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paysage. Les bâtiments sont disposés de manière à obtenir un échelonnement des groupes, que l'architecture continue dans le paysage. Sans les particularités des environs, l'effet architectonique serait perdu.

Projet d'Ecole Primaire à Wetzikon (pages 398—399)

Dans ce projet, tout l'ensemble se trouve situé dans la partie N-E du terrain. Voies d'accès plutôt trop près des classes, mais en principe correctes. Trois cubes semblables alignés en file. Le projet d'un théâtre en plein air, aussi séduisant qu'il soit, reste douteux étant donné l'espace restreint et les accès insuffisants. L'agrandissement des classes élémentaires par des dégagements destinés au bricolage est une heureuse idée. L'unité de la construction selon la première étape reste préservée dans l'ensemble.

Projet d'école populaire à Hausham (page 400)

Ce projet, caractérisé par l'excellente disposition des divers bâtiments et par la bonne conception des formes qui correspondent bien aux fonctions, tend à créer un centre culturel. La salle de gymnastique peut aussi servir de salle de réunion. Quelques nouvelles idées ont été appliquées: combinaison d'école à un étage et de bâtiments à plusieurs étages dans lequel les classes n'ont ni éclairage bilatéral, ni aération transversale. Mais il y a un espace ouvert, entouré de trois côtés pour l'enseignement en plein air. Il faut féliciter l'architecte d'avoir fait son possible dans un district (préalpes bavaroises) où tout le monde est engoué de style local traditionnel.

Hôtel de Ville à Rödovre près Copenhague (pages 401—408)

Un terrain parfaitement plat a permis la création de vastes espaces de verdure autour des bâtiments. Outre les bureaux, il comporte une salle du Conseil et trois salles de délégués avec les pièces annexes. Construction simple, cubique. Bâtiment principal à trois étages, relié par un couloir à un étage à la salle du Conseil à deux étages. Les deux longs côtés du bâtiment principal sont complètement vitrés, les deux extrémités dépourvues de fenêtres étant en granit noir. Entrée orientée à l'est et à gauche du centre. Vaste hall avec escalier principal et ascenseurs. Salle du Conseil chauffée par une installation complètement indépendante. Escalier principal en acier et en verre durci, d'une légèreté et élégance rares. La coupe du bâtiment de trois étages révèle deux rangées de colonnes portantes, distantes de 3,39 m, de part et d'autre du corridor central. Dalles du plafond préfabriquées, se prolongeant de 5,3 m vers l'est et l'ouest. De la sorte, la surface des bureaux peut être subdivisée avec le plus de liberté, raison pour laquelle les installations électriques, de ventilation et de chauffage sont prévues à de très courts intervalles. Les façades est et ouest constituent de grands «rideaux» de profilés d'acier et de verre. Une fenêtre sur deux peut être ouverte. Appuis de fenêtre revêtus de verre opaque gris. Pignons du bâtiment principal et murs latéraux de l'aile de la salle du Conseil recouverts de dalles de granit noir Solvag. Planchers et plafonds d'une pièce, et posés avant le cloisonnage. Toutes les cloisons, de construction légère, sont standardisées, chaque élément ayant 1 m de côté et 78 mm d'épaisseur, étant recouvert d'une mince couche de béton pour l'isolement contre le bruit. Double isolement particulièrement épais des bureaux des chefs de service. Panneaux accoustiques suspendus sous tous les plafonds; la majorité des éléments de parois et de portes sont peints. Planchers des bureaux en matière plastique à base de vinyl, des halls, des corridors, des couloirs et de la salle du Conseil en marbre de Gjellebäck. Les fondations, murs du sous-sol, pignons et murs d'escaliers sont les seuls éléments de construction qui ne sont pas préfabriqués. Tous les autres éléments étaient préfabriqués, ce qui permit d'abréger la durée de construction; commencé en juin 1954, le bâtiment fut mis en service en avril 1956. Cet édifice, qui se caractérise par sa belle simplicité, est la création la plus récente et la mieux conçue de l'architecte danois bien connu Arne Jacobson. Avec lui, le Danemark prend la première place dans l'architecture scandinave.

