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THE ARCHITECTS' JOURNAL

THE ARCHITECTS' JOURNAL, WITH WHICH IS INCORPORATED THE BUILDERS' JOURNAL AND THE ARCHITECTURAL ENGINEER, IS PUBLISHED EVERY THURSDAY BY THE ARCHITECTURAL PRESS (PUBLISHERS OF THE ARCHITECTS' JOURNAL, THE ARCHITECTURAL REVIEW, SPECIFICATION, AND WHO'S WHO IN ARCHITECTURE) FROM 9 QUEEN ANNE'S GATE, WESTMINSTER, S.W.1

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THE ANNUAL SUBSCRIPTION RATES ARE AS FOLLOWS :
BY POST IN THE UNITED KINGDOM £1 3 10
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SPECIAL COMBINED RATE FOR SUBSCRIBERS TAKING BOTH THE ARCHITECTURAL REVIEW AND THE ARCHITECTS' JOURNAL : INLAND £2 6s. ; ABROAD £2 10s.
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The Editor will be glad to receive MS. articles and also illustrations of current architecture in this country and abroad with a view to publication. Though every care will be taken, the Editor cannot hold himself responsible for material sent him.

THURSDAY, JUNE 24, 1937. NUMBER 2214 : VOLUME 85

PRINCIPAL CONTENTS

BIRMINGHAM HOSPITALS CENTRE

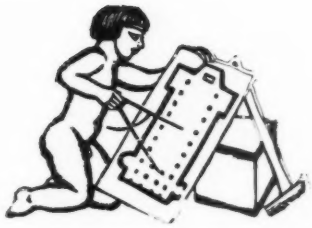
DESIGNED BY LANCHESTER AND LODGE

THE west side of the medical block. Further illustrations appear on pages 1110-1111 of this issue.

LONDON ARCHITECTURE MEDAL

The R.I.B.A. London Architecture Bronze Medal for a building "of exceptional merit" erected during the three years ending December 31 last within an eight-miles radius of Charing Cross, has been awarded to Messrs. Stanley Hall and Easton and Robertson for the Nurses' House of the Hospital for Sick Children, Bloomsbury. A view of the south front is reproduced above.

The award is made annually by a jury of architects and laymen. This year the jury, under the chairmanship of Mr. Percy E. Thomas, president of the R.I.B.A., included Earl Stanhope, Lord Aberconway, Mr. R. M. Holland-Martin, president of the Architecture Club; Sir Giles Gilbert Scott, R.A.; Mr. H. S. Goodhart-Rendel, president-elect of the R.I.B.A.; Mr. Charles Holden and Mr. Charles Marriott. The building, in Guilford Street, W.C. 1, is of golden-brown brick and Portland stone, and is the first part of a scheme for rebuilding the whole hospital.



MODERN HOSPITALS

THIS issue of the JOURNAL is almost entirely concerned with hospitals. In size it is more than a double issue, yet in turning its seventy odd pages the first impression gained is of the smallness of the information they contain. And it is only after reading the two opening articles that there seems to be more in this failure than the limitations of journalism.

The first article, in spite of its brevity, makes clear the enormous front on which ill-health is now being attacked. The ambition of contemporary health services is shown to be twofold : to provide a system of supervision so widely spread and continuous that serious ill-health has no opportunity of arising ; or, where such a supervision fails, to provide means of treatment exactly suited to the ailment. Both these ambitions and the developments in medicine necessary to make them possible are of comparatively recent growth. It is only within the last generation that the Government has begun to take the health services seriously, and the local authorities to supplement the voluntary hospital system with institutions of equal efficiency ; and it is only since the war that departments for specialized treatment have begun to multiply rapidly.

In these dual, and to some extent parallel, activities of municipal and voluntary institutions the medical world is aware of the dangers of overlapping, competition and the inefficiency of having several separate institutions, all of a very similar standard of equipment and accommodation, in the same area ; and Dr. Ogilvie describes the system of unification and subdivision into regional and local centres with country branches, which it is suggested that all hospitals should gradually become linked.

The layman, however, and especially the architect, realizes that the transitional period will be a long one. Unification and specialization have great potential efficiency and immense practical difficulties to overcome. Medical knowledge and equipment is constantly becoming out of date ; and in appreciating the advantages of perfect unification medical opinion does not forget that of four competing hospitals in any city under the present system one will very probably be progressive, whilst one hospital four times the size might suffer from the conservative inertia which seems inseparable from huge organizations. In the coming changes in the hospital system this difficulty will almost certainly be the largest.

In the meanwhile the architect is being asked to design for both the existing and future systems. As to which he is designing for he must necessarily accept the views of his clients ; his concern is with the practical questions of layout and the grouping and form of units within the plan. Mr. Harper's article in this issue mentions the largest problem of the vertical *versus* the horizontal plan, and the smaller developments in ward sizes and provision for paying patients ; and it shows how extremely wary the hospital architect must be.

The vertical hospital has great advantages to offer in lighting and convenience for the staff. It is also very costly and very permanent, and likely to be out of date in most ways within twenty years. While the single or two floored building group opposes the disadvantages of great distances to a greater ease of alteration when it is out of date. For the moment the conditions of each building project almost invariably dictate which type, or what kind of compromise, is best for particular cases. But for hospitals, as in many other building types, the ideal form of construction—cheap to erect, to maintain and to remove—has not yet been discovered.

During the next ten years hospital architects, at last becoming free from the tyrannies of Georgianism, will probably be most concerned with the provision of specialized hospitals of which a number are illustrated in this issue and in which the planning and equipment will probably show more rapid advances than the construction—particularly the equipment and arrangement of easy circulations within special departments. For these departments for special treatment, formerly a mere two or three, have now grown to a number which cannot be dealt with in any special issue.

This issue is intended as a reference to the latest ideas in hospital planning. Of the most recent work in Britain much is, unfortunately, still incomplete ; and is therefore incompletely illustrated. But representative hospitals completed during the last five years have been illustrated fully, together with examples of recent hospitals abroad.

Finally, in looking at a summary of one aspect of the health services of this country, architects should be reminded of another—of the part played in ill-health by the modern tendency to create noise everywhere and anywhere. The medical contributor to this issue asks for silence in hospitals ; the extraordinary prevalence of nervous ailments today, when nearly all forms of disease are being steadily reduced, seems to ask for more silence everywhere.

Architects, knowing that it is now possible for any competent member of their calling to design completely sound-proof buildings providing that air-conditioning and very heavy expense are no objections, have perhaps become too casual about this problem. In hospitals at any rate they have a stronger case. By stressing to clients who for once will be ready to listen the value of money spent on sound-proofing, and by continual experiment with those methods which are anyway compatible with modern building construction and equipment, they may in building hospitals learn a lot about eliminating a chief cause of modern illness.

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NOTES & TOPICS

THE LAST ELECTION

FOR the last time the members of the R.I.B.A. have been asked to fill up their multi-coloured voting papers and to elect their four principal committees in a truly democratic way. And for the last time the mass of members have shown that, despite their capacity for asking why the R.I.B.A. does not do this or that, they themselves cannot be bothered even to spend fifteen minutes in filling up voting papers.

*

At the Institute on Monday I listened to the results of the elections and I do not think I heard that more than 1,600 voting papers had been received for any committee—or for the Council. My *Kalendar* tells me that there are 7,731 full members—so only about 20 per cent. of us performed the least of our duties towards the Institute.

*

What is more, in spite of the lucid instructions on the papers, between six and sixteen papers were invalid on each count; a rather humorous reflection on intelligent people like ourselves.

THE NEW DEAL

From now on we are only to be asked to vote for the Council who, after election, will nominate members of committees. This may be an improvement—the annual labours of most of us will be reduced from fifteen to three minutes, and some increase in voting may result. In the meantime, the two largest sections of members, the "Why doesn't the R.I.B.A. . . .?" section, and the younger and more irreverent "Heavens . . . the same old gang" section, should remember that the chief trouble of the Institute today is not the suppression of turbulent youth, but the apathy of both youth and middle-age. Yes, my readers, widespread, petulant apathy. What, to touch the hambone, have *you* done for the Institute since your election as a member?

No, you can't ask that. I stand above criticisms; and anyway, my conscience is clear.

1837

As I am writing it is one hundred years and seven hours (allowance being made for summer time) since the Archbishop of Canterbury and Lord Conyngham were knocking on the doors of Kensington Palace in the early dawn. Whether the event justifies such a pedantic insistence upon the hour is a matter of opinion, but few would deny that the nineteenth century began in the summer of 1837, almost as surely as it ended in the summer of 1914.

*

It was but a few years since the little girl had been lifted up into Prinny's carriage for a drive round Virginia Water, and two ages had met. In architecture we have gone full circle and Herr Mendelsohn's house in Church Street strikes the same flat stuccoed note as do the neighbouring Regency mews. The wide window spans and the fact that such a modest building should be a rich man's house are the only things that proclaim it to have been built in the reign of Victoria's great-grandson rather than in that of her "wicked uncle." Nash, through the century, has been progressively a fashion, a scandal, a nonentity, an elegant myth and a fashion.

CAVALCADE

It is the water that has flowed under the architectural bridges and which has flowed in vain that is so astonishing in its volume. Poor Pugin ranting unheard against plaster paganism; Ruskin, supported by the Book of Lamentations, pouring fire and brimstone on the "foul torrent of the Renaissance" and writing the loveliest of English in the process, and Scott brought to the verge of what is now called a nervous breakdown by the Foreign Office controversy—Palmerston winning on points in the last round.

*

Then there were those most Victorian of all Victorians such as Street—building Law Courts in which famous Q.C.'s and famous poisoners could never hear each other speak, the flys and growlers would rattle so over the granite setts; Aston Webb sending his assistants over to measure Chambord that his V. and A. detail might be beyond reproach; Bentley and Bodley piously expressing the ritualism of their day, often with exquisite artistry; Norman Shaw clothing the Gaiety in grim Genoese rustications—the Gaiety of all places—and building fairyland fantasias as homes for gun-makers.

*

Of course it was not all in vain, there was a credit side to the account; there was, for instance, Paxton, fresh from the Palm House at Chatsworth, who gave us the idea of standardized building units, there was Bazalgette, a mere engineer, composing the great sweep of the Embankment—so dramatic when the lights come out, there was William Morris, spiritual father of the Bauhaus, who gave us back the use of brick as brick; there was young Mr. Lutyens building Surrey cottages for the æsthetic rich, who taught us the use of fine material, and there was C. F. A. Voysey who, in a chaotic moment, gave us back a good deal of common sense.

*

In the cavalcade of the arts, nineteenth-century architecture, taken item by item, is just a little too easy to laugh at—taken collectively it is, after all, the solid outward symbol of that colossal wealth on the margin of which the country still subsists and for which, in its decline, it so

Melanconia. By Chirico. From the exhibition now being held at the Zwemmer Gallery.

obviously yearns. B.B.C. song revivals, a spout of biographies, "Victoria Regina," pageantry and regimentals, Mr. Rex Whistler—nostalgia takes many forms; Ascot, Cowes, Henley, four-in-hands, the Eton boating song—these were the bubbles on the champagne.

*

Nowadays they do not seem quite the same bubbles.

COMMERCIALISM *versus* INDUSTRIALISM

There is no better way, I discovered this week, of contrasting the North with the South than to spend a summer evening in the Merseyside Express—the south is seen in the full light of day, but three hours later the black towns beyond Crewe assume their most dramatic values as they silhouette themselves against the western sky. Socially these towns lie scattered along the tragic "Road to Wigan Pier"; but æsthetically, as the line runs high above Runcorn and Widnes, the industrialized banks of the Mersey can, on occasions, look rather magnificent.

*

Since the teeming millions of the Ganges valleys bought their cotton robes a little cheaper from Japan, Lancashire, like Victorian gothic, has become a symbol of our lost security, but I wonder whether the more prosperous south really represents a happier or better chapter in our social history. The welter of glass, concrete and bad lettering which, like a South American "Exposition," lines our new exits from London, probably symbolizes the most colossal scale of false values which have ever been imposed upon a civilized people.

*

London is rapidly becoming surrounded by two "belts"—a negligible and intermittent green one and a broad flourishing commercial one. This latter belt produces, generally, the stupidest and silliest articles that nobody needs and distributes them by way of propaganda which is insidious when it is not even sillier.

*

One day there may be such a thing as a consumers' strike.

SENSE AMONG HOTEL-KEEPERS

A friend who has just come back from a fortnight or so in Scotland produced a hotel menu with a map of the surrounding 20 miles or so on the back. And after hearing a whole lot of blasphemy on the subject of the British *hotelier* and his deficiencies I am only too delighted to record a piece of enterprise.

*

The particular example came from Bettyhill—the horizontal bit of the far North where there is hardly anything between you and the Pole, but I gather that several other Scottish hotels are equally intelligent. The R.A.C. and the A.A. often provide county maps which hang in the hall, but the back of the menu seems to me the obvious place for a map, for you can not only argue about where you've been at dinner, but about where you're going to go at breakfast the next morning.

ST. JOHN'S

I hear that one of Mr. Edward Maufe's alternative schemes for St. John's College new buildings at Cambridge has been accepted. I also hear, despite my previous note being based on the presumably unimpeachable foundation of the combination room, that the site is *not* across the river.

*

It is in Bridge Street and extends almost the whole way from Magdalene Bridge to St. John's Street corner; one scheme liquidates the Masters' Lodge and one spares it; and which is to triumph has not yet been decided. *My* thumbs are resolutely turned downwards.

*

Mr. Maufe has six hundred feet of site to play with—right in the eye of Cambridge. I have already emphasized his responsibility. With fascinated care I will watch forthcoming events.

LOOKS LIKE MARBLE

Seventy-two year old ex-sailor Tippen has spent eleven years decorating the exterior of his Chichester house with broken bottle mosaic. *Not* exactly a new idea, though the last recorded case was a year or so ago in the Channel Islands, where somebody spent half a lifetime on a miniature chapel with the same sort of finish.

*

But there is another and more sinister development. Mr. Tippen, interviewed, says: "I began my hobby by making decorated ornaments, bird-baths and such things out of rubbish. Now I am devoting all my time and attention to my hobby." I fear the worst: cast concrete *putti* are bad enough, but with a broken saucer dash as well . . . !

ASTRAGAL

Working Details, Trade Notes, Rates of Wages and Current Prices have been held over from this issue; they will be resumed next week.

NEWS

POINTS FROM THIS ISSUE

LEVERHULME SCHOLARSHIP IN ARCHITECTURE

The Leverhulme Scholarship tenable at the Architectural Association School of Architecture, value £1,000, which includes payment of fees and maintenance for a period of five years, has been awarded this year to Mr. R. H. Evans, of Gosport, Hants.

LIVERPOOL SCHOOL OF ARCHITECTURE

This year the Liverpool School of Architecture is organizing in Paris from July 30 to August 4 a reunion of its former students. The reunion will take the place of the summer school which has been held in July in the last two long vacations. Next year the series of summer schools will be resumed.

The programme of the reunion will comprise visits to the International Exhibition of Modern Arts and Crafts, and to some of the most interesting contemporary architectural work in and near Paris, as well as to buildings of historic importance.

It is hoped that as many former students of the school as possible will attend the reunion, to which their wives and friends are also cordially invited.

ROME SCHOLARSHIP IN ARCHITECTURE

The designs submitted in the Final Competition for the Rome Scholarship in Architecture will be on exhibition at the R.I.B.A., between the hours of 10 a.m. and 8 p.m. (Saturdays, 10 a.m. and 5 p.m.) from July 3 to 10, inclusive.

The Scholarship is provided by the R.I.B.A., which makes a grant of £750 a year to the British School at Rome. It is awarded by the Faculty of Architecture of the British School at Rome. The scholar is required to go to Rome to study for a period of two or three years at the British School at Rome.

This year the subject for the competition was "A Zoological Garden." Fifteen students, from the following schools, have submitted designs: The Welsh School of Architecture, the Technical College, Cardiff; School of Architecture, Edinburgh College of Art; Leeds School of Architecture; Liverpool School of Architecture, University of Liverpool; School of Architecture, the Architectural Association, London; Bartlett School of Architecture, University of London; School of Architecture, the Victoria University, Manchester; School of Architecture, Armstrong College (University of Durham), Newcastle-upon-Tyne; and Royal Academy School of Architecture, London.

THE ARCHITECTS' DIARY

Thursday, June 24

R.I.B.A. CONFERENCE. *At Leeds. Until June 26. Headquarters of the Conference: Leeds Civic Hall. 10 a.m.: The Conference will assemble in the new Chemistry Lecture Theatre at the University for the Inaugural Meeting, and will be welcomed by the Lord Mayor of Leeds. The Inaugural Address will be delivered by the President of the Institute, to be followed by short addresses by (a) Mr. H. S. Goodhart-Rendel on "The Architect Today," and (b) Professor Patrick Abercrombie on "The Development of a Great Industrial City and its Area." The new Buildings and Brotherton Library will be open for inspection. 12.30 p.m.: Assemble at the University, where the Conference photograph will be taken. Lunch: Members of the Conference and their guests will make their own arrangements for lunch. 2.15 p.m. to 6 p.m.: Alternative Visits. 8 p.m. to 1 a.m.: Reception and Dance given by the Lord Mayor and Corporation of Leeds at the Leeds Town Hall.*

ARCHITECTURAL ASSOCIATION, 36 *Bedford Square, W.C.1. Exhibition of Czechoslovakian Sketches and Posters. Until June 25.*

ROYAL ACADEMY EXHIBITION, *Burlington House, W.1. Until August 7.*

BUILDING CENTRE, 158 *New Bond Street, W.1. Exhibition of Working-Class Furniture and Household Equipment. Organized by the Council for Art and Industry. Until June 26.*

LONDON SOCIETY. *Visit to the Home Office Industrial Museum, Horseferry Road, S.W.1. 3 p.m.*

Friday, June 25

R.I.B.A. CONFERENCE. *At Leeds. 9.30 a.m. to 6 p.m.: Alternative Whole-day Tours. 7.30 p.m. for 8 p.m.: Conference Banquet in the Leeds Town Hall.*

Saturday, June 26

R.I.B.A. CONFERENCE. *At Leeds. Informal Visits. Private parties to other places of interest. Members to make their own arrangements.*

ST. PAUL'S ECCLESIOLOGICAL SOCIETY. *Visit to the R.I.B.A., 66 Portland Place, W.1. (2.30 p.m.) and to All Souls' Church, Langham Place, W.1 (4 p.m.).*

ASSOCIATION OF ARCHITECTS, SURVEYORS AND TECHNICAL ASSISTANTS. *Visit to Whipsnade Zoo. 2.0 p.m.*

Wednesday, June 30

ARCHITECTS' REGISTRATION COUNCIL, 68 *Portland Place, W.1. General Meeting.*

ARTS AND CRAFTS EXHIBITION SOCIETY, 6 *Queen Square, W.C. 1. Annual General Meeting. 6 p.m.*

THE MARS EXHIBITION

The MARS Group, whose plans for an ambitious modern architecture exhibition are progressing, is appealing for volunteer labour to help complete the drawings for the structural part of the exhibition. We are asked to say that any offers of part-time or full-time help from students and others will be gratefully received by the Secretary, C. Sweelt, 55 Gordon Square, W.C.1.

ON THE AIR

Thursday, June 24. National Programme. "Your Home and Mine: How shall we spend our Leisure." By Geoffrey Boumphrey. 2.5 p.m. *West and West Wales.* "Town Tour." By John Betjeman. 8.30 p.m.

BANNED COMPETITION

The following notice has been issued by the R.I.B.A.: "The Conditions of the competition for a proposed Golf Club House for the Cotswold Golf Club, Cheltenham, are not in accordance with the Regulations of the R.I.B.A. The Competitions Committee is in negotiation with the promoters in the hope of securing an amendment. In the meantime, members should not take part in the competition."

INTERNATIONAL REUNION OF ARCHITECTS

Following is the programme of the International Reunion of Architects to be held in Paris from June 28 to July 5:

Official Programme

Monday, June 28, 9 o'clock until noon: Reception of delegates at Headquarters of the R.I.A., 65 Avenue des Champs-Élysées. Distribution of cards, programmes, etc. Lunch offered by National French Committee. 3.30 p.m. Salle d'Iéna. First meeting organized in connection with the International Lighting Congress. 6.30 p.m. At the Architects' Club at the Exhibition. Reception of participants by the French section of the R.I.A.

Tuesday, June 29: 10 a.m. Salle d'Iéna. Second meeting ("Metal"). Afternoon: Visit to the Exhibition. 5.30 p.m. Reception by CIAM at Pavillon des Temps Modernes. 9 p.m. Meeting in conjunction with the Fifth Congress of Modern Architecture.

Wednesday, June 30: 10 a.m. Whole day excursion to visit ancient monuments and new constructions of Paris.

Thursday, July 1: 10 a.m. Third meeting ("New Materials"). Afternoon: Visit to the Exhibition. 5.30 p.m. Reception given by the Union of Modern Artists at their Pavilion. 9.30 p.m. Reception at the Louvre Museum by the "Porza" Society.

Friday, July 2: Whole day excursion to interesting constructions, monuments and buildings of Paris. 5.30 p.m. Tea offered by the Society of Modern Architects.

Saturday, July 3: 10 a.m. Fourth meeting ("Plan"). Afternoon: free.

Sunday, July 4: Free all day. 8 p.m. Dinner given by Executive Committee of Fourth International Reunion of Architects.

Monday, July 5: 10.30 a.m. Salle d'Iéna. Fifth meeting ("Modern Architecture"). 6 p.m. Reception by French Government in the park at Versailles. (Departure from Invalides Station by special train at 5 o'clock.)

Here the Official Programme of the International Reunion of Architects ends.

Arrangements have been made for a second week for members of the Congress and their friends in Paris and for a number of special excursions.

R. I. B. A.

ANNUAL ELECTIONS

At a general meeting of the Institute on Monday last, the results of the annual elections to the Council and Standing Committees were made public. Mr. H. S. Goodhart-Rendel was elected President. A list of the new Council and Standing Committees is given below:—

Past Presidents: Sir Giles Gilbert Scott and Mr. Percy E. Thomas. *Vice-Presidents:* Professor Patrick Abercrombie and Messrs. J. R. Adamson (nominated by the Allied Societies Conference), T. A. Darcy Braddell, and Professor A. E. Richardson. *Honorary Secretary:* Mr. H. M. Fletcher. *Honorary Treasurer:* Lt.-Col. P. A. Hopkins.

COUNCIL: *Fellows:* Messrs. C. H. Holden, E. Stanley Hall, E. B. Maufe, H. M. Robertson, Stanley H. Hamp, and Major T. C. Howitt. *Associates:* Messrs. Wesley Dougill, C. A. Minoprio and R. A. Duncan. *Licentiates:* Sir William F. V. M. Milner and Mr. F. R. Taylor. *Representatives of Allied Societies in the United Kingdom or the Irish Free State:* Six Representatives from the Northern Province of England: Messrs. G. H. Gray (Northern Architectural Association); W. A. Johnson (Manchester Society of Architects); B. M. Ward (Liverpool Architectural Society); C. W. C. Needham (York and East York Architectural Society); G. W. Atkinson (West Yorkshire Society of Architects); and J. C. A. Teather (Sheffield, South Yorkshire and District Society of Architects and Surveyors). *Five Representatives from the Midland Province of England:* Messrs. S. N. Cooke (Birmingham and Five Counties Architectural Association); E. J. Williams (Leicester and Leicestershire Society of Architects); one representative to be nominated by the Council of the Northamptonshire, Bedfordshire and Huntingdonshire Society of Architects; W. G. Watkins (Nottingham, Derby and Lincoln Architectural Society); and F. H. Swindells (East Anglian Society of Architects). *Six Representatives from the Southern Province of England:* Captain E. E. Kemeys-Jenkin (Devon and Cornwall Architectural Society); and Messrs. W. J. Stenner (Wessex Society of Architects); G. H. Grayson (Berks, Bucks and Oxon Architectural Association); one representative to be nominated by the Council of the Hants and Isle of Wight Architectural Association; H. R. Bird (Essex, Cambridge and Hertfordshire Society of Architects); one representative to be nominated by the Council of the South-Eastern Society of Architects. *Four Representatives of Allied Societies in Scotland* (nominated by the Council of Royal Incorporation of Architects in Scotland): Messrs. N. A. Dick (Glasgow); J. G. Marr (Aberdeen); C. G. Soutar (Dundee); and W. J. W. Todd (Edinburgh). *One Representative of Allied Societies in Wales* (nominated by the South Wales Institute of Architects): Mr. O. S. Portsmouth (Swansea). *Two Representatives of Allied Societies in Ireland:* Messrs. J. J. Robinson (Royal Institute of the Architects of Ireland); and one representative to be nominated by the Council of the Royal Society of Ulster Architects. *Representatives of Allied Societies in the British Dominions Overseas:* To be nominated by the Councils of each of the following: Royal Architectural Institute of Canada; Royal Australian Institute of Architects; New Zealand Institute of Architects; Institute of South African Architects; and the Indian Institute of Architects.

Representative of the Architectural Association (London): Mr. L. H. Bucknell.

Representative of the Association of Architects, Surveyors and Technical Assistants: Mr. R. C. Fisher.

Chairman of the Board of Architectural Education: Mr. T. A. Darcy Braddell.

Chairman of the Art, Literature, Practice and Science Standing Committees.

Chairman of the Allied Societies' Conference: Mr. J. R. Adamson (Bolton).

Chairman of the Architects' Registration Council of the United Kingdom: Mr. Sydney Tatchell.

Chairman of the R.I.B.A. Competitions Committee.

Honorary Auditors: Messrs. Robert William Pite and Frank John Toop.

ART STANDING COMMITTEE

Fellows: Messrs. E. C. Bewlay, Stanley H. Hamp, J. H. Forshaw, and C. F. W. Dening.

Associates: Messrs. D. L. Bridgwater, and F. E. Towndrow.

Licentiate: Sir William F. V. M. Milner.

LITERATURE STANDING COMMITTEE

Fellows: Messrs. A. S. G. Butler, Arnold Silcock, Gerald Unsworth, and Robert Lowry.

Associates: Messrs. E. R. Jarrett and A. D. R. Caröe.

Licentiate: Mr. Francis Robert Taylor.

PRACTICE STANDING COMMITTEE

Fellows: Messrs. Geoffrey C. Wilson, R. N. MacKellar, Alfred Hale and H. Stratton Davis.

Associates: Messrs. John Batty and Bertram Stewart Hume.

Licentiate: Mr. Malcolm Waverley Matts.

SCIENCE STANDING COMMITTEE

Fellows: Messrs. John Swarbrick, H. M. Fairweather, Alan E. Munby and Thomas Wallis.

Associates: Messrs. Cecil J. Morreau and W. F. B. Lovett.

Licentiates: Messrs. W. W. Begley (Selsdon) and W. R. Glen.

COMPETITION RESULTS

BIRMINGHAM

Mr. James R. Adamson, F.R.I.B.A., the assessor of the competition (open to architects of British nationality) for a new Central Technical College, Commercial College and College of Arts and Crafts for the City of Birmingham, has made his award as follows:—

Design placed first (£750): Messrs. H. V. Ashley and Winton Newman, of London.

Design placed second (£500): Messrs. D. Carr and W. F. Howard, of London.

Design placed third (£250): Messrs. W. A. Mellon and H. Furse, of London.

Commended: Mr. John B. Mendham, of London; Mr. H. T. Wright, of Newcastle-on-Tyne; Mr. J. A. O. Allan, of Aberdeen; and Mr. A. G. Henderson, of Glasgow. The first premium is to merge into the professional charges payable to the successful architect when the work proceeds.

The designs submitted are to be exhibited in the Loan Room of the Birmingham Museum and Art Gallery from Monday, June 28, to Saturday, July 3, between the hours of 10 a.m. and 8 p.m. on Wednesday, and 10 a.m. and 6 p.m. on other days.

The winning scheme is reproduced on pages 1162–1164 of this issue.

MACCLESFIELD

Professor R. A. Cordingley, M.A., F.R.I.B.A., the assessor of the competition for a Nurses' Home at the Macclesfield General Infirmary, has made his award as follows:—

Design placed first (£100): Mr. Frederick Gibberd, of London.

Design placed second (£50): Messrs. Minoprio and Spencely, of London.

