SOUTH AFRICAN ARCHITECTURAL RECORD

APRIL, 1941

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THE SOUTH AFRICAN ARCHITECTURAL RECORD

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UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

THE CENTRAL BLOCK by *GORDON CHALMERS*

HISTORICAL NOTE.

In March 1920, the Witwatersrand University Committee invited architects to submit competitive designs for three teaching buildings in the University grounds at Milner Park, viz., the Central Block, the Engineering or Western Block and the Science or Eastern Block. The assessors in this competition were Messrs. E. H. Waugh, W. H. Stucke, and Jan H. Hofmeyr, then Principal of the University College, Johannesburg, and their awards were as follows :—

1. Mr. Frank Emley, F.R.I.B.A.
2. Messrs. Cowin & Powers, F.R.I.B.A.
3. Messrs. Hawke & McKinley, F.R.I.B.A.

It was agreed between the University authorities and the assessors to appoint the authors of the first and second premiated designs as joint architects for the work.

As far as the Central Block was concerned, the general outline of the winning design was accepted, although the plan of the building was amended to a fairly large extent. The accompanying diagram shows the original plan as agreed on, although the northern wing was the only portion actually erected at the time. In this scheme the Library was housed on the first floor above the Entrance Hall.

The foundation stone was laid by H.R.H. Prince Arthur of Connaught, on October 4th, 1922, and the building was officially opened by H.R.H. the Prince of Wales in June, 1925.

In December, 1931, occurred the disastrous fire which gutted the whole of the Entrance Hall and Library leaving an empty shell at the back of the Portico. Subsequently this space was closed in to form a small Entrance Hall and a large lecture room on ground floor, and the Library was erected as a separate building, it being thus unnecessary to provide Library accommodation in any later extensions to the Central Block.

When, early in 1936, it was decided by the University authorities to complete the Central Block, Messrs. F. Williamson (of the firm of Emley and Williamson), and N. T. Cowin (of the firm of Cowin and Ellis) were appointed associate architects, with Professor G. E. Pearse, as consulting architect. An architectural staff was established at the University and all the necessary drawings for the execution of the work were actually prepared on the site. Much time was thus saved in the organisation and supervision of the work.

Excavations for the extensions were commenced early in 1937, and building operations were started towards the end of that year. The building was completed in May, 1940, although the East and South East Wings were occupied a year earlier. The building was officially opened by H.E. the Governor General, Sir Patrick Duncan on June 10th, 1940.

DESIGN AND CONSTRUCTION

1. As will be seen by a comparison of the original plan and the plans of the building as completed, the original design was considerably altered. This change arose through the need for greatly increased accommodation and also accommodation of a different nature from that originally planned.

The zoning of the various elements of the building is as follows :—The East and West Wings contain staff and student rooms, including seminar and lecture rooms, the administrative offices being housed on the ground floor of the West Wing and the western end of the old North Wing. The South East and South West Wings contain common rooms on ground floor with laboratories and drawing halls above. The centre of the block contains the Great Hall and Stage on ground floor and on second floor is located the Examination Hall with its attendant Refreshment Kitchen. The Examination Hall, as its name implies, was provided primarily for examinations, lecture and tutorial classes, but is also extensively used for dances and other social functions, at which times the need for a refreshment kitchen becomes apparent. In practice these elements have proved very satisfactory.

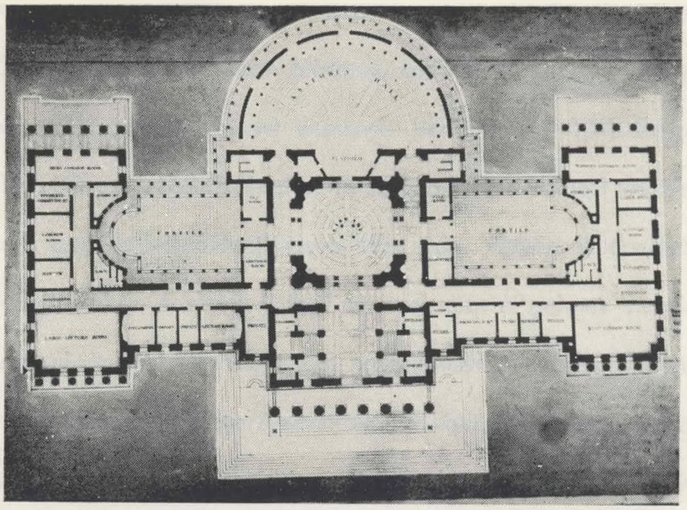
There is a basement under the whole of the East and South East Wings and also under the Stage. The provision of these basements was expensive owing to the necessity for considerable excavations in rock, but the expense was justified as the East Wing basement provides valuable storage space, and the basement in the South East Wing houses the Air-Conditioning Plant rooms and Boiler room, while the basement under the Stage is used for the storage of stage properties and other material.

2 The construction of the building consists in general of a reinforced concrete frame with brick panels between columns and beams. The only departure from this form of construction occurs in the Central Halls where, owing to the large spans involved, steel girders were used over the Great Hall and the Examination Hall. The former are plate girders varying in span from 66 feet to 94 feet, and in depth from 4 feet 6 inches to 6 feet 6 inches, the designed load being such as to permit dancing in the Examination Hall. The floor of the Examination Hall is built up as follows :—A system of steel joists is bolted in position between the plate girders and on these are laid reinforced concrete precast slabs of an average size of 4 feet by 2 feet 6 inches. Deal floor joists are laid on top of these slabs and are fixed in position by wires cast in the slabs. The intervening spaces between the floor joists are filled with breeze concrete, and the wood strip floor of the Examination Hall is finally fixed to the floor joists. The ceiling of the Great Hall, which is constructed of plaster on metal lathing, is suspended by means of steel rods from the plate girders and steel joists.

Over the Examination Hall is another series of five girders similar in span to those below. These girders are of the lattice type and are of welded construction. They support the roof of the Examination Hall which consists of a 4 inch reinforced concrete slab laid on a system of steel joists between the girders, and the timber framework of the Examination Hall Ceiling is supported on the bottom members of these girders.

Following the example of Greek architects in regard to the stylobates and entablatures of their temples, the ceiling of the Examination Hall is cambered slightly to overcome the illusion of sagging that would be apparent if it were absolutely horizontal. A plaster plaque down the centre of the ceiling conceals the air conditioning supply, and a cove on the perimeter of the ceiling covers the joint with the walls; the ceiling is quite independent of the walls, and is free to move with the girders when expansion and contraction take place. Sheet iron flexible joints are provided round the edge to seal off the roof space. Otherwise the efficiency of the air-conditioning system would suffer if this space were charged with conditioned air.

The plate girders vary in weight from 15 to 24 tons, and the lattice girders from $3\frac{1}{2}$ to $7\frac{1}{2}$ tons. To



The Original Plan

allow for expansion all the girders are supported at one end on a system of rollers, which allow them to move within limits.

One interesting feature in regard to the support of the girders is the fact that the construction is "Gothic" in conception in so far as the vertical load is borne by large columns while horizontal stiffening is provided by the corridor floor slabs at various levels. These slabs are in turn supported on the outside by another system of beams and columns, the whole structure being reminiscent of the flying buttress construction of the Gothic Cathedral.

Little mention has so far been made of the Great Hall, but it is this element of the building that provides the greatest interest, particularly from the point of view of acoustic design. The University was fortunate in having as acoustic consultant M. Francois Carpentier, one of the foremost contemporary authorities on the subject, contact with whom was established through Mr. R. Kantorowich, at the time a student of the University sojourning in France. While the plan and section of the Hall had already been established in general outline, the details of the acoustic design were worked out by M. Carpentier whose recommendations were adopted in the final scheme. The various purposes for which the Hall was planned made it essential that an accurate design be executed to function satisfactorily under all conditions.

The uses of the Great Hall are briefly as follows:—

(a) Primarily it serves as an Assembly Hall for the University, under which circumstances speech is the chief factor to be taken into consideration. Such assemblies consist of firstly, academic functions such as the Winter Graduation Ceremony, and secondly large lectures. At both these types of function speeches are made from the forestage only, while in the case of a third type of assembly, viz., debates and conferences, speeches are made both from the forestage and also from the auditorium.