Summary

Prejudices which Impede Progress in School Construction

Anyone who seeks to get a clear picture of the current situation in school construction by referring solely to technical publications and exhibitions obtains a much more favourable impression than would be given by the actual buildings. The critical observer travelling through central Europe can find out for himself how rare are modern school buildings which are structurally in harmony with the requirements of modern teaching methods.
The bulk of the school buildings put up in the last decade do not differ essentially from those of the last century—in spite of more sumptuous window space. We have before us a publication of the Hessian Ministry of Education and another of the Bavarian Ministry both of which show a large number of shocking examples of outmoded 19th century designs and a regrettable penchant for local traditional styles to which all considerations of pedagogic good sense are blindly sacrificed.
In the Hessian publication it is admitted that nine-tenths of all school rooms finished in Hessia since the war still have unilateral lighting, which means also that they can not be cross-ventilated, a consequence which is all the more inexcusable in Germany on hygienic grounds, as the average number of pupils per room is 50, higher than in other European countries.
The pretentious school palaces which seemed so magnificent when viewed from the street but were so forbidding on the inside have few defenders today. However, there are still many educators, architects and local authorities who believe that they have discharged their responsibilities to the child if they give the school more cheerful hallways, paint the walls a friendly white and the doors in bright colours and if they take the old fixed seats out of the classrooms and install movable chairs and desks. To be sure, these new school buildings have advantages over against the old ones, but they are fundamentally but new editions of earlier types of school buildings and are still far from meeting the needs of modern educational methods.

Many educators, architects, town-planners and local authorities return from conferences on the subject full of good intentions but in practice act on the opposite principles and seem to feel obligated by the demands of the "actual facts" and by the necessity for economy.

The current situation in school construction would not be quite so lamentable if in good time it had been endeavoured to counter the old prejudice to the effect that the ground-floor school costs more than the several-storey school, both to erect and to operate. This erroneous view is shared by many who regard the ground-floor school as the ideal solution. In the meantime precise investigations into the problem of construction and operating costs of ground-floor schools have been made on the basis of the experiences obtained in Bremen, Kiel and recently in Hanover also. It results that the ground-floor school does not cost more than the several-storey school. Not only the construction costs but also the utility of this type of school are to be taken into account. What type of school offers the child more possibilities of development and the teacher more freedom in devising new teaching methods than the ground-floor school? It has been ascertained, in fact, that the ground-floor school is to some extent actually cheaper than the several-storey school.

It is to be noted, to be sure, that the pavilion school is cheaper only because inside, heated halls are eliminated. This has been done in Kiel, which has been a pioneer in pavilion schools in Germany.
All these considerations of lower construction, maintenance and operating costs show therefore that the old-style several-storey school building can no longer be justified. The question as to why this old style is still being built, for the most part with the conventional central hall, with classrooms lacking sufficient depth, without bilateral lighting, without the possibility of cross-ventilation, is usually answered with the objection that the pavilion school takes up more ground area than the old type. This argument falls, however, when we consider that multi-storey schools are generally being built in the country and in villages where as a rule large building sites are available.

The great majority of new school buildings are a long way from meeting even the minimum requirements long regarded as indispensable.
All these strictures apply at least to the Continent. England, on the other hand, which has moreover also carried out a program of rationalization in school construction, is again the leading country in progressive school construction, as it was at the turn of the century when it built the first ground-floor schools with bilateral lighting and cross-ventilation, which subsequently inspired fresh thinking on the school problem on the Continent.