Design placed third (£25): Messrs. Mapley, Brotherton, and Mills, of Manchester.

The winning scheme will be reproduced in our next issue.

Frederick Gibberd, author of the design placed first in the Macclesfield competition.

EXHIBITIONS

[*BY D. COSENS*]

Reactions to any painting that is not strictly representational follow an almost invariable rule—disapproval, and usually derision of its latest developments, with a time-lag of anything up to twenty years before fashion adopts, often without understanding, and the rest of the world hurries to approve. Not so long ago, Impressionism (now, in reproduction, the culture index of timid souls) was very shocking, now Surrealism with suitable captions fills an occasional gap in the evening papers. But, whether we are interested in art, or literature, or whatever, the manifestations of this our own age, even if we happen to hate them, are of vital importance.

It is certainly true that, as soon as any tendency in painting has been crystallized into a movement, it tends to lose its vitality. Surrealism was so named by Andre Breton in 1924, but the qualities that we call surreal can be found in the work of endless early painters—Bosch or El Greco, for example. The movement is still flexible and experimental, and though we personally may not appreciate its significance, it will hold an important position in the history of art, and the social historian of the future will find it quite as significant as Joyce, Freud, the Left Book Club, or Walt Disney in recording this age.

Herbert Read says: "Surrealism is opposed to any intellectualism in art—to any

preference, that is to say, for rational as opposed to imaginative elements." Roland Penrose defines it as contrast in light and shade, life and death. A breaking loose from the law of identity by putting two separate objects, unallied, in juxtaposition.

At the moment there are two exhibitions of surrealist art in London: Max Ernst at the Mayor Gallery, and Chirico at Zwemmer's. Both these painters are pioneers of the movement who have experimented continuously. Ernst's work is his most recent. Chirico's is interesting as marking the end of one phase and the beginning of another, but it does not, with one or two exceptions, represent his best work.

Many people will not like these paintings—lots of people feel sick in aeroplanes—but both are worth trying because both are the experiments of this generation. Rude things are said by psychologists of those who find happiness only by retreat into the security of the past.

•

Vlaminck's pictures are not really "The Windmill," or "The Meadows," or whatever they are labelled, but the weather as he felt it in those surroundings on that particular day. The clouds clearing in the stillness after snow, the sun breaking through for a moment between storms of rain, and the wind—nearly always an exciting wind bending the trees and grasses and sweeping together the separate units of his composition.

His exhibition at the Wildenstein Galleries is a revelation to anyone who has not seen many of his paintings for a long time. The pictures, with their absorption in the rhythms and colour harmonies of uncertain and changing lights, are all almost equally lovely. In such pictures as "Farm Buildings" or "Village Pond," there is intermittent sunshine after a storm, with more rain to come. "Windmill," with the immense sweep and movement of the landscape and clouds, or "Lighthouse" with the tide running on a grand squally day, are both magnificent. This is the outstanding exhibition at the moment of the work of a living painter.

•

Lynton Lamb is better known for his Underground posters and his work for the Oxford University Press than for his painting. He has shewn from time to time with the London Group, but the exhibition at the Storran Galleries is his first. He has a very good colour sense, and his painting is broadly treated and remarkably free from any of the mannerisms of the commercial artist. It is to be hoped that he will find time to devote himself to what is at present a side-line in his profession—"West Bay" and his very successful "Hyde Park" more than justify this hope.

•

Max Ernst, The Mayor Gallery, 19 Cork Street, W.1. Until June 27.

Georgio de Chirico, Zwemmer's Gallery, 26 Litchfield Street, W.C.2. Until June 30.

Paintings by Vlaminck. The Wildenstein Galleries, 147 New Bond Street. Until the first week in July.

Lynton Lamb. The Storran Gallery, 106 Brompton Road. Until June 30.

LETTERS FROM READERS

C. E. T. CRIDLAND (Managing Director, Messrs. Hawkes and Snow)

P. DONALD (Chairman, Distributors of Builders' Supplies Joint Committee)

G. B. J. ATHOE (Secretary of the Incorporated Association of Architects and Surveyors)

The Position of Sub-Contractors

SIR,—During the slump of a few years ago, when everyone had a certain modicum of time to spare, various well-organized efforts were made to put the position of the sub-contractor on a sound footing.

At that time it appeared that much had been achieved, and that the various evils which had previously beset the position of sub-contractor had been overcome.

Under the present changing conditions, when practically every firm has more work than it wants, these evils are rapidly growing apace, and the position is not very much better than it was before.

When business was scarce, the architect had no difficulty in selecting reputable firms with whom to place his main contracts.

Under the present conditions, in many cases he has to place them where and when he can.

In consequence, the sub-contractor is, in many instances, finding the capital to keep the main contractor going, and, in many more instances, finds himself at the end of a job, through no fault of his own, in the position of an unpaid creditor.

No doubt the various associations are still giving this, and other similar matters, their attention, but the writer would suggest that if all architects would keep sufficient retention money in hand until the sub-contractors had been paid, this would greatly mitigate this difficult position.

HAWKES & SNOW, LTD.
C. E. T. CRIDLAND,
Managing Director.

The Armament Programme

SIR,—Considerable perturbation was caused in the building industry by Sir Thomas Inskip's speech at Newcastle on March 5—particularly in regard to the following:—

"He hoped that the whole community might be prepared to forego the pleasure of seeing new buildings erected or old buildings reconstructed, in order that the Government might not be handicapped in the completion of its programme, and also in order that there might be a flow of remunerative contracts when the peak of the Government's programme had been passed."

Sir Thomas Inskip apparently had in mind large constructional works using steel, but his speech has been interpreted as applying to all types of building work. House building is largely dependent upon the acquisition of land, based upon a "site" investment or speculative initiative taken six to nine months in advance of the actual building operation. The speech had the unfortunate effect of:—

(*a*) Accelerating schemes on which commitments had already been entered into, thereby creating a temporary boom in materials with consequent price advances.

(*b*) Stopping the initiation of new commitments of the speculative or investment order, with lamentable results, on a type of labour quite useless to armaments.

Your co-operation in giving publicity to an assurance given in a recent letter from Sir Thomas Inskip may enable that steady flow of house building to continue, as is essential both to employment and well-being, viz.:—

"It is well known that the Government want a vast amount of building to go on such as houses, hospitals, everything required for social services and essential public works. This is all in addition to their own programme. On the other hand, I have suggested that what may be called pure luxury building may, with advantage, be postponed. There is no intention of enforcing any suspension of building of any sort."

For Distributors of Builders' Supplies Joint Committee,

P. DONALD,
Chairman.

Salaried Architects

SIR,—The A.A.S.T.A. is to be congratulated on the proposal put forward in its Secretary's letter, which you publish in your issue for June 17.

I have authority to say that the I.A.A.S. would be pleased to co-operate in any such scheme as that adumbrated by the A.A.S.T.A.

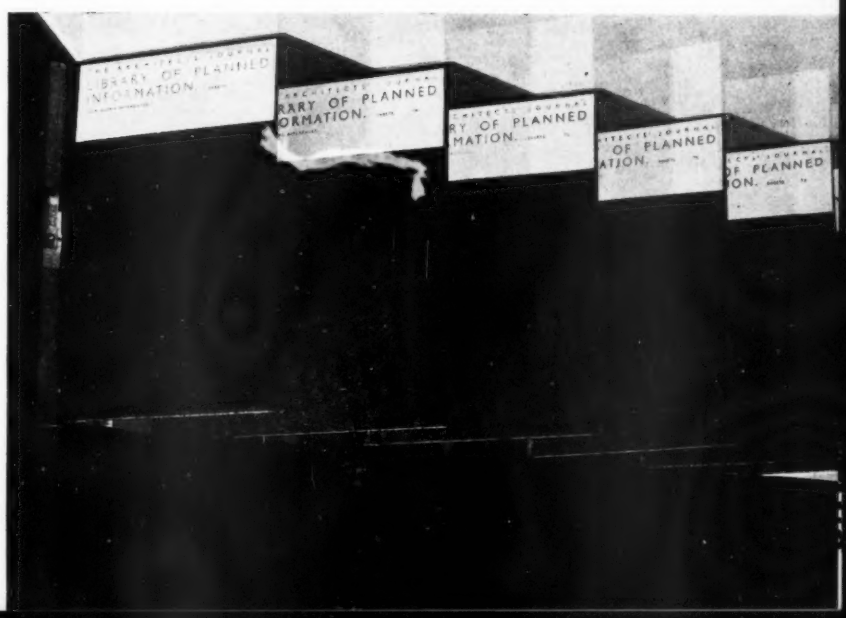
G. B. J. ATHOE, Secretary.

The Architects' Journal Library of Planned Information

INFORMATION SHEET

SUPPLEMENT

SHEETS IN THIS ISSUE



Sheets issued since Index :

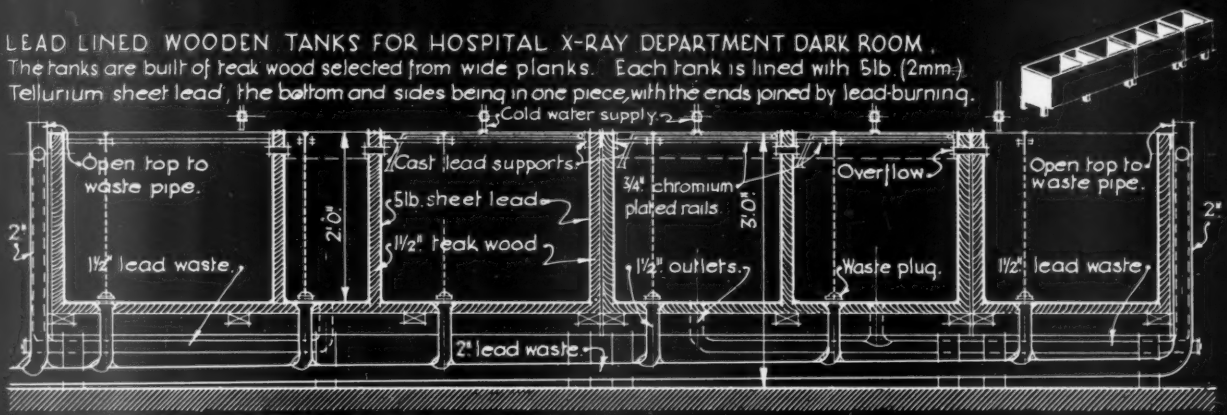
501 : Aluminium
502 : Fixing Blocks
503 : Approximate Estimating—XII
504 : Aluminium
505 : Aluminium
506 : Approximate Estimating—XIII
507 : Plumbing : Jointing of Copper Pipe
508 : Roofing—Valley Flashings
509 : The Equipment of Buildings
510 : Aluminium
511 : Elementary Schools—II
512 : School Lighting
513 : Approximate Estimating—XIV
514 : Air Conditioning
515 : Insulation of Buildings
516 : Cycle Parks
517 : Cycle Parks
518 : Plumbing Systems—II
519 : Kitchen Equipment
520 : Roofing—Flashings
521 : Motor Cycle Parks
522 : Reinforced Asbestos-Cement Roofing Tiles
523 : Poison Gas Precautions
524 : Kitchen Equipment
525 : Metal Reinforced Asbestos Cement

C79

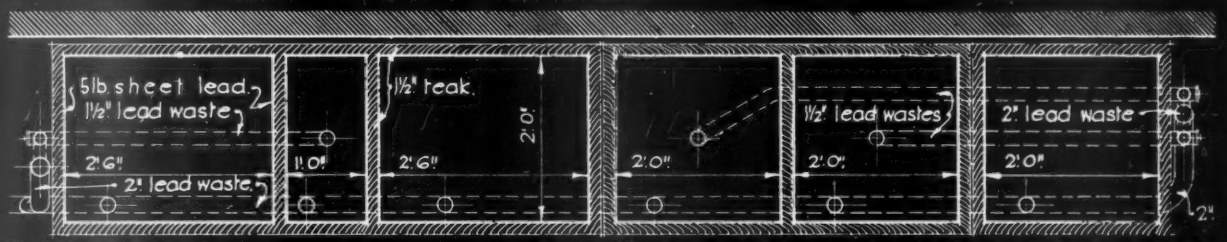
679. THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION

LEAD LINED WOODEN TANKS FOR HOSPITAL X-RAY DEPARTMENT DARK ROOM.

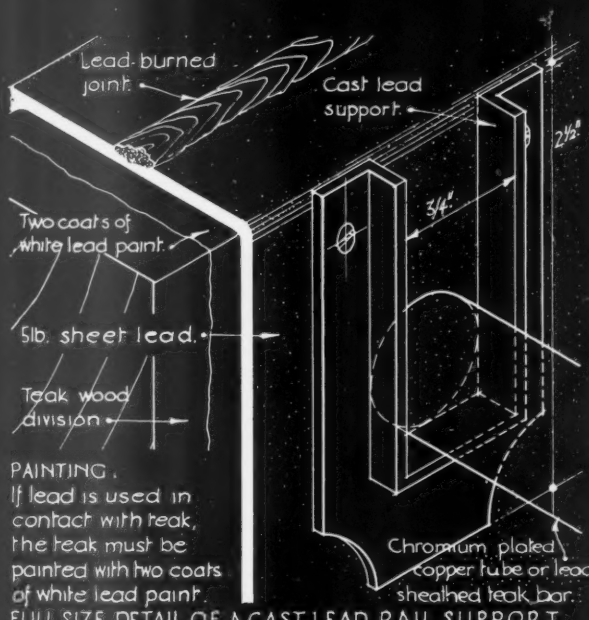
The tanks are built of teak wood selected from wide planks. Each tank is lined with 5lb. (2mm.) Tellurium sheet lead, the bottom and sides being in one piece, with the ends joined by lead-burning.



LONGITUDINAL SECTION THROUGH TANKS.

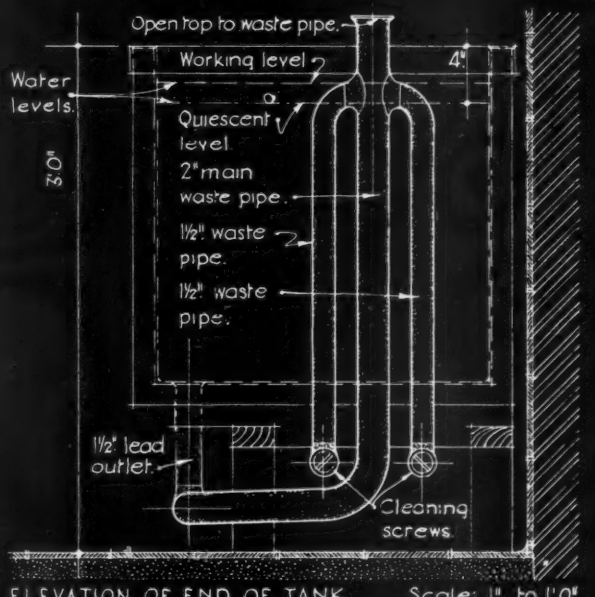


PLAN OF TANKS. Scale of plan and section: Half inch to one foot.

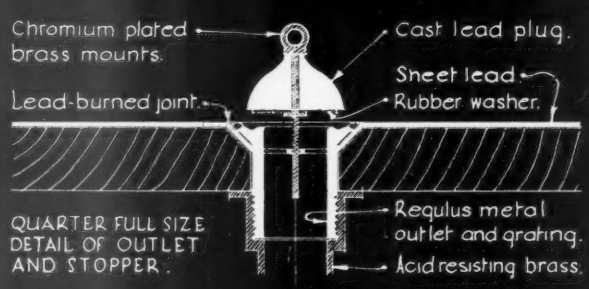


PAINTING.
If lead is used in contact with teak, the teak must be painted with two coats of white lead paint.

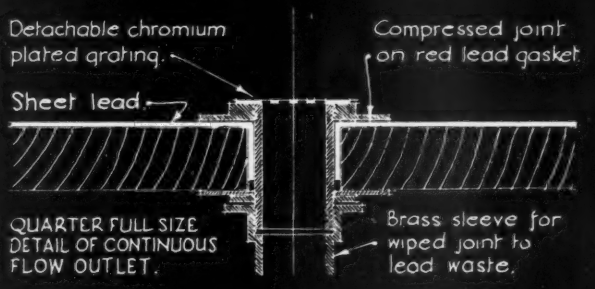
FULL SIZE DETAIL OF A CAST LEAD RAIL SUPPORT.



ELEVATION OF END OF TANK. Scale: 1" to 1'0".



QUARTER FULL SIZE DETAIL OF OUTLET AND STOPPER.



QUARTER FULL SIZE DETAIL OF CONTINUOUS FLOW OUTLET.

Issued by The Lead Industries Development Council. *Information from Robert Morison, M.R.San.I., R.P.*

INFORMATION SHEET: HOSPITALS: LEADWORK TO X-RAY PHOTOGRAPHIC DEVELOPING TANKS. No. 36

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1. Oscar A. Beyn

THE ARCHITECTS' JOURNAL
LIBRARY OF PLANNED INFORMATION

INFORMATION SHEET

• 526 •

LEADWORK TO PHOTOGRAPHIC DEVELOPING TANKS

Subject : Leadwork to Photographic Developing Tanks

This Sheet deals with the leadwork to tanks for developing X-ray photographic films.

General :

For the developing of X-ray films, a series of tanks are necessary suitable for holding the numerous chemicals used. The chemicals have a strong corrosive action on most metals, but it has been found that lead, either as pure chemical lead or in the form of Tellurium alloy, is not seriously attacked by the photographic materials, and lead-lined tanks are, therefore, suitable for developing tanks in dark rooms.

Construction :

The tanks are constructed of teak, or a similar suitable wood, selected from broad planks with all joints flush internally.

The tanks are supported on stands built up with 3 ins. by 2 ins. battens and stools, to give a height of 3 ft. to the top of the tank.

Leadwork :

The tanks are lined with sheet lead, either pure chemical lead, or Tellurium alloy, weighing 6 and 5 lbs. respectively per square foot. Where chemical lead is used the sides should be fixed half-way up by means of secret tags lead-burned over in the form of dots, and spaced horizontally at 12-in. centres. The tags are fixed into the woodwork. The two sides and the bottom of each tank are in one piece, and the ends are worked in 1½ ins. to overlap the sides and bottom, and are lead-burned.

The ends and sides are dressed over the top edges of the tanks about 2 ins., except the internal divisions where the two adjacent ends are dressed on to the top of the division, and butted together and lead-burned.

The waste pipes should be of lead, and joints may be wiped or lead-burned.

One master trap is sufficient for the range since the waste water is free from organic matter.

The outlet gratings, which would be normally of brass, should be of acid-resisting metal, and Regulus metal, an alloy of 76 per cent. pure lead and 24 per cent. antimony, is used. It can be turned and threaded, and also lead-burned to the sheet lead lining of the tanks. The two types of outlet are detailed on the foot of the Sheet.

On the detail at the top of the Sheet, the second, fourth and fifth compartments, reading from the left, are washing compartments with a continuous flow of water. In the washing of films, to remove the hypo-fixing solution, an outlet at the bottom is necessary.

In order to maintain a constant level in these compartments at about 4 ins. below the top of the tank the following device is used. The pipe from the outlet in the bottom of the compartment is carried along horizontally to the outside end of the range of tanks, and then up vertically to connect into a common waste pipe at the desired working level. The common waste must have an open top or syphonic action would result in the emptying of the whole contents of the tank.

In some installations square section rails to support the film carriers are preferred. These are of teak, sheathed in 3 or 4 lb. lead sheet.

Cleaning screws should be fitted to the ends of horizontal waste pipes.

Water Supply :

Cold water supplies may be provided through lead pipes. In some cases, however, in order to economize space and simplify fixing, copper has been used instead. In such cases, it is necessary, first, to fit the pipe, then to take it down and to chromium-plate the whole of the exposed area and re-erect in order to prevent corrosion of the copper. Care should be taken when re-erecting to avoid damage to the plating. The pipe is run round three sides of the tank with a discharge tube at each corner delivering at about 4 ins. below the water level through a fish tail orifice so as to give a thin wave action.

Plating of Water Fittings :

All pipes, other than those in lead, and all water fittings and mounts in and above the level of the troughs, should be chromium-plated as a protection against the corrosive action of the chemicals.

Previous Sheets :

For methods of arranging lead-linings for X-ray protection, see Information Sheets Nos. 182 and 472.

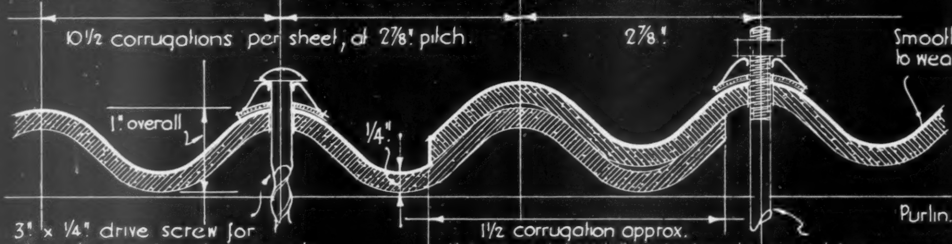
Issued by : The Lead Industries Development Council
Address : Rex House, 38 King William Street, E.C.4
Telephone : Mansion House 2855

THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION

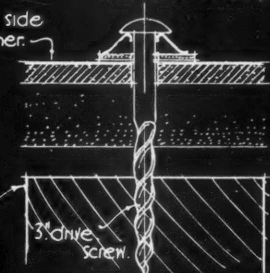
•EVERITE• STANDARD ASBESTOS-CEMENT CORRUGATED SHEETS :

Fixing attachments are similar in principle to those for •Turnall• Trafford Tiles shown on previous Information Sheet Nº 400. For notes regarding roofing accessories for Standard Sheets, see the reverse side of this Information Sheet.

HALF F.S. SECTION ACROSS SHEETS SHOWING STANDARD VERTICAL OR SIDE LAP :



TYPICAL SECTION ACROSS TIMBER PURLIN.



GENERAL DATA : Standard lengths, 3' to 10' rising by 6" increments. Std. width 2' 6". Nett cover, 2' 1½", & std. end lap 6". Weight of 100 sq. ft. of laid roofing, approx. 308½ lbs. Colours, grey, red, russet-brown.

LAYING : Sheets may be laid left to right or vice versa, smooth side out, starting at eaves & working upwards. It is advisable to commence laying at the roof end opposite to direction of prevailing wind.

MITRING : is similar to that for Turnall Trafford Tiles, see previous Information Sheet 397, & full description on the reverse side of this sheet.

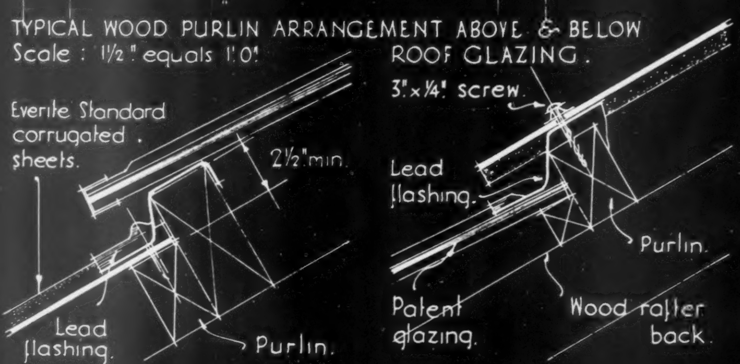
CURVED WORK : Fully curved, or curved end sheets are made to any radius for circular work, or mansard, ventilator & abutment work generally.

TYPICAL PURLIN SPACING DIAGRAMS, Scale ¼" = 1' 0".

PURLINS AT GLAZING. : At the bottom of roof glazing, the purlins which support the ends of the astragal bars and the top of the sheets should be carefully positioned, so that a clear 2½" space is obtained between the support for the sheet & the underside of the glazing bar.

BOTTOM PURLIN should be as far down the slope as possible, to reduce unsupported overhang of sheets to 1' 0" max.

TYPICAL WOOD PURLIN ARRANGEMENT ABOVE & BELOW ROOF GLAZING. Scale : 1½" equals 1' 0".



EVERITE STANDARD ADJUSTABLE RIDGE & HIP CAPPING.

Wings are made in 4' socketed lengths for adjustment to any roof pitch. Standard thickness, ¼".

Information from Turners Asbestos Cement Co. branch of Turner & Newall Ltd.

INFORMATION SHEET : CORRUGATED ASBESTOS-CEMENT SHEETS : Nº 1

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1

THE ARCHITECTS' JOURNAL
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INFORMATION SHEET

• 527 •

ASBESTOS CEMENT CORRUGATED SHEETS

General :

On the face of this Sheet are set out various properties and the laying and fixing details of " Everite " Standard Asbestos-cement corrugated sheets. Standard corrugated sheets are similar in general design and application to " Everite " " Bigsix " sheets, previously dealt with on Information Sheets Nos. 1 and 2 of this series. It should be noted that this type of asbestos-cement sheeting may also be used for side-cladding, in which case the side or gable rail spacing may be up to 5 ft. centres.

Size and Lap :

The Standard type of corrugated sheet is manufactured in a nominal width of 2 ft. 6 ins., in standard lengths from 3 ft. to 10 ft. in 6 ins. rises, and has a nominal thickness of $\frac{1}{4}$ in. Each sheet has $10\frac{1}{2}$ corrugations at $2\frac{7}{8}$ in. pitch and an overall depth of 1 in., and is designed for a fixed side or vertical lap of approximately $4\frac{1}{2}$ ins. ($1\frac{1}{2}$ corrugations), and an end or horizontal lap of 6 ins. The actual cover of a 10 ft. sheet as laid is 9 ft. 6 ins. by 2 ft. $1\frac{1}{2}$ ins., or 20.19 sq. ft. The weight per square yard of the sheeting is approximately $22\frac{1}{2}$ lbs., and approximately 13.77 sq. yds. of sheeting are required to cover an area of 100 sq. ft.

Purlin Spacing :

As shown on the typical set-out diagrams overleaf, the maximum purlin spacing for metal or timber purlins is 3 ft. In roof work, sheets of different length may be employed to make up the particular length of slope, but the position of the top purlin in relation to the apex of roof slope remains constant for all pitches and sizes of sheet.

Fixing Accessories :

Fixing attachments for Standard type corrugated sheeting are similar to those used for " Turnall " Trafford Tiles, see previous Information Sheet No. 400. The fixing bolts and screws are in this case $\frac{1}{4}$ in. diameter only, requiring $\frac{9}{32}$ in. diameter drilled holes in the crown of the corrugations. Hook bolt length is determined by the depth of the purlin plus 2 ins. for single sheets and $2\frac{1}{2}$ ins. where sheets are lapped. Galvanized driving screws are 3 ins. long only.

The sheets should not be fixed too rigidly to the purlins, nor should they be deflected at intermediate fixings in an attempt to obtain an even bearing.

Special galvanized wrought-iron clips are supplied for securing the sheets to purlins or rails that have a flange, and to which hook bolts or screws cannot be attached. These clips are usually required, for example, at the bottom of roof glazing when steel purlins are used.

Laying and Mitreing :

A start is made at the eaves from either right or left hand, and the sheets continued upwards in tiers to the ridge. In laying from left to right, the first sheet, or " starter," is fixed uncut, but the remaining sheets on the bottom row must have the top left-hand corner mitred. The second and other intermediate rows of sheets require both the top left-hand corner and the bottom right-hand corner to be mitred, with the exception of the first and last sheets, which have only the bottom right-hand corner and the top left-hand corner cut respectively. The last or top row of sheets has the bottom right-hand corner mitred only, except the final sheet, which remains uncut.

The correct diagonal cut or mitre required for laying these sheets is from 6 ins. up the vertical edge (or the amount of the horizontal lap) of the sheet to $4\frac{1}{2}$ ins. ($1\frac{1}{2}$ corrugations) along the horizontal edge.

The sheets should be laid with a side lap of $1\frac{1}{2}$ corrugations and fastened on each side of the lap. This method of fixing allows the sheets to take up expansion and contraction of roof framework, and eliminates the necessity for expansion joints. Roof ladders should be used to ensure that no damage is done to the sheets.

The holes for fixing attachments should be drilled, not punched, through the crown of the corrugation only, using an ordinary brace and drill, and making a hole just large enough for the screw or hook bolt to be a push fit, i.e. $\frac{9}{32}$ in. diameter, as pointed out under " Fixing Accessories."

