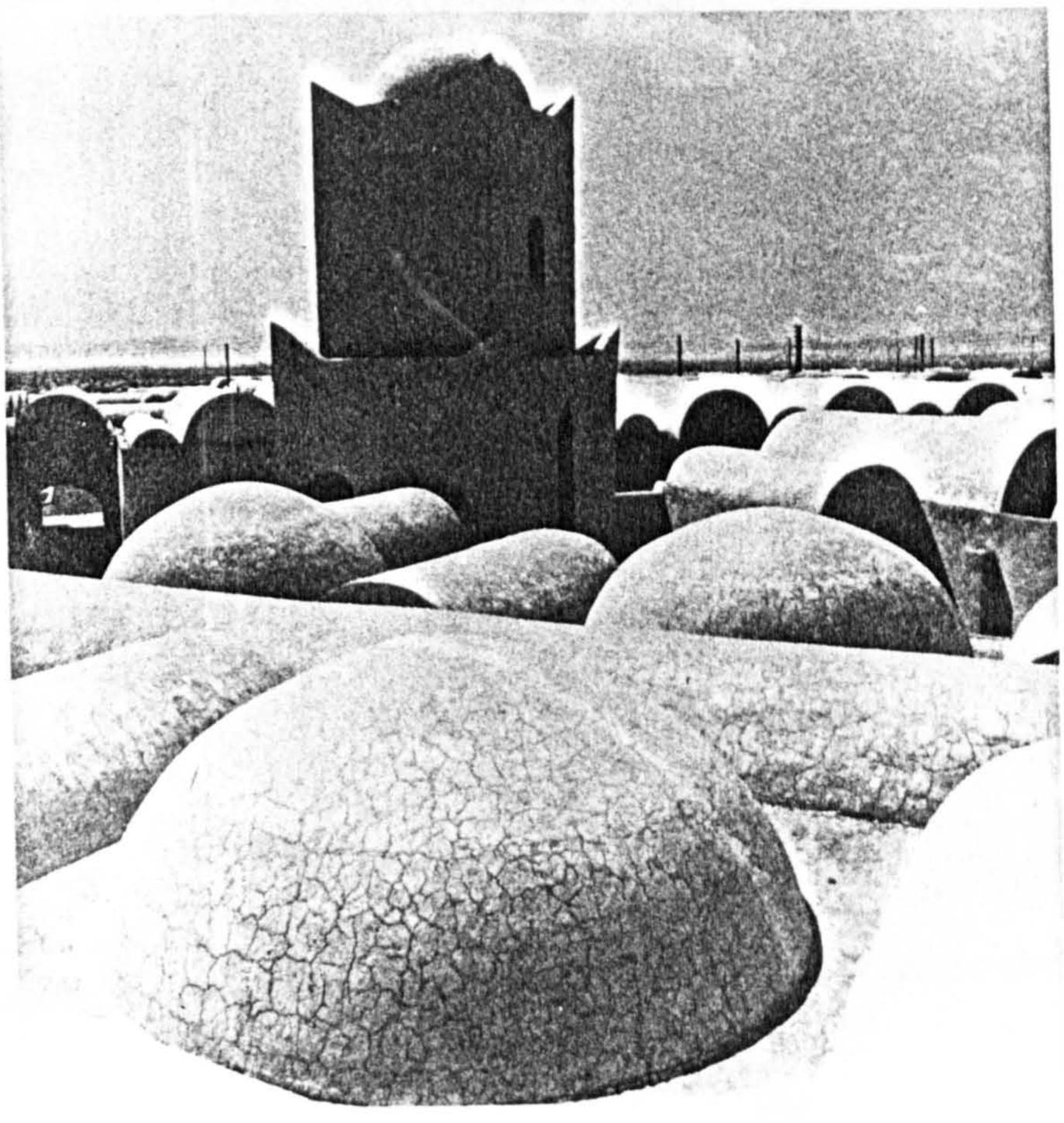


Photograph 12:

A secondary school in the south of Algeria, by El-Manyaoui

Source: Author





Photograph 13:

Agrarian village in Algeria, by El-Manyaoui

Source:

Centre George Pampidou, Des architectures de terre, Paris, 1982, p185.

6.2 POST-GRADUATE STUDIES:

The national higher educational institutions are enrolling at the present time about 130,000 students in various disciplines. (Boutaleb.G 1985)[1]. However the offer for specialities for the fulfilment of masters or doctorates is limited and the number of competent teachers is still very low. Thus training of students abroad for most fields seems to be necessary. In this respect, a special committee C.N.F.E[1] was set up in 1982 on behalf of the ministry of higher education in order to organise and control programmes dealing with the training students abroad. These programmes are normally depending on the country's needs which are established on the basis of the number of existing and planned universities, the various disciplines taught in these institutions and their priorities.

In 1984/85, 8000 students have been registered as students abroad, and the range of subjects became wider. From 8 topics in 1975 to 40 in 1985. This increase in terms of specialities has been mainly induced by the fields of sciences and technology (see table15).

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[1]Commission National de la Formation a l'Etranger.

Fields of study	Number of students in %
science and technology	60
medical studies	20
humanities	20

Table 15: Students abroad registered according to the field of study

Source: Algérie actualité, No 1025, 6-12 June 1985. p16.

However the number of students sent yearly abroad does not necessarily confirm the planners'expectations. Need for qualified lecturers urge the authorities not to take into consideration the selection either of the student nor the subject of study.

"Actuellement, on continue de former pour former.
On selectionne qui, pourquoi, sur quel objectif?"
(Bourezg.K, 1985)[2].

This statement is, in my opinion, more than honest and very realistic. This could be explained by the fact that the definition of needs is not clear enough and the figures illustrating these needs given by the people concerned are not always updated and made worse by the lack of surveys which should be done by the educational institutions in need.

On the other hand, as the planners have to reach their target (number of students which should be sent abroad) they have to accept any candidature even if the candidate's dossier is imcomplete and the student himself does not respond to the criteria (standard of marks, age, experience, priority of the subject...etc) set up by the C.N.F.E.

Among the anomalies, one should not fail to mention the huge expenses involved in order to transfer the technology. According to the ministry of higher education, a long period of post-graduate studies abroad (3 to 5 years) would cost from 250,000 D.A[1] to 350,000 D.A while a short period training (one month) would be evaluated around 84,000 D.A. The fact which amazes me more is despite these expenses the number of students abroad is still increasing. From 1982 to 1985 the total number of students abroad increased up to 80% while the share allocated to the ministry of higher education was from 54% to 64.8% (Boutaleb.G, 1985)[3].

I agree that a certain target -in terms of number of students trained abroad should be reached each year but this must not exclude the possibility of training them within their own country.

However the short period training abroad scheme slightly used before 1981 has amazingly increased especially for medical studies, law and humanities in relation to the ministry of higher education and for other fields according to other ministries.

As far as the ministry of higher education is concerned this "formation a distance" allows the universities to maintain a stability in terms of their teaching staff and of course to save appreciable amount of money. To illustrate this financial statement I must attract your attention to the fact that during the last three years and despite the huge number of students studying abroad, the amount of funds effected has considerably decreased. Within this period, the annual cost dropped as a result of the short period training by

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[1]10 Algerian Dinars = 1.5 English Pound.

40%. From 232,2 millions D.A in 1982 down to 135,4 millions in1984 (Boutaleb.G,1985)[4].

6.2.1 Architectural post-graduate studies in Algeria:

Considering architecture, postgraduate studies in Algeria are offering a very limited number of topics which are often related to town planning. These subjects are available in the schools of Algiers E.P.A.U, 1978 and Constantine I.A.U.C, 1982. Such studies are only allocated to people who are already members of staff within the universities. This formula which intends to maintain a constant number of lecturers has on one hand the advantage of using research dealing essentially with local and realistic problems. But on the other hand solutions adopted are still affected by the international architecture while the study of traditional urban planning and housing pattern which has confirmed the suitability from the social and environmental point of view does not seem to be encouraged. Among the few inconveniences, it has been noticed that a great amount of time is spent by students in order to achieve their targets. The reasons seem to be unclear, but according to some informal and personal interviews it appears that a few factors are the main causes:

a. lecturing takes time

b. lack of literature

c. inadequate supervision

The next negative attitude is that all subjects tackled exclude the

urban poor. As a result of the combination of precipitate urbanisation and the high pressure of the increasing population growth, a new type of habitat was born under the name of squatting affecting all the major Algerian cities (see photograph 14).

Some figures will be appropriate to illustrate this statement. The population living in squatter settlements in the capital Algiers is estimated to be around 50,000 from one million of the total population. In Constantine 5000 families were hoping for a decent shelter (Author, 1983)[5].

Unfortunately a major component of this marginal society do not gain any benefit from the services or skills of architects or allied professionals. Do not we think that these underpriviliged communities need urgent attention?

> "No one disputes that the future plan of physical development must include solutions to the overwhelming housing problems of the urban poor, but few schools of architecture seem aware that the curriculum must aim to equip their graduates to solve them"
>
> (Danby.M,1983)[6].

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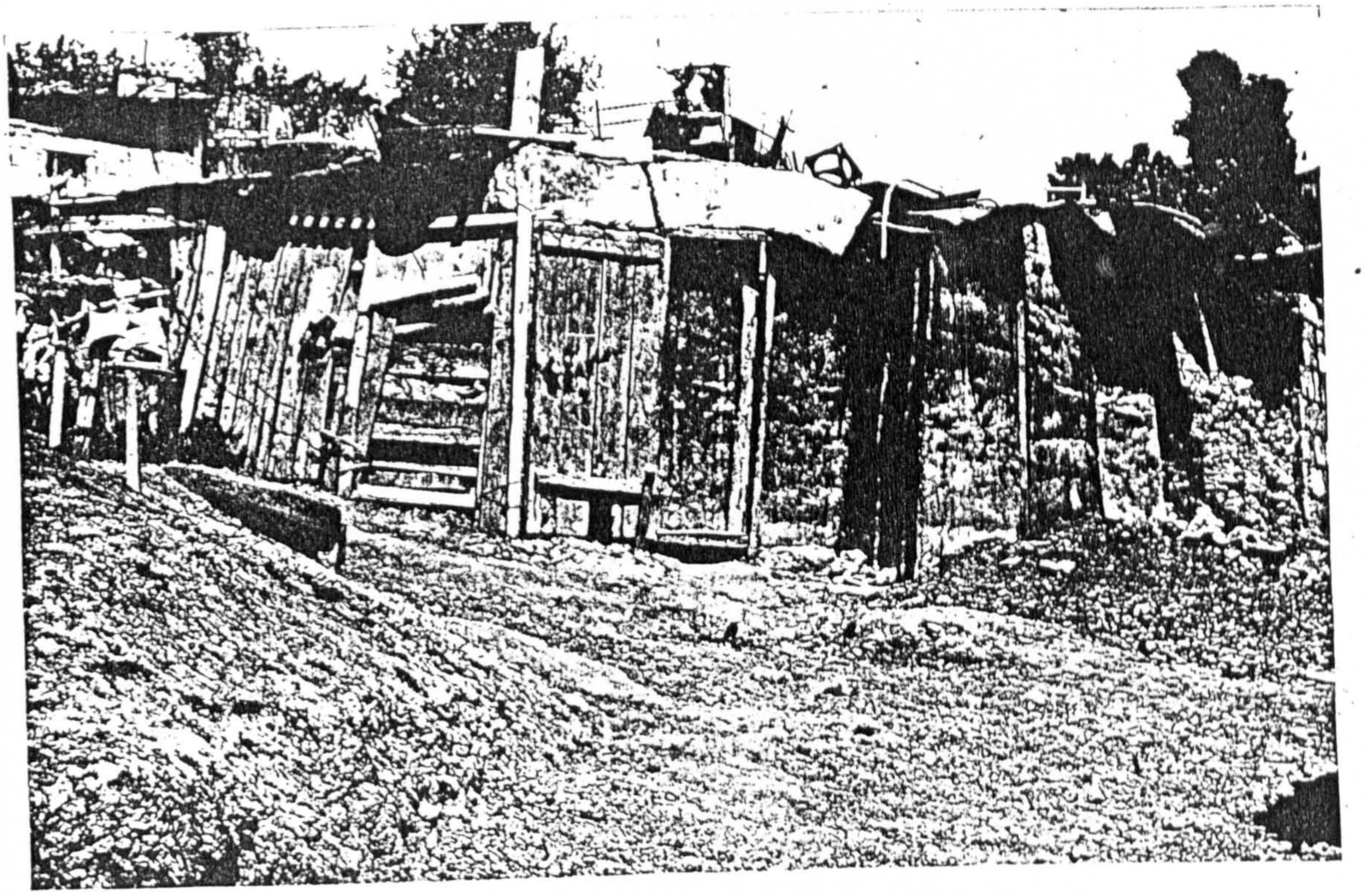

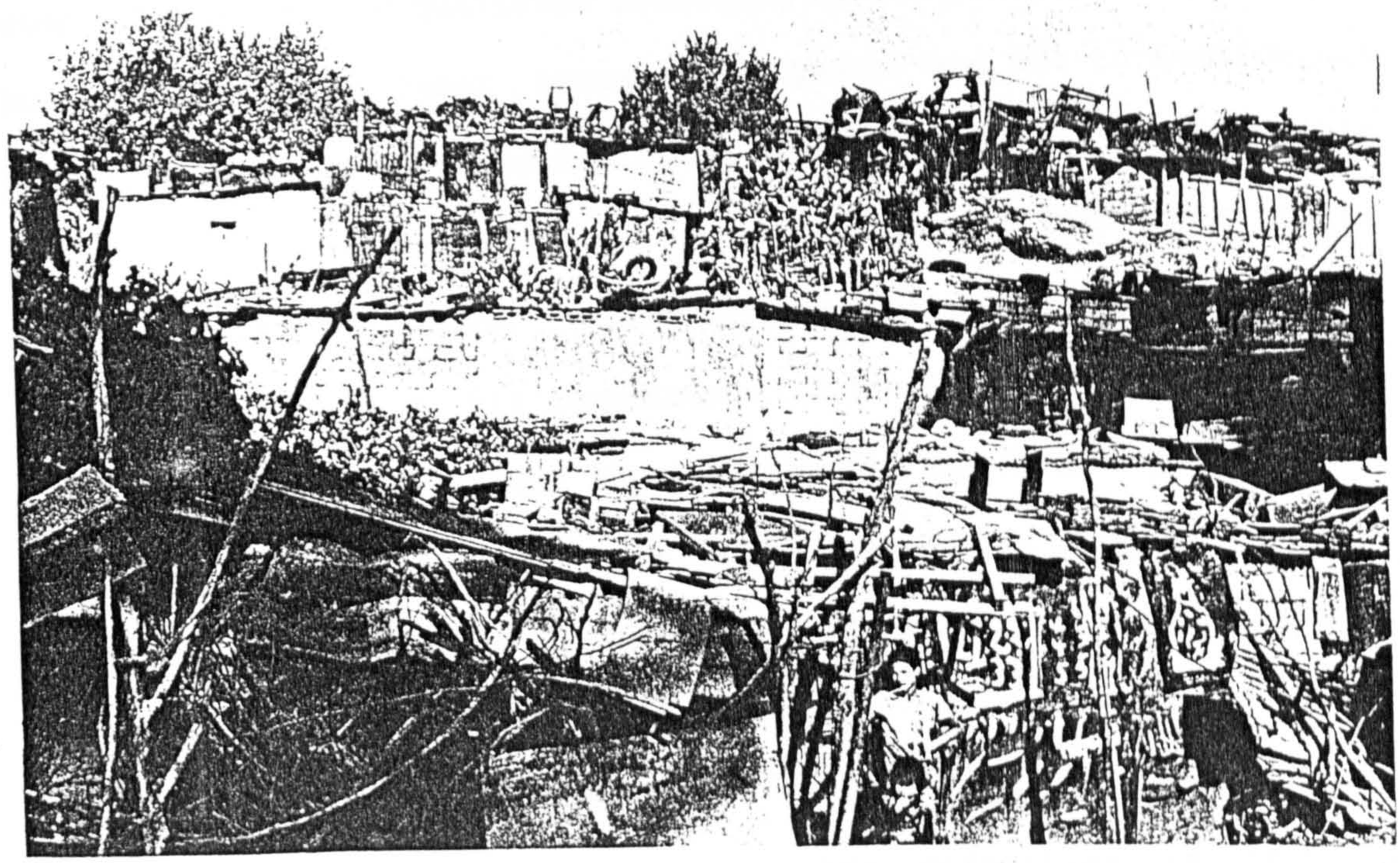

Photograph 14: Squatter settlements in Algerian cities
Source: Author

6.2.2 Architectural post-graduate studies abroad:

As long as the architect students sent abroad for higher studies are supposed to be the future educators in architecture[1], the training of these people is without doubt, one of the most important factors considering the success of their future tasks. In this respect I am giving a high priority to this point in order to examine all the obstacles met by the Algerian students and the eventual solutions adopted.

6.2.2.1 Students career:

Bearing in mind that the training of the architect is a complex task, highly qualified architect (M.Phil, M.Sc, M.A, Ph.D...) has to spend at least three to six years -and not to mention his practical experience- after his first degree (diploma). During this period he is supposed to do research for the fulfilment of the degrees mentioned above. This happens in most cases through financial help from his government. These studies are expected to help him to gain specialised knowledge needed for teaching, research and practice. Unfortunately this is not always the case.

First, the decision taken by the student once he reachs his final year (diploma) is not really well thought out. Because grants are made available, students have nothing to lose in filling a form.

Second, the candidates do not see the priorities in the right

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[1]After their studies, students have to fulfill their contract with the ministry of higher education which is illustrated by seven years of teaching.

hierarchy. The most attractive objective is being abroad. Consequently their future job as lecturers is not considered carefully let alone their training.

Third, because the diploma curriculum did not make them aware of acute national problems (see chapter five) inevitably they do not have the slightest idea of their future research topics. General titles (housing, prefabrication, conservation, special construction...etc) are proposed which are often -in relation to them- if not understood, misleading.

6.2.2.2 Problems abroad:

Once the grant has been allocated, the students, after spending a year in learning the host country language (if different from French or Arabic), have to register on their own initiative at universities where normally all the conditions are met for the topics proposed. Because the students are not informed enough either about the architectural educational institutions available nor about their own topics, their decisions are more often affected by the Algerians already registered in these institutions. As a result, during the first year of their specialisation most of the students are disappointed. Taking into account that their ideas are based on the firm belief that the european way of development and quick industrialisation is the unique solution to their problems these students are eager to learn the most advanced western technology. I think it is easy to guess the consequent attitude when they are taught about squatters and the appropriate technology (septic tanks,

public standpipes...etc). Missing the fact that they have to learn the methodology rather than the solutions, they have then to spend their due time abroad until they are called back. Sometimes because the topics proposed in the application forms are not clear enough, students could not register. In 1984, 200 students (science and technology) were forced to return to Algeria.

This could be easily avoided by setting up a special team working within the cultural section of the Algerian embassies while part of its role should be essentially concentrating on the capabilities of appropriate universities, departments, their enrollment ability and the supervision available. Such information are more than necessary for students especially when they are not very familiar with the host country's educational system. This will save them time , worries and allow them to concentrate only on their current tasks.

Some of the students attending specialised courses abroad, particularly those who have recently graduated and thus are young and lacking in experience, may face serious obstacles.

> "On envoie un peu partout et n'importe ou des jeunes qui n'ont pas l'esprit critique encore suffisamment aiguisé et ne sont pas encore suffisamment imprégnés de la réalite algérienne pour pouvoir cerner l'impact de leur contribution ultérieure dans le cadre du développement de leur pays (Bourezg.K,1985)[7].

a. As the students are unfamiliar with the research methodology, a considerable time is wasted before the students can start their work.

b. Data became difficult to collect due to the decisions about

topics which are most often taken very late. This is worsened by the lack existing in the host country's libraries or by the difficulty in reaching these data in the native country (secret data, bureaucratic procedures or simply unpublished).

c. Because students are more enthusiatic to deal with Algerian problems, it is not always easy to find adequate supervision. Very few of the staff on such courses in Europe, U.S.A or U.S.S.R have had the chance to work in the third world. Consequently the teaching of Algerian students can be rather hard to perform. Thus the setting up of special programmes in architectural schools abroad focussing on the Algerian context or Third World in general is advisable. Department of tropical studies (AA) in London, C.A.R.D.O[1] in Newcastle and similar institutions such those in Copenhagen, Rotterdam ...etc could be taken as basic examples for eventual improvements.

On the other hand, if topics choosen by the students are not related to the Algerian reality the graduates then trained are more often better equipped for working abroad rather than in their own country.

As far as these students are supposed to teach once they return home, it seems that their special training abroad does not

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[1]Centre for Architectural Research and Development Overseas.

provide any orientation towards teaching methods.

Besides the absence of practical experience it has been noticed that young Algerian teachers at the architectural schools are lacking the teaching skills. Should not we include accordingly related topics to fill this gap?

I do agree that a wide range of literature deals with pedagogy but does not necessarily concern higher education let alone architecture. I am not expecting to come across a "How to teach architecture guide" in this specific meaning nevertheless this should not prevent us from raising the question.

Students themselves may observe their own process of learning but still they need more means in order to take advantage from those who are surrounding them. Consequently,

a. discussions and courses dealing with this specific problem might be useful,

b. explaining and evaluating the didactic facilities available and providing opportunities for using them is advisable,

c. involving students in any events dealing with the subject in order to analyse others people's experience might be helpfull.

My small experience during the second term of the year 1984/85 with the fourth year architect students who were conceiving projects for egypt is a relevant point of case. My twenty two hours of work (lecture, slide show, related bibliography, supervision in the design process) were supposed to help the students to understand the major factors (socio and economic factors, culture, climate, appropriate

technology...etc) which control their final decisions and proposals. This gave me the unique opportunity to be in a teacher'role for five weeks living the real experience with all the related responsibilities. Fact which not only put me in direct contact with the students but the teachers as well. Should not we consider this process as an alternative?

Another matter which should not be neglected is the control over the students and their work. Apart from the reports sent by the universities and students which are often not taken into consideration there is no efficient control from the Algerian authorities. It is only when the students ask for an extension (three, six or a year after his due time for submission) which is needed for the completion of his research that the authorities have to look through these reports in order to justify the further expenses. Besides these reports do not relate the social and economic situation of the students. Thus another or a complementary system of control should exist in order to solve the eventual problems.

> "Il n'est pas logique d'envoyer nos enfants à l'étranger pour acquerir la science et le savoir pour qu'ils aient à faire face à des problémes mineurs qui pourraient les détourner de leur objectif primordial"
> (Bendjedid.C, Algerian president, 1984)[8].

The other unfavourable situation which should be mentioned is the consequences of spending a long time abroad.

Studying during a long time abroad may cut off the cultural and even the technological students'links with their country. Students have generally the tendency of taking advantage of any opportunity to stretch their staying abroad. This is because it is easier while they are already abroad. Unfortunately it has been noticed that this attitude had led to annoying consequences which may alter the students'future. After spending three to six years (sometimes more which is very frequent) inevitably the young Algerian quickly acquires new attitudes and activities which incite him to stay longer making him absorbed in the new system.

Once back home, these students find themselves culturally alien to their own society and consequently need time for reintegration. In addition and above the lack of basic facilities such as housing, transport... bureaucratic reasons will certainly delay the procedure of starting their job and consequently their salary as well. Not to mention the teaching facilities and the quality of the teaching methods which are without doubt lower than where they studied and the fact that they might teach topics which are not related to their specialities.

Despite the priority and guaranteed employment, institutions under other ministries are not always able to provide all the research facilities which are needed for the students after the completion of their studies abroad. As a result these students might spend three to six months behind a desk in doing almost nothing; a fact which encourages them to leave and abandon their contracts.

In relation to the ministry of higher education, specialised students

considered as lecturers at universities are not allowed to practice elsewhere even in state agencies. This makes clear to us that educationists do not appreciate the relevance of creating links between teaching and practice.

6.2.3 Brain-drain:

In the long run, all schools in the third world tend to enroll their own native people while the majority would have done their higher studies abroad. As far as Algeria is concerned, this idea began to be put into concrete form few years ago with the implementation of the principles of Algerianisation (see section 4.2.11). However this process does not seem to be achieving its goals since the country is noticing that very few students are returning home. In 1983/84, 37.5% of the expected returning students applied for an extension and not to mention those who when they complete their training prefer the better living conditions and higher pay in the host country or elsewhere to returning home where they are more needed. Others will argue, apart from the attractive material reward, about the facilities of research in Europe and America. Besides, their decision does not only depend on the materialistic comfort; their family link, their social, political and administrative stability and the status allocated to their profession may play a great role. In fact the majority of these graduates would have liked to serve their nation if they have seen any satisfactory perspective to their career.

Thus the sending of students for study abroad has its risks. One of them is the brain-drain which is often an obstacle for implementing any programme.

Briefly then, if training abroad is still needed, which is the case,

a. any institution which is in charge of its implementation should set up a master plan relating the real needs while the selection process must include a short period of practice and teaching.

b. The student'special training should normally tackle subjects which are related to his country and his future profession while the period spent abroad should not last very long in order to avoid the alienation from his society.

c. The special training should take place in institutions where specialised staff familiar with third world problems are available.

d. For better result a more adequate process of following up the students has to be established in relation to their study progress as well as their socio-economic situation.

e. In order to encourage students to return home it is advisable to offer them suitable conditions for their work such as teaching the same field as their specialities, concurrent salary, social facilities especially housing, possibility of pushing further their research in the short or long run and the permission of working in national agencies in parallel

with their teaching.

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CHAPTER 7

CHAPTER SEVEN

SURVEY OF THE ARCHITECTURAL EDUCATION OF A SELECTION OF POST-GRADUATES IN U.K

7.1 INTRODUCTION:

This survey is aiming hopefully to obtain more accurate information on the present systems of architectural education in some Third World countries. The questionnaire covers four main areas (see appendix three) which are as follows:

1. general information concerning the respondent,
2. his/her undergraduate studies,
3. his/her professional experience,
4. and his/her post-graduate studies.

The double purpose of this task is to check some previous statements put forward in chapters two and four on the one hand and on the other to investigate the prevailing deficiencies of the learning processes used at the present time which once known could be a sound basis for some recommendations and conclusion.

It is the writer's belief that in order to reach a satisfactory sample size and obtain as wide a range of countries as possible, the questionnaire was submitted to students from different schools:

1. Architectural association, school of architecture, London,

2. Development Planning Unit, Bartlett school of architecture and planning, university college, London,
3. Department of Urban design and regional planning, University of Edinburgh,
4. Centre for Architectural Research and Development Overseas, school of architecture, university of Newcastle upon Tyne,

where the students represented twenty one different nationalities. Therefore, seventy three questionnaires were sent while the number of respondents reached forty three.

The sample which is represented by overseas postgraduate students in architecture -all except for one who came from U.K-, was purposely chosen bearing in mind that they have already been through an architectural training whether in their native country or abroad, which means that they are able to respond to the different phases of the questionnaire.

Since the number of Algerian students within the sample is appreciable (seventeen) it is wise to take advantage of this opportunity in order to diagnose the present Algerian architectural education as a particular case and see how it compares with the situation in other countries.

7.2 COMPILATION OF THE QUESTIONNAIRE:

Before reaching the final draft of the questionnaire, several steps were needed to avoid unclear and unnecessary questions which will cover the four main areas quoted above.

The first step consisted of collecting through the different phases of my work, questions needing clarification.

The second step was setting up two informal meetings with the Algerians students and other overseas postgraduates, and several interviews with people involved in architectural education. During this phase, a pilot questionnaire was constantly discussed and improved according to the various suggestions offered.

Once the questionnaire was established, a preliminary test took place involving three students from different countries in order to detect the difficulties met in understanding the questions.

Further alterations occurred before sending out the questionnaires.

7.3 COMPUTER ANALYSIS:

Once the questionnaires were collected, they were submitted to the "Data Service Department", Computer Centre, (university of newcastle) while its role was to put the information under the form of a coding system illustrated by the following example:

a- "Yes" response is represented by the figure 1

b- "No" response is represented by the figure 2

c- no response would be represented by a blank.

In the case where several alternatives are offered to the respondent, each alternative is characterised by a figure (1,2,3,...etc) and when a comment is needed the figure C is introduced. This task is called data coding.

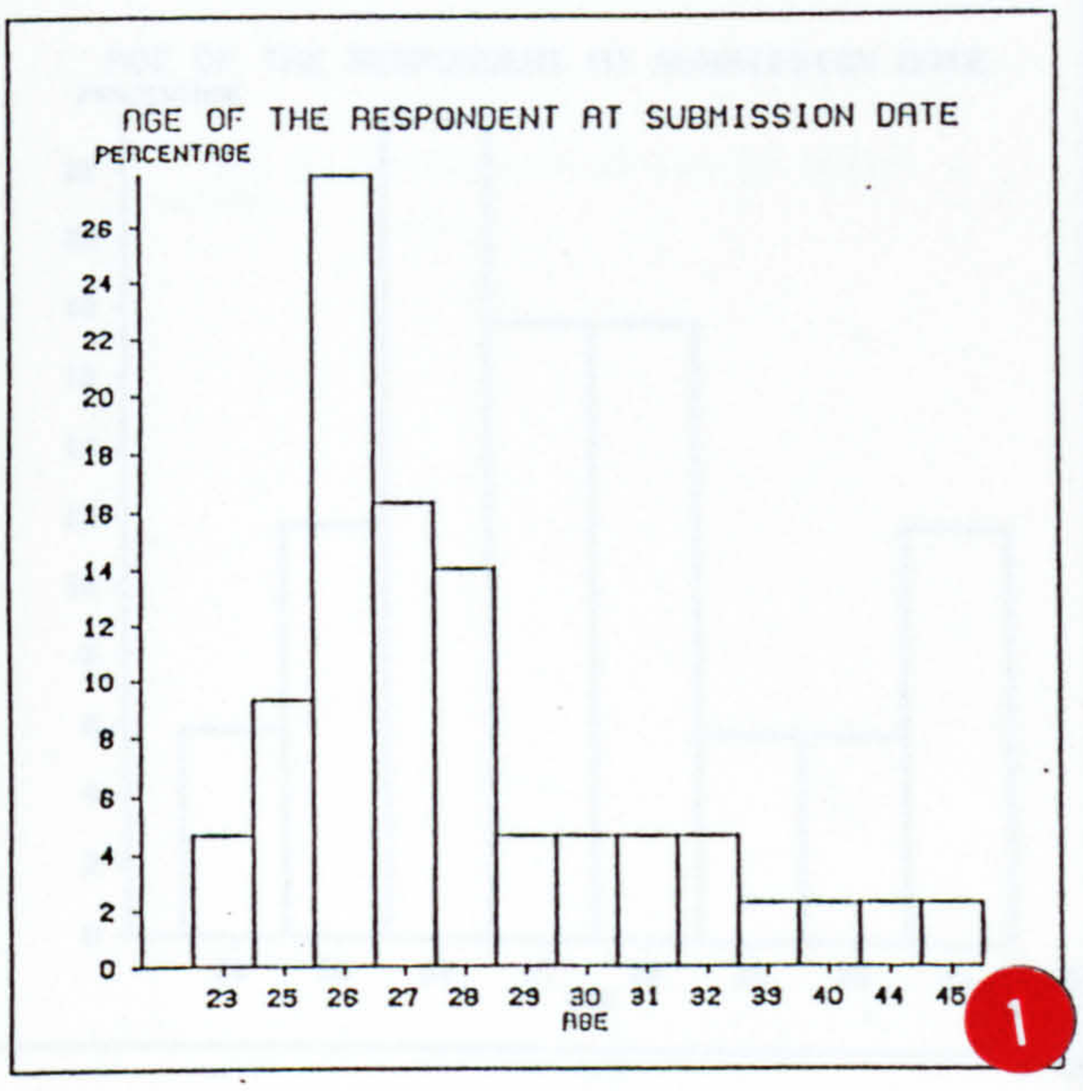
Once this phase has been achieved, the powerful package SPSSX which is available in the university of Newcastle main computer (MTS) was used for the statistical analysis. The process consists of performing two main functions:

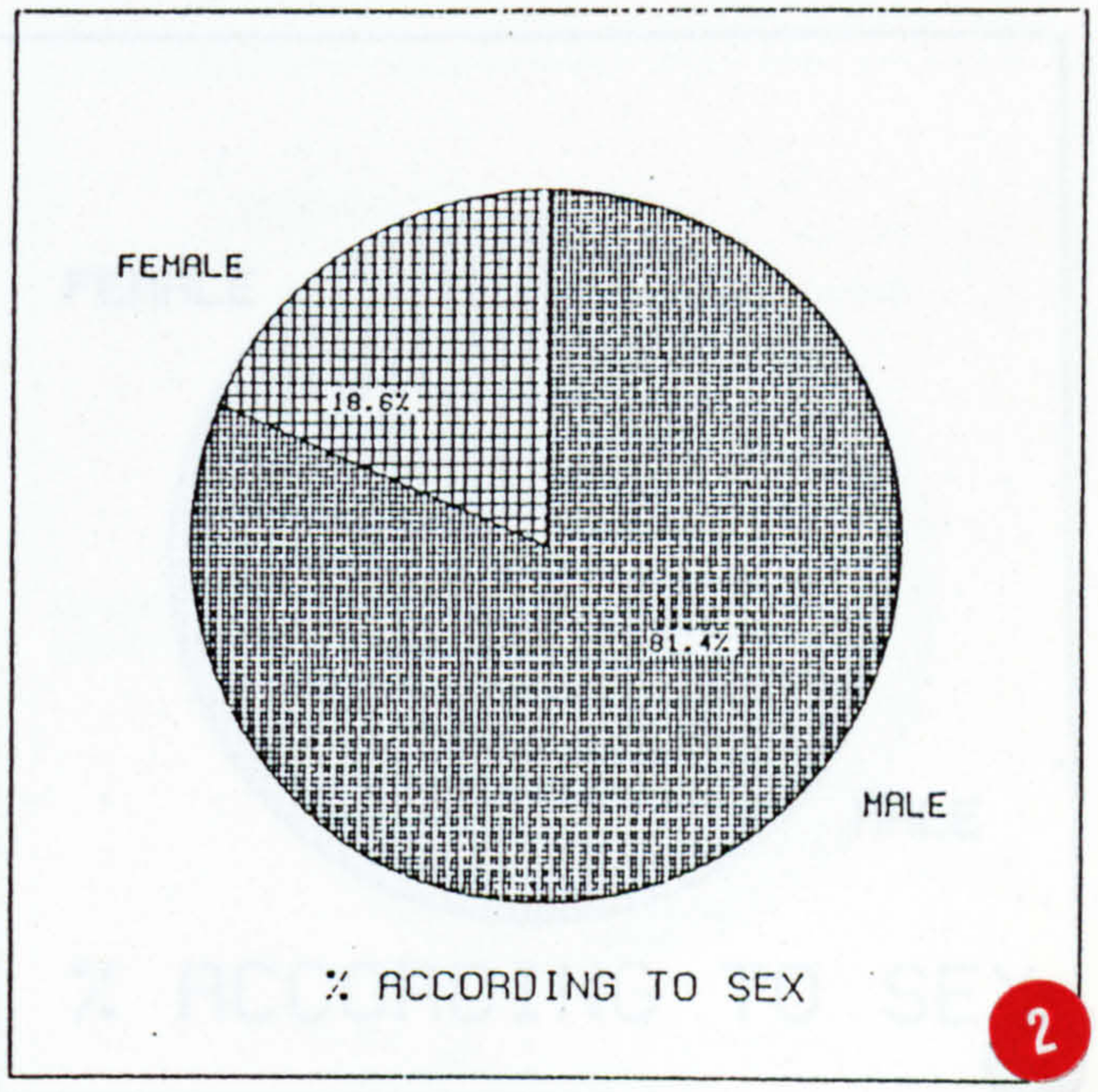
1. to describe the data to the programme
2. to specify what analyses are to be performed.

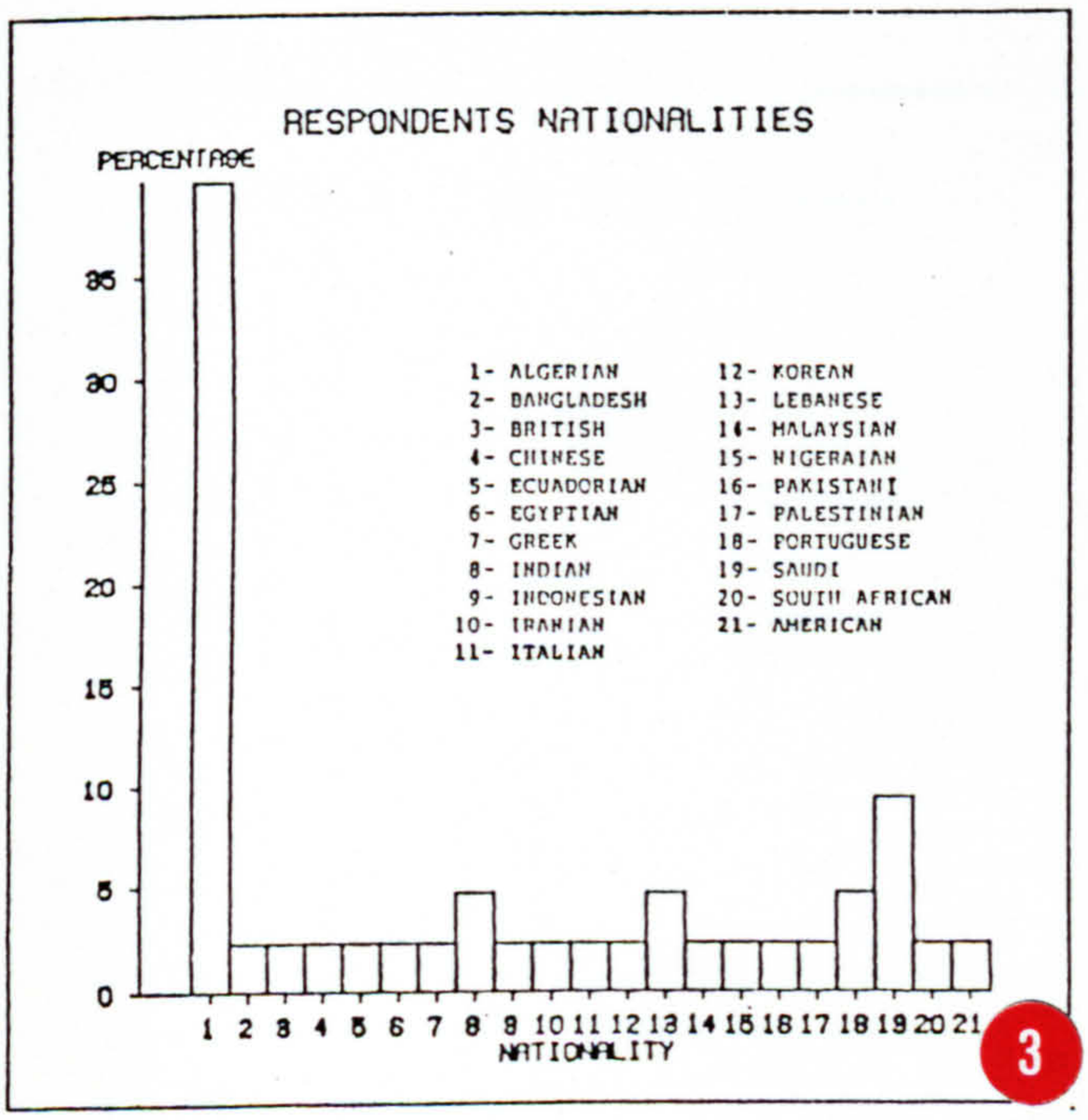
In our case the frequency statistical programme was used which gives accurate results on percentages.

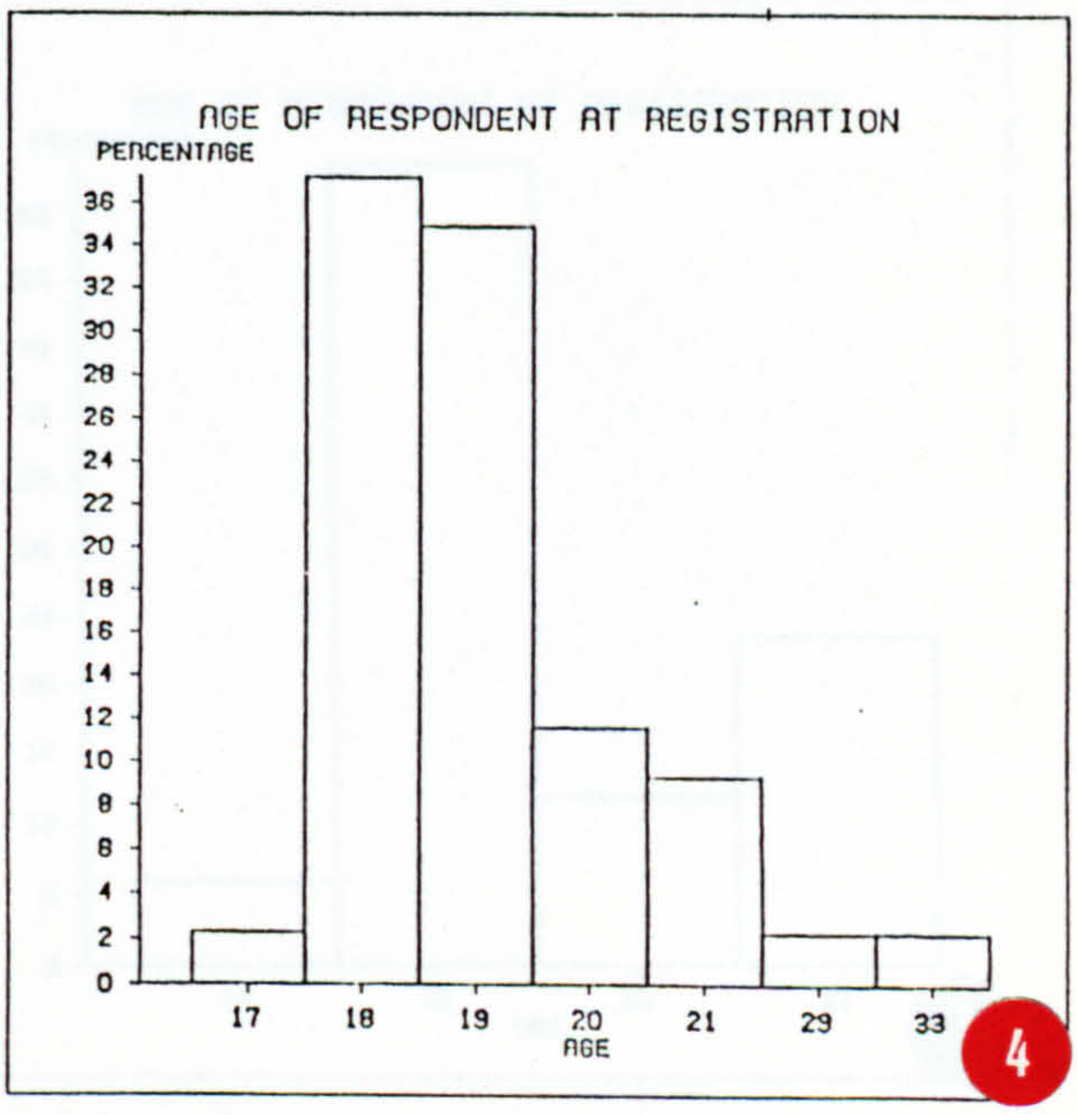
This step is followed by the setting up of the results under the form of understandable representaions. For this purpose GIMS which is a plotting programme able to draw barcharts, line graphs, scatter diagrammes and pie charts, was used. The two plottings chosen were the barchart and pies which are considered by the writer as the easiest to understand by any reader.

The figures carry numbers and a small red or green circle. The red one represents the survey dealing with the 21 nationalities while the green circle is allocated to the group of Algerians only.