Elementary and Intermediate School with Community Centre at Buddinge near Copenhagen (pages 374—377)

Large school and community centre. Site unsuitable for a school, where two main traffic arteries diverge. Approach to whole lay-out was for this reason placed as far as possible from the intersection and buildings screened by green spaces from the noise of the traffic. School: a primary and an intermediate school, former one storey, latter two storeys. Whole school group centred around various buildings of the Community Centre with theatre, community hall, cinema and library. Elementary school has staggered plan, with classrooms facing south south-east and subsidiary rooms such as reading rooms, work shops, infirmery and teachers' room with utility rooms facing north. Intermediate school consists of three two-storey buildings likewise staggered, with long side of classrooms on south.
Sections of elementary school show that deep rooms are furnished with additional light by an unusually high row of windows. Ceiling slopes downwards from height of these upper windows which are screened by aluminium blinds. Ordinary windows, Carda type, fitted with orange-red cloth shades. Corridors get light through capped roofs spaced at intervals. Only this cross section plan permitted the creation of such deep classrooms. Elevations give sharply rhythmical effect with three elements: parapet, main window and upper row of windows. Intermediate school wing: on ground floor, lighted on one side with ceilings sloping inwards and a series of skylight windows with blinds. On first floor, facing south rooms with ceiling sloping up away from windows and an additional high row of windows on north. North rooms again have ceiling sloping down from windows. Buildings to a great extent of pre-fabricated sections, including piers and parapet elements. Gable ends masonry. All materials simple: whitewashed walls, timber and concrete elements. In classrooms: Blinds can as a whole be fixed up to an angle of 45° in their frames, individual slats adjustable so that in summer it is possible to screen out light in a great variety of ways and in winter possible to admit maximum light. Ceiling material: unplaned beading with battens. Lighting fixtures and air vents set into ceilings. Combination heating system, hot air regulated by thermostat and hot water pipes built into parapets.

Georg-August Zinn School, Mainz-Gustavsburg (pages 378—381)

An extension of an old school building standing since 1903, on Darmstadt highway. Eight standard classrooms with pertinent special classrooms provided in plan, all in one building along with administration offices. Can easily be imagined that — in view of chronic inadequacy of financial means — this would have resulted in building that would by no means have met the requirements of the situation. Architect thought out whole project afresh, aiming above all at sharp distinction between different functions. New style possible only owing to unusual open-mindedness of building authorities. Actually built: a section purely for classrooms with twelve standard classrooms with bilateral lighting and ventilation, connected with old structure on one side by roofed recess area, connected on other side with highway by neat combination of lawns, pool and bus waiting room. Main entrance to whole lay-out between old building and extension. Special classrooms, auditorium and administration offices reserved for later project. Building of transverse wall type. Supporting walls with white rendering. No structural divisions in window surfaces. Window frames painted black. Casements blue. Radiant heat units in ceiling. Furniture in various colours, but not too loud. Resopal on most cabinet and door surfaces. In part, (in classroom doors) paintings or collage pressed under plastic surfaces (Bernd Krimmel, Darmstadt).

Apfelbaumstrasse Primary School in Zurich (pages 382—385)

A twelve-classroom primary school with gymnasium, music room, manual training shops and a caretaker's flat in densely built suburban area. Site distinguished by steep north slope. Architect decided on three-storey duplex wing perpendicular to slope. On ground floor, projecting, and half a storey higher than opposite classroom section are two recess halls and two groups of toilet facilities. Recess halls close in a small courtyard with lawn and pool, covered bicycle shelter. On a straight line with the classroom section west of the exercise and recess area is a group of buildings consisting of gymnasium section and special-purpose section. In first is situated a gymnasium corresponding in height to two standard storeys. These standard storeys are found on east side of this section. They contain in basement, gymnastic apparatus and instructors' rooms, on ground floor, caretaker's flat. Cloakrooms, showers and drying room in basement of adjoining special section, with music room and two manual training shops on ground floor. Playing field north of gymnasium section, exercise room with apparatus beneath classroom section. Elevations give evidence of architect's endeavour to achieve clear design and colour scheme.