Adjustable Ridge and Hip Capping :

As shown on the detail overleaf, this capping is made in two adjustable wings, each in 4 ft. lengths. All the small roll wings are fitted on one side of the ridge, and the large roll wings on the other slope. One end of each small roll length is joggled to overlap the next length by 4 ins., while the opposite end of the large roll wing is similarly joggled. The large roll wing also has a raised centre cap to fit over the joggle of the small wing when laid.

In fixing, a start is made at the left-hand end of the ridge as seen from the side of the building, and the first small roll wing placed in position with half of the ridge piece projecting over the edge of the roof sheets. All the small roll wings are then fitted on the same side of the roof, when the projecting half of ridge can be cut level with the edges of the roof sheets and used at the other end of the roof if necessary.

The laying of the large roll wings is then commenced at the right-hand end of the ridge. The first wing is placed level with the edges of the roof sheets, with the centre cap fitting over the lap of the small roll, and the remaining wings fixed consecutively, care being taken to see that the centre caps fit over the small roll laps.

Hips are treated similarly.

North light ridges may be formed by the use of large roll wings on the unglazed slope, and small roll wing pieces on the glazed side of the roof, as illustrated for " Turnall " Trafford Tiles on previous Information Sheet No. 426.

Ridge Finials :

10 ins. diameter asbestos-cement plug finials are supplied for insertion in the end of the ridge capping at gable ends, and are fixed with the standard 2 ins. seam bolt through the end of the ridge roll.

Barge Boards and Corner Pieces :

These pieces are similar to those designed for use with " Bigsix " corrugated sheets, see future Information Sheets of this series.

Asbestos-cement Louvre Blades :

Ventilators may be built up in tiers as already detailed for " Turnall " Trafford Tiles, see previous Information Sheet No. 427. The apron flashing pieces for use with Standard Corrugated Sheets, however (at the junction of the blades with the roofing) are made in lengths of 2 ft. 4 ins. by $11\frac{3}{4}$ ins. in width, and have an 8 ins. corrugated apron to fit over the roof corrugations.

Roof Lights :

(a) *Asbestos-cement dead lights*

These sheets, of similar section to the standard corrugated sheeting, are identical in application and fixing to those already described on previous Information Sheet No. 427, relating to " Turnall " Trafford Tiles. They are made in a standard width of 2 ft. 7 ins., with a daylight opening size of 3 ft. by 1 ft. $3\frac{1}{2}$ ins., to take a sheet of glass 3 ft. 9 ins. by 1 ft. 5 ins. The asbestos-cement dead lights are supplied without glass and fixed by the same accessories fixing the ordinary sheets. The sides of the glazing should be bedded in putty, after which the lead lugs should be turned in and the glass front puttied.

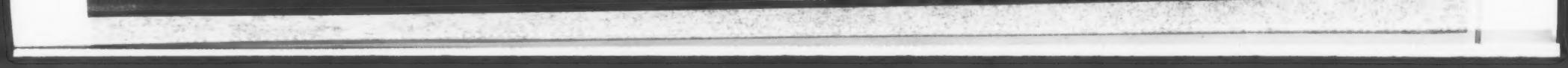
(b) *Galvanized iron opening lights*

Galvanized iron opening lights are similar to those described above, and are used when ventilation is required in addition to light. They are made only 2 ft. 6 ins. wide, however, with a daylight opening size of 3 ft. by 1 ft. 6 ins. to take a single sheet of glass 3 ft. $2\frac{1}{2}$ ins. by 1 ft. $7\frac{3}{4}$ ins.

The galvanized lights are of the puttyless type and supplied without glass.

Information from : Turners Asbestos Cement Co. Branch of Turner and Newall Ltd.
Address (Central Office) : Trafford Park, Manchester, 17
Telephone : Trafford Park 2181 (8 lines)

London Office : Asbestos House, Southwark Street, S.E.1
Telephone : Waterloo 4041



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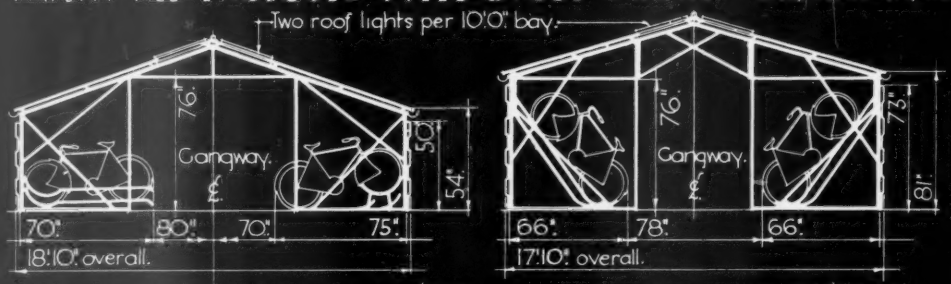
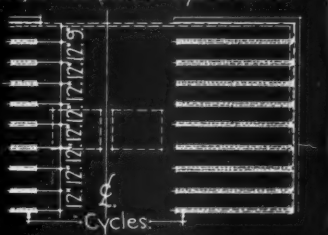
PATENT ALL-ENCLOSED STEEL CYCLE PARKS.

Cycle Parks are supplied with walls either of Galv. Corrugated sheet, 9" Brickwork, Asbestos, or R.P.M., to suit requirements.

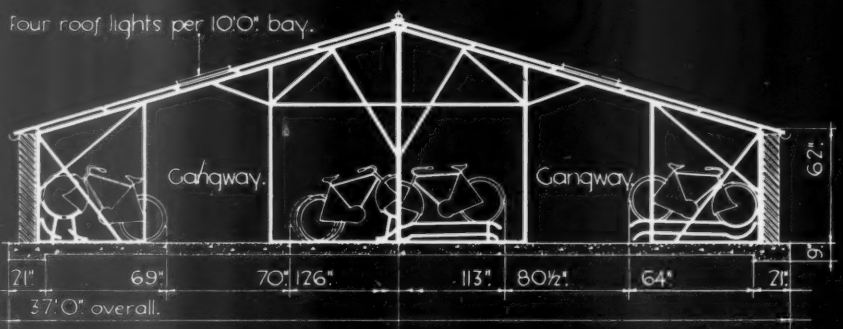


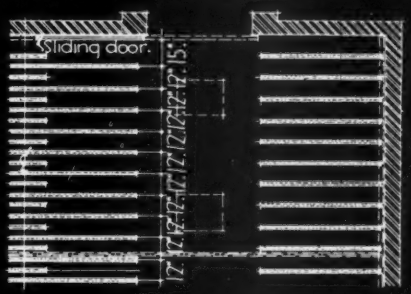


Half section style 2E/CPH. Half section style 2E/CPR. Section through style N° 2E/CPS.

Part of typical plan of styles 2E/CPH, 2E/CPR & 2E/CPS.

A. Models to accommodate two cycles per foot run with walls shown covered with "Twin Twelve" Asbestos sheets.

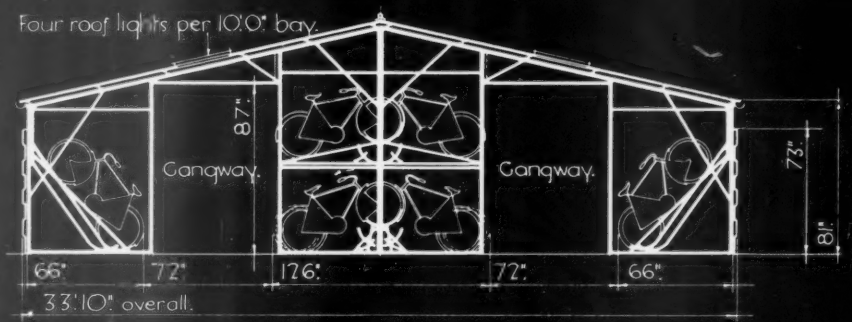


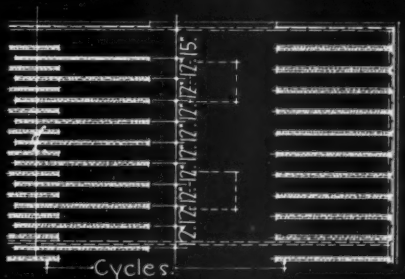


Half section of style N°4EB/DCPR. Half section of style N°4EB/DCPH.

Part of typical plan of styles numbers 4EB/DCPR & 4EB/DCPH.

B. Models to accommodate four cycles per foot run with walls shown constructed of 9" brickwork.

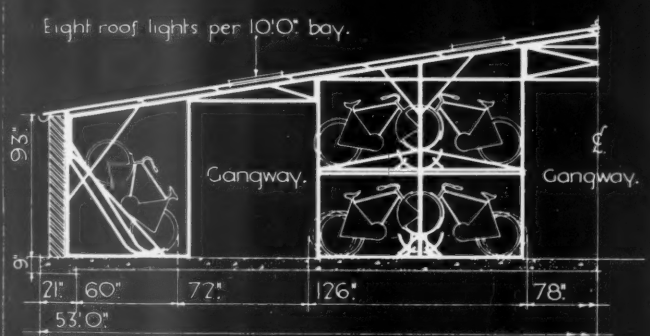


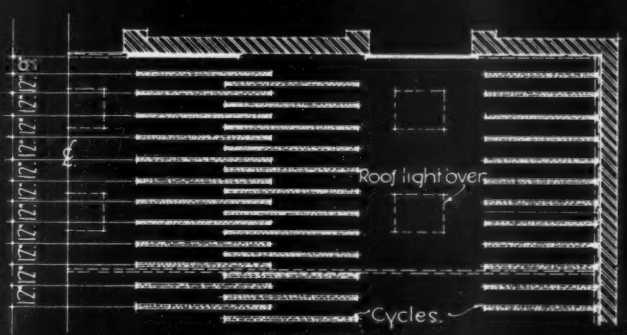


Section through style N° 6E/CPS/TCP.

Part of typical plan of style N° 6E/CPS/TCP.

C. Model to accommodate six cycles per foot run with walls shown covered with "Twin Twelve" Asbestos sheets.





Half section through style N°10EB/CPS/DTCP.

Part plan of style N° 10EB/CPS/DTCP.

D. Model to accommodate ten cycles per foot run with walls shown constructed of 9" brickwork.

Scale in feet: 0 1 2 3 4 5 6 7 8 9 10

Information from Constructors Ltd.

INFORMATION SHEET: PATENT ALL-ENCLOSED STEEL CYCLE PARKS: N° 4.

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1. Oscar & Bayne.

THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION

INFORMATION SHEET

• 528 •

CYCLE PARKS

Subject :

All Enclosed Patent Steel Cycle Parks.

General :

This Sheet, the last of a series of four, deals with Constructors' All Enclosed Patent Steel Cycle Parks. They may be built to include garage space for motor cycles and motor-cars. The types of parks and the buildings in which they are housed vary, giving accommodation suitable to every requirement.

Space Required :

Model	Accommodation	Formula for obtaining the overall length of a park of any capacity
2 E/CPS 2 E/CPH 2 E/CPR	2 cycles per ft. run	Overall length in feet equals half number of cycles plus 1′ 6″, e.g. for 100 cycles. $\frac{100}{2} + 1' 6'' = 51' 6''$.
2 EB/CPS, CPH or CPR, as above, but with brick walls.	2 cycles per ft. run	As above, but add 5′ 0″ instead of 1′ 6″.
4 E/DCPH 4 E/DCPR	4 cycles per ft. run	Overall length in feet equals number of cycles divided by 4, plus 1′ 6″, e.g. for 100 cycles $\frac{100}{4} + 1' 6'' = 26' 6''$.
4 EB/DCPH and DCPR, as above, but with brick walls.	4 cycles per ft. run	As above, but add 5′ 0″ instead of 1′ 6″.
6 E/CPS TCP	6 cycles per ft. run	Overall length in feet equals number of cycles divided by 6, plus 1′ 6″, e.g. for 102 cycles $\frac{102}{6} + 1' 6'' = 18' 6''$.
6 EB/CPS TCP, as above, but with brick walls.	6 cycles per ft. run	As above, but add 5′ 0″ instead of 1′ 6″.
10 E/CPS/DTCP	10 cycles per ft. run	Overall length in feet equals number of cycles divided by 10, plus 1′ 6″, e.g. for 100 cycles $\frac{100}{10} + 1' 6'' = 11' 6''$.
10 EB/CPS/DTCP	10 cycles per ft. run	As above, but add 5′ 0″ instead of 1′ 6″.

Construction :

Constructors' All-Enclosed Cycle Parks are designed to take full advantage of the supporting and bracing effect provided by the patented channel section cycle supports. The steelwork frames are arc-welded throughout, and the cost of the all-enclosed cycle park is considerably less than would be possible if a separate building were erected and Cycle Parking accommodation installed therein afterwards. The channels in which the cycles are parked are constructed from 13 gauge ($\frac{3}{32}$ in. thick) mild steel. Arc-welded roof trusses adequately braced are spaced at approximately 10 ft. centres. Roofs can be supplied covered with Galvanized Corrugated Sheets, R.P.M., Asbestos, Cellactite, etc. Gutters and rainwater pipes are included with all models.

Doors :

Doorways are provided at each end of the building to allow for one-way traffic, thus facilitating quick and easy parking or removal of cycles and avoiding congestion. Sliding doors can be fitted if required.

Lighting :

Ample light is provided by means of roof lights, full details of which are shown overleaf.

Erection :

The parks are despatched unassembled, and erected complete on customer's clear and level site. Where the building is of brick construction, local quality stocks are allowed for.

Foundation :

Buildings with walls of galvanized corrugated sheets, asbestos, R.P.M., etc., do not include flooring or foundation, as they can be erected on any site. For concrete or other solid sites, the parks are secured by means of coach screws and "Rawlplugs." Where the site is composed of gravel or other loose material, the parks are secured by anchor plates on long bolts buried to a depth of 12 ins. It is essential that details of foundation should be given when ordering. Buildings having brickwork walls are complete with foundations and 6 ins. concrete floor finished with 1 in. granolithic.

Selection :

For women or children, types 2 E/CPH, 2 E/CPR, 4 E/DCPH and 4 E/DCPR are recommended as being specially suitable owing to the extreme ease of operation. Models 2 E/CPS, 6 E/CPS TCP and 10 E/CPS/DTCP are mainly designed for factories, where a large number of cycles are required to be parked in a small space.

Parking Principle :

Cycles are supported in specially designed channels only through the medium of the tyres, thereby eliminating all possibility of damage to the cycle. The entrance end is splayed to allow easy ingress of the wheel. As will be seen from the drawings the parks are arranged so that various combinations of types are used in one enclosure.

Finish :

All steelwork is thoroughly cleaned before stoving one coat rust preventative, and one coat grey enamel.

Prices :

Prices for installations of any capacity will be quoted on request.

Extras :

Ivorine number plates, security chains, padlocks, sliding doors, etc., quoted on request.

Previous Sheets :

Previous Sheets published dealing with cycle parks in this series are :—

516 Patent Steel Cycle Parks for outdoor use.
517 Patent Steel Cycle Parks for indoor use.
521 Patent Steel Motor Cycle Parks for indoor and outdoor use.

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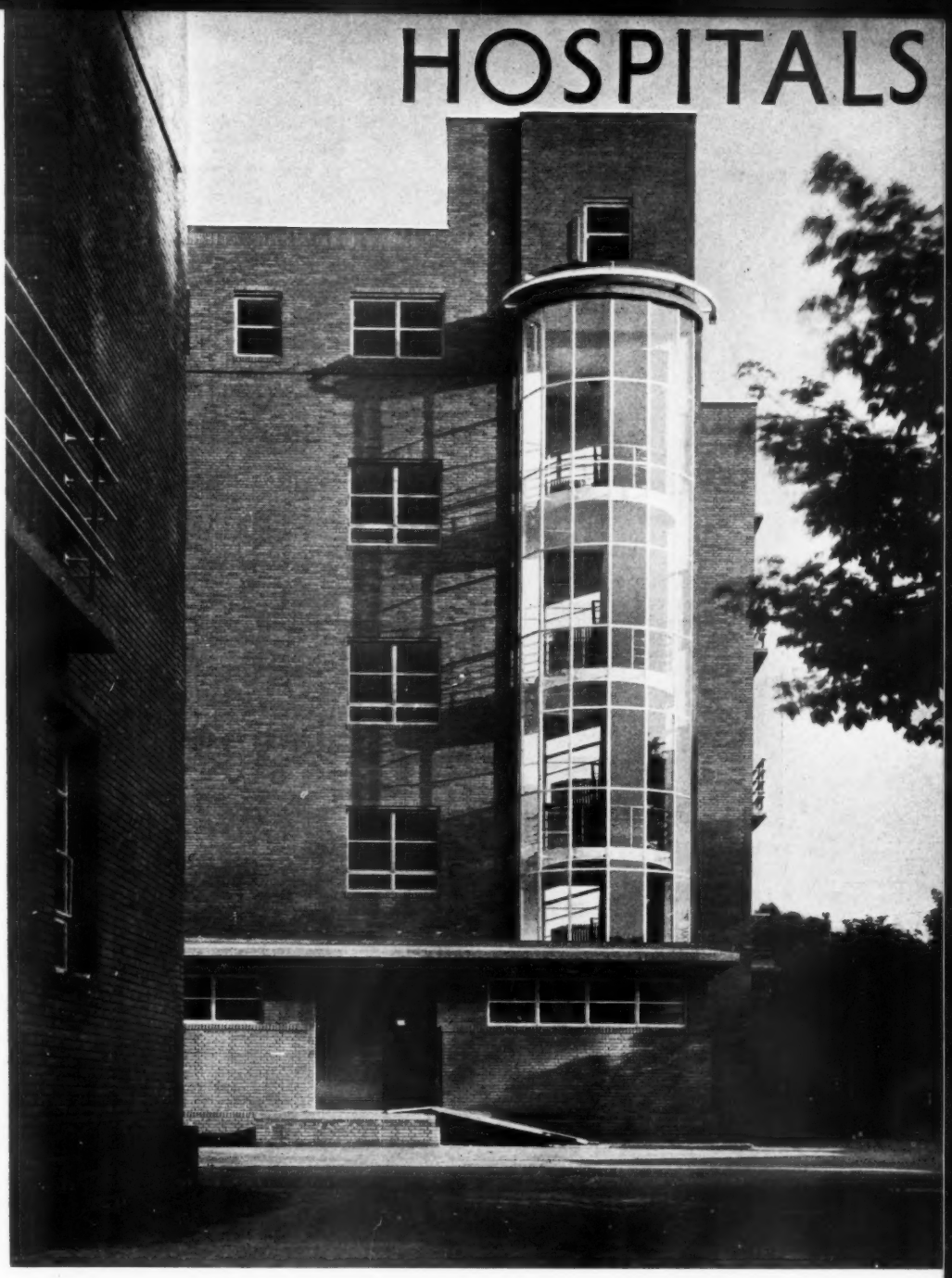
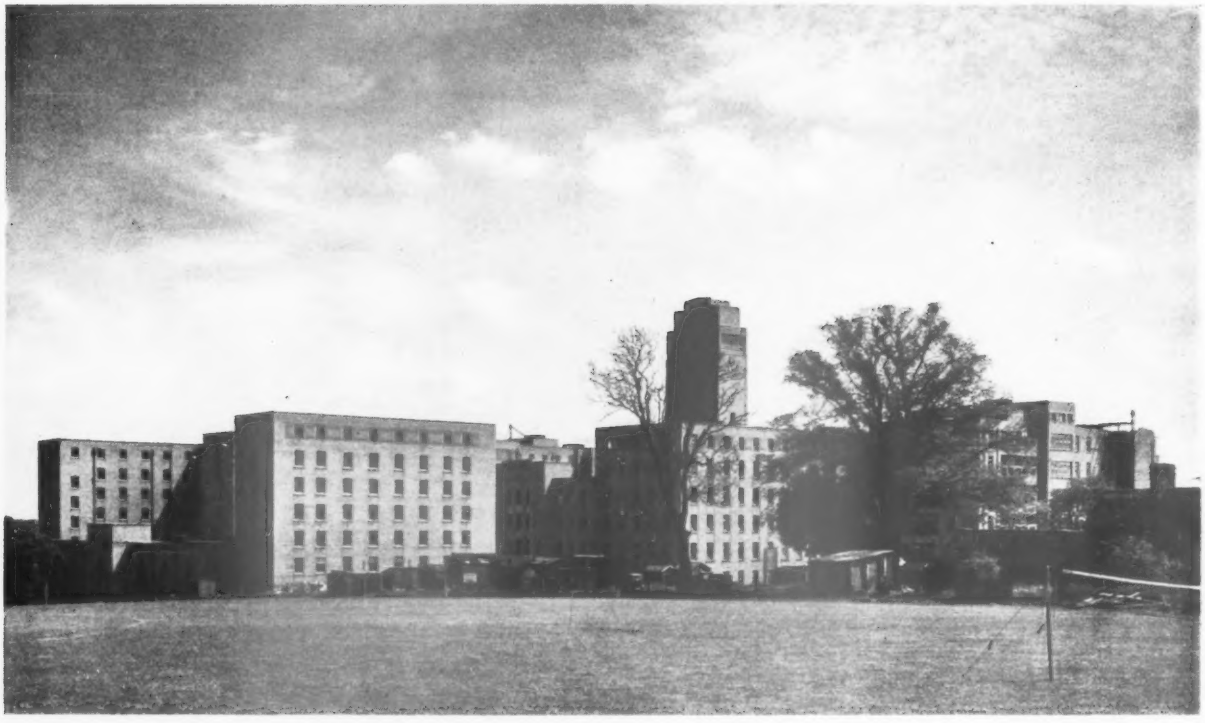
HOSPITALS



SINCE the publication in November 1932 of the JOURNAL's last Special Issue on Hospitals, the national health services have considerably extended. The continuing effort to provide medical attention for the public at the earliest possible stage of ill-health has led to specialization and the necessity for avoiding overlapping facilities for treatment while at the same time making sure that each economic class is provided for throughout the country.

In this Issue a doctor reviews the present and probable future organization of health services and an architect the changes which, as a result, are taking place in hospital types and hospital planning ; in addition it has been attempted to illustrate representative hospitals of each main type which have been built during the last few years both in Britain and abroad.



A general view of the Birmingham Hospitals Centre, now nearing completion. Architects: Lanchester and Lodge

TODAY AND TOMORROW

THE MEDICAL VIEW*

[*By DR. A. G. OGILVIE, M.B., M.R.C.P.*]

THE hospital of today, and the hospital of tomorrow, are each in themselves subjects for a volume, and their combination, and subsequent compression, into a short article has been a task in which the fear that clarity and "readability" have been sacrificed to brevity and comprehensiveness, without securing either, has lain heavily upon the writer.

At the outset, it is essential to state clearly what this article does not attempt to do. It does not attempt to deal with the prevention of disease and its possible developments; it does not attempt to range far into the future, to a time when most of us will be past all participation in the affairs of this world, and when, indeed, if we are to believe all we hear, disease will exist only in the history books; and it does not attempt to invade the architect's province, and to tell him how he ought to design his buildings.

It confines itself to hospitals from the medical point of view, outlining the present position, the tendencies in hospital development and their possible outcome.

THE HOSPITAL OF TODAY

The hospitals of this country, from the descriptive and analytical point of view, present an appalling spectacle to the anxious reviewer. Their growth and development have been as spontaneous as that of Topsy, and almost as complicated.

It is necessary here, however, to confine ourselves to broad generalities, giving merely a bird's eye view of administration and resources, and of the place of hospitals in the health services of the nation.

The chart overleaf has been devised to illustrate the latter point. In it the various types of hospital have been heavily underlined and no explanation is felt to be required.

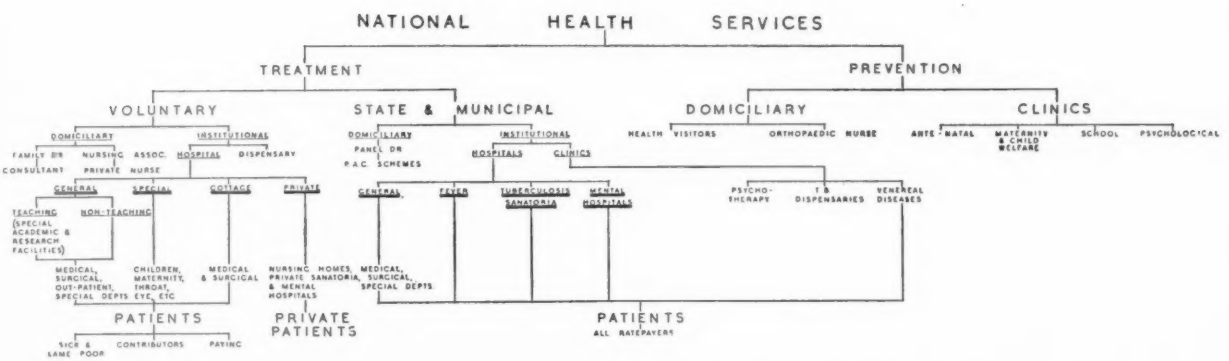
As regards administration, it is necessary to distinguish between the voluntary and municipal hospitals.

•

The voluntary hospitals, a collection of independent units, are in general a law unto themselves, and each does what is right in its own eyes. Many and bewildering as are the minor differences which exist, the essential similarity of all, broadly speaking, is a striking feature. Each has grown out of very small beginnings, with voluntary administration and staffing, each has relied and still does mainly rely on unforced financial aid, and each is governed, roughly, in the same way.

A body of governors, composed of subscribers, or representatives of subscribers, according to the amount of their subscription, and of the members of the honorary staff, is the theoretical supreme authority. In actual practice,

* This article was completed a few days before the publication of the report of the Voluntary Hospitals Commission of the British Hospitals Association. No alterations have been made in consequence of the Report, and the opinions expressed and the conclusions arrived at have thus been influenced in no way by it. This note has been added in view of the rather striking coincidence of opinion between the Report and this article.



A chart showing the general organization and relationship of present health services in Great Britain.

however, this unwieldy assembly delegates its powers to a committee elected by itself, on which the honorary staff is allotted a varying representation.

This committee works through sub-committees, and as the staff is represented on most, if not all, of these, and as a body is enabled to advise and recommend on all purely medical matters, it is enabled to take a real share in the administration.

The financial resources are many and varied. Many, but not all, have contributory schemes open to certain classes of persons as one of their main sources of revenue. The analysis of the income of a large voluntary hospital (700 beds), which has no contributory scheme, gives perhaps a more typical view of the bases of support, however. Such an analysis is given below :—

	Per cent.
Workmen's contributions (per trade unions)	40·4
Employers, private subscriptions and donations	20·2
Income from investments ..	11·3
Paying wards (offset by cost of maintenance)	10·4
Local authorities (contributions, services rendered, etc.)	7·5
Legacies	4·5
Approved societies	2·0
Patients' contributions	2·0
National Health Insurance ..	0·08
Sundry items (such as students' fees, etc.)	1·62

The municipal hospitals, established by Act of Parliament, and controlled by the local authorities, comprise a number of different types of institution. Fever and isolation hospitals, mental hospitals and homes for the feeble-minded, tuberculosis sanatoria and epileptic colonies, are among the specialized types supported by the rates. In addition to these, the Local Government Act of 1929 transferred to the local authorities all those hospitals formerly administered under the poor law by the local guardians, and laid upon them the duty of providing medical care for every ratepayer who should demand it, or any person who should be referred to them by the local Public Assistance Committee. These municipal general hospitals cannot refuse admittance to any such person medically recommended, and are also legally bound to recover from such person the cost of his treatment according to his means, and this payment may not legally be refused.

The hospital may not refer any patient to any other hospital except, in certain special cases, to another municipal hospital.

Where hospital accommodation or certain special facilities do not exist, the local authority is bound to provide it, although it may do so by arrangement with a voluntary hospital, to which the maintenance charge is paid. These permitted arrangements with voluntary hospitals are apparently only intended as a temporary measure, however, and local authorities are expected to provide their own facilities eventually.

The general municipal hospitals have been improved in equipment, accommodation and general efficiency to a point where they invite comparison in many respects with the voluntary hospitals, and this improvement will certainly continue.