(b) For dramatic performances, the entire stage is occupied with or without an orchestra in the pit, depending on the nature of the production.

(c) For purely musical performances, both vocal and instrumental, the orchestra pit is covered over by a system of hatches carried on 9 inch by 3 inch wood joists, and the area thus obtained, in conjunction with the forestage, accommodates the performers.

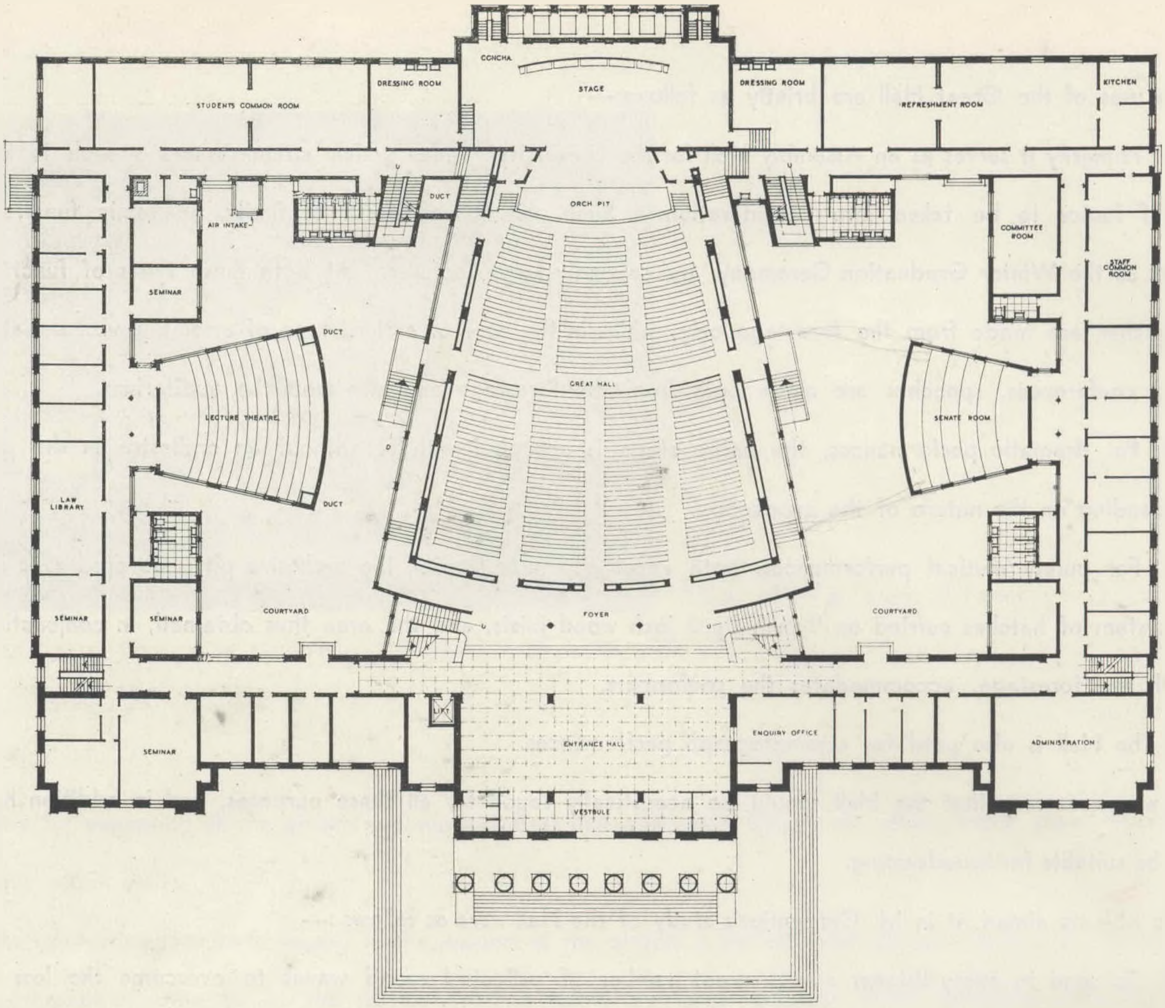
(d) The Hall is also used for cinematograph performances.

It was necessary that the Hall should be acoustically sound for all these purposes, and in addition had to be suitable for broadcasting.

The objects aimed at in M. Carpentier's study of the Hall were as follows :—

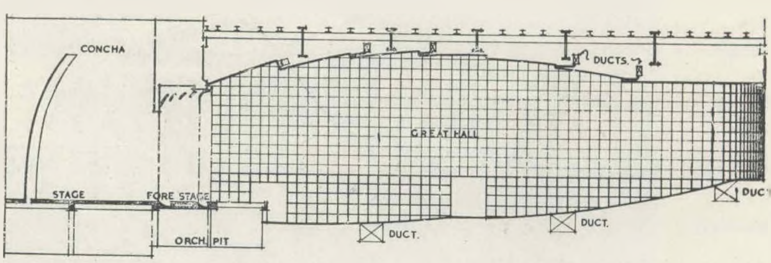
(1) To send to every listener a very great number of reflected sound waves to overcome the loss in intensity of direct waves.