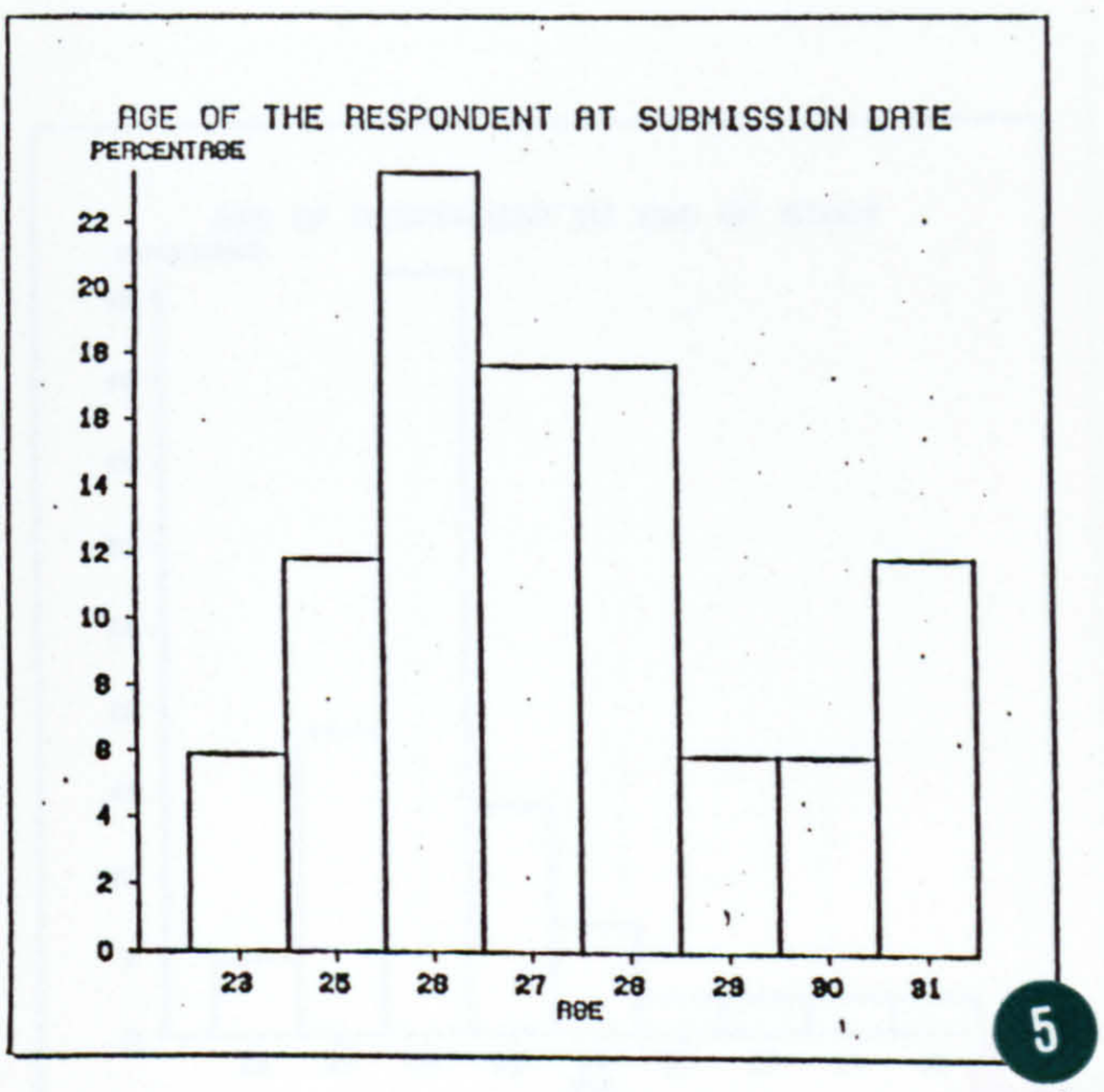


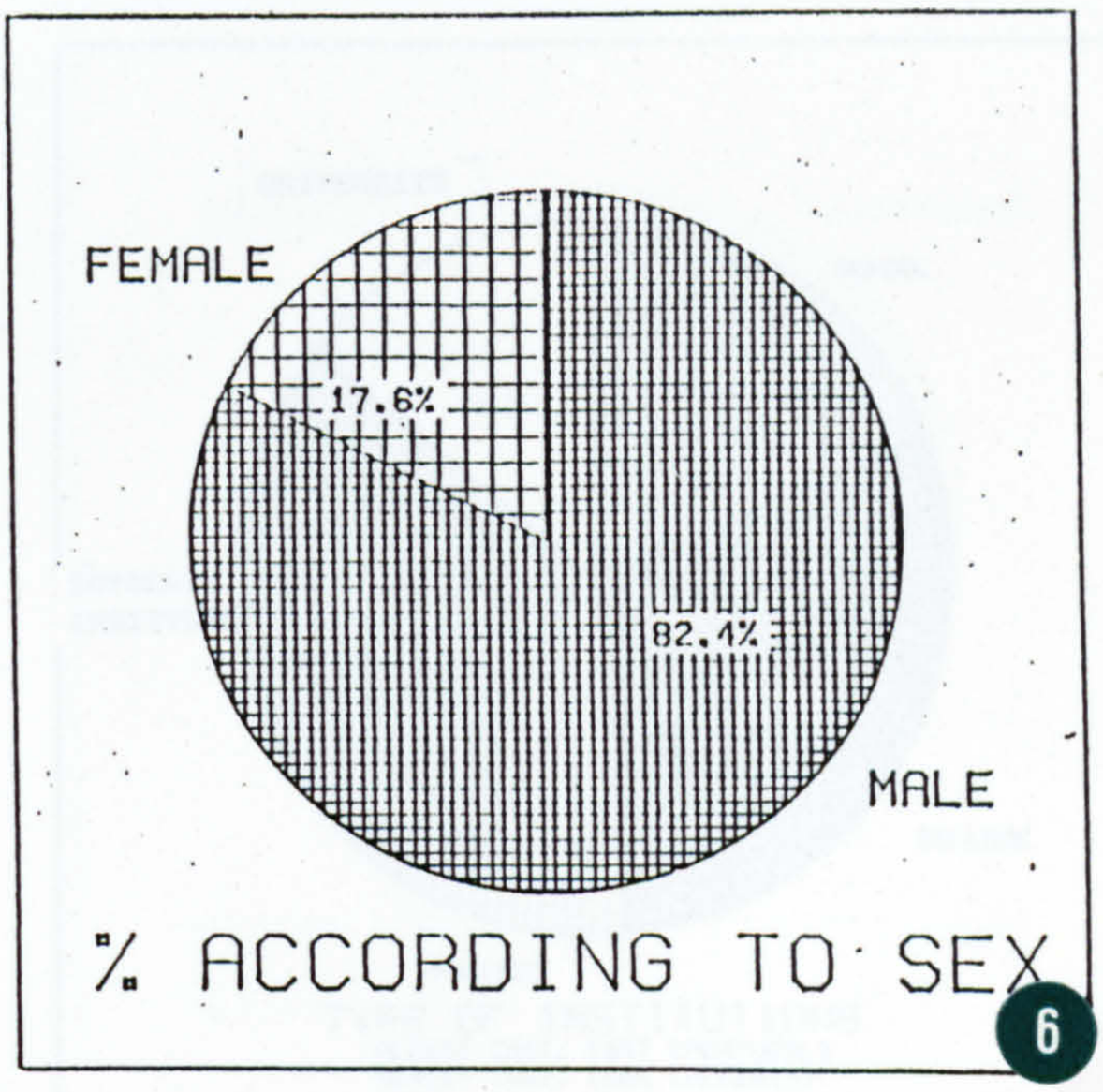


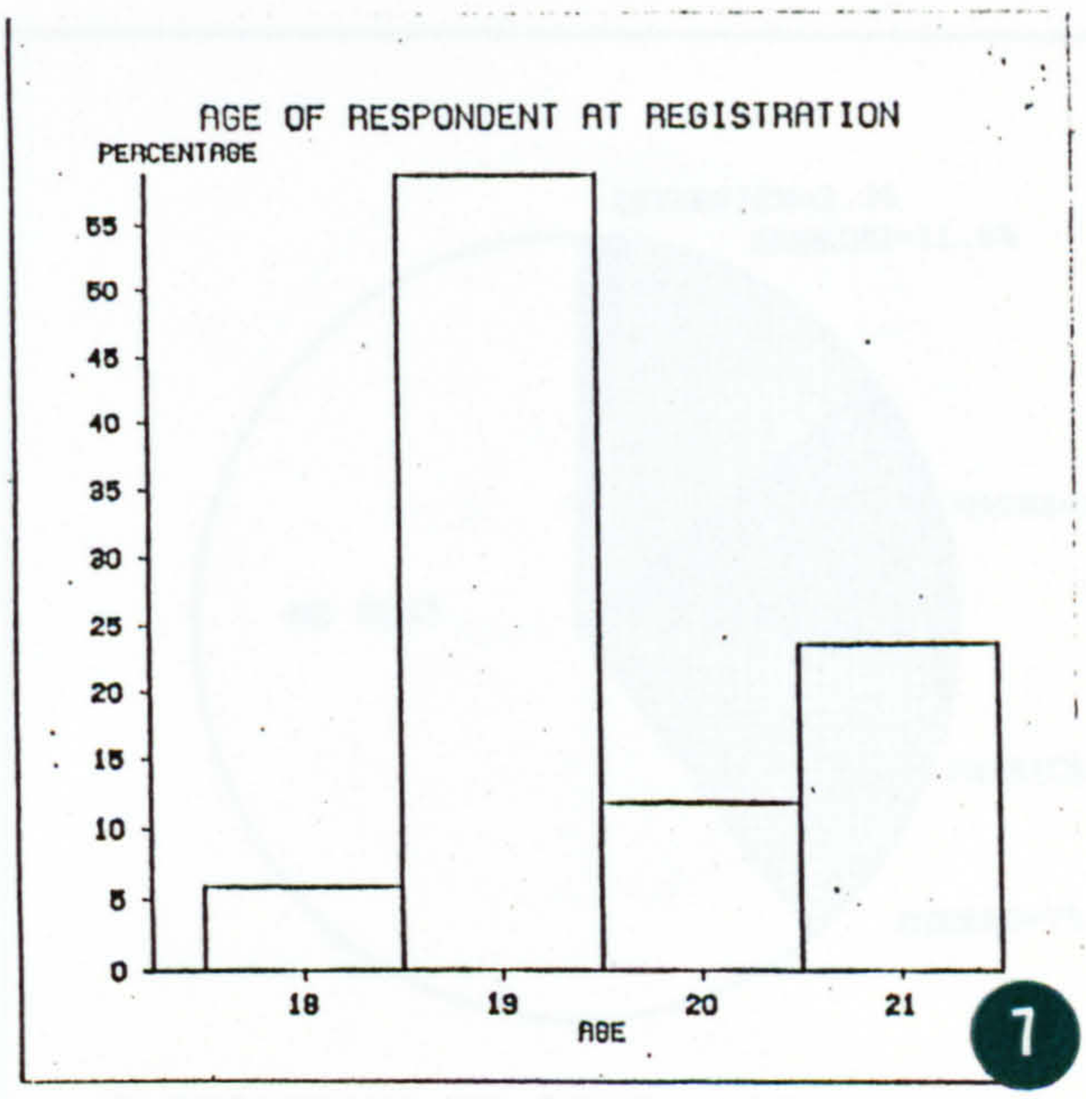


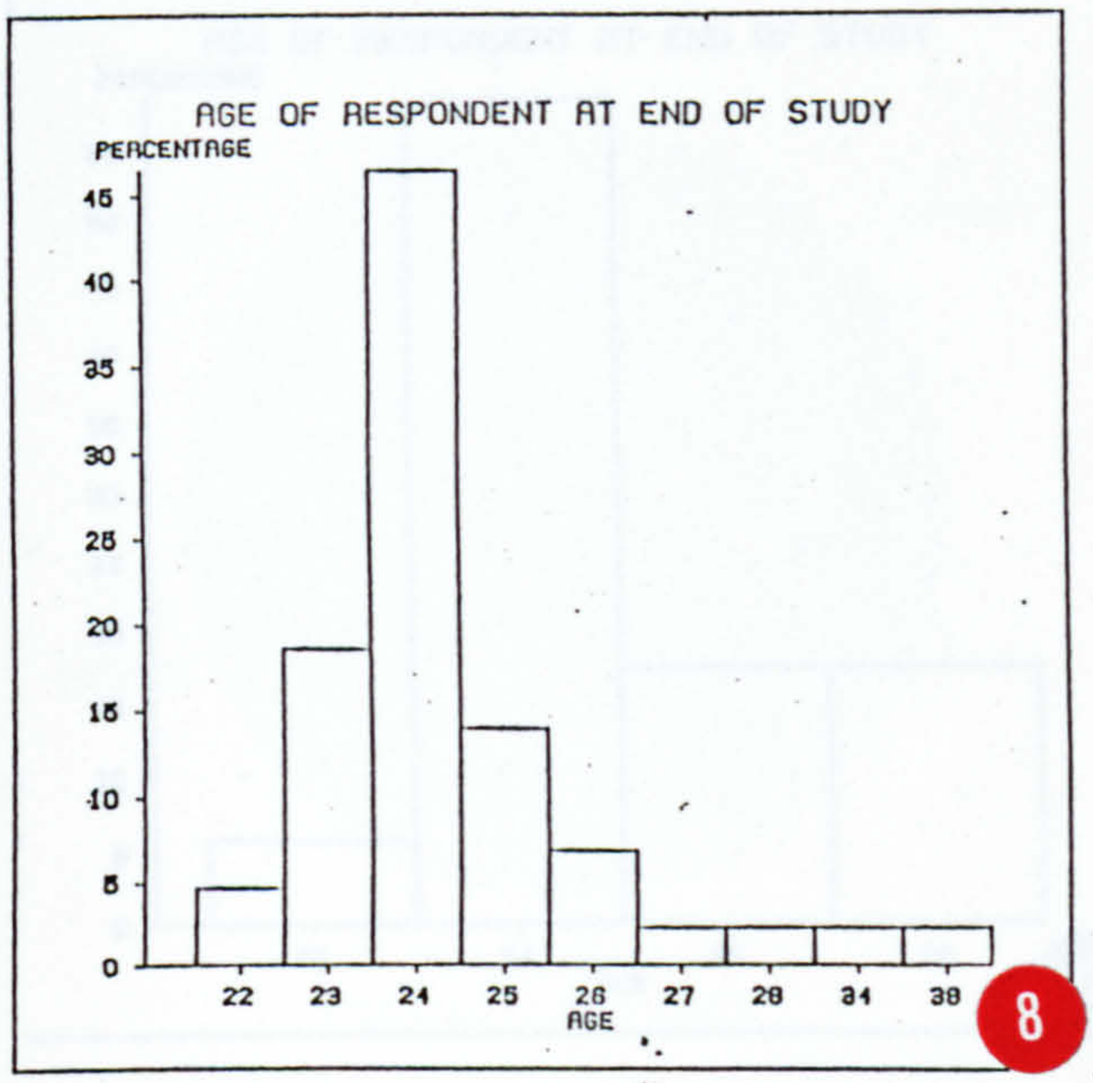


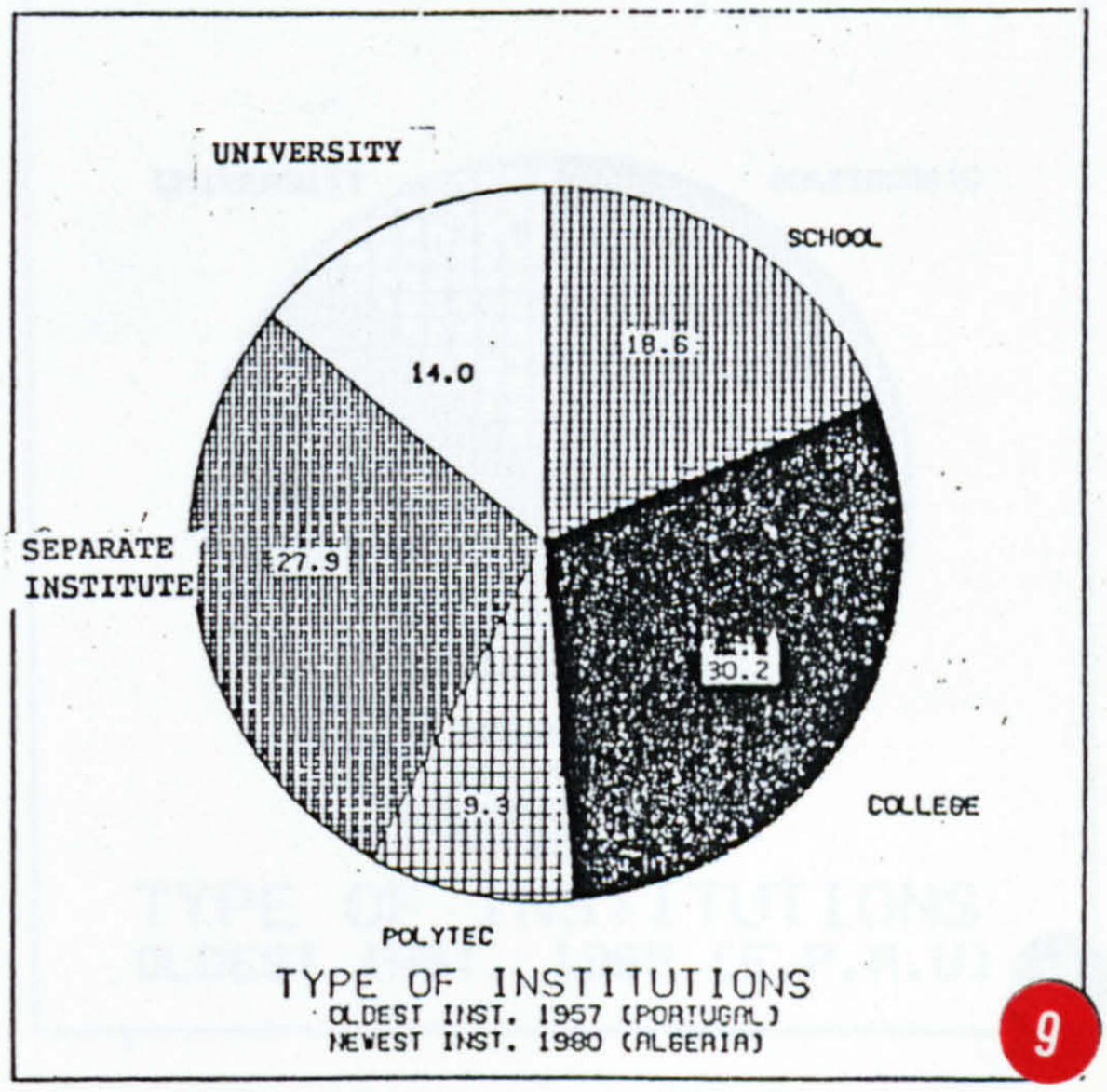
GENERAL INFORMATION ABOUT THE RESPONDENTS

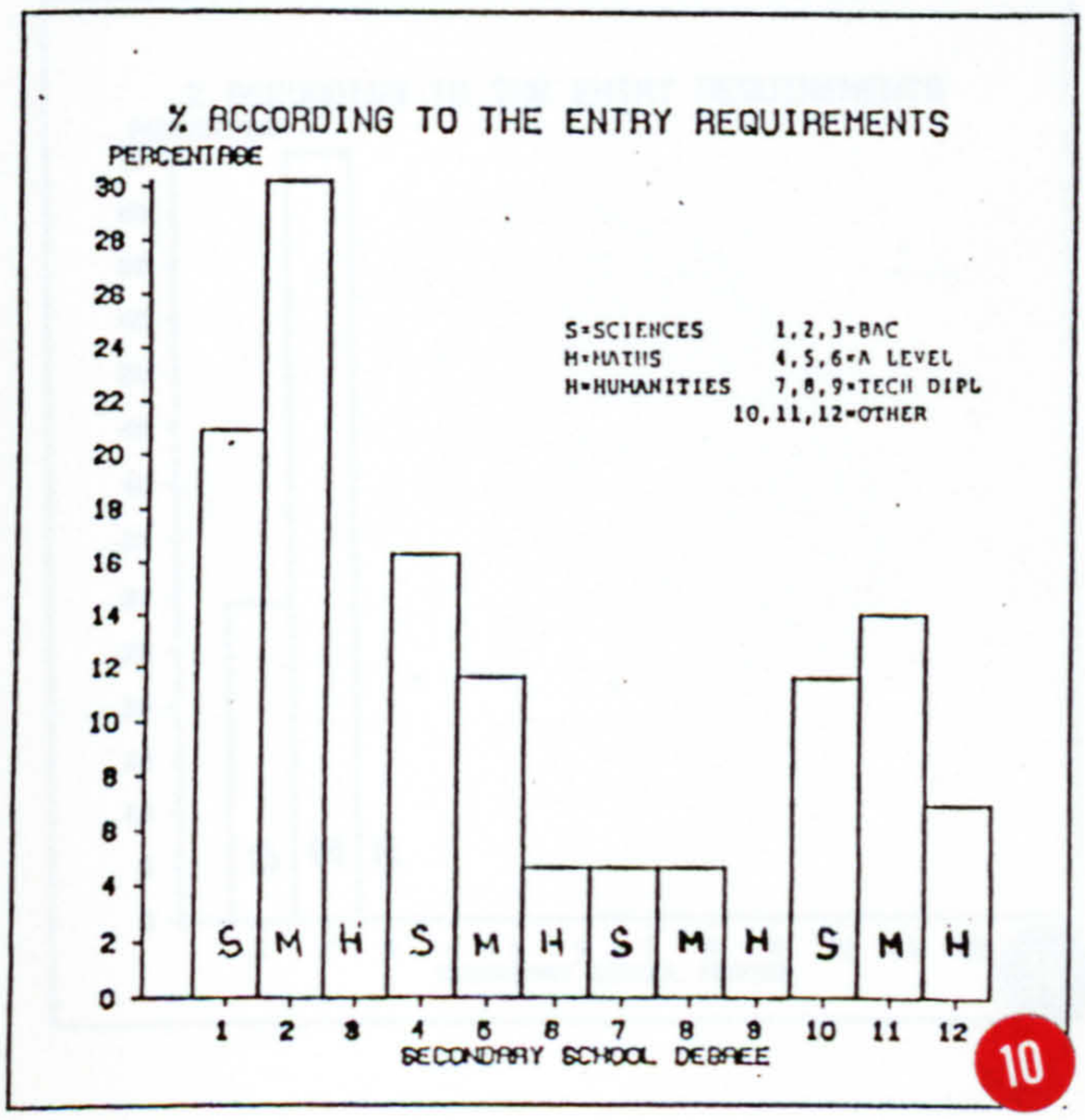

AGE OF THE RESPONDENT AT SUBMISSION DATE
PERCENTAGE
22
20
18
18
14
12
10
8
6
4
2
0
23
25
26
27
28
29
30
31
AGE
5

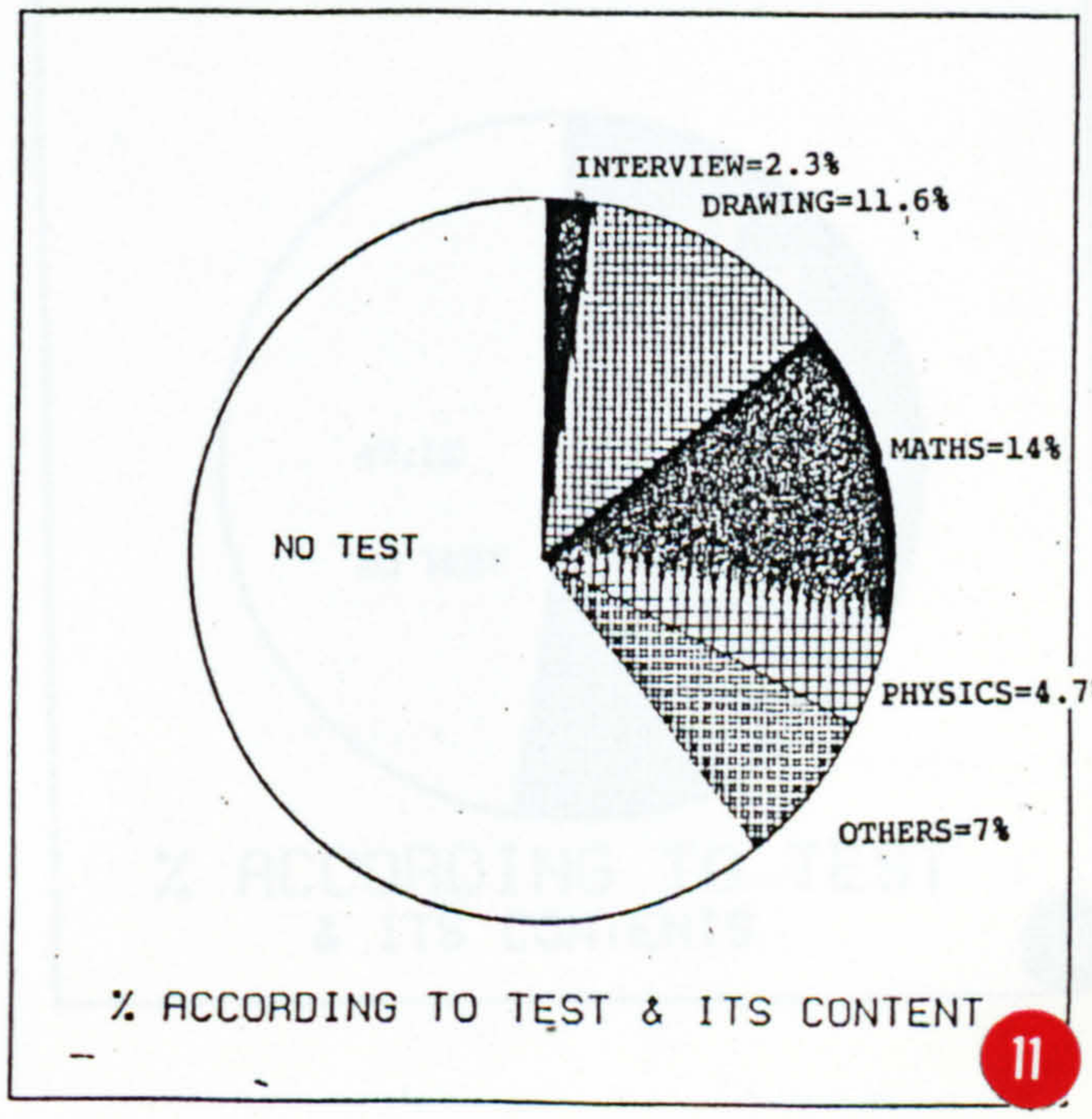

FEMALE
17.6%
82.4%
MALE
% ACCORDING TO SEX
6


AGE OF RESPONDENT AT REGISTRATION
PERCENTAGE
55
50
45
40
35
30
25
20
15
10
5
0
18
19
20
21
AGE
7

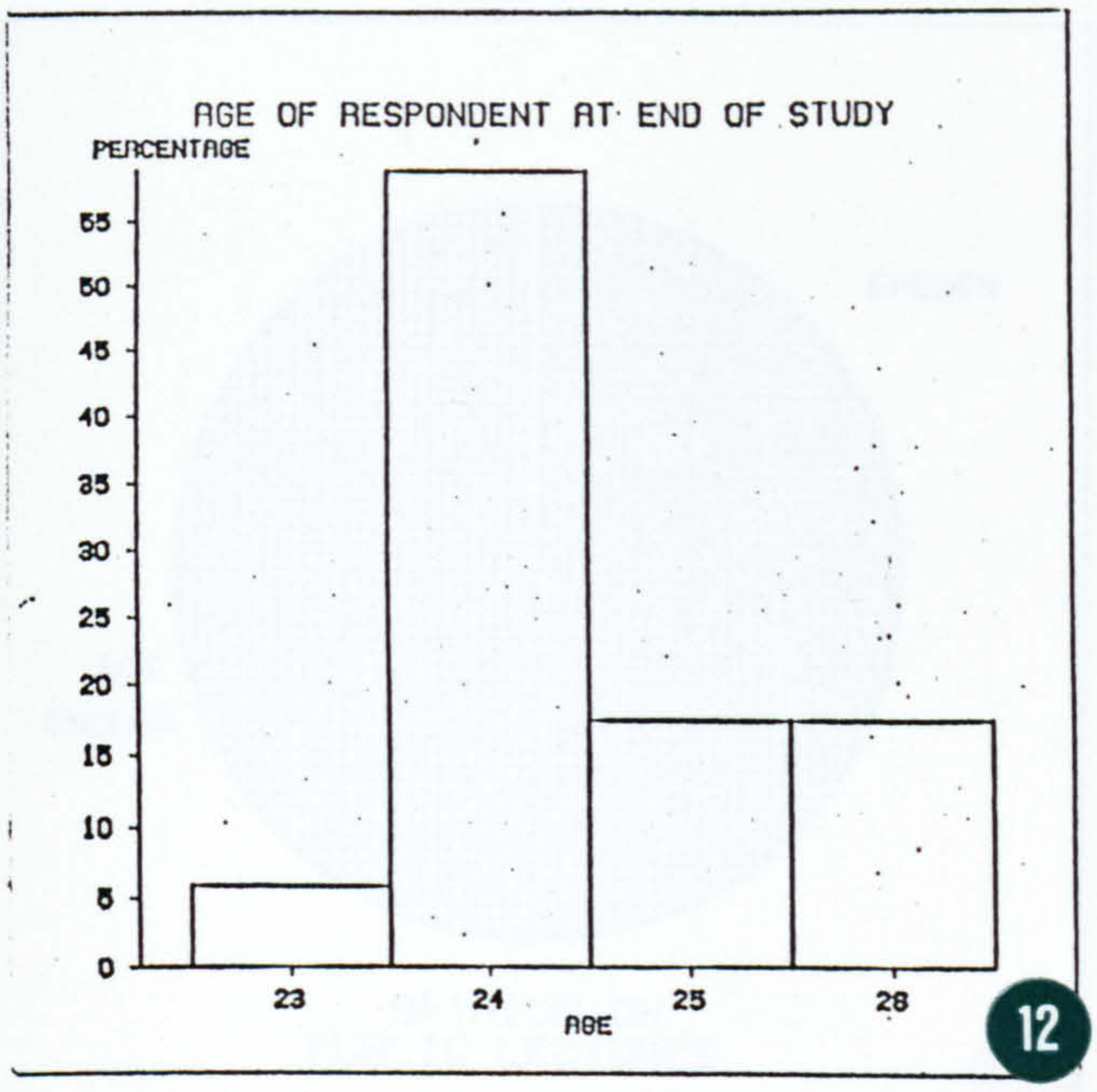


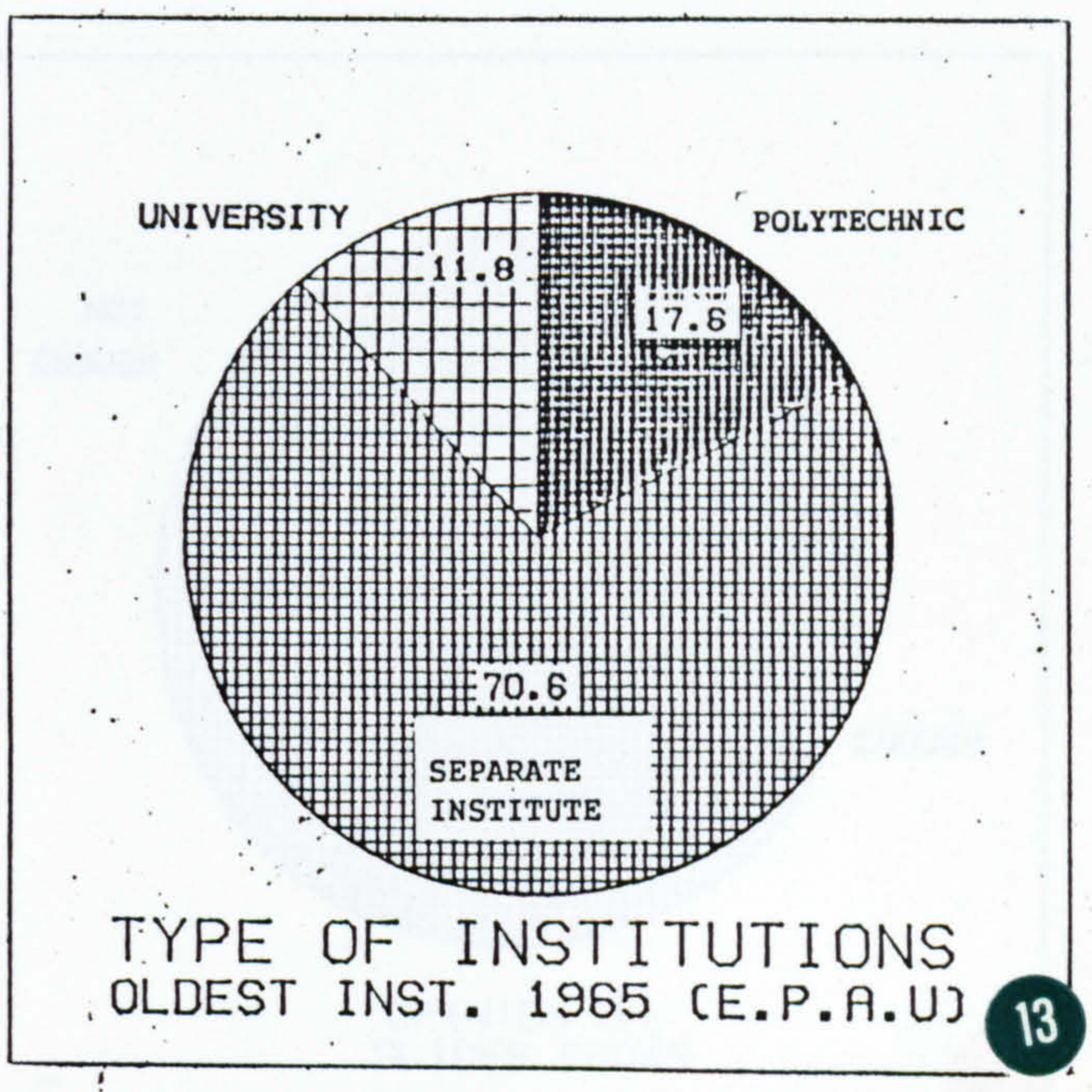


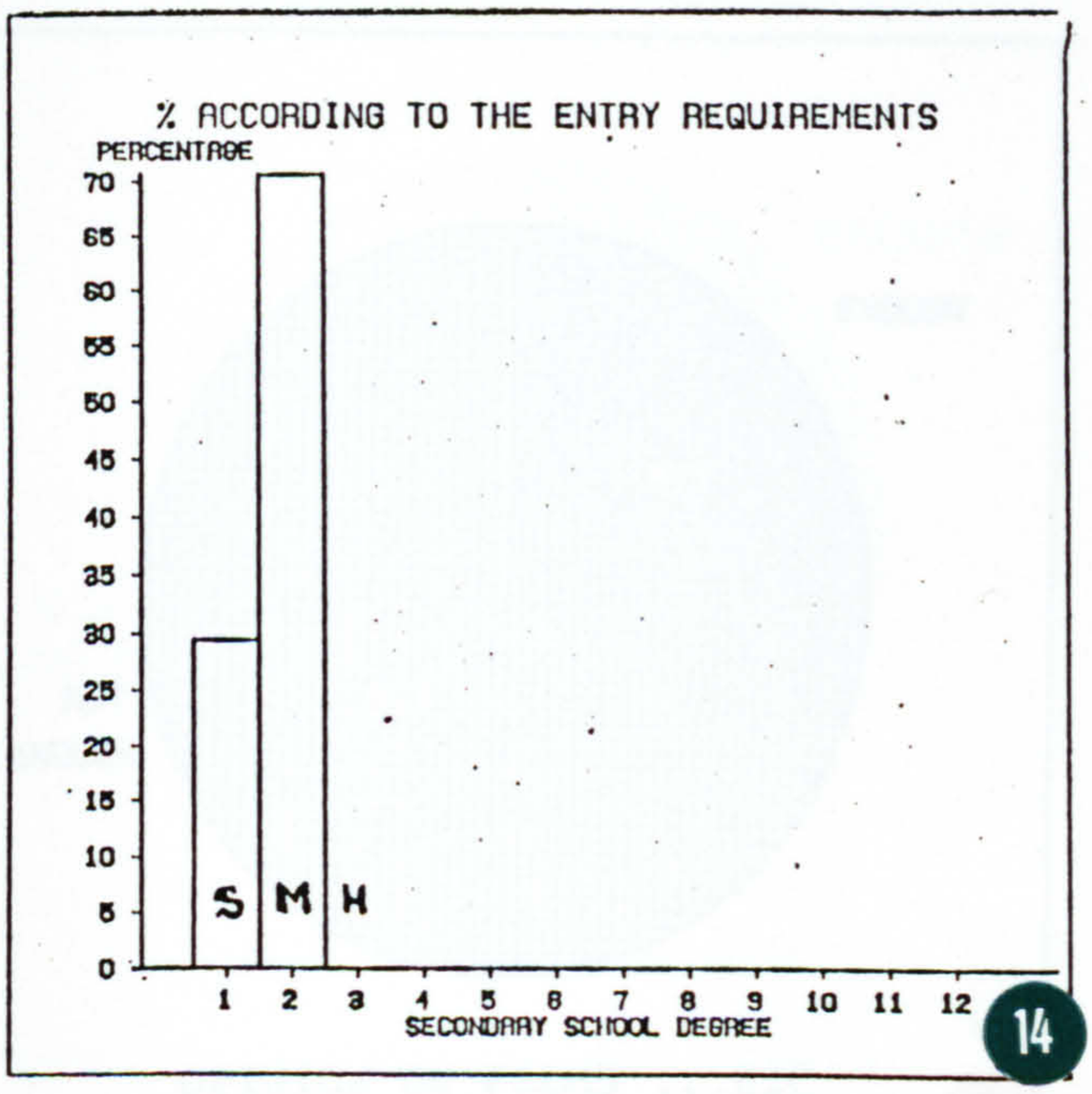


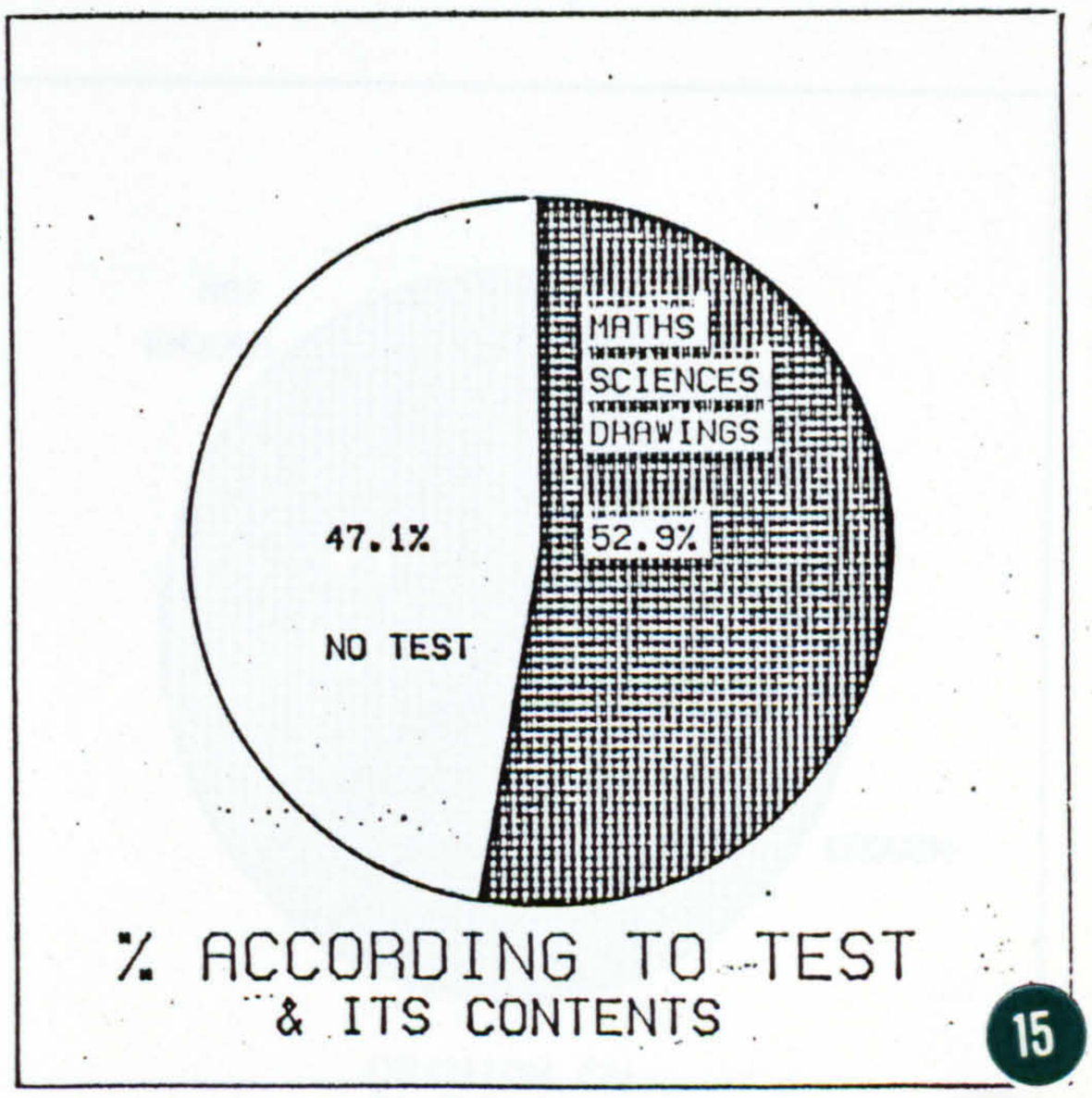


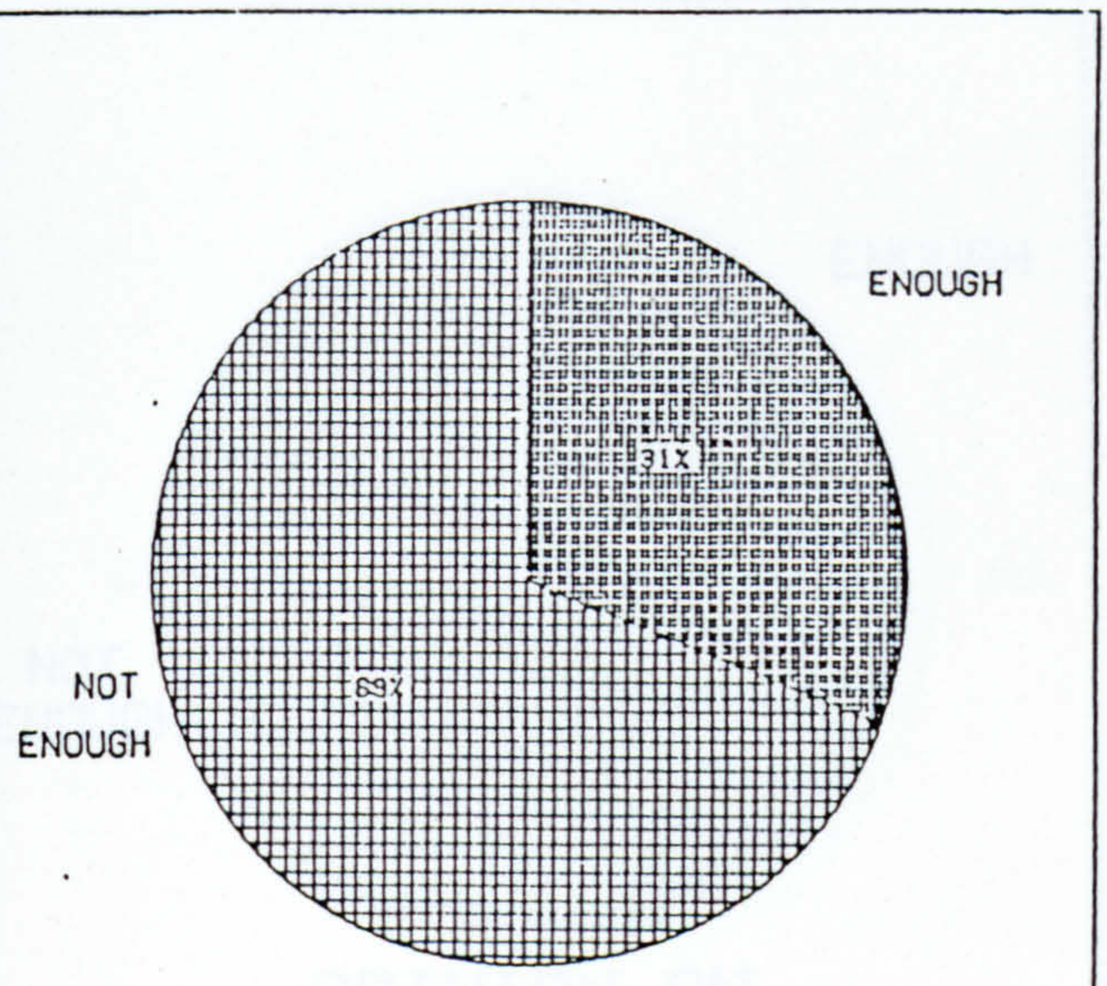
TYPES OF INSTITUTIONS AND ENTRY REQUIREMENTS


AGE OF RESPONDENT AT END OF STUDY
PERCENTAGE
55
50
45
40
35
30
25
20
15
10
5
0
23
24
25
28
AGE
12


UNIVERSITY
POLYTECHNIC
11.8
17.6
70.6
SEPARATE
INSTITUTE
TYPE OF INSTITUTIONS
OLDEST INST. 1965 (E.P.A.U)
13

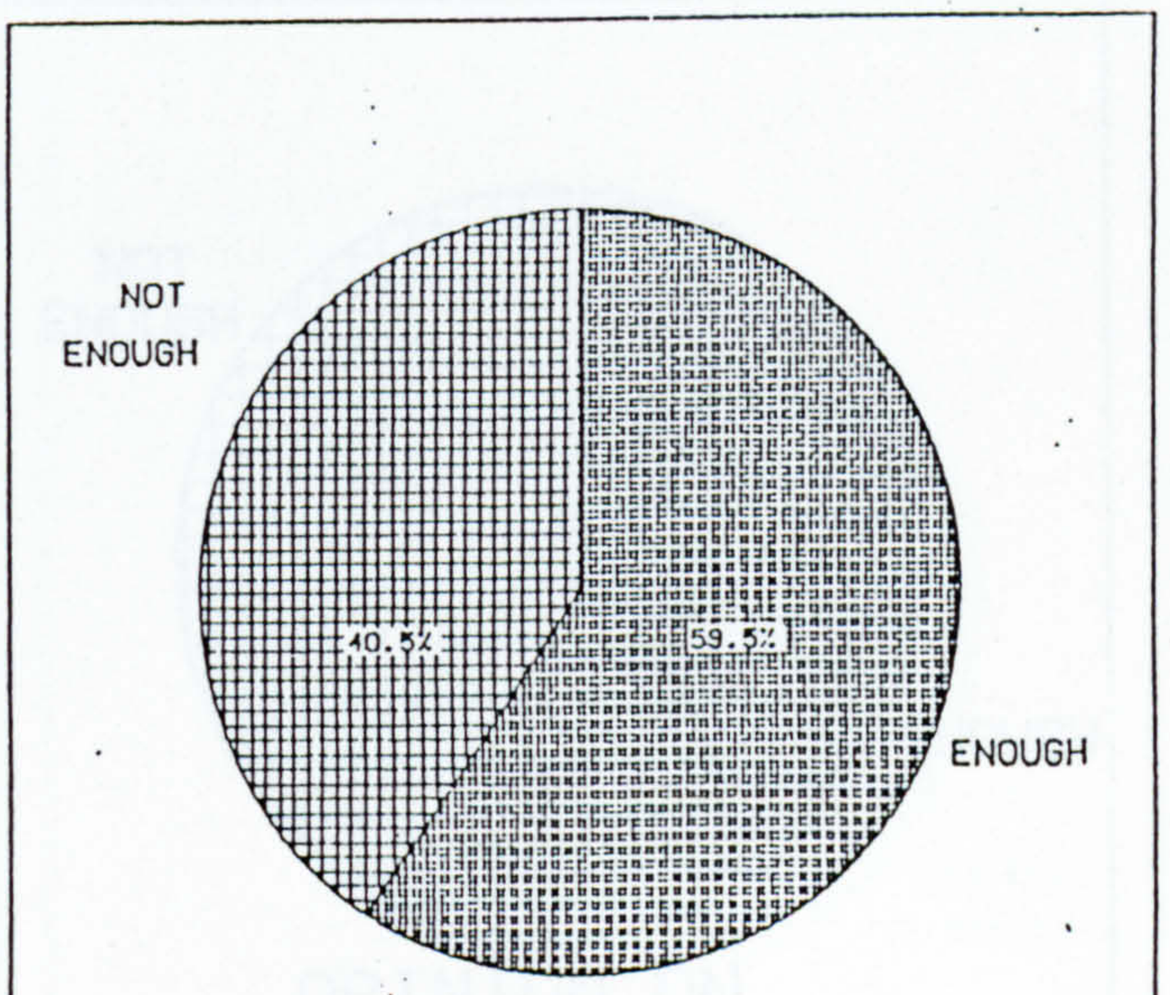

% ACCORDING TO THE ENTRY REQUIREMENTS
PERCENTAGE
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
S
M
H
1
2
3
4
5
6
7
8
9
10
11
12
SECONDARY SCHOOL DEGREE
14


