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17 (1963)
9: Industriebauten = Bâtiments de l'industrie = Factories

2

Rubrik: Summary

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fonction et le film. Le cinéma sphé-rique est une sphère creuse (construction précontrainte d'un double voile avec des éléments de raidissel'écran de projection, et où le centre de l'image se trouve au sommet de la sphère). Un plan horizontal rond divise la sphère en une partie inférieure, où se trouvent les installations techni-ques, la cabine de projection, les toi-lettes et les vestiaires, et en une par-tie aunéfoure autéformer le colle tie supérieure qui formera la salle. L'œil de projection se trouve au centre du niveau plan qui est accessible de-puis l'extérieur par des escaliers rou-lants disposés en étoile.

Le cinéma sphérique permet toutes les méthodes de projection: méthodes traditionnelles, projection de chaque film sur chaque forme d'écran (rectangulaire, triangulaire, circulaire, el-liptique ou forme libre) et dans chaque grandeur jusqu'à l'image totale cou-vrant toute la surface de projection qui va jusqu'au niveau des spectateurs et qui se limite seulement par l'angle de vue de l'œil humain. * Demande de brevet en France.

Le cinéma sphérique crée l'illusion totale du film.

Il permet de nouvelles conceptions cinématographiques par la projection de films sur des écrans de grandeurs différentes, ou par la projection d'un film sur une forme d'écran qui varie selon chaque scène ou sans cesse.

Les spectateurs couchés, complète-ment détendus, orientent leur regard vers le haut, n'aperçoivent pas leurs voisins et peuvent se concentrer en-tièrement sur la jouissance esthétique. tièrement sur la jouissance esthétique. La distance entre les spectateurs et l'écran est la même presque partout, la direction du regard et celui du rayon de projection est la même, donc les conditions optiques et acoustiques sont excellentes. Toutes les places ont la même qualité. Les dessins du cinéma sphérique sur une plage correspondent à une vraie grandeur de 97.20 m de diamètre ex-térieur et d'une canacité de 1623 spec-

térieur et d'une capacité de 1623 spec-tateurs. Si les proportions sont respectées, on peut concevoir des volu-mes plus grands ou plus petits. Les rapports économiques entre la gran-deur et la capacité, ainsi que la qualité acoustique et optique restent constants



Friedrich Frank,

Anton Schweighofer, Vienna Peter P. Schweger, Hamburg, Vienna Project A

Service shed in Vienna

(page 368-369)

Under construction

General requirements

Scientific and technological advances, Scientific and technological advances, changing economic circumstances, can sharply modify the ascertained lay-out. There has to be a guarantee that a free expansion and reorganization of the complex is possible within the scope of a previously elaborated system. (In the elaboration of the sys-tem the total complexity of the environ-ment must be taken very thoroughly into account.) into account.)

Site

Building site inside the city with streets on west and north and square to east; old buildings on $\frac{1}{3}$ of the area. Pos-sibility of connection to quieter square to east. Building stage $\frac{1}{3}$, after re-organization of old buildings $\frac{1}{2}$ of the site Organization of plan

1st stage

New construction PKW express serv-ice, repair shop on ground level with auxiliary facilities. Basement level: cloakrooms and new

car shipment. Connecting building: spare parts stores.

Old building: spare parts storage, ad-ministration, reception, in sheds LKW repairs and PKW fittings.

2nd stage

Administration with reception, old building extension with reorganization of spare parts stores.

3rd stage

Extension of the PKW express service, displacement of LKW park to another site and reorganization of a part of the old shed structure.

4th stage

New building PKW repairs, extension and reorganization of the PKW express service

5th stage

New building spare parts stores.

Construction

The basic module is derived from the functional, structural, installations and

extension unit, module 50 cm. A functional unit has the dimensions 5.00×20.00 meters, a structural and extension unit 20.00 $\times 20.00$ m. The addition of units is possible in both horizontal directions.

The units are added in the 1st stage to three 20.00×40.00 m. sheds.

The structural elements of a shed of this type consist of prestressed sub-sidiary beams in the 20.00 m. axis and main beams in the 40.00 m. axis. The main beams have a span of 15.00 m. and project 2.50 m. In the main and subsidiary beams gaps in the modular arrangement are provided to house

In the installations lines. In the case of a juxtaposition of the sheds perpendicularly to the main beams there appear double beams and double supports with intermediate cavity to accommodate the horizontal The main power line is housed per-pendicularly to the "cavity" in a duct running tangentially to the sheds; this

duct can be entered. The sheds have a non-pitched roof of Prevanol and peripheral gutters. The face is fully glazed with double pro-file slits. South side gets outside bri-ses-soleil.