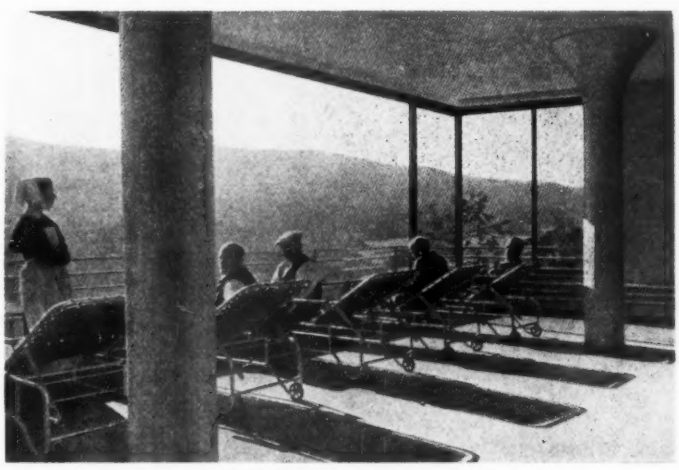
THE HOSPITAL OF TOMORROW

The vast increase in the scope of hospital treatment has outstripped the expansion of accommodation and equipment, considerable though this has been. The problem has, moreover, become more complicated as well as much larger, and further expansion alone will not prove a satisfactory solution. An optimum use of the bed accommodation available must be ensured and overlapping, that bugbear of the official mind, eliminated as far as possible.

It is convenient to consider voluntary and municipal hospitals separately once more, owing to their different conditions, although the same tendency is likely to show itself in both.

The Voluntary Hospitals

The general principle which we may



Sun-balconies at a German Sanatorium.

expect will govern future building schemes is "unification," blessed word !

At present, many smaller hospitals, both general and special, are struggling not only to maintain but to extend themselves, sometimes in competition with each other. All of these institutions are doing extremely valuable work, but when one considers the future, with its assuredly greater demands in the way of equipment and accommodation, it becomes obvious that much re-arrangement and re-organization of hospital services is vitally necessary.

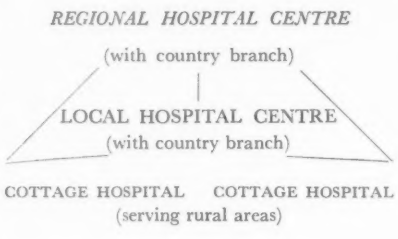
There are distinct signs that this fact is gaining recognition. In several of the larger cities definite proposals for the unification of hospital services are being considered or are actually in operation. Furthermore, steps in the same general direction are being taken in many places, although as yet no concrete schemes have been considered.

These are not isolated examples. The Local Government Act of 1929 laid upon local authorities the duty of consultation with the voluntary hospitals, and voluntary hospital councils were formed in order to facilitate these consultations. These councils are now awakening into activity all over the country, and although they are only advisory at the present time, there is in them the promise of great future developments.

Opinions will doubtless vary, but it may be said that the general tendency is towards the grouping or actual amalgamation of existing hospitals into larger units.

It is quite obvious, and is in fact quite true, that 1,000 beds divided among six or more hospitals, occupying several sites, each with its own administration and equipment, not only cost a great deal more to maintain than the same number in a single hospital, or hospital group, but are less effective in practice.

One may therefore summarize the probable voluntary hospital service of the future as follows :—



The Regional Hospital Centre

This should be able to deal with all cases referred to it, and also to act as a centre of teaching and research work.

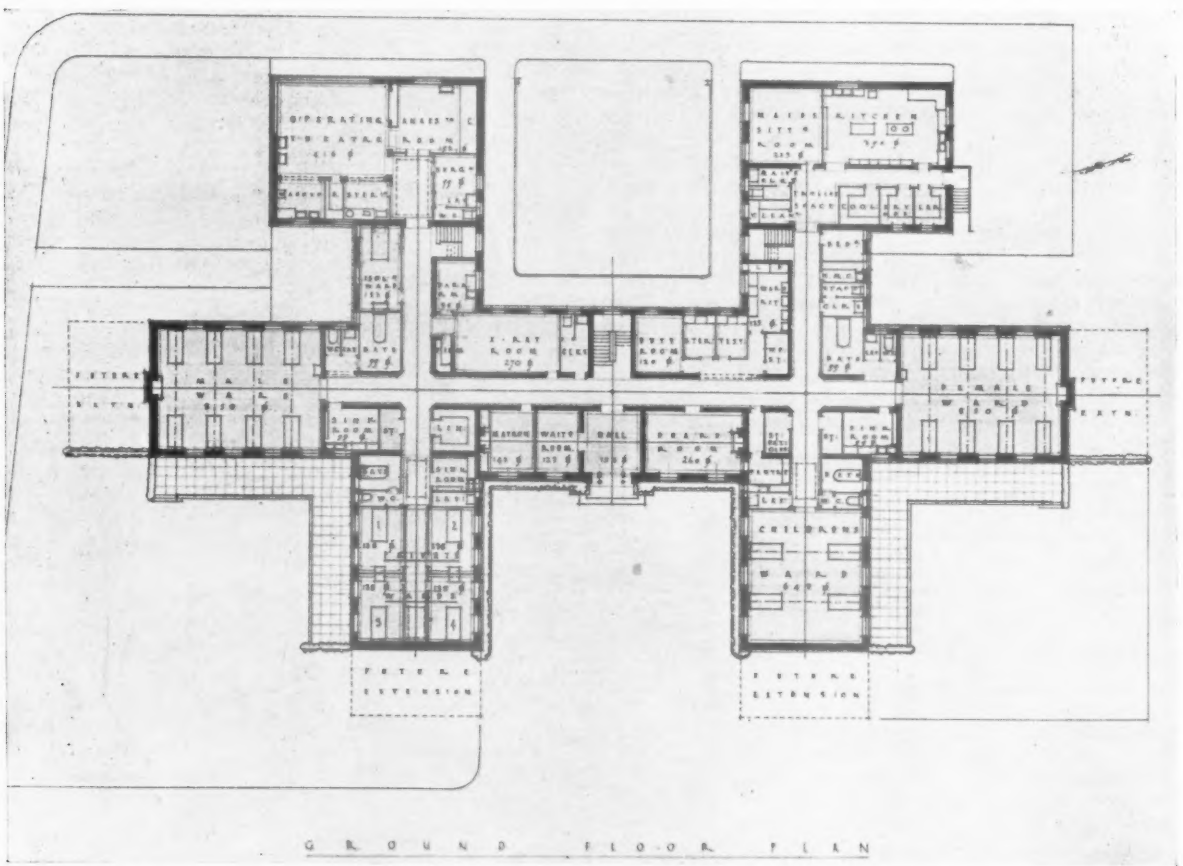
It is here that the best in equipment and personnel should be concentrated, and the centre would probably be a university hospital.

It would consist of general medical and surgical wards, with a block for paying patients, a teaching block, and special departments or associated special hospitals for the following specialities :

Babies and children, maternity, gynæcology, nose, throat and ear, eye, skin, orthopædie, radium, neuro-surgery, thoracic surgery, dietetics and metabolism, psychology, clinical investigation, and any others that may be found to be necessary.

All these should, of course, be on the same site, and be self-contained, with operating theatres, etc., where required. A large site would therefore be required. Whether separate blocks for each are desirable or feasible is a matter dependent more on the site available and local conditions than on any question of principle.

Administration might be completely centralized, but a more satisfactory



Ground floor plan of the winning design in the recent Dawlish Cottage Hospital Competition. By Alliston and Drew

Air view of Bradford Infirmary. Architects: W. J. Morley and Son.

method, and one more likely of acceptance, would be a general board, representative of all the associated hospitals or special departments, for general policy and finance, and a number of committees each responsible for the internal administration, staffing, and organization of its own associated hospital or department.

An unwieldy executive with an unwieldy agenda is thus avoided, and each department is run by those most interested in and best qualified for the task.

The total bed accommodation would in the majority of cases substantially exceed 1,000.

The Local Hospital Centre

The local hospital centre, of more or less than 500 beds, would consist of general wards, with a modern X-ray department, certain laboratory facilities which do not at present exist at all in the smaller voluntary hospitals, and one or two special departments, such as nose, throat and ear, ophthalmic and orthopædic, according to size and requirements; such a centre would be able to deal with the great majority of all cases sent to it, and would refer cases with which it was not equipped to deal adequately to the regional hospital centre.

The Cottage Hospital

This valuable member of the hospital community must continue to exist to serve rural areas, unless transport facilities should unexpectedly simplify themselves by the use of the air, which seems unlikely in this country.

Many major surgical and medical cases are daily treated with success in these institutions, and though many of them are small, and unlikely to undergo great increase in size, they would seem in all probability to be as essential in the future as they have been in the past. Some enlargement, and the provision of improved X-ray apparatus, would seem to be all that will be required.

The Hospital Country Branch

Many but by no means all the voluntary hospitals have an associated or controlled convalescent home, but even where this exists, it is quite inadequate for the needs of its parent institution. This deficiency has been and is supplied to a certain extent by a great number of independent voluntary convalescent homes, and the value of these cannot be exaggerated. They supply a want which will continue to exist, but may be met in the future in a different way. From the hospital point of view, at least, it is very much to be preferred that it should control the "convalescent" accommodation of its own patients, and a country branch adequate to provide this will be an essential part of its organization. Such a country branch would consist of two sections, preferably in separate though adjoining blocks; the "convalescent" section proper, for those patients who remain for a comparatively short time, are able to look after themselves, and are up and about for at least a part of the day; and a "continuation" section, for cases of sub-acute and chronic illness transferred from the hospital centre to continue their treatment. This latter class of patient is not catered for at all at present, practically speaking. A few voluntary institutions exist, and local authorities provide for certain special cases; but this provision is limited to tuberculous patients, children with rheumatic heart disease, crippled children, mental patients, and the very poor who cannot possibly be cared for at home. This "continuation" section should be planned as a hospital, without many of the special hospital facilities, but with recreational, occupational, and educational facilities; reading-rooms, workrooms, classrooms, balconies and outdoor huts would be required.

The staff would consist of a resident medical officer; a sufficient night and day nursing staff; teachers; and tutors for occupational training.

Special wards for babies and children would be necessary.

The Municipal Hospitals

Generally speaking, unification has proceeded further among municipal hospitals. In a number of areas, smaller authorities have combined in the building and maintenance of mental hospitals, fever hospitals, and tuberculosis sanatoria.

A recent survey by the Ministry of Health is likely to lead to a well-marked acceleration of this process; if indeed we do not eventually see extensive unification of borough and district councils for all purposes, on the lines of the Report of the Royal Commission on the Tyneside area.

Amalgamation of the smaller general municipal hospitals is similarly to be expected, in the interests of both

efficiency and economy. Because of their legal obligation to treat fully all ratepayers on demand, the general hospitals will require special departments of all kinds, and this raises an apparent obstacle to that co-operation between the two systems which is to be so much desired. There is bound to be duplication of hospital facilities unless and until a complete State hospital service is in being. Much will depend on the form such a service takes, and the question is too large for discussion here.

It will perhaps be more useful to discuss probable and possible developments of things as they are. We may then form each our own opinion as to the necessity and probability of a State service.

In the first place, while it is true that this " overlapping " by duplication of services may be mitigated by special local arrangements, this cannot significantly affect the general position.

It is worth considering, however, to what extent the two systems, unified and self-contained as they will probably be, can work satisfactorily side by side. There is no genuinely insuperable obstacle in the way. Even were they under united control, it is probable that duplication of certain services would still be necessary, as otherwise the hospitals would grow to an unmanageable size. Unification, urgently necessary though it is under its present circumstances, might defeat its sole object, increased efficiency, were it carried to extreme lengths.

On the other hand, it is practically certain that a degree at least of State supervision, or partial control, over the voluntary hospitals, particularly with regard to building schemes, and finance, will be established.

This will really be necessary in order to ensure national planning of hospital services, if for no other reason, and the voluntary hospitals will probably, in the future, receive State grants. The difference between State supervision and State ownership is no mere form of words. Under State supervision, an important sphere, in which voluntary initiative and benevolence can have full play, is left open. Under State ownership this sphere would be severely restricted, or altogether closed. I make no attempt to prophesy what the final decision will be.

Medical Aspects of Hospital Planning

The pavilion style, so characteristic of English hospital planning during the past sixty years or so was based on the theory of the aerial convection of infection. This is now recognized as a fallacy, and the effect on hospital design is becoming apparent already. Hospitals will be more compact, and will not necessarily be restricted in height ; and the saving in money, time, and energy is certain to be considerable.

Isolation hospitals are now things of the past. The pavilion system may be retained in tuberculosis sanatoria, but even this is neither necessary nor certain.

There is, however, another side to the picture. Aerial convection is now discounted, as has been said, but ward infections, not seriously considered in the past, are now recognized as a first-class problem. By " ward infections " is not meant specific fevers such as typhoid and smallpox. These do not occur in any efficient hospital. The group of infections causing concern are less obvious disorders, and especially those caused by the streptococcus, and are notoriously difficult to control.

The only certain method of prevention would be annual inoculation of the entire population, with daily swabbing of all persons working in, or entering a hospital !

It will readily be understood that we must look for protection in other directions.

Ward infections are not new, but their importance is newly recognized. The provision of glass screens between beds, and the placing of beds longitudinally in the ward, are measures which are on trial, and which will be retained if their value is proved ; but we may be sure such devices alone will not be adequate.

In fever hospitals, glass cubicles for all patients are the most likely solution, but these are impracticable for a general hospital. Some more definite structural change is required.

Single-sided wards which are convertible into balconies, exist in a number of hospitals, and if the obvious difficulties inherent in such a system of planning can be overcome, we may expect that the idea will spread. But in any event, what is most certainly necessary is a great reduction in the size of wards ; and the provision of a large number of single and double rooms. This is most vitally necessary in the case of infants' wards, where the risk and danger of ward infection is especially serious, but it applies to all hospital wards.

There are also certain special types of case which require single room accommodation for their adequate treatment. Noisy and delirious patients, and those who are very ill, require isolation not only for their own benefit, but for that of the other patients. Enough has probably been said to explain the need for some large changes in hospital design.

America and Germany seem to be somewhat in advance of us in this matter.

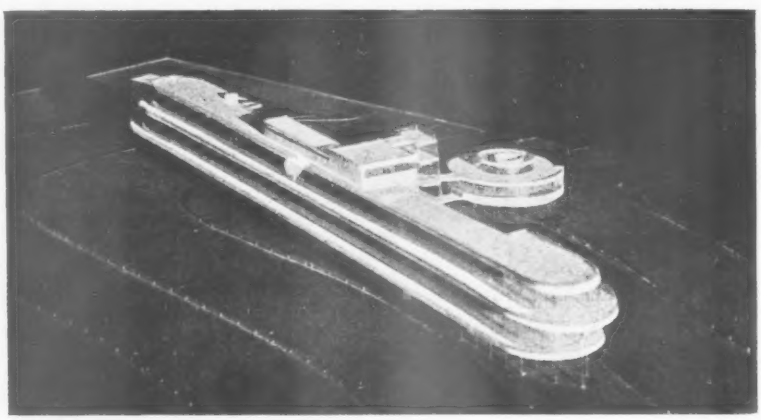
One last point : hospitals are noisy places, and this opportunity is taken of appealing for such a mitigation of this evil as the architect can afford.

SUMMARY

We may expect a general movement among independent voluntary hospitals, on the one hand, and certain local authorities, on the other, towards co-operation and unification, in the interests of economy and efficiency.

A degree of State supervision, or partial State control of voluntary hospitals appears to be certain, but it is less certain that complete State ownership will result. It has been pointed out that centralization of control, if carried too far, may become unwieldy and therefore less efficient.

The passing of the pavilion system and the need for smaller wards and numerous small rooms for patients is likely to lead to radical changes in hospital design. In conclusion, it must always be remembered in all discussion of hospital administration and design, that hospitals exist for the patients, and not the patients for the hospitals.



Model of a proposed sanatorium in America. By Ernest Weissman.

A corridor in the Tübingen Hospital, Germany.

TODAY AND TOMORROW

THE ARCHITECTURAL VIEW

[*BY D. R. HARPER, B.ARCH., A.R.I.B.A.*]

INTRODUCTION

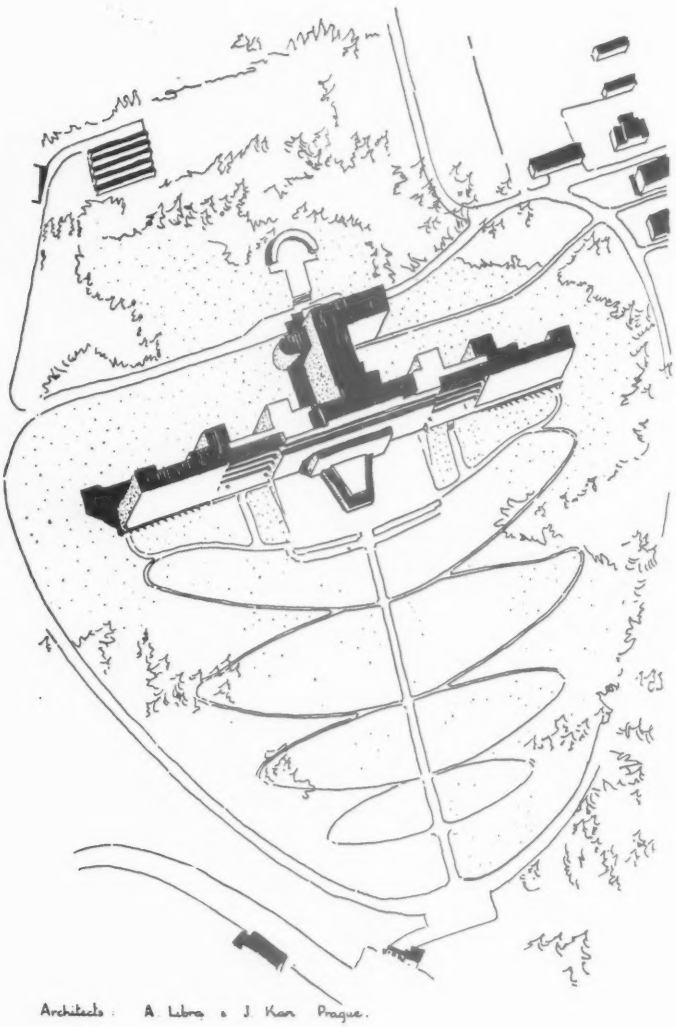
A SHORT article of this nature must be confined to the broad issues of its subject and any consideration of the detailed planning of the various departments in a hospital will therefore be avoided as far as possible. Much has been written on the subject of hospital design in recent years and, to the hospital architect, the lectures of the late Mr. Percy Adams in 1929 to the R.I.B.A. on "English Hospital Planning" and of Mr. Stanley Hall to the Manchester Society of Architects in 1935 on "Modern Hospital Planning" are very important. They gave a very clear picture of the present-day problem, and at first sight it might be considered superfluous to write further about the subject; but an investigation today shows that very interesting developments are taking place in hospital organization. Considerable work has been done by a number of committees towards increasing the efficiency of the health services, covering the whole ground of administration, finance and the efficiency of the various main departments.

TWO RECENT REPORTS

The report of the Voluntary Hospitals' Commission has just been published and makes quite clear the main shortcomings of the present unsatisfactory system. The Commission considers that for many years to come there are advantages for both voluntary and municipal systems existing side by side. It is realized that there must be relationship between the two systems and well-organized co-operation between the various voluntary hospitals. With a view to overcoming the main problems before the latter, the commission advises that the country be divided into hospital regions, and in each region should be formed a voluntary hospital regional council with a central office, and, for co-ordination, there should be a central council consisting of delegates from the various regional councils. An emphatic opinion is expressed that the continued existence of the voluntary system depends on some such association being formed.

In any form of social experiment it is found that the issue is principally financial. Experiment is more costly than standard practice, and thus much thought has been given towards framing a series of standards as a basis for hospital planning. In this connection, the recent first report of the Departmental Committee appointed by the Ministry of Health to consider and report on the cost of hospitals must be carefully studied. Though it deals primarily with municipal hospitals its findings will naturally be carefully examined by the executive of any voluntary hospital. It is interesting to note how few are the standards which the committee felt justified in recommending. Medical and architectural opinion made clear the dangers

SANATORIUM AT VYSNE HAGY-TATRA



Architects: A. Libra & J. Kon Prague.

of standardization applied to hospital building and a keen desire to leave the field clear for considered experiment was clearly shown. It was also stressed by the Committee that a well-conceived scheme can only be produced by the closest collaboration of medical, nursing, administrative, architectural and engineering advisers before the building programme is formulated. This is a council of perfection which is rarely realized in fact, and many building programmes are ill-conceived in consequence.

PRESENT DEVELOPMENTS

The architect has long been fettered in developing his hospital scheme by the lack of unified and co-ordinated medical guidance on all the important questions which affect his plan; this is further aggravated by the piecemeal development resulting from financial economy in the cases of a great majority of hospitals. In the voluntary hospital the final decision on the details of the building programme remains in many instances in the hands of the honorary staff of the particular hospital. Under these conditions the architect, finding himself with an inadequate knowledge of advanced medical opinion, has on many occasions sought the sanctuary of precedent. Development even along this channel has been further stunted by the anxiety to maintain amenity in the Georgian tradition. Architectural development in the last few years has fortunately released the hospital architect from this particular bondage.

We are losing our insular complacency also, and much attention is being paid to continental and American hospital practice. Through the International Hospital Association, exchange of ideas and views on the subject of hospital design, both from the medical and architectural point of view, is an established fact, and the effects over a period of years must be far reaching. It is interesting to recall that a deputation from the Middlesex County Council recently visited a number of modern continental hospitals with regard to its own building programme. The influence of foreign practice and the general reorganization of the health services in this country will be the main elements in the new hospital architecture.

In the meanwhile many schemes will follow the established English tradition; for hospital committees are conservative and for the most part base their requirements on past experience. The lead will come from those who are prepared to take risks and gradually a change of outlook can be expected.

HEIGHT OF BUILDINGS

The British practice in all cases where the site allows has been to plan horizontally with two or three storied blocks, but there will be a definite tendency towards higher buildings. The report of the Departmental Committee (Ministry of Health) is interesting on this question, for while it does not commit itself it indicates that, assuming a normal programme, a building of four storeys is the most economic in capital cost, though it hastens to state that the difference is not sufficient to make it control the building programme. Nevertheless, it is now being realized that widely separated horizontal blocks are not the only method of obtaining segregation and ventilation; further, that long, low buildings occupying a considerable site area necessitate much staff movement down long corridors—a tiring and noisy procedure—which can to some extent be avoided by a centralized building planned vertically with the aid of well-placed lifts. The advantages gained by centralized services are obvious, and vertical plumbing and service stacks can simplify what is usually a very complicated series of installations. It seems likely also that the higher building of five to eight storeys would be cheaper in maintenance costs — assuming equal accommodation. It should be remembered that simple and adequate means of extension to all important departments must always be possible. Also precautions must be taken to ensure that higher buildings do not lead to

further concentration on an inadequate site at a later date and light and air must always be generous to all important rooms.

DEVELOPMENTS IN DEPARTMENTAL PLANNING

WARDS AND SUN BALCONIES

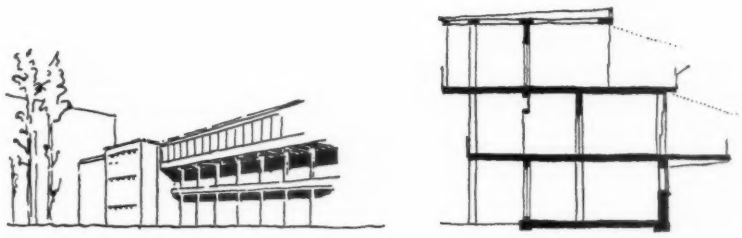
The ward unit represents the patients' accommodation which falls under the jurisdiction of one ward sister. The maximum is considered to be thirty beds for the ordinary general hospital. The arrangement of these thirty beds is a subject on which there is now much diverse opinion. English practice for general hospitals has been to provide up to twenty-six beds in one large ward and the remainder as single-bed wards. Much evidence is now in favour of a drastic reduction in the size of the large multi-bed ward, and many consider the maximum size to be sixteen beds. The general tendency is to reduce and it is reasonable to predict that eight-bed wards will eventually become the largest type of ward. There are many medical advantages in this subdivision. Many continental hospitals are successfully planned with small ward units. But for the moment the large ward remains a solid factor in English hospital planning, and much discussion has taken place on its plan form. There is an increasing use of the "parallel bed" type ward as seen at the extensions to Hertford Hospital and at Southend General Hospital. The Departmental Committee's Report already mentioned makes clear the arguments for and against this type of ward plan. The question only remains a prominent one while large wards are considered an economic necessity. The large ward defines the form of the hospital plan as a whole and as a result there has been a very marked similarity in the plans of all English hospitals. The ancillary accommodation required to serve one ward unit has also remained very much the same in recent years as ordinary nursing routine seems to change very little. The old sanitary "towers" at the south end of the large ward no longer appear and the sanitary accommodation — patients' lavatory, w.c.s and sluice room—is now usually placed at the entrance (north) end.

It has become the normal practice to build a sun balcony or solarium at the south end of the large ward and, generally speaking, the use of sun balconies and sun rooms will doubtless increase. Except in the large wards with beds at right-angles to the external walls where windows are restricted to the width of the space between each bed, wide window openings are now becoming popular, and in good weather the wards become in effect open-air sun rooms, especially if the windows are of a type which allows a full clear opening. The sash (Georgian type) and "austral" type windows so popular for hospital wards are now losing favour; the former only gives a maximum of a half-clear opening, and the latter prevents the entrance of sunlight; because of their form these windows are restricted in width. It should be mentioned that a number of continental hospitals still retain the sash window in a modified form; it is used as a wide window, anything up to 7 ft. wide, and sometimes has three separate casements allowing two-third clear opening. This type of window, however, must be expensive, and complicated. It is interesting to see that while in England metal windows are now being extensively used, wood is still used for the majority of continental hospitals. The subject of windows generally and the relative merits of metal and wood is a large one, and no further space can be spared for it except to mention the suitability of sliding windows for use in all patients' rooms. They are attractive in their form, give a sense of space, and the large free openings are a delight in fine weather. There is no doubt that they will become more popular in our new hospitals in spite of their initial expense. With their use in small wards of a maximum of eight beds, assuming that the large ward becomes obsolete, it is doubtful whether the continental practice of providing long balconies or terraces outside the wards will gain wide favour in this country. Our weather does not allow full use of such balconies, and in any case, many doctors question the universal advantages of sunlight as applying to all patients, and it would seem that "sun-laden" air is more desirable for many cases. It seems likely that we shall provide balconies to a certain limited number of wards for sun treatment.

This being so, the very controversial question of balconies in multi-storied hospitals overshadowing the windows below should solve itself, and there will be no need to resort to the very ingenious but expensive "sections" which have been devised in continental hospitals to overcome this difficulty. The sections referred to all follow the "stepped" principle and involve either an excess

SANATORIUM AT MARBOURG (HESSE)

Architect · Hebebrand & Kleineke



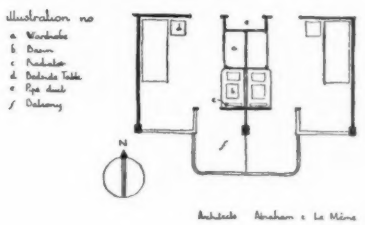
PAIMIO SANATORIUM

TWO BED WARD

Architect Alvar Aalto

SANATORIUM DE LA CLAIRIERE

SINGLE BED CUBICLE



Architects Abraham & Le Même

of accommodation on the lower floors or a very expensive cantilever form. An alternative means of providing sun balconies is seen at the Paimio Sanatorium, where the ward unit on each floor has a projected wing in terrace form on the east side. Such a terrace can only be conveniently used where a certain number of patients are fit enough to be out of bed for some portion of the day. But the idea is worthy of fuller investigation. Good natural ventilation must always receive due consideration, and as it is not practical, generally speaking, to provide more than one external wall to small wards, ventilation is usually arranged into the corridor, which must therefore be adequately ventilated in itself. It is unlikely that English hospitals will ever have—or need to have—the elaborate air-conditioning plant provided in many American hospitals.