MATHS
SCIENCES
DRAWINGS
52.9%
47.1%
NO TEST
% ACCORDING TO TEST
& ITS CONTENTS
15



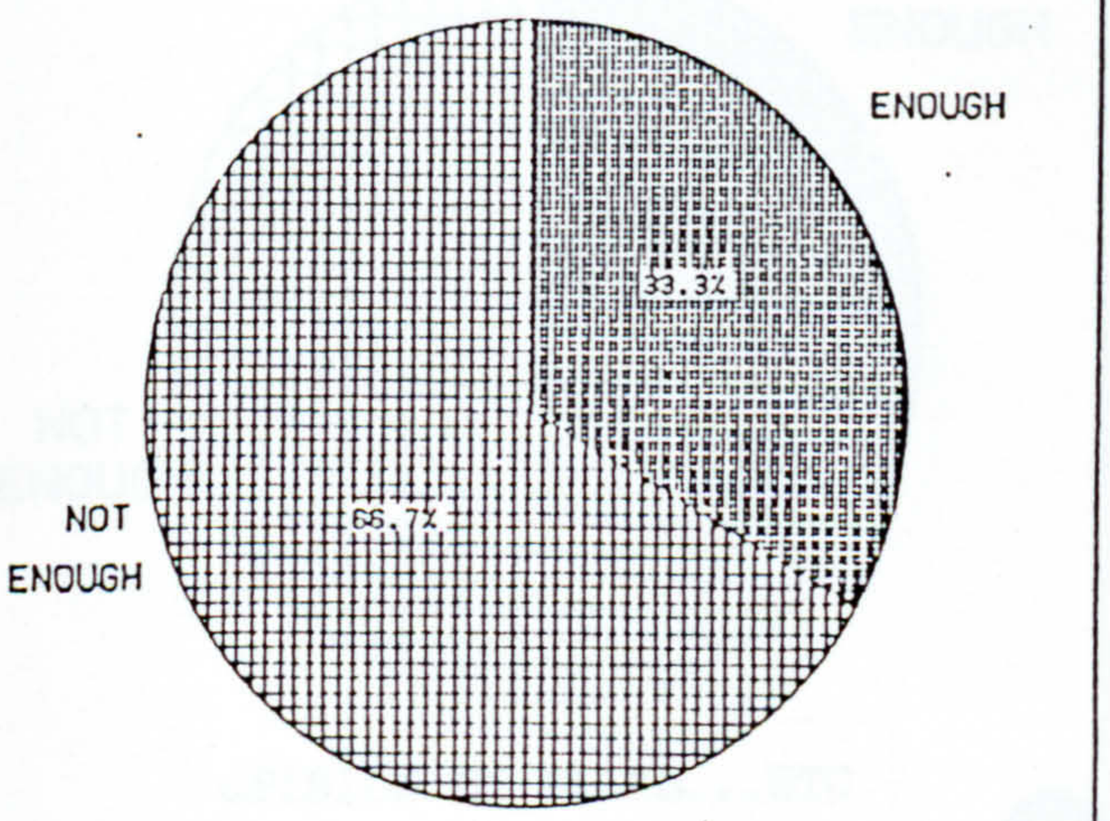
OPINION ON
PUBLIC LECTURES

16



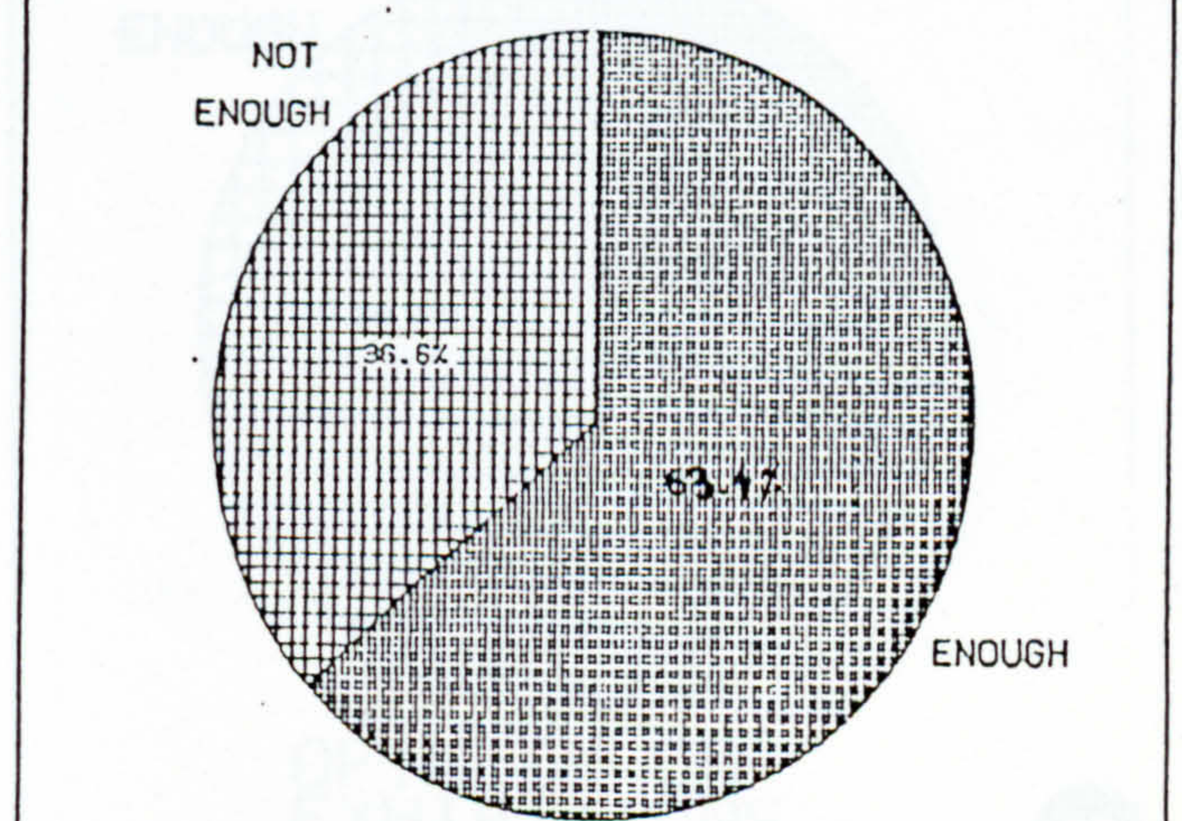
OPINION ON
SLIDES SHOWS

17



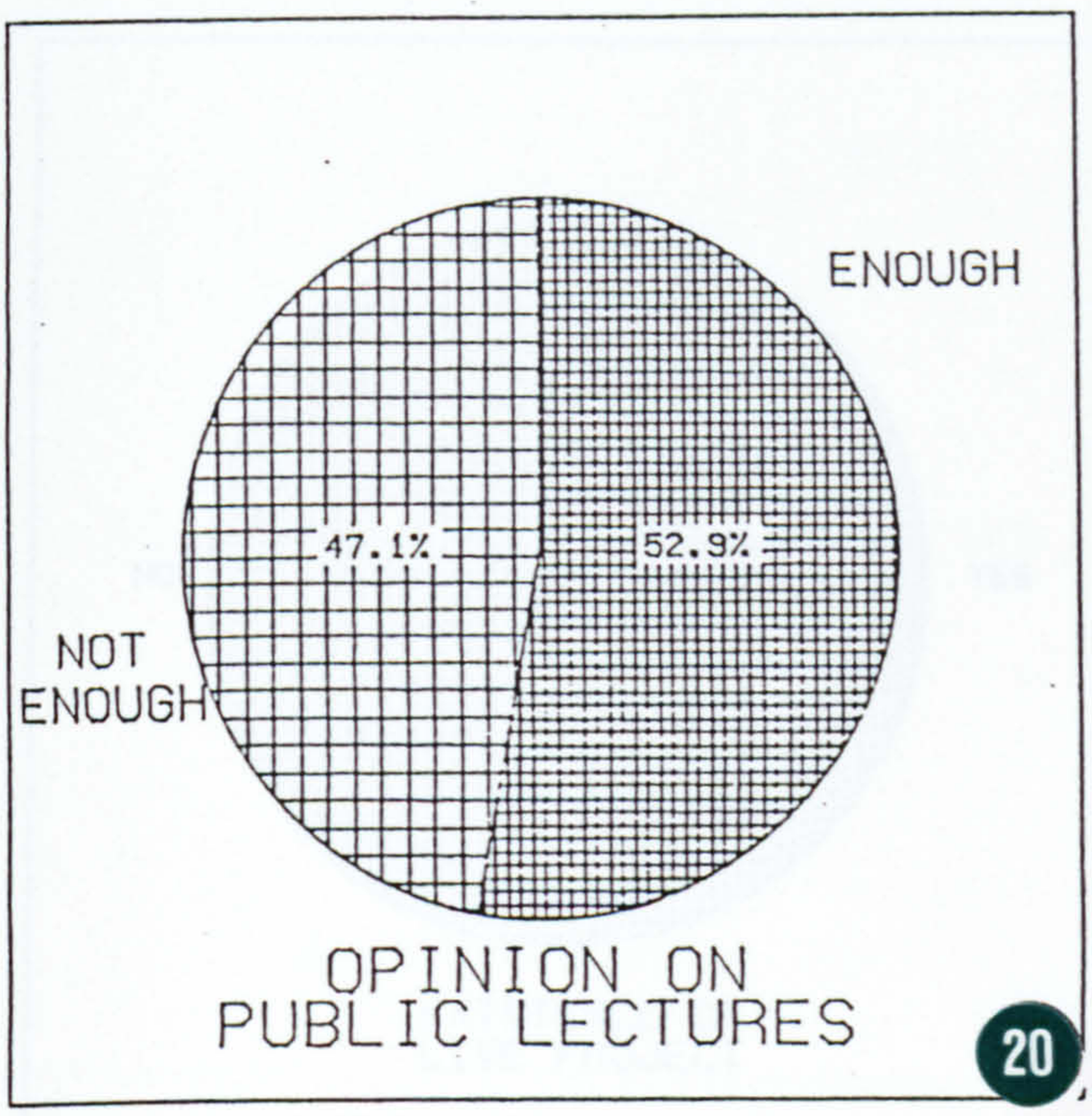
OPINION ON FILMS ...ETC

18



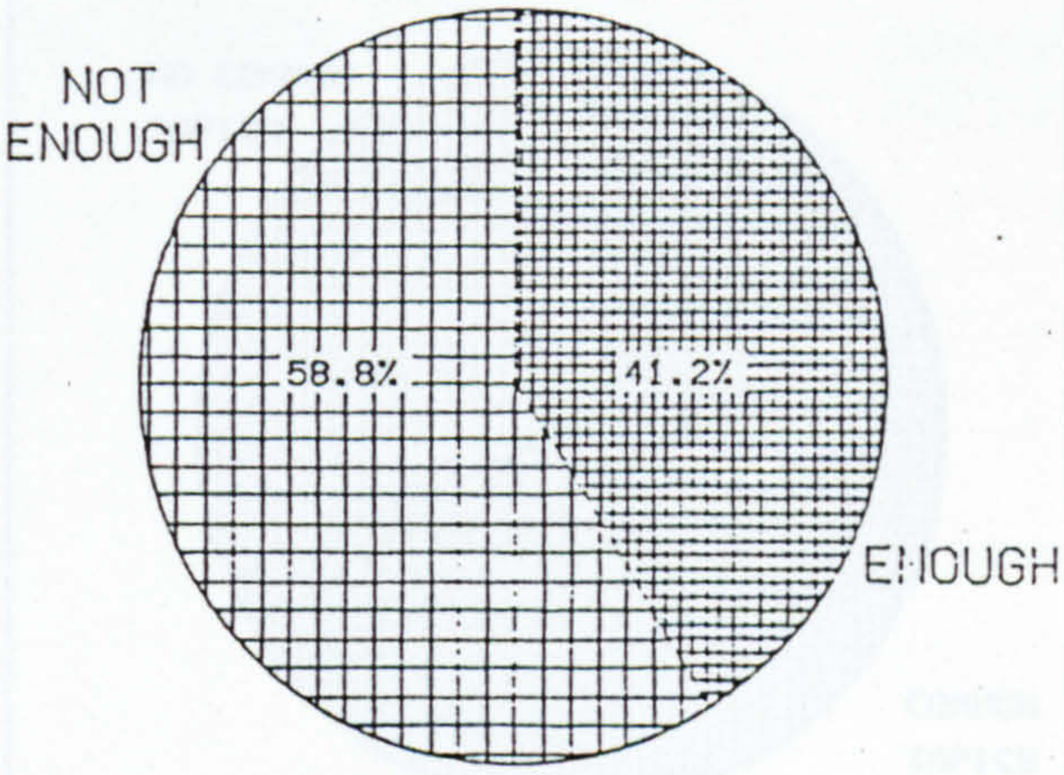
OPINION ON
EXHIBITIONS

19



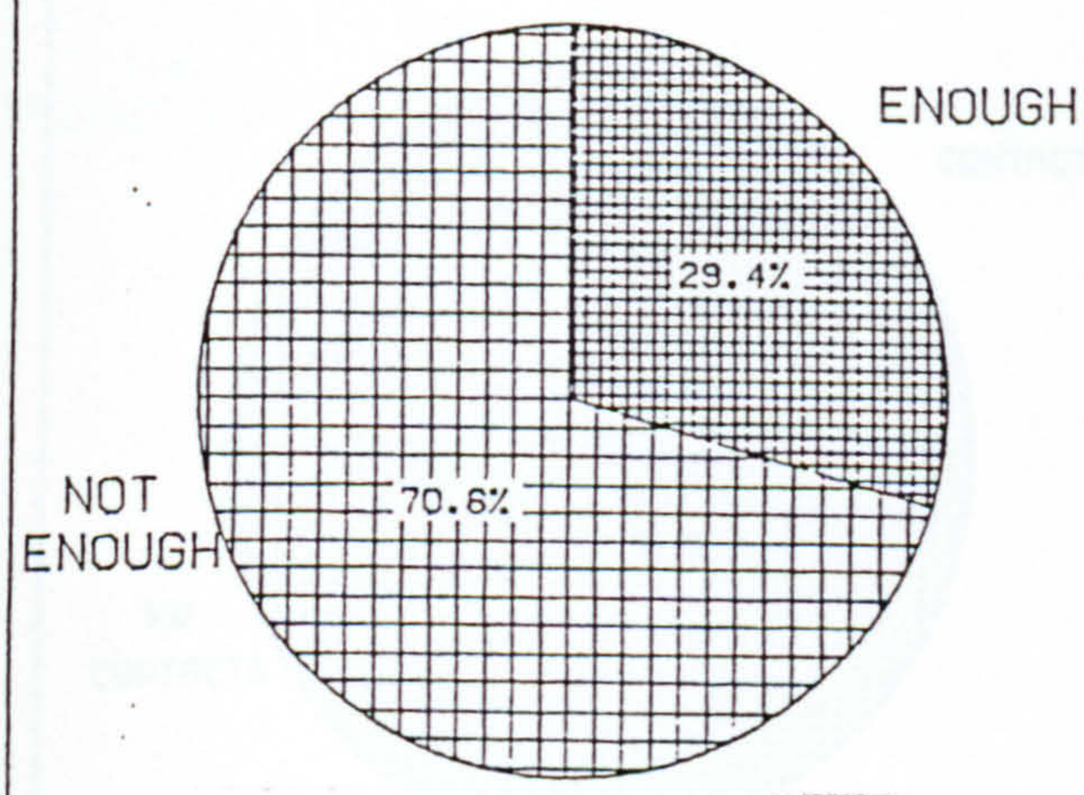
OPINION ON
PUBLIC LECTURES

20



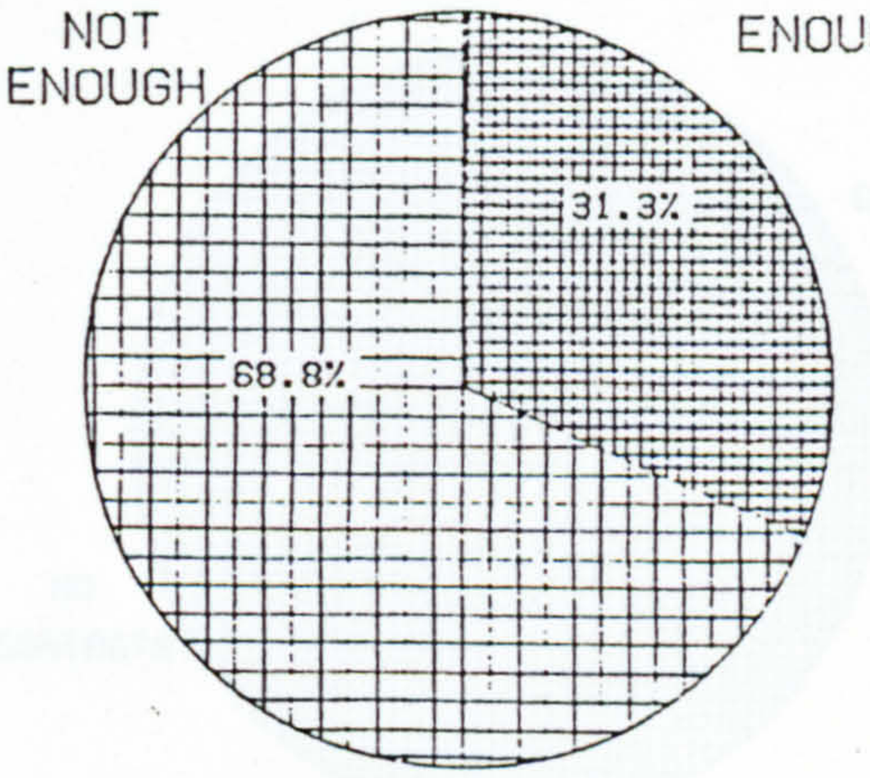
OPINION ON
SLIDES SHOWS

21



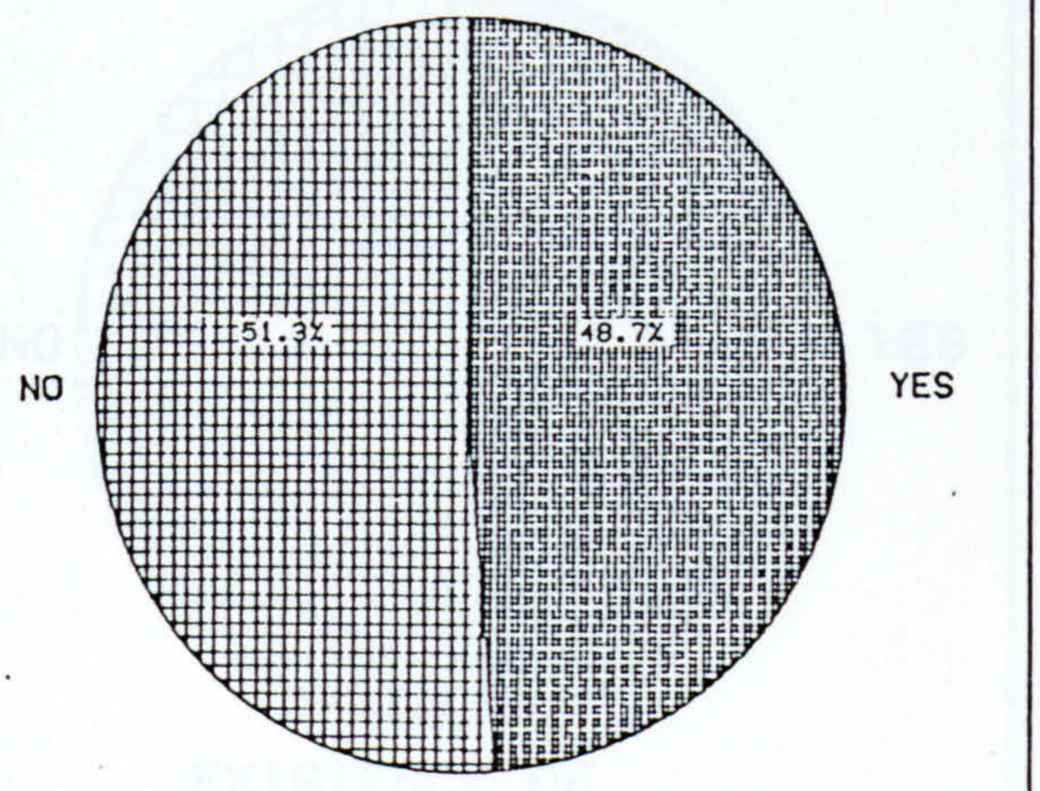
OPINION ON FILMS...ETC

22



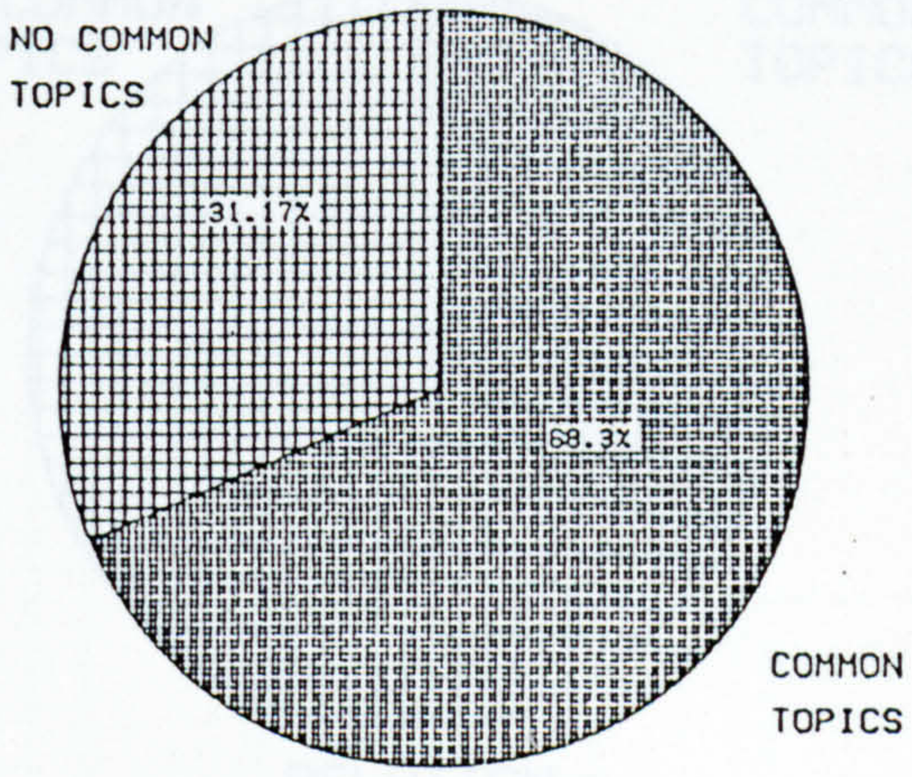
OPINION ON
EXHIBITIONS

23



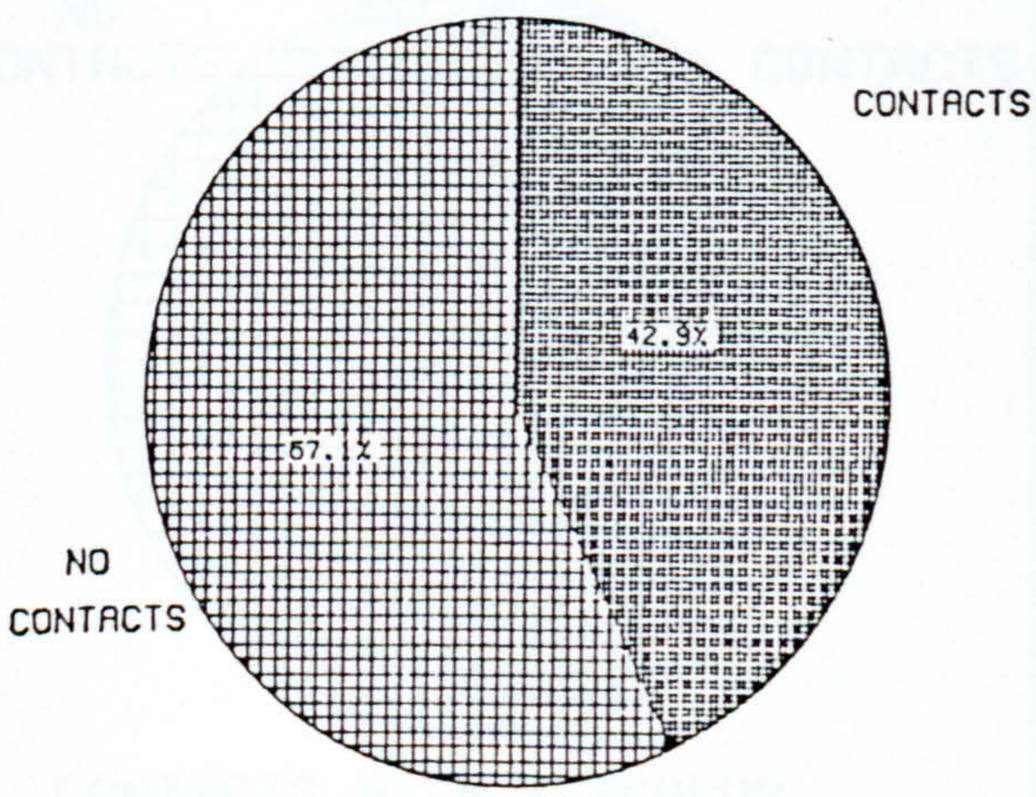
EXISTENCE OF
LIVE PROJECT

24



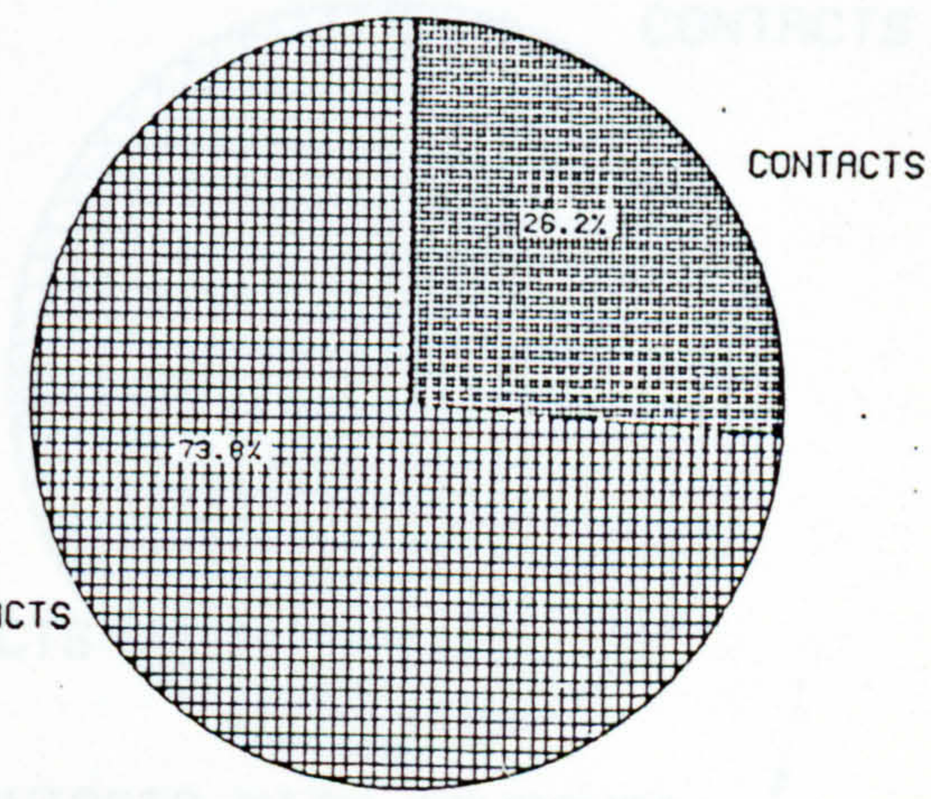
RELATION
ARCHITECTURE/OTHER PROFESSIONS

25



CONTACTS WITH TEACHER
FROM OTHER DEPARTMENTS

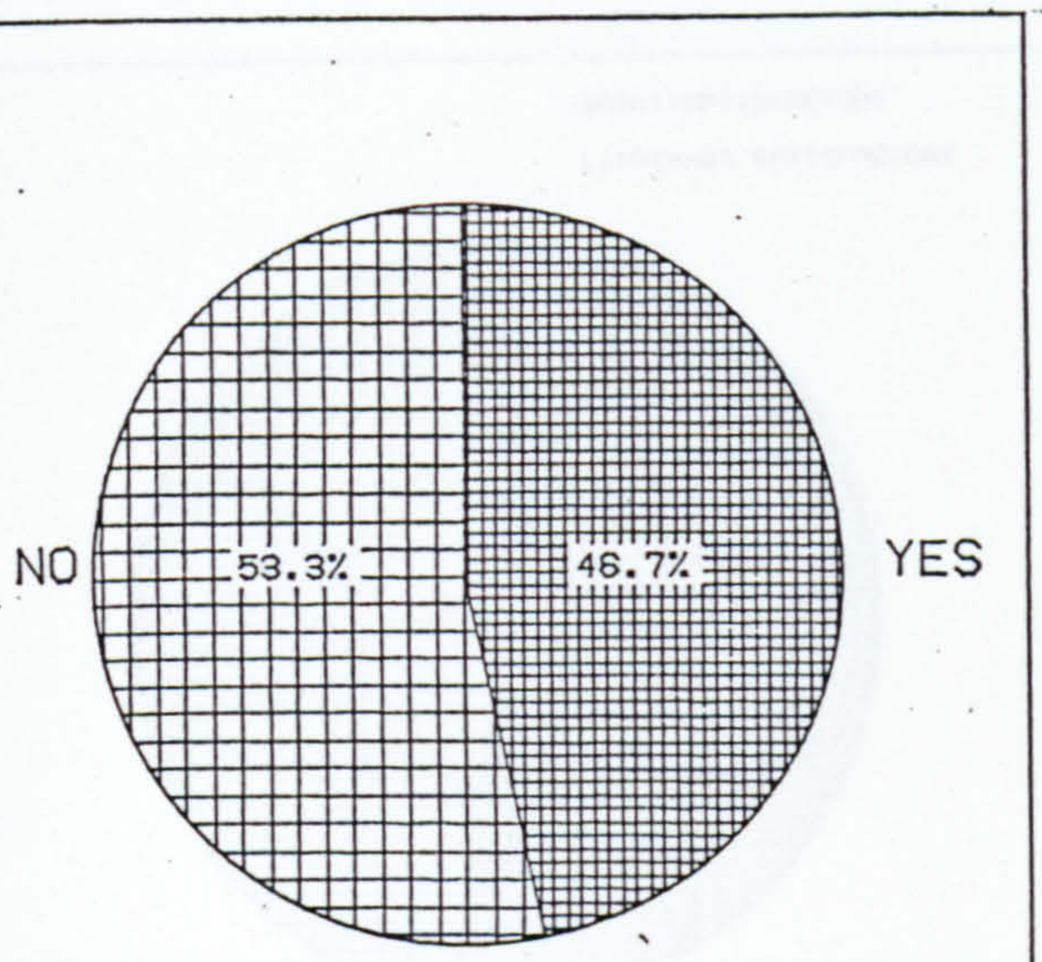
26



CONTACTS WITH STUDENTS
FROM OTHER DEPARTMENTS

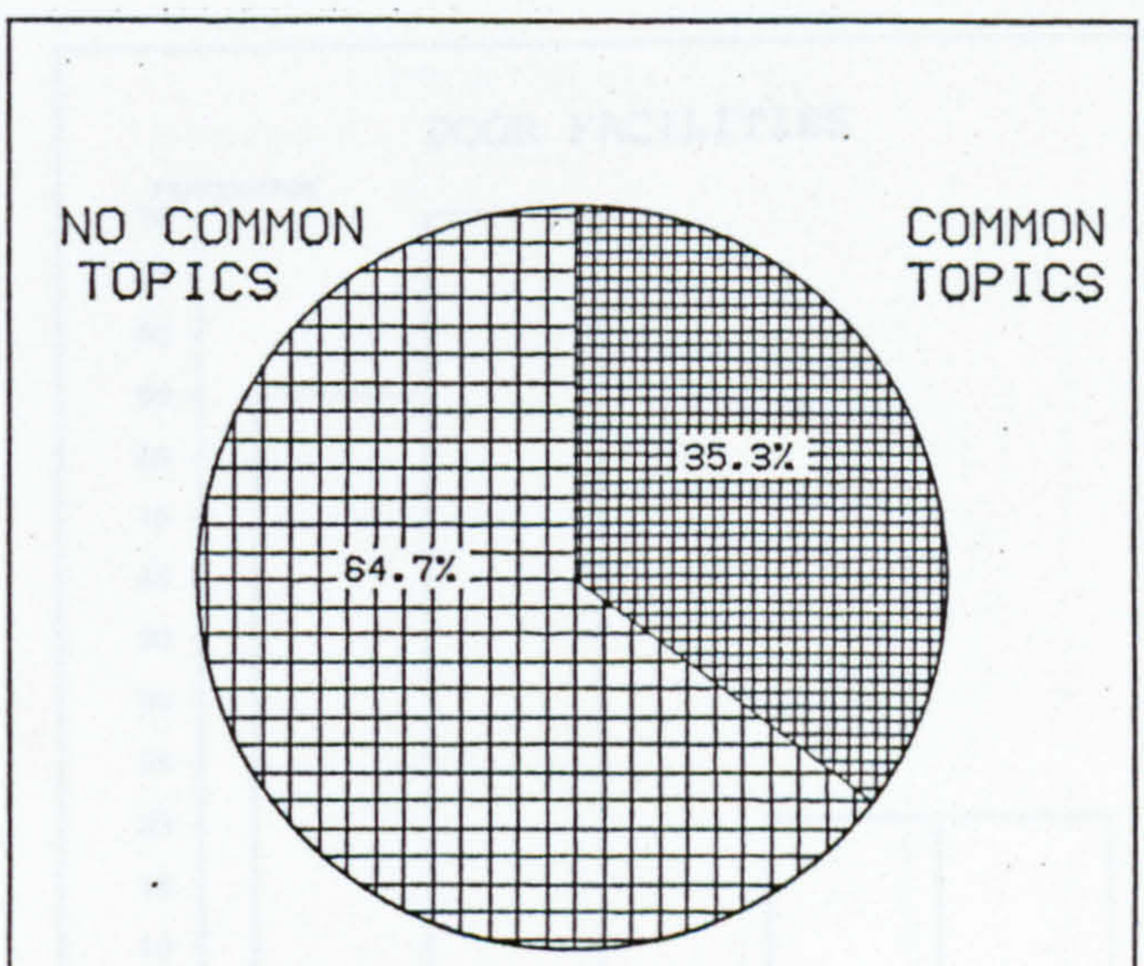
27

RELATION BETWEEN ARCHITECTURE & other professions



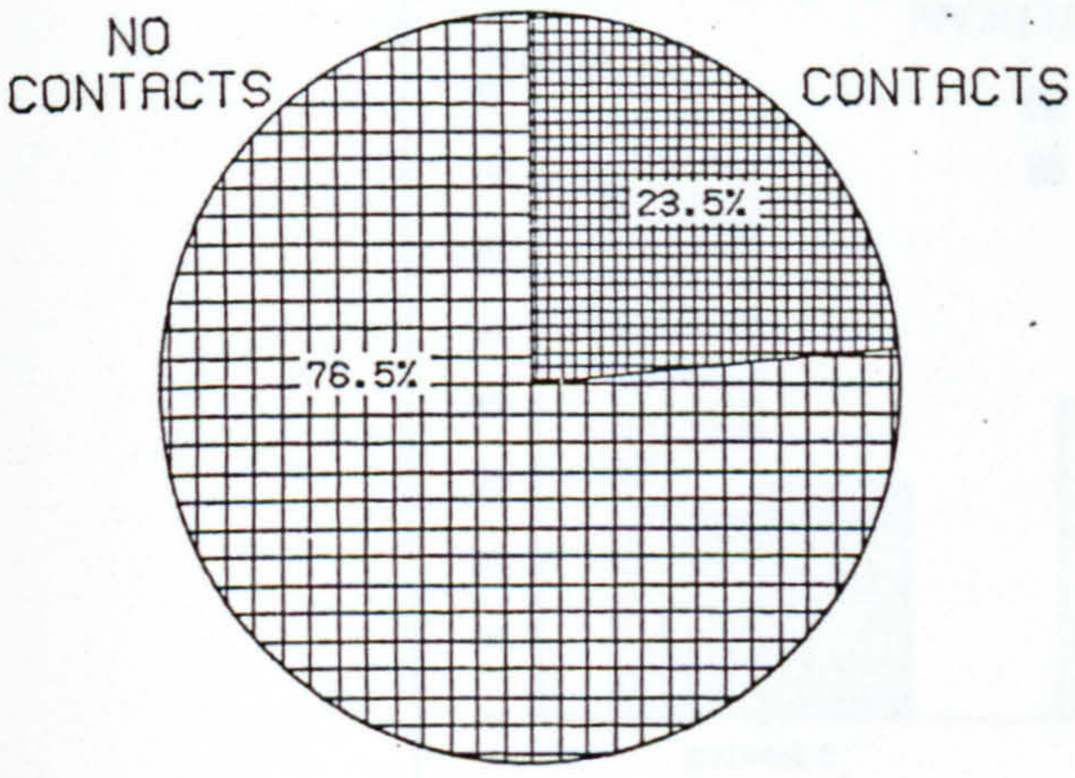
EXISTENCE OF
LIVE PROJECT

28



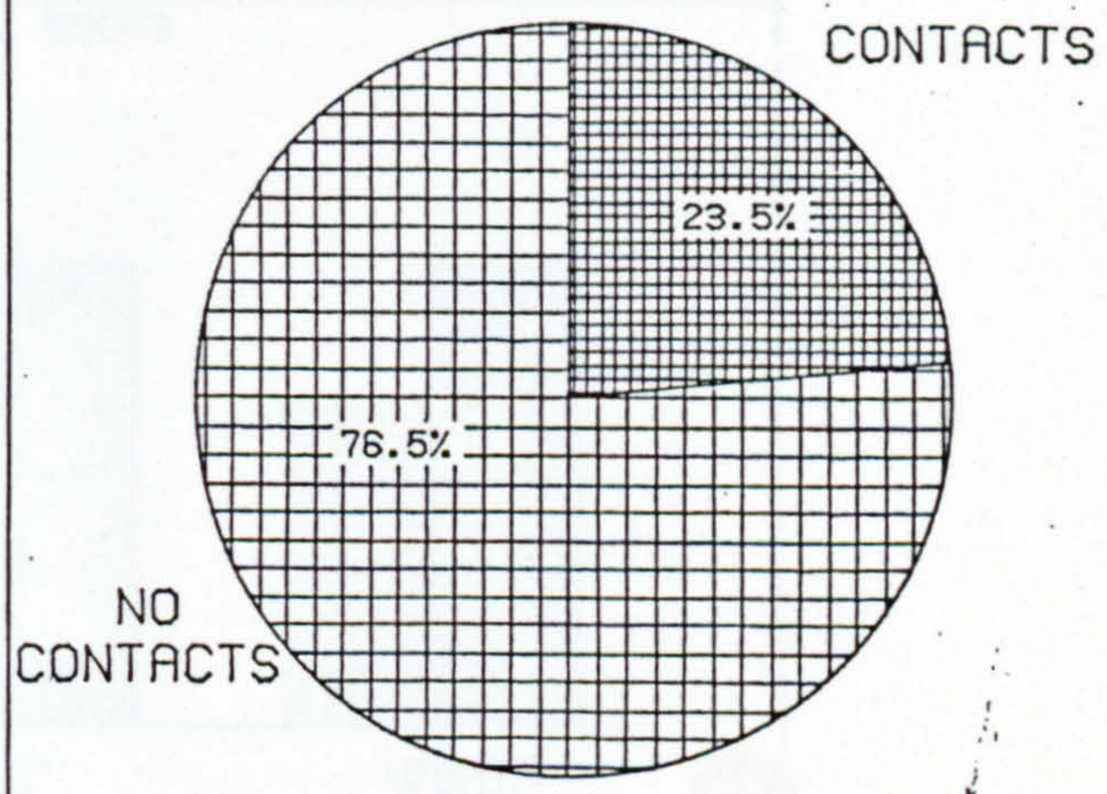
RELATION
ARCHITECTURE/OTHER PROFESSIONS

29



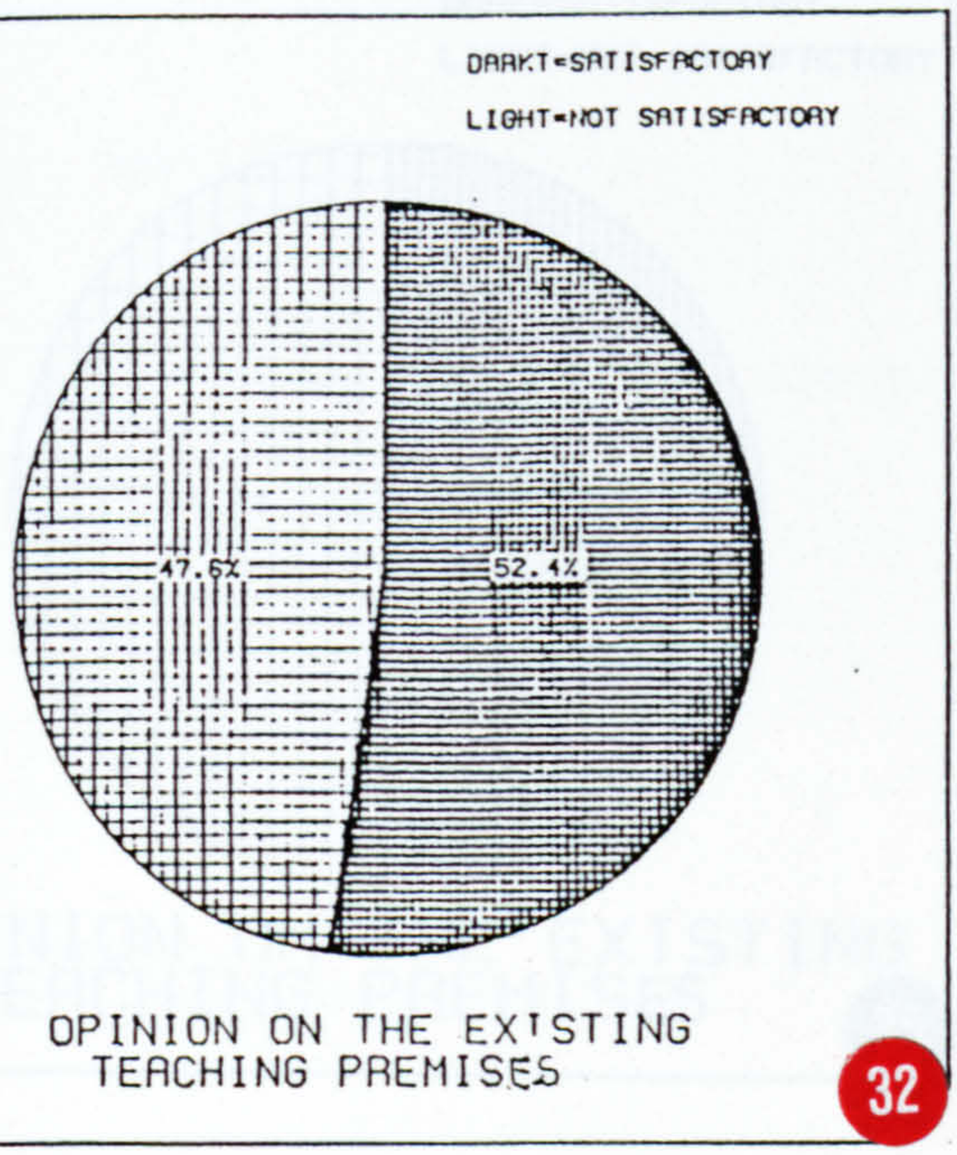
CONTACTS WITH TEACHERS
FROM OTHER DEPARTMENTS

30



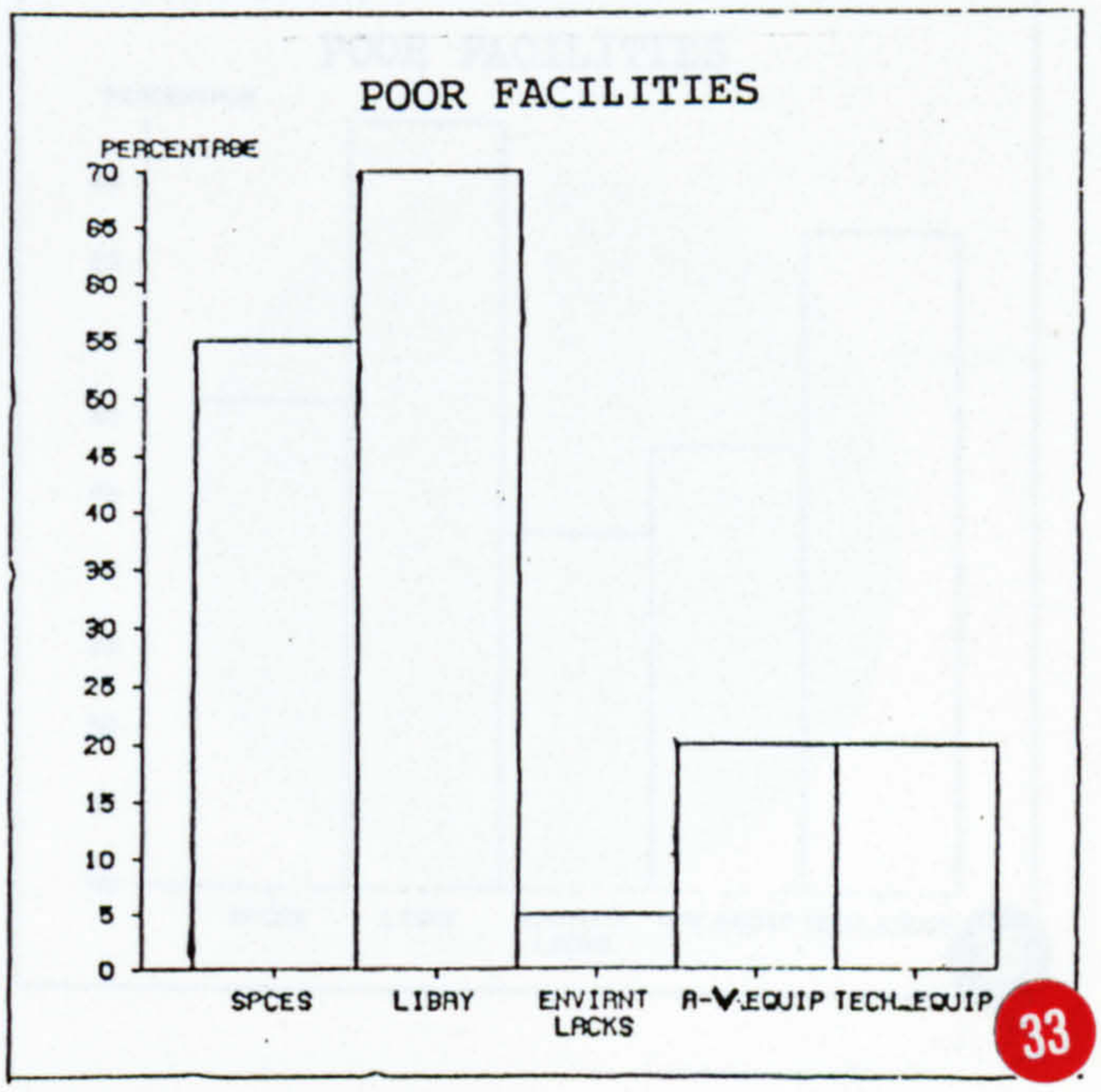
CONTACTS WITH STUDENTS
FROM OTHER DEPARTMENTS

31

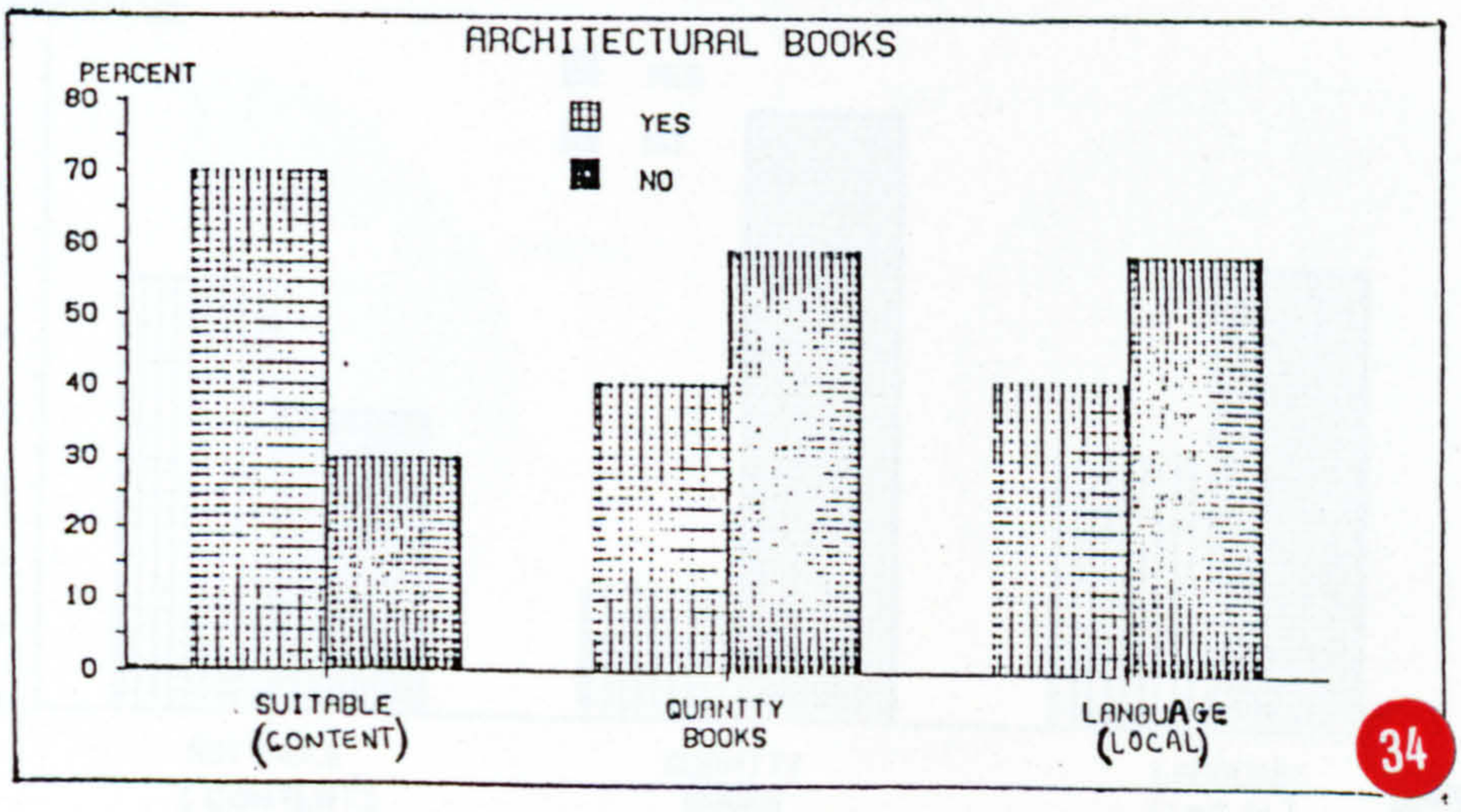


OPINION ON THE EXISTING TEACHING PREMISES

32

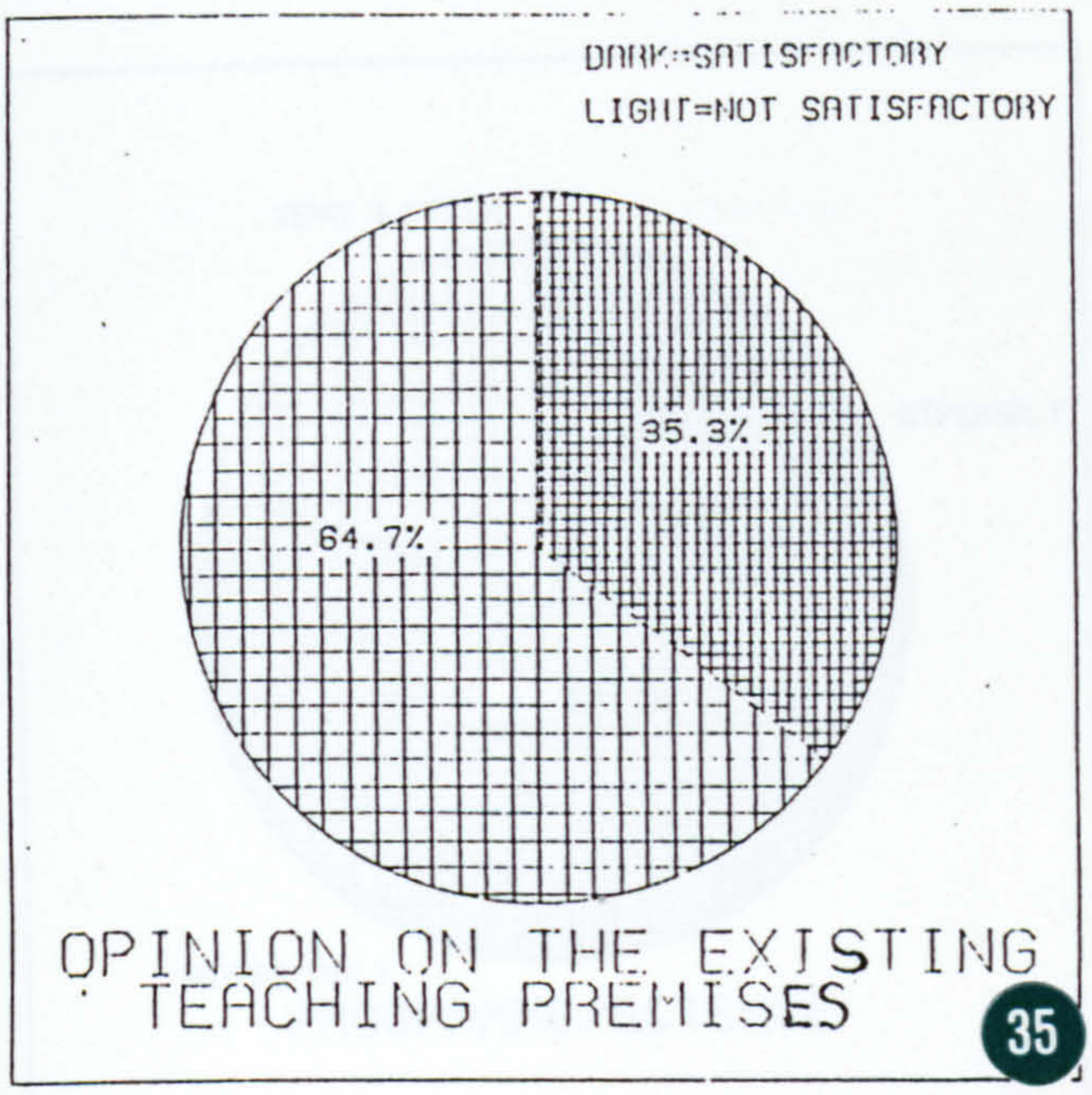


33



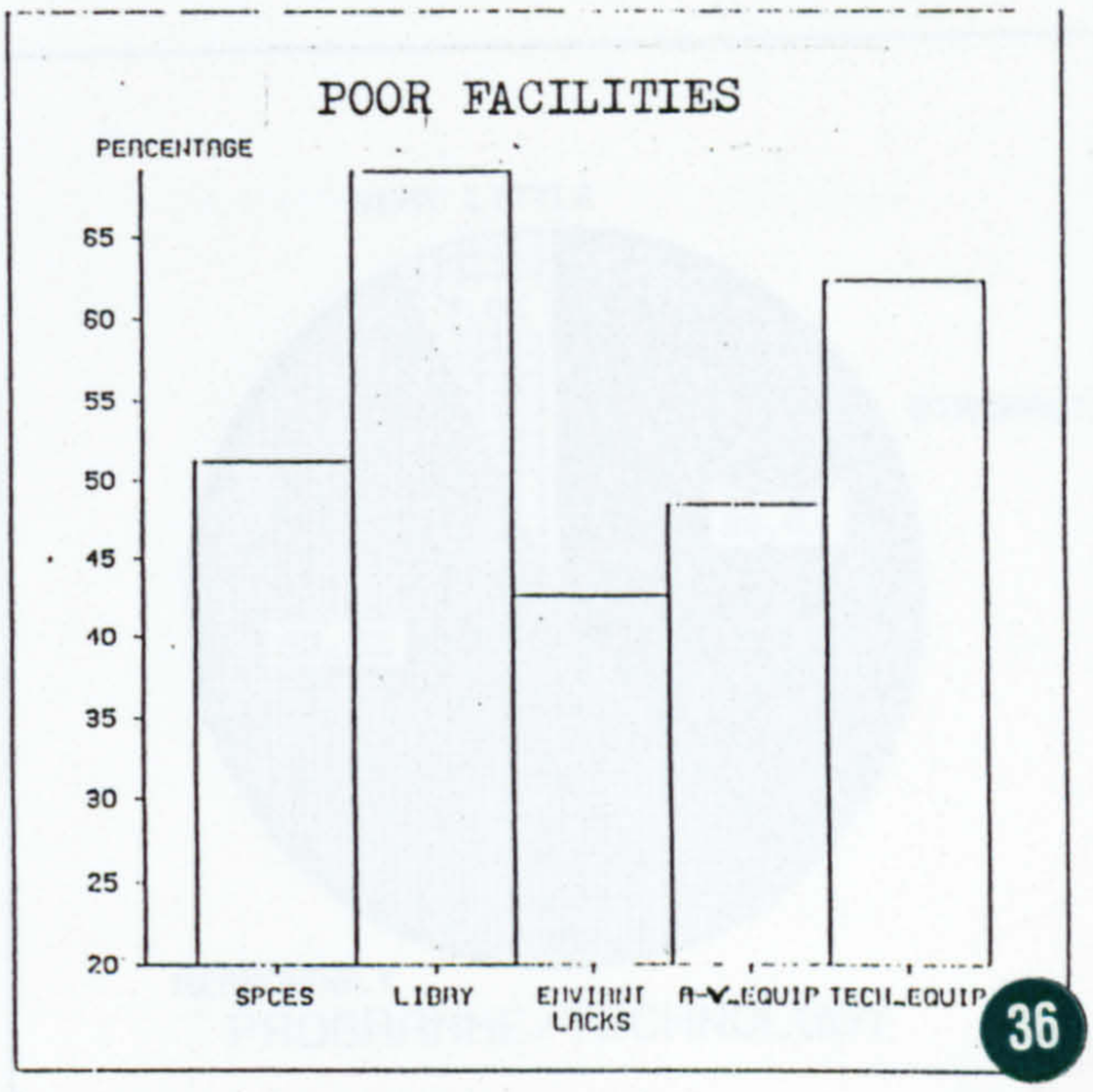
34

TEACHING PREMISES AND BOOKS

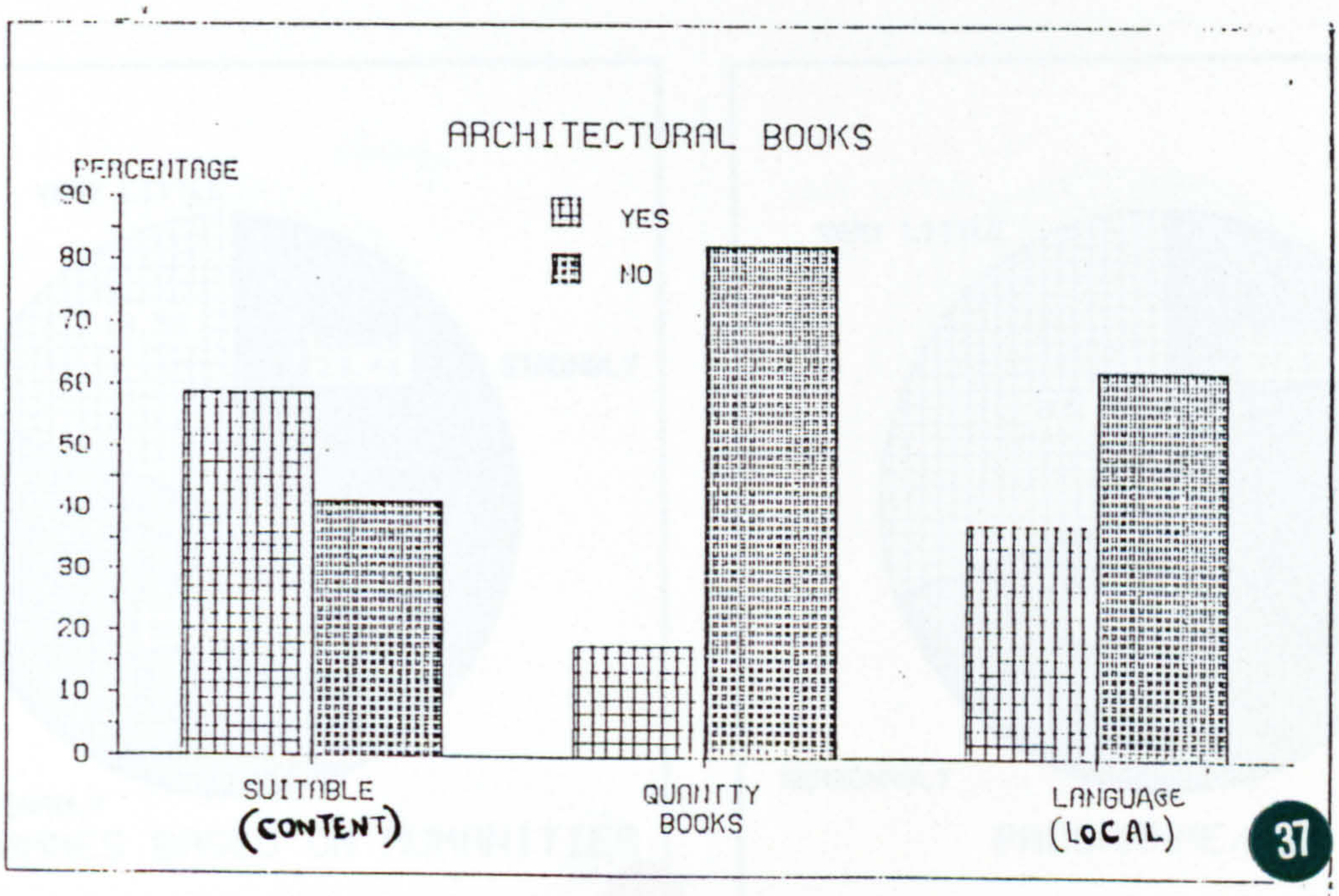


OPINION ON THE EXISTING TEACHING PREMISES

35



36



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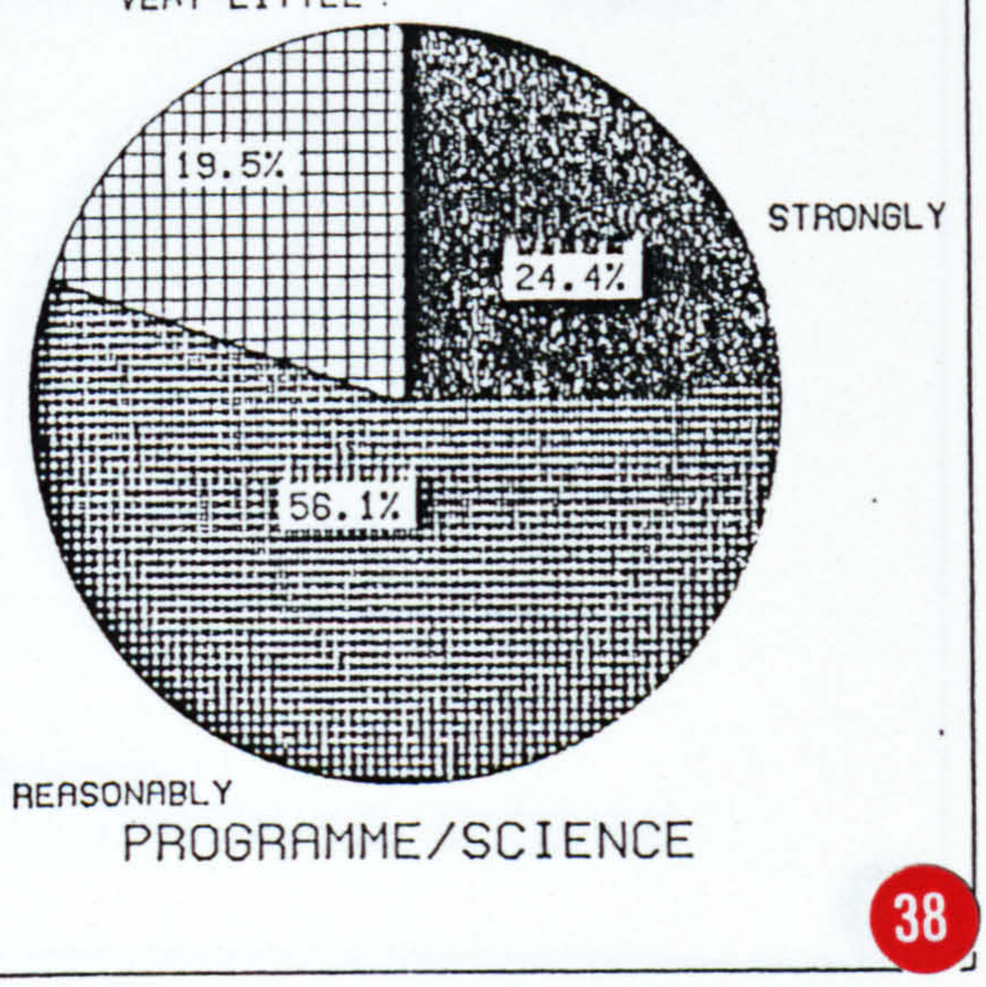
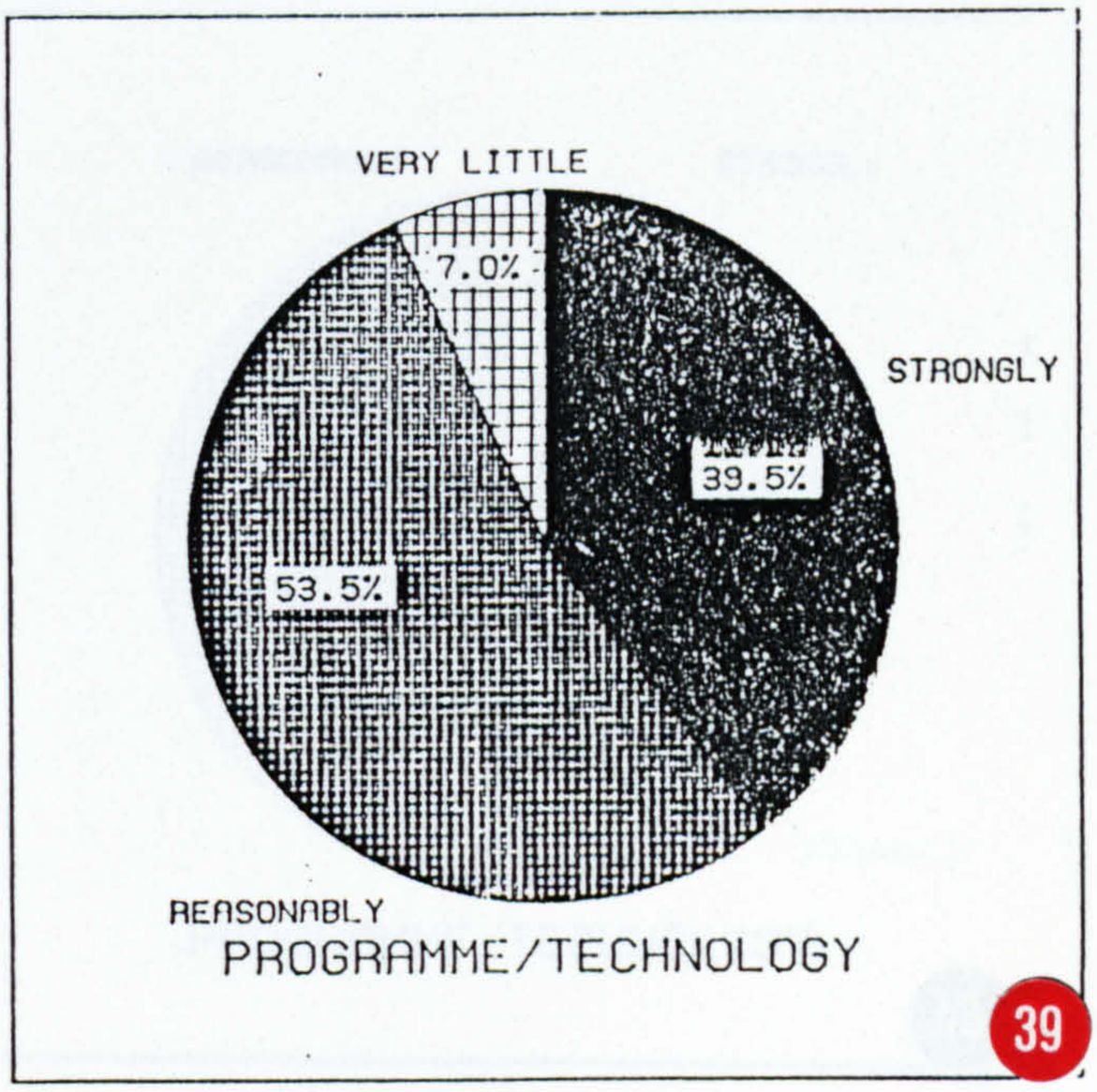
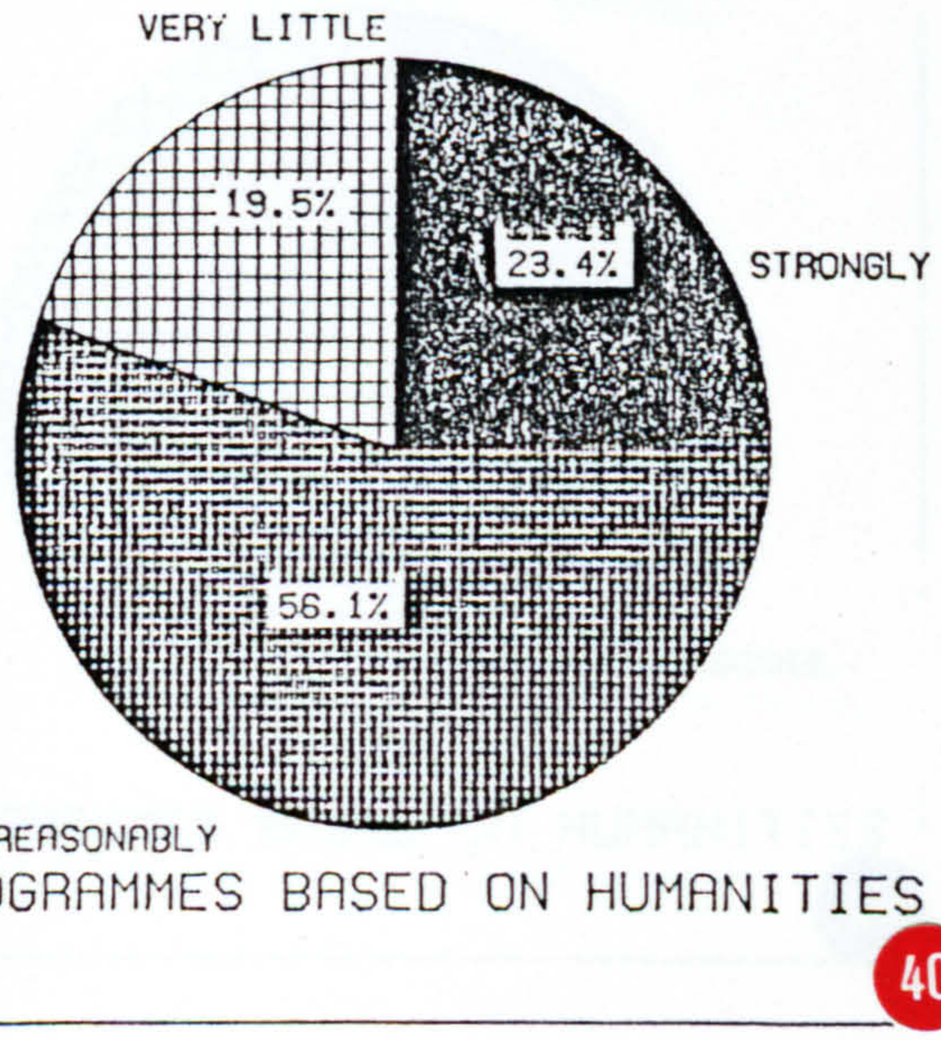
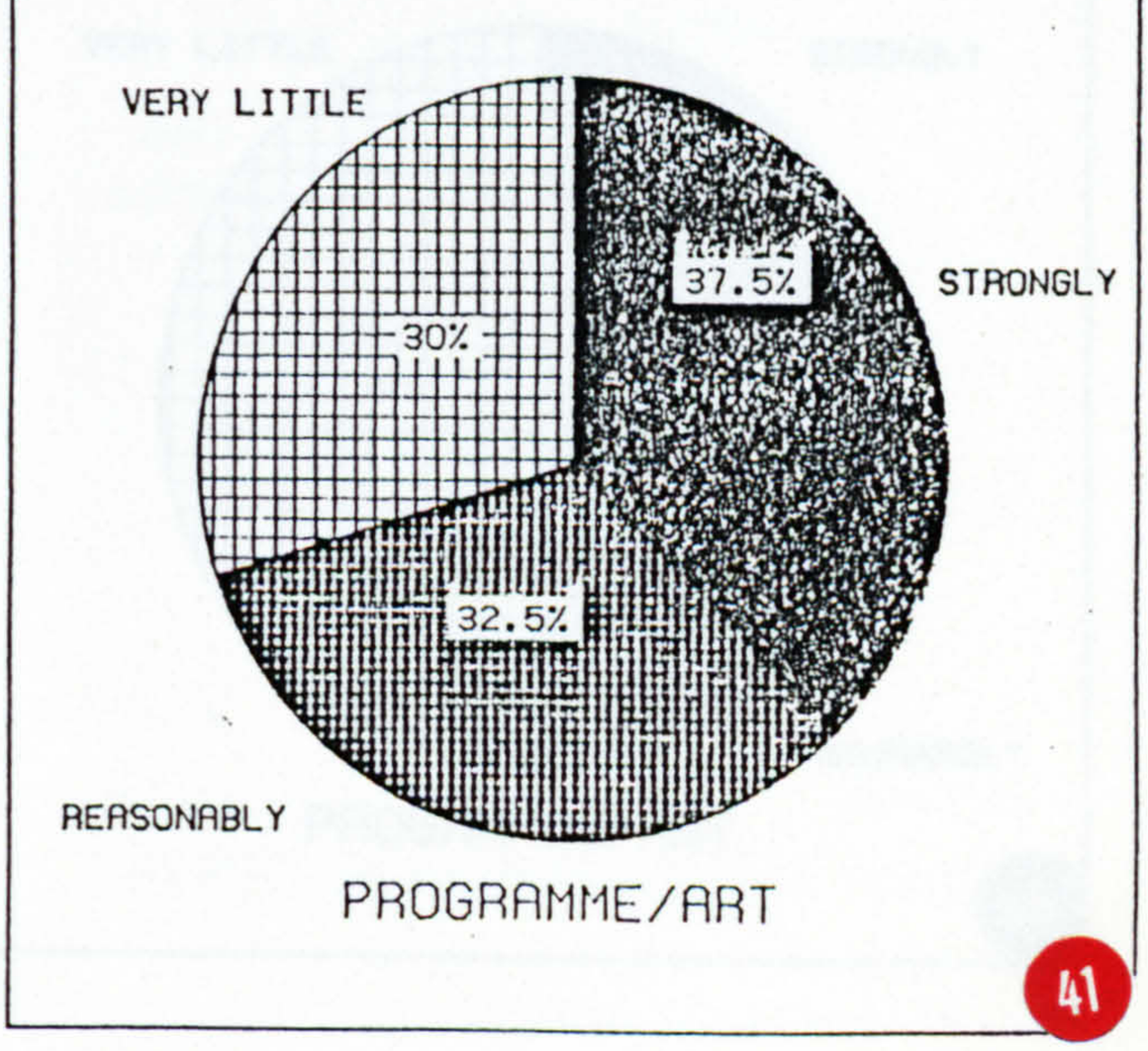
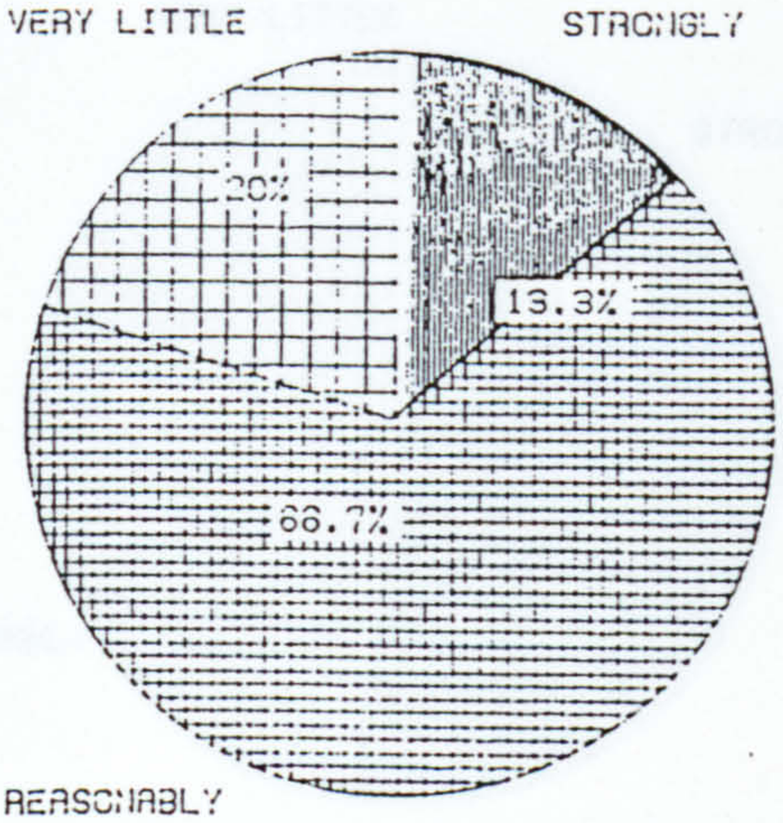