North Elevation

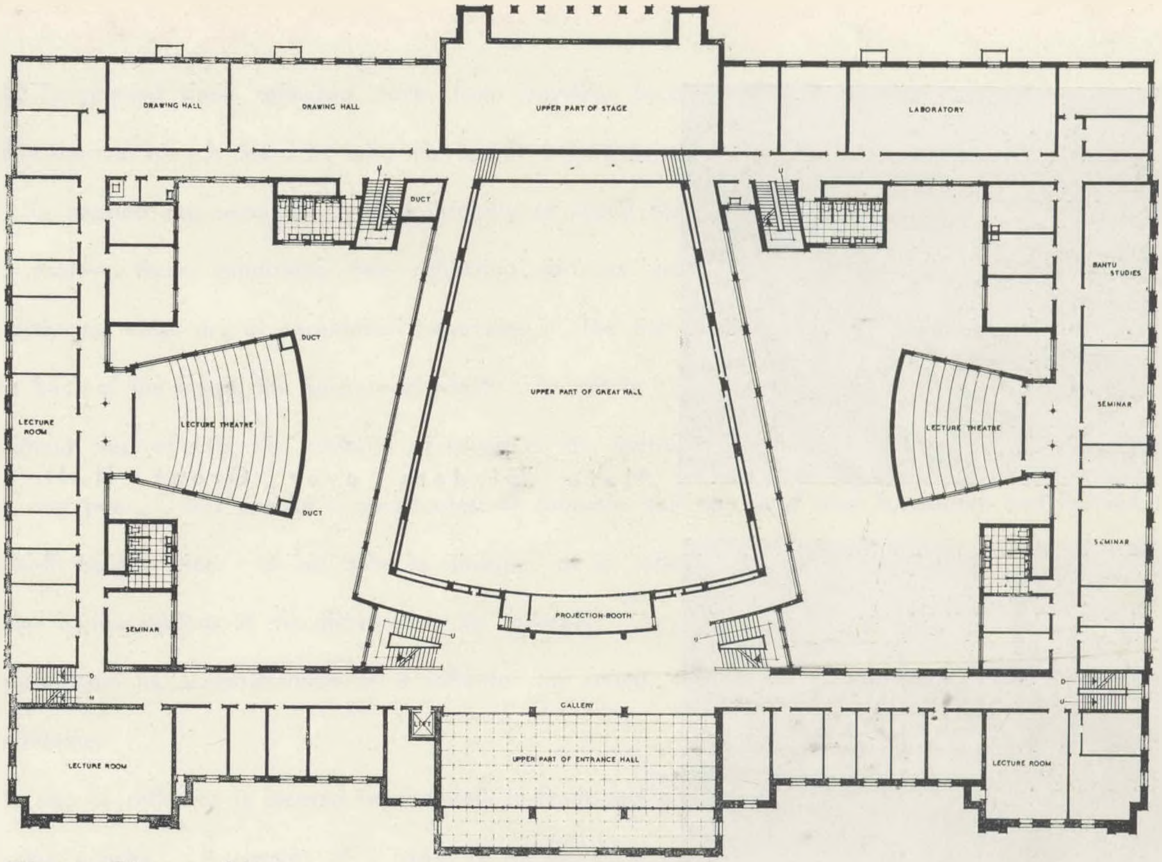


Ground Floor Plan

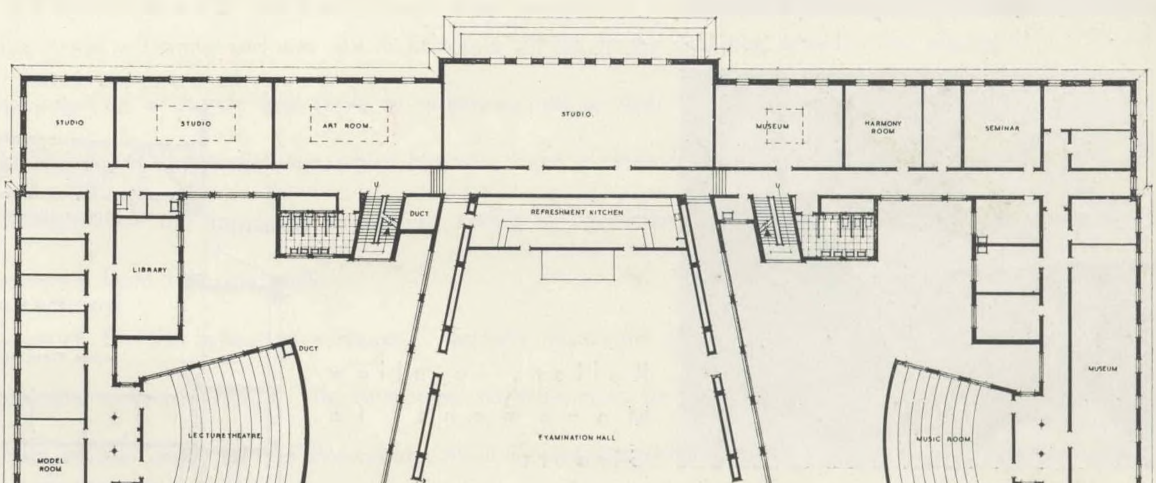
10 0 10 20 30 40 50 60 70 80
SCALE OF FEET



Section Through Great Hall



First Floor Plan



Second Floor Plan

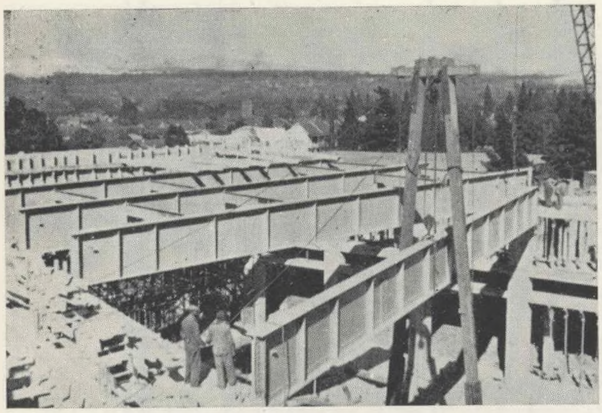
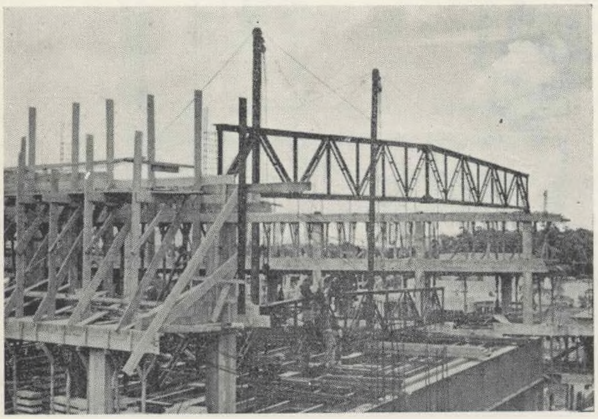
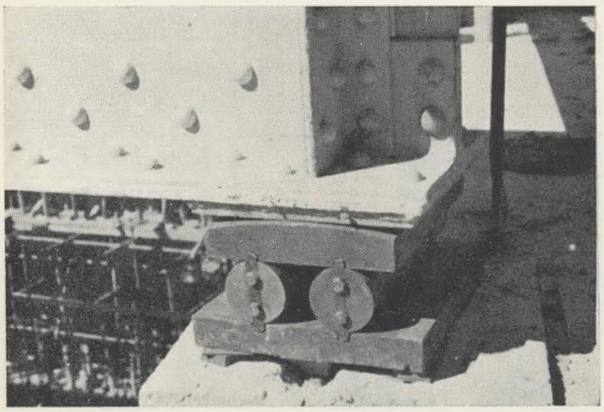


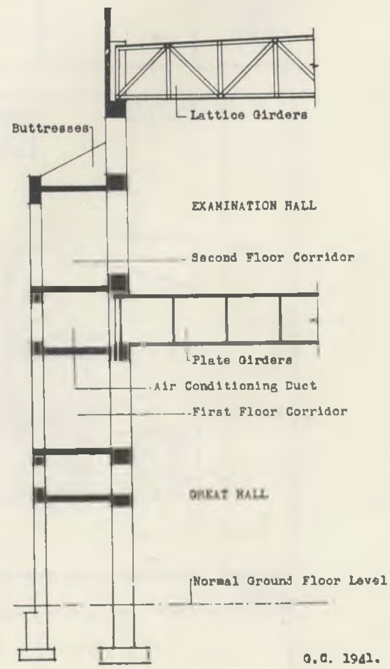
Plate Girders over Great Hall



Lattice Girders over Examination Hall



Rollers to allow Movement in Girders



Constructional system employed for Great Hall and Examination Hall

(2) To prevent these reflected waves from travelling by paths of such a length as to hinder clear audibility (normal speech heard by a normal ear at a distance of one metre being taken as a standard).

(3) To provide the same quality and intensity of sound for every listener.

To achieve these conditions, two reflecting surfaces are provided apart from the ceiling of the auditorium, which are of paramount importance. The first is the dorsal-concha (Fr. conche—a shell) at the back of the stage, the purpose of which is to reflect sound waves emanating from the stage itself. Without this reflector the intensity of sound in the auditorium during a dramatic performance would be very poor. This concha is constructed of concrete built up on a steel framework and finished with smooth hard plaster. It has been so designed as to reflect "quantities" of sound in a ratio proportional to the squares of the distances to be covered.

Apart from its acoustic value as a reflector for sound, the Dorsal Concha serves the purpose of a cyclorama.

The second reflector is located immediately in front and above the proscenium and acts in the same way as the concha. It consists of a series of curved surfaces which are constructed of plaster on metal lathing, and is of great importance in reflecting sound emanating from the region of the forestage.

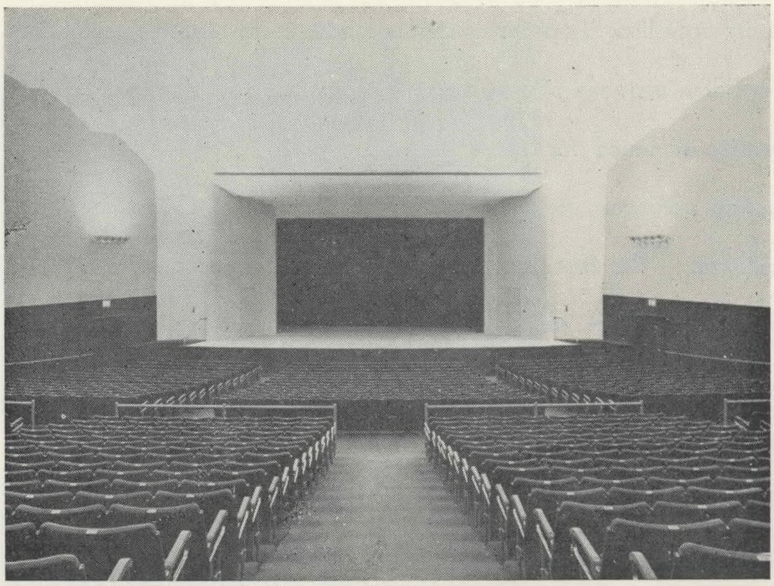
These two reflecting surfaces are in principle similar to the sounding boards often placed behind and above the pulpit of a church, and serve to reflect sounds as near their source as possible.