The Municipal Secondary School in Hanover (pages 386—389)

The new Municipal Secondary School is situated in beautiful Bella Vista park outside the busy city centre. An ideal lay-out could be created here, approximately in the geographical centre of the residential area of Hanover, in the vicinity of the Masch Lake and the Stadium with their abundant sports facilities. Also near the Land Museum. Worked out with modern structural and formal elements, despite the traditional curriculum of the school. Fine stands of trees in park did not permit concentrated structure or skyscraper building, nor could a consistently flat structure be realized. All rooms for arts and sciences comprised in a rectangular structure grouped around an inside hall. Standard classrooms in three one- and two-storey wings projecting into the park, connected with main building by a courtyard. Design of this courtyard is special and characteristic feature of this school lay-out. A concrete slab roof with a large circular central opening is supported by four reinforced concrete pillars. Ceiling opening corresponds to a circular lawn, in middle of which but not exactly on axis a limestone figure of a standing woman, by Prof. Kurt Lehmann. It constitutes the visual focus of the entire lay-out. This so-called "rotunda" is an ideal place for strolling and discussions. A wall of glass brick closes this courtyard off from the outside. Special care devoted to working out of inside hall in main building. It can be used for school assemblies, various exhibitions, ceremonies and the like. Nevertheless another special auditorium was created adjoining the hall for concerts and theatrical performances. The large

glass windows of the auditorium provide an unimpeded view of the magnificent trees of Bella Vista Park. Bilateral lighting deliberately avoided in all grades, and in upper grades movable seats permit formation of class groups as desired. A special gymnasium for the school is available in the Stadium, and a swimming pool is planned on the Stadium grounds; it will be at the disposal of the students and will complete the whole complex.

Primary School in the Geisendorf Park in Geneva (pages 390—393)

Important school complex in midst of park with magnificent old stand of trees, ideal setting. Consists of a pre-school (first and second primary classes) of six classroom units, pre-school extension (three classroom units), a primary school of sixteen classroom units, two gymnasiums, and the extension of the primary school (five classroom units); it will comprise a total of thirty classroom units. Buildings sharply differentiated. Individual buildings separated from one another by groves of trees, stand of trees preserved to great extent. Focus of whole complex is primary school building, classrooms of which are grouped around a patio.
As time was severely limited, prefabricated elements were utilized to a great extent. Nevertheless, this did not lead to any lack of technical perfection in the way of bilateral ventilation, diffuse daylight and artificial light and radiant ceiling heat.
Floor construction consists of prefabricated concrete beams and hollow flue covers, resting on concrete foundations. Supporting structure welded steel framework bolted together on the site. Roofing material: Aluman sheeting. Classroom partitions in Durisol brick left untreated, panels filled in with concrete. This material provides excellent sound insulation. The hollow flue covers of ceiling were merely painted white and reflect the partially indirect light from "Slime line" fluorescent lamps. All woodwork in natural oak. Vertical sash windows permit school rooms to be opened completely to outdoors. On south a projecting windbreak. The painter Charles-François Philippe advised on colour scheme and decorations.

School Pavilions in Hamburg (pages 394—396)

Pre-fabricated school pavilions in Hamburg. In every case these school pavilions consist of two classrooms with a recess area, hallway with cloakroom and necessary toilet facilities. Classrooms measure 72 sq.m so that 2 sq.m. per child can be allotted, given an average of 36 pupils per class. These pavilions so arranged that several of them can be combined in one group and connected together. This construction system makes it possible to reduce construction time from twelve to three months. Individual parts prefabricated in factory, construction thus independent of weather. Bilateral lighting and ventilation. Reinforced concrete supporting structure. Walls serve only to keep out weather and to provide insulation, consist of Fulgurit slabs and heat insulation slabs outside, Lignat slabs inside. Joints closed outside and inside with light metal sections. Ceilings covered with acoustic slabs on boarding. Floor coloured poured asphalt with base of slag 30 cm. thick with cement coating for heat insulation. Roof corrugated Fulgurit. Gas radiators built into window parapets. Window construction pressed steel sections.