VERY LITTLE
19.5%
24.4%
STRONGLY
56.1%
REASONABLY
PROGRAMME/SCIENCE
38


VERY LITTLE
7.0%
STRONGLY
39.5%
53.5%
REASONABLY
PROGRAMME/TECHNOLOGY
39

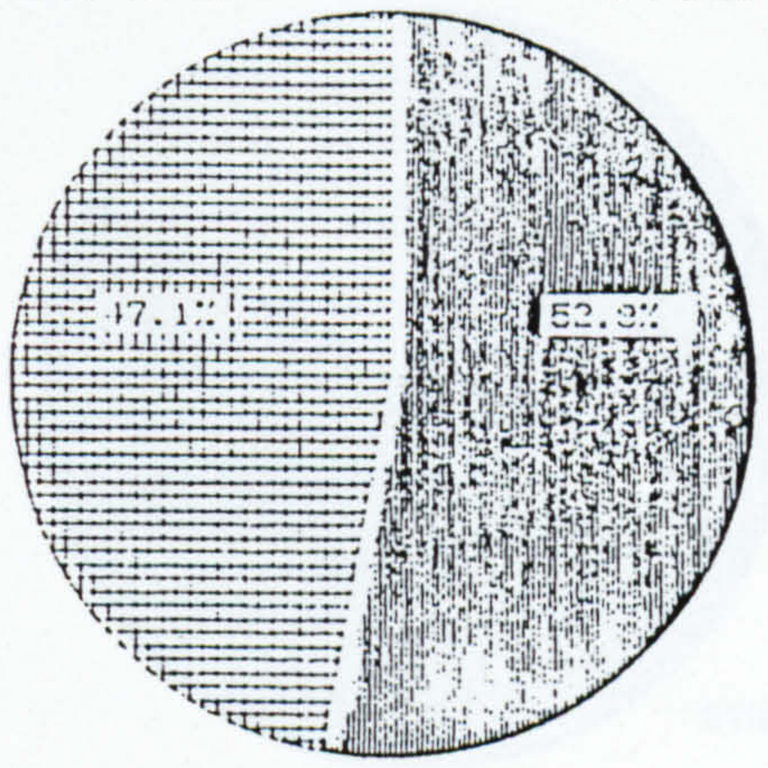

VERY LITTLE
19.5%
23.4%
STRONGLY
56.1%
REASONABLY
PROGRAMMES BASED ON HUMANITIES
40


VERY LITTLE
37.5%
STRONGLY
30%
32.5%
REASONABLY
PROGRAMME/ART
41



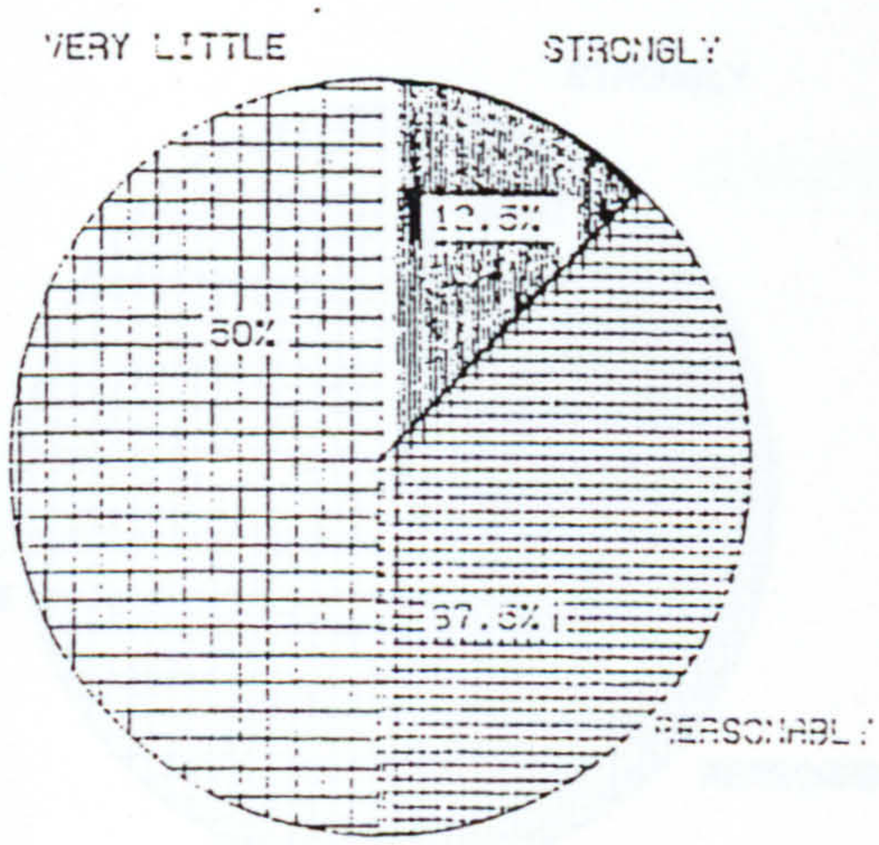
PROGRAMME/SCIENCE

42



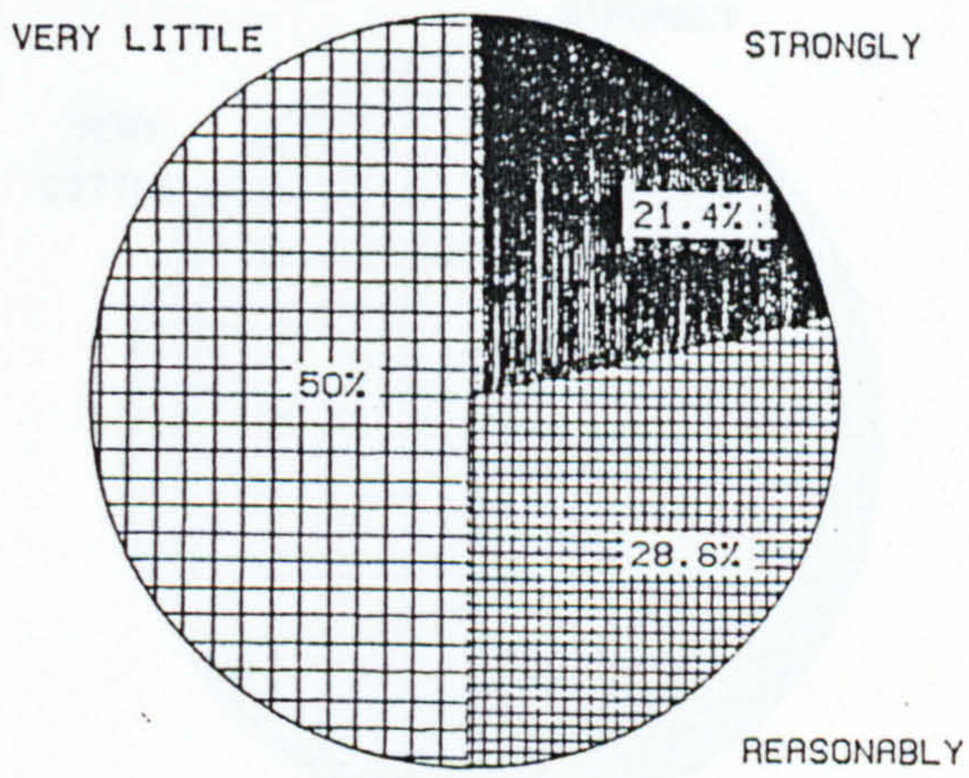
PROGRAMME/TECHNOLOGY

43



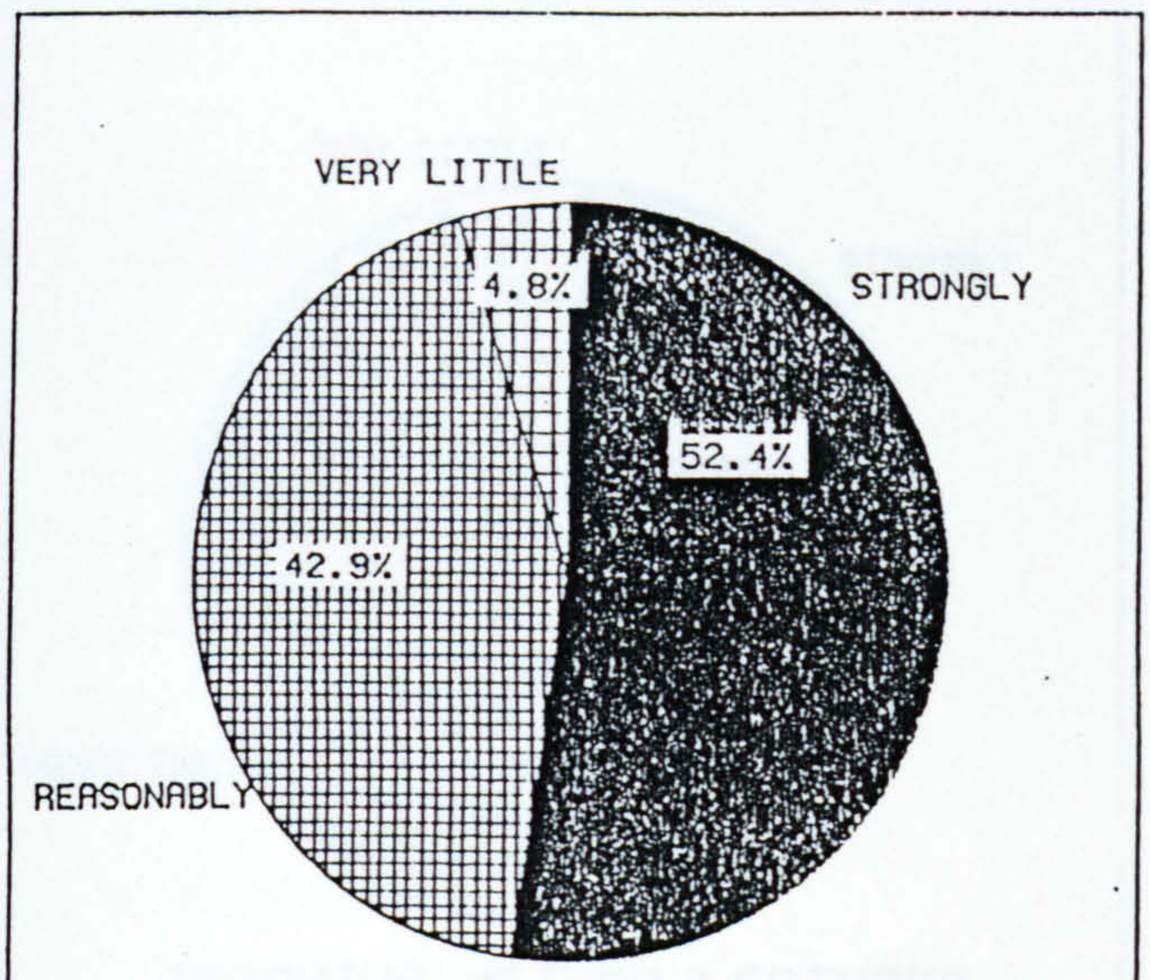
PROGRAMMES BASED ON HUMANITIES

44



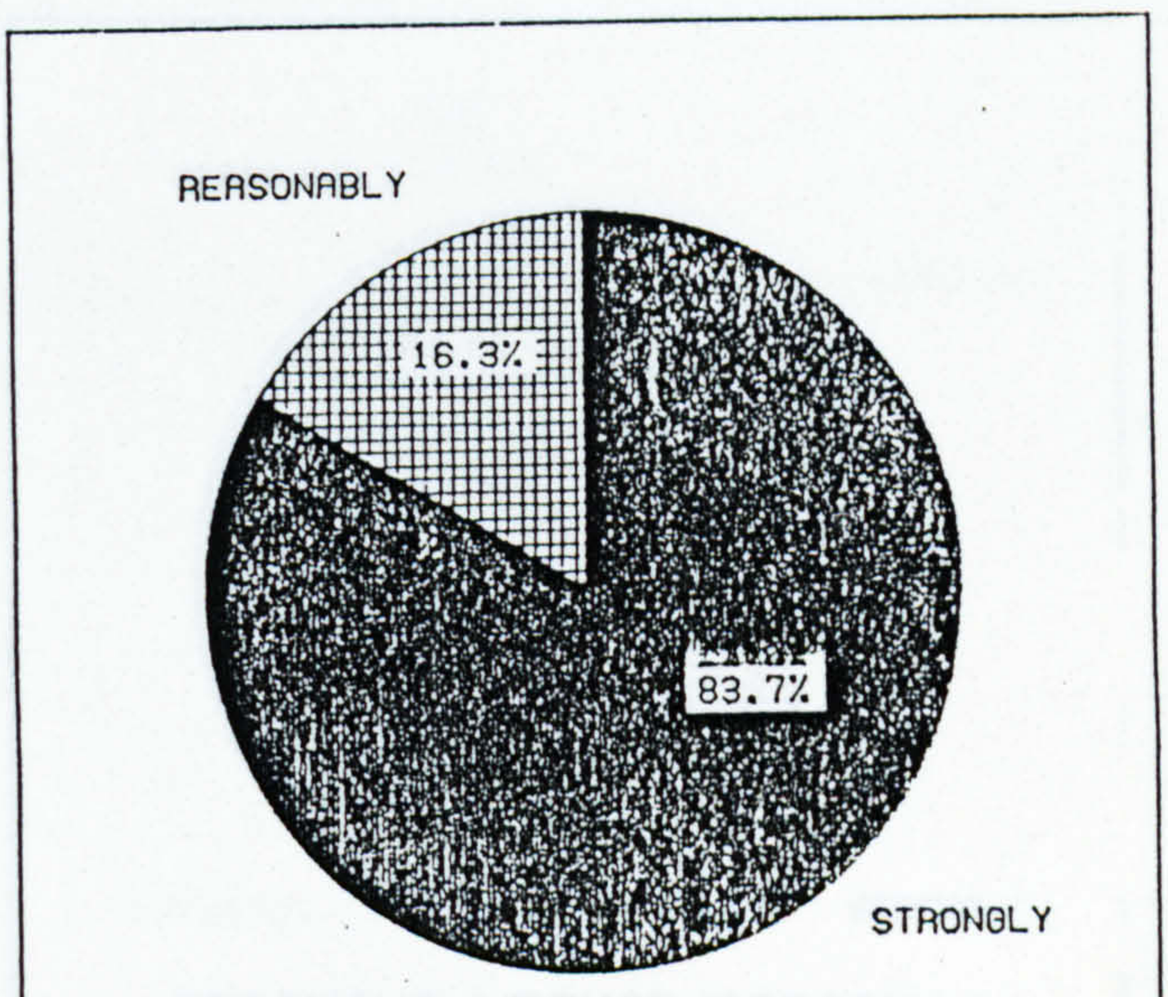
PROGRAMME/ART

45



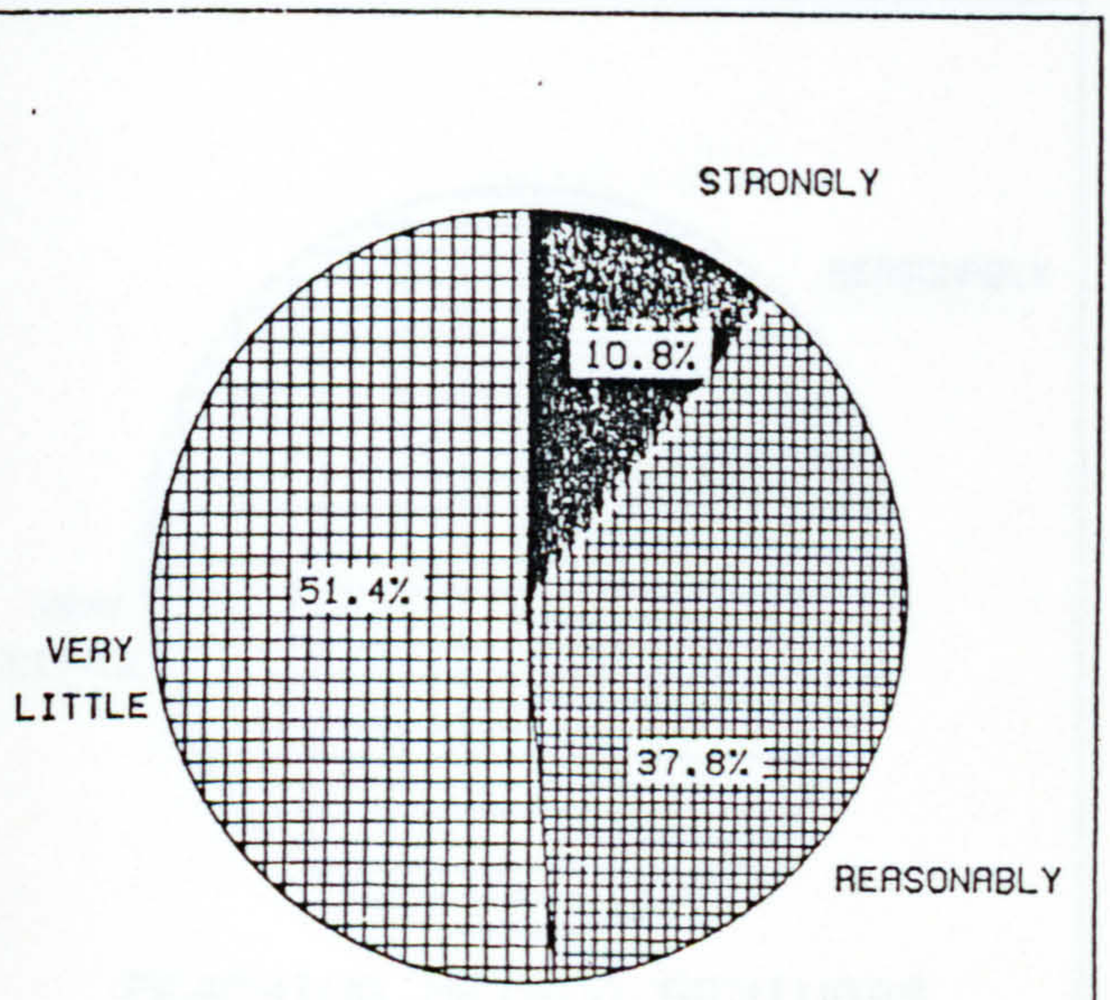
TEACHING METHOD/LECTURES

46



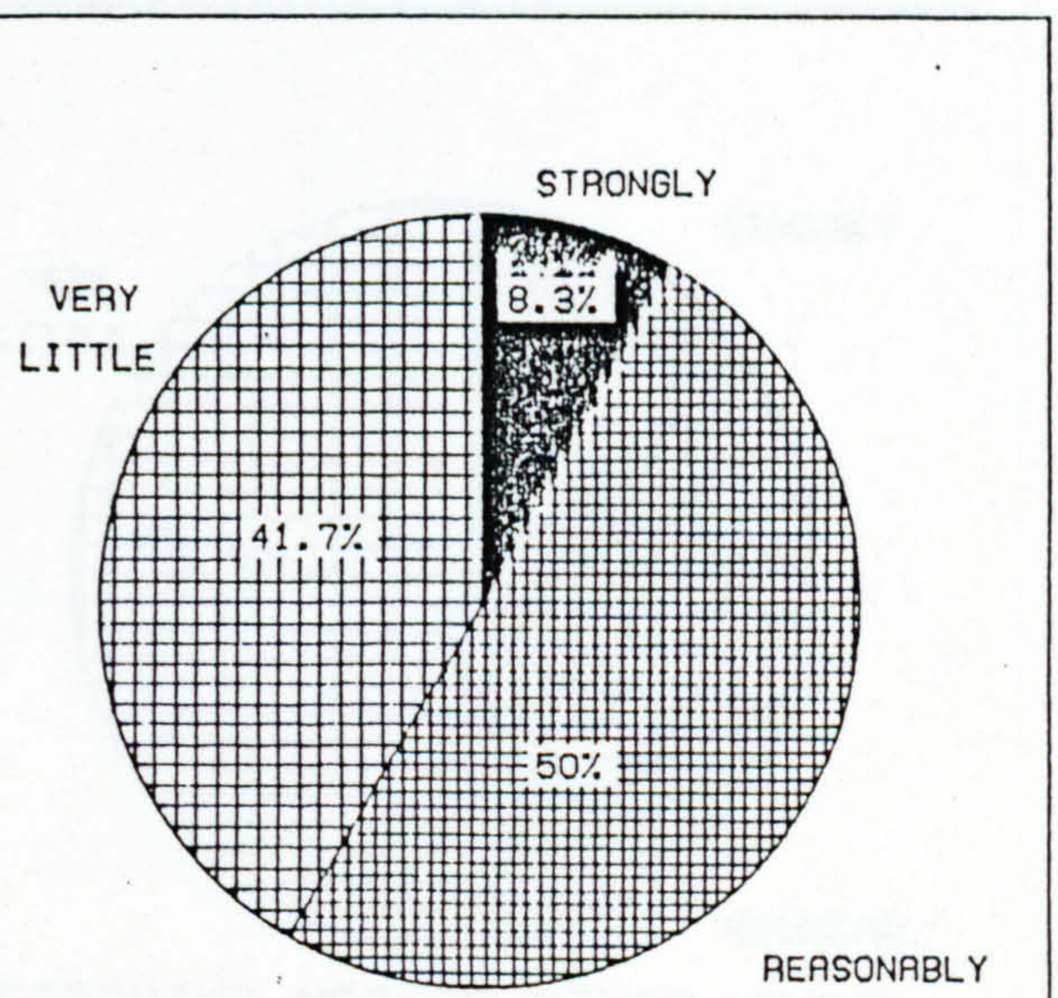
TEACHING METHOD/DESIGN

47



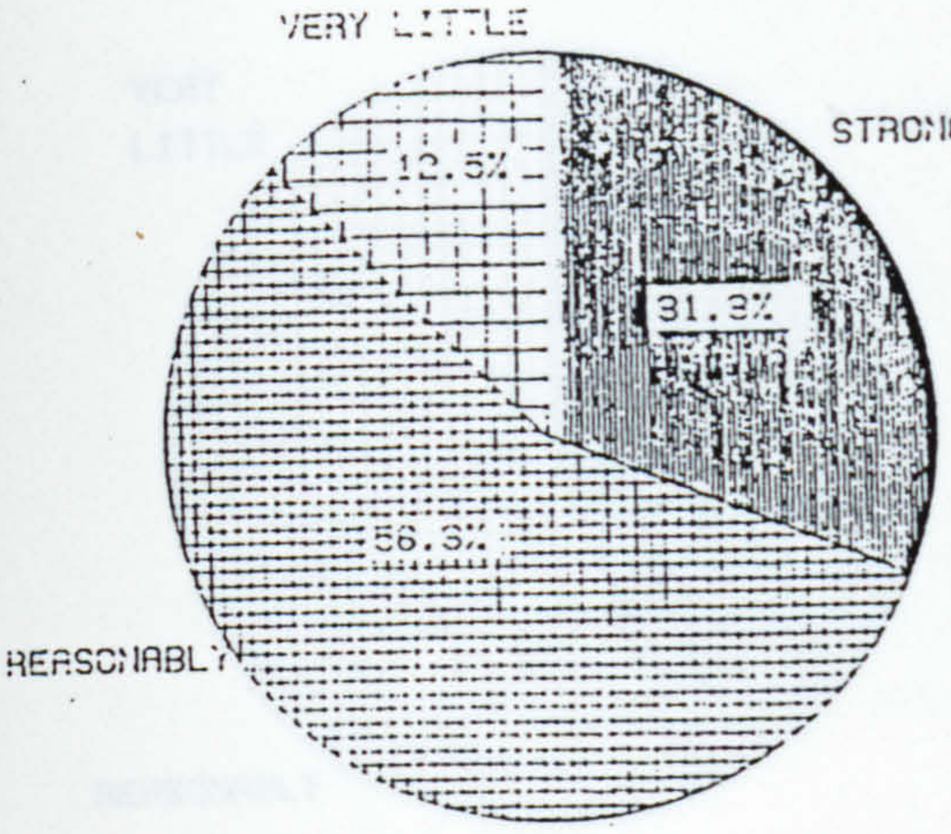
TEACHING METHOD/SEMINARS

48



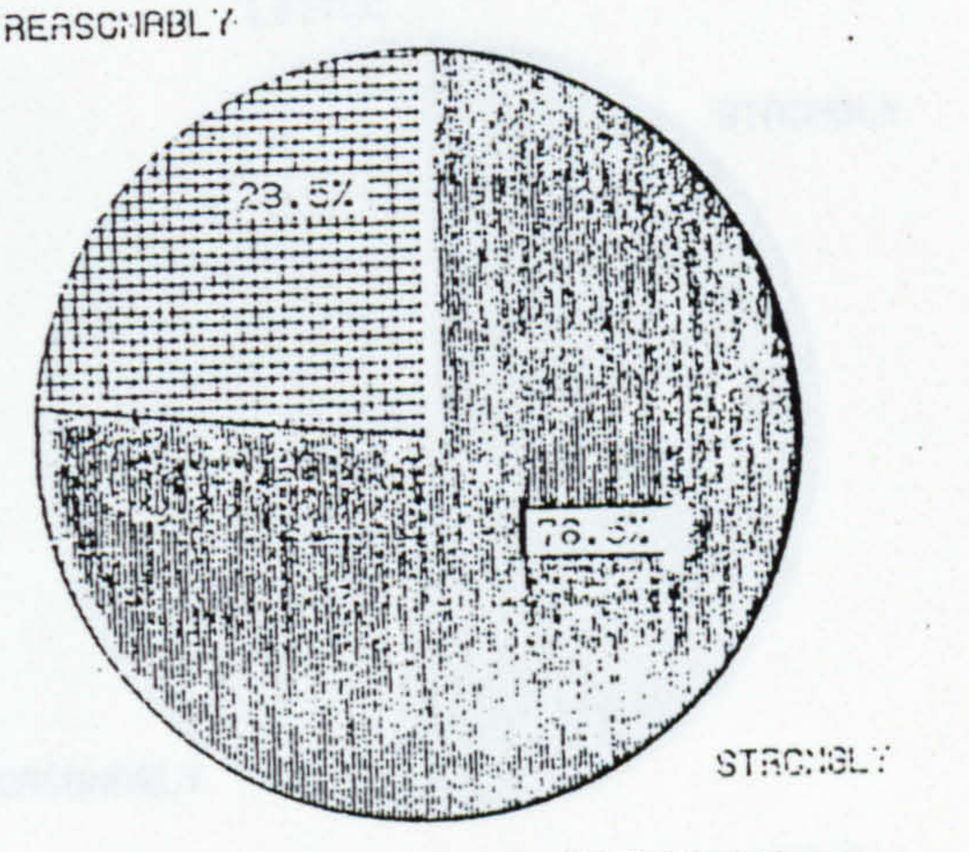
TEACHING METHOD/OTHER MEANS

49



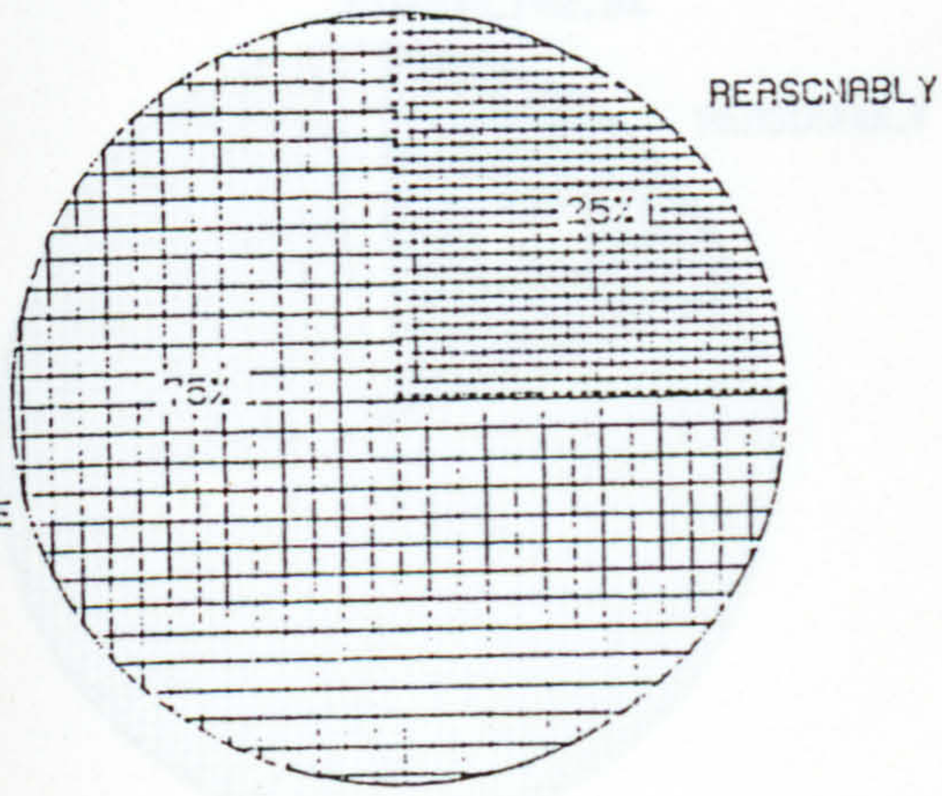
TEACHING METHOD/LECTURES

50



TEACHING METHOD/DESIGN

51



TEACHING METHOD/SEMINARS

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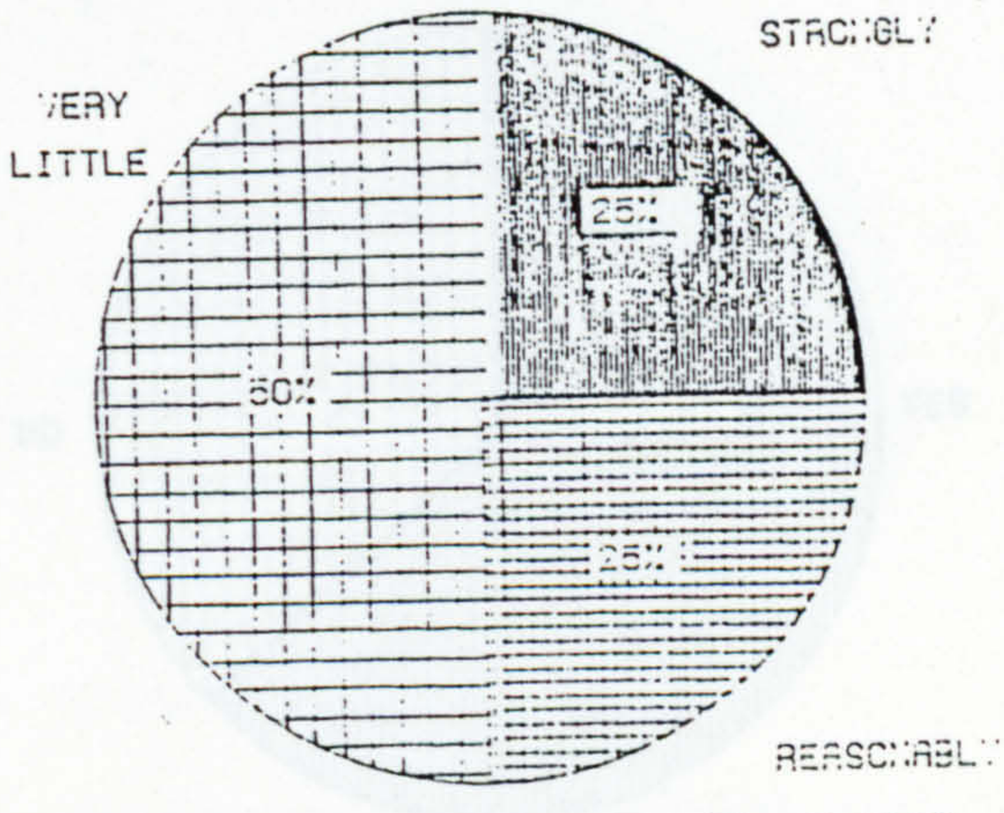

TEACHING METHOD/OTHER MEANS

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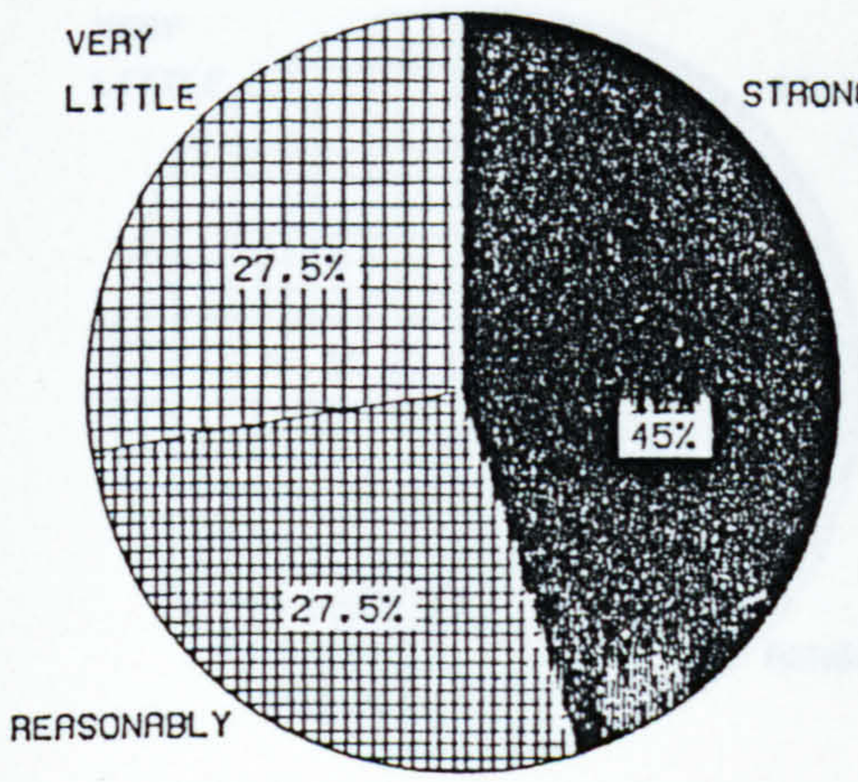

DESIGN/COUNTRY'S NEEDS

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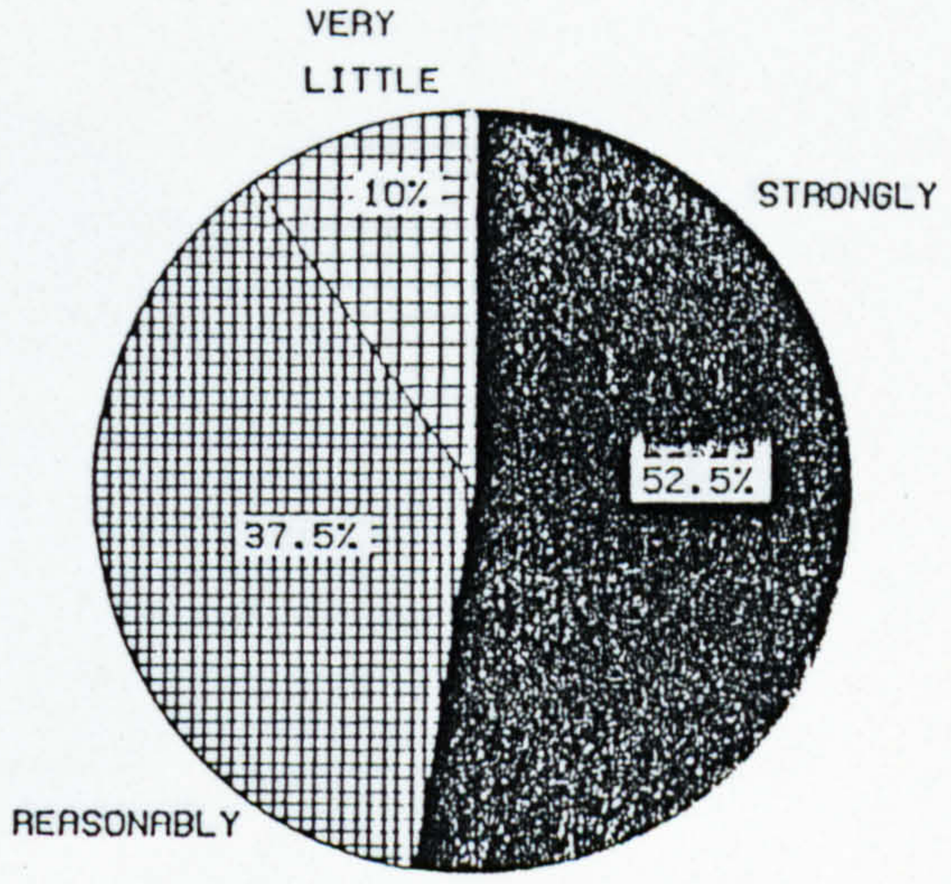

DESIGN/URBAN INTERVENTION

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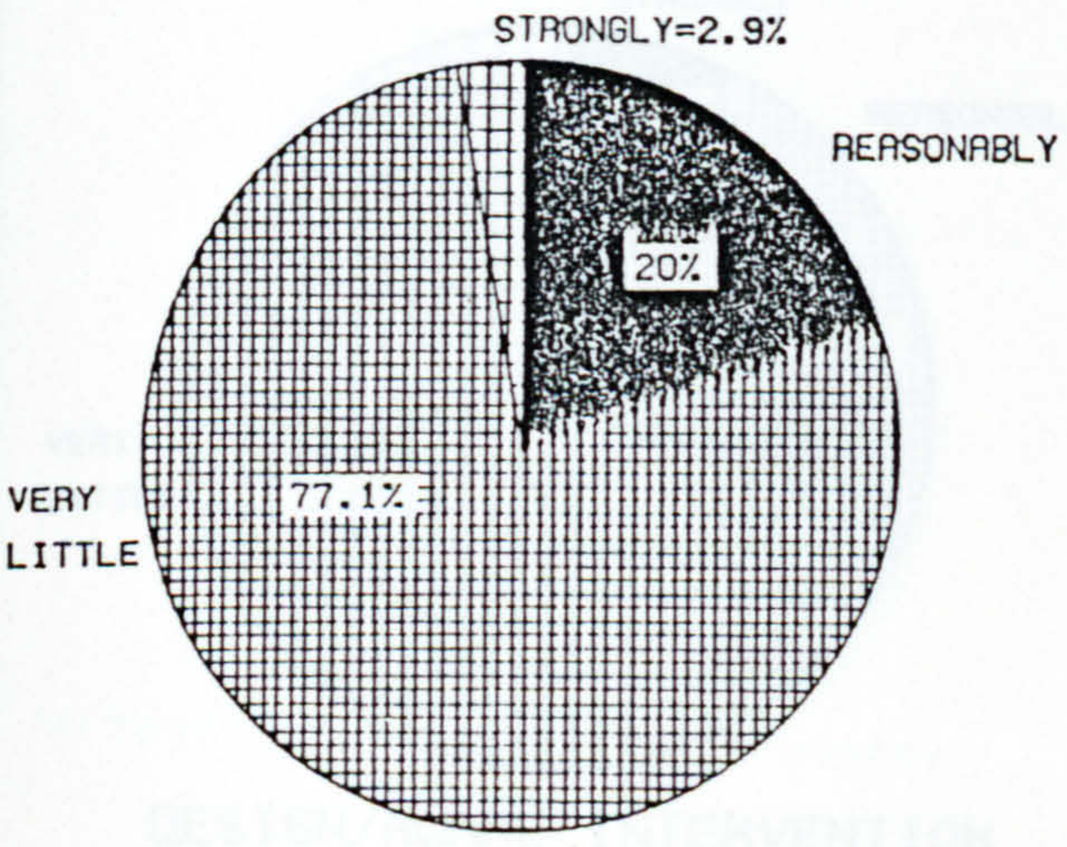

DESIGN/RURAL INTERVENTION

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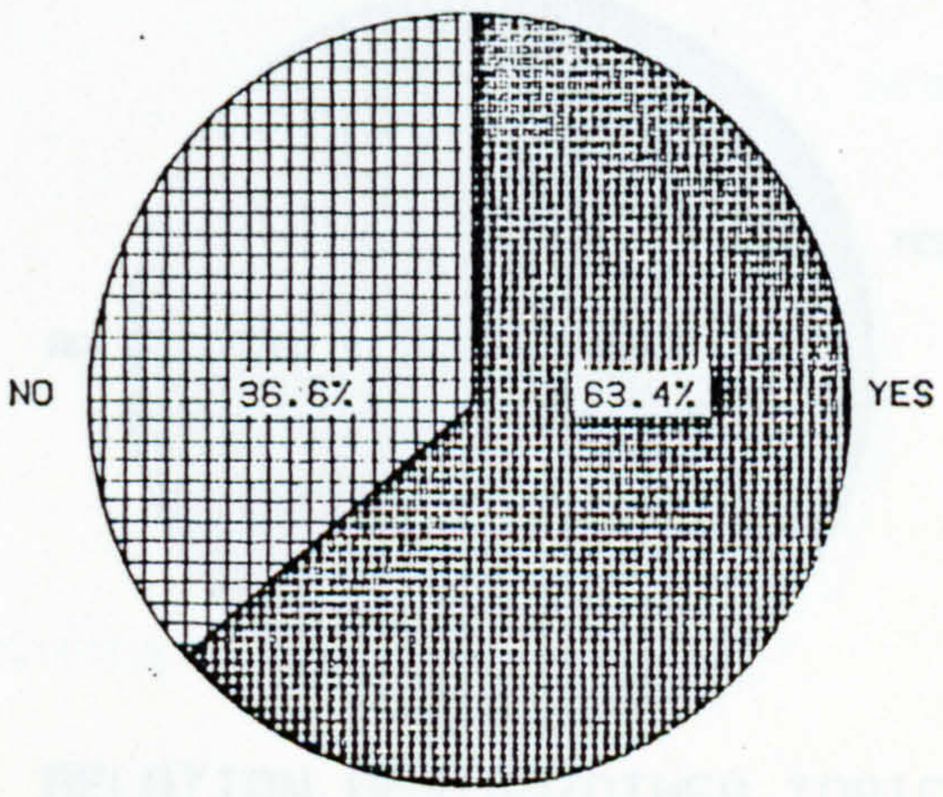

RELATION DESIGN/OTHER TOPICS

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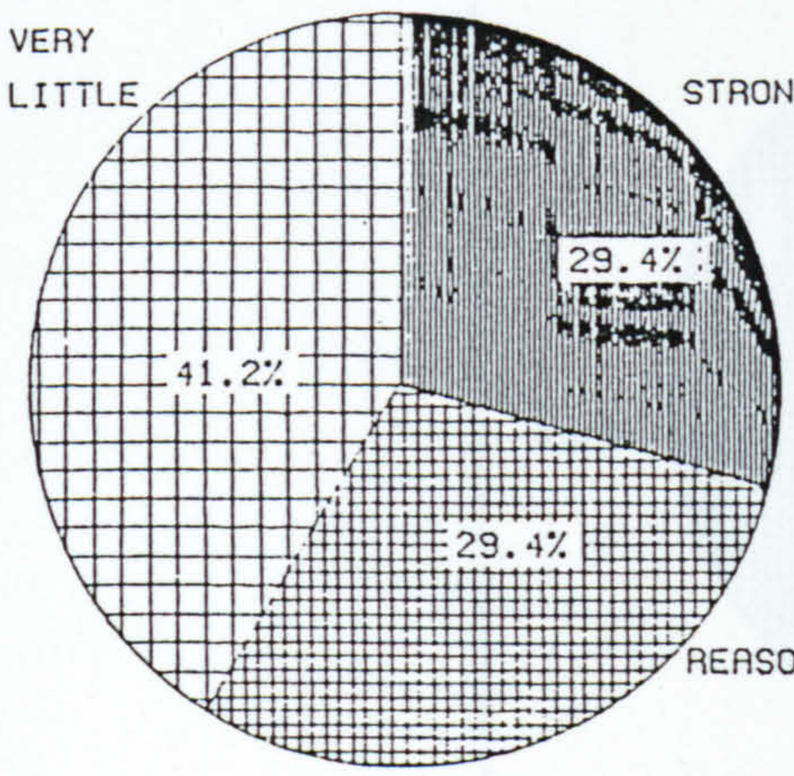

DESIGN/COUNTRY S NEEDS

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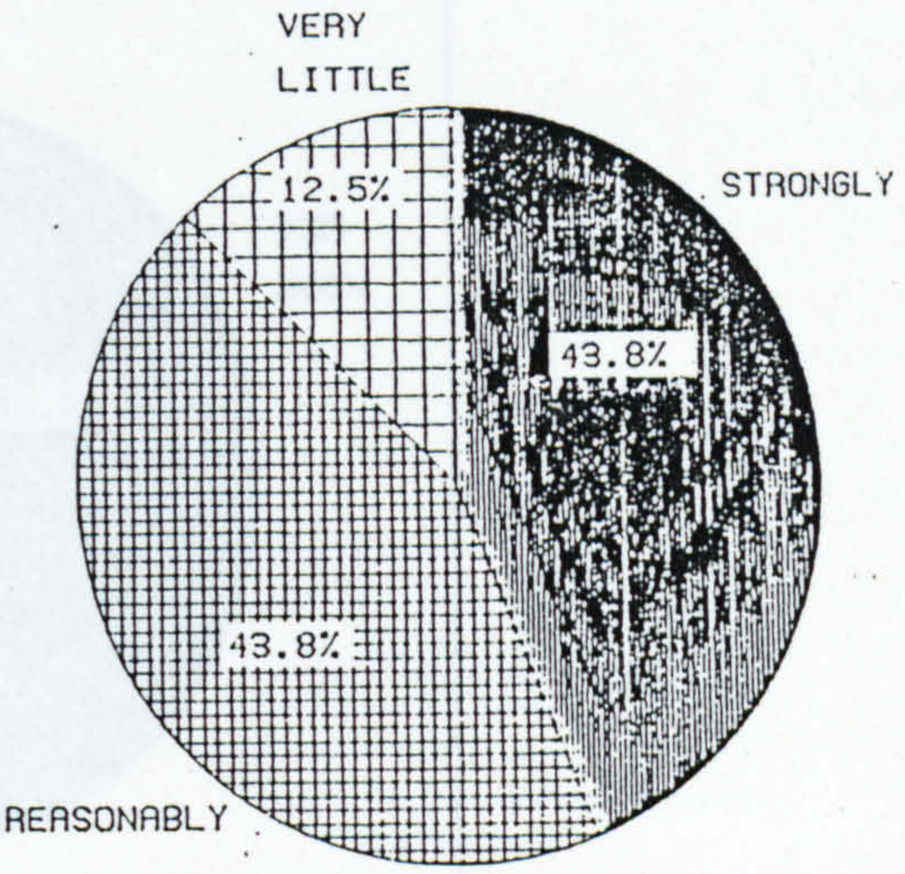

DESIGN/URBAN INTERVENTION

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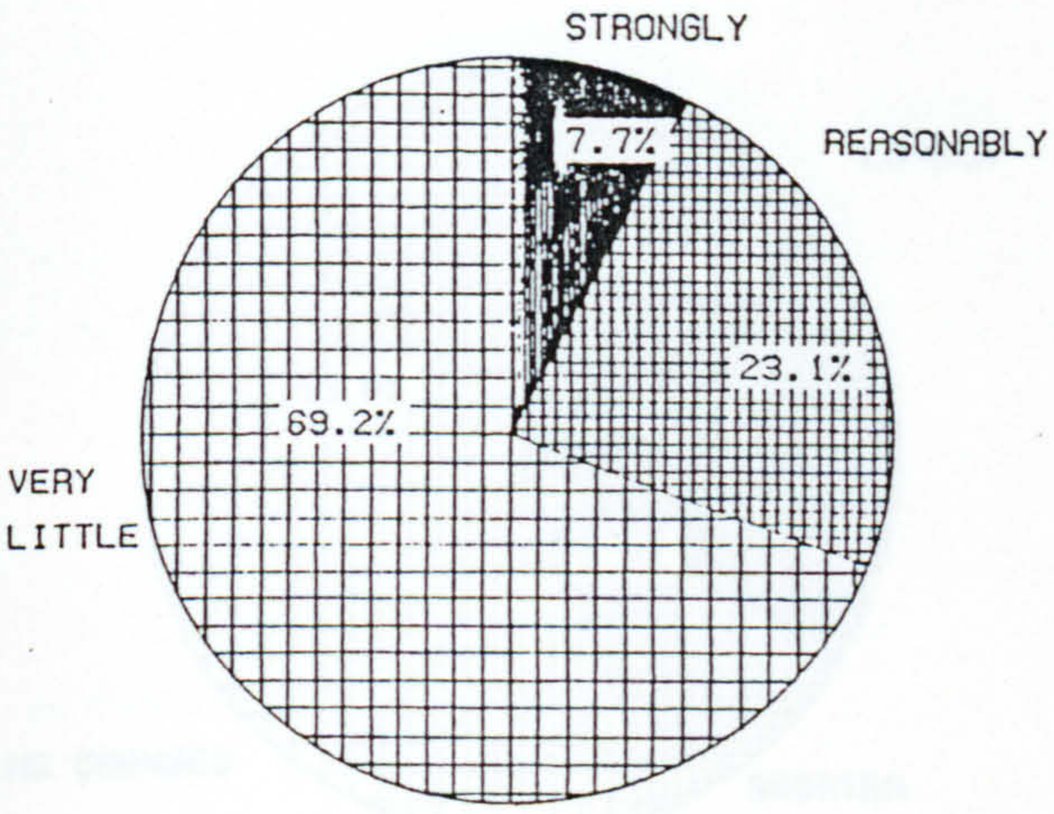

DESIGN/RURAL INTERVENTION

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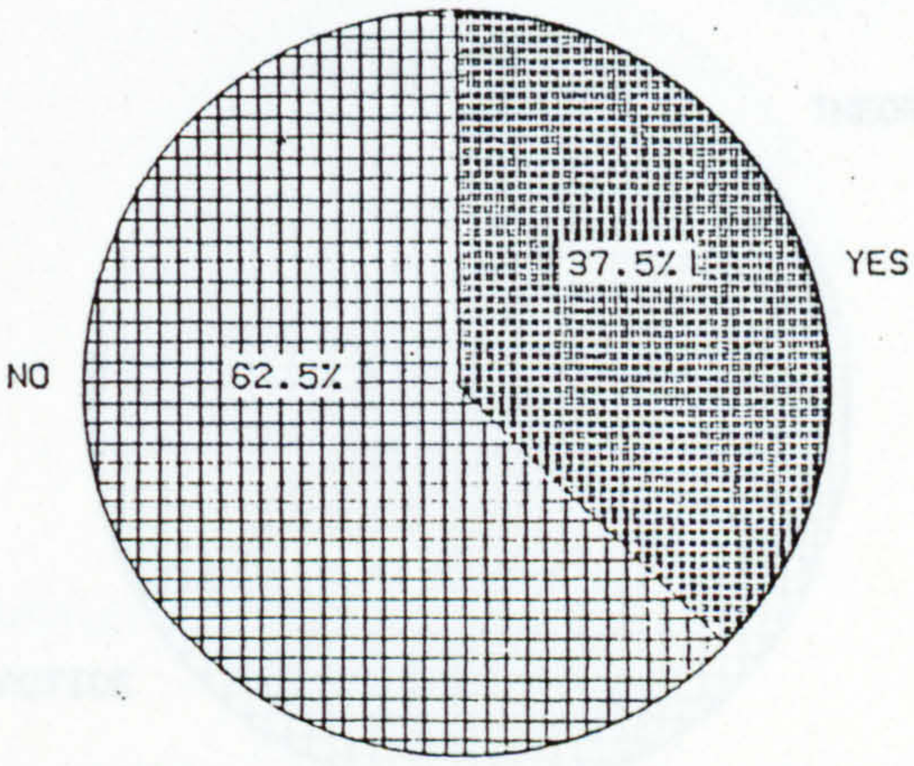

RELATION DESIGN/OTHER TOPICS

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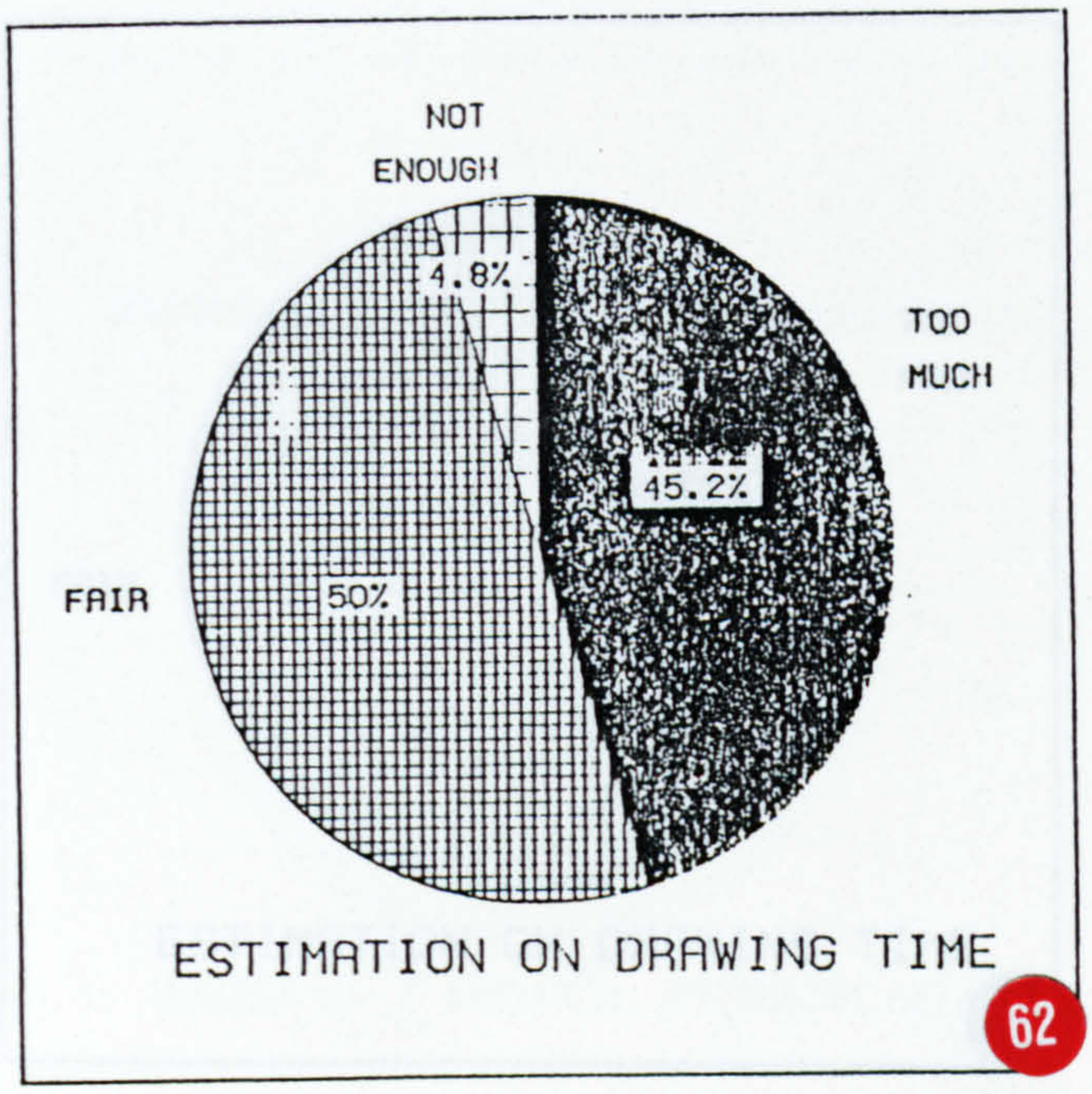
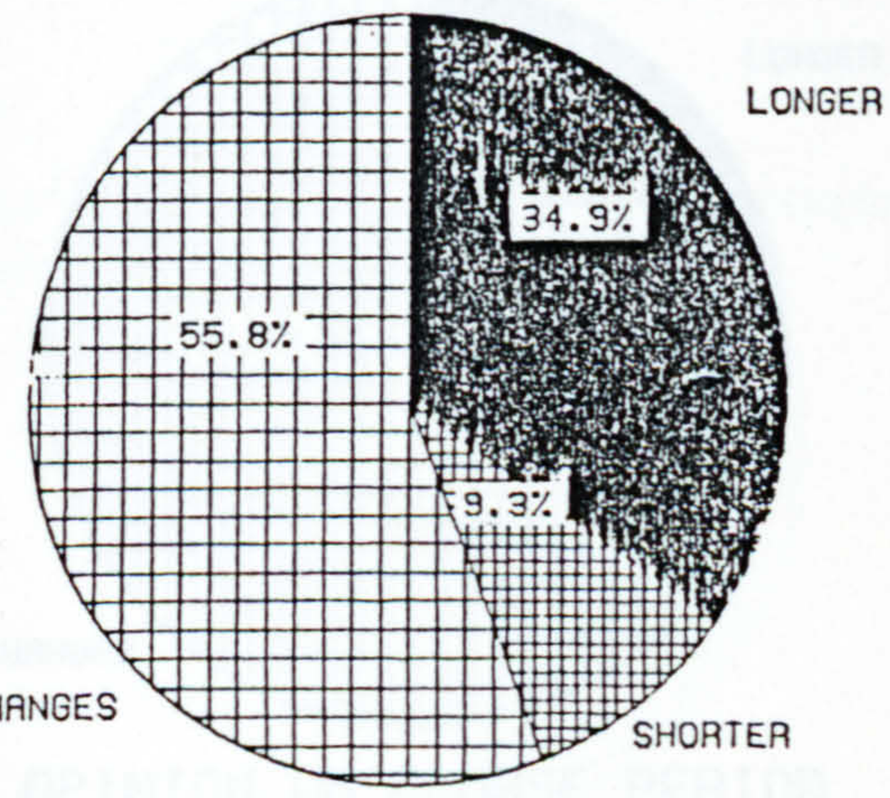


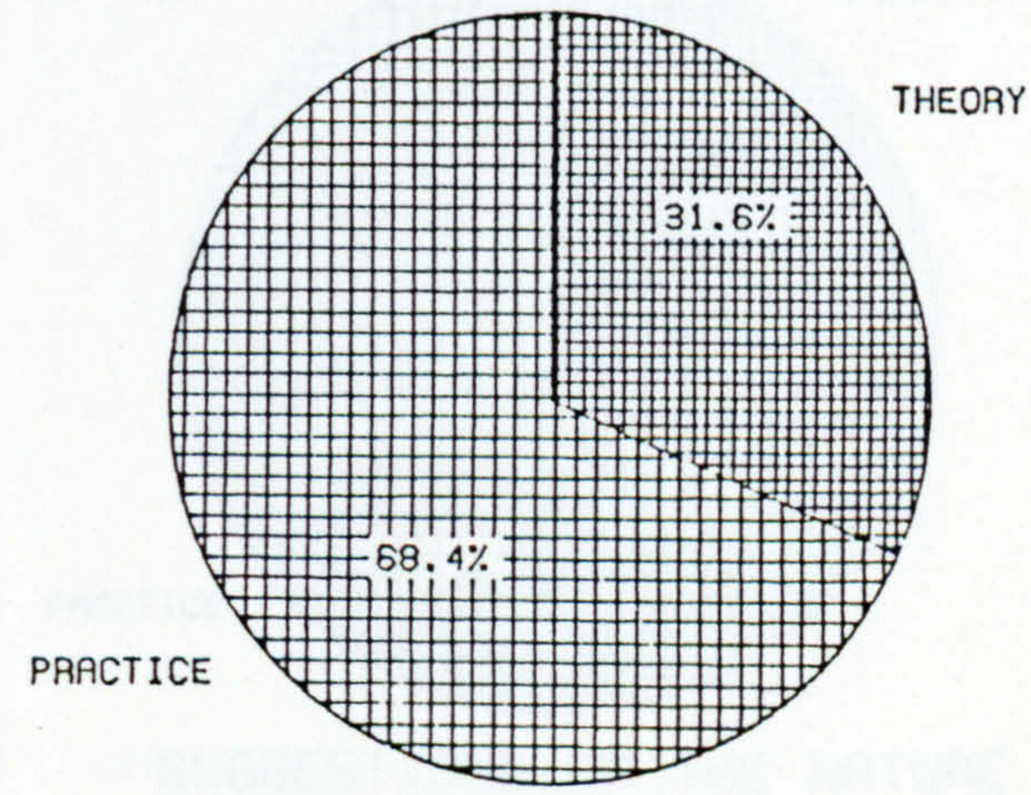
ESTIMATION ON DRAWING TIME

62



OPINION ON COURSE PERIOD

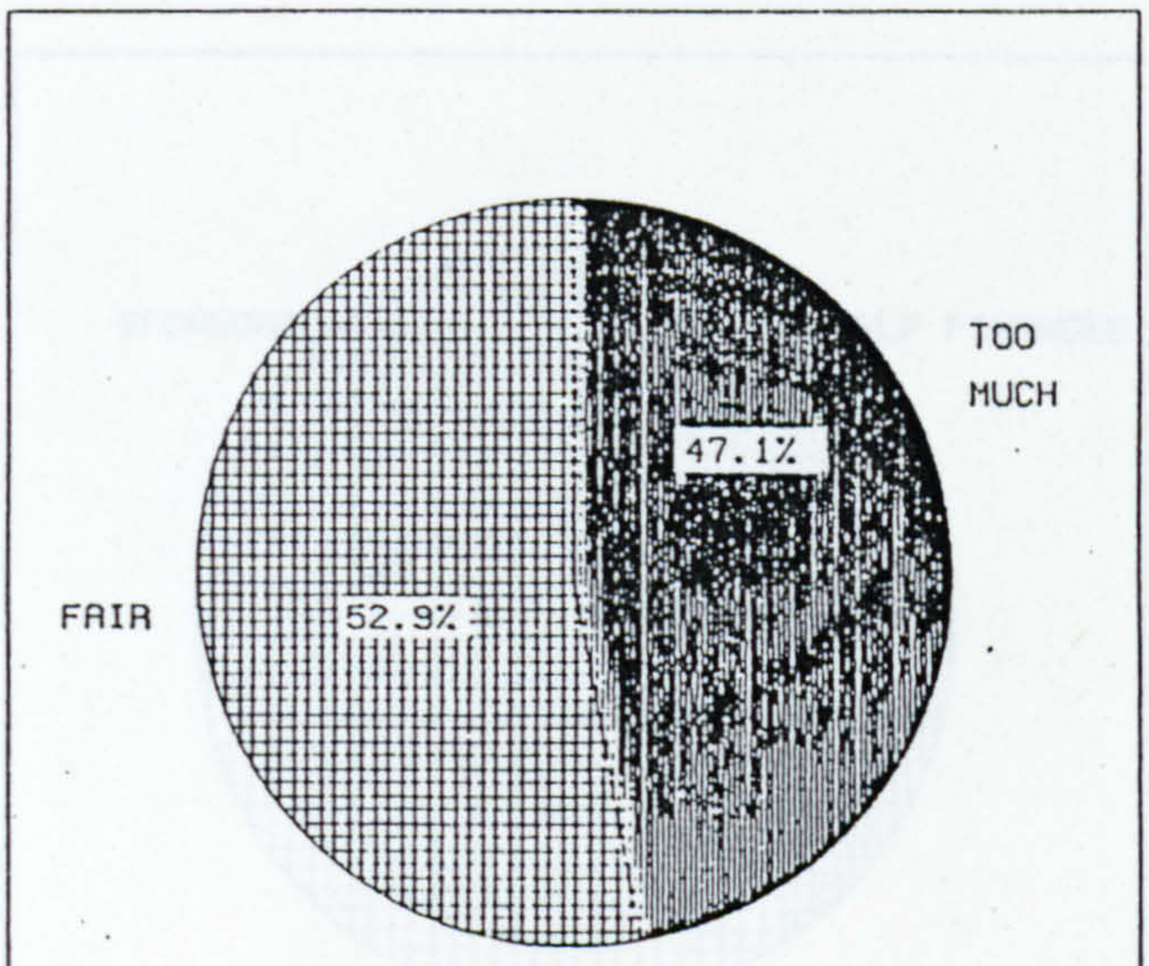
63



SUGGESTIONS ON THE NATURE
OF THE ADDED TIME

64

COURSE PERIOD AND SUGGESTIONS



ESTIMATION ON DRAWING TIME

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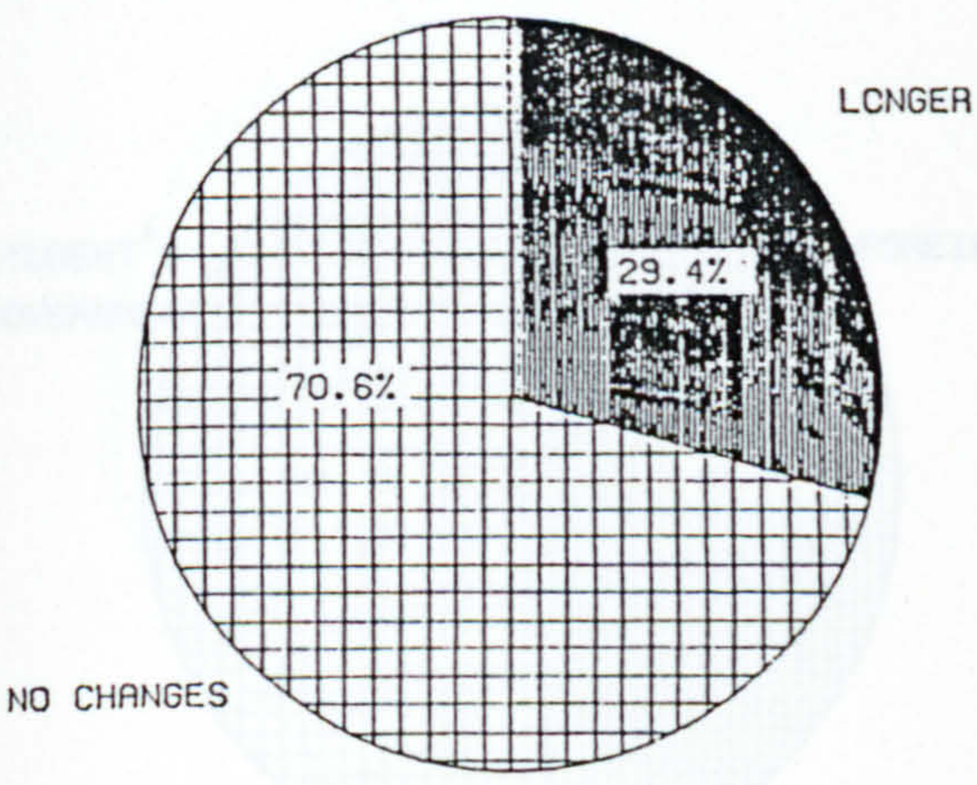