The ceiling of the auditorium which has also been mathematically calculated, is complementary to the reflector over the forestage as well as acting as secondary reflector for certain of those waves which are reflected from the side walls.

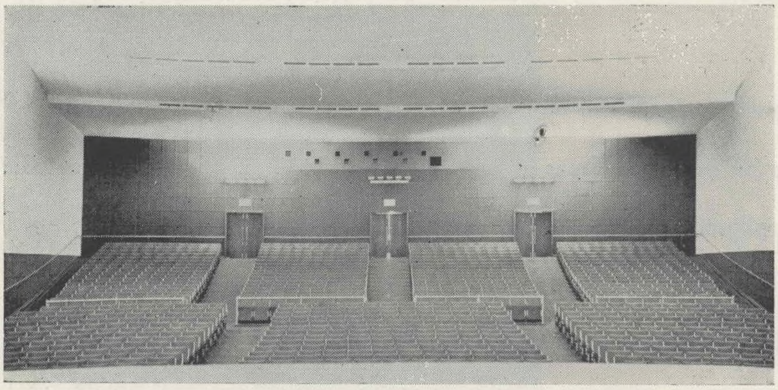
So much for the reflecting surfaces. Equally important are the means adopted to prevent echoes and excessive reverberation. To overcome reverberation on the stage itself it was recommended that the whole of the inside of the Proscenium Wall be treated with absorbent material, but in practice this was found to be unnecessary as masking curtains on the stage serve the purpose equally well.

In the auditorium, the fan shape of the plan overcomes the disastrous effects of distortion which tend to occur in a rectangular shaped hall. To prevent inter-reflection at a low level, the side walls are treated up to a height of one foot six inches above normal ground floor level with material as nearly 100 per cent. absorbent as possible. This dado of absorbent material also assists in the quality of

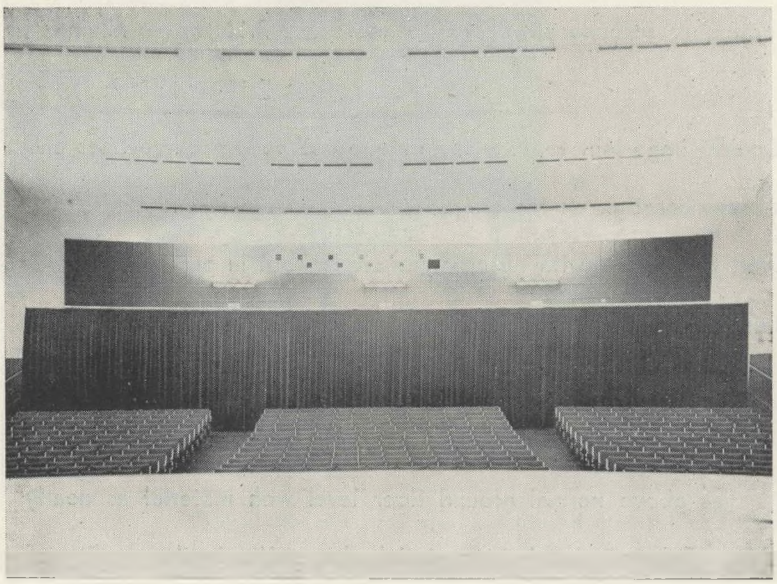
GREAT HALL



Proscenium End



Entrance End

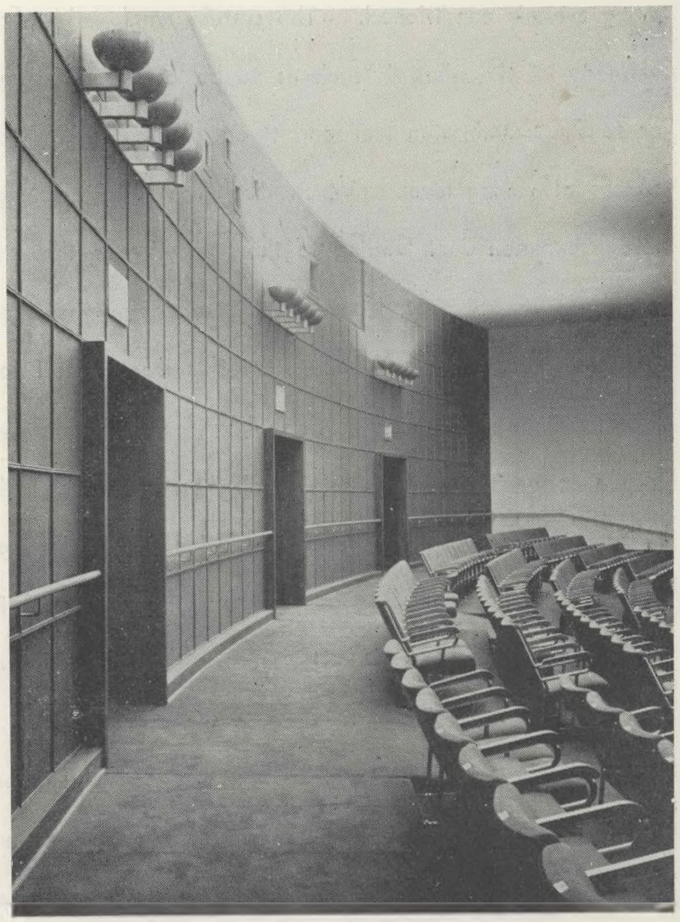


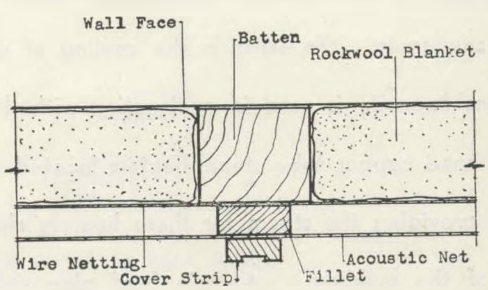
Curtain at Crossover

speech from members of the audience during debates, in that it prevents undesirable reflections on a horizontal plane. A large amount of sound falls on the back wall of the auditorium and in order to prevent this wall from acting as a focussing reflector, thus causing distortion and echoes, it is also treated with highly absorbent material. The material used on this wall and on the side wall dadoes is a substance called rockwool, made by treating a white hot combination of limestone and flint with a jet of steam. The rockwool produced in this manner is similar in appearance to cottonwool, though it is heavier than the latter, and besides its excellent sound absorbing properties has the additional advantage of being both fireproof and verminproof. In the Great Hall it is used in the form of a quilt fixed between battens and covered with a loosely woven green material similar to hessian.

The floor of the auditorium is also absorbent, being completely covered with a carpet laid over a soft felt base. The seats which were manufactured locally consist of chromium plated tubular steel frames,

Back Wall of Great Hall



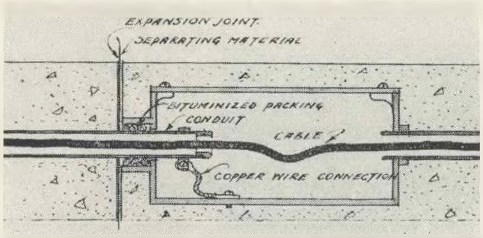


Detail of Acoustic Wall Treatment in Great Hall.
G.C. 1941.

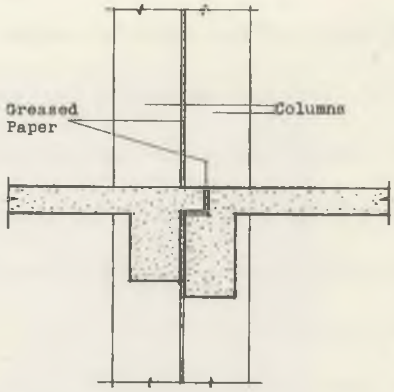
and are upholstered with a woollen fabric on spring seats and backs.