PRIVATE WARDS

Practically all general hospitals have now a private pay block where people of reasonable means can book a private room and receive hospital treatment. This is an increasing need, as it is fast becoming the only available accommodation where patients of moderate income can take advantage of the modern hospitals' equipment and treatment. Such private blocks are also a source of income to the hospital, and according to the district may be either a few single-bed wards set aside for use of pay patients, or a complete self-contained block with its own operating theatre and treatment rooms. It is not easy to forecast what developments are likely to take place in private patients' units ; the requirements vary considerably in every individual case.

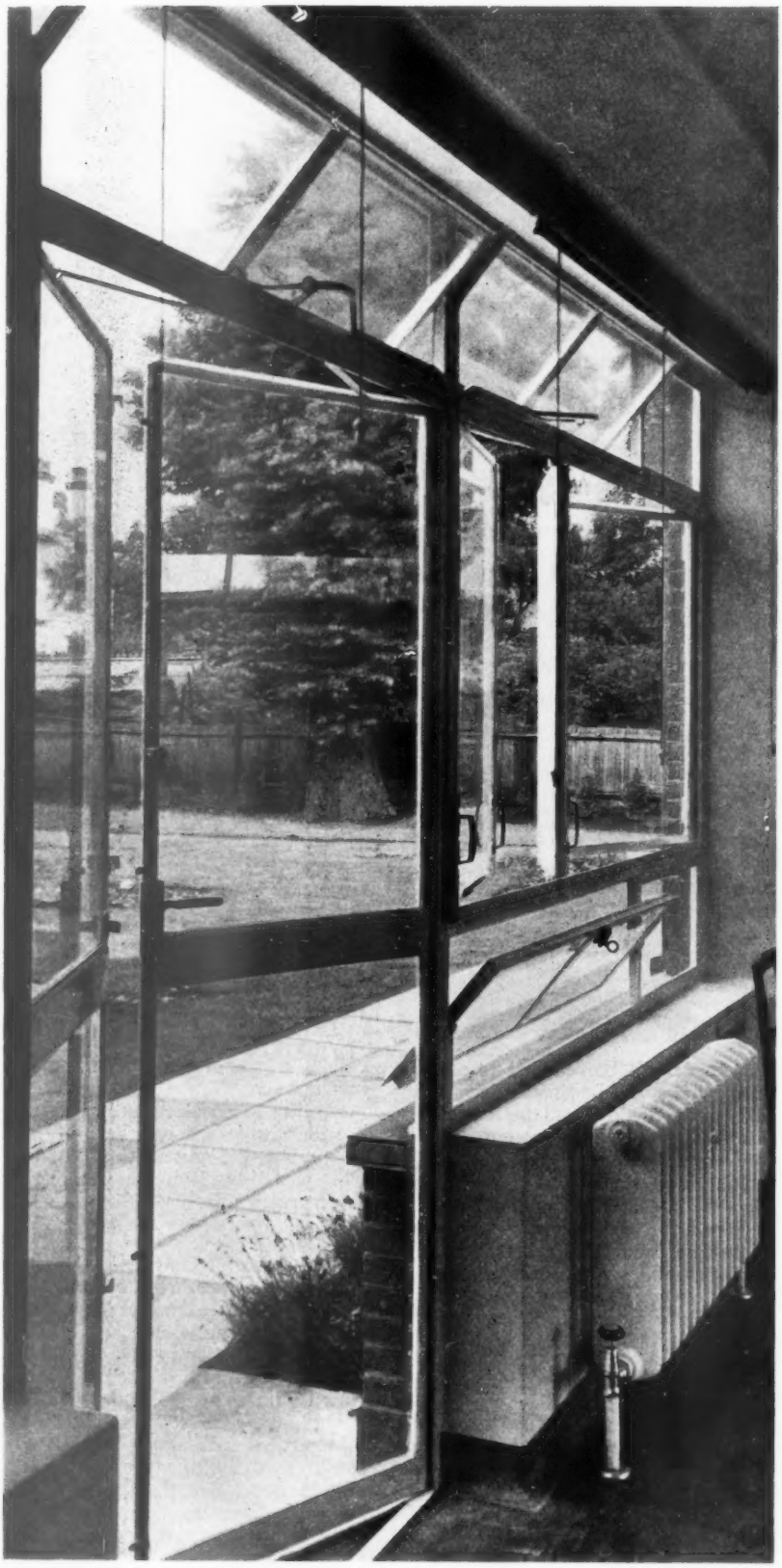
OPERATING THEATRES

Operating theatre units have reached a very high standard of development, and but for the requirements or idiosyncracies of any particular surgeon, are now fairly standardized in plan. Research and development on equipment proceeds from year to year. Mr. Stanley Hall's paper mentioned earlier outlines the difficulty of providing accommodation for students within the theatre in teaching hospitals. The eventual solution of this question probably lies in the provision of the scialyscope (in its future form), which projects the operation on to a screen in an adjoining room, but the hospital must then have a medical school of sufficient magnitude to warrant such an expensive installation. The provision of recovery wards in a small self-contained unit just outside the theatre may become standard practice to avoid the necessity of returning a patient still under anæsthetic into the general wards and limiting the distance which the patient has to travel.

A private paying patient's ward and a small operating theatre at the Bushey Heath Clinic. Designed by A. W. Reading.

OUTPATIENTS' DEPARTMENTS

Outpatient and casualty work in the large general hospital have increased enormously in the last few years, and the proposed accommodation in the average outpatient department may easily become inadequate during building. It is essential therefore to allow for simple means of extension to all important sections of the department. The difficulty of organizing outpatient work in the past and the fact that the department must be built to suit the varying requirements of a number of honorary specialists makes co-ordination a very difficult task. There is in most cases no control of the number of patients visiting at any particular time, with the result that very heavy " peak loadings " of accommodation occur



Surbiton Hospital. Designed by Wallace Marchment. A detail of the doors and windows in the female ward.

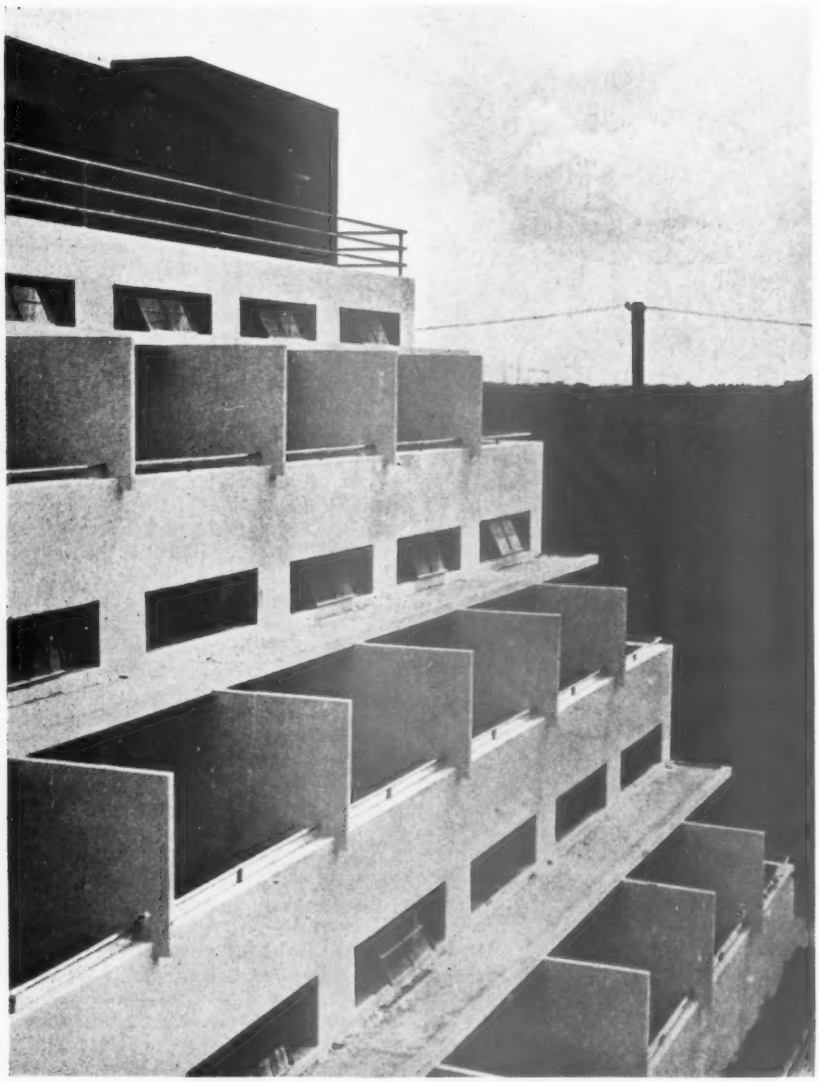
at certain times of the day. As there can be neither the accommodation nor staff to meet the requirements at such a time, patients must often be kept waiting a very long period. This has necessitated a very large waiting hall. There are indications, however, that some measure of control can be established and that doctors will be able to agree on a form of clinic which can be used by any of three or four distinct departments. This will allow an elasticity which is both economic and efficient and reduce a large measure of the waiting with a result that waiting halls are likely to be reduced in size, and eventually each separate clinic may have its own waiting space. The X-ray and light treatment departments are developing rapidly and being extensively used, both for outpatients and inpatients. Satisfactory connection must therefore be provided from the wards to these departments.

KITCHENS

Much discussion has revolved round the position of the kitchen unit in the general hospital plan, as it should be as far removed from the wards as is practical to avoid the noise and smell being disturbing or unpleasant to the patients. The unit has been planned on the top floor in some hospitals for this reason. At Southend — a three-storey hospital—the kitchen unit is on the first floor, and in the new hospital planned as a health centre at Bata, Czechoslovakia, the kitchen unit is on the top floor—the twelfth—served by two goods lifts from the goods yard. Many authorities consider, however, that the kitchen should be at ground level adjacent to the yard for ease of access and that all available accommodation at high level should be used for patients' rooms. The question remains an outstanding one. Increasing attention is being given to diet, and the cooks' duties are becoming more onerous in consequence. Diet kitchens are now being introduced into all large hospitals to deal with specially prescribed diets. Kitchen apparatus is constantly improving, and much of the very badly designed cooking plant is at last being superseded by easily cleaned efficient units worthy of the best hospital standards. Much of the efficiency of a kitchen depends on the plan giving the correct progression from delivery of goods to ultimate service into the wards.

STAFF

Not only are the needs of the patient being carefully studied, but it has been realized that the maintenance of a good and efficient staff depends largely on the accommodation provided for



Stepped sun balconies and clerestory windows of a sanatorium in Poland, designed by Dr. Ede.

them and the facilities at hand for enjoying their leisure.

NOISE

There has recently been much criticism of noise in hospitals, and every precaution must be taken to eliminate the sources of noise. Many hospitals have recently been built in new residential areas adjacent to busy main roads; the incessant hum of traffic is very disturbing to a patient in bed. The solution is naturally to avoid such sites, but if this is not possible, then the patients' rooms should be planned at the back of the site and screened from the noise as far as is practicable. Many London squares present clear examples of what can be done in this connection. Double windows provide excellent protection, but ventilation becomes a difficulty unless their effect is to be nullified. Noise of an irritating kind comes from within. Staff movement, the closing of doors and noise of bells echo down the main corridors accentuated by the hard wall surfaces. In the future hospitals staff movement will be reduced to a minimum, doors will be silenced effectively and automatically, and bells are even now being replaced by coloured lights. Acoustic materials are being marketed which claim to be also hygienic, and their use in corridors should reduce airborne noise considerably. Rubber floors are being increasingly used for corridors and wards, and allow very quiet movement. The use of frame construction intensifies "structure" noises, and research on this question must continue.

HEATING

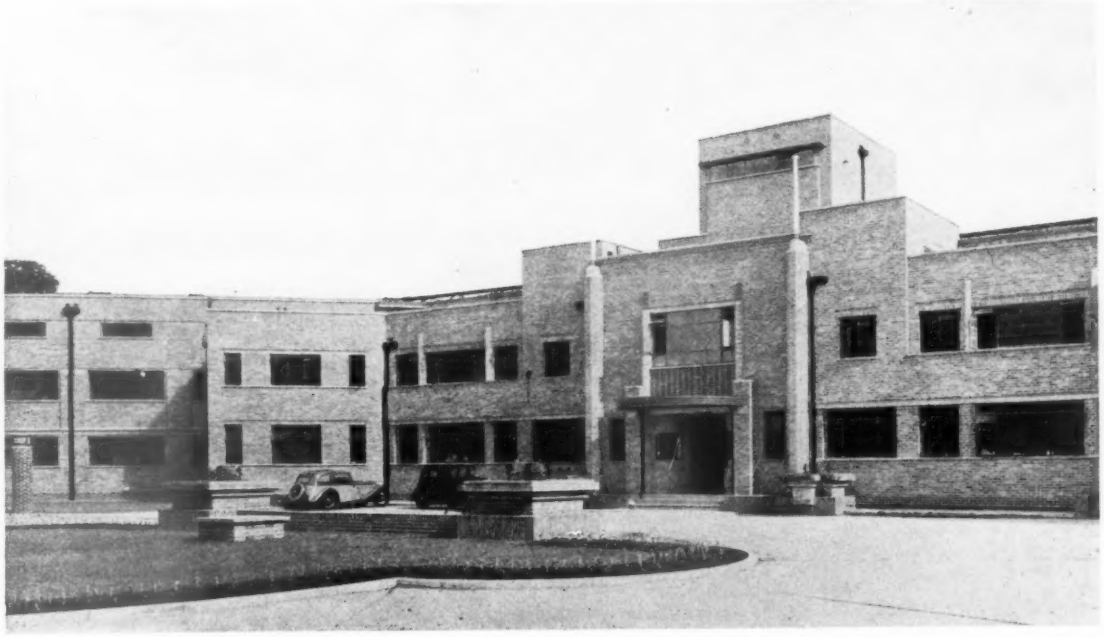
It has long been felt that radiators as low-pressure hot-water heating units are not ideal for use in wards and other patients' rooms, and ceiling panel heating obviously will provide a pleasanter form of heat. In its developed form panel heating may become standard practice for these rooms and possibly throughout the buildings as a whole. Installation charges are expensive, and the investigations of the Departmental Committee find the claims concerning the running costs inconclusive. There is, of course, the possibility of electric heating, but this is still outside the resources of many hospitals at the present time, though it will probably become progressively more practicable.

CONCLUSION

A review of recent hospitals shows clearly the awakening of an enlightened architectural intelligence in the designing of these pre-eminently utilitarian buildings, and there is every indication that the "institution" atmosphere associated with them will soon be a thing of the past. The scope of the hospital architect will increase enormously when the present traditional plan, in spite of certain opposition, begins to undergo radical changes as a result of medical research in hospital accommodation. Of this research little should be said by the architect, but at this moment of change, everything points to the possibility of a new medical outlook and a more enlightened hospital administration.

HAREFIELD SANATORIUM

DESIGNED BY W. T. CURTIS: ASSISTANT, D. ROBERTSON



PROBLEM—*A tubercular sanatorium for the Middlesex County Council. The ward blocks are sub-divided into open wards accommodating from one to four patients.*

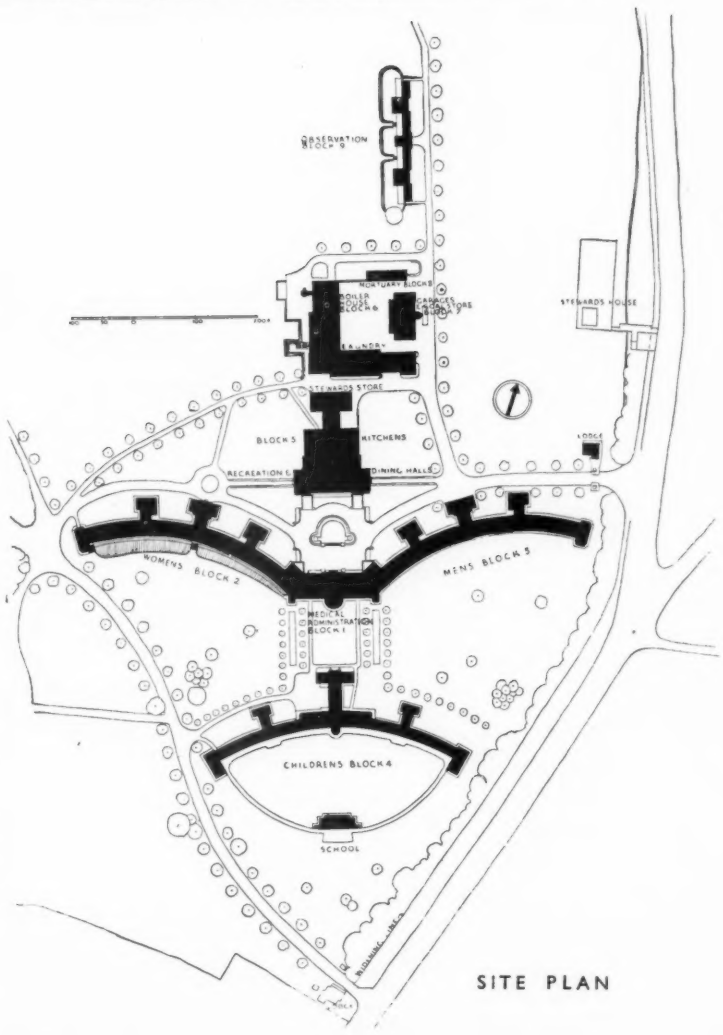
SITE PLAN—*The new buildings had to be erected on the site occupied by existing timber structures used during the war. The plan form adopted is of an open type with wards giving the greatest possible exposure to sunlight. Privacy is obtained by means of small unit wards.*

CONSTRUCTION—*The walls are mainly of reinforced concrete with brick facing. The roofs are flat and hollow tiled. Internal partitions, brick and breeze block. Floors, reinforced concrete.*

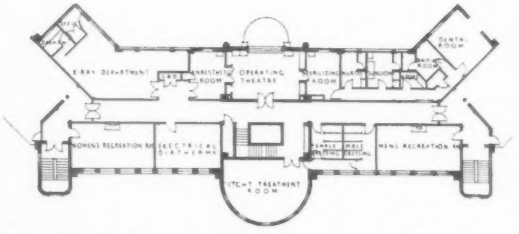
ELEVATIONAL FINISH—*On simple lines dictated largely by the open nature of the plan. All windows, sliding screens, etc., are of metal.*

INTERNAL FINISHES—*Rooms are distempered throughout in one colour. Floors are of teak block throughout with the exception of the bathrooms, lavatories and kitchens which have quarry tiles. Built-in wardrobes, metal wardrobe lockers and personal property lockers are provided.*

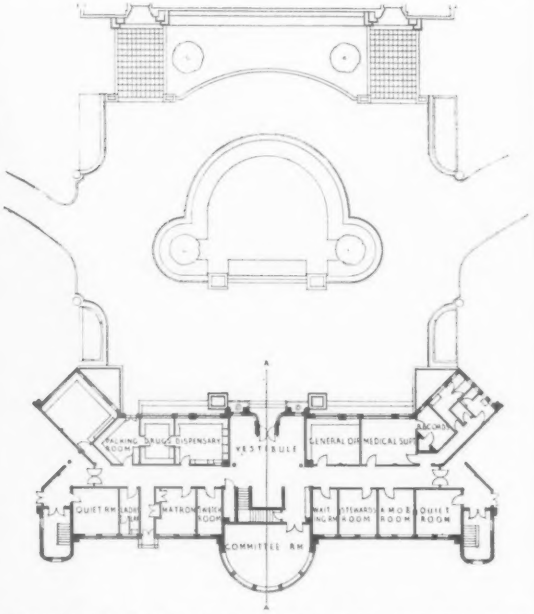
Above is a view of the north front of the administration block.



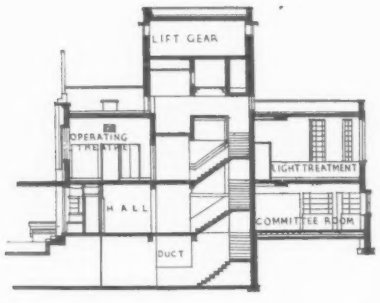
SITE PLAN



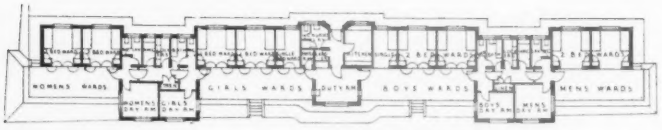
ADMINISTRATION BLOCK : FIRST FLOOR PLAN



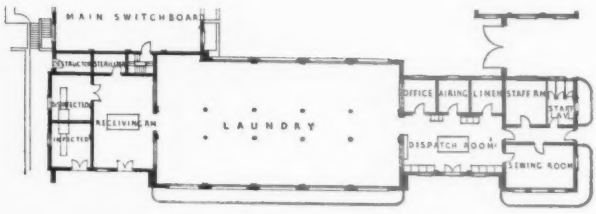
ADMINISTRATION BLOCK : GROUND FLOOR PLAN

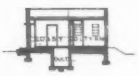


ADMINISTRATION BLOCK : SECTION



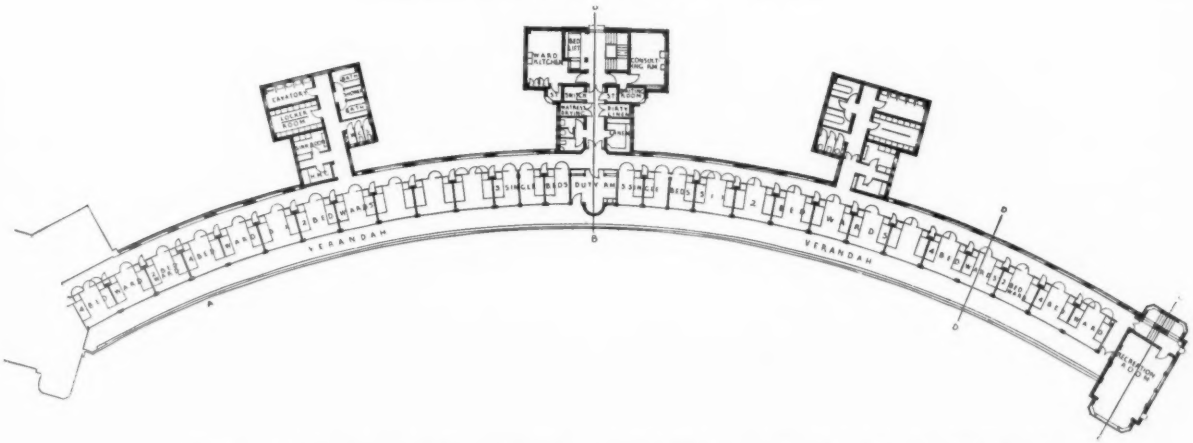
OBSERVATION BLOCK : PLAN AND SECTIONS



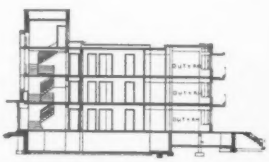


The photograph on this page shows one of the central features on the south elevations of the ward blocks.

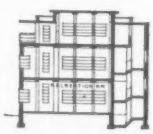
PLAN OF THE LAUNDRY BLOCK



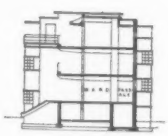
PLAN OF THE MEN'S BLOCK: THE WOMEN'S BLOCK IS SIMILAR



SECTION: B—B



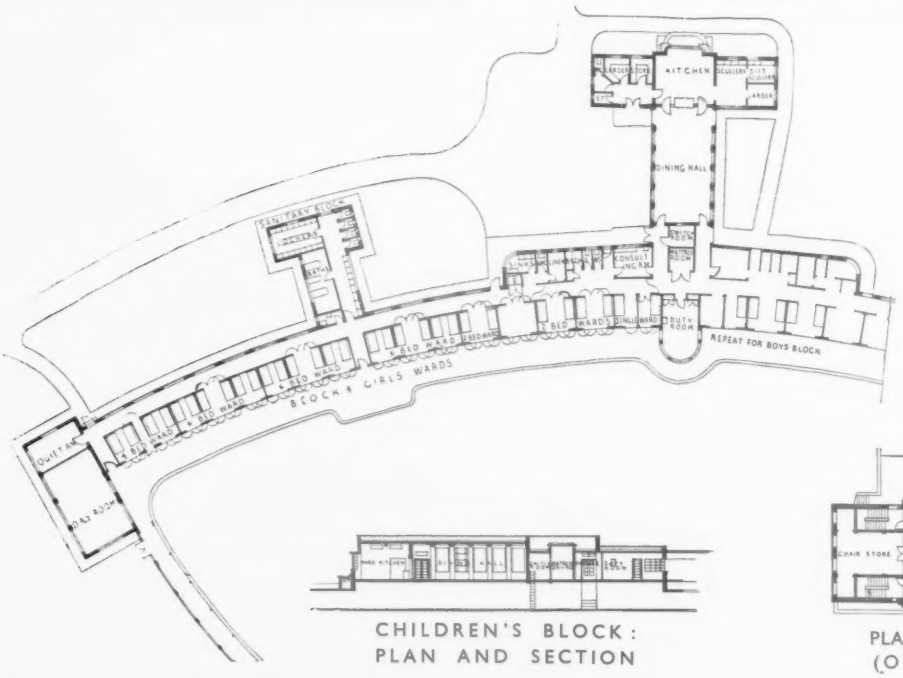
SECTION C—C



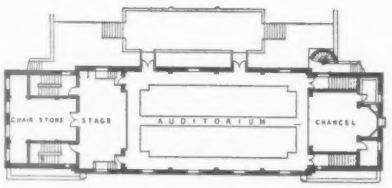
SECTION D—D

Looking along the verandah on the south elevation of the women's block. Above are sections through the men's block. ½

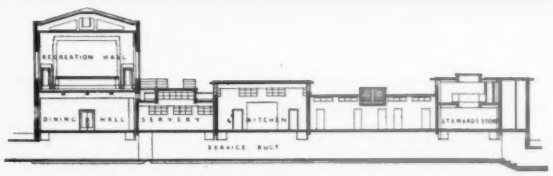
The photographs show: above, the recreation hall; left, the dining hall; below, the committee room in the administration block.