OPINION ON COURSE PERIOD

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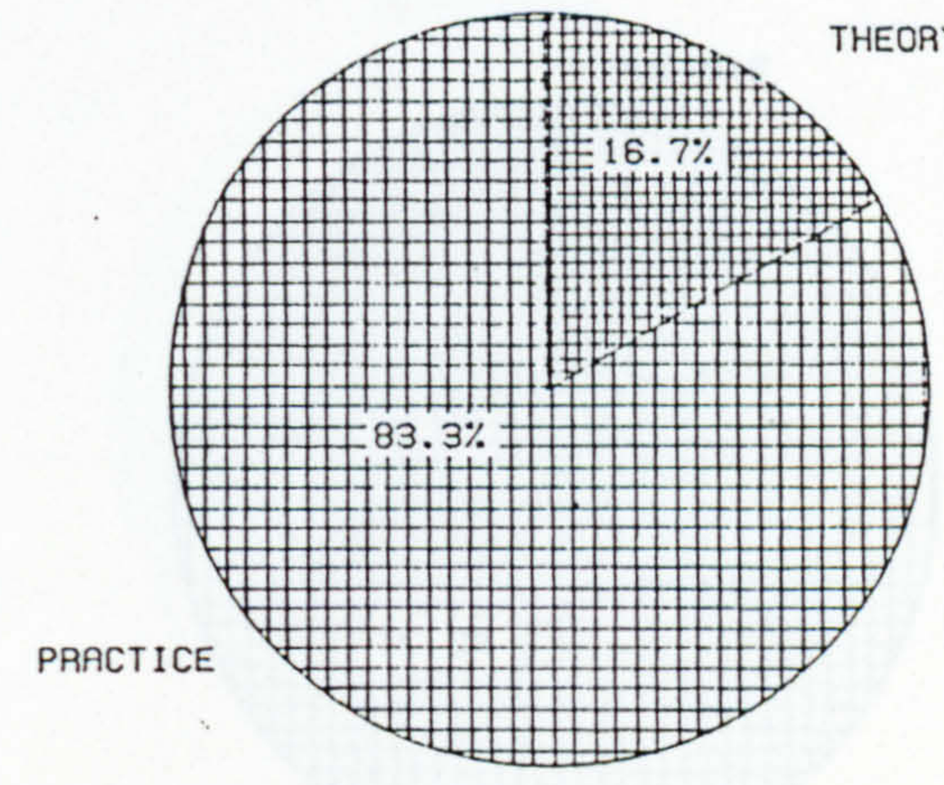

SUGGESTIONS ON THE NATURE
OF THE ADDED TIME

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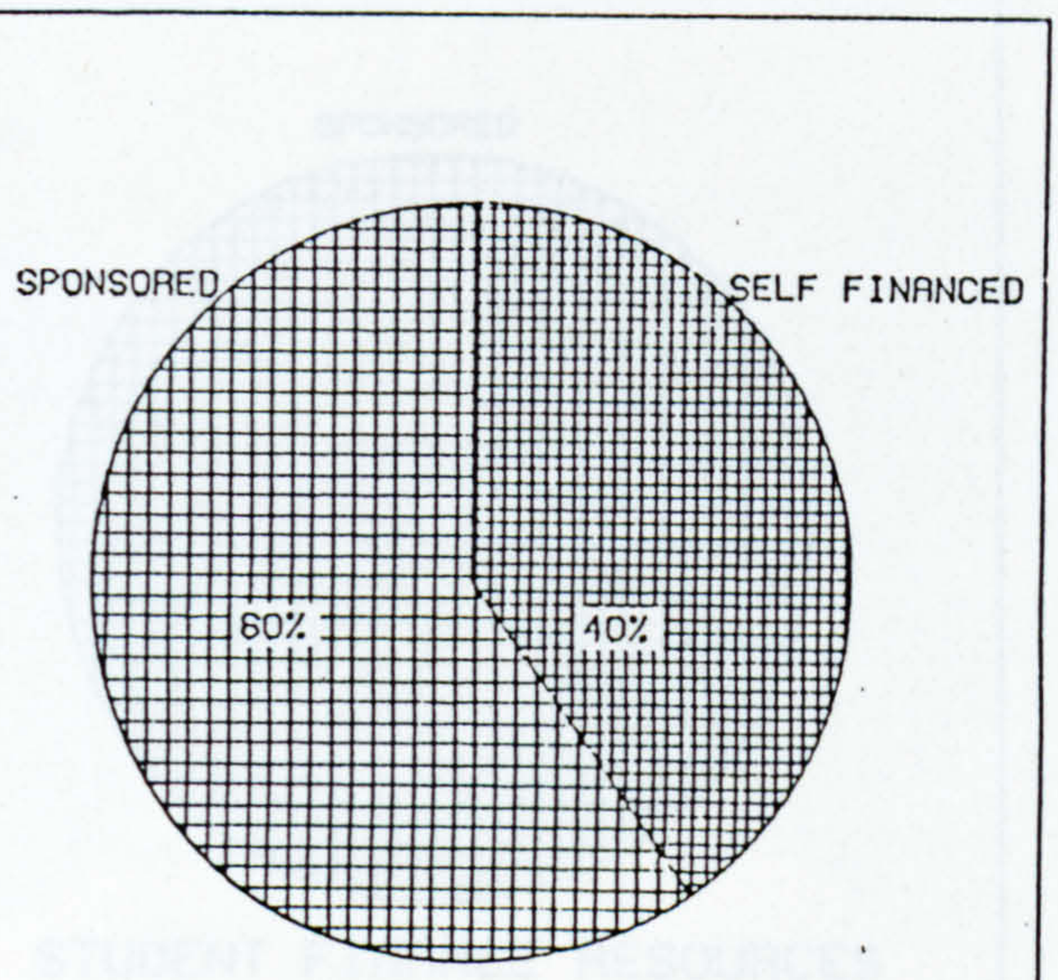
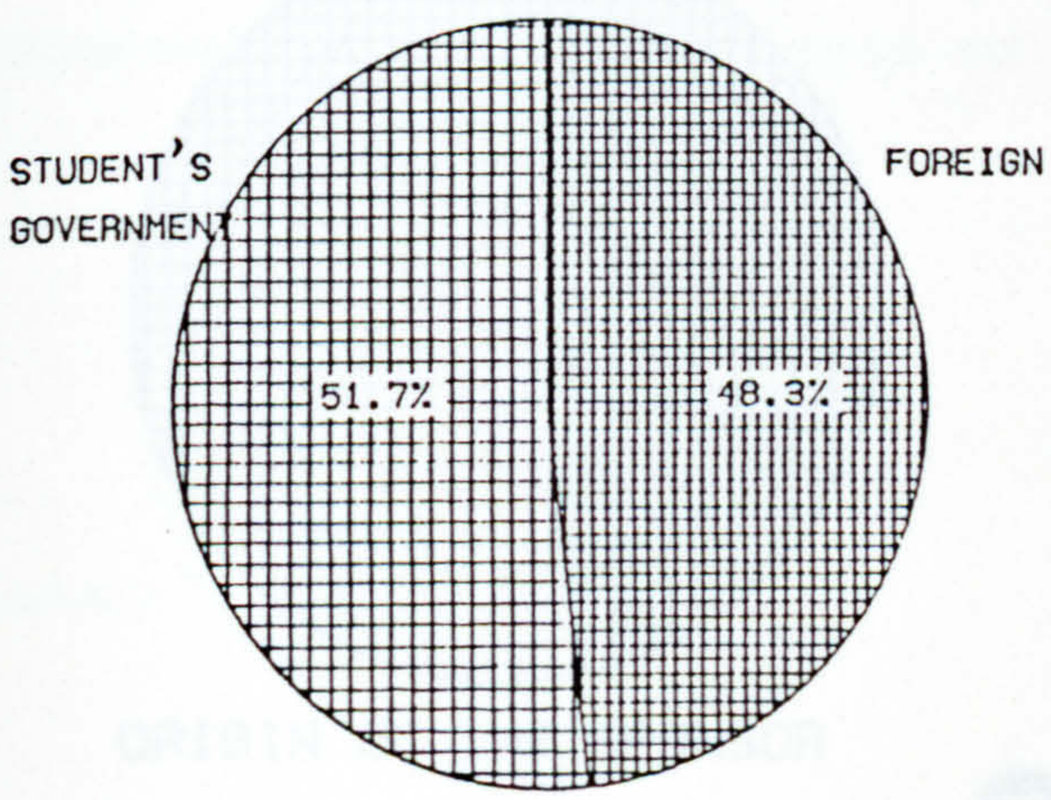


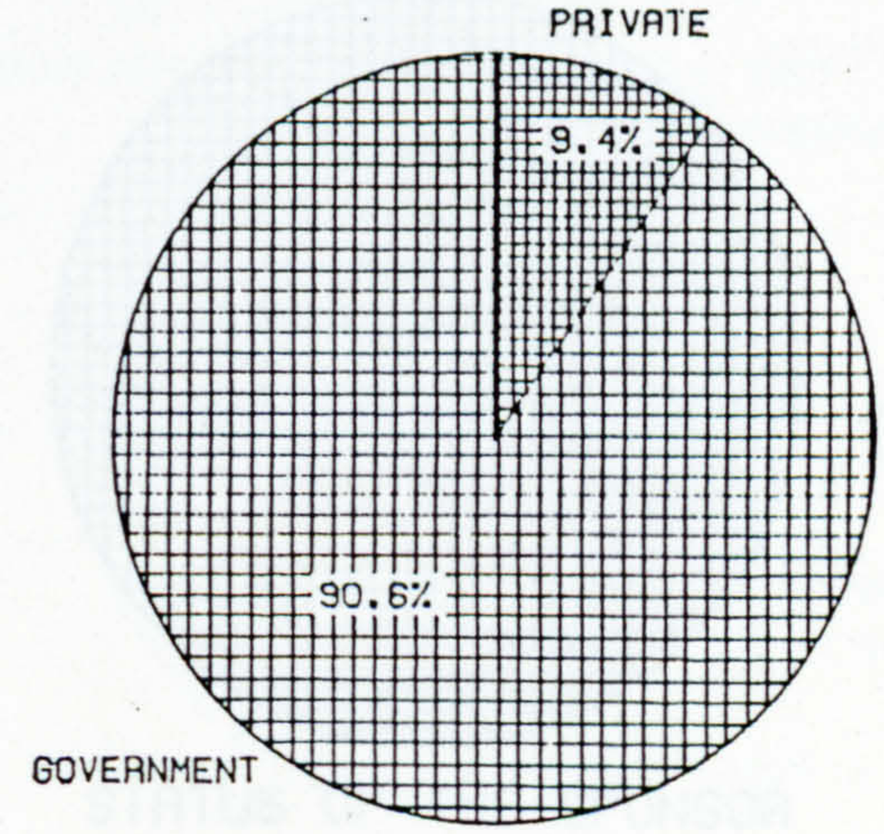
STUDENT FINANCE RESOURCES

68



ORIGIN OF THE SPONSOR

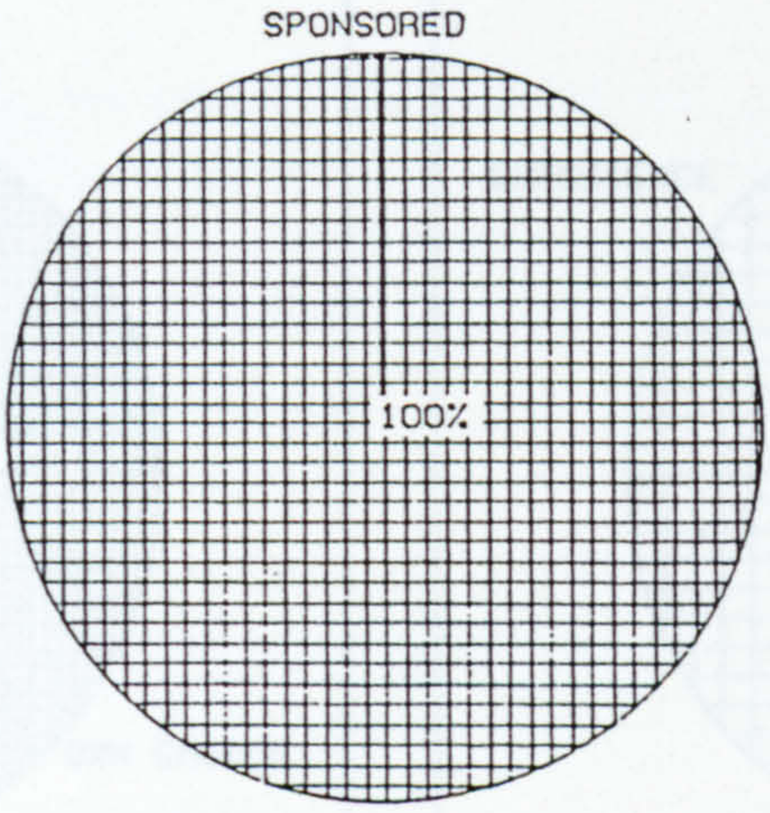
69



STATUS OF THE SPONSOR

70

INFORMATION ABOUT POST-GRADUATE STUDIES



STUDENT FINANCE RESOURCES

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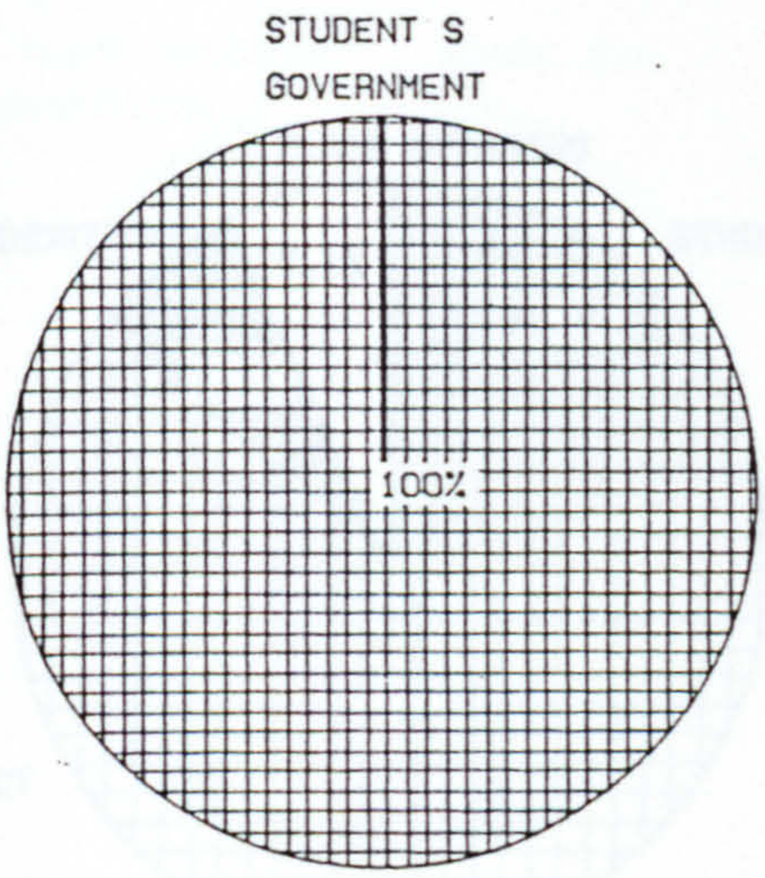

ORIGIN OF THE SPONSOR

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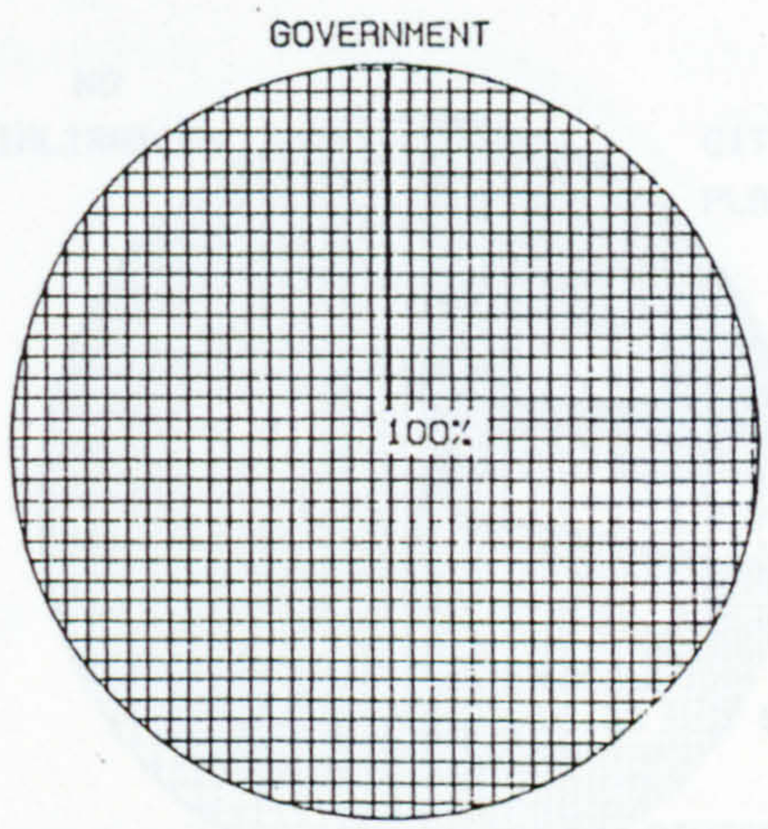
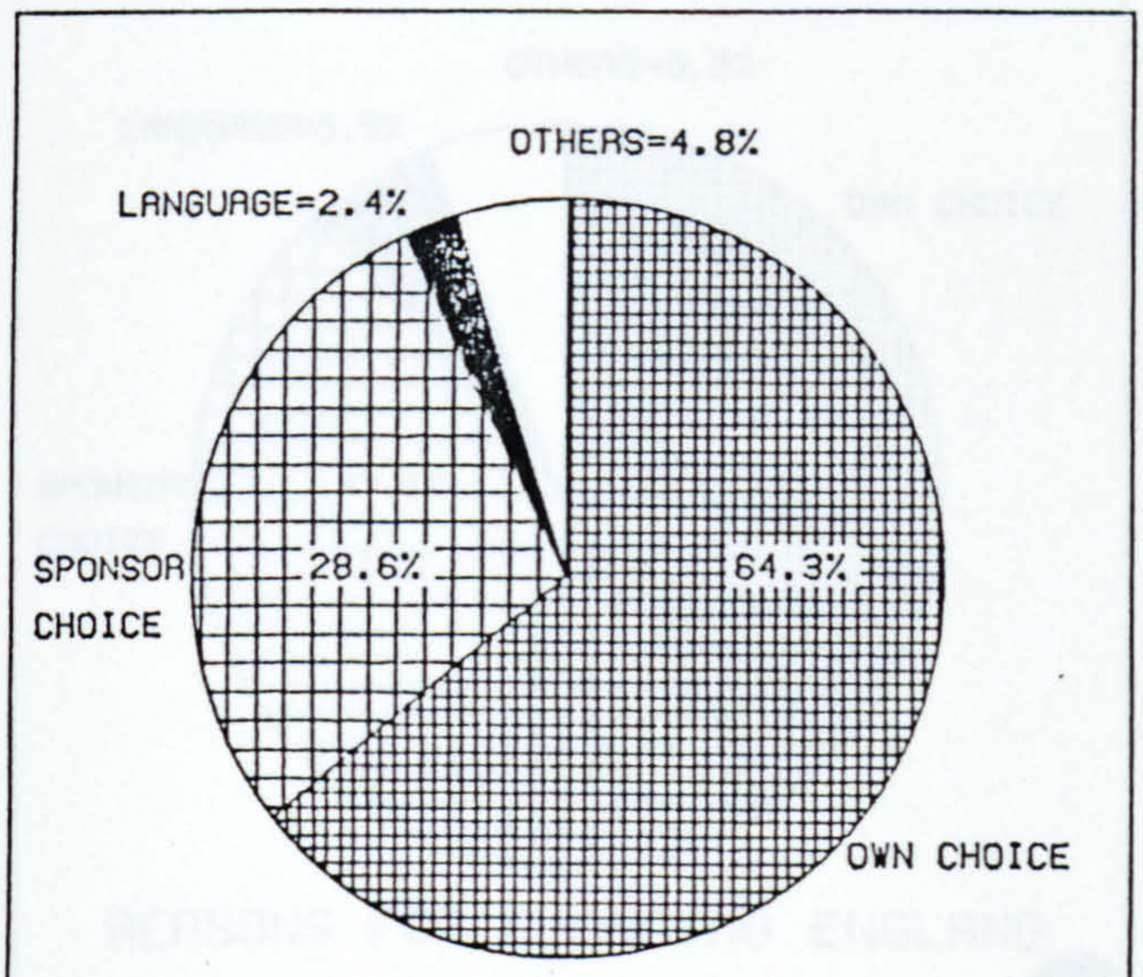


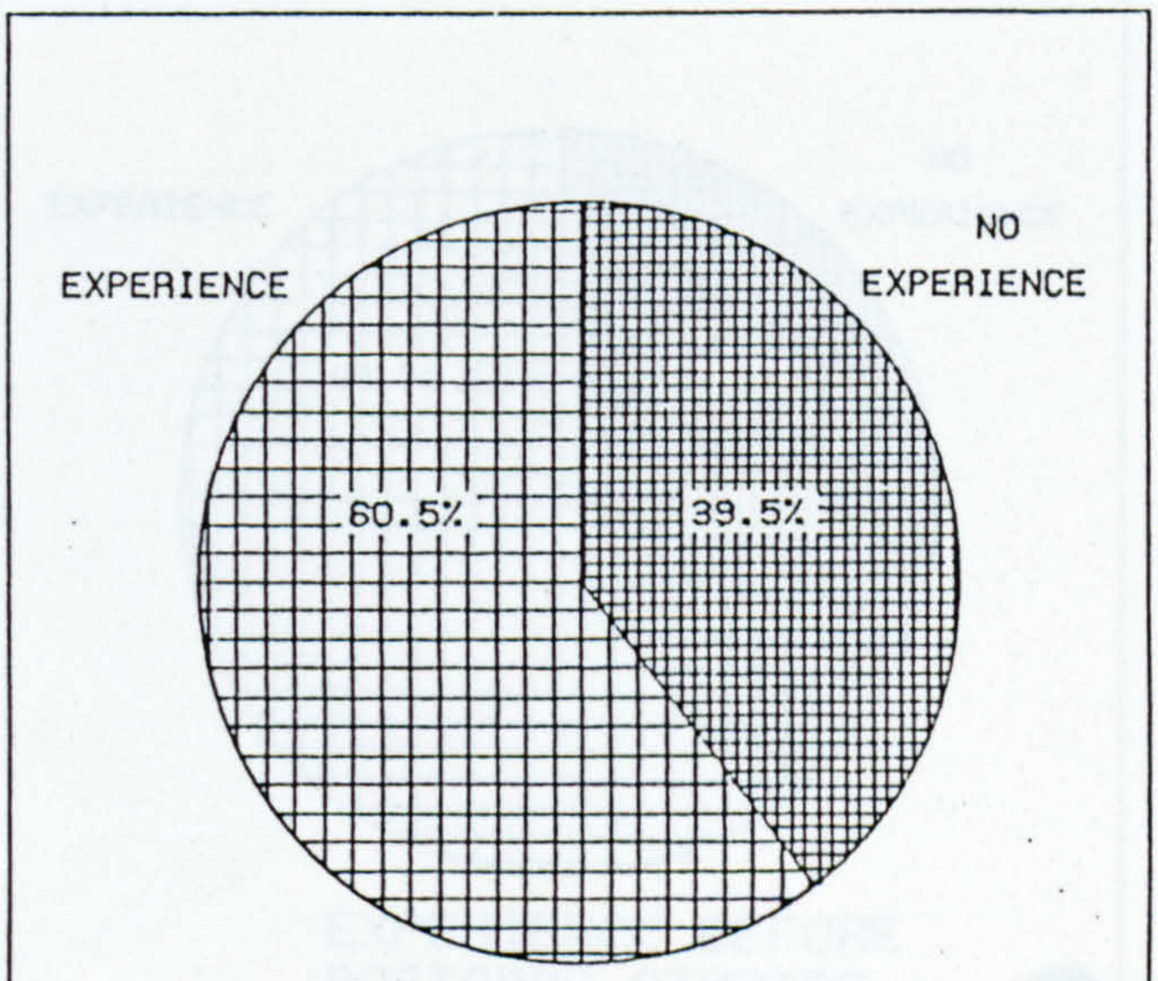
STATUS OF THE SPONSOR

73



REASONS FOR CHOOSING ENGLAND

74



EXPERIENCE BEFORE POSTGRAD STUDIES

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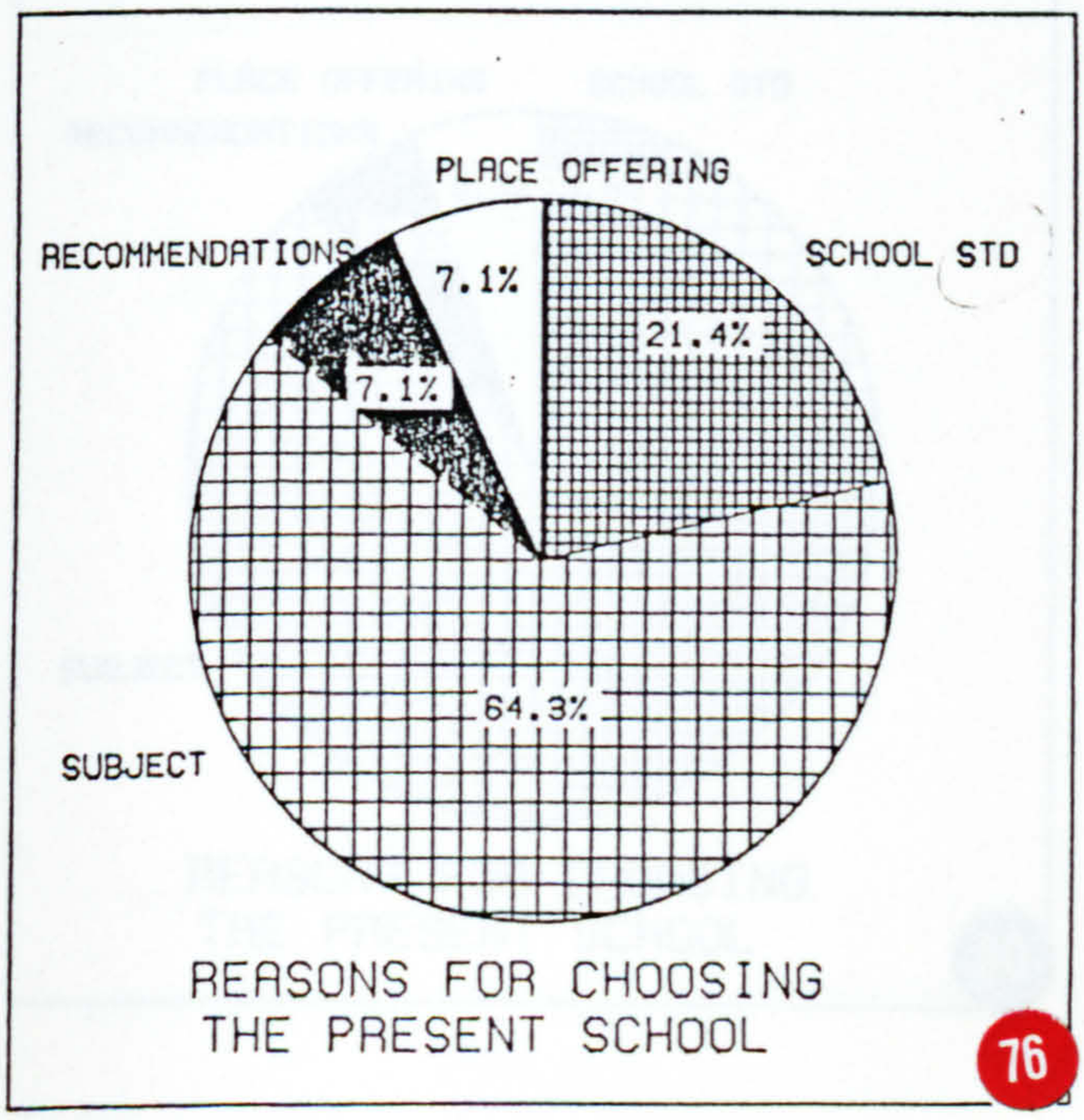
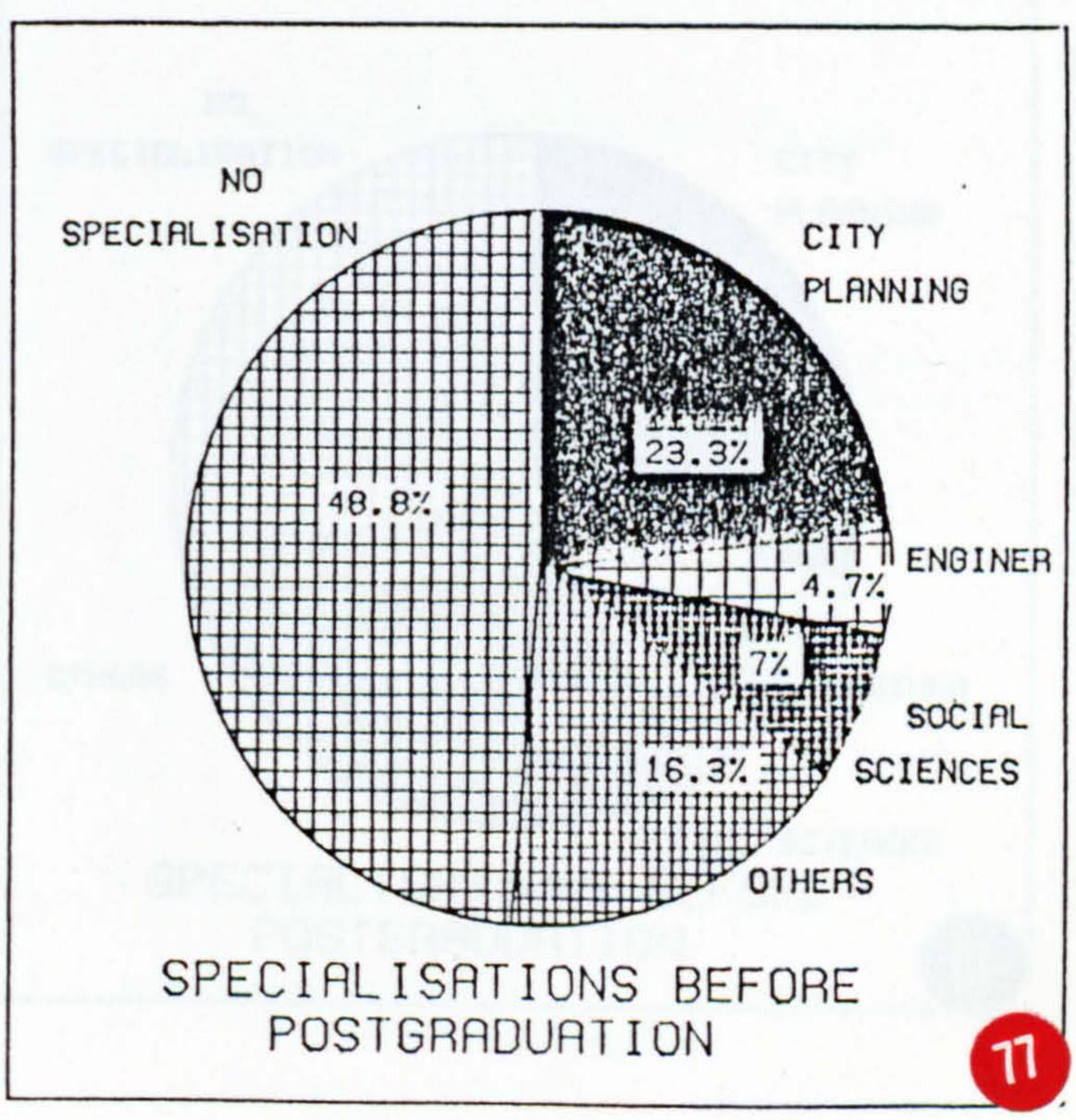


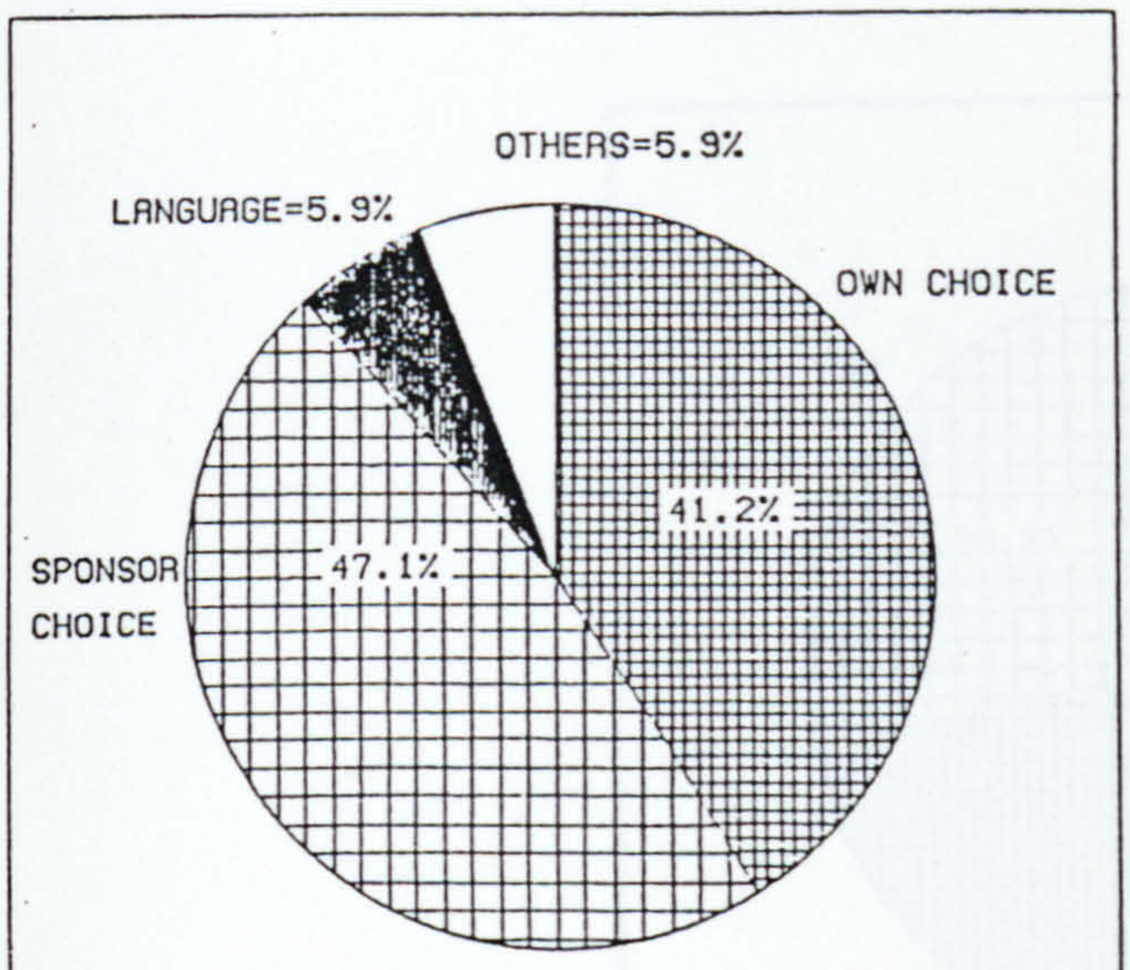
REASONS FOR CHOOSING THE PRESENT SCHOOL

76



SPECIALISATIONS BEFORE POSTGRADUATION

77



REASONS FOR CHOOSING ENGLAND

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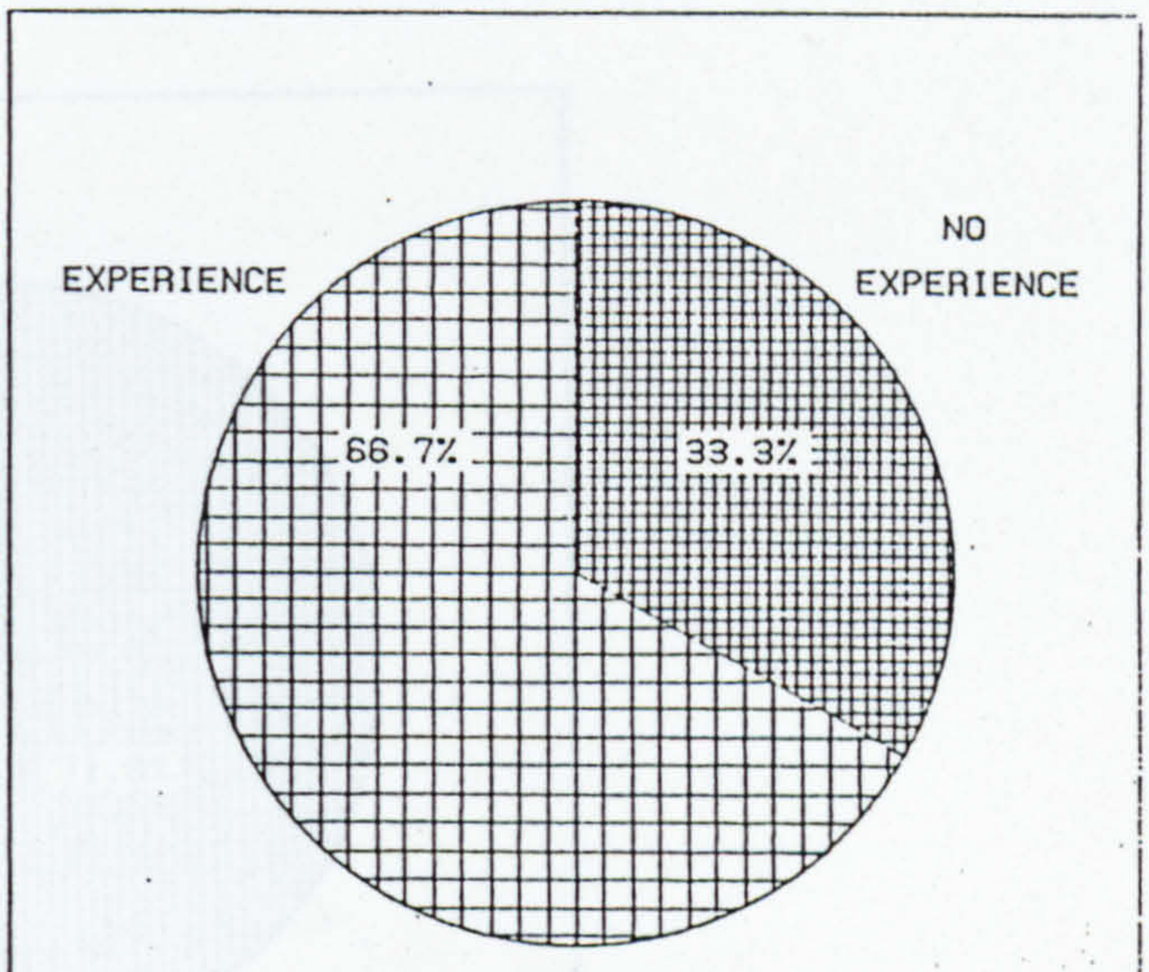

EXPERIENCE BEFORE
POSTGRAD STUDIES

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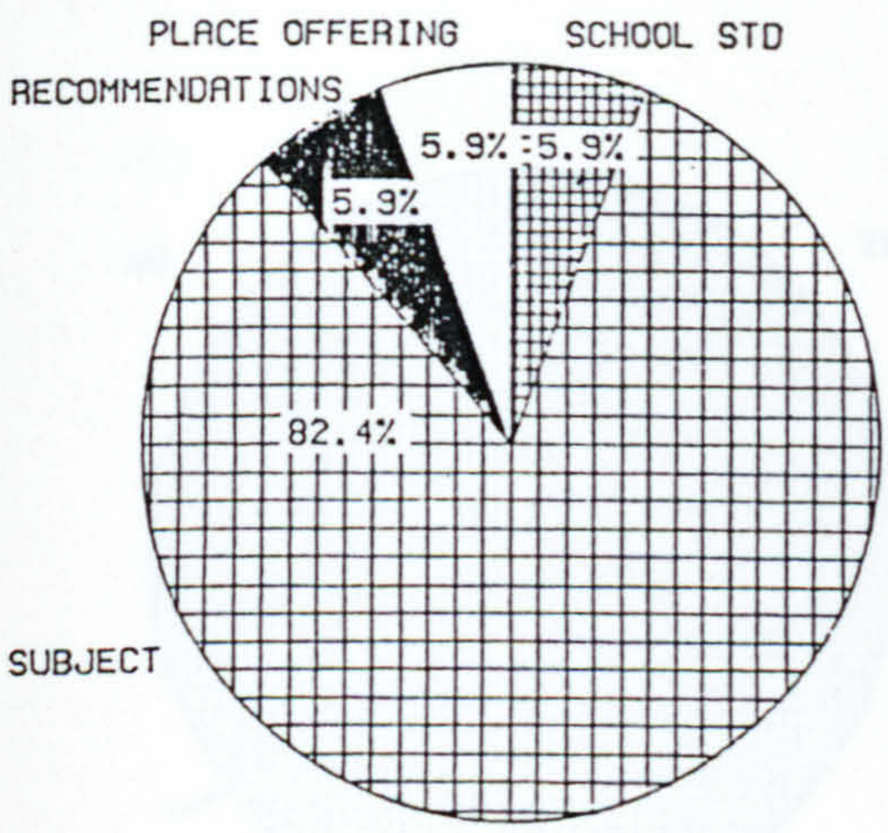

REASONS FOR CHOOSING
THE PRESENT SCHOOL

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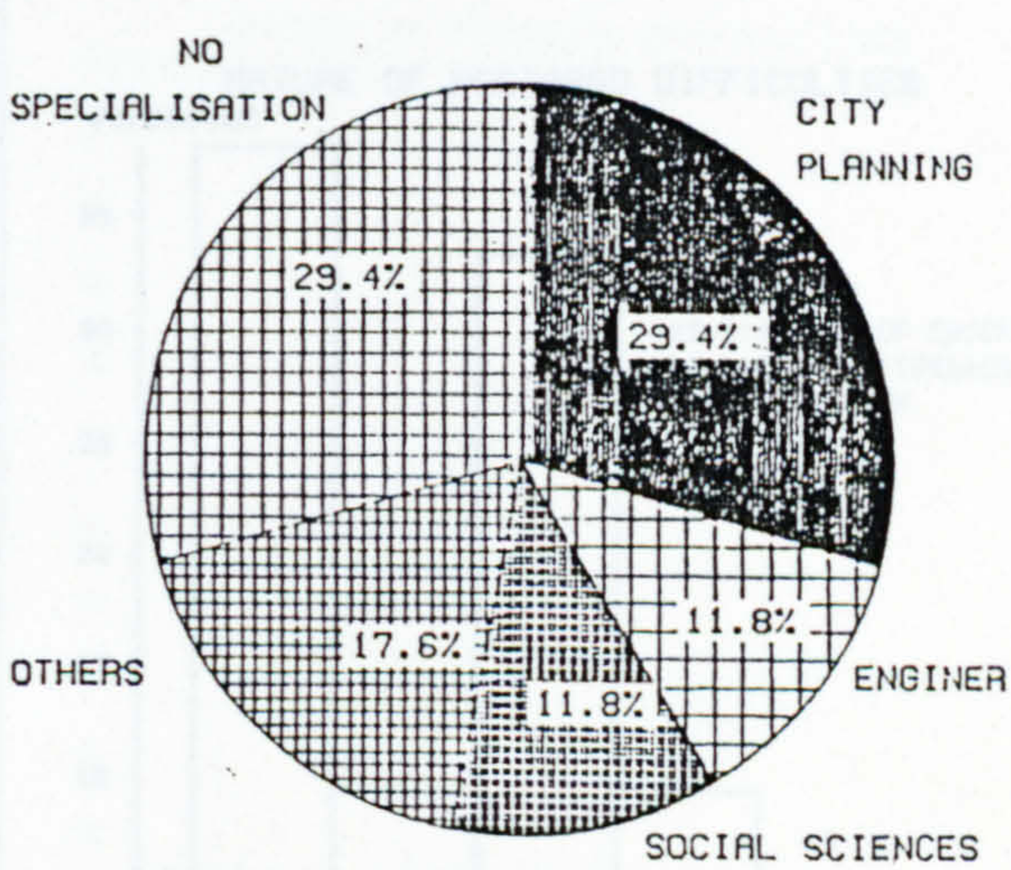
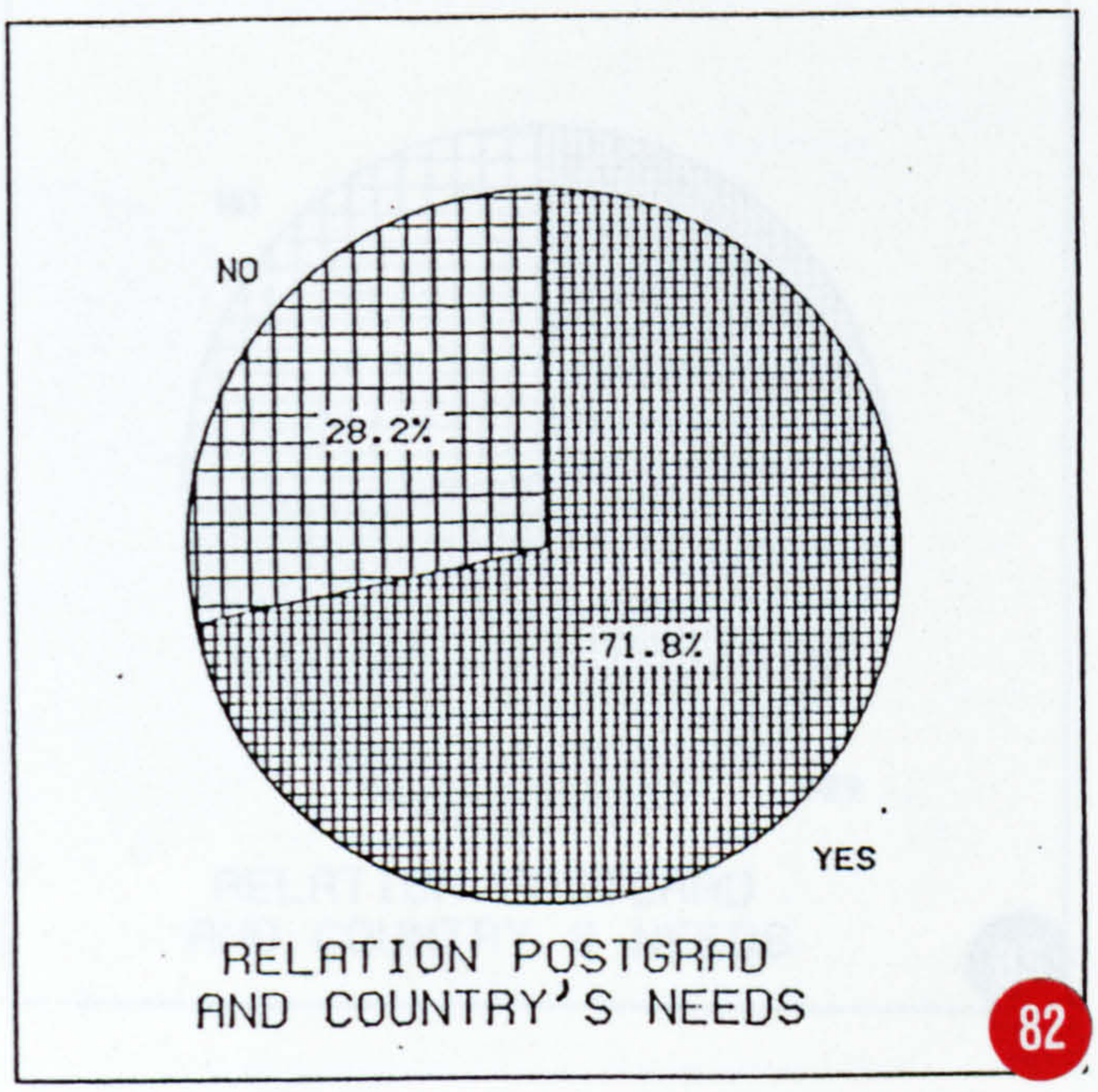


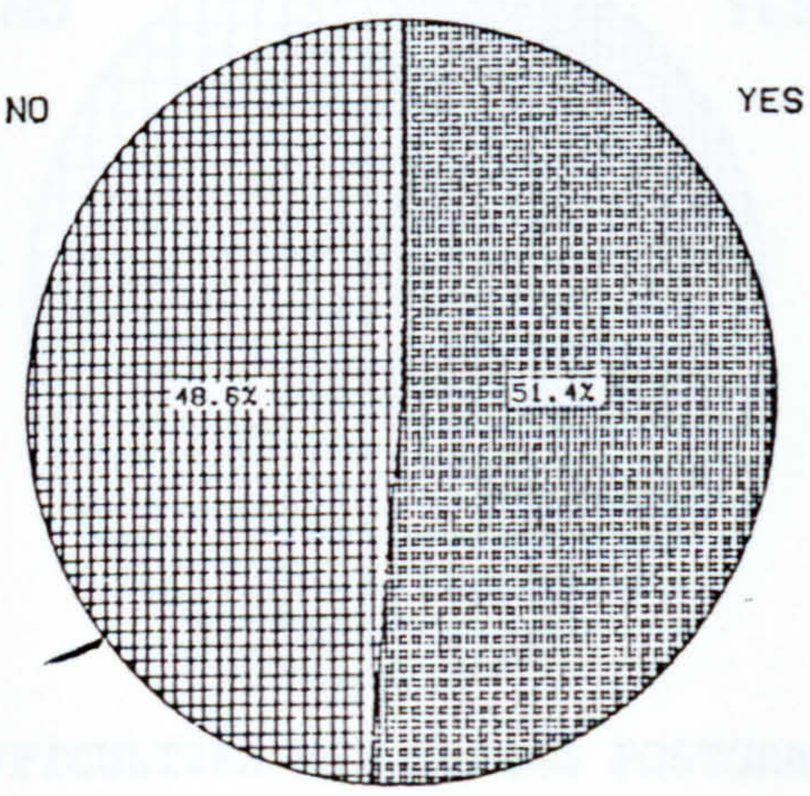
SPECIALISATIONS BEFORE
POSTGRADUATION

81



RELATION POSTGRAD
AND COUNTRY'S NEEDS

82



DIFFICULTIES MET DURING POSTGRADE
STUDIES

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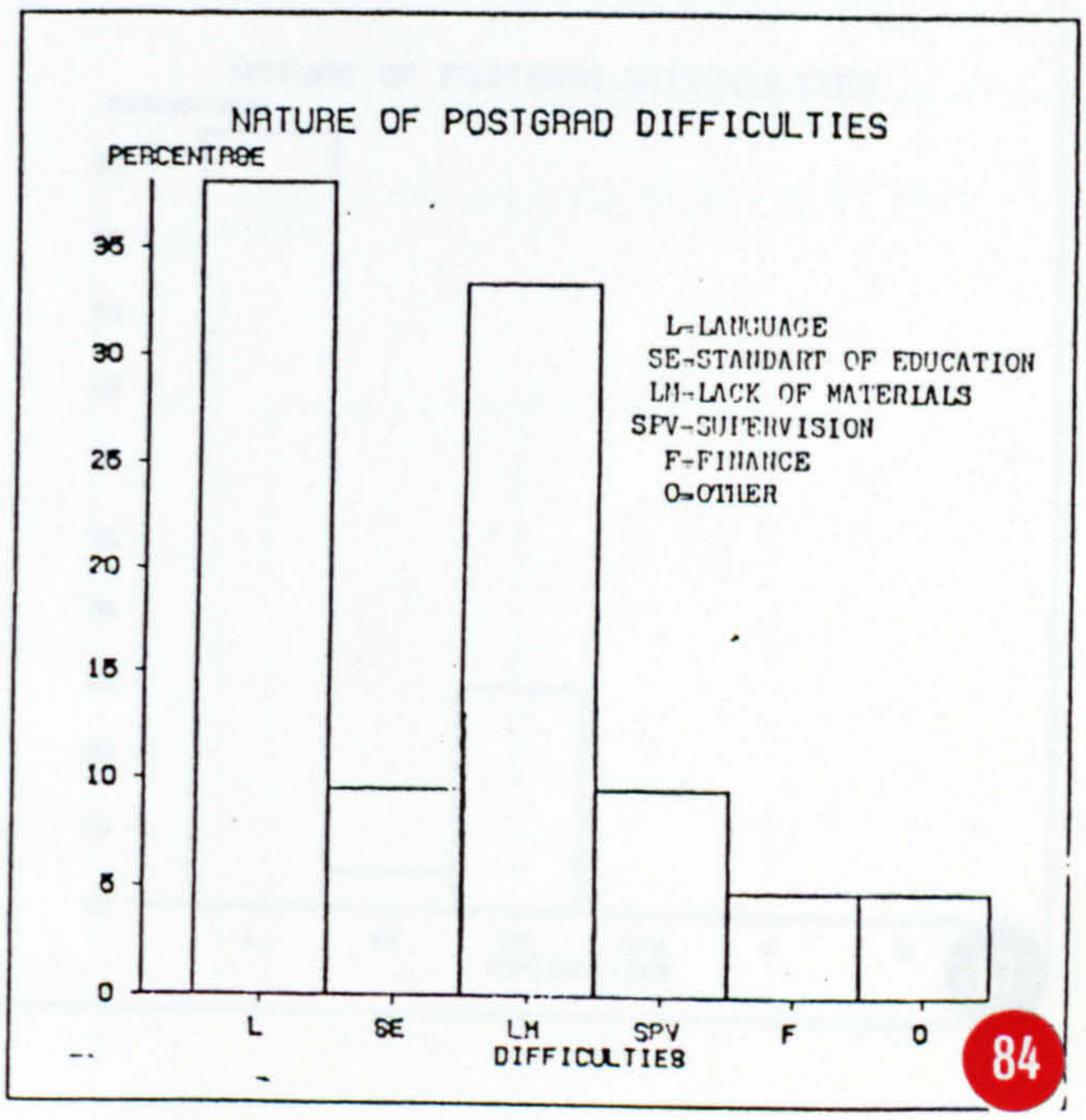

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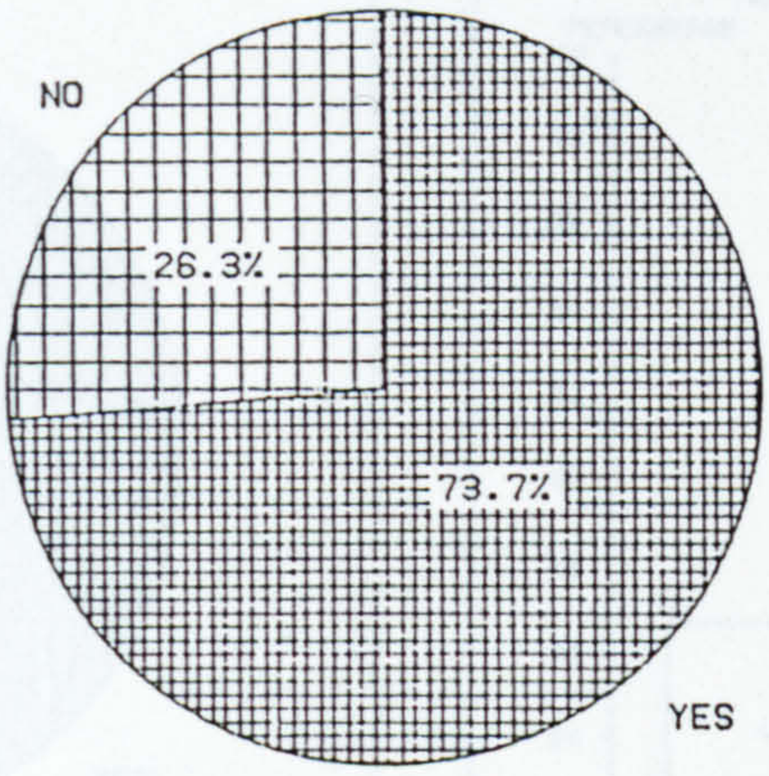
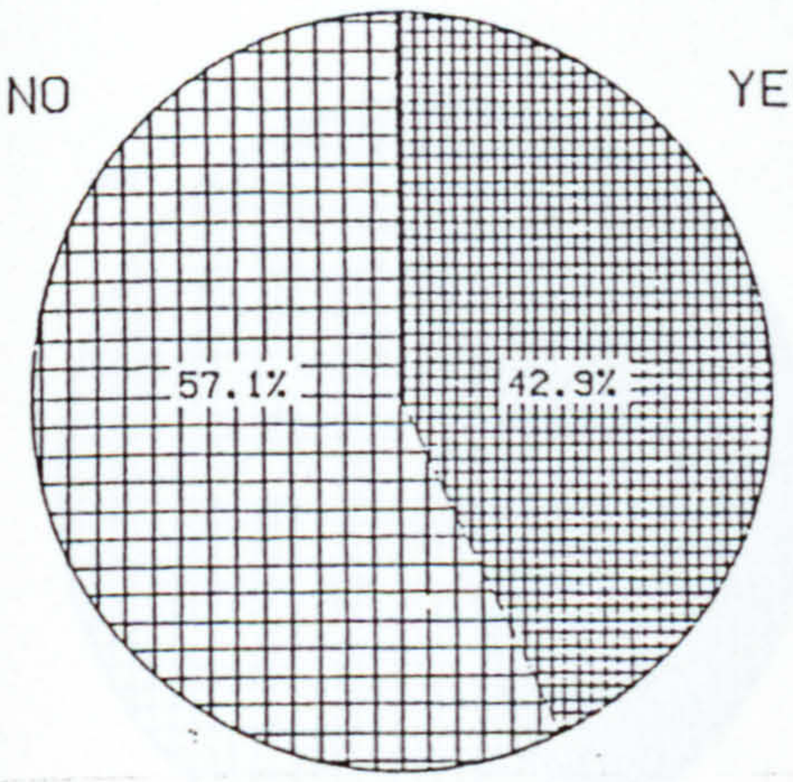


