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pour des raisons d'acoustique et qui se détache comme un cristal du rideau d'arbres du terrain voisin.

#### Construction:

un module de 3,20/2,45 m dicte la structure de l'ensemble: poutres en béton préfabriquées, posées sur des murs en briques apparentes par l'intermédiaire de plots en béton (locaux communautaires, entre-axes: 2,45), cadres en béton armé préfabriqués (habitations, entre-axes: 3,20 = largeur des pièces), appuis cruciformes en béton préfabriqué (grands espaces: auditorio, réfectoire, bibliothèque) recevant des sommiers en béton préfabriqués (h: 1,50 m, la: 0,18 m, 10: 23 m portée 17 m, porte-à-faux 2x3 m), structure secondaire de couverture: sommiers en béton préfabriqués (entre-axes: 2,45).

L'application de ce schéma de base dépend de la fonction de chaque local: Les appuis du réfectoire sont à 3 m de distance de la façade et les murs extérieurs non porteurs sont reçus par les sommiers principaux qui traversent la façade. Des bandes vitrées soulignent encore le parti constructif. La couverture se compose de dalles légères en béton préfabriqué, posées sur la structure secondaire. L'emplacement des bandes vitrées qui mettent la structure porteuse en évidence n'est pas habituel. L'éclairage artificiel est fixé contre des bandes de faux-plafonds qui assurent un éclairage naturel indirect.

La façade de la bibliothèque se trouve dans le plan de la structure au rez-de-chaussée qui reçoit la structure métallique des galeries supérieures en porte-à-faux où se trouve le rangement des livres. La structure recevant la couverture est la même que celle du réfectoire. Les façades non porteuses sont généralement vitrées au droit de la structure. Ce principe constructif peut paraître maniéré, mais il permet de nettement distinguer les parties porteuses et non porteuses d'ensemble construit.

L'auditoire actuellement en chantier est basé sur le même principe constructif qui constitue un grand volume de deux niveaux de haut et de petits locaux en galerie sur le pourtour de l'étage supérieur.

Le pavillon de musique se compose de murs porteurs en briques et de dalles en béton armé.

#### Matériaux:

revêtements extérieurs: plaques en béton jaune, épaisseur: 5 cm, revêtements intérieurs: plots en ciment blancs. Structure en béton armé préfabriqué apparent, coulé dans des coffrages lisses sans joints, vitrages, et portes extérieures soit en aluminium éloxé, soit en bronze (grands volumes) brise-soleil et revêtement de façade de la bibliothèque en bronze; portes de l'auditoire en chêne. Sols en ardoise verte au réfectoire, en lino dans les autres locaux. Faux-plafonds en plaques d'alu perforée. Chauffage par convecteurs, par le sol (grande locaux) ou climatisation (auditoires).

## Summary

Ernst Zietzschmann, Hanover

### Art and Trade School Hanover-Herrenhausen

(Pages 252-264)

Since the destruction of the centre of Hanover during the war, the School of Arts and Crafts has been scattered provisionally in various old buildings. The program of the new school, approved by the municipal council, is based on the experiences of the post-war schools in Stockholm, Kassel, Wuppertal and Kiel. The complicated nature of the site and the problems of integration in a historic site called for the study of several prior plans to arrive at a solution with four volumes of different heights, consisting of the main building (4 floors), situated behind the line of the low baroque buildings so as not to mar their scale, of a square structure on the east (2 1/2 levels) and a low building with spiral plan bordering the road. This complex is surrounded by parts of the castle, the royal mausoleum, the botanical garden, etc., the French garden of the 17th century and an English garden, which consti-

tute the most important relaxation zone in the entire city.

The will to conceive a building that is the expression of our age as much as the castle is of the baroque epoch determined the location as well as the selection of the materials and the colour scheme: rough concrete, light grey aluminium and the parapets of black opaline harmonize well with the yellow stone of the historic buildings.