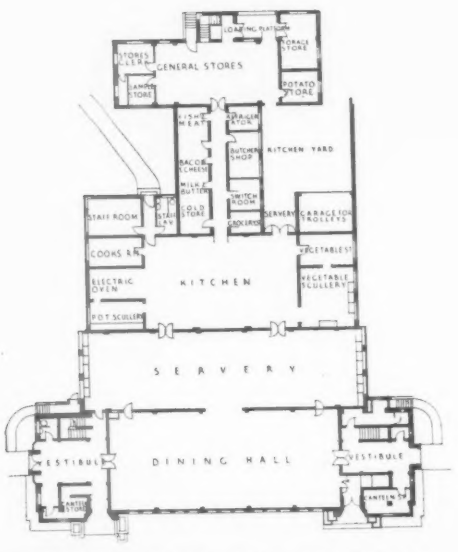
CHILDREN'S BLOCK: PLAN AND SECTION



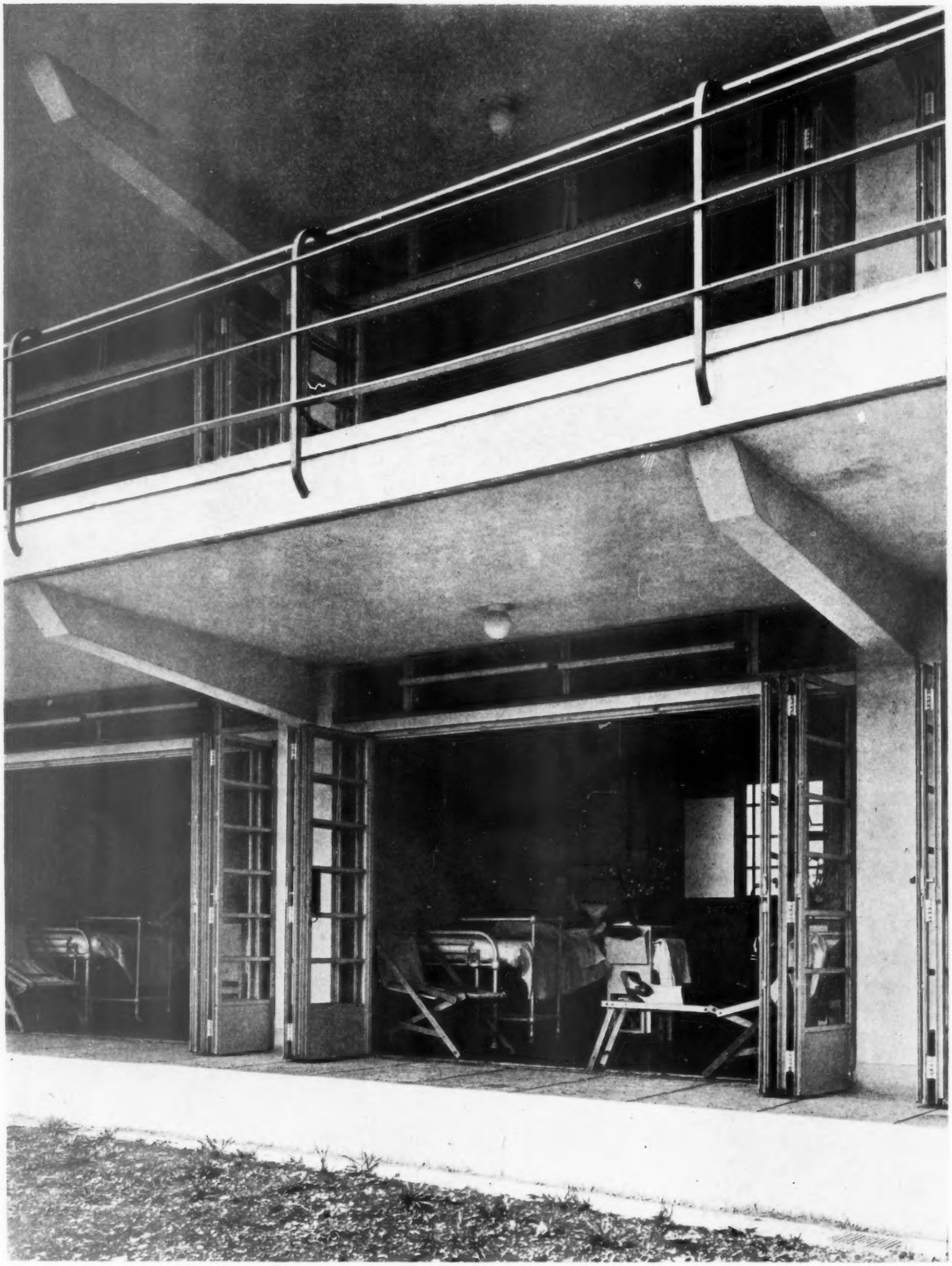
PLAN OF RECREATION HALL (OVER DINING HALL)



CROSS SECTION THROUGH DINING HALL AND KITCHEN



DINING HALL AND SERVICES: GROUND FLOOR PLAN

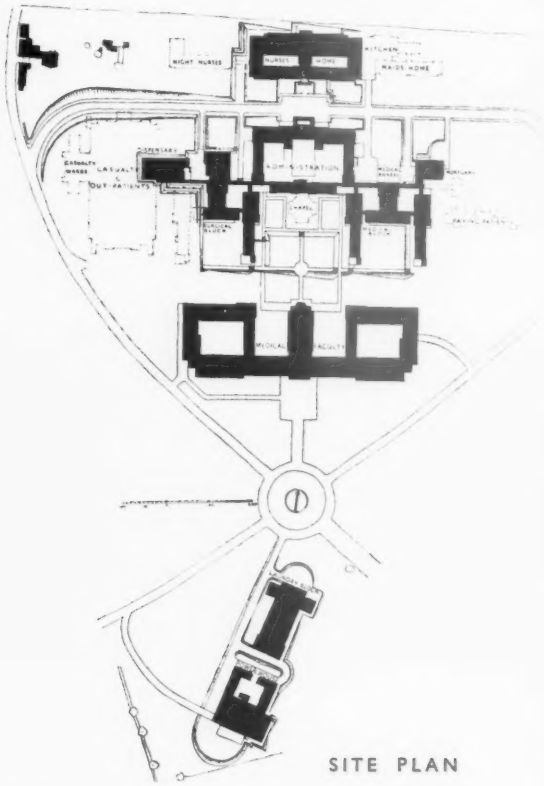


A typical ward on the south elevation of the women's block.

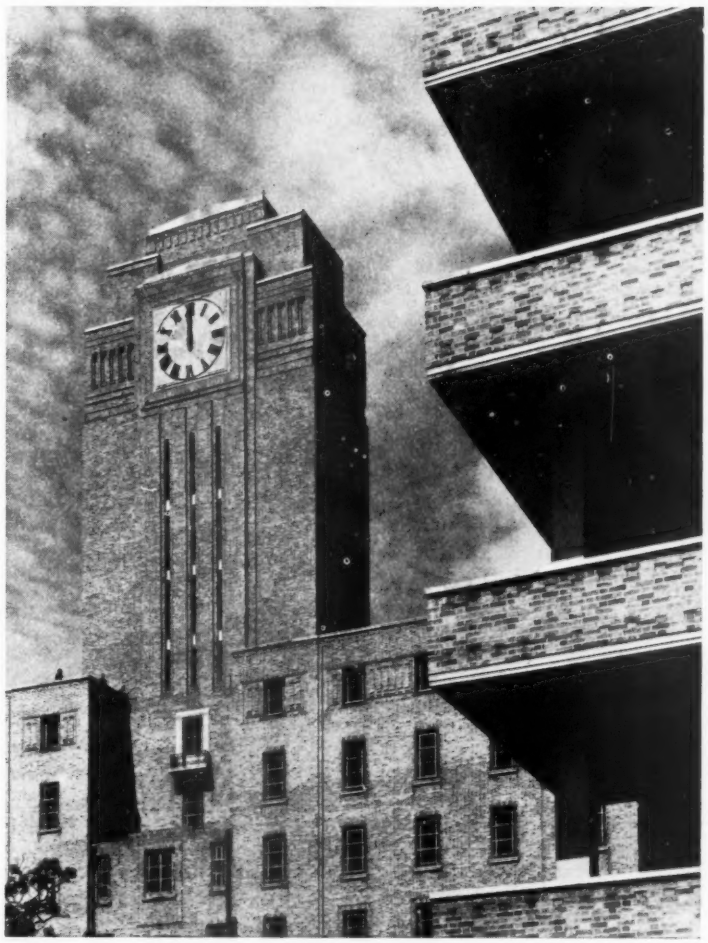
BIRMINGHAM HOSPITALS CENTRE

DESIGNED BY LANCHESTER AND LODGE

The photographs are : Above, the administration building, taken from the north approach road ; right, top, the administration building, taken from the medical faculty building and, showing on the left, the surgical block and, on the right, the medical block ; centre, the nurses' home ; bottom, the medical faculty building with, on the left, the balconies of the surgical block.



SITE PLAN



GENERAL—*The views illustrated on this and the facing page show the progress being made with the Birmingham Hospitals Centre. When completed it will accommodate over 800 patients, all the departments of a modern teaching hospital and a medical school.*

SITE—*An open one with a considerable fall from west to east. The main axis of the scheme is almost due north and south with a main east and west corridor. The wards are planned to the south of this corridor, the other departments to the north. Access is obtained by a new road running between the main hospital building and the nurses' home, which is placed along the northern edge of the site. The medical school is to the south. It is a comparatively low building and does not obstruct the sunlight to the hospital wards.*

CONSTRUCTION—*All the higher blocks are steel-framed, floors are reinforced concrete, facing bricks multicolour buff.*

The photographs are : Below, looking from the south-west towards the surgical block ; right, the clock tower on the administration building and the balconies of the medical block.

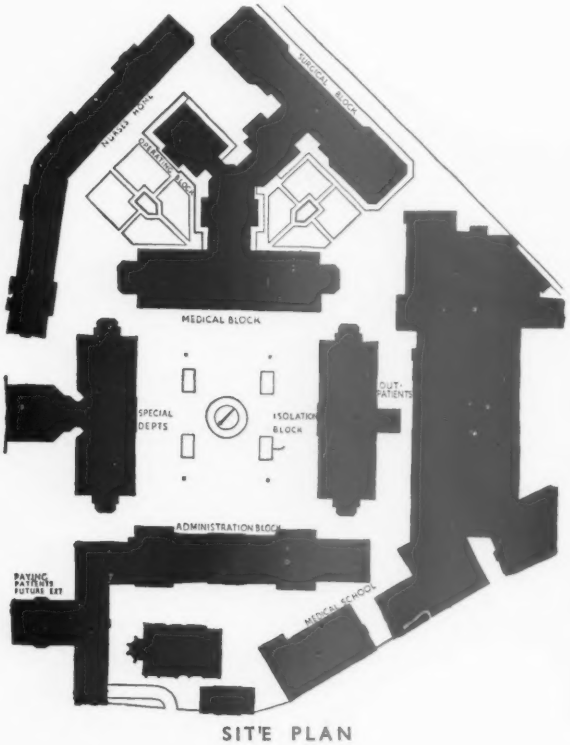
EXTENSIONS, ST. BARTHOLOMEW'S HOSPITAL

DESIGNED BY LANCHESTER AND LODGE

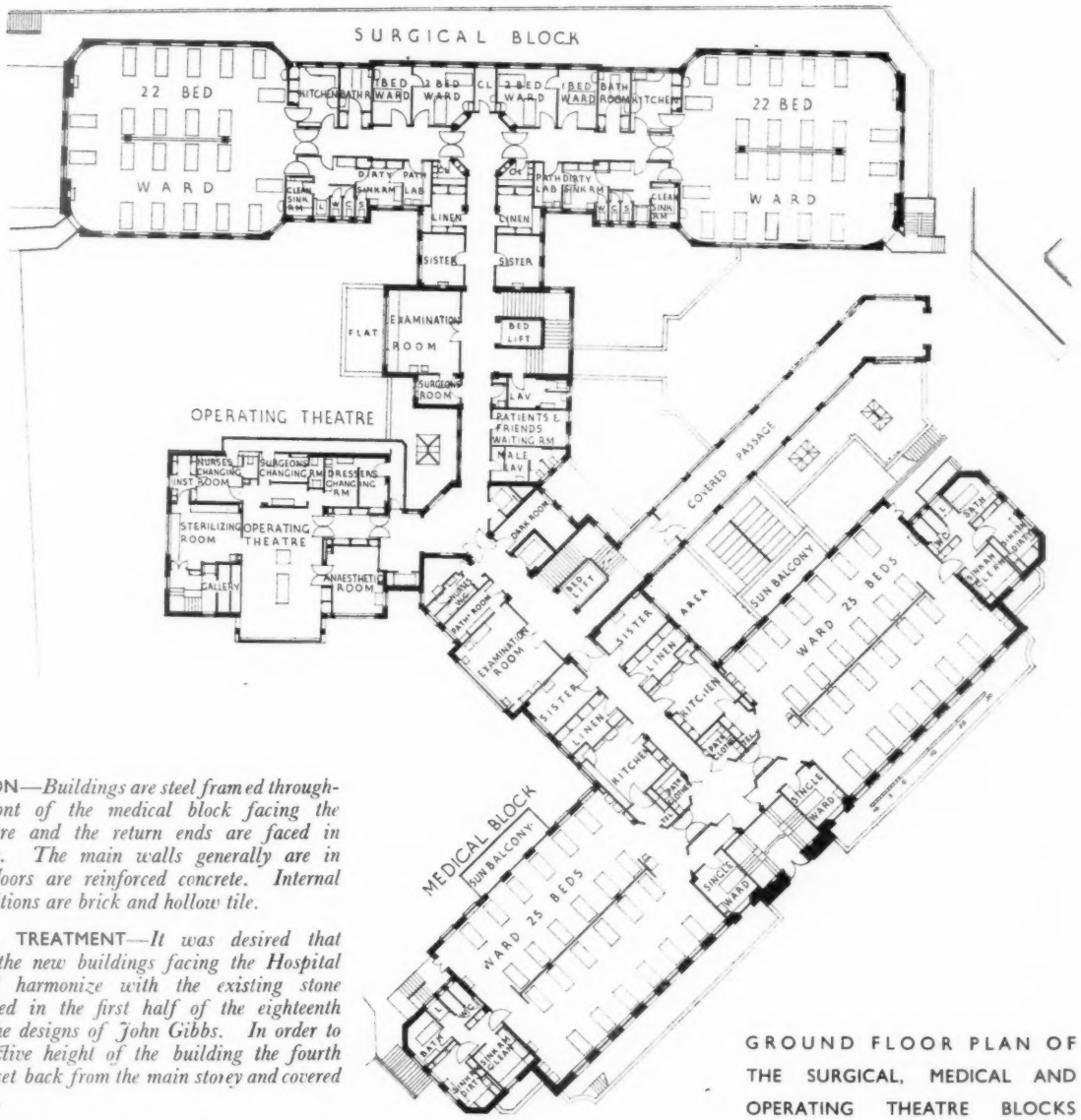
PROBLEM—*The general purpose of the scheme is to provide St. Bartholomew's Hospital with modern buildings equipped with up-to-date apparatus. The present portion of this scheme provides for 250 surgical beds, 250 medical beds and five operating theatre suites, planned so as to be separate units but all inter-connected to facilitate supervision. On account of the increase in size of the new blocks, and the desire to preserve the existing hospital squares, very careful planning was necessary to ensure maximum light and air to the various rooms. The surgical block and operation theatre blocks were completed in 1930 and the medical block in 1937.*

PLAN—*The surgical block has 250 beds divided into 10 units of 25 beds, two such units on each floor from the ground to the fourth. Each unit has a large ward of 22 beds, one two-bed ward and one single-bed ward. Each floor has its own operating suite in the operation theatre block, which is part of the general scheme. The medical block has similar accommodation. On the ground floor the two remaining units each comprise a large ward of 24 beds and one single-bed ward. Each unit throughout has its own sanitary rooms, ward kitchen, linen room, sister's room, etc. The large medical wards have sun balconies for beds on the south side.*

The photographs show: left, the operating theatre block; below, a detail of the balconies of the medical block.



SITE PLAN

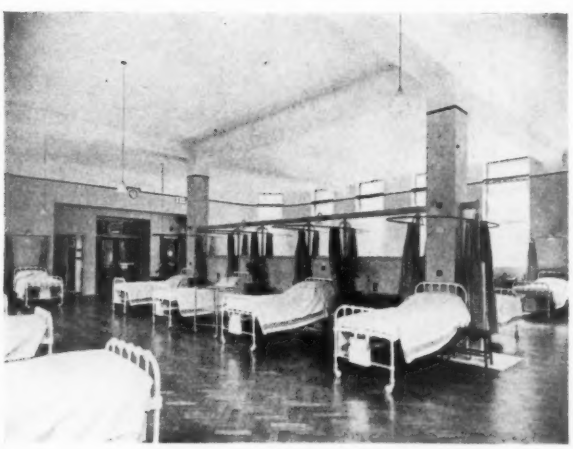


GROUND FLOOR PLAN OF THE SURGICAL, MEDICAL AND OPERATING THEATRE BLOCKS

CONSTRUCTION—*Buildings are steel framed throughout. The front of the medical block facing the Hospital Square and the return ends are faced in Portland stone. The main walls generally are in brick. The floors are reinforced concrete. Internal walls and partitions are brick and hollow tile.*

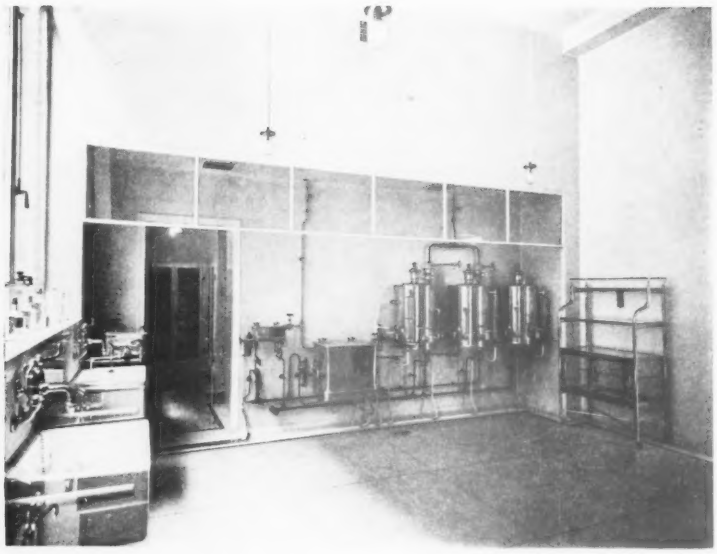
ELEVATIONAL TREATMENT—*It was desired that the design of the new buildings facing the Hospital Square should harmonize with the existing stone buildings erected in the first half of the eighteenth century from the designs of John Gibbs. In order to reduce the effective height of the building the fourth floor has been set back from the main storey and covered with cast lead.*

The photographs show : left, the examination room in the medical block ; right, a typical ward in the surgical block.



INTERNAL FINISHES—*Ward floors throughout are teak block. Corridors and staircases in the surgical block are terrazzo and in the medical block ¼-in. sheet rubber. All sanitary rooms, linen rooms, kitchens, etc., are terrazzo. Walls generally are finished in Keene's cement and enamelled, except in the sanitary units, where they are tiled. Ceilings are distempered.*

SERVICES—*The main food supply is from the existing kitchens by way of a corridor at lower ground floor level. Special diets are provided from the new kitchen at lower ground floor level. Bed lifts are provided in each block as well as trolley, staff and service lifts. Heating is by panels in the ceilings and these are connected to the existing boiler house where special provision has been made to deal with the additional load.*

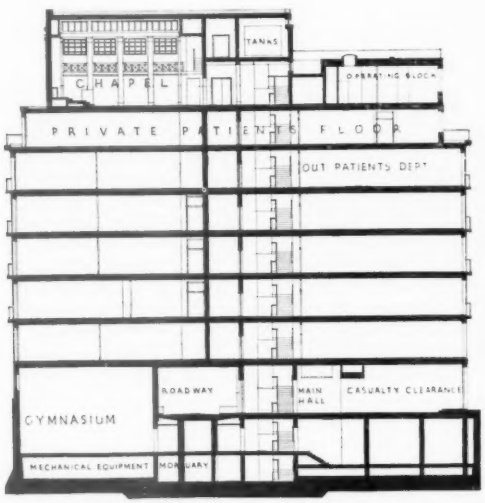


The photographs show : top, a typical ward kitchen in the surgical block ; bottom, sterilizing room in the operating block ; right, top, main corridor in the surgical block ; right, the surgeons' washing space in the operating theatre.

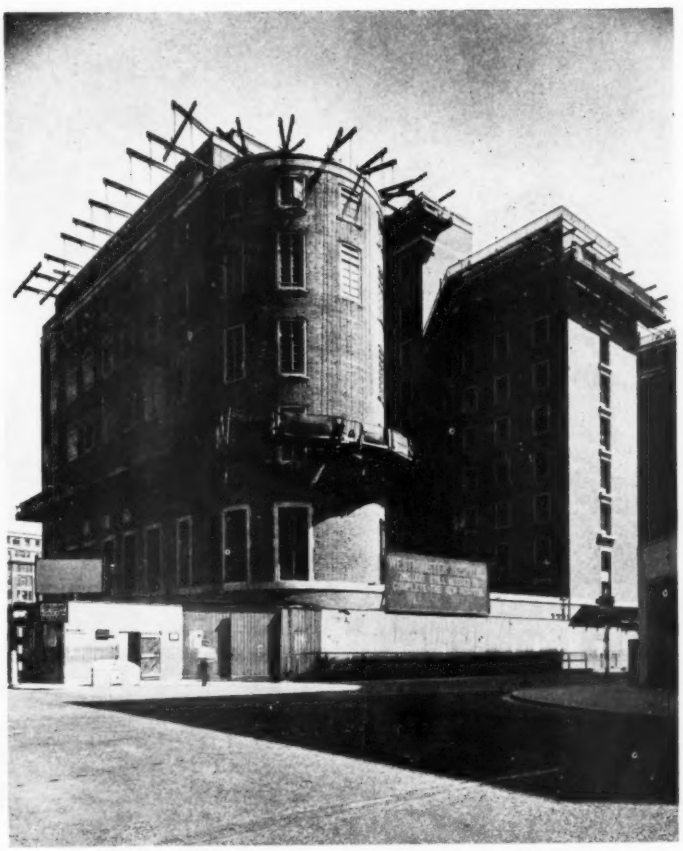
WESTMINSTER HOSPITAL

DESIGNED BY ADAMS, HOLDEN AND PEARSON

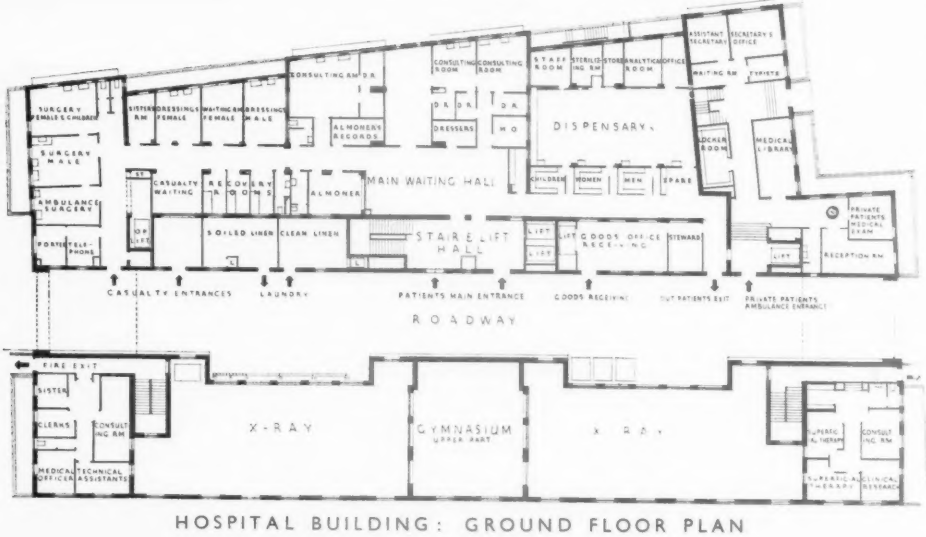
GENERAL—*The new buildings—hospital and nurses' home and medical school—are placed on two separate plots on the east and west of St. John's Gardens, Westminster, with Horseferry Road on the north and Page Street on the south. There is a subway under the pavement of Page Street connecting the two buildings and the boiler-house is in the basement of the nurses' home as this building is to be completed first. At the present moment the nurses' home and medical school are well advanced towards completion; in the case of the hospital building the foundations have only just been completed Above is a perspective, by R. Myerscough-Walker, of the hospital; on the right is a view of the nurses' home, taken from Horseferry Road.*



HOSPITAL BUILDING · SECTION



The nurses' home, taken from Marsham Street.



HOSPITAL BUILDING: GROUND FLOOR PLAN

PLAN—*The new hospital building will be on the east of St. John's Gardens and will provide accommodation for 400 patients (including 44 private patients). The plan is arranged to obtain as many wards as possible facing St. John's Gardens.*

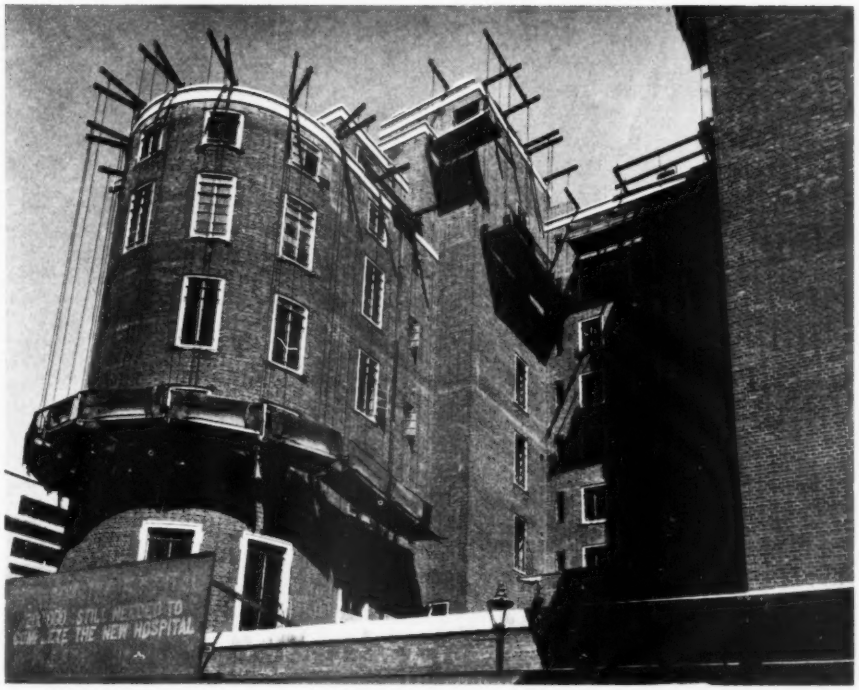
The problem of providing entrances for ambulances, walking patients, medical staff, visitors, etc., presented special difficulties owing to the nature of the site and the traffic regulations. After much discussion it was decided to arrange a "one-way" road through the centre of the building running north and south with a 6 ft wide pathway for pedestrians, and all the above entrances are arranged opening on to this road.

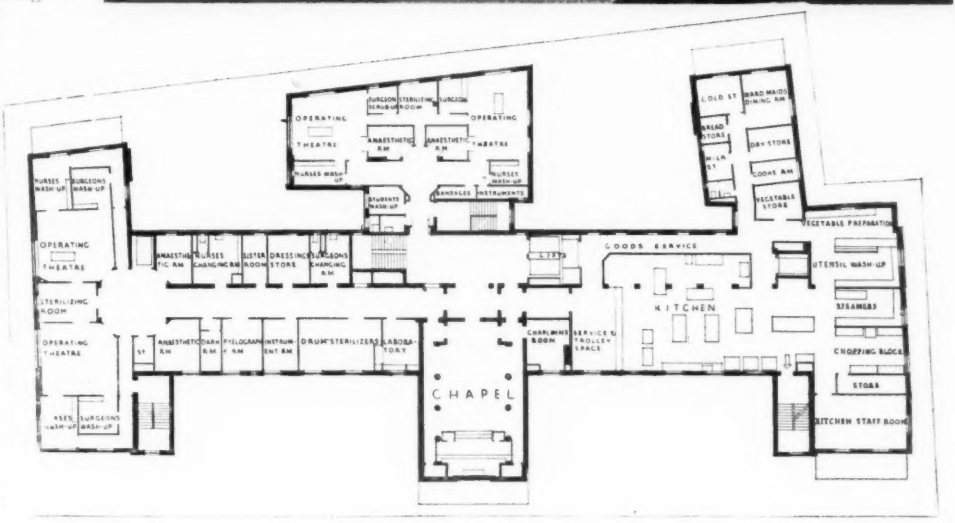
PLAN *(cont.)*—*The medical school is at the north end of the nurses' home on the west of St. John's Gardens and is planned as a self-contained separate building with openings through to the nurses' home for fire-escape only. In the basement are gymnasium, squash court, changing rooms, etc. On the ground floor are the refectory, with cafeteria at one end of room, smoking-room, common room, and a lecture theatre to seat 250 persons. On the first floor are the museum and library. On the upper floors are the laboratories with windows facing north, small lecture rooms, staff rooms, etc., also bedrooms for the resident medical staff.*

The nurses' home occupies about two-thirds of the site on the west side of St. John's Gardens and has the main entrance at the south end in Page Street.