RELATION POSTGRAD
AND COUNTRY S NEEDS

85



DIFFICULTIES MET DURING POSTGRADE
STUDIES

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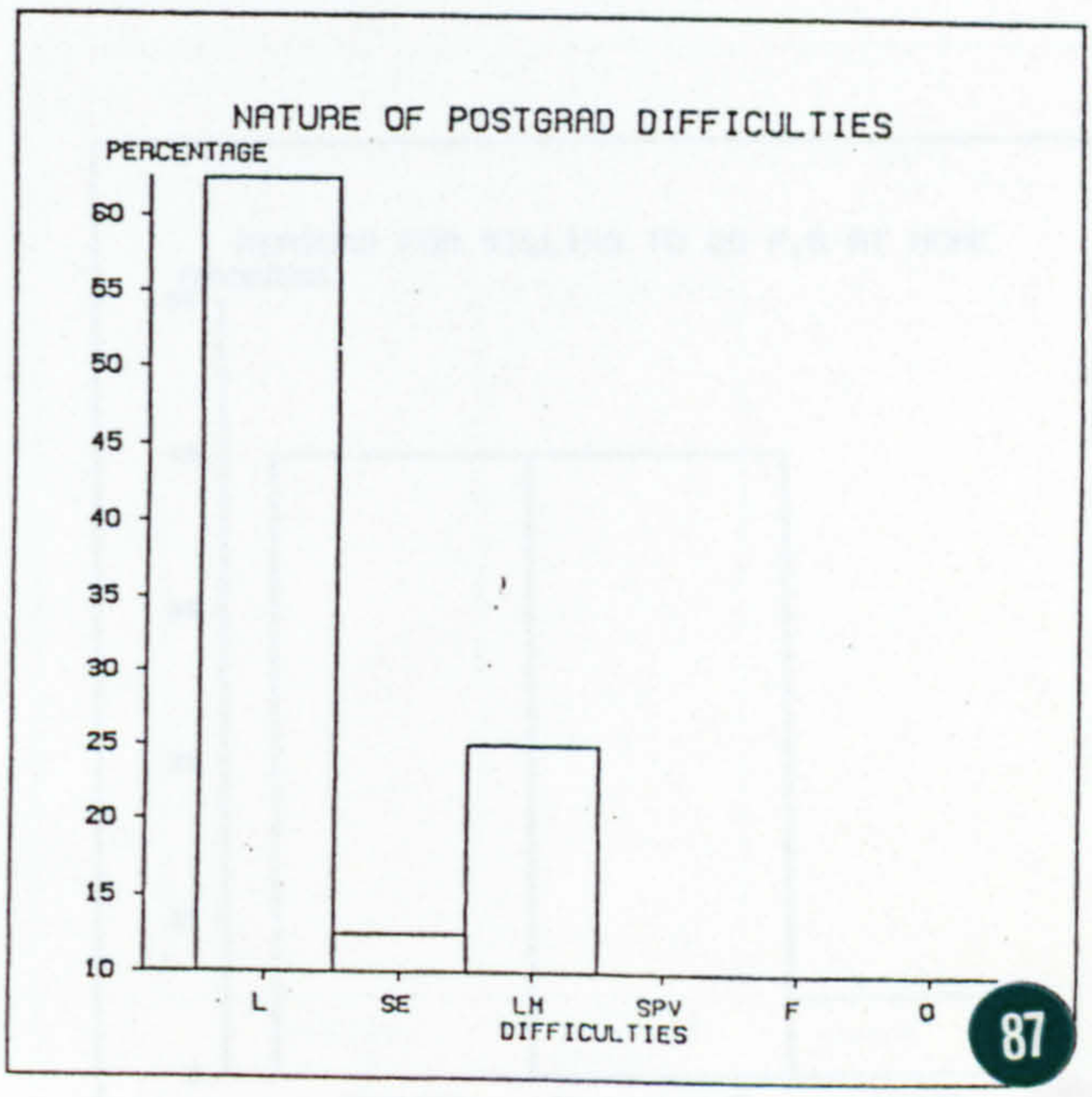

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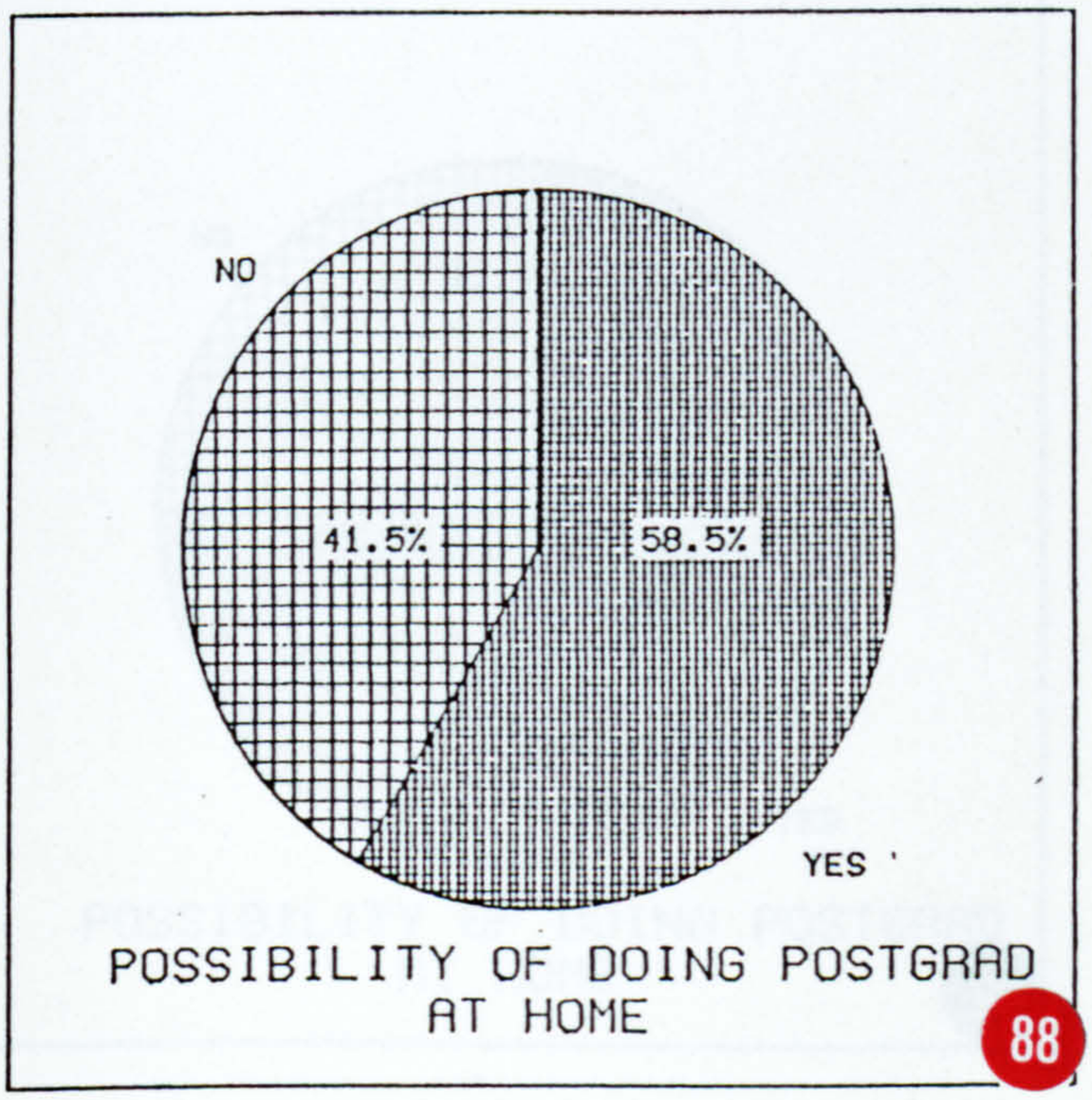
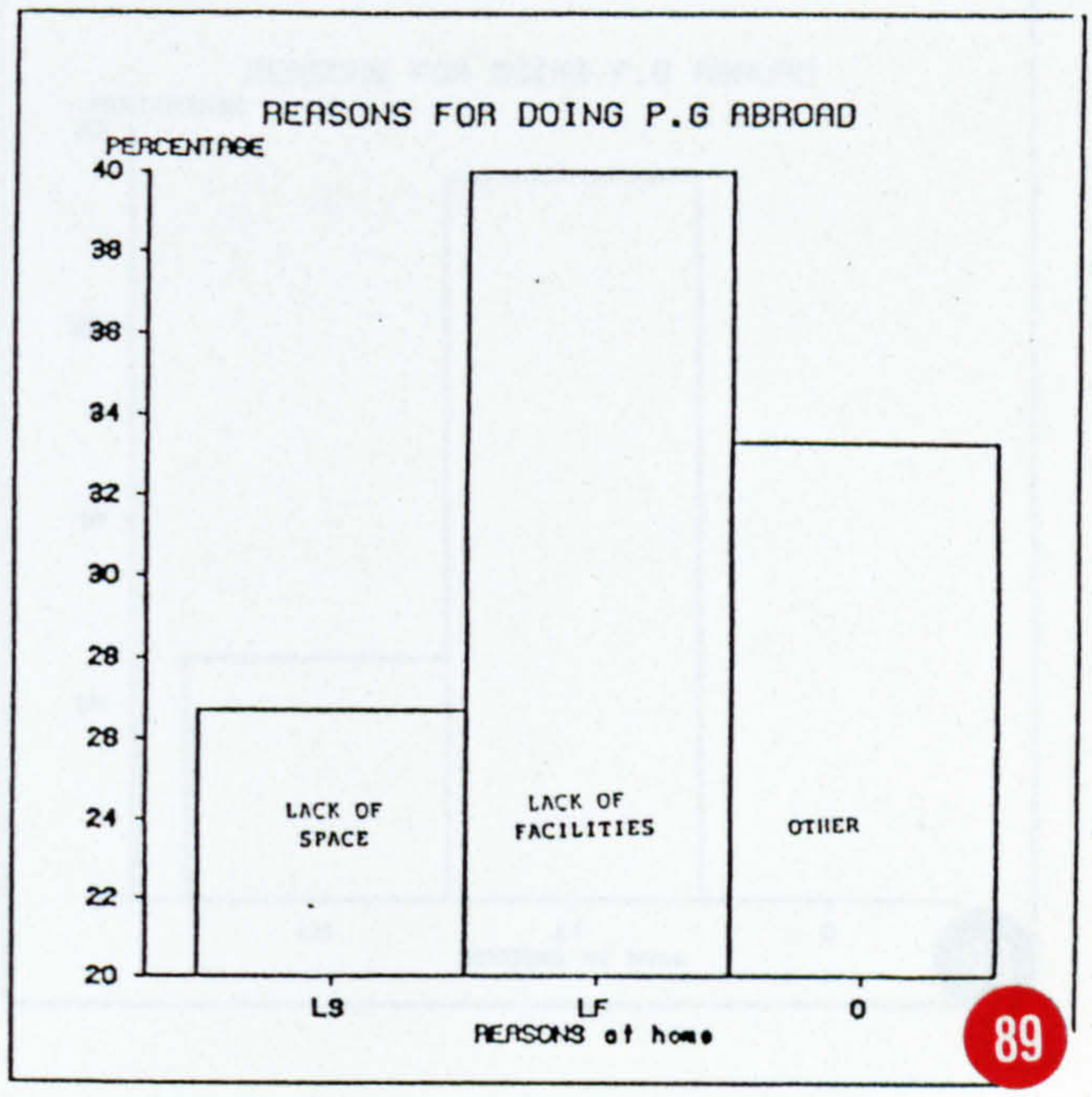


POSSIBILITY OF DOING POSTGRAD AT HOME

88



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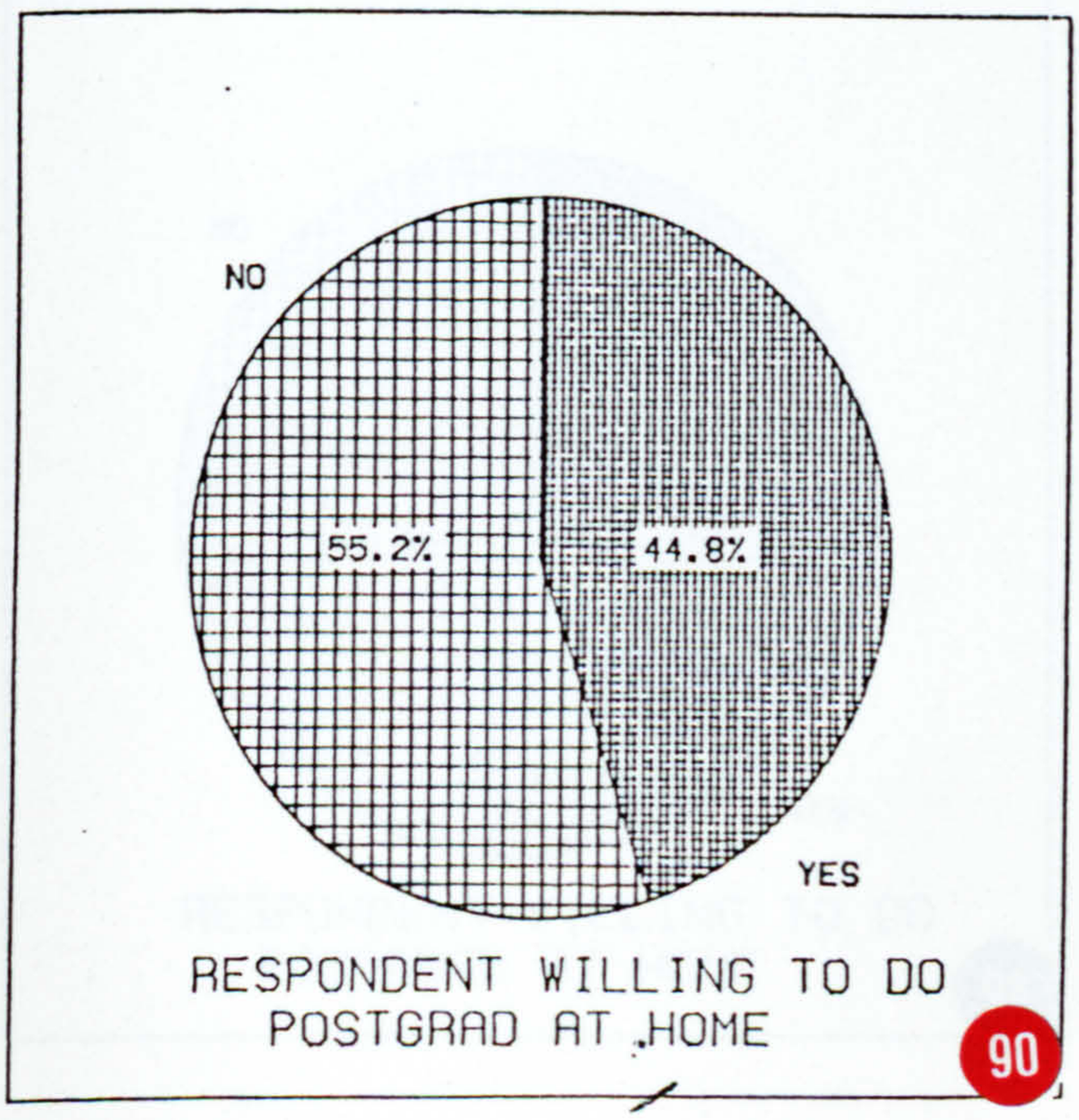
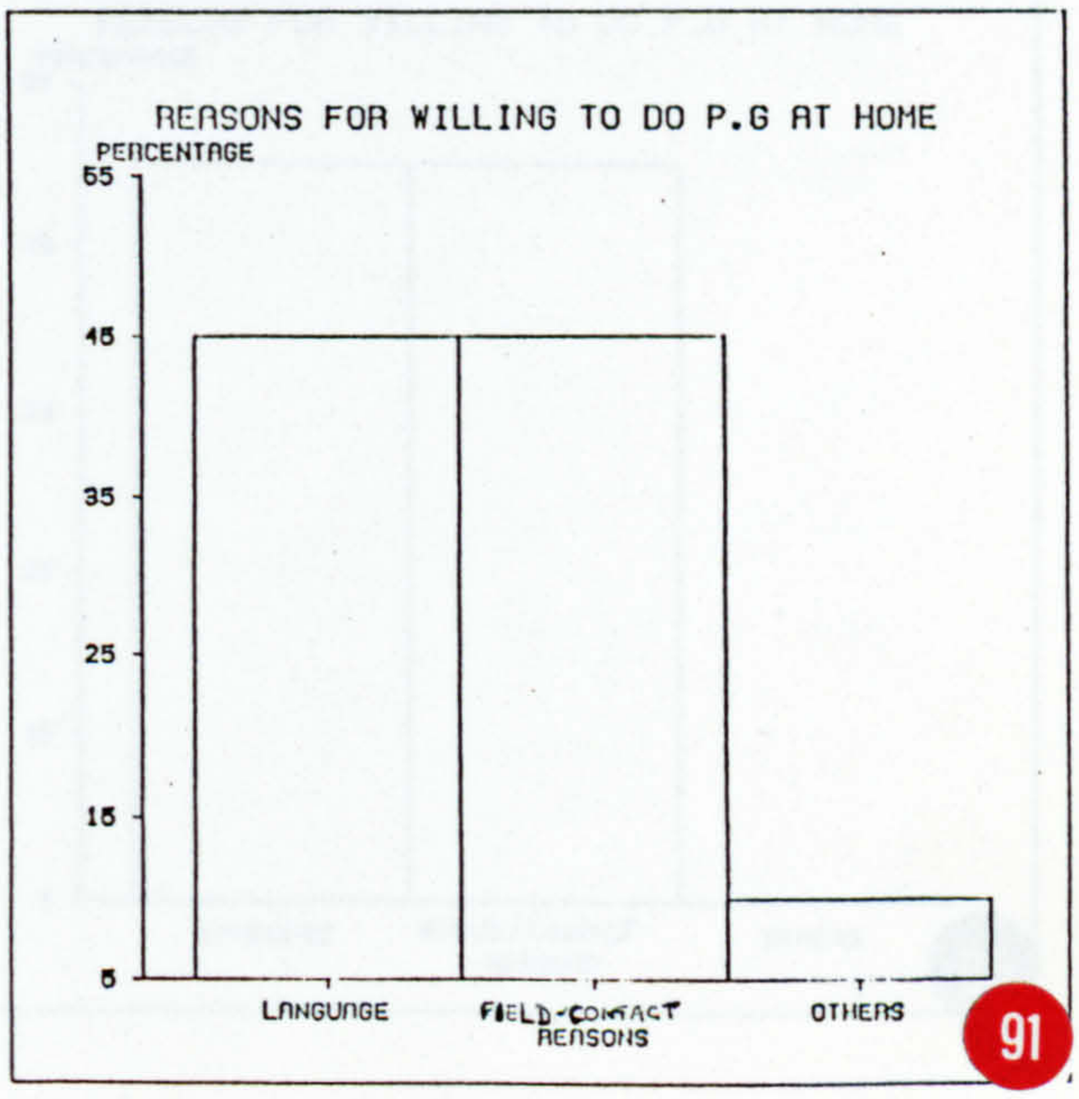


RESPONDENT WILLING TO DO POSTGRAD AT HOME

90



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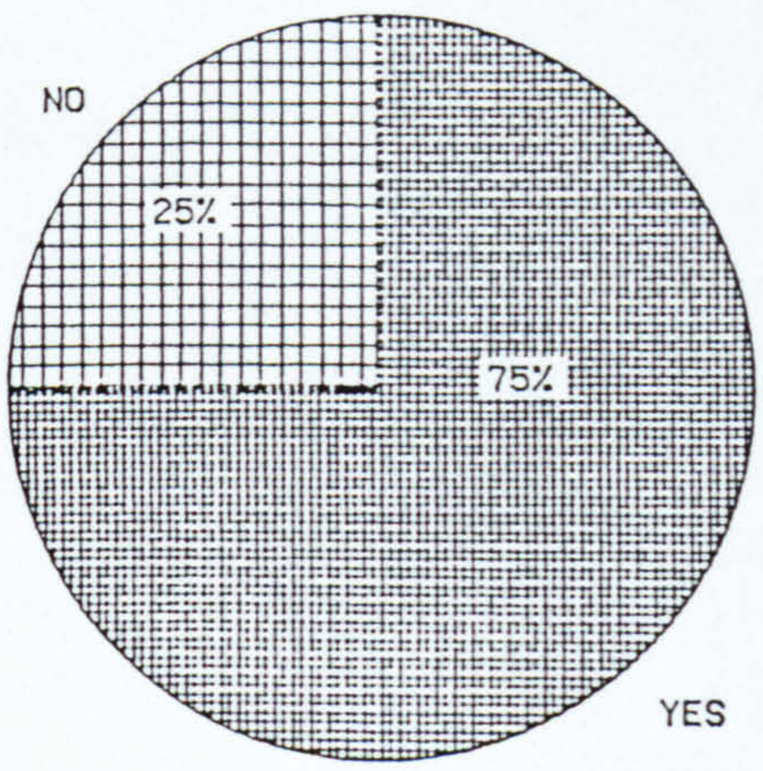

POSSIBILITY OF DOING POSTGRAD AT HOME

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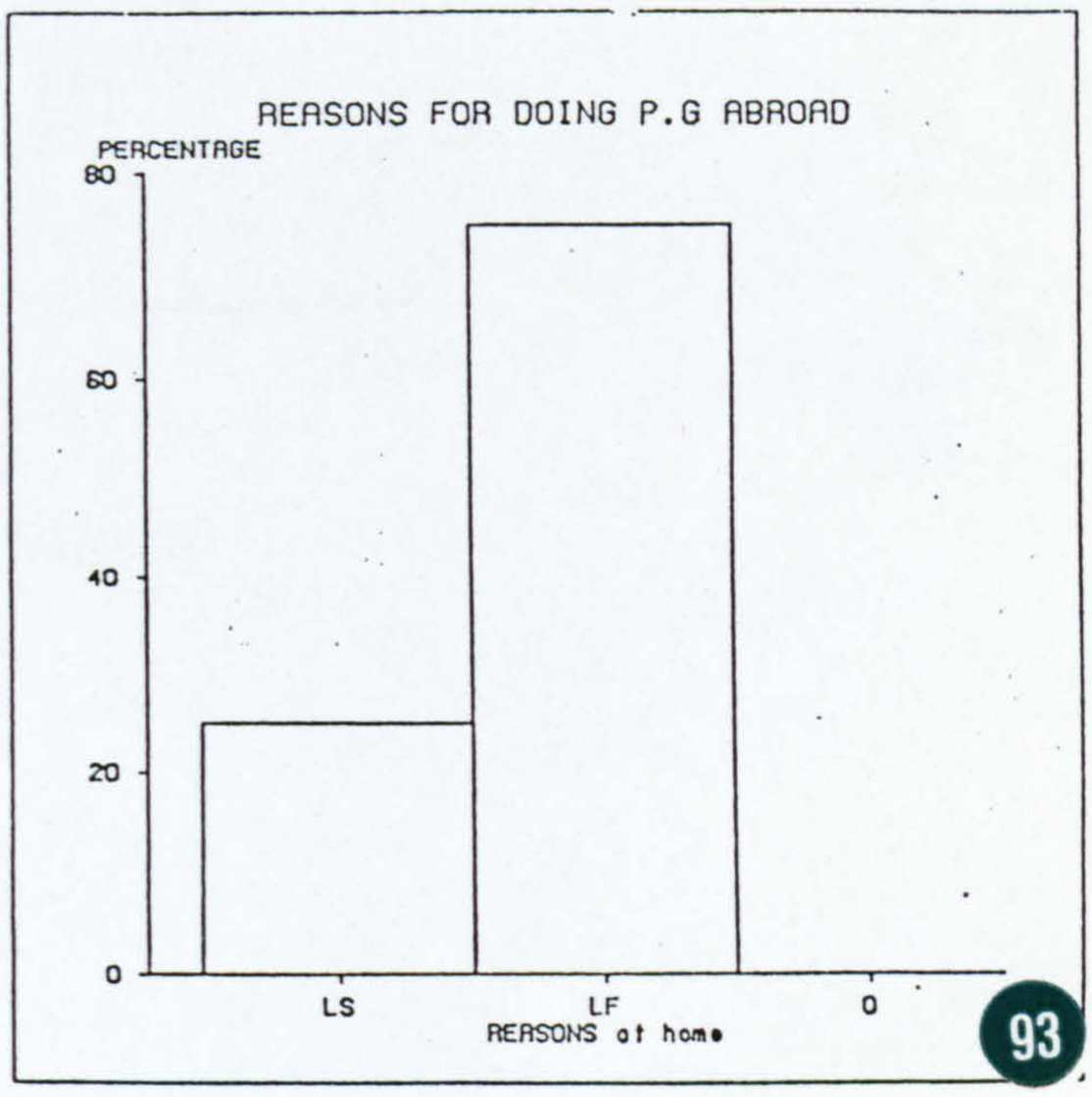

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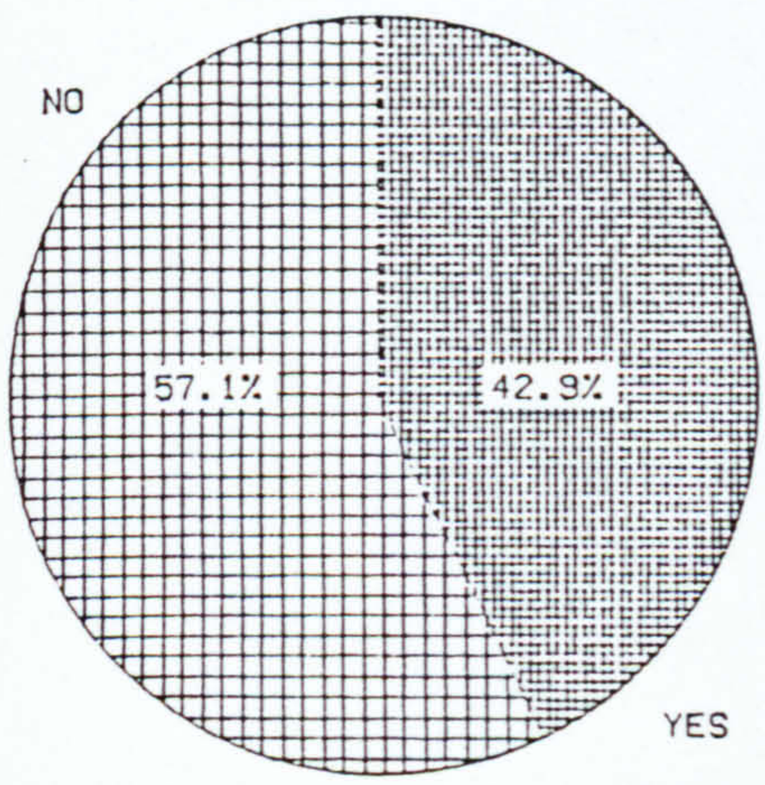
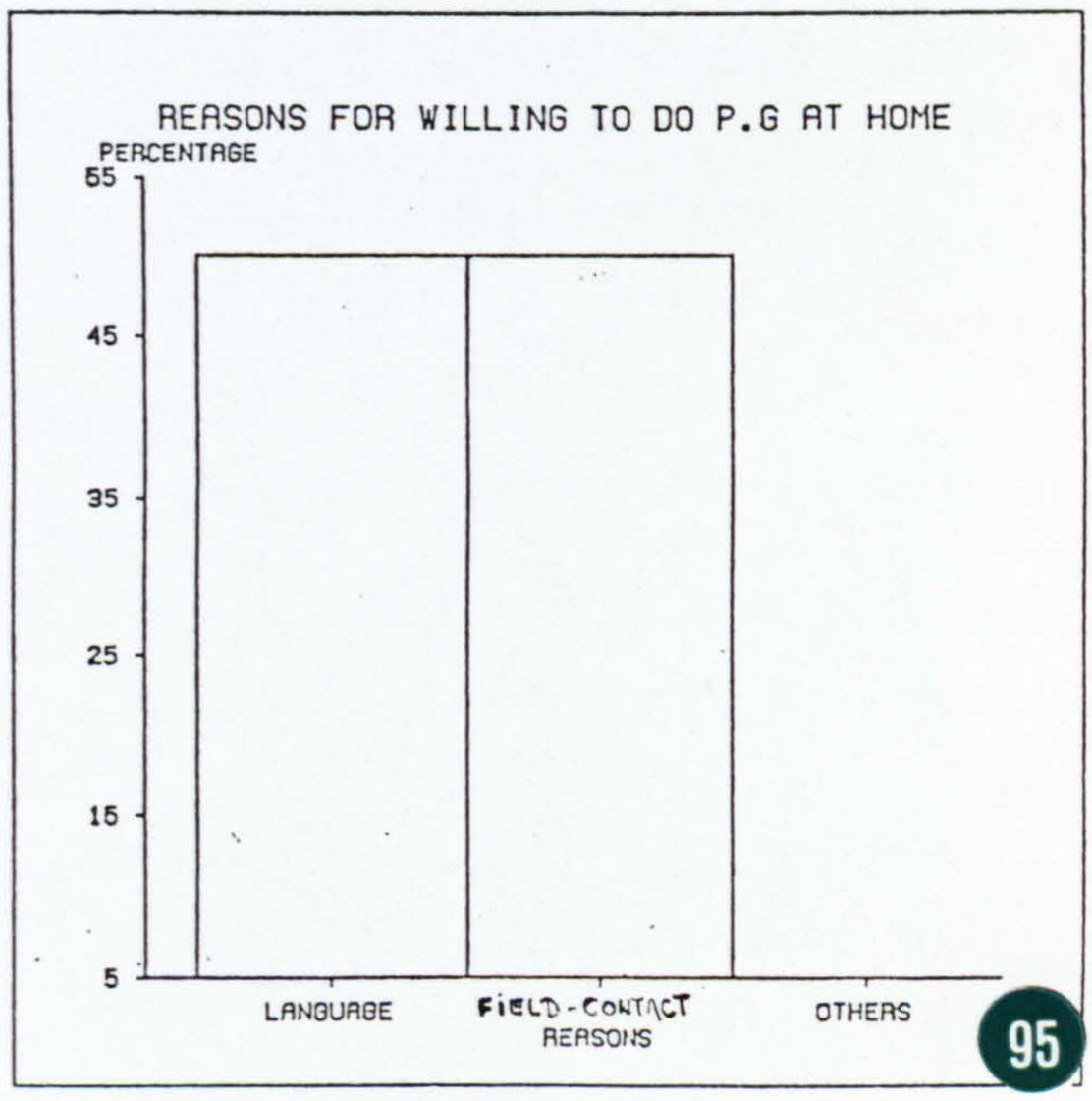


RESPONDENT WILLING TO DO POSTGRAD AT HOME

94



95

7.4 INTERPRETATIONS OF THE RESULTS:

This section aims to comment briefly on the different points judged relevant. Interpretation of figures describing the whole sample will be systematically followed by a comparison with Algeria when ever needed.

The figures 1, 4, 8 represent respectively the age of the respondents at the present time, at registration for undergraduate course and at the time when they obtained their first degree.

In general terms the majority seem to be fairly young and aged around 27 which corresponds in most cases to the age at their graduation. From this one could assume that the respondents do not possess enough practical experience. This statement is in fact confirmed by figure 75, 79.

In the case of Algerians (fig 5, 7, 12) the majority are even younger than the average quoted above. The few aged over 28 appear to have short period of practical experience generally undertaken during their military service which lasts two years.

Another point which should attract our attention is the fact that the period spent for the fulfilment of the architect degree is always five years. Taking into account the age of registration and graduation, let us state that the failure rate is extremely low (if not inexistent). This is probably due to the fact that failure is not really tolerated by the government policy because of the need for architects.

Someone may argue that the sample considered only represents

brilliant students who did not record any failure. However, as far as Algerians are concerned the criteria for sending students abroad were discussed in details in section 6.2.

The figures 2 and 6 show that the proportion of female practising architecture is low.
In the case of Algeria, although the percentage of female students has grown considerably this percentage which concerns the profession of architecture is still considered low (see section 4.2.8).

Figures 9 and 13 express the different institutions where architecture is taught. But the major remark which should be put forward is that most of these institutions are relatively new.

Figures 11 and 13 represent the secondary school qualification needed for enrolment in architecture. As far as Algeria is concerned, the enrolment is based on the baccalauréat of mathematics well expressed by the over 70% of the respondents. The few holding the baccaluréat of sciences were accepted under the former regulations (see section 5.3).

Figure 11 shows the variety of tests used in selecting students. The categories "others" seems to embrace some hobbies related to architecture such as photography, portfolio of sketches ...etc.
Figure 15 which is related to Algeria should be seen differently. In

order to limit the number of new students'registration in architecture especially in the main cities such as Algiers, Constantine and Oran, a test (see section 5.3 & 8.3) was applied as a mean of selection while such test is not the most suitable way in finding students'aptitude for architectural profession.

While the public lectures, exhibitions and visual aids (fig 16, 17, 18, 19) appears to be taking place adequately within the whole sample, Algerians (20, 21, 22, 23) seem to be lacking regular vital events especially those which need A-V equipment (films and documentaries) and exhibitions which are important vehicles for up to date information.

The figures (24, 28) related to the presence of a live project scheduled in the training programme came out with surprising proportions. Effectively in both cases the percentage of students who have dealt with a non fictitious project are quite high. In this case a real brief is offered, and site visits and contacts with clients and authorities are possible. However one of the major components involved in this learning process seem to be missing: the implementation phase. This is specific to Algerian training. Thus, the so called live project is still forshortened. (see sections 5.8.3 & 8.5).

Figures 25, 26, 27 picture the different relationship between architecture and other professions. Although in most cases common

topics are taught to students from different departments it seems that contacts among students and teachers from various departments are far less strong. This leads us to assume that within the framework of the design studio, students are not having any advice from other specialists such as structural engineers, sociologists, artists ...etc whose skills are well known as essentially related to architecture.

The case of Algerians is (fig 29, 30, 31) comparatively worse than the main sample.

As far as the teaching premises are concerned, generally speaking an important proportion (fig 32, 35) expressed their negative attitude towards the existing facilities. But in both cases the lack of adequate space and library are seriously felt (fig 33, 36).

Related to the library, books if suitable are in insufficient quantity and often in a foreign language (fig 34). Figure 37 which illustrates the Algerian situation shows clearly that very few books are available and the need for translating these documents is urgent especially as Arabicisation is evolving at a significant pace.

Most of the institutions represented in this sample seem to be emphasising their curricular orientation towards technology (fig 38 to 45). If technology is the main concern for a student in architecture automatically it will later affect the shaping of the environment accordingly. It is agreed that the degree to which

architects attach meaning and importance in the various aspects of their professional lives is a result of their respective educational experiences. Therefore, in my opinion a more balanced orientation is needed and when technology is tackled local techniques should take a significant attention.

The teaching method in both the general sample or Algeria in particular (fig 46 to 53) appears to rely extensively on lectures and design exercises while other means (seminars, discussions, visits, trips ...etc) proved to be as much as effective. In the case of Algeria most of the staff members are relatively young and newly graduated. Besides the lack of experience, they teach as they were taught. Even worse, they do not seem motivated for any eventual change. Teacher training might be a very useful way in upgrading the present teaching method.

In dealing with the design exercises (fig 54 to 61) they appear inappropriate. Not only are these tasks mostly related to urban intervention. but often they do not picture the real acute problems (housing, squatter settlements, lack of resources...etc) prevailing in their respective countries as well. Therefore, more realistic design exercises should be introduced dealing with both urban and rural areas because the latter has been constantly neglected. Should we remind ourselves that 51.23% of the Algerian

population is living in the rural area[1].

One of the interesting respondents'opinions on the course period is the eventuality of extending their training (fig 63, 64, 66, 67). Instead of spending a long time in drawing their projects (fig 63, 65) suggestions are made in favour of short or long term practical training which in most cases is very short or non existent in the case of Algeria. This shows clearly that once the training is over, graduates are aware of their weaknesses discovered through their professional lives or further studies. By reducing the drawing time the credit hours saved could be replaced by other systems of communication such as modelling, painting ...etc.

Graphs 68 to 95 deal essentially with the respondents' present period of postgraduate studies.

In the case where students are sponsored, the responsibility of the study expenses is shared between foreign and local governments while a small proportion are supported by private enterprises (fig 68, 69, 70). As far are Algerians are concerned, (fig 71, 72, 73) all students are sponsored by the home government which gives us an idea of the huge expenses invested in training Algerian students abroad.

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[1]Annuaire statistique de l'Algerie, 1980, p50.

Choosing England as a place of study seem to be relying mostly on the student and sponsor choices (fig 74, 78). But the selection of the school as an important decision is based heavily on the subjects offered (fig 76, 79).

Fig 75 confirms that most Third World post-graduate students are lacking practical experience. For the Algerians, although the figure 80 shows that a fair proportion seem to have done some practice before embarking upon a postgraduate study I should mention that such practice takes place during vacation period for two to three months while students were used mostly as draughtsmen or assistant architect. In some cases graduates are allocated architectural duties during their military service.

As a positive point, in most cases the content of the postgraduate studies is strongly related to the students'country needs (fig 82, 85).

However, a significant proportion of overseas students studying in U.K are facing some difficulties (fig 83, 85) essentially related to the language and the lack of materials needed for their research.

The language seems to be the most important obstacle and is often expressed in the students'writing (fig 84, 87). As far as Algerians are concerned a full academic year is especially offered to students to study English (third language) in various language centres in U.K. Despite this great opportunity, most Algerian students do not seem to reach an appropriate standard particularly in writing. This could be explained by the fact that students do not take full advantage of

such language training or a longer period is needed to attain the required standard. As a remedy a preliminary language training should take place before sending students abroad or, as a second alternative, foreign languages should be taught as part of the university course in architecture.

In dealing with the documents and data necessary for students research, bureaucratic routine and materials under the "state secret" label are common obstructions.

Among these students who are studying in U.K some had the possibility of doing it in their own countries (fig 88, 92). However, the reasons for choosing abroad as a place of study appear to be once again the inadequate facilities existing in the schools of their native place (fig 89, 93). Other students, besides the lack of facilities would prefer to go abroad for experience and contact with what is happening in other places. Sometimes the range of subjects offered in their own countries is not broad enough due mostly to the lack of competent staff able to guide them.

On the other hand, a fair proportion of students would have preferred to study at home (fig 90, 94) for the simple reason that they do not have to face the language difficulties which would save them time and give them the opportunity of being constantly in contact with their field of study avoiding therefore the need of spending time and money in making necessary trips for collecting data and information.

This has been a brief picture of postgraduate students'opinion related to their own architectural educational system, the difficulties met during this first learning process to reach the title of architect and the obstacles encountered during their present studies. However, pertinent points of this survey will be dealt with in detail in the following sections.

CHAPTER EIGHT

PROBLEMS AND EVENTUAL SOLUTIONS

Before any solution can be ventured, some relevant problems must be systematically analysed.

This section is in fact a synthesis of the previous chapters where further significant points are dealt with. The different issues are put in a hierarchical order representing the eventual steps through which a trainee learns before, through and after an architectural training.

8.1 EDUCATION:

The first component in the process of learning is the meaning related to education as a general term.

> "Education is the acquisition of the art of the utilisation of knowledge" (Whitehead.A.N, 1949)[1].

It appeared that education must first communicate an ensemble of meaningful facts and concepts and their consequent principles, then develop skills which enable knowledge and principles to be applied most effectively to the various situations of our living. Besides, this definition reveals that education far from being limited to formal schooling, continues as long as experience teaches. Its goal however is:

"Qu'elle puise dans la société, les valeurs qu'elle cultive et les transmette, telles quelles, à ses élèves, remplissant ainsi une fonction sociale; qu'elle apprécie le patrimoine pour en extraire ou y ajouter ce qu'elle juge nécessaire, jouant ainsi un role selectif et promotionel, ou qu'elle prenne dans le patrimoine social, ce qui est conforme à l'idéologie politique qui puise son contenu dans les idées de philosophes déterminés, d'éducateurs et de politiciens dont l'orientation est tout à fait différente de celle des générations précédentes marquant ainsi sa mission du seau de la révolution"
(Cheriet.A, 1983)[2].

In combining these two definitions it seems that the main goal of education lies in the understanding, judgement, wisdom, foresight and culture.

As far as architects are concerned, this picture of education fits appropriately. Consequently the objective of architectural education becomes the development of architects who, as enlightened individuals, responsible citizens and resourceful professional men, will serve their society in attaining a worthy architecture (Bannister.T.C, 1954)[3].

Bearing in mind that education is a process embracing several complementary stages, how are raw recruits transformed into useful architects?

The process is obviously not only long and complicated but starts before university phase.

The decision to choose a profession is without doubt a very serious matter which needs to be carefully considered. Effectively, before being involved in the real atmosphere of the arduous course of training to become a fully trained and qualified architect, it is

imperative for the student to perceive a clear picture of what this involves for him.

Unfortunately in most cases, especially in Algeria, students' decisions do seem very hazardous and even not their own. Because of the existing regulations established by the ministry of higher education (see sections 4.2.4 & 5.3), students, after their secondary school are offered a very narrow choice of professions. A choice which is mostly based on subjective criteria, namely the secondary cycle'certificate (baccalauréat) and the hope of entering a comfortable and very lucrative profession.

This has inevitably led to the fact that students are even not able to decide whether they are really suited to become architects and whether they are interested enough to adopt the profession's difficulties.

In addition, as failure is not really appreciated by the government policy due to the need for architects, students are pushed through all training phases regardless of their standard. Non-motivated students who are just looking for a degree might find this attitude to their best advantage.

This clearly explains the very small number of graduates carrying the desired and approved requirements. Thus, not only is there harm for the students but for the profession as well.

8.2 ARCHITECTURE IN SECONDARY SCHOOLS:

In reality, students should not be blamed. Comparatively, little about the professions in general, is taught in secondary school let alone architecture. While considerable efforts are deployed in the study of mathematics, physics, sciences...etc, students usually arrive at the door step of the university with little or no experience at all in visual understanding or ability to record and analyse the different components of their surrounding. This deficiency results, I assume, from the inadequacy of the programme offered at this stage which in fact lacks pertinent topics such as history, geography[1], social sciences and drawing which are excellent vehicles for the study of architecture. This is worsened by the lack of special events related to architecture (lectures, seminars, films, visits) which would enable students to develop an interest in the profession. Of course similar events dealing with other professions should also be programmed in order to develop students'willingness to know more about their eventual future career. The example of some comprehensive schools in England is very suitable (see appendix four). Students at the age of fourteen are asked to spend a week in a professional office or organisation of their choice representing their interest in the corresponding profession.This alternative helps the student to obtain a clear image of his future profession and if not interested he could consult his classmates for information about other careers.

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[1]Science and mathematics categories are exempt from history and geography

This could be greatly helped by the media (TV, radio, newspapers...) which could make a small effort in spreading information about the professional degrees available.

Indeed, students before entering the university have responsibilities in developing their own interests and discovering the architect's profession. But still they need to be motivated and given preliminary information on the subject. This will increase their curiosity and urge them to make personal steps by contacting architects (practitioners, educationists). They can do some preparation while they are still at school by reading basic architectural books, consulting periodicals, taking photographs, sketching and even travel if the conditions permit.

8.3 TESTS AND SELECTION:

As enrollment capacities are depending on resources and policies, most of the architectural educational institutions in the Thirld World countries and even in Europe and elsewhere seem to have the right to choose the best candidates who, in their judgement, they believe can benefit from their programmes. Therefore, before any applicant is selected to embark upon a career in architecture he/she must undergo a selection process.

This immediately raises the problem of the criteria by which selection is conclusively settled.

From the questionnaire results and the range of programmes studied through this work, it appears that a number of methods are in use

either singly or in combination. The most common procedures are:

1. The first consists of the use of student's scholastic records in secondary school. Architectural schools therefore only ask for:
   a. graduation from approved secondary school or
   b. numerical grade average or
   c. narrow specialisation (maths, science, art...)
   d. Other institutions require an inclusion of a complementary architectural course in connection with the high school.
2. A second method is to administer various entrance tests under written forms or interviews aiming to evaluate the applicant's achievements in fundamental knowledge or his command of reason or his range of interests. But in most cases tests explore general rather than architectural aptitude. Few schools however introduce design problem in architecture, sculpture and drawing. Newcastle school of architecture (England) asks for, besides the secondary school record ("A" levels) evidence of interest in the field of architecture and aptitude often illustrated by a portfolio of personal graphic work and interviews which are considered very important. These factors with an additional U.C.C.A form (see appendix five) are combined while the result determines whether the student is offered a place or not.

In order to find out about the accuracy of such judgement a further discussion with Mr. Adrian Napper responsible for the enrollment of students in architecture, was very useful. It appeared that:

a. this kind of selection does not necessarily guarantee the

student's success in his career. But in most cases disappointment seems to be taking a very low percentage.

b. through Mr. Adrian Napper's experience, and as far as architecture covers a wide range of subjects, it would be most advantageous to pick up students carrying "A" levels in various fields in other terms a combination of arts and science rather than students deeply educated in a single area.

c. Interviews and portfolio graphic work are very relevant in defining students'interests, motivation and ability.

3. The third method relies mostly on letters of recommendations.

In brief, it seems to me that judgement of fitness for a professional career in architecture is often based on subjective attitude and too often there is little consideration for the student's own decision. Besides, considering the criteria quoted above and supposing that an applicant has been selected, this will not ensure that he will excel in architecture while on the contrary a student without the full requirements, might be an outstanding representative of the profession. Thus, without a systematic research on this issue[1] the selection of students will remain very doubtful with all its accompanying success and failure.

I would suggest that such investigation should be based on;

1. the following up of students who underwent different tests from

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[1]A research established by Abercrombie.J in 1964, could be a good example, (see appendix six)[4].

the start to the end of their training

2. the evaluation of their academic and professional standard and

3. the time spent in achieving such a standard.

Meanwhile, in order to improve the current admission methods, trial experience in architectural offices, access to suitable guidance manual and opportunities to discuss the choice of careers with practitioners could furnish architectural schools in developing countries especially in Algeria with more specific evidence of interest, motivation and perhaps promise.

8.4 CURRICULA AND COURSES:

8.4.1 Objectives:

Once the secondary school cycle and the tests enrollment are over, student enters professional schools facing a variety of learning processes though alternatives are very limited in some countries (see chapter two).

Independently from the place, and as the training comes before the professional life, the curriculum is intended to play an important role. Consequently it consists of guiding students in the acquisition of a wide range of general and technical knowledge, skills and judgement as means to stimulate and enrich personal, social and professional growth during and after their training.

In addition, the curriculum should make students aware and sensitive of the real physical, socio-economic, cultural and environmental

conditions of their countries within which they are going to operate in order to contribute to the local architectural development in the most appropriate way.

Bearing in mind these concepts, the efficiency of such processes depends upon content, method, teacher's competence, student's motivation and efforts and the time available.

8.4.2 Contents:

Fixing curricula content is the most difficult task since it is important to adjust quantity at a level which will permit the use of the full learning process. This raises ultimately the problem of what is important and what is significant to the training of an architect ?

Taking into consideration most of the definition of architecture, the architect and his role, it appears that students should go through an endless list of topics even in detail which are necessary for his future intervention within the society. This may require a life time.

On the other hand, demands for immediately usable vocational skills require some kind of compromise which will reflect a balance between general and technical, between essential theory and practice and between the fundamental and the subjective.

The study of the different programmes of various countries and the results of our personal investigation (see chapters two and seven), reveal that the content of an architectural training would embody the

following knowledge:

1. General knowledge

   a. mathematics: (trigonometry, algebra, analytical and descriptive geometry)

   b. physics: (physics, chemistry, geology).

   c. social sciences: (general history, sociology, economics, government politics.

   d. humanities: (philosophy, ethics, logic, fine arts, literature).

   e. history of architecture.

   f. language: (report writing, business correspondence, public speaking, foreign languages, written exercises in other courses).

2. Professional knowledge:

   a. graphics: (projection, shades and shadows, perspective, freehand drawing, water color. painting, modelling, rendering).

   b. construction: materials and methods, mechanics of materials, resistance of materials, structural theory and design, working drawings, specifications, estimating, erection method).

   c. services: heating, air conditioning, water supply, sanitation, electrical equipment, illumination).

   d. principles of building, social and economic factors of building, environmental design.

   e. theory of architecture: (theory, planning, composition,

lectures in design, philosophy of architecture).

f. architectural design: (basic design, elementary, intermediate and advanced architectural design).

g. planning: (urban sociology, city and rural planning).

h. practice: (office practice, architectural administration, finance, building law).

however, this does not necessarily mean that a prototype of curricula should be applied without considering the actual context.

"a palm tree cannot grow in Alaska" (Al-Wakil. A.W, 1986)[5].

In most cases, whether in developing or industrialised countries, architectural programmes are more and less similar. Few programmes in Third World architectural schools are lacking some relevant topics which even if tackled, their titles do not carry the expected content.

As far as some of the third world countries are concerned, programmes were imported from Europe and elsewhere where in turn differences were mostly related to the length of the training period or to emphasis made on special biases such as technology, design or practice (see sections 2.2 and 5.8).

It is evident that basic common knowledge is to exist in all architectural training, but problems, needs and resources among countries are very different. Thus each country should orientate the training of its architects accordingly.

> "To consider people implies culture, place implies climate, cost implies resources" (Danby.M, 1983)[6].

Students usually have what they are given. "The curricular orientation is defined as the tendency of schools of architecture to emphasise certain aspects of the theory and practice of the profession" (Spreckelmeyer.K.F, 1985)[7].

Provided that the shapes and configuration of environments are the results of the ways in which architects are trained and that values assimilated in schools will affect the users of these environments, it is imperative to provide students with the appropriate knowledge in a manner to make them respond satisfactorily to their societies'needs. This implies automatically the reorganisation of the architectural education so as to be moved in line with local socio-cultural and environmental contexts. Attempts in fact have been made in this sense but not significantly (see chapter two section 2.2.4).

Following the logic of such an idea, and concerning the developing countries some components of the programme should be revised:

8.4.2.1 History:

Despite the speculations about architectural history, especially with the Bauhaus influence (see section 2.1), most architects and educationists agree today that its study has far greater importance than ever before.

However, the content of history is usually organised to follow a strict attention to chronology stressing only major climaxes.

Concerning students, history has been always been taken by students

as a cultural enrichment. This attitude is mainly the consequence of:

1. the inefficiency of the teachers who could not put in evidence the usefulness of history for architects,
2. the fact that students'curiosity and investigation ability are not aroused,
3. the teaching method which is generally based on lectures and books while the use of audio-visual equipment, visits and exercises which are also stimulating methods are omitted.

History should be taught with the aim to give students the ability to understand the philosophy behind it and the process of technical achievements rather than just measuring the span between two pillars.

> "Study of the past brings the architect an awareness of the development of his profession and the art he practices. He sees the relationship between the development of culture and its expression in architecture. He observes the development of forms, spaces, styles. He notes the impact of architecture in its time, which is the counterpart of architecture as expression of the times" (McLaughin.R.W, 1962)[8].

"History is an explanation of the present" (Author: unknown)

The contents of history should deal then with the study of the formation and evolution of the built environment throughout time as the process of man's response to environmental factors focussing on treatment, design and composition of the elements of this built environment.

Considering Arab countries, an additional emphasis on Islamic

architectural principles, the Muslim world and vernacular architecture as an integral part of the environment, should be paid the attention it deserves (see section 2.2.4).

> "The self-identity and cultural continuity are essential to produce authentic design and environments" (Serageldin.I, 1980)[9].

8.4.2.2 Social sciences and humanities:

These topics which have been proved important subjects are given very little attention. This is due to several reasons among which lie the lack of specialised staff, the misunderstanding occuring towards the benefit of such sciences or the students who are showing a total indifference to this field. This is worsened by the "nature of the curriculum which allows few electives, therefore a student is not likely to obtain more than few social science courses" (Perin.C, 1970)[10].

The aim of such topics, in fact, is to enable students to understand society in shaping the built environment.

> "The sociology of architecture is defined as the scientific analysis of social behaviour and social patterns in relation to space and constructed environment" (Korllos.T.S, 1980)[11].

Up to now, students and even professional architects have carried out their tasks based on a set of assumptions and intuitions often leading to inappropriate solutions. People therefore have to adapt themselves to architecture rather than experience architecture

adapted to them.

A contribution from sociology could improve the design process by providing more concise information on the relationship of the design to social goals as well as developing the methodology for the evaluation of existing design.

In addition students and teachers rely extensively on the sociologist expecting therefore answers to the difficult questions related to human use of space. Even in a such attitude, dialogue must occur and could be eased by the introduction of special courses on the sociology of architecture in order to understand the eventual implications of the design. However,

> "Humanistic studies of western man and the social analyses of western society by a western scientist are necessarily <u>western</u> and cannot serve as models for the study of Muslims or their society" (Al-Faruqui.I.R, 1977)[12].

Therefore in Algeria and in Arab countries in general, these sciences should fit within the framework of Islam's principles. The aim should define beyond doubt and discussion the relevance and primacy of Islam as the element of decision in actions involved during the process of the shaping the built environment and to analyse systematically the Islamic achievements in architecture and planning as means of reaffirming Islam's ability to treat man with dignity and the translation of those values in modern terms. This does not necessarily exclude identifications of the reasons behind the past and contemporary built environments of different cultures and the

analyses of their effects. On the contrary such cross fertilisation is most useful.

8.4.2.3 Housing as a development tool:

Investigative studies, journal articles, training reports and documents by international agencies have begun to appear expressing politicians', educators' and professionals'concern over the extremely serious conditions of human settlements, particularly those which prevail in developing countries.

Despite considerable efforts in the last decade, poverty and underdevelopment remain the focal points while the situations in some countries is worsening. Among the rare positive and concrete actions undertaken by policy makers and professionals, architectural education is used as an effective vehicle in human resources training for the integration and implementation of human settlements especially those of low income people.

It appears however, that most higher educational organisations particularly those of architecture and related disciplines are not adequately oriented towards the desired task. We have seen through examining the different programmes that not only is a high percentage of students'projects in their training is urban-based but when housing is tackled, it deals essentially with high and middle class people. Even when squatter settlements are dealt with they are seen as a component of the existing housing typology rather than focussing on a comprehensive approach seeking improvement of these marginal societies.

"...the training and practices of the professions involved in human settlements planning need continual review. In the third world, the problems of the professions are aggravated in so far as they may be unduly influenced by the concept and practices in industrialised countries, and fail to adequately reflect the realities and needs of their own societies" (United Nations, 1976)[13]

Thus housing as an important tool for development should be given the deserved attention in the training of professionals. Students should be made aware that housing is a process rather than a mere product, involving several components such as government, professionals and people through goals, objectives, policies, programmes, implementation, evaluation ...etc. In short, the theme of housing should be a stimulus to make students cognisant of their present (urban and rural) realities. The immediate solutions to the production, management and development lie, I believe, in the introduction of courses aiming to solve these acute problems among which is the human settlements approach.

8.4.2.4 Technology:

The study of vernacular architecture (its technical components, its social/place relationship, its status...etc), and the systematic approach to urban and rural housing will ultimately lead students to develop a sense of enquiry and think about realistic solutions before using westernised sophisticated technology which is seen as the magic answer to the prevailing housing shortage ignoring the negative consequences.

High technology may be sometimes necessary for specific developments,

but cheap, improved indigenous technology may be the best solution for most building types. Consequently different types of knowledge and skills are required for the architect. Because students' talents and interests vary and the scope of architecture is so broad, schools should offer alternatives to allow students to develop their own talents in the chosen options which could cover more than just technology. Such alternatives, I believe, within the design studio or other technical courses will enrich all students owing to their variety and exchange of ideas.

8.4.2.5 Environmental control:

I mentioned previously, that in dealing with people, culture, climate and resources are to be considered.

In studying vernacular architecture it seems that its buildings are reasonably and effectively responding to climate conditions, whereas most of today's architects are ignoring such factors in designing new buildings (see photograph 15 & 16). Similar to man's clothing which primarily aims to protect man against the weather elements and improve his physiological comfort, shelter is also influenced by climate.

> "A building is a climate modifier and within this broad concept it acts as a complex environmental filter between inside and outside. It has a displacement effect in external climate and it modifies by increasing, decreasing and specifying the sensory inputs into the human organism"
> (Greenwood.P, 1983)[14].

Photograph 15: Positive architectural response to climate, Ghardaia, Algeria

Source: Author

Photograph 16: Negative architectural response to climate, new cities in Egypt

Source: Author

If a building is considered as a filter between man and natural forces such as heat, cold, wind, light and sound, its main purpose then is to overcome as far as possible the unfavourable impacts of nature and filter in the favourable ones in order to create conditions within the building as suitable as possible for its users. This could only be achieved through the consideration of the climatic factors. As an instance, ventilation and orientation are important components in designing buildings in hot-humid region. Whereas shade is more than significant in hot dry climate[1]. Climate is to be considered not only related to a single building but on a larger scale as well. Once a building has been designed in relation to climate, comfort is established for its occupants and eventually the cost will be reduced by avoiding at the maximum the use of mechanical and electrical installations.

Students therefore, should learn that climate is an important component of the design process and designing with climate involves the optimisation of environmental conditions around and within buildings.

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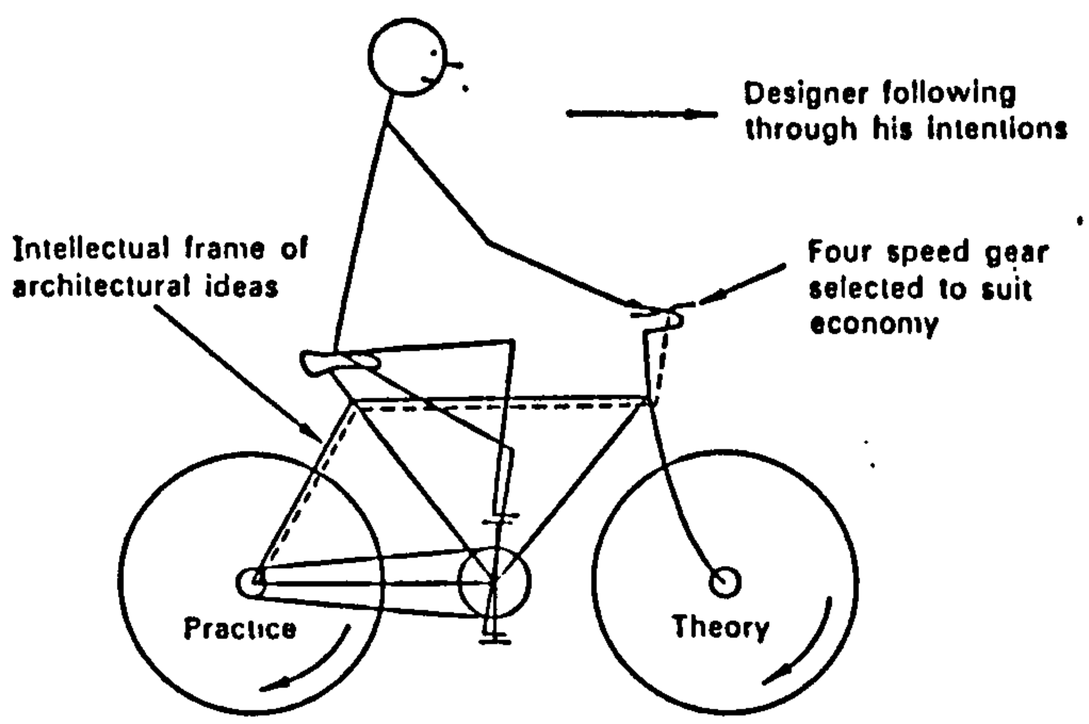
[1]For further details on climate see Dreyfus. J 1960, Ayoade. J. O 1983, Evans. M 1980, Koenigsberger. O 1973, Danby. M 1963.

8.5 PRACTICAL TRAINING

Owing to the study of the various architectural schools tackled in this work and the opinions and wishes expressed through the questionnaire, it is reasonable to state that architects have to have some practical experience before they can qualify and be considered as competent.

> "Any architectural education has to maintain very strong ties with architectural practice. Its raison d'etre. It has to produce graduates with specific qualifications who would be ready to assume professional responsibilities"
> (Beyru.R, 1983)[15].