There is seating accommodation in the hall for 1,100, while for audiences of less than 450, a more intimate atmosphere is achieved by the provision of a velvet curtain at the crossover which reduces the effective size of the hall while in no way affecting the acoustics. This curtain is twelve feet in height and is supported on a system of steel rods which are fitted in slots in the crossover handrail and are removed when the whole auditorium is in use. The main colour scheme of the hall is green, rust and blue. The side wall dadoes and back wall are a dark green, with the panel containing the projection ports in the back wall a dark brick red. The carpet is a plain rust and the stage and crossover curtains are nut brown. The upper portions of the side walls, which are plastered, are a pastel shade of green while the chairs are a shade of blue of the same tone value as the darker green of the walls. The proscenium is finished in a light grey and the ceiling is white.

Both the Great Hall and the Examination Hall, as well as the block of three lecture theatres in the East Wing are air conditioned. The system employed and the plant provided follow normal practice. The capacity of the plant is such as to be capable of supplying conditioned air to the Great Hall alone or to the Examination Hall and three lecture theatres together. Air is discharged into all conditioned spaces at ceiling level. When the Great Hall is being supplied with conditioned air two fans discharge into a common duct leading to the Hall. When the other spaces are being air conditioned one fan serves the Examination Hall, and the other fan the three lecture theatres. Return air is withdrawn from the Great Hall and lecture theatres through mushroom outlets located in the floor, while air from the Examination Hall returns through grilles in the side walls near the floor. The return air is drawn into a common return fan serving all these spaces and either discharged into the outside air, or returned in part to the equipment for recirculation. Refrigeration for summer conditions is provided by a reciprocating compressor used in conjunction with an evaporative condensor. To assist in the cooling of air for the Great Hall, a cold water storage tank of 12,000 gallons capacity is used in conjunction with the compressor and cooler. Heating in winter is provided by finned copper tube steam heaters located in the supply branch ducts leading to each space. The boiler providing the steam for these heaters also supplies steam to the central heating system in the remainder of the building. A main feed pipe rises from the boiler and on the roof is divided into two branches, one branch feeding the eastern half of

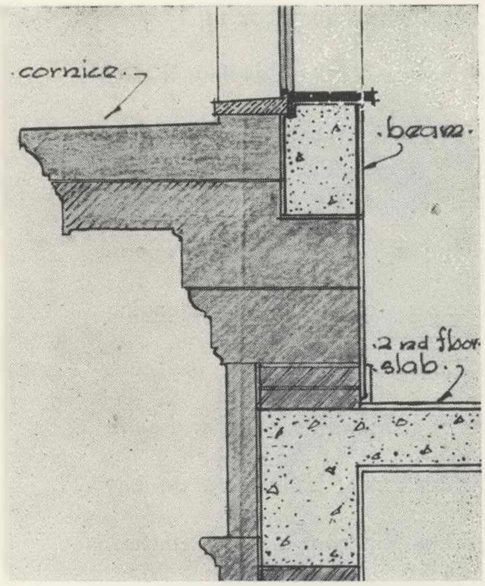


Expansion Joint for Telephone Cables



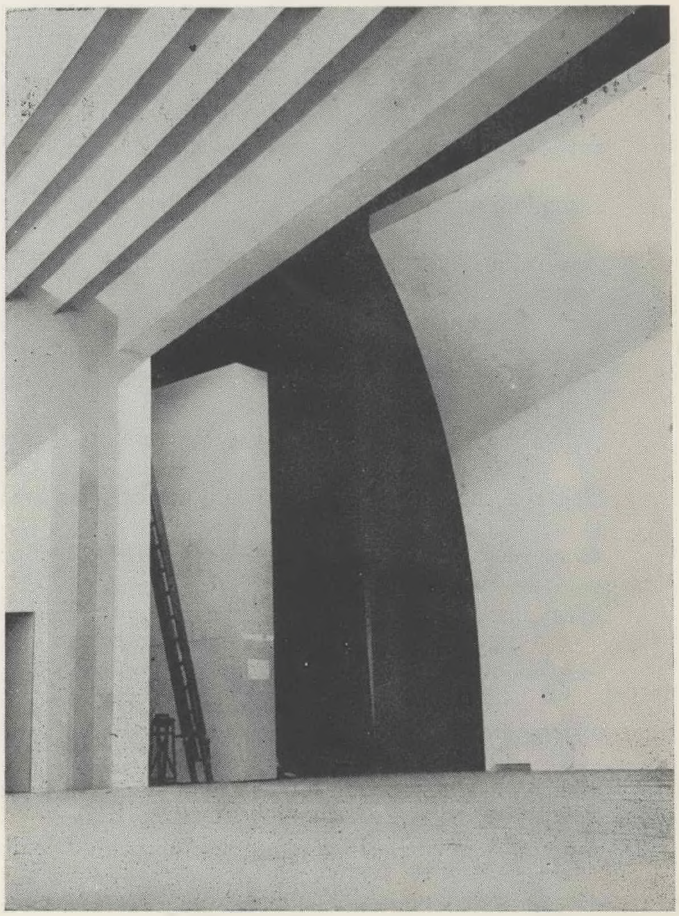
Typical Expansion Joint at Junction of Two Wings.

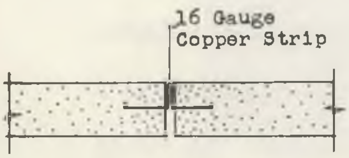
G.C. 1941.



Typical Cornice Detail at New Wings

Dorsal Concha and Forestage Ceiling at Great Hall





Typical Joint in Roof Slab.

G.C. 1941.

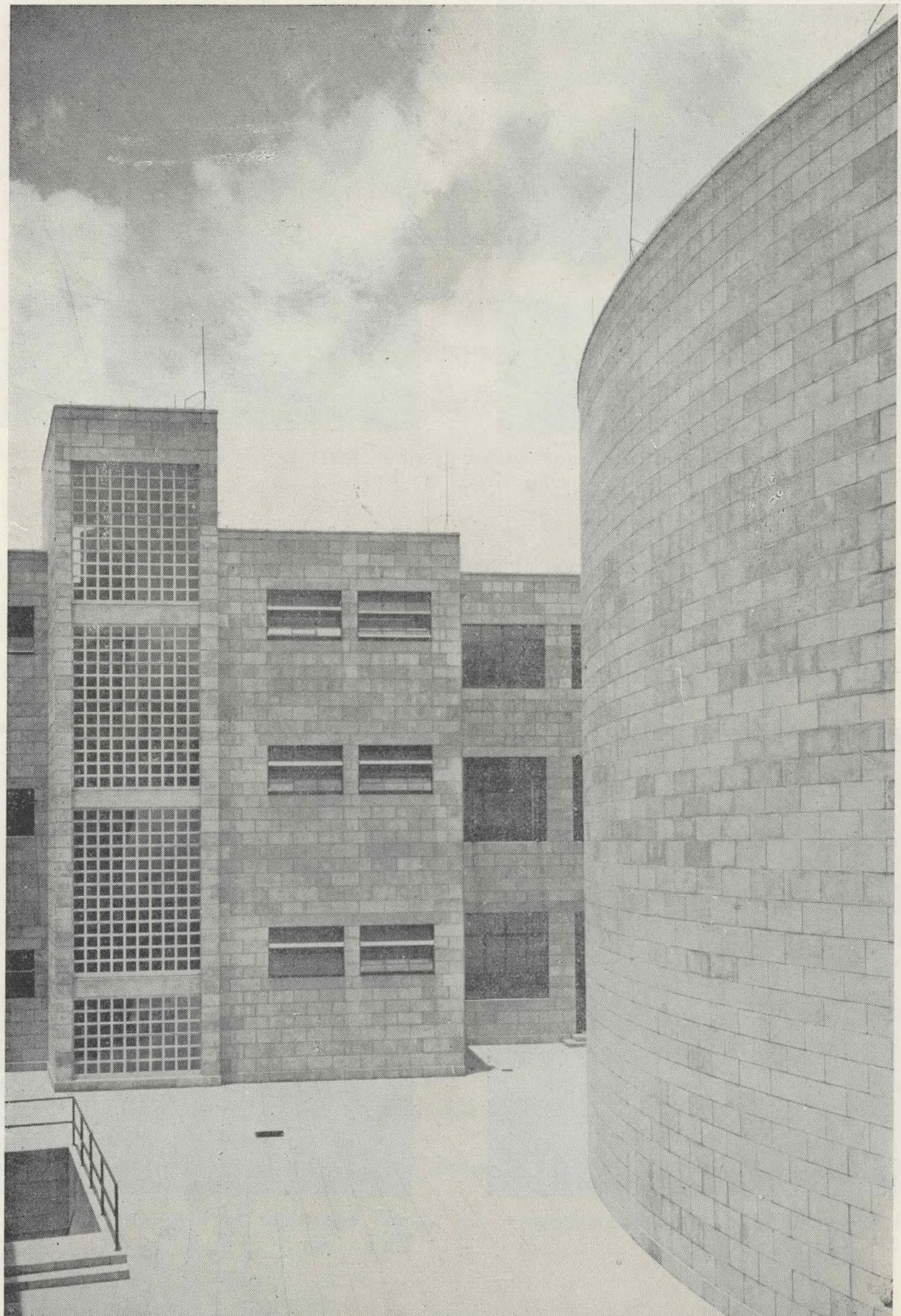
the building, and the other the western half. At intervals along these branch lines vertical stacks drop down into the main condensate line located in a duct below ground floor which returns condensed water to the boiler. From the vertical stacks feed pipes supply steam to the radiators and the outlet sides of the radiators are linked to the condensate line through another system of piping. All centrally heated rooms are provided with a hollow boxed skirting on one wall which contains and conceals all the steam heating pipes.