Project B

Delivery point in Salzburg

In planning stage (page 370-372)

(hage shows) Building site on perphery of city in the open country, with access to rail-way and motor highway. Through high-way and railway connection from west. Buildings cover $1/_2$ of the terrain at 7 meter level. (It could as building site be the extreme of Project A if the planning team had been called in at time of purchase of site).

Heating by radiators and cooling via ventilation system (ductless) for fresh air and circulation. The units are set up detached on the roof.

1st stage

Ground floor: New car readying and shipment, spare parts stores and spare parts shipment, display, waiting-room and offices. Basement: new car storage and bulky

parts.

2nd stage and additional stages

Percentage extension, not previously determinable, of all functions. Possible extension in longitudinal axis of building and perpendicularly thereto, in this case in the shape of new structures

A steady reorganization is to be expected in the future.

The industrial module of 62.5 cm. was selected as the basic module in the case, since the different and not definitive functions could not be brought into a determination of a module. The analytical results of the construc-tion have not yet been finally evaluated as to their feasibility. In the compact

analysis there were investigated steel lattice constructions with unit sizes of 15.00×15.00 and 30.00×30.00 m., spatially conceived steel elements with variable weith directions and a converted elements. variable unit dimensions and corrugated concrete elements with unit dimensions of 25.00×30.00 m. with unit

The analysis shown here forms part of the very extensive research work of the very extensive research work that has been carried out. It has to do only with construction from the standpoint of partial problems: mate-rials, performance, movement, as-sembly, construction proper, elements, installations, components, etc. with maximum adaptability. There are pro-vided non-pitched roof with exception of the corrugated structure, complete glazing in galvanized steel elevation elements (possible choice between glazed and closed elements), outside vertical brises-soleil on south side vertical brises-soleil on south side (position can be altered as required), radiators for main load heating, ven-tilation units (ductless) for circulation, fresh air intake and air-conditioning. Consultant for statics: E. Rapolthy, Grad. Engin., Zurich. Consultant for heating and ventila-tion: T. Schweger, Grad. Engin., Zu-

rich.

Leif Damgaard, Stockholm Collaboration: Jörgen Möller and Denis Douglas

Brewery at Wårby

(page 373-378)

Little excavation was necessary as an extant gravel pit could be utilised. Consequently the brewery is to a large extent concealed, garage facilities, store areas and fermenting areas being housed underground.

From the exterior, one distinguishes between the brewery building, with its vertical system and the flat bottling hall with its horizontal work system. The round walls of the boiler hall and the gables of the toolshop were con-ceived to allow speedy and safe traf-fic circulation. Total volume of com-plex: 130.000 m³. The production buildings have curtain walls with aluminium parapets. The

walls with aluminium parapets. The toolshop, boiler hall, reception and porter's lodge are built in exposed brick.

Large glass surfaces allow for maxi-mum view of production procedures. mum view of production procedures. The gleaming coppers proclaim from afar the building's function: clean-liness is an advertisement. From the express road the building is visible at night by means of spotlights. The south façade is constructed in aluminium; conical panels provide all-important sound insultation. Visitors view the production hall from a gallery. The laboratories on the top floor are equipped with insulated glass panelling. Construction is in ferrous concrete.

concrete

The bottling shed has double T con-The bottling shed has double I con-crete beams, constructed in situ. The production hall is spanned by 14 m. long pre-fabricated and pre-stressed concrete beams and an H-shaped

A 21 m. in diameter cupola spans the boiler hall. All stairways are readily cleaned

owing to their simple, prefabricated design.

design. The brick walls in the production shed and boiler shed are left exposed. In the administration section the inner walls are clad with Oregon pine. An extension is planned to the North: a mineral water factory. The complex will then consist of two elements with work shed boiler shed and garage

work shed, boiler shed and garage ramp in the centre. Rust-free steel and glazed panels in all production sections make for easy maintenance and cleanliness.