#### Program:

The east wing comprises fashion design, weaving and textile design; beneath this part, attended mainly by girls, is the restaurant and a terrace at the disposal of the students. The main building comprises the large entrance hall, also used for exhibitions, and serving as well to accommodate meetings (900 m<sup>2</sup>). The upper levels house the studios for interior decorating, bookbinding, and preparatory courses in the fields of graphic art and applied photography. The workshops are located in a one-level annex, entirely illuminated by skylights, comprising the printing shop, the typographical shop, the carpenter shop (interior decorating) the lithographic and colour shop (graphic arts), and the metalworking shops (industrial design) with the secondary draughting rooms. The base ments serve as storage facilities for theatre props.

The spiral building comprises the administration, graphic arts, free-style painting, sculpture and the education department (instruction in design), and, on two levels which are visible only from the interior courtyard, intended also for the open-air theatre, applied painting. The extension planned on the north side will comprise the photography section, ceramics and bronze casting.

In the centre of the auditorium, entirely air-conditioned, is the hall for nudes, subdivisible into two parts.

The plan, which avoids the central corridor, groups the studios, which are interconnected, around two vertical communications facilities.

The elevations are handled in three different fashions: curtain wall, continuous solid parapets, prefabricated, and standard skeleton system.

Ideologically, the School of Arts and Crafts is based on the principles of Muthesius, which, reacting against industrialization, sought to re-integrate craftsmanship. These ideas received their best expression in Bauhaus.

Here there was sought a synthesis between creative and manual work. Now then, a school of arts and crafts, which has a "cluster organization", ought to provide close ties among the different departments, for, depending on their development, many pupils change sections during their studies. Thus, even the term programs are worked out so as to favour group work among the different sections.

As the pupil develops as a personality, as well as professionally, during his youth, the School attempts to offer him as thorough an over-all view as possible of the interconnections among the various disciplines. It is felt that general courses (history of art, music, literature, etc. handled in a synoptic manner) are indispensable in the training of the personality and of the sense of responsibility of the pupils. This background-along with purely technical accomplishments-will be invaluable in their later careers.

Werner Frey, Zurich

### Extension of the Zurich Arts and Crafts College: Ladies' Section

(Pages 265-268)

The extension of the Arts and Crafts College to include a section exclusively for feminine crafts was achieved on a relatively small area of land bordered by lime trees, four streets and some old buildings. After long deliberation, it was decided that a highly concentrated complex on a rectangular ground plan would best solve the problem. The building envisaged was to have five storeys. This allowed for the preservation of the old lime trees and also of an existing children's playground.

The school is entered through a large main hallway from which a broad staircase leads up to the floors above. The hall takes up approximately a third of the ground floor area. Adjoined is a gymnasium, taking up two storeys, which can also be used as a large

auditorium. A kindergarten is also provided in the ground floor.

The two-storey auditorium allows for a mezzanine floor on which the extended stairway, in turn, provides for a snack bar.

On the first upper floor are special rooms with equipment for hairdressers, laundry, ironing etc. The second upper floor contains the offices of the administration, completely isolated and a number of classrooms. Here also, are the Staff Common Room and the First-Aid-Station for students of the college. The third floor has instruction rooms for tailoring and all appurtenances. The good light conditions which prevail on the fourth floor are ideal for drawing purposes. On this floor also, are instruction rooms in floral decoration, textile design and a students' library.

Interior architecture is characterized by unity in choice of material and constructional detail. Light, neutral colours were preferred. Furniture, like the building itself, was conceived so as to allow a wide range of applications. A great deal of trouble was taken over the construction of a suitable window. The venetian blinds function as sun-breaks and also create privacy. They are intended to offer a maximum of even, natural light. Balanced sash windows (in the middle zone) and ventilation flaps in the form of permanent ventilators offer maximum natural air-conditioning.

Only the special rooms are, in fact, equipped with proper air-conditioning installations. Construction costs were 180.- SFrs/m<sup>2</sup>.

Altug and Behruz Çinici, Ankara

### Middle East Technical University, Ankara

(Pages 275-280)

Plan and beginning of construction:

1963

Beside valuable historic buildings, Ankara also has "witnesses" of the lively cultural exchange that has taken place over the last few decades: there can be found buildings by Elsässer, Egli, Holzmeister, Bonatz and Bruno Taut (Faculty of Philosophy).

The USA, by means of financial aid and the sponsorship of professors and their universities, is making possible the realization of this institute of technology, which, originally, had been intended for students from all the Middle Eastern countries and where instruction was to have been in the hands of American professors (at the present time the staff is made up of young Turkish professors trained in the USA) in English.