Apart from the central heating system, all heating in the building is provided by means of gas, this being more efficient and quicker than electric heating. The staff lavatories and dressing rooms are supplied with gas geysers, while gas burners and stoves are installed in the kitchens for cooking.

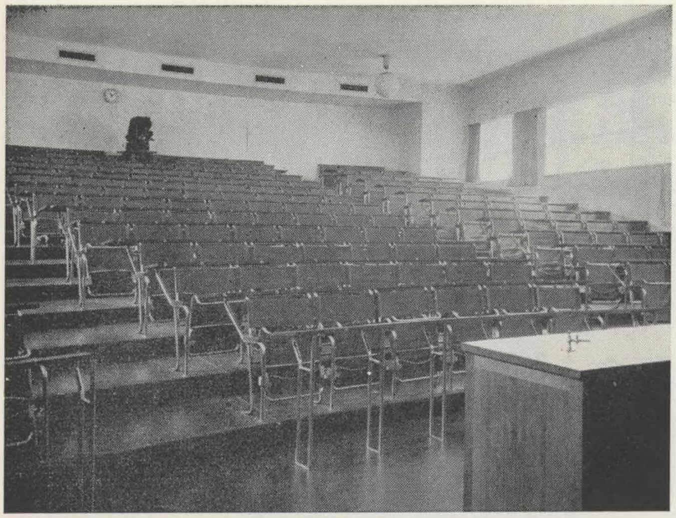
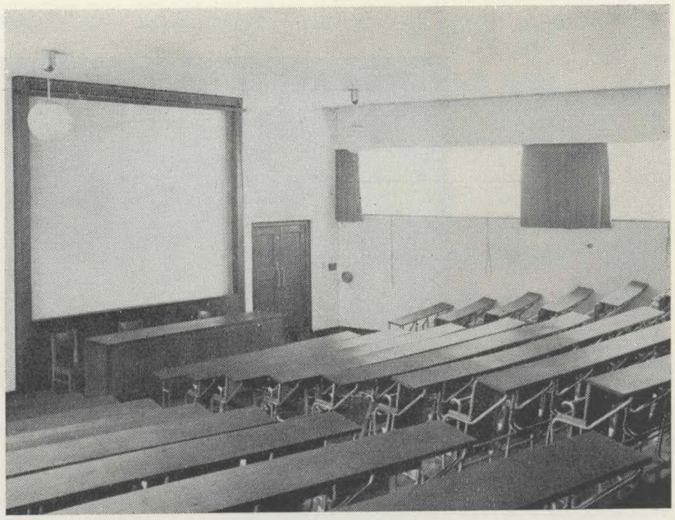
Having given in general outline a brief description of the more notable features of the building, it may be of interest to examine a few of the details of construction which although unrelated are in themselves important.

In the East and West Wings a system of construction was adopted which facilitates future alterations. In an institutional building such as a University, it sometimes becomes necessary, owing to the changing needs of various departments to carry out minor changes in accommodation. In order that any such alterations should not affect the loading of floors the construction consists of slabs with supporting beams running lengthwise along the wings, and no cross beams, so that $4\frac{1}{2}$ inch walls may be carried on any part of the slab. The first and second floor slabs are 8 inches thick and the roof slabs $6\frac{1}{2}$ inches. Two points of refinement in the construction of the building are firstly, in the case of the East and West Wing, the absence of cross beams presents a neater and cleaner ceiling to all rooms, irrespective of their size, and secondly that nearly all columns are concealed in the thickness of walls.

As a result of exhaustive experiments carried out on the roof of the Library building, great care was taken in the preparation of the roofing specification for the Central Block. In these experiments it was found that the colour of the surface of the roofing finish was of far greater importance in the reduction of temperature in the concrete than any insulating material. In the case of the Library Building, of a total mean difference in temperature—between the surface of the roofing and the concrete slab—of 23 degrees Fahrenheit, 15 degrees was accounted for by the white mineral surface of the roofing material through reflection and only 8 degrees difference in temperature was due to the insulating material. In