Although considered as a potent part, theory is only one of the determinants of the architect's actions. This was well illustrated by Oakley.D. (1970) (see following figure).



To Follow the Design Path the designer must be clear as to his intentions; have selected the gear most appropriate to the economy; have appropriate maps (theories and strategies); have experience (or be well guided); have skill; a capacity for experience and be well seated in the saddle on the frame of architectural ideas.

This analogy clearly expresses the relationship betwen theory and practice, their distinctive roles and their equal necessity. Oakley further explains, I quote, theory is the front wheel and it is by means of this we steer; but both wheels must be there if we are to balance on the cycle frame -the structure of architectural thought-

Pursuing our analogy, maps and experience are necessary if design journeys are to be successfully undertaken. Where necessary experience is not available then the cyclist (the architect designer) is wise to undertake his first journeys in the company of someone who has that experience. On completion of a journey - the design complete and executed- the cyclist should overhaul his machine, oil the moving parts and repair and replace those obviously outworn before commencing another design journey. The machine that the cyclist rides at the end of his professional life, at the end of his student life, will be severely modified marks of the one on which he made his student journeys[16].

This necessarily affects the existing educational programmes in some Third World countries and require therefore adjustments seeking the preparation of students for professional practice.

Several alternatives were studied in chapter two and five. The most common ones are:

1. introduction of courses directly related to professional practice.
2. summer training which are not often given any credit but considered as prerequisite for graduation.
3. work in professional offices for a period varying from six months

to two years. In Third world schools the period will not exceed six months and is often represented by a late semester devoted entirely to this purpose.

4. live project office belonging to the school where students experience a significant part of the real architect's prerogatives particularly working directly with users and clients.

These options are quite valid, but two and three require a very strict control of what it is really being done in order to ensure students the expected practical complement needed for his training rather than being just used for the employer's interests. This suggests that strong ties should exist between the school and the professional offices. Preferably, members of school staff should be working at the same offices; this will make the control over students'work and progress easier. Offices should normally aim to serve not only their own interests but the teaching of trainees as well.

Option four however, presents less burden:

1. first, responsibilities belong to the school only. This will avoid dependence on other parties and eventual bureaucratic procedures which are often the main obstacles in setting up links between educational institutions and professional offices.
2. second, as far as architecture as a profession, in the modern sense, is relatively new in some Third World countries, very few offices exist which implies that there is no great chance for all students to be enrolled. Consequently live project offices

within the schools could be a useful solution to this problem.

The other question which is often raised is at what stage of the programme are students submitted to practical training?

A first condition lies in the fact that students should not have serious difficulties in adjusting themselves to office work. In addition, because the education methods of schools and offices necessarily differ, students should be made to understand that office experience can yield excellent instruction which is no more than a realistic design studio where all the previous acquired knowledge is needed.

Since these conditions seem to be fairly valid, the office programme is then concerned with more and less advanced practical training. It follows that trainees must have already secured a command of elementary knowledge and skills. Therefore, it appears to me that the first (if many) practical training period should take place after the first three years of the school programme. This will ensure that the school and office training complement each other in the attainment of professionally competent personnel. However, site visits, right from the first term or semester would be very useful in understanding the "technology" representing the different components involved in the implementation of building.

8.6 TEACHING METHODS:

The teaching methods in the region concerned, are heavily based on lectures and design studio. A concrete example (Algeria) was studied in detail (see section 5.8.3 chapter three). To describe the present situation which is very common to many Third World countries, we could say that most lectures are given in dictation and delivery manner while students in the design studio are relying extensively on the teacher's "prescriptions". Thus the trainee is automatically limited in his/her creative and self-learning ability. In other words, students are taught what to design rather than how and why. Besides, other methods of teaching should be introduced. Discussions, seminars, exercises, trips and visits, books, exhibitions, and competitions are excellent vehicles for stimulating students, and widening their latent power and knowledge.

What ever our judgement may be, it should not be orientated towards student'potentialities only. The success of any academic system, especially architectural education, depends in my opinion on students, staff and equipment.

The objectives of the training could be relatively easier to reach depending on the students'capabilities and interests. Students as merely being receiver-set which is often the case in Third World countries, will hardly reach the standard required. In order to avoid such type of student the role of the teacher is a key factor.

"The success of the course work stands or falls by the level and degree of advisory and guiding service provided by the executive teacher" (Oakley.D, 1970)[17].

Consequently, it is the teacher's role to enable the student to develop his intellectual, and vocational motivation. This implies that teachers themselves are expected to have, besides the wide understanding of his subject, the skill (pedagogy) to transmit it to students in a simple and intelligible manner in order to be easily digested.

In addition, the teacher's knowledge should be kept dynamic and up to date. This requires the teachers to be constantly in touch with the new ideas and techniques.

The spread of philosophical concepts depend mainly on the availability of literature and national and international meetings; events which should be encouraged and promoted, while techniques are more associated with practice. Academicians are, especially in Algeria[1], basically divorced from the practical side of architecture.

The quality of teaching depends also on the social constraints. Almost all careers in society enjoy some status which is related to quality, kind and degree of education, income and social value system.

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[1]Architects who opt for teaching career in universties are not allowed to practice elsewhere.

It is clear that the status of the teaching profession, especially in developing countries, is deteriorating. As a result, the teachers' morale is lowered and most outstanding teachers leave the profession or desert their jobs for other rewarding careers. Those who are still in education should be considered in transit or/and on the way out. This is why it is hard to expect teachers to feel fully concerned about the improvement of their standard and performance let alone their student's training. I wish to attract the reader's attention that I am not trying to justify the teachers'attitude but to describe a fact which cannot be denied.

Clearly then, it appears that adequate teaching is without doubt one of the emerging factors upon which depends the success of architectural training. Therefore, training teachers is an important issue which should be given just priority. This concept is well accepted at nursery, primary and secondary school level. On the contrary, university staff are reluctant to accept such an idea. An attitude due mainly to the eventual involvement of time, and money and probably pride.

As far as most Third World architectural educational institutions are concerned, I believe that training teachers is more than indispensable especially for our universities where staff members are usually young, inexperienced and not prepared for teaching tasks. The apprenticeship could be easily established on the following points:

1. organisation of regular seminars aiming to discuss the different

aspect of teaching tasks.

2. evaluation of the didactic equipment and the opportunities of its use.
3. setting up national and international meetings in order to learn from other's experience.
4. for a short period (three to six months) the young teacher should be always supported by an experienced colleague.
5. constant involvement of staff members in research and professional practice.

At this point I would like to raise the question of evaluation of student and student's progress.

Assessment has been often organised around the end product of the student. Prevailing subjective attitudes are representing in most cases the teacher's feeling towards the trainee's out put, where aesthetic is predominantly the most influencing factor.

In my opinion, the best way of evaluating student work, should concentrate on the following components:

1. quality of design:
    a. place and relation to its surrounding
    b. space organisation of the project itself
    c. comparison with existing similar projects and other students'projects
2. Progress of the design in relation to:
    a. context and problem stating
    b. method used

c. design making and self-criticism

3. appreciation of how far the objectives (as understood by teachers) of the exercise have been achieved.
4. the contribution of student's architectural knowledge to his design.

Assuming that adequate staff are provided, the effective instruction could not take place without physical resources.
Since the environment affect us in our daily activities, it is evident that students can be either stimulated or handicapped by the quality of educational space provided for their work.
According to our survey, it appears that a few students from different countries are expressing a negative comfort towards the existing teaching premises. This uneasiness is mostly related to:

1. the inadequate environment: architectural quarters themselves should be considered as the first example of architecture put into direct contact with the student.
2. shortage of instructional space: this has been mainly caused by the allocation of buildings which were not designed for architectural education and worsened by the constant rise of students'enrolment.

Thus, the space implication should be carefully investigated when ever new quarters are contemplated.
It is true that a demand for academic funds is always a problem. However, I should stress that architectural training is probably one of the cheapest professional curriculum compared to other professions

such as medicine, dentistry, pharmacy, engineering...etc. Consequently the demand for necessary expenditure in architectural training should not be a real obstacle which could discourage staff enthusiasm and students'progress.

In aiming to improve architectural instruction, modern educational technology which is widely used in advanced countries, is progressively introduced in Third World educational institutions but not without constraints.

Teachers are often reluctant to use such equipment (overhead projector, slide projector, computer...etc). This attitude is clearly explained by H .Ayesh's observations (1985)[18]. For the teacher soon learns that it is not sufficient to have equipment, rather he may well face several disincentives to utilising it in his teaching since:

1. the equipment may need to be obtained or brought from store (if only one or few are available in the school).
2. it may need to be cleaned and must be tested for usability (and what happens if it breaks?).
3. it may involve moving students from their usual classroom to another room (or moving equipment from room to room).
4. the advanced preparation of overhead projector for instance or other transparencies can be a complicated job which calls on the teacher to give particularly careful thought to what is to be taught and how. It is very demanding of the teacher in terms of knowledge of content, sequencing, matching content with available

media for best impact, and skilful preparation in writing and organising each transparency to serve its intented purpose.

5. some teachers may well not have prior experience or confidence in these respects.

Therefore use of such modern instruments could lead to costly and tiresome teacher's efforts. As a result, the majority of teachers prefer to fall back on "chalk and talk" based approaches. I would like to take these arguments as an opportunity to stress the necessity of training teachers in order to make them at least familiar with such equipment which show great potential in teaching in the case of an overhead projector:

1. face to face relationship of students and teacher in the teaching-learning process.
2. the use of the on-off button to catch student's attention and highlight an issue or issues.
3. the use of coloured pens which are attractive and can help draw attention or emphasis to the message.
4. the continuous development/modification of materials, or sometimes complete replacement as the need arises.
5. the ability to easily retain, retrieve and repeat information with little effort.

One of the most important teaching facility of a school of architecture is its library. This matter has been constantly neglected at least in a few developing countries, ignoring therefore the indispensability of the immediate access to technical journals

and books especially for courses in design which need as we have seen a considerable and wide range of knowledge. Even when main or separate departmental libraries are provided they are usually poor in terms of quality, quantity and organisation.

The educationist's vision of space is still subject to the prestige of a large scale concept. This attitude is strengthened by the fact that several departmental libraries are difficult to run and control, not to mention the expense involved.

During most of their work architectural students must refer to the literature on innumerable small points. One main library will extensively reduce a student's willingness to use a library considering the necessity of frequent "trips", complete change of atmosphere and micro climate ...etc. Thus the inherent need of a departmental unit is apparent.

Closely linked to the previous matter, the language of instruction is another issue. Teaching architecture in several developing countries is usually offered in a language different from the native tongue. The situation is critical in Arab countries where pre-university education is held in Arabic. Students are expected to make extra efforts to raise the standard of the university language in order to create an effective -student/teacher and vice versa- dialogue. A task which is often difficult with regard to the fact that general discourse and technical discussions among students are conducted in Arabic. In addition, this is not just an obstacle for the foreign language standard but could lead to the impoverishment of

the local language since it is gradually altered by the constant introduction of the many alien words and expressions.

To tackle this problem and avoid the local language degeneration, a long-term strategy based on the three following steps should take place:

1. Introduction of foreign languages in secondary schools and universities for those who have not reached this stage yet.
2. translation of existing literature.
3. progressive introduction of topics taught in local language in accordance with the previous recommendation.

8.7 RESEARCH:

In the past, architecture evolved through an empirical approach. Today, especially in advanced countries, owing to the availability of new techniques and the thirst for effective architectural solutions, research is recognised as a serious vehicle to achieve a better quality of architecture responding to human needs. This has been expressed by the implementation of post-graduate studies in architectural schools and the creation of other governmental or private institutions contributing to the bulk of building research which embraces a wide range of fields covering:

1. specific problem in particular building type
2. testing of materials and methods
3. programme research
4. sociological aspects of building
5. environmental aspects of design and structure (acoustics, thermal

insulation.. .etc)

6. planning and urban renewal
7. vernacular architecture
8. education...etc

Teams therefore composed of architects, engineers, sociologists, planners, historians... are seeking principles that once discovered and established as valid can be applied to the individual projects with known conclusion.

In most Third World countries, architectural research is, if unborn, at its embryo stage. Some countries of the region concerned, see this situation as a serious weakness of the schools and the profession as a whole. Consequently a few schools are offering post-graduate studies mostly related to town planning. But in most cases, Third World students are sent abroad facing various difficulties. Details of the problems encountered through "learning abroad" were tackled in section 5.2.2 chapter five. In short, the deficiency of such an alternative could be summarised in the following main points:

1. students are randomly sent abroad.
2. students themselves are not enough prepared for research work. This is mainly due to their lack of experience.
3. lack of schools which are specialised in specific Third World problems.
4. time and cost involved in such enterprise.
5. brain-drain (see section 6.2.3 chapter six).

However, being aware of such risks, three options for research purpose could be possible.

8.7.1 Training in home country:

Research in this case should be framed by competent indigenous staff if available or by foreign teachers expert in Third World realities. This will help the student to be constantly performing in his own real context and have direct contact with his field making the cost involved reasonably reduced.

Similar system which could be as much realistic is the joint associations where both student's country and a developed country are involved. Students will be asked to spend a short period (6 to 12 months) in a suitable country to study the basics and take advantage of the different existing facilities (libraries, laboratories experienced staff...) while the rest of the study period should be consumed at home for collecting data, analysing and eventually writing.

8.7.2 Training in other developing countries:

Although a few obstacles may occur such as culture and language..., this alternative presents advantages in terms where both countries -sender and receiver- are aiming for the same objectives (to overcome housing problems, raising the quality of life, energy saving...). At the same time such cooperation will favour cultural, economic and political relations.

As far as the student is concerned, he will not be too much alien to the new surrounding. However, choice of the host country should be

carefully considered. Consequently several points need to be taken into consideration:

1. experience of the school in architectural training and research.
2. efficiency of teaching (staff, teaching methods, facilities and subjects to be supervised).
3. and language used. In the case where both sender and recipient are using the same language, the time saved in learning new language is appreciable.

8.7.3 Training in industrialised countries:

1. The special training should take place in institutions where specialised staff familiar with Third World problems, are available.
2. Choice of such school should be the result of the sponsor's investigation in order to identify the most suitable ones.
3. Subjects tackled should be strictly related to the student's future profession.
4. Regular contacts should occur between sponsor-students and sponsor-school for better evaluation and progress of the student's work.
5. Period spent abroad should not last too long in order to avoid alienation from the student's own culture.

8.8 SCHOOL RESPONSIBILITIES:

Most Third World architectural schools seem to be accepting without much constraint the imported programmes as the best "recipes" for the training of their students. This attitude is well expressed by the reluctance in making any changes which could affect the length, contents and methods of their respective programmes. Lack of adequate facilities, competent indigenous teachers, effective teaching methods, and practical training give the impression that schools are interested in the quantity rather than the quality of their graduates.

Architectural schools should be considered as a place generating an activity rather a place where we "receive" education. This means that there is a constant physical and mental dynamism involving all the necessary components (students, staff and school) of such activity.

As society's demands for the education of its architects are in constant change, schools are expected to meet these demands which means that architectural programme is in a continual process of evolution. Accordingly, the time has come for these institutions to undertake effective initiatives. However some of these actions need emphasis and will make schools responsible for:

1. the provision of a good quality of staff,
2. the provision of adequate facilities and premises (space, books, equipments) necessary for the training of their students,
3. the practical training in a professional office (private,

governmental or at school). At the same time, it is advisable to set an effective system of control over the trainee progress. This could be helped by making a member of staff as the trainee supervisor in the office.

4. the programming of:

   a. sites and other visits within the country or abroad if time and finance permit,

   b. exhibitions, films, seminars and public lectures,

   c. liaisons with other departments and schools at national and international level in order to enrich student's knowledge and experience,

   d. the creation of a staff/students committee which could raise and discuss the eventual administrative and pedagogic problems,

   e. creation of a special group carrying out the task of providing information about the school, the training and the translation of the existing literature,

   f. seminars and other events for staff members, related to teaching methods in order to continuously improve the existing ones.

8.9 Summary:

In reviewing some of the main issues, it appeared that architectural education in some Thirld World countries is presenting classical (hidden or apparent) symptoms of a weak education. It is suggested however, that the cure lies in the hands of educationists

who are urged to act bearing in mind that architectural education is an activity where adequate men (students and teachers), financial resources, premises, documents and information are essential and complementary components for the success of such activity. As a result, the programme will need to be defined again if the new architect is to make an effective contribution. In other words, the future architect of Third World countries should be trained to be able to suggest an architecture with an appropriate expression responding to his society needs.

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CHAPTER NINE

RECOMMENDATIONS

The general tenor of this chapter is accompanied by a series of specific recommendations addressed to Algerian architectural educational institutions. Some suggestions will deal with detailed propositions of particular and immediate problems. Many, on the other hand, recommend only general directions and approach or further study, by people or institutions concerned. However, such scheme -as a suggestion and not as a recipe- could be easily applied to any developing country with appropriate alterations or improvement when ever needed.

9.1 Aptitude tests for prospective architects:

Educationists should investigate the development of reliable aptitude tests to discover those who may be suited for professional training. Such study should include preparation and validation of experimental test and the eventual promotion of such tests if they prove trustworthy (see section 8.3).

9.2 Guidance manual for counsellors and students:

An up to date manual which will present to vocational counsellors and students of secondary schools the opportunities, nature and qualifications of careers in architecture, should be prepared and circulated. Such a manual might also serve as an introduction for beginning trainees in schools and offices.

9.3 Guidance and preliminary office and school experience:

It is necessary to set up a committee charged with cooperating with secondary schools for the purpose of presenting general information to secondary-school students regarding careers in architecture, advising interested students as to their probable suitability for such careers and arranging visits to professional schools and trial experience in architectural offices. If feasible, a project workbooks should be designed to familiarise all students with the importance, influence and appeal of good architecture in community life. This task should also explain the work and contributions which architects provide in attaining an attractive community. Besides being in touch with architects, architecture and communities, students would develop an interest in architectural careers.

9.4 Buildings and equipment for schools of architecture:

Professional architectural schools should be provided with buildings of such size, character and attractiveness and with pedagogic equipments, as are needed to accommodate teaching programmes of high quality (see appendix seven).

9.5 Textbooks for architectural courses:

It is recommended to establish an intensive study of ways and means to make suitable textbooks available for use in various architectural courses. In addition, translation of the existing documents is advisable since architecture in the near future is supposed to be taught in the national language. Teaching in the national language (arabicisation) should be carefully planned. This could be applied by the progressive integration of few courses such as sociology, economics, history under the condition that arabicised staff is available and the students'level of instruction in Arabic is appropriate.

9.6 Architectural programme:

Bearing in mind that architectural programme has to be rationalised to take cognizance of prevailing social, economic and political conditions existing in Algeria, the programme should:

1. equip students with the awareness and sensitivity of these local

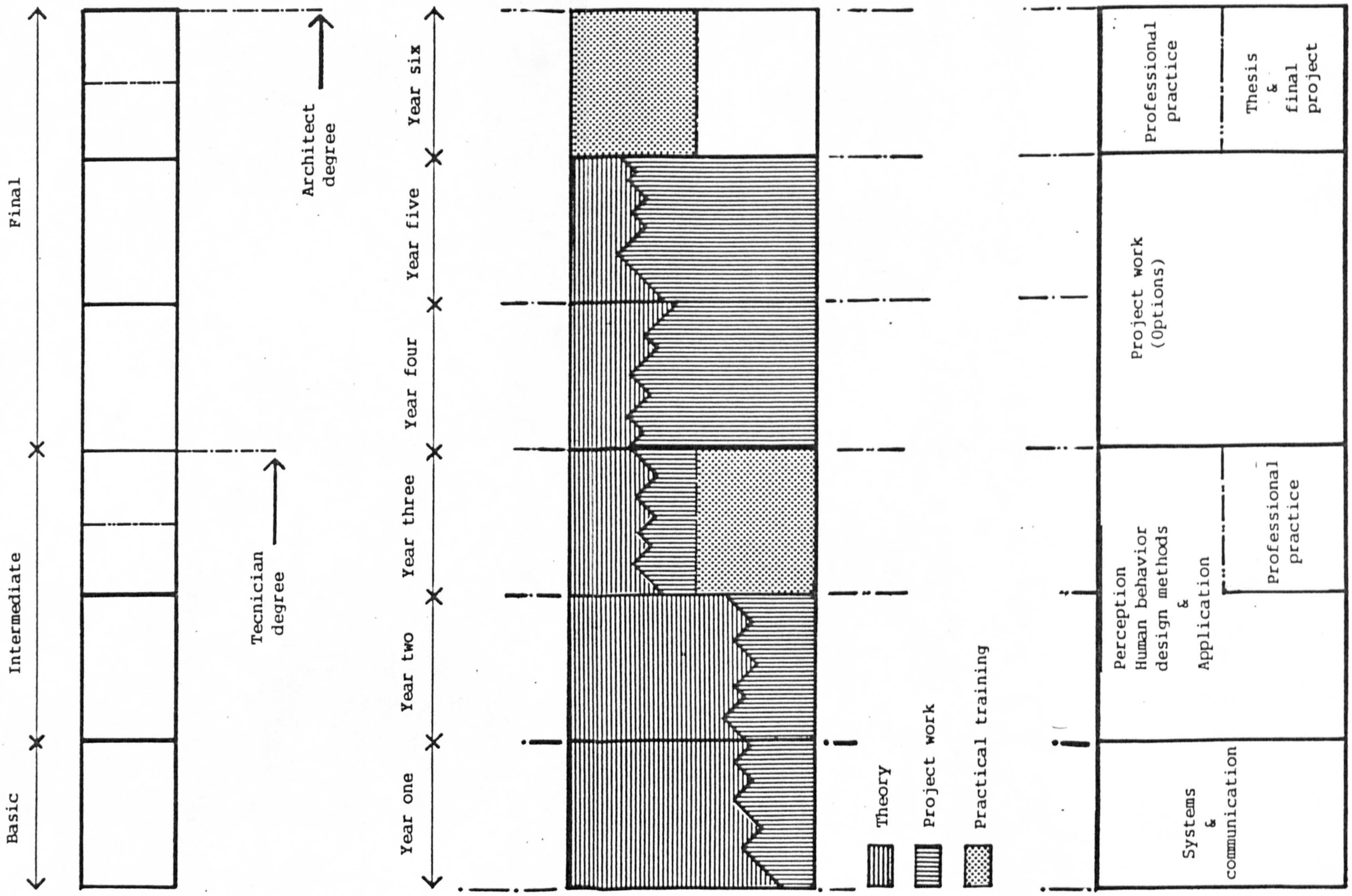
factors.

2. encourage students to seek, through methodical research and indepth studies, appropriate solutions to indigenous problems.
3. embrace during the first two years frequent site visits and courses with short design exercises while design studio should be the main design vehicle during later years. The first period should be concerned with the many forms of expression which we all use in our professional life. The main goal should lie in the basic need to learn how to express concepts and communicate information through drawings and all the variety and combinations of media to be found in the art and science of communication which might be employed in the context of architectural expression.
4. permit possibilities of options where students could develop their own interest in the chosen field. Such options should essentially cover vernacular architecture, conservation, low cost housing, appropriate technology, urban and rural planning, computing and teaching. Knowledge gained through these options could be a good asset for eventual postgraduate studies.
5. be addressed to today's problems. Thus the need in housing and settlements is of great importance. The Housing topic should aim to provide students with a better understanding of the structural routes and current trends of development of the housing problem in Algeria and in other developing countries, as well as with critical elements for the analysis of different housing provision strategies and policies. The course should tackle the issues

concerning the definition of housing needs, and housing standard, the role of the state and that of the private sector in the provision of housing, the organisation of the building industry, the question of land and finance, the potential and limitations of self-help, and the role of social participation in housing provision.

6. be contiguous with the other arts especially sculpture, drawing and painting. Appreciation of these arts is essential for the architect just as architecture, drawing and painting are for the sculptor etc.
7. offer intermediate degree (technician). This could make a certain amount of work force available at all times thereby alleviating the shortage of technicians. Besides, students holding the technician degree who are responsible for their families have the opportunity to support financially their relatives and can of course catch up with the rest of programme if the requirements are fulfilled.
8. secure as much as possible real live projects dealing with urban and rural communities.
9. insist upon the integration of practical training due to the need of operational graduates at the end of their training.
10. if finances permit, include frequent study trips within the country and abroad during summer vacation. This will awake students'curiosity and interest.
11. since the programme is of great importance for the future of the professsion, schools are urged to intensify their efforts to

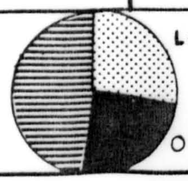
"The purpose of the studies are not to teach a curriculum, but to educate the individual and to integrate learning with living."



A PROPOSED STRUCTURE OF ARCHITECTURAL EDUCATION AND TRAINING

OTHERS = SEMINARS, PROJECTION, DISCUSSIONS, SITE VISITS, TRIPS, LABS ...ETC

total	studio hs per week	other	lecture	total	subjects area emphasis: sociology + economy	environment	sciences	technology	credit:hour: design	arts	subjects	codes	semesters
											MATHS		S_1
											PHYSICS		
											SOCIO I		
											HYSTORY I		
											THEORY I		
											ENVIR DESIGN		
											ARCHITECTURE I		
25	8	8		25	1.5	2 3	8	0.5	10	2			
											SOCIO II		S_2
											HYSTORY II		
											THEORY III		
											ENVIR DESIGN		
											TECH OF BUILD MAT I		
											CONSTRUCTION I		
											ARCHITECTURE II		
21	8	6.5	6.5	21	1.5	3		4.5	10	2			
											SOCIO & ECON		S_3
											HISTORY III		
											SPACE & ARCH FORMS		
											ENVIR DESIGN		
											TECH OF BUILD MAT II		
											CONSTRUCTION II		
											ARCHITECTURE III		
23	10	6	7	23	1.5	3		4.5	12	2			
											HYSTORY IV		S_4
											METHOD OF SCIENCES		
											ENVIR DESIGN		
											BUILDING MAT STRENGTH I		
											CONSTRUCTION III		
											SERVICES I & II		
											ARCHITECTURE IV		
23	10	6.5	6.5	23	1.5	3		5.5	12	1			
											HYSTORY V		S_5
											SOCIOLOGY OF HOUSING		
											SERVICES III		
											INFRASTRUCTURE		
											ENVIR DESIGN		
											BUILDING MAT. STRENGTH II		
											HOUSING		
23	10	5	7	23	2.5	3		4.5	12	1			
											PRACTICAL TRAINING I		S_6
											COMPUTING TECHN or PROF PRAC & URB DES or LANGUAGES & RUR DES or GENERAL SPECIAL		S_7
19	12	3	4	19	2.5	1	1	0.5	14				
											COMPUTING GENERAL or PROF PRAC & URB DES or LANGUAGES & RUR DES or TECHNOLOG SPECIAL		S_8
19	12	3	4	19	2.5	1	1	0.5	14				
											COMPUTING GENERAL or PROF PRAC RUR DES or LANGUAGES & TECHN or URBAN DES SPECIAL		S_9
19	12	3	4	19	2.5	1	1	0.5	14				
											COMPUTING GENERAL or PROF PRAC TECHN or LANGUAGES & URB DES or RURAL DES SPECIAL		S_{10}
19	12	3	4	19	2.5	1	1	0.5	14				
											PRACTICAL TRAINING II		S_{11}
											THESIS & FINAL PROJECT		S_{12}
				191	socio-econ & environt = 19.6 o/o			technology = 17.5 o/o	aesthetics = 62.8 o/o		grand total		
				191	18.5	19	12	21.5	112	8			



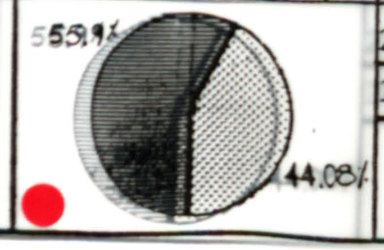
PROPOSED ARCHITECTURAL COURSE

CURRICULUM ANALYSIS

SUBJECTS . AREA EMPHASIS

credit:hour

TOTAL	STUDIO HOURS per WEEK	LECTURE HOURS per WEEK	TOTAL	SOCIOLOGY + ECONOMY	ENVIRONMENT	SCIENCES	TECHNOLOGY	DESIGN	ARTS	SUBJECTS	Codes	SEMESTER
28	10	18	28				4	16		MATHEMATICS 1	M.550	S1
										PHISICS	P.550	
										GEOMETRY & PERSPECTIVE 1	M.551	
										THERM, HYDR, ACCOUSTI	P.551	
										INTRODUCTION TO ARCH	HIM.101	
										TOTAL		
26	12	12	26	2	2	4	4	16		MATHEMATICS 2	M.552	S2
										SPACE ANALYSIS	GEOG.603	
										GEOMETRY & PERSPECTIVE 2	M.553	
										TECHNOLOGY OF BUILD MAT 1	FEN.601	
										ARCHITECTURE 1	HIM.102	
										TOTAL		
28	14	14	28	2	2		10	14		URBAN DEMOGRAPHY	ILSK.601	S3
										INTRODUCTION TO ECONOMICS	ICT.103	
										CONSTRUCTION 1	FEN.602	
										TECHNOLOGY OF BUILD MAT 2	FEN.603	
										ARCHITECTURE 2	HIM.103	
										TOTAL		
27	14	13	27	3			8	14	2	ARCHITECTURAL HISTORY 1	HIM.104	S4
										SOCIOLOGY 1	ILJ.101	
										CONSTRUCTION 2	FEN.604	
										BUILD MAT STRENGTH 1	FEN.605	
										HOUSING	HIM.105	
										TOTAL		
31	13	17	31	3		1	13	14	2	ARCHITECTURAL HISTORY 2	HIM.106	S5
										METHODS OF SOCIAL SCIENCE	ILJ.103	
										CONSTRUCTION 3	FEN.606	
										BUILD MAT STRENGTH 2	FEN.607	
										INFRASTRUCTURE	ICT.103	
										PROJECTION 1	HIM.107	
										TOTAL		
29	14	13	29	2			11	14	2	ARCHITECTURAL HISTORY 3	HIM.108	S6
										SOCIOLOGY OF HOUSING	ILJ.601	
										SERVICES 1	FEN.608	
										STRUCTURE 1	FEN.609	
										PROJECTION 2	HIM.109	
										TOTAL		
30	15	14	30	1			8	16	4	URBAN GEOGRAPHY	GEOG.604	S7
										SPACE & ARCHITECTURAL FOR	ILJ.602	
										SERVICES 2	FEN.610	
										STRUCTURE 2	FEN.611	
										ARCHITECTURAL HISTORY 4	HIM.110	
										ARCHITECTURE 6	HIM.118	
										TOTAL		
24	16	8	24	2			6	16		SERVICES 3	FEN.612	S8
										STRUCTURE 3	FEN.613	
										TOWN PLANNING 1	HIM.111	
										ARCHITECTURE 7	HIM.113	
										TOTAL		
29	22	7	29			1	5	22		SERVICES 4	FEN.616	S9
										COMPUTUNG 1 or	INF.005	
										TOWN PLANNING 2	HIM.112	
										SPECIAL CONSTRUCTIONS	FEN.614	
										TECHNOLOGY or	HIM.114	
										IMPLEMENTATION	HIM.115	
										TOTAL		
27	22	5	27	3		1		21		COMPUTING 2	INF.601	S10
										URBAN HYDRAULICS or	FEN.616	
										SPECIAL STRUCTURES	FEN.617	
										TRADITIONAL ARCHITEC	HIM.116	
										SPECIAL PROGRAMMES or	HIM.117	
										TOWN PLANNING or	HIM.119	
										RURAL ARCHITECTURE or	HIM.120	
										PREFABRICATION	HIM.121	
										TOTAL		



279 SOCIO-ECON & ENVIRONMENT= 7.5% . TECHNOLOGY= 30% . AESTHETICS= 62.3%

279	10	11	16	68	164	10

REPRESENTATIONS:
= COMPONENTS NEEDING ALTERATIONS
GRAND TOTAL

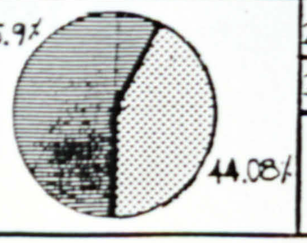
TYPE OF ALTERATIONS:
= CHRONOLOGY
= CONTENT
= INCREASE IN CREDIT HOURS
= DECREASE IN CREDIT HOURS

ARCHITECTURAL COURSE AT PRESENT PROVISION

CURRICULUM ANALYSIS

SUBJECTS . AREA EMPHASIS — credit:hour

TOTAL	STUDIO HOURS per WEEK	LECTURE HOURS per Week	TOTAL	SOCIOLOGY + ECONOMY	ENVIRONMENT	SCIENCES	TECHNOLOGY	DESIGN	ARTS	SUBJECTS	Codes	Semesters
										MATHEMATICS 1	M.550	
										PHYSICS	P.550	
										GEOMETRY & PERSPECTIVE 1	M.551	S_1
										THERM, HYDR, ACCOUSTIC	P.551	
28	10	16	28			6	4	16		INTRODUCTION TO ARCH	HDM.101	
										TOTAL		
										MATHEMATICS 2	M.552	
										SPACE ANALYSIS	GEOG.603	
										GEOMETRY & PERSPECTIVE 2	M.553	
										TECHNOLOGY OF BUILD MAT 1	FEN.601	S_2
26	14	12	26		2	4	4	16		ARCHITECTURE 1	HDM.102	
										TOTAL		
										URBAN DEMOGRAPHY	ILSK.601	
										INTRODUCTION TO ECONOMICS	ICT.103	
										CONSTRUCTION 1	FEN.602	
										TECHNOLOGY OF BUILD MAT 2	FEN.603	S_3
28	14	14	28	2	2		10	14		ARCHITECTURE 2	HDM.103	
										TOTAL		
										ARHITECTURAL HISTORY 1	HDM.104	
										SOCIOLOGY 1	ILJ.101	
										CONSTRUCTION 2	FEN.604	
										BUILD MAT STRENGTH 1	FEN.605	S_4
27	14	13	27	3			8	14	2	HOUSING	HDM.105	
										TOTAL		
										ARCHITECTURAL HISTORY 2	HDM.106	
										METHODS OF SOCIAL SCIENCES	ILJ.103	
										CONSTRUCTION 3	FEN.606	
										BUILD MAT STRENGTH 2	FEN.607	
										INFRASTRUCTURE	ICT.103	
										PROJECTION 1	HDM.107	S_5
31	14	17	31	3			12	14	2	TOTAL		
										ARCHITECTURAL HISTORY 3	HDM.108	
										SOCIOLOGY OF HOUSING	ILJ.601	
										SERVICES 1	FEN.608	
										STRUCTURE 1	FEN.609	
										PROJECTION 2	HDM.109	S_6
29	14	13	29	2			11	14	2	TOTAL		
										URBAN GEOGRAPHY	GEOG.604	
										SPACE & ARCHITECTURAL FORMS	ILJ.602	
										SERVICES 2	FEN.610	
										STRUCTURE 2	FEN.611	
										ARCHITECTURAL HISTORY 4	HDM.110	S_7
30	12	14	30		2		8	16	4	ARCHITECTURE 6	HDM.118	
										TOTAL		
										SERVICES 3	FEN.612	
										STRUCTURE 3	FEN.613	
										TOWN PLANNING 1	HDM.111	
										ARCHITECTURE 7	HDM.113	S_8
24	16	8	24		2		6	16		TOTAL		
										SERVICES 4	FEN.616	
										COMPUTING 1 or	INF.005	
										TOWN PLANNING 2	HDM.112	
										SPECIAL CONSTRUCTIONS +	FEN.614	
										TECHNOLOGY or	HDM.114	
										IMPLEMENTATION	HDM.115	S_9
29	22	7	29			1	5	22		TOTAL		
										COMPUTING 2	INF.601	
										URBAN HYDRAULICS or	FEN.616	
										SPECIAL STRUCTURES +	FEN.617	
										TRADITIONAL ARCHITECTURE or	HDM.116	
										SPECIAL PROGRAMMES or	HDM.117	
										TOWN PLANNING or	HDM.119	
										RURAL ARCHITECTURE or	HDM.120	
										PREFABRICATION	HDM.121	S_{10}
27	22	5	27		3	1		22		TOTAL		



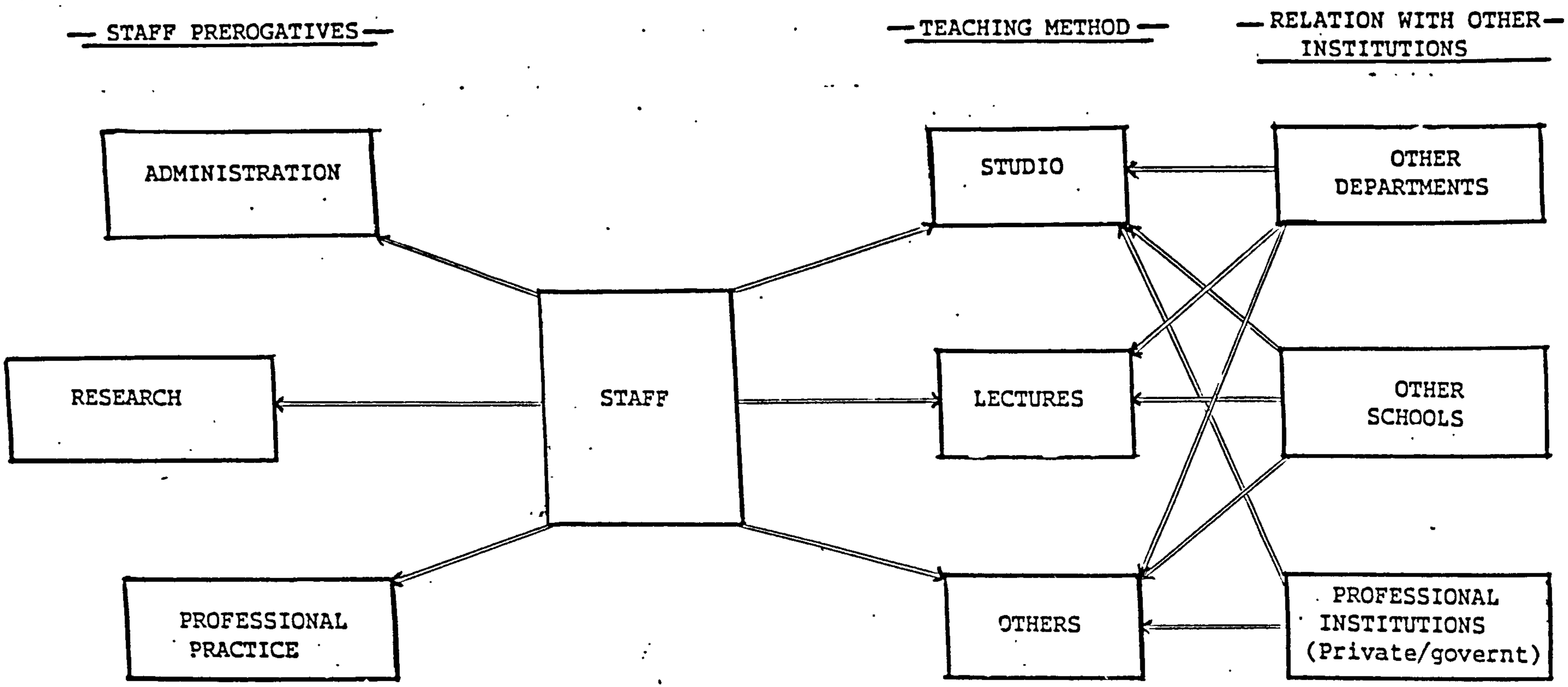
279	SOCIO-ECON & ENVIRONMENT= 7.5%		TECHNOLOGY= 30%		AESTHETICS= 62.3%		
279	10	11	16	68	164	10	GRAND TOTAL

ARCHITECTURAL COURSE AT PRESENT PROVISION

SUGGESTED CHANGES

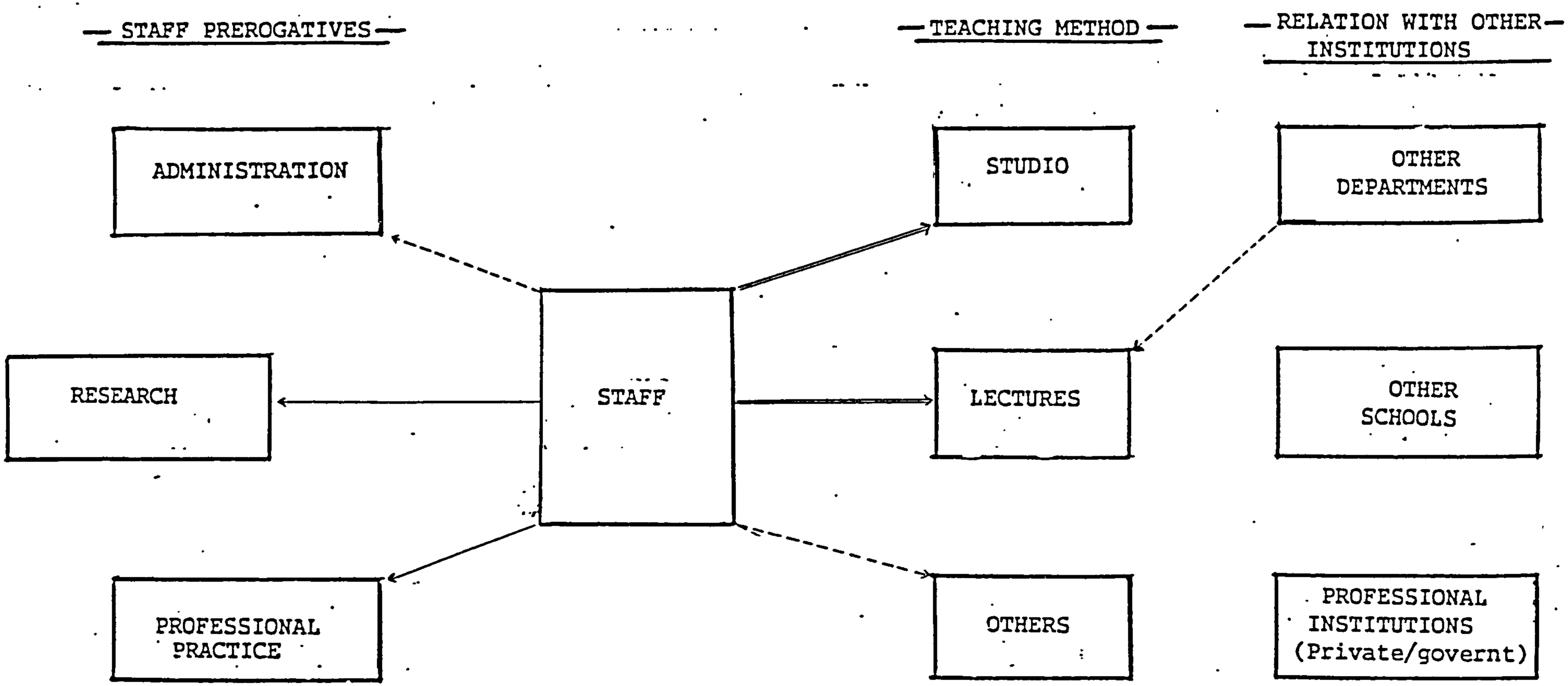
Number of students: 500 (the intake should be reduced by half).
Staff/students ratio should not exceed 1/9.
Staff working hour should be at least 30+8 hours/week embracing:

- lecturing
- tutorial
- seminars
- administration
- research
- professional practice (8 hours)



PRESENT SITUATION

Number of students in the institute: 902
(case of Constantine in 1985)
Staff/students ratio: 1/9 to 1/17*.
Staff apparent working hour: 12 hours/week



⟹ Strong relation
⟶ weak relation
- - - → very weak relation

* THE SAME NUMBER OF STAFF IS ALLOCATED TO EACH SEMESTER REGARDLESS THE NUMBER OF STUDENTS WHICH EXPLAINS THE DIFFERENT STAFF/STUDENTS RATIO IN EACH ATELIER. (SEE TABLE II P 138)

constantly promote, extend and refine the programme and every opportunity should be exploited to strengthen it.

9.7 Schools responsibilities:

Schools should :

1. recruit qualified personnel who present an acceptable experience in both teaching and practice.
2. recognise the fundamental necessity of continuing experience in practice for all teachers of architecture who are registered architects, provided that such teachers discharge their academic duties in a manner satisfactory to the employing institution and so as to maintain high quality in the total educational programme.
3. organise regular meetings in which architectural teachers can gather for cooperative discussion of course content, treatment, methods of teaching, evaluation of student performance and other aspects of instruction.
4. develop and establish a system of citation awards by which the schools can recognise outstanding effectiveness in teaching and thereby testify to the high value which it -in the name of the profession- ascribes to superior service in this important field.
5. for the sake of a good teaching, be responsible for the provision of social facilities (housing, good salaries, status...) for teachers in order to make them concentrate essentially on their task.
6. create one (or several if necessary) live project office which

could be used by students and the community.

7. be responsible for allocating students to offices for their practical training. It is advisable to set up a joint programme by the schools and offices in order to insure an adequate practical experience for students.
8. similarly to teachers, encourage students by exhibiting the best works and offering awards and prizes which will create an atmosphere and spirit of competition.
9. devote its most serious thought and its most sustained effort to develop, implement and lead a comprehensive and effective programme of organised research in all phases of architecture, buildings and practice.
10. involve members of staff and students in such research.
11. expand their scope and objectives in order to serve the professional educational needs of the whole building industry.
12. encourage all possible means and agencies to join in a concerted compaign to expand the boundaries of architectural knowledge in order to enable the profession of architecture and the building industry to reach appropriate solutions for the actual needs of Algerian society.
13. maintain strong ties with local and overseas (industrialised and developing countries) architectural institution in order to widen the scope of experience.

NOESMENON

CONCLUSION

Since we have seen that the existing architectural programmes in many developing countries are inadequate and this is well proved by the professionals'background, a fresh re-examination is essential while such initiative should primarily concentrate on the content, structure and methods of education and the new proposing roles.

Besides of being possibly the most complex of all arts, architecture defies an accurate definition. This has led some developing countries to accept and adopt blindly programmes imported from industrialised countries making the young architect unaware of the indigenous potentialities and is constantly in search for his identity.

During the last few years, there has been an increasingly strong reaction amongst professionals denouncing the cultural discontinuities caused by these imported programmes. Therefore, a few developing countries[1] reviewed their architectural programmes hoping to generate new training processes more appropriate to the local context and development. Although these efforts were in most cases very timid, they should be appreciated as a positive start which will bring into existence further judgement and ultimately

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[1]University of Umm El-Qura, Mecca, Saudi Arabia (see section 2.2.4).

action.

I firmly believe that many of our social and economic problems would be overcome if certain changes were introduced now so that tomorrow's students could evolve a better sense of visual and absolute values which would enable them to assess and relate their future role and ability.

Professions like societies, must undergo constant renewal if they are to survive and grow. Education should recognise that knowledge serves to identify man's past achievement but also provide basis for further progress. Therefore, architectural education must meet the challenge of the age, to prepare graduates to expect and welcome changes and yet maintain the family and community ties upon which the society can live and prosper.

To design means essentially to care about people. This concept should be the essence of our architectural training in order to enhance individual human dignity which has so far occupied a very low position in our scale of conscious values. It is time that realistic initiatives are made through educationists' and professionals'efforts who must seek for more attractive architectural training programmes in order to solve their immediate and increasing problems.

My modest contribution which consisted of reviewing and analysing various programmes in order to reach eventual guidelines,

is especially addressed to Algeria and countries with similar cultural background and intended to stimulate and awarness of our urgent common problem for the sake of seeing immediate actions.

To understand the question is a great step in solving the problem. My aim was to raise some acute matters in order to comprehend them and this will hopefully lead not only to some ways of improving the training of Third World architects and Algerian architects particularly in the near future , but stimulate the educationists and professionals to recognise the need for research on such topics.

APPENDICES

APPENDIX 1

Date of the establishment of the higher educational institutions in the Arab World.

We have seen that the difficult circumstances which swept the Arab World did not completely do away with indigenous universities. We cited Al-Azhar in Egypt, founded in AD 970, as one example. Other examples are Al-Qarawiyeen and Al-Zaitouna (now part of the University of Tunis) universities in Morocco and Tunisia, established in 868 and 1283 respectively. But although these institutions continued to concern themselves with Islamic studies and related disciplines, serving students from different parts of the world, it remains true that higher education did not begin to make an impact until the early years of the twentieth century.

In Egypt, for example, a private national university, financed by individuals, was established in 1908. After a rather shaky beginning, it was accorded government recognition and support and came to be known as the Egyptian University. It is now known as Cairo University. Algiers University, founded as early as 1879, was reorganized in 1909.

The first institution of higher education in Syria again dates back to the decisive early years of this century, when a group of Arab intellectuals urgently requested the Ottoman authorities to charter an Arab university. A medical institute was established in 1903, followed by a law school in 1913. The institute and the school had a turbulent history under the Ottomans and the subsequent French mandate, and had to be reorganized more than once until, with other educational institutions, they were incorporated in 1924 into the Syrian University, the predecessor of today's University of Damascus.

As for other universities in the Arab World, they all belong to the second half of the twentieth century or shortly before. Alexandria University (formerly Farouk I) was established in 1942, Ain Shams (formerly Ibrahim Pasha) in 1950, and Assiout in 1957. There are other, more recent, universities* in Egypt, but they have not yet established a wide range of faculties. In other parts of the Arab World, there are the following universities:
Khartoum (1951), the Lebanese University (1953), the Libyan University (1955), Baghdad (1956), Rabat (1956), Riyad (1957), Aleppo (1959), the Beirut Arab University (1959), Tunis (1960), Constantine (1961), the University of Jordan (1962), Al-Mustansiriya, Baghdad (1963), Kuwait (1964), Basra (1964), Oran (1965), Mosul (1967), Jeddah (1967), Sulaimaniya (1968), Tangier (1971), Lattakia (1971), Tripoli (1973), Sana'a (1974). In addition, there are the French-sponsored University of St Joseph in Beirut (1855), the American University of Beirut (1865), the American University in Cairo (1919), and Al-Hikma University in Baghdad (1956). There are also Islamic universities at Medina (1961), Marrakesh and Taic; also the Maronite University of the Holy Spirit, Kaslik (1950).

* *In 1972 the East of the Delta University at Mansoura and the Mid Delta University at Tanta were established.*

Source: M.S.Majali, "The development of higher education in the Arab World" , University of Essex, 1972. p15.

APPENDIX 2

Brief of the design exercise used in semester four, school of architecture, University of Constantine, Algeria.

PROGRAMMES DU SEMESTRE QUATRE
ATELIER 3

1.1 CONTENU DU MODULE

Le contenu pédagogique du module S4 Atelier 3, portera principalement sur le problème de l'habitat en Algérie et de son évolution pendant les trois périodes historiques que nous definissons par:

1. periode pré-coloniale,
2. période coloniale,
3. indépendance.

Les problèmes de l'habitat concernant les autres pays du monde, seront abordés par des recherches bibliographiques et des exposés qui seront donnés par les enseignants. Des fiches de lecture et des résumés des exposés seront demandés périodiquement aux étudiants.
Le concept de l'habitat (habitabilité) sera étudié dans sa totalité, c'est à dire, dans son rapport dialectique avec les problèmes politiques, économiques, démographiques, sociologique, culturels et psychologiques, mais les résultats seront essentiellement traités sous la forme de propositions architecturales. En effet le role de l'architecte consiste à trouver des solutions d'amenagement spatial en fonction des données fournies par les sciences sociales.

1.2 ORGANISATION DU MODULE

Le module se divisera temporellement en 3 parties:

1. Phase analyse et propositions.....: 14 séances,
2. Phase esquisse.....: 13 séances,
3. Phase projet (mise au net de l'esquisse): 4 séances.

1.2.1 Phase analyse: Travail de groupe. Note: coeff 1

L'étude d'une production de logements contemporains constituera le point de départ de l'analyse. L'étudiant devra aborder le problème de l'habitat dans sa totalité, c'est à dire:

1. Spatialement, en analysant l'environnement, les abords, le type de construction, les matériaux (utilisés) employés, l'aménagement spatial, le dimensionnement ...etc.
2. Dans le domaine des sciences humaines, politiques, socio-economiques, démographiques, culturels...etc.

A l'aide d'une enquete sur le terrain, les étudiants devront étudier les phénomènes de "désappropriation" ou de "réappropriation" dans le domaine de la production spatiale des logements contemporains. Notament, ils feront l'analyse des agencements spatiaux qui ne correspondent pas toujours aux pratiques culturelles des habitants.

Dans un deuxième temps, les étudiants devront réaliser une étude sur un habitat traditionnel qui sera choisi en fonction des

conclusions de leur première enquete. Cet habitat sera du type, Medina, Mechta ou Habitat Informel En Dur.
Cette étude sera essentiellemt composée de croquis, relevés et de références bibliographiques. Les étudiants auront à leur disposition les travaux réalisés par les postgrades et les S4 années précédentes. L'analyse dvra tenir compte, suivant les régions étudiées, des donn|es géographiques, climatiques et morphologiques. Les groupes se rencontreront à la fin de la phase analuse pour élaborer une synthèse de leurs conclusions partielles.
Cette analyse devra aboutir à un travail individuel qui se concrétisera par des propositions architecturales, sous la forme d'un catalogue permettant d'ébaucher des solutions spatiales destinées à répondre à un habitat specifique à l'Algerie. (Les propositions individuelles seront notées coeff:1)

Le travail en group, ainsi qu'individuel, sera composé pour moitié de textes d'analuse appuyés par des références bibliographiques, et pour moitié de documents graphiques illustrant la démarche de l'étudiant. Ces documents graphiques comporteront des croquis, des perspectives, des relevés, des plans, coupes et façades ...etc.
IMPORTANT:
Les éléments de l'analyse seront présentés sur format 50x65, sur calque pour les plans et relevés demandés, sur carton pour les relevés couleur et croquis.
Les textes d'accompagnement seront écrits en lettres dessinées sur le tier droit du format. (Toute autre forme de rendu ne sera pas notée).
N.B:En ce qui concerne l'habitat du Sud Algérien un atelier pour les étudiants ayant la possibilité d'etre hébergés sur place.

METHODE A SUIVRE POUR L'ANALYSE; A PARTIR D'UN EXAMPLE CONCRET:
COLLECTIF CONTEMPORAIN: (CITE SONATIBA).

A)Analyse spatiale:
a)Approche globale de la cité:
1. situation par rapport au centre ville. Ech:1/500
2. relatio de la cité avec son environnement; constructions avoisinantes, circulation, espaces plantés ...etc. Ech:1/500.
3. morphology du terrain; coupes topographiques. Ech:1/100.
4. plan de masse, indiqunat l'implantation des batiments, leur orientation, leur volumetrie (à l'aide des ombres), l'étude des acces à la cité (mécaniques et pietonniers) et des circulations intérieures, espaces publics et semi-publics. Ech:1/100.
5. étude des materiaux employés et des techniques de construction.
6. relevés des facades et des couleurs. Ech:1/200.
7. axonometrie de l'ensemble, (sans rentrer dans les détails: pleins et vides seulement). Ech:1/200.

b)Analyse des logements de la cité:
1. choix des trois types d'appartement: F3, F4, F5. Ech:1/100.
2. relevé des appartements. Ech:1/100.
3. relevé des halls d'entrée. Ech:1/100.

4. relevé des paliers concernés. Ech:1/100.
5. coupes permettant de comprendre la volumétrie. Ech:1/100.
6. croquis d'ambiance.
7. étude des seuils: (pénétration visuelle de l'appartement par rapport au seuil) à l'aide de croquis.
8. étude des vues exterieures depuis l'appatement à l'aide de croquis.

N.B:L'étudiant pourra vérifier les éléments de son analyse spatiale à l'aide de photos.

B)Analyse du type sociologique:

L'analyse s'articulera autour d'une enquete sur environ 10 familles occupant les logement concernés. Le questionnaire portera sur:

1. la taille de la famille,)nombre de personnes constituant un ménage, parents et enfants, il peux y avoir plusieurs ménages dans un logement).
2. la composition de la famille suivant le sexe et les tranches d'ages.

les personnes actives, (ayant une profession ou un revenu ou étant demandeur d'emploi).

3. les non-actifs: (personnes agées à charge, adulte étant dans l'impossibilité de travailler, adulte au foyer, enfants).
4. la date d'acquisition du logement.
5. l'origine régionale de la famille sur trois générations, (en distinguant chaque génération à partir des adultes occupant l'appartement).
6. le type d'habitat occupé pendant ces trois générations.

. C)Analyse de type psycho-sociologique:

a)questionnaire portant sur les conditions d'habitabilité du logement:

1. nombre de pièces principales.
2. annexes (cuisine, sanitaires, rangement, séchoir...etc).
3. equipements (eau, gaz, électricité).
4. élements de confort et de nuisances (ensoleillement, vues, bruits, humidité...etc.

b)questionnaire portant sur les préoccupations des occupants par rapport au logement concerné, par tranche d'age et par sexe.

1. personnes agees.
2. adultes.
3. adolescents.

Ce questionnaire portera sur les problèmes culturels et de vie par rapport au type d'habitat étudié.

Il est laissé à l'étudiant l'initiative de le mettre en oeuvre en fonction de la compréhension du problème qui lui est posé.

N.B:Des éléments spécifiques à une enquete sociologique seront fournis pour le groupe travaillant sur le milieu urbain et l'habitat informel.

1.2.2 Phase esquisse: coeff 2

La phase esquisse commencera par une intiation aux problémes de la programmation.
Les enseignants fourniront l'essentiel des données permettant la mise en oeuvre du programme: (echelle, normes...etc.)
Les étudiants complèteront le programme en fonction des résultats donnés par l'analyse. (Meme format que l'analyse à rendre au crayon ou au feutre).

A)Programme:
Il s'agira d'un programme d'extension des zones étudiées, qui sera déterminé par chaque enseignant avec les étudiants.
collectif:..... 400 logements
semi-collectif:.....200 logements
ou solution mixte. (Ech: 1/1000).
individuel:.....60 à 80 logements.
(Ech: 1/500).
Village socialiste:60 à 80 logements.
(Ech: 1/500).
Médina: 40 logements semi-collectifs.
(Ech: 1/500).
La nature des équipements sera à déterminer en fonction de l'analyse.

B)Il sera demandé un plan de masse mettant en évidence l'étude des structures, c'est à dire:
1. accés de la zone étudiée et les environs.
2. implantation des espaces batis en relation avec les espaces plantés.
3. nature et emplacements des equipements, en fonction de l'analyse.
4. axonométrie du plan de masse a l'echelle du plan de masse.

N.B:Il faudra tenir compte de l'integration au site naturel et construit.

C)Il sera choisi par les étudiants en coordination avec les enseignants un ilot d'étude, déterminé en fonction de son interet et en frange du batit existant; ce qui définira:
1. pour le collectif et semi-collectif par 40 logements.
2. pour l'individuel 20 logements.
3. pour le village socialiste 20 logements.
4. pour les Médinas 40 logements en semi-collectif.

Il sera demandé:
1. une axonométrie au 1/200 des abords de l'ilot (liaison bati existant et projet).
2. composition en plan masse de l'ilot au 1/200, qui sera testée en axonométrie sur celle des abords de l'ilot.
3. plan par niveaux au 1/200.
4. coupes et façades d'assemblage, (bati existant et bati projeté) au 1/200, permettant l'étude des volumes et de la modénature des façades.
5. croquis en perspectives et silhouètages du bati existant.

D)Etude des plans, coupes et façades des logements au 1/100.
Les corrections des différentes propositions se feront phase par phase.