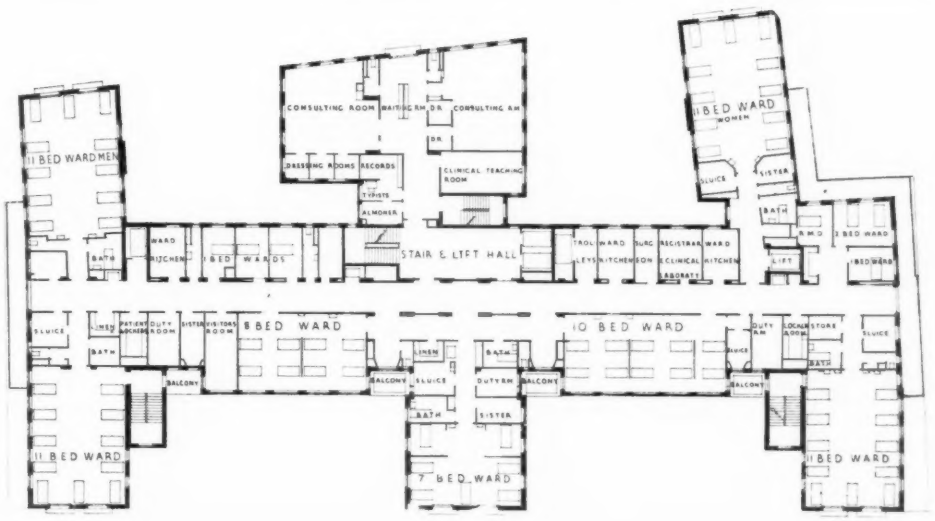
In the basement are the games room, trunk store, linen store, etc., and the boiler-house. On the ground floor are the offices for the sister tutor, etc., visitors' room, lecture room, library, dining-room and kitchen. The dining-room and kitchen were placed on the ground floor in order to save time during the nurses' luncheon interval as meals will be provided in the nurses' home. Immediately over the offices at the south end of the building are the teaching ward, fitted with all ward accessories, a teaching kitchen and also a sick bay for nurses.

Above is a detail of the nurses' home taken from Marsham Street.



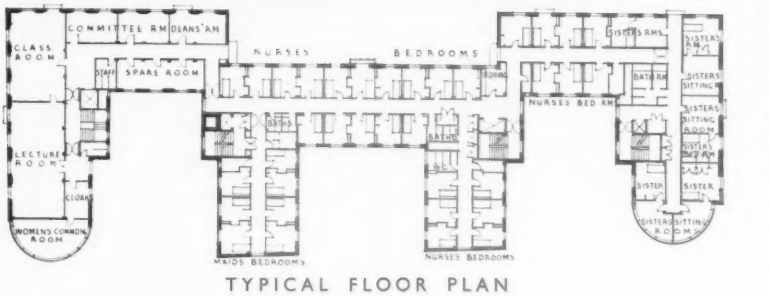


SEVENTH FLOOR PLAN

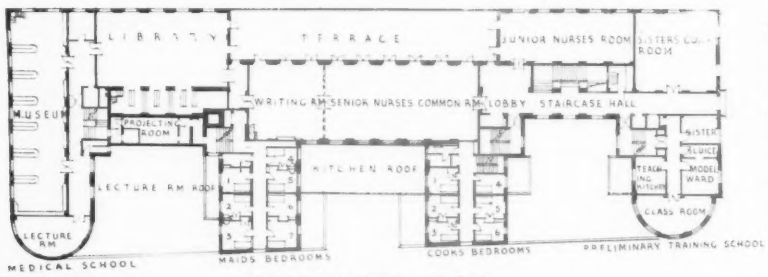


HOSPITAL BUILDING

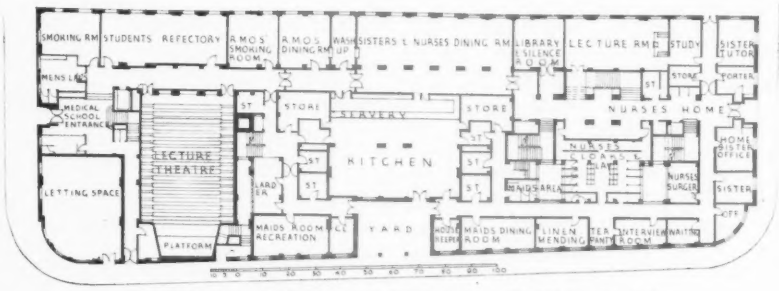
TYPICAL FLOOR PLAN



TYPICAL FLOOR PLAN



FIRST FLOOR PLAN



NURSES' HOME: GROUND FLOOR PLAN

PLAN *(cont.)—On the first floor of the Nurses' Home, facing St. John's Gardens, are the recreation rooms, and the large room for senior nurses which opens on to a paved terrace overlooking St. John's Gardens. The upper floors provide accommodation for the nurses' bedrooms, each with a floor area of 100 ft. super, a built-in cupboard, wardrobe and lavatory basin in a recess. The sisters are arranged at the south end of the building with bed-sitting rooms with floor area of 150 ft. super and a built-in writing-desk in addition to the fittings provided for the nurses.*

There is a separate staircase and lift provided for the nurses and sisters and an ironing-room, tea pantry and shampoo-room are provided on every floor.

On the top floor there is another games room opening on the flat at the south end of the building.

The outpatients' department is arranged on unusual lines and is planned vertically instead of horizontally. The object of this arrangement is to save waiting and to link up inpatients' and outpatients' treatment as far as possible.

CONSTRUCTION—*The buildings are steel-framed with 14-in. brick walls externally and 3-in. Hemel Hempstead partition blocks for internal walls. The facing bricks are Sussex stocks with a red brick base and Portland stone strings and copings. The windows are metal casements opening outwards with fanlights. The heating will be low-pressure hot water with hospital type radiators placed in recesses under windows. The floors are constructed to resist the transmission of sound as far as possible and provide a flush ceiling and teak boarded floors to wards (corridors, ruboleum or rubber).*

Above is the elevation of the Nurses' Home, facing St. John's Gardens.

KENT AND SUSSEX :
A County General Hospital.

SCARBOROUGH :
A Municipal General Hospital.

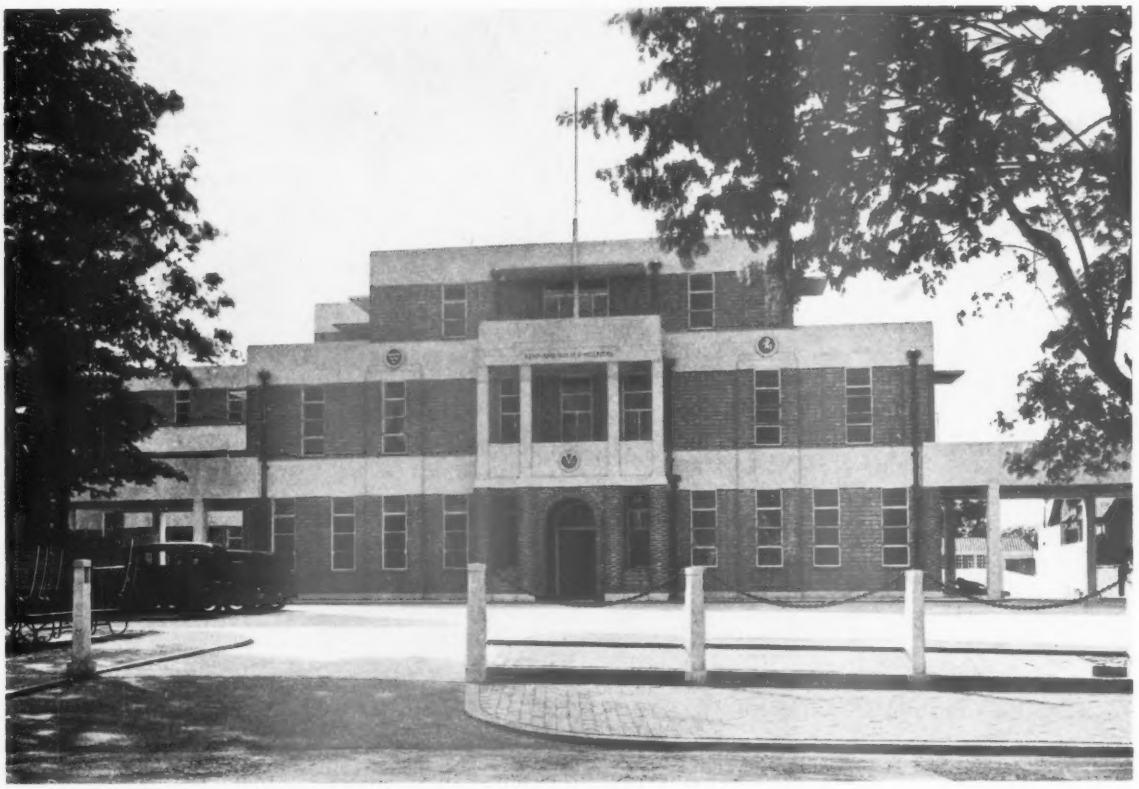
ROYAL MASONIC :
A Private General Hospital.

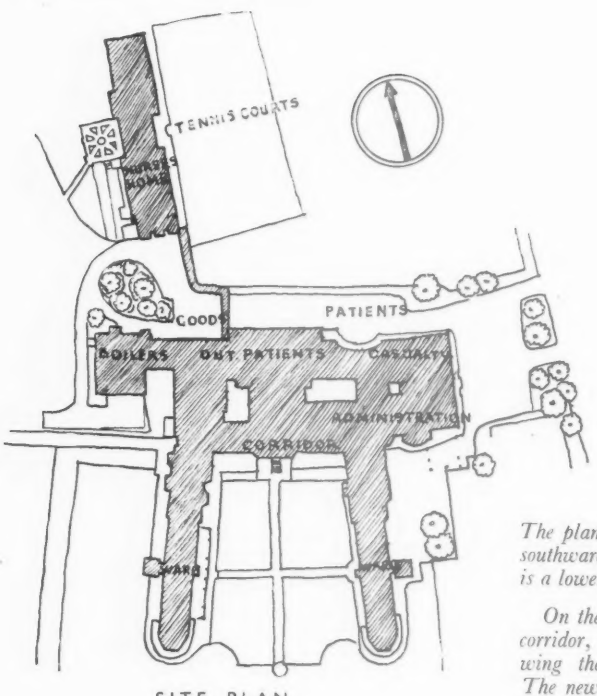
PAISLEY :
An Infectious Diseases Hospital.

WELWYN :
A Cottage Hospital.

SULLY :
A Tuberculosis Sanatorium.

It was intended to illustrate on the following pages an example, built during the last five years, of each main type of British hospital building. It has not been possible to make the examples complete, as no hospital of certain types has been built in that period, but the buildings listed here, nearly all won in open or limited competitions, represent the latest achievement in planning and equipment in their particular hospital group.





SITE PLAN

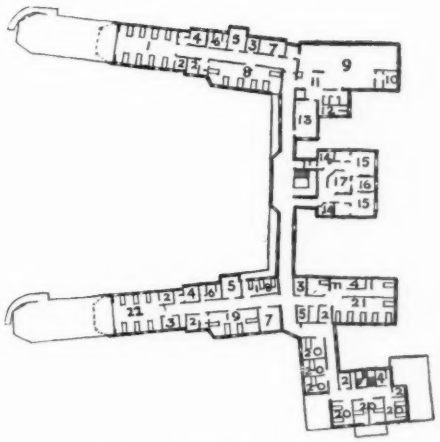
KENT AND SUSSEX

CECIL BURNS

The plan consists of a main block with two long ward wings facing southward. The ground between the wings slopes steeply so that there is a lower ground floor to the west wing containing the children's ward.

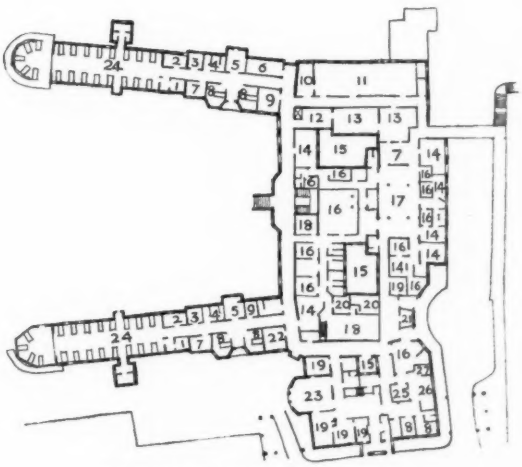
On the first floor the block becomes three wings leading off the main corridor, the central wing being the outpatients' block and the east wing the casualty and administration block with main entrance. The new feature is the ramps supported by cantilevers which connect the closed balconies at the end of the ward blocks enabling patients to be moved easily from one level to another.

Above is the main approach and entrance front. On the facing page is a view between the projecting ward wings.



TOP FLOOR PLAN

FIRST FLOOR PLAN



GROUND FLOOR PLAN

TOP FLOOR

1 : Aural ward (men)
2 : Bath room
3 : Duty room
4 : Sink room
5 : Ward kitchen
6 : Nurses' lavatory
7 : Waiting room
8 : Aural ward (women)
9 : Kitchen
10 : Store
11 : Servery
12 : Lavatory
13 : Dining room
14 : Surgeons' room
15 : Operating theatre
16 : Sterilizing room
17 : Anæsthetizing room
18 : Ward
19 : Ophthalmic ward (men)
20 : Paying patients' wards
21 : Gynæcological ward
22 : Women's Ophthalmic

FIRST FLOOR

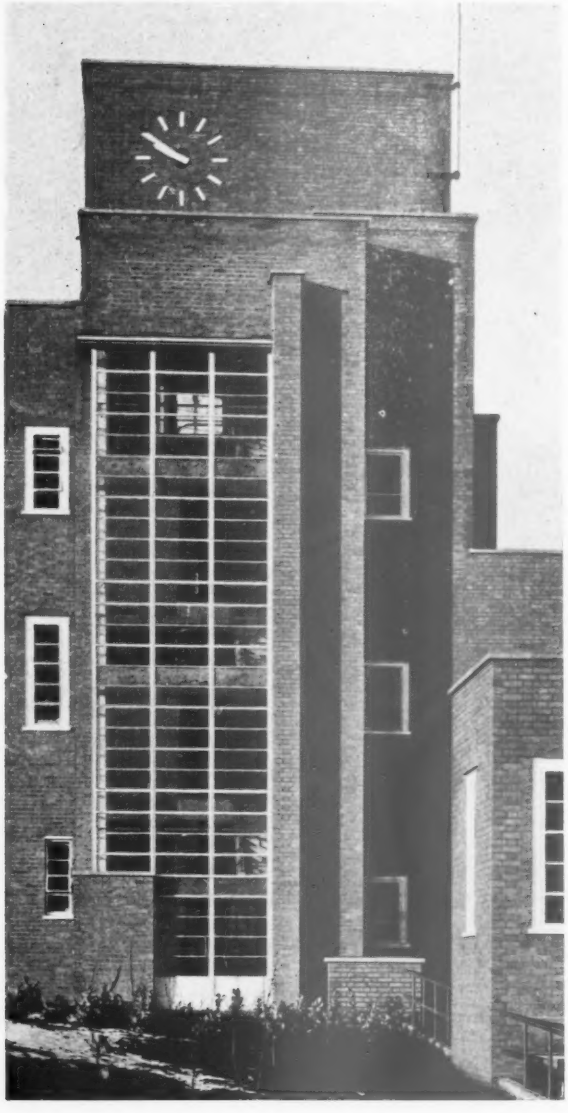
1 : Men's surgical ward
2 : Ward
3 : Clinical room
4 : Bath room
5 : Ward kitchen
6 : Duty room
7 : Nurses' lavatory
8 : Waiting room
9 : Men's surgical small ward
10 : Linen room
11 : Servery
12 : Quiet room
13 : Lavatory
14 : Surgeons' room
15 : Wash room
16 : Sisters' room
17 : Theatre
18 : Sterilizers
19 : Anæsthetic room
20 : Doctors' bedrooms
21 : Doctors' sitting room
22 : Women's surgical ward
23 : Matron's suite
24 : Paying patients' wards

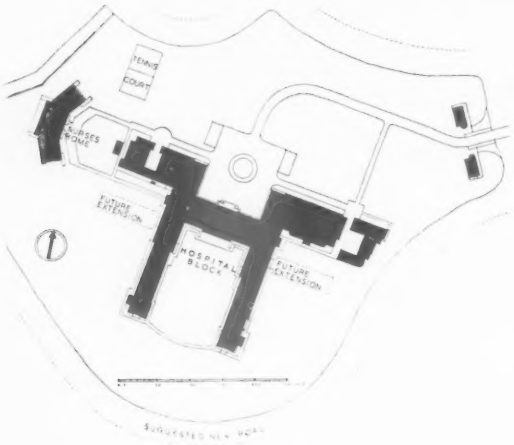
GROUND FLOOR

1 : Bath room
2 : Duty room
3 : Clinical room
4 : Nurses' lavatory
5 : Ward kitchen
6 : Linen League
7 : Waiting room
8 : Ward
9 : Linen room
10 : Pantry
11 : Nurses' dining and lecture rooms
12 : Servery
13 : Dispensary and store
14 : Consulting room
15 : Area
16 : Treatment room
17 : Patients
18 : X-ray dept.
19 : Office
20 : Developing room
21 : Porter
22 : Doctors' common room
23 : Board room
24 : Men's and women's medical wards
25 : Anæsthetic room
26 : Theatre
27 : Sterilizers

KENT AND SUSSEX

CECIL BURNS





SITE PLAN

The hospital was the subject of an open competition in 1932. It has 140 beds and has been planned so that future extensions may double the number. It is equipped as a general hospital. The main ward wings face southward, connected by a central administration block with kitchen services on the east end. The outpatients on the west end. The nurses' home is a separate building.

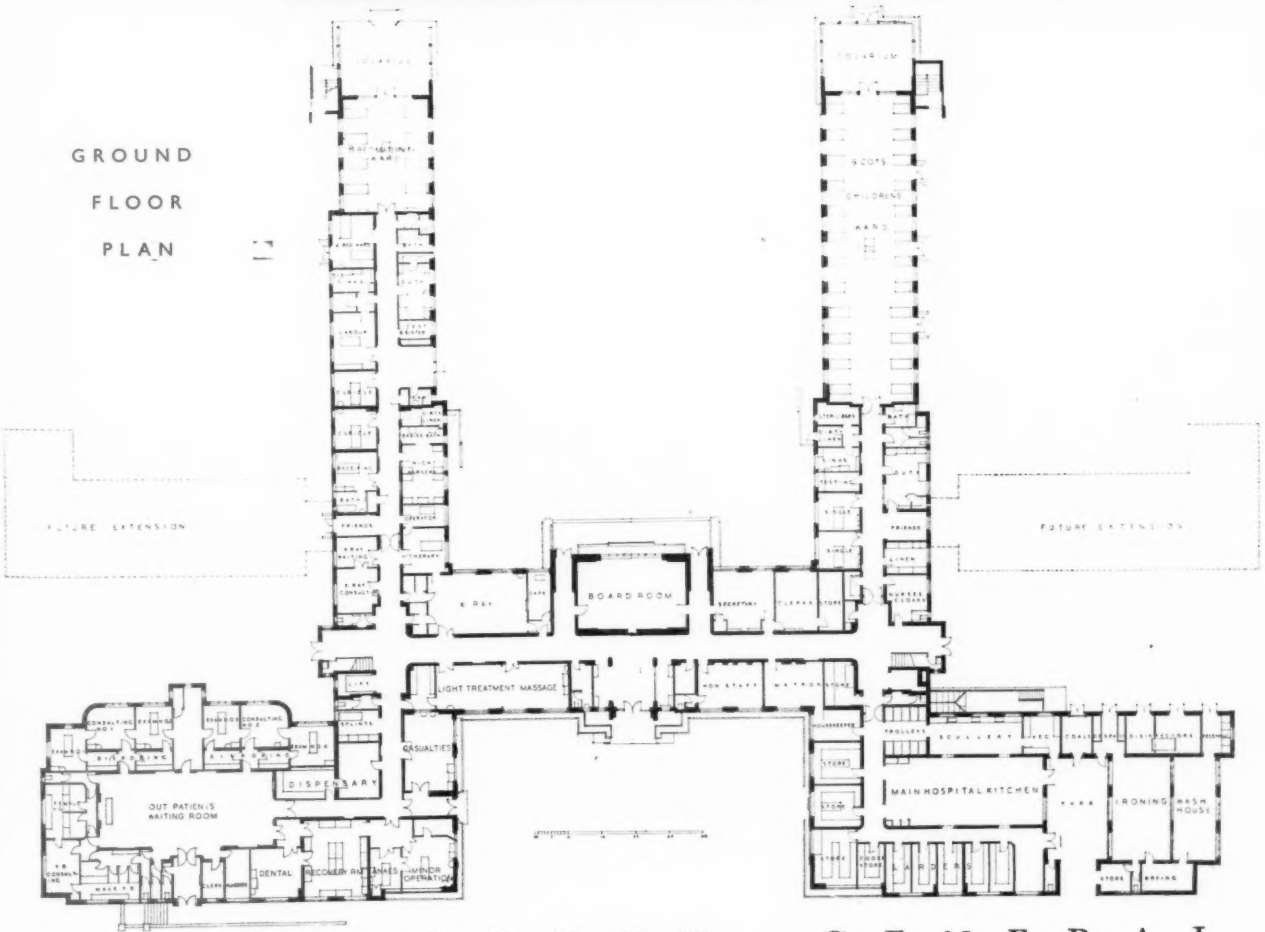
The photographs show: above, a general view; left, the main staircase window; below, the entrance front of the main building.

SCARBOROUGH • GENERAL

WALLACE MARCHMENT

A detail of the main entrance.

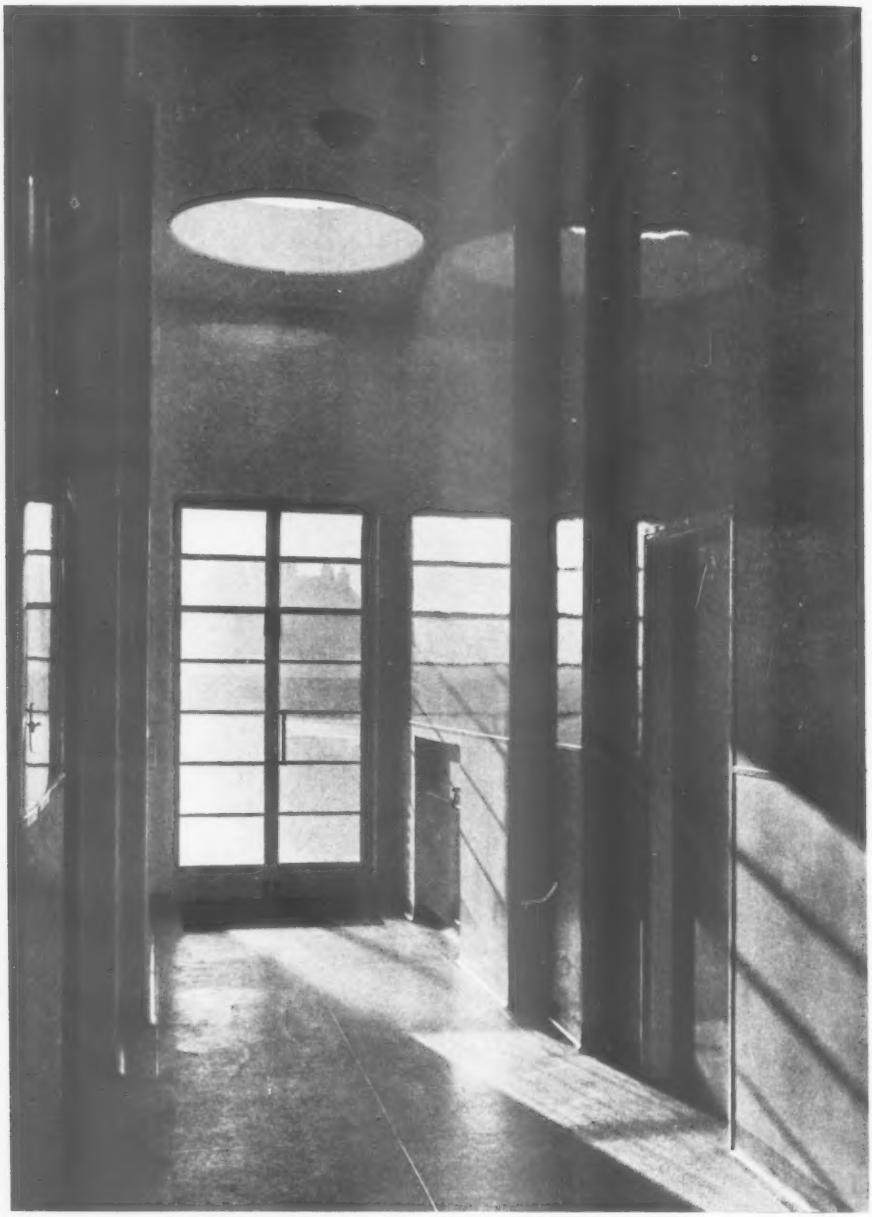
GROUND FLOOR PLAN



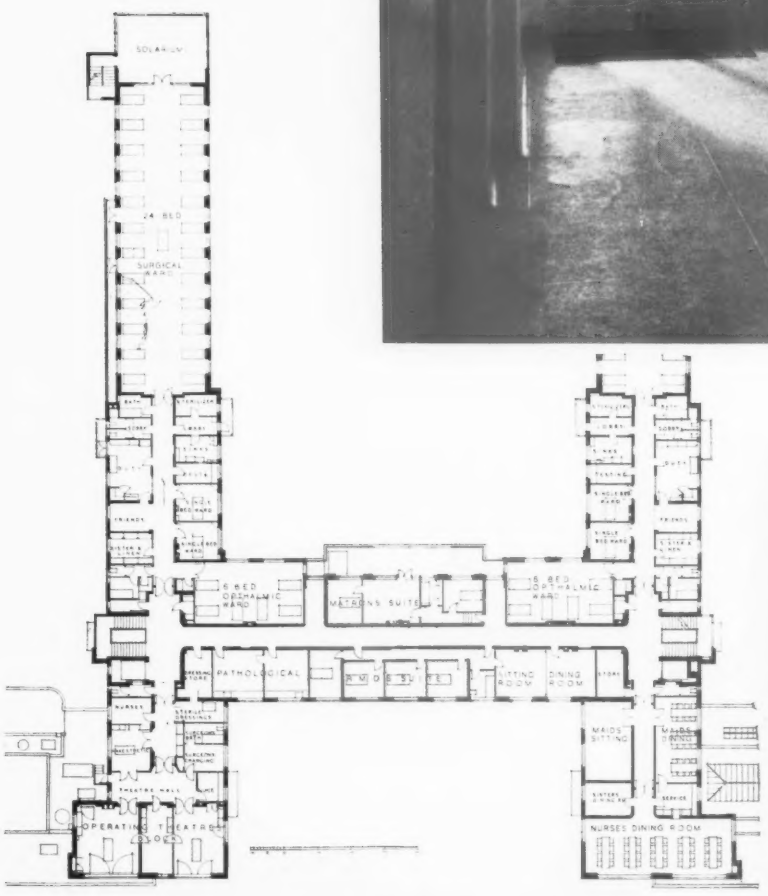
SCARBOROUGH • GENERAL

WALLACE MARCHMENT

The photographs show : the ante-lobby to the board room. It serves also as a light bay to the main corridor ; a view from the sterilizing room into the main operating theatre.