Wangen Schoolhouse near Olten / Contest project 1955 (page 397)

Project attempts to combine an essentially pavilion lay-out with a central courtyard, avoiding the disadvantages of both. Classrooms grouped in twos for the primary school. These two classrooms share a common entrance, cloakrooms and toilets. Missing corridors inside replaced by covered passageways and an open court. On completion the primary school can be subdivided into a lower and an upper grade. The six classrooms of the lower grades (2nd construction stage) are at grade level; the seven classrooms, the room for the final class, school kitchen, manual training and handicraft shop are above the open court. The court is the real centre of the school. It gets light from three sides and through a large glass roof. West side closed off by glass wall to avoid drafts. District school (3rd construction stage) has special approaches from south and from north. In spite of large court, covered passageways, etc. volume less than in most other projects. Spatial disposition serves two purposes: it separates class groups and age groups, and it concentrates the school lay-out around a clearly defined centre. Architecture and grounds closely integrated, in the sense that the landscape forms part of architecture, in contrast to principle that seeks to make architecture part of landscape. Buildings disposed in such a way that rooms are staggered disclosing different views of surrounding landscape. Without this particular landscape much of the architectural effect would be lost.

Project for a Primary School at Wetzikon (pages 398—399)

In this project, the whole lay-out is situated on the north-east of the site. Driveways rather too close to classrooms, but in principle correct. Three buildings similarly constructed cubes, alined in a row. Plan for open-air theatre, fine per se, questionable owing to restricted room and approaches. Enlargement of intermediate grade classrooms by hobby areas is a welcome idea. Structural unity of first stage preserved throughout.

Plan for a Public School at Hausham (page 400)

This is a project for an elementary school. Distinguished by good disposition of different sections, by clearly thought-out designs in harmony with function. Aims at creation of community centre. Gymnasium can at same time be utilized as community hall. School connected with playing field. Modern ideas on school construction applied here. Combination of ground-floor school with several-storey building, in this case classrooms do not have bilateral lighting and ventilation. But there is an open-air space closed in on three sides for outdoor classes. Florin to be congratulated on doing the best he could in view of circumstances in a district, pre-alpine Bavaria, where all are heavily prejudiced in favour of local traditional styles.

Town Hall at Rödovre near Copenhagen (pages 401—408)

New Town Hall for suburb of Copenhagen. Site perfectly level, permitted creation of ample green spaces around buildings. In addition to office space comprises Council Chamber and three committee rooms along with subsidiary rooms. Long narrow plan, extremely simple, with annex on north for Council Chamber. Construction likewise simple, cubic. Main building three storeys, Chamber two storeys high, connected with main building by one-storey passageway. Both long sides of main building completely glazed, two ends completely windowless and with black granite facing. Entrance from east left centre, wide hall with main staircase and lift installations. Council Chamber heated from a completely separated heating plant. Main staircase steel and hardened glass, unusual elegance and lightness. Cross section of three-storey building reveals two rows of supporting columns right and left of central corridor, intervals of 3.39 m. Ceiling slabs are pre-fabricated and project around 5.3 m. to east and to west.
In this way office space can be subdivided with utmost freedom for which reason also electrical wiring, ventilation and heating ducts laid on at short intervals. East and west elevations are large "curtains" of steel sections and glass. Every second window can be opened. Parapets consist of opaque grey glass. Gable ends of main building and longitudinal walls of Chamber wing faced with black Solvag granite. Floors and ceilings run all the way through and completed before partitions put up. All partitions are standardized light constructions, each element 1 m. wide, 78 mm. thick and insulated against sound with light concrete facing. Particularly thick double insulating walls put up around offices. Acoustic slabs suspended from all ceilings. Most wall and door elements painted. Flooring: in offices, plastic tiles on Vinyl base; halls, corridors and Chamber Norwegian Gjellebäck marble. Foundations, basement walls, gable and stair-well walls are the only structural elements which are not pre-fabricated. All other elements pre-fabricated in factories or shops whereby construction time could be appreciably shortened: begun in June 1954, the building could be put into service as early as April 1956. This building, distinguished by its splendid simplicity, is the latest and particularly mature creation of Arne Jacobsen, leading Danish architect. With Jacobsen, Denmark steps into first place in the field of architecture in Scandinavia.

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