Kurt Simberg, Helsinki

Tobacco factory in Turku

(page 379-381)

In an entrance-yard the porter's house, garages, a personnel building and the heating plant are located. The factory itself can be entered in a one story building where a left entrance leads to the personnel dressing rooms and to the personnel dressing rooms and showers and a right entrance to the administration. Behind this building fabrication halls arched with shell-type roofs follow, behind which the storage for raw tobacco is annexed. All these construction parts are designed in such a manner that they can be ex-tended towards the south.

Jean-Marc Lamunière, Geneva

Pharmazeutical factory with laboratory at Petit Saconnex near Geneva Execution: 1961

(page 382-385)

Situated on the perimeter of the airport at Cointrin. Clean-lined archi-tecture: steel construction with brick fillings; glass surfaces with steel pro-files, insulated glass; sun-shades on the outside the outside.

Programme:

Upper level comprising office facilwith a central gallery illuminated by roof lighting. The laboratories are housed in the gallery.

Willi Stigler, Innsbruck

Collaboration: Horst Paton Lignospan plate factory, Oetztal

Execution: 1960/61

(page 386-389)

The factory is situated 45 km, from Innsbruck, near a railway station and in the middle of a forest, an econom-ically underdeveloped region.

Programme:

Production shed for wooden panels, Mixolite panels, door elements, floor elements etc. The various production areas are par-

tially connected: panelling shed pro-per, wood refining shed, store shed with access to railway, wood storage area, steam rooms, reservoir etc.

The energy is supplied by a private boilerhouse and a transformer unit. Steel construction was preferred to facilitate all-the-year-round production. The structure is carried on I-shaped steel columns from the floor. Cross beams (steel) are laid on the wings of the columns and the roof covering is in lightweight panels. This system allows for expansion in every direc-tion without production breaks. Filling panels Profilities daes and uncoden tion without production breaks. Filling panels, Profilites glass and and wooden battens in a Mightyplate envelope complete the list of structural elements. Square module: 1.25 m. Height from ceiling to floor: 5.0 to 10.0 metres. An administrative building is planned as a subsequent stage

as a subsequent stage.

Edouard Furrer, Sion,

and Hans Hostettler, Berne

Warehouse and office building of an industrial installations firm in Biel (page 390-391)

The architects were required to con-struct a show-piece on the main artery Biel-Solothurn. The resultant structure is a conspicuous glass pa-vilion which at night, gleams like a cube of light.

Ground module of 1.20/1.20 corre-sponding exactly to the dimension of the Eternit façade panels and the insulation panels. Basement and che in sulation panels. Basement and columns are in ferrous concrete, walls in 'pa-neel' elements - strong wooden block panels, 37 mm, thick with 7 mm, strong ashestis, compatibility of the strong asbestos cement panels screwed on visibly 7 mm. before them. Circulation: k = 0.9.

Secondary construction: steel sheet-ing for glazed and fanned wall surfaces.

Kurt Ackermann, Munich

Collaboration: Richard Martin

Finishing shed of Bavarian Motor Works in Munich

Ground floor: depot, installation centre

Upper level: mechanical assembly.

Considerable advantages derived from

Considerable advantages derived from the short vertical transport passage. The floors are connected by con-veyors, 5-ton goods lifts and stair-ways. Horizontal transport is along 5 m. wide roadways. A ferrous con-crete ramp leads to the upper level. Heavy transport, especially of ma-chines, is rendered possible by a 20 ton steel crane system above the ramp. Construction is in ferrous concrete with a 6.50/6.50 module; columns, beams and reinforced panels in the ground-floor; Construction in steel, distance between beams 19.50/13 and 26/13 m. to allow freedom in placing of machines on the first level.

of machines on the first level.

Project: 1961

Programme

and toilets.

Execution: 1961/1962 (page 392-395)

Basement: social offices.

Distance between ceiling and floor: ground-floor, 4 m., upper level, 6.50 m. The outer walls are of prefabricated 6.5/1.0 insulated concrete elements which may be speedily disassembled. These are nevertheless extremely stable in spite of the considerable traffic in the assembly shed.

Glass elements: thermolux.