Site:

5 km southwest of Ankara, connected with the highway from Eskesehir, there is a site of 4500 ha, of which 800 ha are going to be built on.

General organization:

The site plan is made up of the university, disposed linearly, and of a student and staff residence area with the stadium, the school of agriculture and the religious centre between them (average distance on foot: 10 min., max. 20 min.).

Residences:

for students:  
2000 female students (5 units with 400 beds each)  
6600 male students (20 units with 330 beds each)  
480 couples (apartments)  
for professors and employees:  
396 family houses  
320 double houses  
330 rowhouse units  
250 rooms for single people plus quarters for guests and visiting professors.

Community installations:

Shopping center, clubs, cinema, secondary centers, administration, hospital, kindergarten, primary and secondary schools, sports and recreation facilities.

University:

Situated along the access route, it runs north and south. Next to the road entrance is the Rectorate, the library and the large auditorium, from where pedestrian ways lead to the secondary buildings (departments of education, social and political sciences, school of architecture, natural sciences, liberal arts and engineering).

The university restaurant faces the central forum.

Architectural organization:

Plastic principle: high volumes enclosing central portions of low silhouette (cluster); example: department of architecture:

lecture rooms and design shops on two levels surround a building on one level, lighted by skylights or facing out to interior courtyards.

The few basic elements that are found everywhere are of raw construction materials: rough concrete, visible equipment, untreated surfaces, etc.

Critical commentary:

The excellent Institute of Technology of Istanbul was no longer able to meet current requirements, and the choice of location for a new university in the Turkish capital is certainly justified.

Now then, the conception of the internal organization, which is based on an American scheme (instruction in English) will not be in keeping with the situation that is peculiar to Turkey. This point can be argued, especially as, now, this university will be practically confined to students from Turkey alone.

The volume plan, as well as the plans of the different buildings, which are more or less flexible on the inside, are conceived for the definitive state. Thus, there is no question here of a dynamic master plan which can be realized in accordance with growing needs, but rather of a site plan, which does not allow for organic extension, except for the addition of later definite units.

Aside from their lack of functional flexibility, these units have architectural and spatial qualities. Example: department of architecture: succession of spaces varied by means of articulation of volumes by passageways, halls, perspectives and views, differences of level and staggered arrangements. The passageways and paths, generously conceived and complex, are justified for public areas which are heavily frequented, but they become absurd if they end, for instance, in individual rooms for professors of small dimensions. By assigning two sides of the large interior courtyard to individual rooms, the architects basically betray their organization plan, which ties in autonomous volumes with common facilities.

Formally considered, this architecture can be classified under the new "brutalism" (accentuation of autonomous functional elements to stress their aesthetic value): The influence of modern Japanese architecture is quite clear (gardens, passages, tying in of structural elements in the fashion of Tange).

During the Thirties modern Turkish architecture followed very modern tendencies and gave promise of an original development; after the war, however, it reflected more traditional currents, but since the Fifties architects, both young and old, have again worked in the modern vein, drawing on Western and Far Eastern architecture. It now seems that modern Turkish architecture would gain in profundity if it relied on traditional Turkish building, of which there are examples of outstanding quality.

Arne Jacobsen, Klampenborg

### St. Catherine's College in Oxford

(Pages 281-294)

For the first time Jacobsen is building in England. It is interesting to observe how he adapts to the Oxford mentality, which is the particular expression of a self-contained world.

Aside from its specifically Scandinavian character, the work of this architect from Denmark is faithful to a classicist tradition the influence of which is very noticeable in Copenhagen, even today, and which is quite evident in St. Catherine's College.

The small site, bordered by a river on the west and cut by water-courses, is taken up by a number of old trees 9 meters high; this calls for a low and compact silhouette. The program, comprising residences for head, professors, junior and senior students, common rooms (dining-rooms, bars, conference rooms, offices, kitchen and large refectory), an auditorium, classrooms, a library; a music pavilion, sports facilities, is to be functionally articulated into distinct volumes, which entails a highly differentiated organization, with over-all unity being assured by a uniform construction system.