1.2.3 Phase projet: note coeff 1

Après la correction de l'esquisse, avant de passer au projet, il est nécéssaire de réaliser une synthèse, qui permettra de rejeter les éléments négatifs et de conserver tous les éléments nécéssaire à l'élaboration du projet.
Il s'agira de faire la mise au net (à l'encre) des différentes planches demandées pour l'esquisse en tenant compte des corrections apportées par l'enseignant.
La qualité du rendu interviendra dans la notation du projet.
N.B:Les fiches de lecture seront notées coeff: 1.
L'esquisse et le projet sont en réalité une seule et meme phase, la distiction dans ce programme est d'ordre pédagogique.

Source: Institut d'Architecture, d'Urbanisme et de Construction, University of Constantine, I985.

APPENDIX 3

Questionnaire used for the survey.

QUESTIONNAIRE

SURVEY OF SOME ARCHITECTURAL EDUCATION SYSTEMS

1985

(1) Age: sex: Male: ☐ female: ☐
(2) Nationality:
(3) Place of under-graduate study: country: city:
(4) Type of the institution:
school ☐ ,college ☐ ,polytechnique ☐ ,institute ☐
others(please specify)
(5) Starting date of the school where you have done your architectural course:
(6) Language(s) used:
(7) Age at which you first registred as student in architecture:
(8) Age at which you obtained your degree or diploma?

(9) Preliminary requirements for enrolment in architectural education:

	in sciences	mathematics	humanities
-baccalaureat	☐	☐	☐
-'A' level	☐	☐	☐
-technical diploma	☐	☐	☐
-equivalent degrees (please specify)	☐	☐	☐

(10) Did you do any test before being enrolled? yes ☐ no ☐
if yes. Was the test comprising:
-interviews? ☐
-drawing? ☐
-mathematics? ☐
-physics? ☐
-other? ☐ (please specify)
Did you find the test objective? yes ☐ no ☐
Do you think that such test was useful? yes ☐ no ☐

Programme and teaching method:

(11) Duration of architectural study: (years) or(semesters)

(12) Was the programme based on:

	strongly	reasonably	very little
-technology?	☐	☐	☐
-sciences?	☐	☐	☐
-humanities?	☐	☐	☐
-fine art?	☐	☐	☐

(13) Was the teaching method based on:

	strongly	reasonably	very little
-lectures?	☐	☐	☐
-design studio?	☐	☐	☐
-seminars?	☐	☐	☐
-others? (please specify)	☐	☐	☐

(14) What was the teacher/student ratio in the design studio:

teacher	1	1	1	1	1	.1	1
students	5	7	9	11	17	21	more

(15) Did you have supervision at regular intervals? yes ☐ no ☐

(16) Did you have:
-excellent supervision? ☐
-good supervision? ☐
-adequate supervision? ☐
-bad supervision? ☐

(17) Do you think that supervision could be improved by:
-reducing the staff/student ratio? ☐
-the better teaching skills? ☐
-both? ☐
-other? ☐ (please specify)

(18) Were the exercises (design studio) tackling problems related to:

	strongly	reasonably	very little
-your country's needs?	☐	☐	☐
-urban intervention?	☐	☐	☐
-rural intervention?	☐	☐	☐

(19) Are the design studio and the topics (within a year or semester or term) related to each other? yes ☐ no ☐

(20) Was the time spent in drawing?
too much ☐ fair ☐ not enough ☐

(21) Did you have:
-common basic topics with other professions (engineers, planners...etc)? yes ☐ no ☐
-regular contacts with other departments'teachers? yes ☐ no ☐
-regular contacts with other departments'students? yes ☐ no ☐
-enough public lectures? yes ☐ no ☐
-slides show? yes ☐ no ☐
-films, documentaries...etc? yes ☐ no ☐
-exhibitions? yes ☐ no ☐

(22) Did you have any live (real) projects as a design studio? yes ☐ no ☐
If yes. At what stage of the course?
Did you talk to any client? yes ☐ no ☐
Did you supervise any project implementation? yes ☐ no ☐

(23) Did you have a live project office in your school? yes ☐ no ☐

(24) Did the educational premises (teaching spaces, library...etc) respond to your needs? yes ☐ no ☐
If no, what was lacking?

(25) Were the textbooks:
-suitable? yes no
-in sufficient supply? yes no
-in local language? yes no
If no, in which language?

Practical training: (working in an office)
---

(26) Did you do any practical training?: yes no
If yes go to (27)
If no. Do you think that practical training is essential? yes no
If yes. Should it be:
-at least three months? ☐
-six months? ☐
-one year? ☐
-two years? ☐
-more? ☐ then go to(35)

(27) If you have done a practical training:
-what was its duration?
-is this period included in the course? (see (11))? yes no
-is this practical training compulsory? yes no
-do you think that this practical training period:
-is enough? ☐
-should be longer? ☐
-should be shorter? ☐

(28) Did you do your practical training:
-before the first year? ☐
-during the first year? ☐
-2nd year? ☐
-3rd year? ☐
-4th year? ☐
-5th year? ☐
-6th year? ☐
-7th year? ☐
-later? ☐

(29) Did the practical training take place in :
-a private office? ☐
-a governmental office? ☐
-the school? ☐

(30) Were there any relationship between:
-the school and the private office? yes no
-the school and the governmental office? yes no

(31) Was the practical training:
-related to your previous theoritical knowledge? yes no
-a complement of your theory? yes no
-what you expected? yes no

(32) Was the practical training:
-marked? yes no
-if yes. was it marked by:
-a member of staff? yes no
-your supervisor in the office? yes no
-both? yes no

(33) Was your supervisor in the office a member of staff at the same time? yes no
-If yes. Was it helpful? yes no
-If no. Would you have prefered a member of staff as your trainer in the office? yes no

(34) Do you think you have just been used during the practical training? yes no

(35) Do you think that the course period (theory+practice) should be:
longer? ☐
shorter? ☐
How much longer/shorter:
six months ☐
one year ☐
more ☐

(36) Should the additional/substracted time (chosen above) be related to:
-theoretical course? ☐
-practice? ☐

Postgrad-studies:
---

(37) Are you self-financed? yes no
-if no. Are you sponsored by any institution? yes no
-is this institution: private ☐ governmental ☐
-is this institution foreign? yes no
(please specify)

(38) Was the choice of England as a place for such studies related to:
-your own choice? ☐
-the standard of architectural education in this country? ☐
-the choice of your sponsor? ☐
-the chance of learning another language ☐
(if different from from your native)?
-other? ☐ (please specify)

(39) Did you choose this school because:
-of the standard of the school? ☐
-of your subject? ☐
-of recommendations? ☐
-it is the only school which offered you a place? ☐

(40) Did you start your Post-graduation studies:
-straight after your diploma? yes no
-after some practical experience? yes no
-if yes. Is this experience useful for a research work? yes no

(41) Did you have any idea about your present field of study? yes no

(42) Did you have any topics related to this field during your first degree course? yes no
-if yes. Did you find it useful for your present work? yes no

APPENDIX 4

Letter explaining the Work Experience
for senior pupils.

City of Newcastle upon Tyne

Brian M. O'Reilly, Director of Education.

Civic Centre
Newcastle upon Tyne NE1 8PU
Telephone Newcastle (0632) 328520

Extension

Our Ref. Y/WEP/S/31

Your Ref.

This matter is being dealt with by .....

All replies should be addressed to "The Director of Education"

Dear Sir/Madam,

Since 1966 the Newcastle Careers Service has been developing in conjunction with careers teachers in schools, work experience for senior pupils. With the raising of the school leaving age the Government introduced the Education (Work Experience) Act 1973 which received the Royal Assent in May 1974. This Act allows, with certain conditions, children to be employed during their last year of compulsory schooling "where the employment is in pursuance of arrangements made and approved by the local education authority ..... with a view to providing him with work experience as part of his education".

When young people in the past have been sent out on work experience employers who have participated in the schemes have been asked that the pupils should take part in the normal working life in the employer's establishment. The pupil does some of the work, which must be without payment, in order that he might gain a greater understanding of the world of work and of himself or herself in relation to it. Experience has generally taken place over a week depending on what was most convenient to the employer providing the facility and the time in which it was considered reasonable to get a general picture of the job and its environment. Thus the work experience schemes are considered quite different to normal visits to employers' establishments.

Over 200 employers have already co-operated with the Careers Service and the schools in providing such experience to pupils who were previously able to do this. Now that the new Act extends this opportunity to those in the 15-16 age group in their last compulsory year at school, the Education Committee, through the Careers Service, is anxious to develop the schemes and to set up some form of clearing house system by the Careers Service to provide information to schools about firms who are prepared to accept pupils for work experience and to assess the value of such schemes.

At present the arrangements are that schools wishing to organise a work experience scheme draw up the details of the pupils and the experience desired with the careers officer responsible for the particular school, with the Principal Careers Officer being responsible for satisfying the Director of Education that the schemes are satisfactory and where necessary ensuring that the insurance indemnity forms are signed on behalf of the local authority.

It is proposed that these arrangements should continue but in view of the fact that there is likely to be an increase in requests from schools, I am writing to ask if you would be willing to let me know whether or not your Company/Organisation would be prepared to offer (or continue to offer) work experience in accordance with this letter. If so, it would be helpful if you could complete the enclosed questionnaire and return it to me. I and my staff will collate the information and circulate to the schools.

1. Contd.....

I shall be pleased to arrange for Mrs. M.O.Grant, Principal Careers Officer at the Careers Centre, College Street, to answer any queries or discuss this matter with you.

I hope that I may have your co-operation in this scheme which I feel would help young people not only to make up their minds about their careers, but to help them in the transition from school to work.

Yours faithfully,

Olivia Grant

for DIRECTOR OF EDUCATION

City of Newcastle upon Tyne Education Committee

CAREERS SERVICE

LIST OF SCHOOLS

COMPREHENSIVE SCHOOLS	HEADTEACHER
Benfield School, Benfield Road, Newcastle upon Tyne. NE6 4NU. Tel: 2656091 2656092	Mr.R.A. Cardinal B.Sc (Dr. M.P.Pearce - Deputy Head) Careers Teacher: Mr. Pete Woodstock Mr. George Elliott
Blakelaw School, Firfield Road, Newcastle upon Tyne. NE5 3HU. Tel: 2863211/5	Mr.Jeffrey Curd Careers Teacher:Ms.Eileen Llopis
Gosforth High School, Great North Road, Gosforth, Newcastle upon Tyne. NE3 2JH. Tel: 2851000 2858039 Visually Handicapped Unit (2841082)	Mr.B.W.J. Baxter JP MA Careers Teacher: Mr. Jimmy Nelson
Heaton Manor School (formerly Manor Park) (Upper School), Benton Road, Newcastle upon Tyne. NE7 7EB. Tel: 818486	Mr. P. Illingworth BA Careers Teacher: Mr. Ken Oliver
Heaton Manor School, (formerly Heaton) (lower School & 6th form Centre) Jesmond Park West, Newcastle upon Tyne. NE7 7DP.	Mr. P. Illingworth BA Careers Teacher: Ms. Wendy Earnshaw
Kenton Shcool, Drayton Road, Newcastle upon Tyne. NE3 3RU Tel: 2869001/2	Mrs. B. Payne BA Careers Teacher: Mr. George Morton Ms. Jane Hindmarsh
Redewood School (formerly John Marlay) (Upper School), Wellfield Lane Building, Newcastle upon Tyne. NE5 2PH. Redewood School, (formerly Slatyford), (Lower School), Pooley Road Building, Newcastle upon Tyne. NE5 2TS. Tel: 2744744	Mr. B. Thexton MA Careers Teacher; Mr. Les Beech Mr. B. Thexton MA Careers Teacher; Mr. Les Beech

COMPREHENSIVE SCHOOLS	HEADTEACHER
Rutherford School, West Road, Newcastle upon Tyne. NE4 9LU. Tel: 2737965/6/7/8/0	Mrs. K.B. Chapman Careers Teacher: Mr. Paul Davison
Walbottle High School, Walbottle, Newcastle upon Tyne. NE15 9TP. Tel: 2678221	Mr. K. Gulliver Careers Teacher: Mr. Russ Teesdale
Walker School, Middle Street, Newcastle upon Tyne. NE6 4BY. Tel: 620911/4	Mr. A. Broady MA B.Sc Careers Teacher: Mr.Malcolm Berry
West Denton High School, Off West Denton Way, West Denton, Newcastle upon Tyne. NE5 2SZ. Tel: 677036	Mr.Mike Clark Careers teacher: Mr. Mike Brady
VOLUNTARY COMPREHENSIVE SCHOOLS	
Sacred Heart R.C. (Girls School) Fenham Hall Drive, Newcastle upon Tyne. NE4 9YH Tel: 2747373	Sister N. Lester Careers Teacher: Ms. Jean Graham
St. Cuthberts R.C. (Boys School) Benwell Hill, Newcastle upon Tyne. NE15 7PX. Tel: 2744510	Mr. E. Lovell Careers Teacher: Mr. Martin Mannion
St. Mary's R.C. School, Benton Park Road, Newcastle upon Tyne. NE7 7PE Tel: 668813/6	Mr. O'Neal Careers Teacher: Mr. Trevor Hall

APPENDIX 5

UCCA application for admission to BA degree course,
School of architecture, University of Newcastle upon Tyne.

University of Newcastle upon Tyne

School of Architecture
The University
Newcastle upon Tyne NE1 7RU

Telephone Newcastle 328511
STD Code 0632

Our Ref AN/AJT

14 February 1986

Dear

Thank you for your UCCA application for admission to our BA degree course in Architectural Studies. This has been carefully considered and as a result we would like to invite you to visit Newcastle on Wednesday 26 February 1986.

During your visit you will be able to have a thorough look around the School and to talk to staff and students about any aspect of the course and the University.

At some point in the afternoon we will be arranging a personal interview for you with two members of staff. This should give you the opportunity to explain why you would like to join the architecture course and to demonstrate how suitable a candidate you are. We are particularly looking for students with imagination and enterprise. It is not crucial to have any pre-knowledge about architecture, but it will help if you can discuss any well-known buildings that you have seen and admired.

You should bring along with you any work that you feel might demonstrate your interest. It is probably unwise to try to select what you think might impress us, rather bring all that you have. The obvious types of things to bring are: any work done for Art courses, graphic work done at School, sketches of your local environment or places you have visited, any objects you have designed and/or made (if the objects are too big to carry, show us pictures) and photographic work, but we will be pleased to look at anything you bring along. We will also be interested in hearing about any pursuits that particularly motivate you. Could you please bring a passport size photograph with you to the interview.

Would you please report to the Department, which is situated in the main University Quadrangle, at 12.00 noon on 26 February. The visit should be completed by 5.00 pm but it has been suggested by our 1st year students that it would be a good idea to arrange to stay overnight so that you can get a clearer impression of the University as a whole and the City. Accommodation can be arranged through the Student Reception Service - and details are enclosed. If you are arriving by train, the University is a 15-minute walk North of the Central Station, and if you take the Metro, get out at Haymarket Station.

Would you please confirm to the Secretary, School of Architecture, as soon as possible, whether or not you will be able to come.

Yours sincerely

Adrian Napper
Admissions Tutor

I like applicant who have found out about architecture i.e through working in an office

UCCA

First read page 4. Print boldly in black ink.
This form is reduced when photocopied.
Do not write in green boxes.

Application for October **1986** 20 NOV 1985

Attach your CS applicant's fee here. Do not staple.

14NOV85 081437 3

1 Personal details

Sex: Male (M) Female (F): M Married (M) Single (S): S

Date of birth (day, month, year): 16 8 1968

18 Years 1 Months Your age on 30 September 1986.

Area of permanent residence (See UCCA handbook): 318 2

Country of birth: England

Nationality: British

All candidates should write their residence category in the box: see Appendix III of 1986 UCCA handbook: K

Give here any data requested by Appendix III of the 1986 UCCA handbook:

Parent or guardian: PO 5 1 3 4 1 1

Name

Occupation: Salesman SOC: 3450

ESC: J 1 PO 00

2 Title Mr **Surname**

First names

Previous name, if changed (See UCCA handbook)

Correspondence address

Postal code:

Telephone (including STD code)

Home address (if different)

Postal code:

Telephone (including STD code)

3 Choice of university and course

Make as many form sets as you have read the current UCCA handbook and universities' prospectuses

(a) University/College (state name)	(b) Univ. choice no.	(c) Course code	(d) Course (state name)	(e) Previous application (year)	(f) Enter any other details here only if requested by the university/college in its prospectus or the UCCA handbook	H
Nottm	76	K100	Archit			
Bath	09	K100	Arch			
Newc	24	K100	Archit			
Sheff	84	K100	Archit			
Manc	72	K100	Archit			

If you have previously applied through UCCA please give serial number of your most recent application

4 Education from age 11 in date order

Names and addresses of schools, colleges, universities, etc. attended, with dates of:

	Entry month	Entry year	Leaving month	Leaving year	P	SCHFE
	9	79	5	86		

For use by university/college

Offer CCC min 22:01:85

ATC 2 DEC 1985

JMB

Fees H

Accomm.

Sent

Ack

Rel

Rog

Page 1

5 Further information (See UCCA handbook)

(a) Practical experience; study abroad; occupation and studies after leaving school; interests (intellectual, social and other)

PRACTICAL EXPERIENCE - One week / week experience at Abbey and Hannon Rowe, chartered Architects, weekly half day experience throughout A-level studies at Bower Smith and Bower Austin Johnson, chartered Architects. Employed by British Home Stores on Saturdays in the lighting department, Sept May to September 1985 and Pre have applied to Sixth Form Prefect

INTERESTS - Sport - Squash, Table Tennis, Tennis, cycling (cycle to school) running, swimming - Intellectual - Reading (espionage, comedy) Drawing, Painting, Pastel work, Art (Dutch Genre, Bruegel and Vermeer)

(b) Proposed career (if decided) Architecture

(c) If applying for entry in October 1987 make sure you have amended the date at the top of page 1 and state below why you are applying now and what you propose to do from October 1986.

(d) Physical or other disabilities which might necessitate special arrangements or facilities (See UCCA handbook)

6 Examinations taken

Candidates must list all subjects taken, whatever the results, in chronological order, including examinations with results pending. Group together all subjects taken at one sitting

Examining body, centre name or number if not shown in UCCA handbook	Candidate number if required by Board or Examining Body	Examination date: Month	Year	Subject (For SCE O-grade examinations combined passes, enter a maximum of 5, and for C-time syllabus pass has been achieved)	Passes (eg A, B or AS, CSE higher, CSYS, etc. or overseas examinations)	Results (for codes see UCCA handbook)
JMB		6	84	Chemistry	C	A
JMB		6	84	Mathematics	C	A
JMB		6	84	English	1H/O	B
JMB		6	84	French	C	B
JMB		6	84	History	C	B
JMB		6	84	Physics	C	B
JMB		—	84	General Engineering	1H/O	C
CAM	37472	6	84	Technology	O	C
YHREB	37472	—	84	English Literature	C.S.E	1

7 Examinations to be taken (If none, write 'NONE')

					For university use: required	actual
JMB		6	86	Art	A	
JMB		6	86	Physics	A	
JMB		6	86	Pure Mathematics (Modular)	A	
	37472					

8 Signature of candidate

Date 28/10/85

This form must be accompanied by a fee of £8.

Page 2

Do not detach this page

Confidential statement by referee (First read page 6 overleaf)

Name

Post/occupation/relationship: Head of Upper School,

Address

Telephone (including STD code)

Type of school or college: Comprehensive

Number on roll: Full time 1390; Part time

Number in Sixth Form (within that above) or tertiary group: 190

Number normally proceeding to university each year: 25

This form will be photographed and smaller copies made: please type with a good black ribbon or write in black ink on this side of the form only, within the frame. Typing is very much preferred. No continuation sheets can be accepted.

Name of candidate (block capitals or type)

joined this eight-Form entry, mixed Comprehensive School in September 1979. Throughout his school career, he has been well above average academically and it was no surprise at the end of the Fifth Year when he achieved eight 'O' level passes (plus CSE 1 in English Literature). He made the transition to 'A' level work with no difficulty and his subject teachers predict the following grades:

Mathematics(with Mechanics) grade B, Physics grade B,
Art grade B/C.

is a very conscientious and industrious student. In all his subjects his understanding of the work is very sound. He grasps new concepts very quickly and is able to apply them with some ease in new situations. One of his main strengths is his ability to "persevere with a problem and find the best way through", in the words of his Physics teacher. His oral contribution is particularly valuable: he will challenge new ideas, often identifying mistakes, and he has considerable independence of mind, which assists him greatly in problem solving.

In Art, displays a great deal of imagination and initiative. He is bright, confident, independent and capable of original ideas. Last year, he designed and painted a mural for the Sixth Form Common Room, a good example of his ability not only to initiate things but to implement them and see them through without delay. Similarly, one of his Mathematics teachers remarks upon willingness to do much more than the basic minimum, often tackling extra exercises without prompting.

main interests are artistic and sporting. He plays squash, table tennis and tennis competitively in local leagues. He is a very good middle-distance and cross-country runner and he enjoys swimming and cycling. He is a talented artist who enjoys drawing, particularly pastel work, and painting of all kinds.

is a mature, forceful and reliable student. He has been a Sixth Form Prefect, carrying out his duties with great efficiency. Throughout his time in the Sixth Form he has had practical experience for half a day each week at a firm of local Chartered Architects (which he himself arranged). He is determined to pursue a career in Architecture and I recommend him to you without reservation. He has the ability and attitude to make an excellent undergraduate.

Sections 6 and 7 checked: Yes/No

Applicant's fee enclosed: Yes/No

Signed

Date 12th November, 1985

The referee is asked to return this completed form, with the applicant's fee attached, to UCCA without delay. See page 5 for closing dates.

Page 3

I am never influenced by comments like these.

UCCA

First read page 4. Print boldly in black ink.
This form is reduced when photocopied.
Do not write in green boxes.

Application for October **1986**

Attach your £5 acceptance fee here. Do not staple.

18 OCT 85 037356 S

1 Personal details

Sex: Male (M) F Female (F)
Married (M) S Single (S)

Date of birth (day, month, year) 14 6 1968

18 Years 3 Months — Your age on 30 September 1986.

Area of permanent residence (See UCCA handbook) 4 2 7

Country of birth ENGLAND

Nationality BRITISH

All candidates should write their residential category on this box. See Appendix III of 1986 UCCA handbook: K

Give here any date requested by Appendix III of the 1986 UCCA handbook: 19

Parent or guardian: PO 3 1 1 1 1

Name

Occupation COMPANY DIRECTOR — SOH — 1986

EEC L C PO 00

2 Title Surname

First names

Previous name, if changed (See UCCA handbook)

Correspondence address

Postal code

Telephone (including STD code)

Home address (if different)

Postal code

Telephone (including STD code)

3 Choice of university and course

Before you apply, have you read the current UCCA handbook and universities' prospectuses?

(a) University/college choice number	(b) Your choice no.	(c) Course choice	(d) Course choice name	(e) Previous application (yes/no)	(f) Enter any other choices you may already have received from the universities/colleges on the prospectus or the UCCA handbook	H
SHEFD	84	K100	ARCHIT			
BATH	05	K100	ARCH			
MANU	72	K100	ARCHIT			
NOTTM	76	K100	ARCHIT			
NEWC	741	K100	ARCHIT			

If you have previously applied through UCCA please give serial number of your most recent application

4 Education from age 11 in date order

Names and addresses of up to four most recent schools/colleges/universities attended, with dates of attendance

	Entry (month)	Entry (year)	Leaving (month)	Leaving (year)	P	SCHFE
	SEPT	78	DEC	78		
	JAN	80	JUN	86		

For use by university/college

Low | Comb

Offer CCC on 15:02:86!

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CY	Ack
Reply	Rel
WD	Neg

C 2dH

Page 1

5 Further information (See UCCA handbook)

(a) Practical experience; study abroad; occupation and studies after leaving school; interests (intellectual, social and other). I like to spend some of my spare time visiting art galleries, museums & places of historical interest. I enjoy reading novels & magazines & make an attempt to get rid of the Architectural Review when at all possible. In July I attended a Summer School on Architecture & Landscape Architecture at Thames Polytechnic in Dartford; since then I have become very interested in Western Architecture of the 19th Century. I have helped look after a class of primary school children & I have helped with remedial maths in a first year class. This year I was also elected Head Girl. I spend as much time as possible attending dance classes & I also help teach a class of pre-school children for dancing twice a week.

(b) Proposed career (if decided) PROFESSIONAL ARCHITECT

(c) If applying for entry in October 1987 make sure you have amended the date at the top of page 1 and state below why you are applying now and what you propose to do from October 1986.

(d) Physical or other disabilities which might necessitate special arrangements or facilities (See UCCA handbook)

6 Examinations taken

Candidates must list all subjects taken, whatever the results, in chronological order, including examinations with results pending. Group together all subjects taken at one sitting.

Examining body, school name or full or part authorised or UCCA handbook	Examination centre & candidate centre number (if not General Certificate of Education give town or examination)	Examination date: Month	Year	Subject (For SCE O-grade examination candidates should indicate where appropriate, grade whether F, S or C and if previous result has been forwarded)	Papers taken O, A or AS CSE Mode, CSYS and or overseas examinations	Results (grades or bands) See UCCA handbook
LON		JUNE	1984	MATHEMATICS	† O	B
LON		//	//	ENGLISH LITERATURE	† O	B
LON		//	//	PHYSICS	† O	C
LON		//	//	FRENCH	† O	B
LON	CENTRE N°: 25630	//	//	SPANISH	† O	B
LON		//	//	RE	O	C
AEB	CENTRE N°: 10650	JUNE	1984	ENGLISH LANGUAGE	O	B
CAM		//	//	ART	O	A
LON	CENTRE N°: 10650	JUNE	1985	PURE MATHEMATICS	A/O	B
OXF		//	//	COMPUTER STUDIES	CEE	ONE

7 Examinations to be taken (If none, write 'NONE')

For university use: required / offered

LON	JUNE	1986	PHYSICS	A		
CAM	//	//	ART	A		
LON	//	//	MATHEMATICS	A		

8 Signature of candidate — Date 16·10·85

This form must be accompanied by a fee of £5.

Page 2

Confidential statement by referee (Must read page 6 overleaf)

Name

Post/occupation/relationship: Headmistress

Address

Telephone (including STD code)

Year of school or college: Comprehensive

Number on roll: Full time 593 / Part time

Number in Sixth Form (write 'none' where there is no Sixth Form or group): 89

Number normally proceeding to university each year: 25

This form will be photographed and smaller copies made: please type with a good black ribbon or write in black ink on the side of the form only, within the frame. Typing is very much preferred. No continuation sheets can be accepted.

Name of candidate (block capitals or type)

is a girl of above average ability; hardworking and well motivated she entered the Sixth Form to study 'A' level Art, Mathematics and Physics, and is making good use of the opportunities offered to her. The following are reports written by 'A' level subject staff at the end of the Lower Sixth year :-

ART - work continues to show thought and sensitivity and she has certainly gained confidence in painting. Her work shows an ability to think about what she is doing and her observational drawing has matured. works in a careful controlled way and her style is strong but sometimes I feel she may benefit from "loosening up" a little. shows commitment in this subject as evident in the standard of work in her sketchbook. (FORECAST - C)

MATHEMATICS - 's a conscientious hardworking student. She has a mature approach to study and is able to identify the topics which she has not yet mastered. She has mathematical ability and can show clearly her stages of reasoning in written work. She has a certain lack of confidence on occasion that leads her to underachieve sometimes in examinations. She has helped with a junior form with mathematical difficulties and has shown a strong sense of responsibility coupled with an ability to explain clearly difficulties. She would gain from an undergraduate course, especially perhaps one that would lead her to take up a teaching post. (FORECAST - C)

PHYSICS - Having obtained a grade C at 'O' level Joanne embarked on an 'A' level course. Physics was the only Science she studied to 'O' level, and her other 'A' level courses are Mathematics and Art. She seems to be well suited by the extra mathematical content of the 'A' level Physics course. She is always attentive and interested; her work is very well presented and her artistic talents are used to advantage in the presentation of her diagrams. Her creativity is also evident in devising solutions to written and experimental problems. She works well, both independently and also in a team. She fits in well with the rest of the class and is a pleasant, reliable pupil. She is unlikely to continue with this subject beyond 'A' level although her choice of career is likely to be influenced by her interest in this subject. (FORECAST - C)

- gifted & artistic with much potential. She is co-operative, helpful and always pleasant. She is reliable and responsible and has fulfilled her Sixth Form duties efficiently and well. She has had good reports from her voluntary service and has developed well over the past year to the extent that she has been elected as school captain without serving as a vice-school captain. She shows a pleasing sense of maturity and leadership. She is quietly popular and relates well to her peers and to adults.

Her health, attendance and punctuality are excellent. She is well suited for higher education and for her chosen career, and we have no hesitation in recommending her.

Sections 8 and 7 checked: Yes/No

Applicant's fee enclosed: Yes/No

Signed

Date 16th October 1985

The referee is asked to return this completed form, with the applicant's fee attached, to UCCA without delay. See page 5 for closing dates.

Page 3

Interview offer made at Interview at Newcastle

N/C Univ admissions administration

mix of art & science subjects

In general these reports are to be believed and they do not mentally support the candidate. The forecast have to be made 9 months before the examination so are only the most general of grades.

APPENDIX 6

Results of a survey dealing with the selection of students entering architectural education.

Selection for entry to a school of architecture

By M. L. J. Abercrombie and S. M. Hunt, Architectural Education Research Project,
Bartlett School of Architecture, University College, London

With the assistance of a generous grant from the Leverhulme Trust Fund a research team is at present working at the Bartlett School of Architecture at University College, London, on problems of architectural education. The team is led by Dr M. L. J. Abercrombie.

As the work proceeds it is proposed to publish papers from time to time, whenever a study of general interest can be reported. Thus the following paper will form one of a series dealing with different aspects of architectural education.

LLEWELYN-DAVIES,
Professor of Architecture at University College, London

The Bartlett School, in common with all others in Great Britain, is faced with the problem of selecting from a large number of applicants, those it thinks will make best use of the comparatively few places available. The task is a formidable one; selectors are attempting to identify, among 300 or so bright good young people, those who will be brightest and best as architects, working for some 30 or 40 years of professional life in conditions we know little about, and this only after they have been subjected to several years of training which *they* know little about, and whose impact on their development cannot be foreseen. Our approach to the problem is experimental and this report on the procedure adopted last year is offered very tentatively.* We have tried to make, in the light of other researches, the best use of the information available about the candidates, recognising our limitations in interpreting it. We are recording the data for follow-up, and hope, with the help of other schools, to make an attempt to evaluate the various criteria used.

Until last year the Bartlett had been taking in a maximum of 24 students each year, but in view of the large number of applicants (360), the intake was increased to 30, the maximum permitted by present accommodation facilities. An increase to 50 is planned in the near future. It was decided to offer places, most of which would be conditional on passing the necessary qualifying examinations, to 33 candidates on the assumption that there would be some failures in the GCE Advanced level examinations, and to place 18 on a reserve list. In the event only three of the accepted candidates failed to qualify at 'A' level and one applicant withdrew, so only one applicant on the reserve list was offered a place.

Selection Procedure

It was decided not to offer places without interview, and as there were too many candidates to interview, the selection procedure fell into two phases: screening for interview, and selection at interview. Three categories of applicants were considered separately: men resident and educated in Great Britain; women resident and educated in Great Britain; and overseas candidates. We felt that assessments would be sounder if the women were interviewed and graded as a separate category since women at this age tend to be academically and socially at an advantage compared with men. Difficulties in selecting overseas applicants are specially severe, because of the many cross-cultural differences, including variations in educational background and inadequacy of the referee's report. Something should be done at national level to help us make fair assessments of these candidates. Of 58 candidates only ten seemed at all likely to make the grade at the Bartlett, judging from their academic record. We agreed to offer six places to women and three to foreigners. This proportion is more favourable than the national average,[1] and it may be noted that the ratio of admissions to applications is twice as favourable to women as to men among our applicants.

Of the 360 applicants, 260 were considered for interview, the remaining 100 were those either not taking 'A' level mathematics, which is at present normally required for admission to the Bartlett, or living abroad and thus unavailable for interview. Thirty-eight of the 260 applicants were already qualified for admission at time of application, the remainder taking 'A' levels during the year.

For screening for interview three pieces of information were available; the candidate's academic record, his referee's report, and his personal statement of main interests and activities. Each of these was graded on a five-point scale of desirability A–E. Although the assessments were subjective, we found that consistency could be attained by people working to agreed criteria.

Academic Record

Assessment was made taking into account the age at which examinations had been taken; how many subjects were taken at a sitting; subjects failed, especially repeated failures; range of subjects taken or to be taken, and kind of school. Most candidates (17+ old) at the time of application had six or more 'O' levels; a few had also taken some 'A' levels.

Applicants graded A and most of those graded B were invited to come to interview. Those scoring C, D and E were not called to interview unless they had high grades in the referee's report or personal statement. The rationale for making the academic record the first sieve is that unlike other criteria commonly used, such as the interview, its predictive value for success in University examinations is known to be fairly good.[2] Although there are, of course, plenty of examples of distinguished people having had youthful difficulties with examinations, in present conditions the passing of certain examinations is an essential prerequisite for professional life, and it is important to cut down wastage from failure in them.

* A more detailed report is available on request from the Architectural Education Research Project, Bartlett School of Architecture, University College, London, WC1 (1*s.* 6*d.* post free).

Referee's Report

The warmth of the recommendation by the headmaster or mistress was graded in five categories. Different assessors usually agreed on the grading, i.e. this criterion has fairly good *reliability*. The *validity* of the criterion, i.e. its predictive value, is, however, difficult to assess for obvious reasons. The head wants to do his best for his pupils and may give too optimistic a report. He is less likely to be well acquainted with what is demanded of an architect than of, say, a physicist. Also, he may value conformist pupils above non-conformist ones and 'creativeness' may be correlated with (social) non-conformism; there is some evidence for this in school children.[3] Architecture needs at least some non-conformists, who may tend to be underrated by heads. However, many of the comments helped us to evaluate the candidate's examination record more fairly, and also indicated points which could be usefully taken up in the interview.

Candidate's Statement

In assessing the candidate's statement we looked for evidence of wide interests, a flexible outlook, and a generally energetic and productive way of life. A minimum of discussion was necessary for assessors to reach agreement on grading of this material, but again its validity is unproven. Especially influential in shaping the candidate's style of statement are social class, family status, and kind of school attended. Thus a statement which seems dull, stilted and unimaginative may indeed be indicative of mediocrity in the offspring of a professional man going to a 'progessive' school, but in the son of an artisan attending a grammar school, only of reasonable need to conform or to play safe in unknown territory.

All applications from those resident in Great Britain are made through the Central Office of the Universities Central Council on Admissions, and candidates are asked to name their order of preference for not more than four University Schools. Prior to the interview period, we had decided to interview only those candidates who put the Bartlett as first preference, but it was found by the selection board that the candidate's choice was made mostly at random and in ignorance of the particular courses followed by individual schools. The preference could easily be affected by information subsequently obtained, for example, at interview. Those who did not put the Bartlett first were therefore not excluded from consideration for interview. It was also clear that many applicants had little knowledge of the structure and general requirements of the education of an architect. This reflects the ignorance of the public, including heads of schools, about architects compared with, say, doctors.

There was a nucleus of three interviewers (the Tutor to Architecture Students, the First Year Master, and a research member of staff) and another (changing) member of the teaching staff. The permanent nucleus ensured consistency of standards from one interviewing session to another, and the changing member helped to prevent the nucleus from becoming too stereotyped. It was felt desirable also that the rest of the teaching staff should be kept fully informed about the kind of applicant, and the selection procedure.

Of the 260 candidates considered for interview, 105 were interviewed. The aim of the interview was to assess 'suitability as a member of the Bartlett School' and 'potentiality as an architect'. Questions on reasons for wishing to become an architect, buildings seen, books read, hobbies – photography, model-making, etc. – were put to candidates, and a note of the replies given was taken by a stenographer. Candidates were asked to bring portfolios of their drawings, and models, photographs, pottery and sculpture, etc., and examination of these and discussion around them provided useful material for guessing at architectural promise.

Each member of the Board recorded his comments on the candidate and graded him on a five-point scale. The gradings were then discussed and a final grade agreed upon. At weekly intervals the candidates were ranked and after a final review the top 33 candidates were offered places and the next 18 put on the reserve list. The notes taken at interview were helpful in this review. In considering the candidates, we had in mind the need to have students of varied personalities and with a wide range of backgrounds to make a rich and well balanced social climate in the School.

A group of Bartlett students gave coffee in the common room to candidates before and after their interviews and showed them something of the School. The main aim of this was to help to make the candidate feel as much at ease as possible in preparation for the interview. In addition we hoped that the applicant might be given an opportunity to judge better whether he wanted to come to the Bartlett. Unless this is done, the selection procedure is bound to be too one-sided; the emphasis is naturally on the selectors trying to find out what sort of people the applicants are, but we felt we should also make it easier for the applicants to see what sort of people we are.

Academic Qualifications of Candidates

In order to make a quantitative basis for the assessment of the Academic Record of candidates in future, the numbers of 'O' level and 'A' level passes achieved by applicants have been tabulated. Sixty per cent of men candidates had six, seven or eight passes, 30 per cent had nine or more, and 10 per cent five or fewer. The women were apparently superior to the men; none had fewer than seven passes; half had seven or eight, and half nine or more. This may be a reflection of school policy, however, rather than of intellectual superiority, for many girls' schools take examinations later than is usual in boys' schools.

In relating a candidate's performance to these distributions several factors must be taken into account. For the grading of the Academic Record to give a good predictive value, not only the number of passes but also the level of pass, the age at which the examinations are taken, and the number of subjects failed are important. In ordinary circumstances six, seven or eight passes can be considered average, but the number of subjects taken varies with the policy of the School. In some schools the subjects which a pupil intends to continue in the sixth form will not be taken in the 'O' level examinations; in such cases the number of 'O' level passes may be small.

Nearly two-thirds of the men candidates considered for interview had no 'A' level passes, a quarter had one or two, and an eighth three or more. The superiority of the women is shown in the greater proportion (nearly one-third) having three or more. Again this may be a reflection of school policy; many girls' schools tend to enter their pupils for University later than do boys' schools.

Data on the type of subjects passed at 'O' level and taken or being taken at 'A' level, have also been tabulated. At 'O' level all but two of the men had Mathematics and English; three-quarters had Physics and a modern language, a third had History and Geography, and slightly fewer a classical language; a quarter had General Science and technical subjects. Less than a tenth took Art.

At 'A' level all those considered for interview were taking Mathematics; over three-quarters were taking Physics, and a third Chemistry. Two-thirds were taking Art. A tenth were taking Geography or History, and fewer were taking English.

Comparison of the academic history of those taking 'A' level mathematics with those not doing so shows the effect on our 'catchment' population of the Bartlett policy to require Mathematics at 'A' level. There was already at 'O' level a bias towards Science in the candidates taking 'A' level Mathematics. A similar bias towards the sciences was shown in 'A' level subjects. The implications of this for admissions policy must be carefully considered in view of the recent findings[4] that performance on 'open ended' tests was better among arts than science pupils in sixth forms. If 'A' level Mathematics is to be considered essential, then it is probably advisable to look carefully for signs that the applicant is not narrow-mindedly scientific at 'O' level.

Follow Up

All gradings are being recorded and we hope to follow up the performance of candidates admitted to the Bartlett School and to compare it with that of candidates we considered less favourably and who were admitted to other Schools. We have written to all applicants from Great Britain who applied unsuccessfully to us asking them whether they have been admitted to another School of Architecture, are still applying for admission to Schools of Architecture, or have decided to take up another career. A gratifying proportion (89·0 per cent) replied, and we are indebted to them for their co-operation. Of the 240 who replied 63 per cent have been admitted to another School, 20·5 per cent are still applying for admission, and 16·5 per cent have decided to take up another career. Of those admitted to another School approximately 50 per cent gained places in University Schools or Colleges of Advanced Technology and the other 50 per cent in non-University Schools.

Selection is time-consuming; last year it cost us some 940 man hours, the equivalent for the administrative staff of roughly 15 man-weeks, the teaching staff 5½ weeks, the research staff four weeks, and the students two weeks of working time. It is a heart-breaking as well as a back-breaking job. We are aware that the decisions we make are of great importance for the welfare of each of the candidates, and of the future of the profession. But we cannot feel secure in the wisdom of our judgements; our perceptions are so subject to error and the predictive value of the information available is so low. In the need to do the job, it is easy to get the impression that some candidates can without doubt be rejected and that some are certain winners, but even at these extremes there is very little firm evidence to support our hunches. In any case these numbers are few; as most selectors find, it is attempting to differentiate between the middling majority that gives the real headache, and that leaves one with the feeling that for every candidate given a place, there may well be two or three equally good for whom there is no room.

Nevertheless the job has to be done and must not be skimped. The repercussions on pre-university education of methods of selection are subtle and profound and long-lasting. The procedure should be as searching as possible without subjecting the candidates to unnecessary stress, and should not only be reasonable and just but should seem so to be. Whether successful or not, each candidate should feel he has had both a fair trial and an interesting experience. From the point of view of the improvement of the products of our Schools of Architecture, perhaps the most useful outcome of research on selection will be to increase our understanding of the background and potentialities of candidates, so that we may be more efficient in adapting our teaching methods to them. Perhaps this should be our target, rather than the more shadowy one of attempting to pick those thought to have already the stigmata of preadaptation. These are difficult to identify (if indeed they exist). The more we study the applicants, the more presumptuous it seems to pick out so few, the more certain it seems that the implementation of the proposals in the Robbins Report must be pressed with all possible speed. The need for selection, in its present unsatisfactory form, stems solely from the shortage of places.

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Growth of full-time Education

Annual Statistics

This is the second set of statistics to be published by the RIBA as part of an annual series. The first set was printed in the November 1963 JOURNAL. Each issue relates to the current year and to the two previous years.

Introduction to the Statistics

The statistics are based on all courses currently known to exist in the United Kingdom, though since there is no obligation to report the existence of unrecognised courses to the Board of Architectural Education, there may well be omissions. In fact, five unrecognised courses were discovered during the year.

Numbers of Students

Table 1 shows the numbers of first-year students and the total number of students over the last three years. The figures for the first-year students are particularly interesting and are a useful barometer of the standing of the profession and its power to attract new recruits. The numbers entering the full-time recognised courses have risen by over 100 a year for the past three years and are now almost 950.

The slight apparent increase in the total number of part-time students taking courses in preparation for RIBA examinations is not a real one. The statistics for 1963–64 include the five courses referred to above for which no returns were made in 1962–63. These five courses contained 324 students, which is considerably more than the total increase in numbers. In fact, the total numbers of students in these courses probably fell by between 100 and 200 over the year.

The general pattern is therefore of a rapid increase in the numbers of students entering full-time recognised courses and a decline in those entering part-time courses. Taking into account that full-time students qualify sooner than part-time students and that the failure rate in the examinations is much lower, this pattern of entry seems likely to give the profession a steadily increasing number of qualified architects.

It may be added here that a number of the university Schools are planning for a 50 per cent increase in entry over the next few years, and several entirely new university Schools are under discussion. Recent discussions with universities reveal a significant change of attitude towards the value of having a School of Architecture in a university.

Facility Schools

The Board of Architectural Education is concerned about the quality of education given to part-time or evening students in Facility Schools. Nineteen courses are now running for first-year students. The enrolment of first-year students this year was 96, which means an average of less than five students per class. The Board is doubtful about the value of some of these courses, particularly in view of the standard of entry (see below). It has arranged to have discussions with the Ministry of Education on this subject.

Standards of Entry

Virtually all students entering full-time recognised Schools now have at least two passes at 'A' level, but the Board is concerned at the high proportion of students admitted to unrecognised courses who do not have two 'A' level passes. One third of those starting on part-time or evening classes did not have the minimum entry qualification. Not only can they not be accepted as Probationers

Table 1 Students attending courses at schools of architecture (summary)

Type of Course	1961-62 New to 1st year course	1961-62 Proportion of students new to 1st year	1961-62 Total: all years of course	1961-62 Proportion of all students	1962-63 New to 1st year course	1962-63 Proportion of students new to 1st year	1962-63 Total: all years of course	1962-63 Proportion of all students	1963-64 New to 1st year course	1963-64 Proportion of students new to 1st year	1963-64 Total: all years of course	1963-64 Proportion of all students
		%		%		%		%		%		%
1. Recognised Courses												
(a) Full-time												
(i) Universities	247	22·3	985	15·7	233	18·8	975	14·5	287	20·4	1,143	15·7
(ii) College of Advanced Technology	18	1·6	158	2·5	29	2·3	156	2·3	24	1·7	153	2·1
(iii) Other Schools	452	40·9	2,389	38·0	560	45·1	2,508	37·5	637	45·3	2,725	37·5
Total: full-time	717	64·8	3,532	56·2	822	66·2	3,639	54·3	948	67·4	4,021	55·3
(b) Composite	5	·5	101	1·6	29	2·3	176	2·6	43	3·1	307	4·2
(c) Part-time or evening	120	10·8	1,010	16·1	110	8·9	967	14·4	135	9·6	1,011	13·9
Total: Recognised Courses	842	86·1	4,643	73·9	961	77·4	4,782	71·3	1,126	80·1	5,339	73·4
2. Courses in preparation for RIBA examinations												
(a) Full-time	45	4·1	214	3·4	69	5·6	238	3·5	57	4·1	193	2·6
(b) Composite	53	4·8	201	3·2	53	4·3	233	3·5	48	3·4	146	2·0
(c) Part-time or evening	166	15·0	1,228	19·5	158	12·7	1,458	21·7	175	12·4	1,603	22·0
Total: Courses in preparation for RIBA examinations	264	23·9	1,643	26·1	280	22·6	1,929	28·7	280	19·9	1,942	26·6
Total: All Courses	1,106	100·0	6,286	100·0	1,241	100·0	6,711	100·0	1,406	100·0	7,281	100·0

The distinction between 'sandwich' and composite courses shown in the 1962–63 statistics has not been maintained. No course is now 'sandwich' in the strict definition of that term, for all include some full-time years. It seems best, therefore, to define all such courses as 'Composite'.

Figures for Recognised Composite Courses are not wholly meaningful. Some schools found it necessary to return statistics combining the composite course students doing a 'full-time' year with the students following their ordinary full-time course, and separation has not been practicable.

Table 3 Students of architecture passing the Intermediate examination

	1960–61 Examined	1960–61 Passes	1960–61 Pass-rate	1961–62 Examined	1961–62 Passes	1961–62 Pass-rate	1962–63 Examined	1962–63 Passes	1962–63 Pass-rate
			%			%			%
1. Recognised Schools' examinations									
(a) Full-time students									
(i) Universities and College of Advanced Technology	266	171	64·3	256	172	67·2	282	204	72·3
(ii) Other Schools	576	361	62·7	625	390	62·4	640	365	57·0
Total: full-time students	842	532	63·2	881	562	63·8	922	569	61·7
(b) Composite course students	6	6	100·0	20	12	60·0	47	34	72·3
(c) Part-time or evening students	127	66	52·0	109	63	57·8	103	65	63·1
Total: Recognised Schools' examinations	975	604	61·9	1,010	637	63·1	1,072	668	62·3
2. RIBA examinations									
(a) Autumn examination	405	128	31·6	378	78	20·6	377	90	23·9
(b) Spring examination	396	154	38·9	427	153	35·8	419	107	25·5
Total: RIBA examinations	801	282	35·2	805	231	28·7	796	197	24·7
Total: All Examinations	1,776	886	49·9	1,815	868	47·8	1,868	865	46·3

of the RIBA, but their prospects of making good progress in the courses are very poor.

Inquiry in some of these schools reveals that they are under pressure locally to accept these students because they have already been recruited by the offices as junior staff. Offices ask the schools to accept them in the hope that the students will be able to make up their 'A' level passes while working in the office and studying part-time in the School. Not only is it educationally undesirable for the individual student to attempt so many things at the same time, it is also likely to mislead him about his prospects of ultimate qualification. The Board intends to seek the support of the Allied Societies and Chapters to overcome this problem.

Passing of Examinations

The difficulties of those who are attempting to qualify through part-time and evening courses, which are unrecognised, are brought out by Tables 3 and 4. In the external RIBA Intermediate Examination in 1962–63 only 24·7 per cent passed, compared with 72·3 per cent in the universities and 62·3 per cent in all recognised courses. In the Final Examination 37·5 per cent passed the RIBA examination, compared with 82·9 per cent in universities and 77·5 per cent in all recognised schools. The Robbins Report came out strongly in favour of examinations set in the institutions in which the students have been taught (para. 427). The Board's experience confirms the wisdom of this view.

Table 2 Entry qualifications of new first year students at schools of architecture

Type of Course	1961-62			1962-63			1963-64		
	No. of new 1st year students	No. with 2 A.L. passes*	Proportion with 2 A.Ls.	No. of new 1st year students	No. with 2 A.L. passes*	Proportion with 2 A.Ls.	No. of new 1st year students	No. with 2 A.L. passes*	Proportion with 2 A.Ls.
		%			%			%	
1. Recognised Courses									
(a) Full-time									
(i) Universities	247	244	98·8	233	233	100·0	287	287	100·0
(ii) College of Advanced Technology	18	14	77·8	29	29	100·0	24	24	100·0
(iii) Other Schools	452	305	67·5	560	531	94·8	637	628	98·6
Total: full-time	717	563	78·5	822	793	96·5	948	939	99·1
(b) Composite	5	4	80·0	29	23	79·3	43	40	93·0
(c) Part-time or evening	120	48	40·0	110	92	83·6	135	121	89·6
Total: Recognised Courses	842	615	73·0	961	908	94·5	1,126	1,100	97·7
2. Courses in preparation for RIBA examinations									
(a) Full-time	45	15	33·3	69	54	78·3	57	43	75·4
(b) Composite	53	27	50·9	53	45	84·9	48	41	85·4
(c) Part-time or evening	166	19	11·4	158	91	57·6	175	114	65·1
Total: Courses in preparation for RIBA examinations	264	61	23·1	280	190	67·9	280	198	70·7
Total: All courses	1,106	676	61·1	1,241	1,098	88·5	1,406	1,298	92·3

* This includes overseas students with qualifications equivalent to 2 GCE passes at Advanced Level.

Table 4 Students of architecture passing the final examination

	1960-61			1961-62			1962-63		
	Examined	Passes	Pass-rate	Examined	Passes	Pass-rate	Examined	Passes	Pass-rate
			%			%			%
1. Recognised Schools' examinations									
(a) Full-time students									
(i) Universities and College of Advanced Technology	206	163	79·1	182	142	78·0	210	174	82·9
(ii) Other schools	441	323	73·2	456	358	78·5	448	332	74·1
Total: full-time students	647	486	75·1	638	500	78·4	658	506	76·9
(b) Composite course students	14	10	71·4	34	25	73·5	35	34	97·1
(c) Part-time or evening students	52	34	65·4	65	42	64·6	57	41	71·9
Total: Recognised Schools' examinations	713	530	74·3	737	567	76·9	750	581	77·5
RIBA Final examinations									
(a) Autumn examination	158	80	50·6	180	83	46·1	250	115	46·0
(b) Spring examination	163	73	44·8	237	96	40·5	206	77	37·4
RIBA Special Final examination									
(a) Autumn examination	85	26	30·6	68	21	30·9	67	15	22·4
(b) Spring examination	89	28	31·5	105	27	25·7	71	16	22·5
Total: RIBA examinations	495	207	41·8	590	227	38·5	594	223	37·5
Total: All Examinations	1,208	737	61·0	1,327	794	59·8	1,344	804	59·8

Figures relating to the RIBA Final Examination exclude all those sitting or passing Part I only. Thus only students who would be eligible to proceed to Part III (Professional Practice) if they passed the examination are included.

Women Students

Figures for the numbers of women students available for the first time this year show that only one woman takes a recognised course in Architecture for every 14 men. The figure for part-time recognised courses is 1 in 30 and the figure for recognised composite courses no less than 1 in 50. Of students taking the RIBA external examinations only 1 in 30 is a woman.

Girls leaving school are probably not encouraged to take a course lasting five years, and the higher wastage rate perhaps deters Schools from accepting too many. Nevertheless, the Board feels that architecture could provide an admirable career for a far higher number of girls than at present take it.

Overseas Students

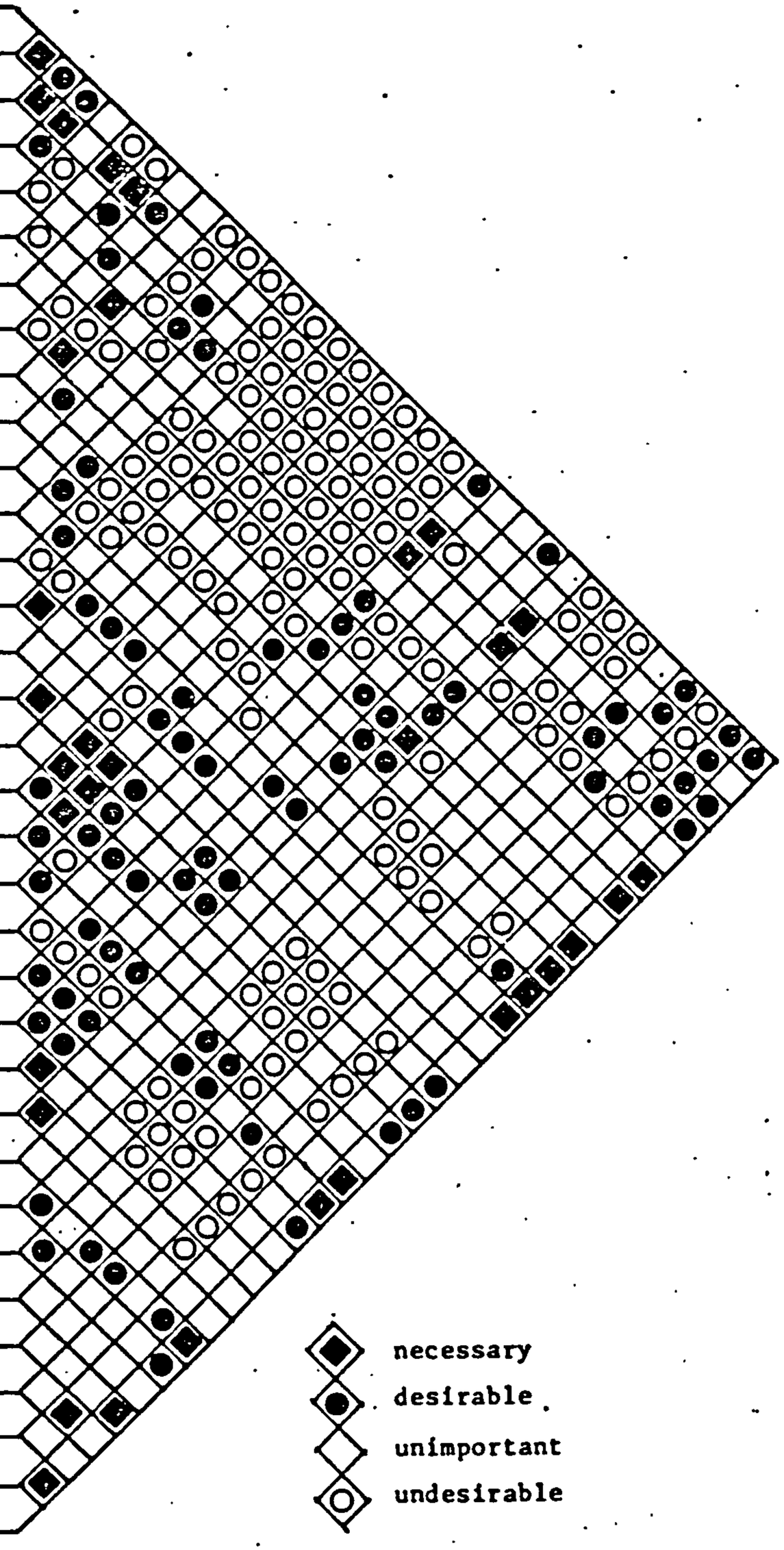
This year the number of overseas students, divided almost equally between Commonwealth and non-Commonwealth countries, has dropped sharply from 15 per cent to 10 per cent of the total. This is regrettable, especially in the year of the Commonwealth Conference, but it is almost certainly the direct result of a rapid increase in demand for places in Schools of Architecture from students educated over here. It is difficult to see how this problem can be alleviated until after 1965, the peak year for numbers of school-leavers in this country.

The tables relating to overseas students and women students are not printed here for reasons of space.

APPENDIX 7

Proposed charts showing the physical facilities for an architectural educational institution.

Areas	Subareas	Spaces
Education and Training	Classroom and Studio	classrooms
		seminar/critique
		art studio
		design studio
		auditorium
		workshop
		photography lab
		graduate stations
	Supportive	media center
		library
		exhibition
		duplicating and printing
Administration	Reception	lobby
		reception
	Management	dean
		assistant dean
		head of department
		conference
		secretary
		clerical
Teaching and Research	Faculty	offices
		meeting
	Professional	consultancy
		research
Ancillary	Student	storage
		lounge
	Services	mailroom
		telephone and switchboard
		supplies store
		toilets
	Building	mechanical
		maintenance
		storage



Source:"The design of an educational programme and physical facilities for architecture at El-Fateh university, Libya" , Intissar, S. A, Ph.D thesis, Texas A&M university, 1977, pp 21-22.

essential
optional
unimportant

Activities

writing
typing
maintain records & files
reading
lecturing
presenting material
drawing
designing
art activities
shop working
model making
seminar & critique
reference search
using & handling books
eating/drinking
information
binding & mending
viewing slides
listening to tapes
checking material
buying
informal gathering
relaxing
checking mail
phone calling
making prints
developing film
duplicating
cleaning
maintenance
personal hygiene
consult
interview students
interview faculty
interview staff
storage
meeting faculty
meeting boards
meeting students
display preparation
exhibits
cutting

Grouping

1
2-5
6-15
15-40
40+

Act. Type

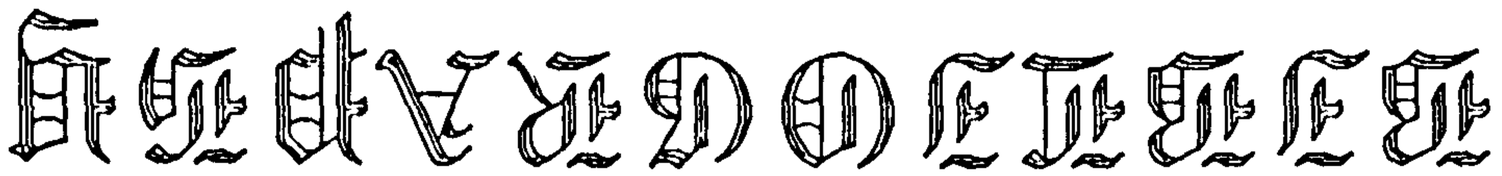
active
passive

Furniture and Equipment

stools
drafting surface
chairs
tables
desks
personal storage
equipment storage
drawing storage
tack-boards
lighting units
trash cans
paper cutter
light table
storage units/closet
book shelves
rug/carpet
bulletin/display
chalk board
file storage
writing surfaces
audiovisual aids
blinds
counters
lounge chairs
coffee tables
machinery
clocks

Spaces

lounge
deans
secretary
conference
clerical
circulation
toilets
design studios
art studios
classrooms
faculty offices
heads
meeting
exhibition
media center
library
graduate stations
research
consultancy
AV. preparation
seminar/critique
auditorium
work shops
mechanical
maintenance
student organization
lobby/reception



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