Lighting: 300 Lux in the assembly shed The roofing is in porous concrete and pressed gravel. (Necessitated by condensation.)

densation.) Heating and air-conditioning: air is changed five times in the hour. Con-structional requirement precluded cus-tomary fire systems. An extremely sensitive alarm system has been in-troduced and air ducts have been carefully conceived as fire escape foutes routes

Felix Candela, Mexico City

Store and bottle-filling shed of the rum factory Bacardi S.A., Tultitlan, Mexico Execution: 1960

(page 396-398)

For the store area and bottling shed of the Bacardi Rum Factory in Tultit-lan near Mexico City, Candela has applied two of his basic construc-tion types: the funnel shape formed by 4 hyperboloids and the hyperboloid shell in the form of a cross vault. The bottling shed is constructed in three cross vaults. From the strictly geo-

Cross vaults. From the strictly geo-metric point of view each of these consists of interpenetrating segments from the saddle of the hyperbolic para-point a consist of an article's structure the boloid. poloid. In Candela's structure the groined arches and the outer members are paraboloid; the edge of the shell, extending beyond the outer members, is hyperboloid.

The shell strength (size 26.00/26.00) is only 4 cm.

Armatures: rectangular mesh in iron, 3/s'' thick with an intermediate distance of 20 cm. and 5/1s'' with an intermediate distance of 15 cm. One side runs par-

distance of 15 cm. One side runs par-allel to the outer members jutting clear of the shell. The diagonal groins are strengthened to 16 cm. opposite the shell and rein-forced by 5 ϕ $^{3}/_{*}$ and twice 3 ϕ $^{3}/_{*}$. This bears the weight of the shell, transferring it to the beams as a purely transferring it to the beams as a purely longitudinal force. These are diagonal

Ingitudinal force. These are diagonal and project beyond the shell. This structure contains however, an entirely new element in the position-ing of the projecting outer member (20 cm. broad, 25 cm. high; reinforced with $4 \oplus 3/4^{\circ}$). As it cannot serve as a shoring element on account of its meagre dimensions and, since it is not required as such owing to the double camber of the shell, it is employed as a support for the vertical spars of the glass wall. The leanness and elegance of the con-struction is particularly apparent from the outside. The extension of the latter in glass and dark spars seems singu-larly fortunets.

The second secon

These fulfil their function as static

shell. These fulfil their function as static construction elements. This delicacy is achieved by the use of tension members which connect the base of the supporting columns. In sharp contradistinction to the Air Terminal Reception Building at Idle-wild, this construction is treated as an exercise in constructional form design: there is no attempt to tone in with natural surroundings. We may use the term 'technical construction form' with impunity in view of the fact that Candela's guiding principle is derived from the principle of maximum effect at minimum outlay. In the interior is a high light room, divided up by roof lighting in the pendentives between the single units and side illumination. The store hall is covered by inclined hyperboloid elements. Each of these upturned umbrella shapes rests on a centrally placed support. Shell strength is again 4 cm. This figure results from constructional considerations, notably the cladding of the iron with con-rete, Statically, this figure could be even less. Armatures are a quadratic iron net, ranging from '/4" to 3/8" in

strength. The stress of the shell, op-erating at a tangent to the arching, are erating at a tangent to the arching, are concentrated at the outer edges. Ten-sile stress at these points is curbed by iron elements within the shell. Pressure in the groins necessitates reinforcement. Each element is 10.00/15.15 m.; diag-

onal cross section: 0.40/0.60 m. The foundation has the same form as the shell in reverse. It also is composed of four hyperboloids.

Herbert-Ohl, Ulm

The work of the Institute for Indus-trialised Building (page 399)

These works are the result of continuous, precise and intense research over the past few years. The arbitrar-ily chosen problems correspond ne-vertheless to the technological and social development of our society or are chosen from the innumerable unsolved problems and experiments leading to the development of a building system. The variety of the problems and the desirable solutions are demonstrated by these projects and have induced from time to time new work procedures and methods. In all cases objective and rational study of spe-cific development and application is of prime importance, as has long been the case in other technological and scientific fields. In this way solutions have been proposed which are a valu-able basis for the whole range of architectural aspects of industry.