The college is composed of volumes interconnected by covered passageways and green or paved quadrangles. Using the already existing stand of trees, Jacobsen worked out the landscape design, producing something having the effect of an English park, quite different from the symmetrical Continental style of garden. It is self-contained and secluded, to cut out road noises. The planting scheme is the dominant element.

The central entrance hall is reached along the river. This hall, being located on the ground level of the west residence wing, looks into a very large green quadrangle, which is bounded by the two residence wings, the refectory, the library and by covered passageways, connecting these various buildings.

The intimate common rooms, on one level, are grouped together around small courts with north access to the refectory, which, with its great height and overhead lighting, is adapted to the traditional ceremonial style of life still prevailing at an English university, which in some respects resembles a monastery. The chairs with high backs and the pin-point lighting on each table harmonize well with the required dark academic gowns.

The library with its galleries, where the books are kept, is illuminated indirectly by counter-ceiling elements; this arrangement encourages greater concentration on the part of the students. The covered passageways connecting the library, the refectory and the residence quarters are bounded by walls forming recesses, where students can engage in discussions.

In any case, meditation has an important place in the conception of the college: thus, along the big pool, benches surrounded by wall-screens make for privacy. Between the library and the lecture theatres there is another quadrangle, surrounded by walls, accommodating the clock-tower, which dominates the entire complex.

The residence quarters, with two flats on the ground floor, occupied by the professors and the students of the upper classes, and two upper levels with 5 rooms each occupied by students of the lower classes, are made up of eight independent parts, grouped around a stairwell and equipped on each level with a bathroom, WC and a small kitchen.

This arrangement corresponds to the typical English college lay-out. Moreover, in the over-all conception, Jacobsen has sought to adapt to specific English traditions. A large pool runs along the whole site in front of the residences and permits direct access from the ground-floor flats, for which it constitutes a prolongation of the interior area. At the south extremity of the site is the music pavilion,

whose plan is freely conceived for acoustic reasons and which gives the effect of a crystal against the background of trees.

**Construction:** a module of 3.20/2.45 m, dictates the structure of the complex: beams of pre-fab concrete, placed on walls of raw brick (common rooms, inter-axial distance: 2.45 m.) framework of pre-fab reinforced concrete (residences, inter-axial: 3.20 = width of rooms), cruciform supports of pre-fab concrete (large areas: auditorium refectory, library) taking stringers of pre-fab concrete.

structure of secondary roofing stringers of pre-fab concrete (inter-axial: 2.45).

The application of the basic scheme depends on the function of each detail: The supports of the refectory are 3 meters from the face, and the exterior non-supporting walls are taken by the principal stringers which cross the face.

Continuous glazing further accents the construction. The roofing is made up of light pre-fab concrete slabs, placed on the secondary structure.

The emplacement of the continuous glazing is not usual. The artificial illumination is attached to the counter ceilings.

The face of the library is located in the structural plan at ground-floor level, which takes the steel structure of the upper galleries, where the stacks appear. The structure supporting the roof is the same as that of the refectory. The non-supporting faces are generally glazed.

This construction principle may appear mannered, but it permits a clear distinction between the supporting and non-supporting parts of the building.

The auditorium now under construction is based on the same structural principle, which constitutes a large volume on two levels and small galleries around the upper floor.

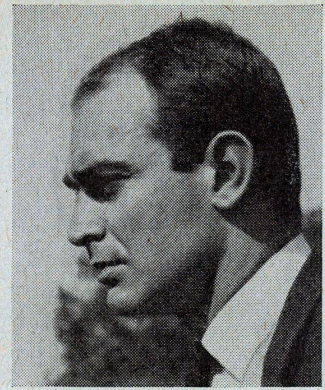
The music pavilion is made up of brick supporting walls and reinforced concrete slabs.

**Materials:** exterior facing: yellow concrete slabs; thickness: 5 m. Interior facing: white cement. Structure of pre-fab reinforced concrete, poured in smooth jointless coffering, windows and outside doors either of eloxidized aluminium or of bronze, brise-soleil and facing of façade of library, of bronze; doors of auditorium of oak. Flooring of green slate in the refectory, of linoleum in the other rooms. Counter ceilings of perforated aluminium panels.

Heating via radiators, via floor units (large volumes) or air-conditioning (auditorium).

## Unsere Mitarbeiter

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