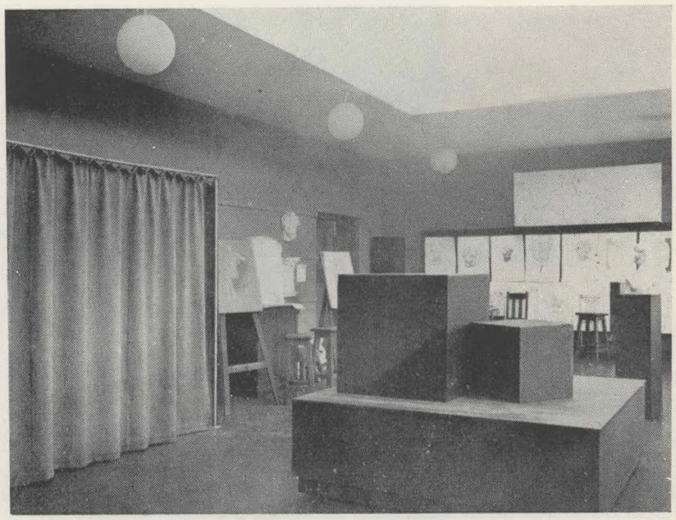


W E S T   C O U R T   Y A R D

Two Views of Typical Lecture Theatre

Architectural Studio



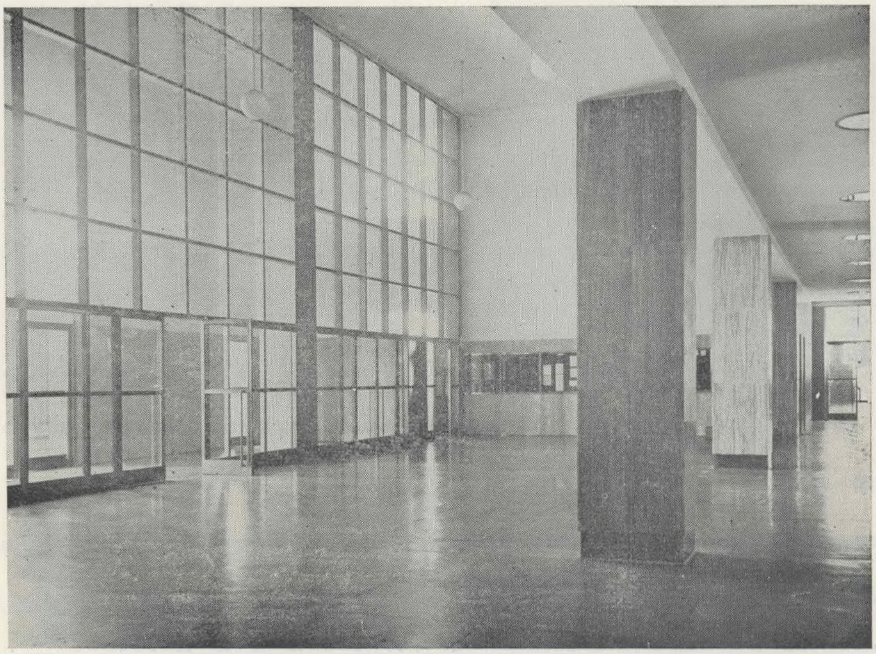
The Art Studio

passing, it is of interest to note that these experiments also revealed a time lag of approximately twelve hours between maximum temperature of the roof surface and maximum temperature of the slab, so that the concrete slab is at a maximum when the surface is at a minimum and vice versa. These times are roughly at 3 a.m. and 3 p.m. respectively, with, of course, variations between summer and winter, cloud conditions and other circumstances. To return to the subject of the Central Block, a similar type of roof finish to that at the Library is employed, except that the results of later research have also been incorporated, the chief of these being that an aluminium surface has been used since it is as efficient as a white surface and at the same time is less glaring in sunlight. In the Central Block the finish consists of a layer of felt on the graded and screeded concrete slab, followed, successively by a one inch thickness of insulating material, a three layer waterproofing specification and the final coat of special aluminium paint.

Each wing of the building is a separate entity, and there is no constructional link between any of them. This permits movement of the concrete frame to take place in each element without affecting adjacent parts of the structure. In the East and South East Wings also, the roof slab is divided into three and two sections respectively, as it was felt that there might be danger of cracking in the slabs were no provision made for movement in the concrete due to temperature changes. In actual practice these expansion joints were found to be of little use as, in spite of them, movement in the concrete was still apparent. In the West and South West Wings therefore these roof expansion joints were omitted as the additional cost in providing them was not justified. One of the most costly items in connection with expansion joints in the slab is in the additional electrical work involved. No conduit can pass through an expansion joint unless special precautions are taken to ensure that each section of the building is completely isolated from any other; this means that more feeder cables, distribution boards, conduit and cable have to be provided than would otherwise be necessary. The diagram shows the provisions made, in the case of telephone cables, for maintaining electrical continuity of the conduit through expansion joints.

The telephone service in the teaching buildings of the University consists of some 15 Post Office lines and approximately 100 extensions. The exchange controlling all these circuits is located in the Central Block adjacent to the Enquiry Office. As far as the Central Block itself is concerned feeder tubes

Two views of the Entrance Hall



carrying the telephone cables radiate from the exchange to each floor. In the older portion of the building where the exchange is situated the feeder tubes are built into corridor walls which link up with pipes in the new building. These are cast in the floor slabs at one side of the corridor with branches and inspection boxes at intervals, so arranged as to provide service to all rooms likely to require telephones. The provision of this system overcomes the problem of having to drape telephone wires round doors and along picture rails and skirtings.

Fire and domestic water services follow usual practice. In connection with the domestic service, two five-thousand gallon tanks, located on the roof at the back of the main pediment, are used in conjunction with the municipal service, so that in the event of the latter being cut off for any reason, these tanks automatically come into operation through a system of non-return valves, and are of sufficient capacity to supply the Central Block, Chemistry Block, Botany Block and Women's Residence with water for a period of about six hours. This arrangement has overcome difficult and sometimes dangerous conditions that have arisen in the past, particularly in laboratories, where a continuous water supply is essential.

Of drainage there is little to say, except that all waste pipes in the building are in copper and are buried in the walls, access panels being provided at intervals. Each of the four lavatory blocks are constructed with an open area along one side, which carries all soil and vent pipes, and in this way the courtyards are kept clear of pipes which in many buildings so often disfigure an otherwise well proportioned wall surface. These areas provide excellent cross ventilation to the lavatories, at the same time acting as complete isolating elements between the lavatories and the remainder of the building. In addition, they also serve as ducts for the electric cables.

The old North Wing of the Central Block is not a framed structure and the walls are consequently of some thickness—sufficiently massive at any rate to counterbalance the projecting cornice. The new building, being framed, has comparatively thin walls, not heavy enough to do this work. In order to prevent any possibility of overturning, therefore, a reinforced concrete beam is introduced between columns at second floor window sill level, the purpose of which is to lock the cornice in position.

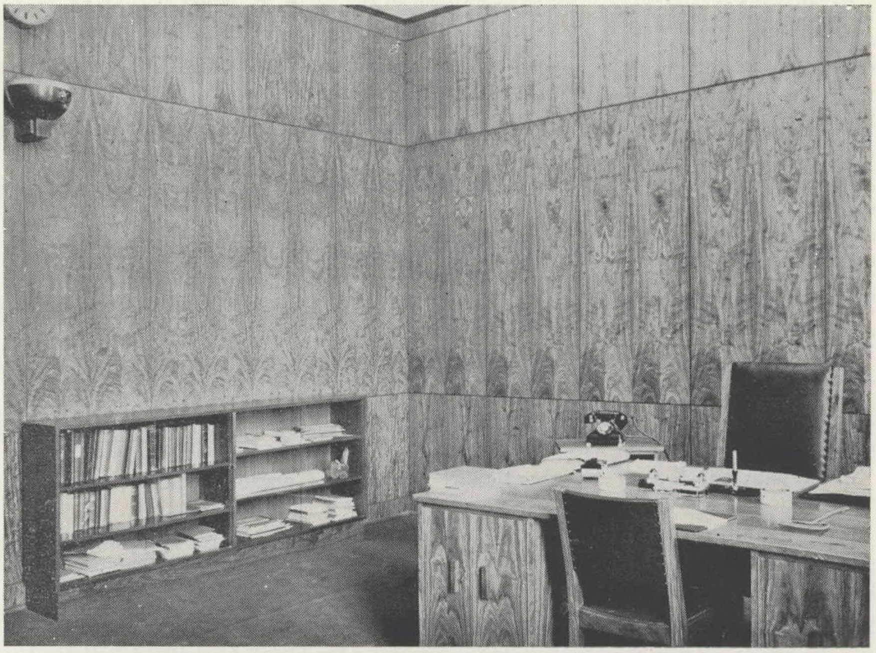
The new Entrance Hall is partially framed. As already mentioned this element is on the site of the fire in the old building. Four new free-standing columns and four attached columns—two in the east wall and two in the west wall—constitute the supports for the framework of this hall and the Lecture Rooms above. Fortunately a rock foundation for these columns was encountered only a few feet below the level of the basement under the Entrance Hall. This was somewhat unexpected as excavations for the bases of the portico columns had to be carried down to a depth of some thirty-five feet below surface before reaching a solid foundation. This was due to the fact that the University site was at one time a quarry and subsequently a precinct for the disposal of rubbish.

In the projection booth at the back of the Great Hall on first floor level, provision has been made for the accommodation of full talkie equipment including two 35 mm. projectors, one 16 mm. projector, spot light, slide lantern and non-synchronous panel, as well as the necessary rectifiers and amplifier panels. A sheet iron pyramidal ceiling is constructed over the projection booth, at the apex of which an electric fan is fitted which extracts warm air from the booth. Another ventilation flue is provided for the purpose of carrying away hot air from the projectors when and if these are installed. A room adjacent to the projection booth and isolated from it, is provided for the purpose of rewinding films.

FINISHES

Externally the design and finish of the extensions were dictated to a large extent by those of the existing north wing of the building. All external walls are finished in precast concrete blocks, while the classic details of the existing section were considerably simplified in the new work. All windows are steel, with the exception of those to the four new staircases which are in reinforced concrete.

Internally simple and economical finishes are generally used, walls and ceilings being plastered and finished in washable distemper. All corridors are provided with a 5 feet quarry tile dado. Lavatories are finished in white glazed tiles up to a height of 7 feet, and lavatory floors are in quarry tiles. Floors generally are battleship linoleum except in the Music Department where Rhodesian Teak wood block floors are used, and the Examination Hall which has a teak strip floor. Corridors have margins to the linoleum, of black granolithic, and the stairs in the South Wing are also in black granolithic with non-slip nosings. The Entrance Hall and Foyer have rubber floors and moulded rubber treads and risers are used on the main stairs. The floors of the Senate Room and Principal's Office are entirely covered with carpets, and the latter also has walls panelled in kejaat, the furniture in this room being of the



The Principal's Office

same material. All joinery elsewhere throughout the building is in teak.