Herbert Ohl, Ulm

Integral Construction (page 399-404)

The development of exemplary products in industrial building and architecture as a whole is constantly placed in jeopardy by the intermingling of heterogeneous elements at different stages of development. Building ma-terials, building procedures, functio-nal and architectural requirements fall into this category. Should any of these be at a lower level than the others, the project as a whole is at a disad-vantage

Even a fleeting comparison of indus-trial construction techniques with scientrial construction techniques with scien-tific and technical developments re-veals the pressing demand for an integrated system of construction. Only the integration of all problems inherent in a single project can lead to a rational resolution of present-day constructional needs. Moreover, the industrialization of architecture will constructional needs. Moreover, the industrialisation of architecture will engender new constructional aspects which will in turn be of considerable technical and social interest. The development of industrial con-struction is based on the study of all the individual details in the structure, the choice of materials and process

the individual details in the structure, the choice of materials and proce-dures already applied with success elsewhere, and, last but not least, the use of pre-fabricated elements in a limited sphere (1 or 2 storied build-ings) in conjunction with numerous institutes and industries. It is a modular building system cor-responding to national and interna-

It is a modular building system cor-responding to national and interna-tional standards, an assembly process for universal application, a procedure which is highly precise in its use of widely different elements: bearing and non-bearing elements, rigid or elastic elements, metal profiles, pan-els, new installation features such as electric wall and floor heating, acquistic cladding, etc. The effect of as electric wall and hor heating, acoustic cladding, etc. The effect of this system will be felt throughout industry, from producer to consumer, from planner to user.

Patent applied for: integral liaison be-tween ribs on bearing panels

Types of detachable joints and air Types of detachable joints and air proof joints used principally for ribs of rigid bearing panels: 1-point by point jointing; 2-linear jointing; 3-composite joint, linear and point-by-point; all three with or without an articulated or rigid liaison element. The rigid or partly rigid point-by-point jointing by screwing, rivetting, is the most common form of joint. The disad-vantages are poor stress concentravantages are poor stress concentra-tion, a large number of work pieces, assembly difficulties. This is a static solution which does not ensure stiff-ness nor insulation.

for panel work, merely for smaller objects such as window frames since their execution often leaves gaps

which in turn make for undesirable movement

In general these joints do not have the same form in the horizontal, vertical and various other positions. This indicates the need for a large number of elements with asymmetrical joints and liaisons to provide for an inter-changeability of building elements. Research on the above points to a linear joint appliable in civil, naval, aeronautical and automobile construc-tion as well as in the fabrication of storage receptacles. The main advan-tage lies in the favourable transposal of stress to the panel elements. The linear joint ensures at the same time the impermeability of the joint. In order to avoid too great a number of order to avoid too great a number of construction elements of diverse types a liaison element, centrally and axi-ally symmetrical, has been conceived to permit all possible assemblies by adapting itself to the form, thickness etc. of the panels. The simple form of the joint allows for simple production and execution. The

simple production and execution. The use of an elastic material or an elastic form of the element cuts to a mini-mum tolerance factors: Thermic dila-tion, transmission of static and dy-namic stresses, sound insulation and

diminution of vibration. These panels, joined by integral joints, are designed to form stable 2- and 3-dimensional construction systems. These systems may be composed of flat, rigid, angled, concave, stag-neared panels.

These systems may be composed of flat, rigid, angled, concave, stag-gered, panels. The joint (10) consists of an element of liaison (10.1) and a panel with countersunk rib (10.2). The liaison element is linear, running along the rib of the adjacent panel, and is axially and centrally symmetri-cal. It consists of one or several plastic materials or one of the materials in elastic form. The profile of the liaison itself (10.1) consists of a core (10.3) and a pin which links the core to the panel rib. The number of pins cor-responds to the number of panels to be linked. The rib (10.2) is axially linked. The rib (10.2), in axially sym-metrical form, runs the entire length of the side. The above illustrated consists of a compressed cord pro-file applied to a composite panel. The rib of the panel consists of a tongue which receives the groove (10.4). The rib (10.2) transfers easily the stress rib (10.2) transfers easily the stress in the two panel surfaces to the axial joint and makes for excellent adhesive properties.

The core (10.3) of the liaison element is a hollow tube (10.8). Assembly is completed by a rigid bar being placed at the open end of the tube or pulled through the liaison element in the direction of the liaison axis. The tongue of the liaison element (posi-tive aspect of swallow tail with intertive aspect of swallow tail with inter-mediate notches) is the complemen-tary part of the groove on the rib. This prevents the elastic tongue from slipping, especially in the case of any axial deviation. The stress in the liaison axis is taken up by the friction between the elements and the adjabetween the elements and the adja-cent slabs forming a three dimensio-nal pattern. Stability is thus ensured in the case of a curved, folded or stag-gered axis. Tightness between the liaison element and the panel rib (in the case of liquids or nase) is enthe case of liquids or gases) is en-sured by the two profile ridges on the tongue (10.10) which are larger than the openings on the groove. The elas-tic is compressed at the point of junc-ture. Surely water in the transture. Supplementary watertight proof-ing is possible on the panel surface, and on the liaison element. The groove and on the liaison element. The groove on the rib (negative swallow-tail form) is the waterproofing complement of the tongue on the element of liaison. The liaison element in elastic can be reinforced by an armature or, alter-natively, be composed partly of elastic material.

material. Example: the liaison element (11.1) is composed of a core (11.2) and a tongue (metal or synthetic) but is en-tirely clad in elastic.

There are several ways of introducing the liaison element (13.1). a) threading or slipping through the extremity of the profile in the direction of the liai-son axis; b) cutting the rib corners to enable introduction of element in to enable introduction of element in every direction. The resultant whole is proofed by an elastic fitment; c) the introduction of a liaison element into the grooves of the panels where the liaison element is in liquid or semi-liquid state; d) introduction of a liai-son element which is extended or compressed in the process of as-sembly. The stability of the entire structure is

ensured by the juxtaposition of rigid panels forming a spatial angle, as in the case of curved, folded or staggered rigid panels. The central and axial symmetry of the

liaison element and the axial symmetry of the panel ribs allow a maximum of assembly possibilities according to panel connections, panel thickness and spatial distribution. (Variations, from horizontal to vertical, positions.) The special qualities of these elastic in construction, negligible deviations only being noticed. Patent exigencies

The joint is characterised by a 1. The joint is characterised by a linear liaison element where form and assembly are by joining, axially and centrally symmetrical; by a rib whose form and assembly are by joining, axially symmetrical; by the use of elas-tic elements or an elastic form of the liaison element between the bearing panels. This enables a facile, articu-lated assembly procedure and is panels. This enables a facule, articu-lated assembly procedure and is eminently adapted to the redistribu-tion of stresses, static or dynamic, in every direction; watertight, elastic, insulating eradicating constructional tolerance: in a word, integral. 2. This same liaison (that is, these same liaison elements) permit assembly in an infinite number of directions. 3. This same liaison (that is, these

3. This same liaison (that is, these same liaison elements) permits as-sembly of a number of panels in one direction with minimal deviation from e general constructional direction. This same liaison (that is, these the same liaison elements) is equally suitable in the case of curved panel jointing.

Herbert Ohl, Ulm

The Spherical Cinema

(page 405-406)

In spite of the fact that the Spherical Cinema is on the point of being pa-tented in France, we do not believe it to be simply a matter of technical achievement. To use Le Corbusier's phrase – is this not an 'architectural fact? The Spherical Cinema on the coast certainly represents one of Da Vinci's aims, the absorption of new, specialised ideas towards an integrated whole

A few facts from the official description: The Spherical Cinema represents an essentially new conception of cinema, a correspondence between structure, function and film. The cinema is a hollow sphere, a pre-stressed double-shell construction. The interior surface forms the screen; the centre of the image is the top of the sphere. By the construction of a horizontal plane the lower half of the sphere is transformed into the audience area with the projector in the centre. This audience area is accessible by esca-lators leading in star shape from the exterior. Beneath this plane are technical installations, projection room, various offices, toilets and cloakrooms for audience and personnel. The Spherical Cinema allows for the

The Spherical Chernia allows for the projection of every shape of image-rectangular, triangular, circular, ellip-tical and free forms-to cover the complete screen, extending down to audience level. Limitation of view is caused only by the limits of the human eye

In this way the Spherical Cinema

In this way the Spherical Cinema creates the total illusion which is cine-matographically indispensable. It also permits new cinematographic conceptions such as the projection of films on screens of varying size and the use of different sized screens or, more properly, viewing surface, for individual scenes.

Individual scenes. The audience is recumbent, complet-ely relaxed. Attention is focused on the screen above. In this way neigh-bours are 'eliminated' and aesthetic enjoyment given free reign. The dis-tance between the spectators and the screen is practically the same through screen is practically the same through-out the cinema, the direction of view-ing and projection is the same. All seats are of the same quality. Thus optical and acoustic conditions are of the first order. The design for a Scher the first order. The design for a Spher-ical Cinema on a beach corresponds to a diameter of 97.20 m. and a seat-ing capacity of 1623. Provided that these proportions are respected larger or smaller volumes are conceivable.