The large glazed screen in the Entrance Hall consists of a bronze framework containing the doors, up to a height of 8 feet with wood framing above painted green and blue. Glazing in the bottom section of the screen is clear plate, while fluted glass is used above, except in the section directly opposite the main entrance door where clear glass is used. This provides a vista down the main axis of the grounds to the Swimming Bath and the wooded slopes beyond. The balustrade of the first floor balcony overlooking the Entrance Hall is of the same detail as the timber section of the screen, except that light steel grilles painted cream are used here instead of glass. Walls of the Entrance Hall have an 8 feet dado of travetine, and the columns are veneered in green Italian Cipollino marble. The two circular columns defining the junction of Entrance Hall and Foyer are painted maroon, and the curved back wall of the Great Hall is sky blue with a 6 inch quarry tile skirting. Bronze and glass notice boards flank the east and west walls of the Entrance Hall and a hatch in the west wall communicates with the Enquiry Office.

As there are not many floors in the building only one lift is provided, primarily for the use of the staff and visitors.

In the larger lecture theatres sliding blackboards are provided, which, when not in use, disappear into boxes at the base of the framework, leaving the wall space above for use as a lantern screen. The East wing block of lecture theatres is equipped with brown light-proof curtains over the windows for use during lantern lectures, and the first floor theatre in addition is provided with tip-up tubular steel seats and teak desk tops. The backs and seats are upholstered in blue canvas. Lighting of the large lecture theatres over the Entrance Hall is provided by means of clearstory windows in the south wall.

In conclusion it may be mentioned that the Central Block covers an area 315 feet by 200 feet and the total cost of the extensions which took three years to complete was approximately £200,000.

Photographs by Architectural and Engineering Photographic Service and Gordon Chalmers.

OBITUARY - JOHN ABRAM MOFFAT, F.R.I.B.A.

John Abram Moffat was born in Manchester, England, in 1871. When he was about one year old, his parents migrated to Sydney, New South Wales taking with them the infant and the older brother William. His father, who was a builder, carried on business in Sydney and, after some years moved to Brisbane, Queensland, and in this latter town, young Jack—as he was known to his friends—grew up and entered the office of Clark & Pye, architects, as an articled pupil. He attended the Technical College there and obtained his certificates.

After completing his indentures, he joined his father for some time, and learned the bricklaying trade, and obtained thereby that wonderful mastery of technical and practical building matters, which was always a source of admiration and remark for the rest of his life.

About 1895, he came to South Africa and obtained a position as a draughtsman in the office of Mr. Arthur Carter, of Johannesburg, and with that office he retained an unbroken connection throughout his long professional career. As Mr. Carter, and with him Mr. F. Gordon McIntosh as partner, had a very extensive connection, John Moffat found great scope for his abundant energy, and he rose to be a partner, and, on Mr. Carter's death, about 1903, the firm became McIntosh and Moffat. Not long after this, Mr. McIntosh took charge of the Pretoria side and from this point Mr. Moffat held the reins of the Johannesburg business for a period of over a third of a century. Mr. McIntosh ceased to be a partner at an early stage of this era.

I first met John Moffat, when he was altering the old Standard Theatre, in the early part of 1902, when the Anglo-Boer War was still proceeding. Mr. Moffat had been for a while in Kimberley, but had resumed his practice on the Rand. This first meeting, I recollect, was the occasion of a minor explosion between us, for Moffat was a rare fighter, and always looking for an opponent whom, he thought, was, what he called, "worth powder and shot." His practice soon assumed a major size, and, by 1905 he had, in Johannesburg, designed a large number of buildings in the then newer or northern part of Eloff Street, near the Park Station, mainly of a shop and office type, viz., Castle Mansions (now removed), Walter Block, St. James' Mansions and a little later St. Mary's Mansions and also the fine offices of the National Mutual Life Association of Australasia in Market Square, also Marlborough House, Holt's Buildings and others. In 1906, he told me he was going to retire to Sydney. The great depression following this year foiled his plan and he remained and continued his practice, his largest work of this period being Chudleigh's Buildings, Eloff Street (now the O.K.). Subsequently to this period he carried out a very large number of expensive buildings, both in the city of Johannesburg and its suburbs, notably Whitehall Court, Consolidated Goldfields Buildings, Union Castle Buildings, Park Lane Mansions, the third Empire Theatre (he also designed the second in 1905, now removed).

His work is significant for a great clarity and breadth of planning, and extremely good workmanship. His buildings are remarkable—in some cases after 35 years—for being still modern and lettable. He had an extraordinary gift, for an architect, of avoiding meanness and pettiness of plan and having no dark corners nor make-shifts. With this he combined a very highly specialised skill in assessing, for his clients, the income procurable from their proposed structures, and for getting the work done at a reasonable cost, for he had a strong and experienced business sense. His buildings invariably stand to-day for very solid construction with a low repair ratio.

About 1906 he entered the Town Council of Johannesburg and soon became Chairman of the Sewerage Committee. His driving force was of great practical value in this sphere, but he retired on the expiry of his period. Committees were too slow for his agile brain, for they are apt to have the speed of the slowest member. For perhaps the same reason, he did little or no professional Institute work. His nature was ruggedly independent, and he did not care to be trammelled in his action with what other men thought, so he followed a solo course for himself.

In the later part of his practice he was assisted by his partner, Mr. J. A. Harvey, whose death, some years ago, was a deplorable loss to Moffat, who some time previously had sustained injuries in a motor accident in the Eastern Transvaal, where he had farms. This had prevented him living in Johannesburg in the severe cold of the winter.

Owing to this loss, Mr. Thomas Newhall Duncan, A.R.I.B.A., who joined him some years ago, acquired the practice from Mr. Moffat.

He is survived by his son, Arthur Carter Moffat, A.R.I.B.A., who practices in S. Rhodesia, and by his younger brother, Walter Goldstraw Moffat, F.R.I.B.A.,and sisters, and another brother. Mr. W. G. Moffat, now of Durban, spent his earlier years in his brother's office in Johannesburg.

Despite John Moffat's definite solo characteristic nature, more than one brother architect has found him a sage and clever counsellor, for he always lent a ready and sympathetic ear to the difficulties of another. He passed away in the early part of this year (1941) after having experienced a good deal of impaired health due to the trouble arising from the severe accident. My own memory is one of a fearless and clever fighter, who did not stoop to any mean argument.

E. H. WAUGH April 6th, 1941.

SHORTAGE OF GALVANISED CORRUGATED SHEET REQUIREMENTS

The following statement has been received by the Institute from the Department of Commerce and Industries, Pretoria.

I beg to inform you that there is an acute shortage in the Union of galvanized corrugated sheet-iron and that it is essential that measures be taken to conserve the limited supplies becoming available from time to time.

As a result of the discontinuance of exports of this material from Great Britain, and the control of exports of steel products from the United States of America, it has become almost impossible for individual firms to import supplies through ordinary trade channels. Owing to the virtual cessation of supplies from overseas, the increased demand for this material by the Union Department of Defence has had to be met by South African Iron and Steel Industrial Corporation Ltd., with the result that practically no supplies from Iscor will be available for civil requirements for some months to come.

The Industrial and Agricultural Requirements Commission has given this matter careful consideration and has recommended to Government the adoption of certain measures to alleviate the acute position, as a continued lack of supplies may lead to serious unemployment and dislocation in the building and allied industries.

One of the measures recommended by the Industrial and Agricultural Requirements Commission, and with which the Government is in full agreement, is the substitution of cement, concrete and other building materials for steel.

As this is a matter of urgent national importance, I am bringing these facts to your notice—as I have brought them to the notice of others concerned—with a view to inducing the substitution, as far as possible, of cement, concrete, asbestos-cement and other building materials, for steel and galvanized corrugated sheet-iron.