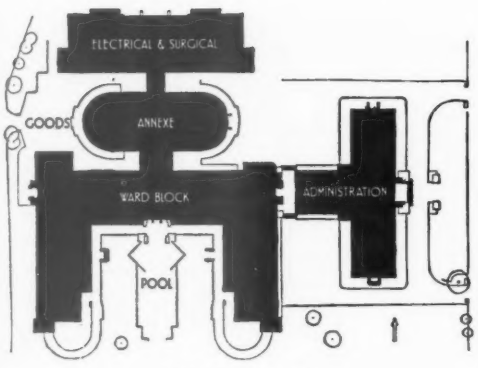


FIRST FLOOR PLAN

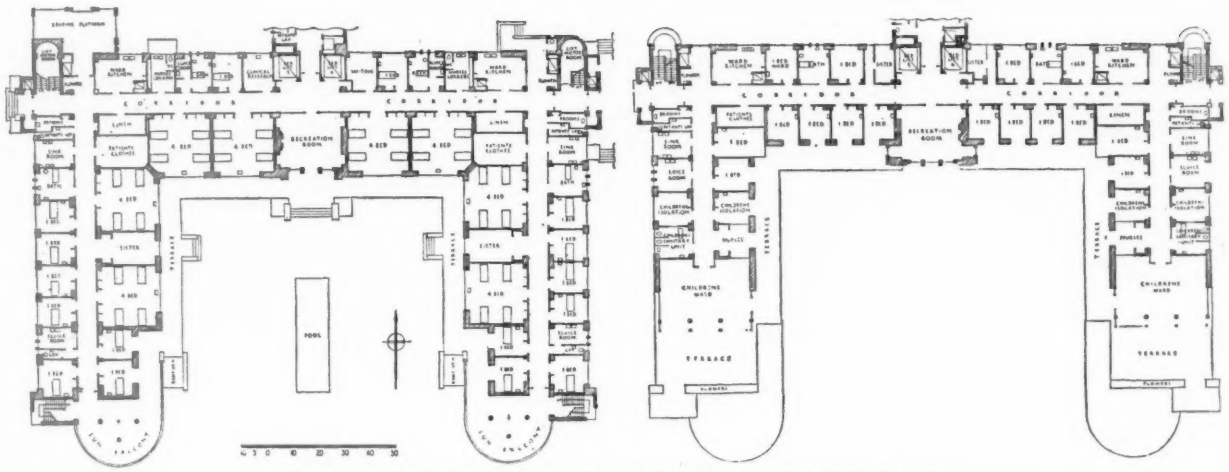


SCARBOROUGH • GENERAL

WALLACE MARCHMENT



SITE PLAN



WARD BLOCK: GROUND AND THIRD FLOOR PLANS

This hospital was the subject of a limited competition and was opened in 1933. It is equipped as a general hospital and consists of 4 main blocks: the Administration, the Ward, the Electrical and Surgical and the Annexe (miscellaneous ward and storage accommodation). Above is a view of the back of the administration building and the staircase of the ward block.

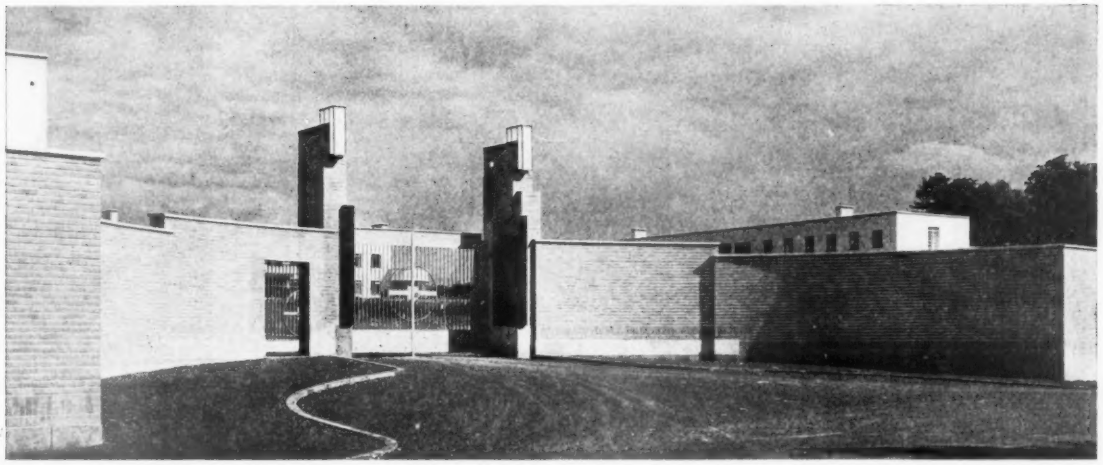
ROYAL MASONIC, LONDON

SIR JOHN BURNET, TAIT AND LORNE

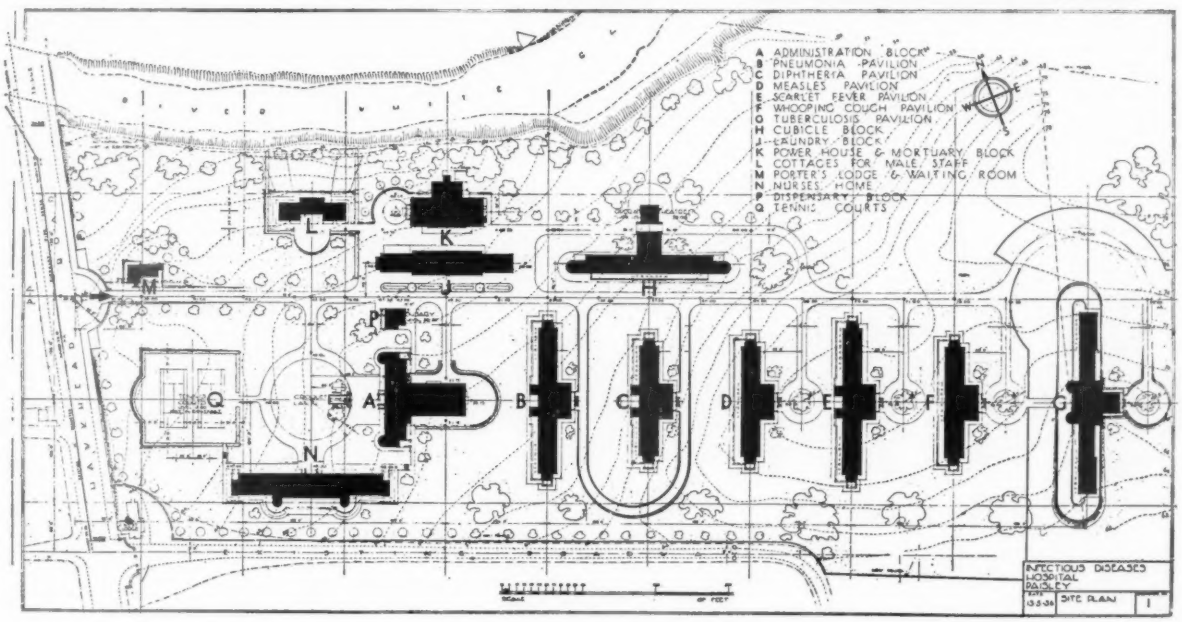
Above: one wing of the ward block; one of the entrances.

ROYAL MASONIC, LONDON

SIR JOHN BURNET, TAIT AND LORNE

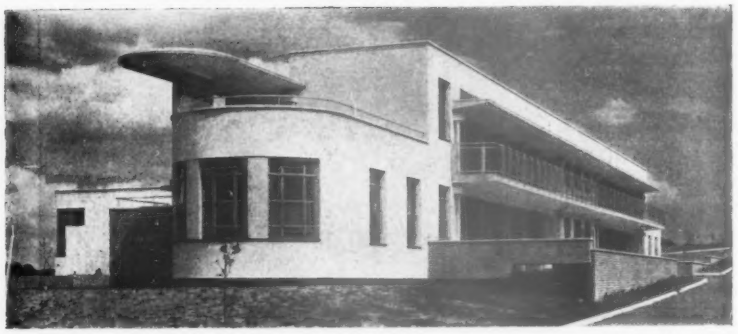


This hospital was the subject of a competition limited to nine competitors in 1931. It is a hospital for infectious diseases, with accommodation for 181 patients. The hospital is planned in isolated units with a cubicle block for doubtful diseases and surgical cases and six ward pavilions. Above, the main entrance gateway; and right, a detail of the entrance to the administration block

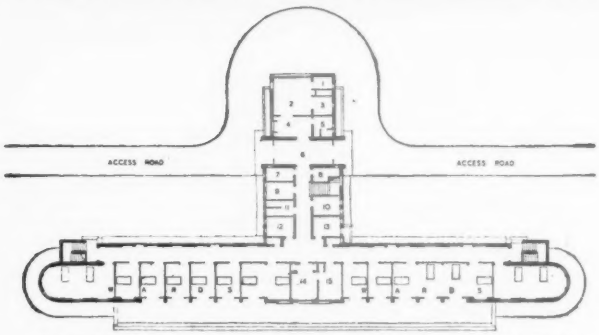


PAISLEY • INFECTIOUS DISEASES

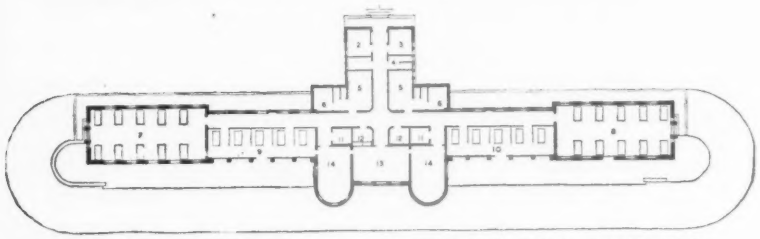
SIR JOHN BURNET, TAIT AND LORNE



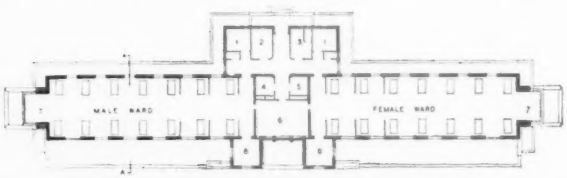
The photographs show : left, the cubicle block ; above, the bay window to the matron's sitting-room ; below, one of the pavilions for particular diseases.



GROUND FLOOR PLAN : CUBICLE BLOCK



GROUND FLOOR PLAN : TUBERCULOSIS PAVILION



GROUND FLOOR PLAN: SCARLET FEVER PAVILION

CUBICLE BLOCK

1 : Wash-up
2 : Operating theatre
3 : Sterilizing room
4 : Anæsthetic lobby
5 : Surgeons' lavatory
6 : Lobby
7 : Patients' clothes
8 : Cleaner
9 : Linen
10 : Children's bathroom
11 : Staff lavatory
12 : Adults' bathroom
13 : Sink room
14 : Ward kitchen and duty room
15 : Pantry

TUBERCULOSIS PAVILION

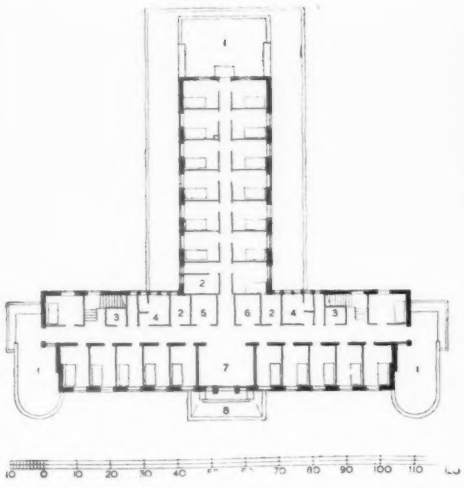
1 : Entrance
2 : Sink room
3 : Doctors' room
4 : Lavatory
5 : Locker rooms
6 : Bathrooms
7 : Male Ward, semi-ambulant cases
8 : Female Ward, ditto
9 : Male bed cases
10 : Female ditto
11 : Box rooms
12 : Linen rooms
13 : Ward kitchen and duty room
14 : Day rooms

SCARLET FEVER PAVILION

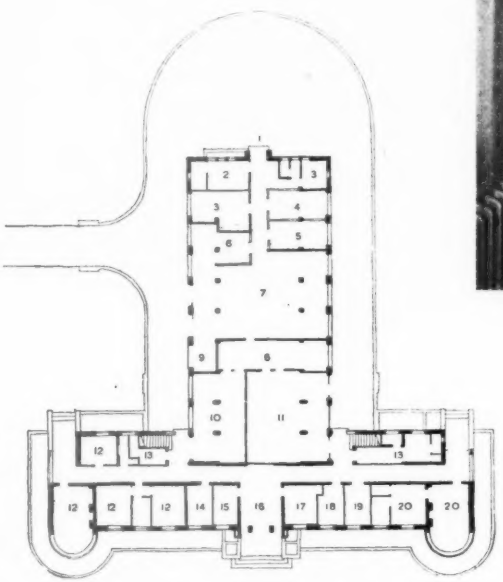
1 : Bathrooms
2 : Sink room
3 : Staff lavatory
4 : Calorifier room
5 : Patients' clothes
6 : Ward kitchen and duty room
7 : Solarium
8 : Private wards

PAISLEY • INFECTIOUS DISEASES

SIR JOHN BURNET, TAIT AND LORNE



FIRST FLOOR PLAN



ADMINISTRATION BLOCK:
GROUND FLOOR PLAN

Above, a corridor in the cubicle block; right, the side entrance

GROUND FLOOR PLAN

1 : Kitchen entrance
2 : Cold Storage Plant
3 : Stores
4 : Vegetable preparation room
5 : Meat and fish preparation room
6 : Wash-up room
7 : Main kitchen
8 : Service
9 : Trolley dock
10 : Maids' dining room
11 : Nurses' dining room
12 : Doctors' rooms
13 : Cloak rooms
14 : Telephone exchange
15 : General waiting room
16 : Entrance hall
17 : Matron's office
18 : Relatives' waiting room
19 : Linen store
20 : Matron's rooms

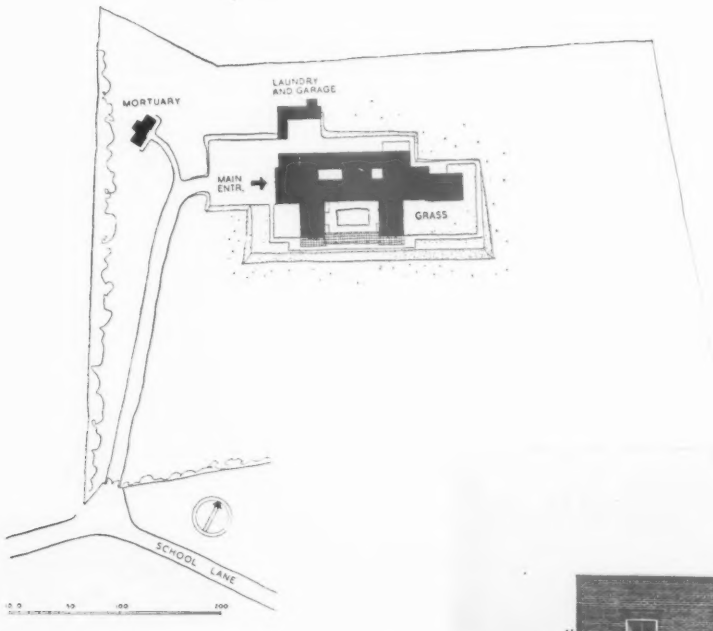
FIRST FLOOR PLAN

1 : Flat roof
2 : Bathrooms
3 : Stores
4 : Maids' lavatories
5 : Trunk room
6 : Linen store
7 : Maids' sitting room
8 : Concrete hood

All other rooms are bedrooms

PAISLEY • INFECTIOUS DISEASES

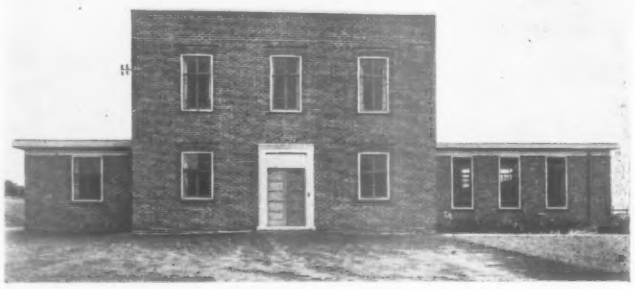
SIR JOHN BURNET, TAIT AND LORNE



SITE PLAN

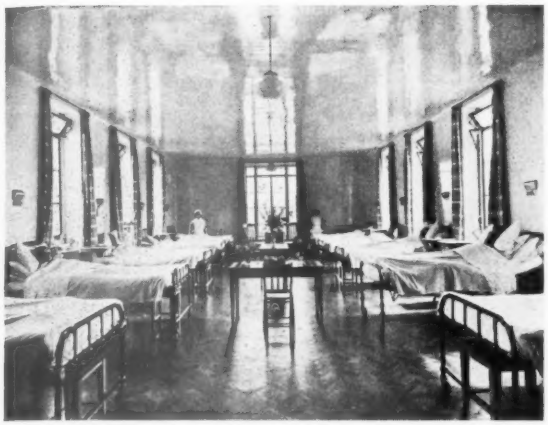
The hospital is planned with the main corridor running east and west, the general wards on the south side and the outpatients and operating suite on the north side. The general wards are connected by a verandah. The first floor is occupied by the staff.

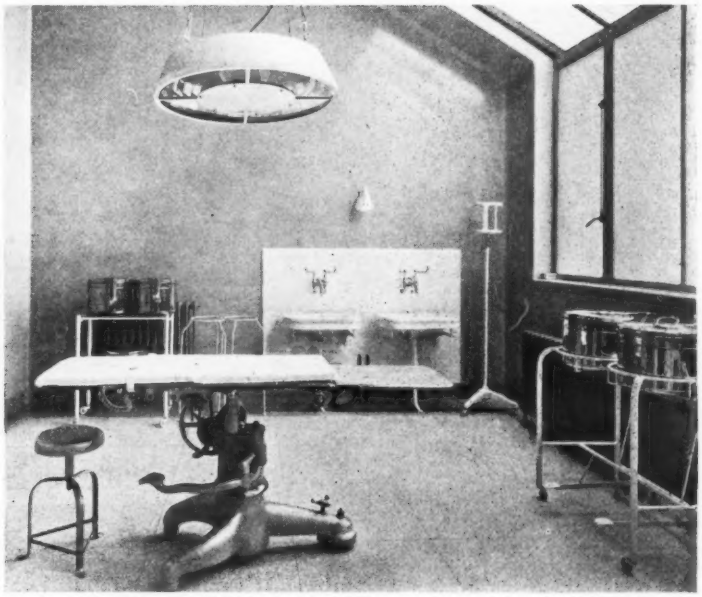
The photographs show : above, a view from the south-west ; right, the main entrance.



WELWYN • COTTAGE

H. G. CHERRY : ADAMS, HOLDEN AND PEARSON, CONSULTANTS



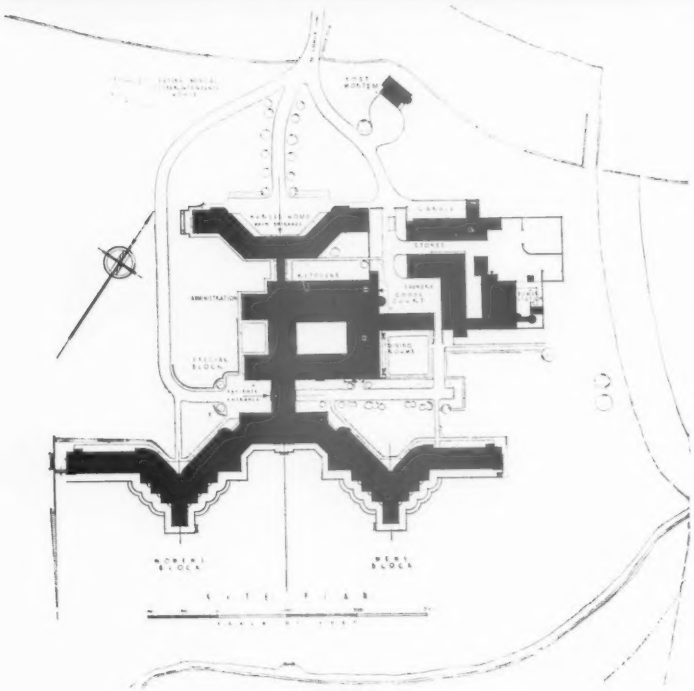


Above: the men's ward; right: the operating theatre.

GROUND AND FIRST FLOOR PLANS

WELWYN • COTTAGE

H. G. CHERRY : ADAMS, HOLDEN AND PEARSON, CONSULTANTS



SITE PLAN

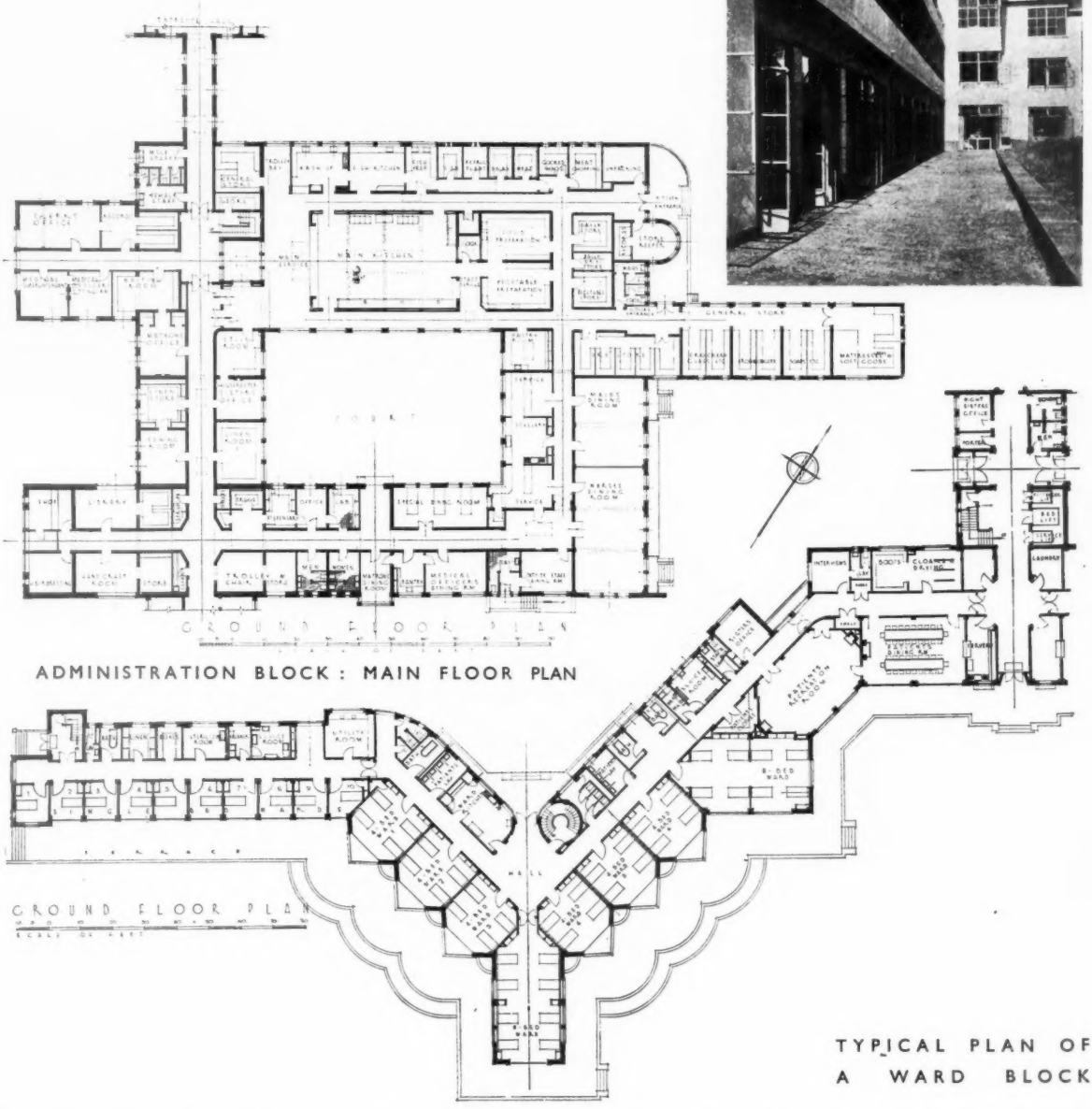
This hospital was the subject of an open competition in 1931. It has 300 beds in six identical ward units of 50 beds each, three for men, three for women. The central administration block connects with the ward blocks and the nurses' home.

Above: the nurses' home from the approach road.

SULLY • TUBERCULOSIS

PITE, SON AND FAIRWEATHER

On the right is a photograph of the ward balconies looking towards the stepped-back windows of the four-bed wards.



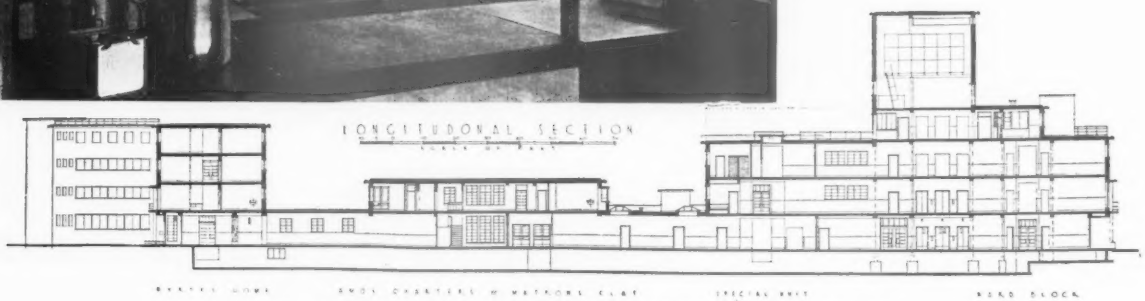
ADMINISTRATION BLOCK : MAIN FLOOR PLAN

TYPICAL PLAN OF A WARD BLOCK

SULLY • TUBERCULOSIS

PITE, SON AND FAIRWEATHER

Above : a typical ward ; left, a general view of the kitchen, which serves the whole hospital.



LONGITUDINAL SECTION THROUGH HOSPITAL

SULLY • TUBERCULOSIS

PITE, SON AND FAIRWEATHER

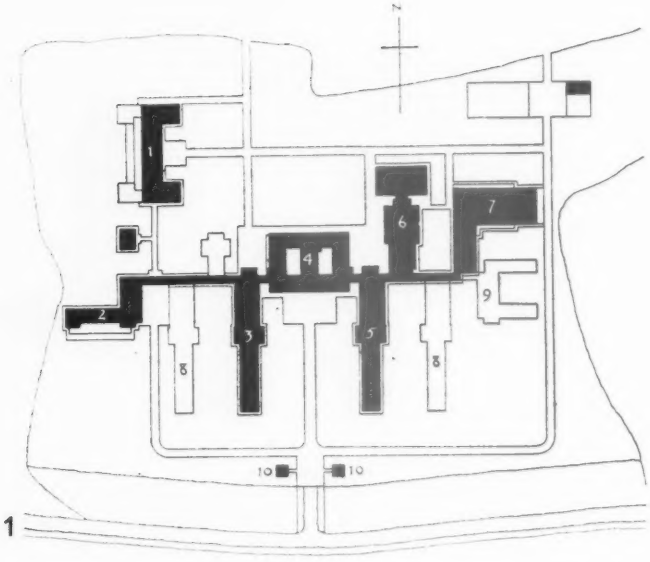
P L A N N I N G

A REFERENCE TO VARYING ARRANGEMENTS OF LAYOUTS, UNITS AND PRINCIPAL PLANS

BLOCK PLANS :	Southend General Llandough Coventry Isolation Pontypridd
WARDS :	Monkwearmouth Coventry Brentwood Hatford Leeds Paisley
OUTPATIENTS :	Leeds Hammersmith
OPERATING THEATRES :	St. Bartholomew's Tubingen Bata
KITCHEN :	Leeds Royal Masonic Bata
SCHEMES :	Freiberg (Germany) Paimio (Finland) Clavadel (Italy) Tubingen (Germany) St. Immer (Switzerland) Monkwearmouth German (London) Rugby School Sanatorium Duluth (America) Lindenberg (Germany) Children's, Vincent Sq. Berlin-Wilmersdorf Tolworth

(On the left is the site plan of the King Edward VII Sanatorium. By H. Percy Adams.)

BLOCK PLANS

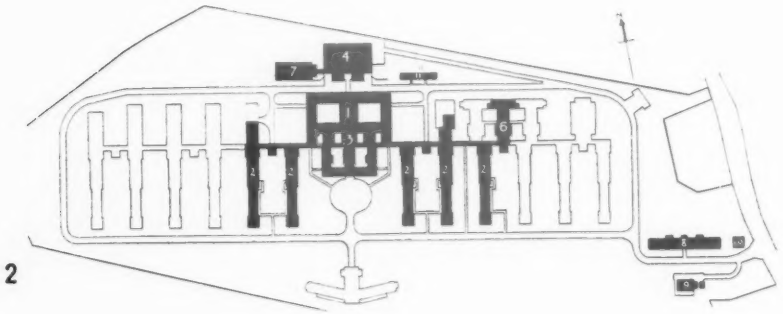


1

SOUTHEND GENERAL

Adams, Holden and Pearson

1 : Nurses' home
2 : Children's ward
3 : Women's ward
4 : Administration
5 : Men's ward
6 : Electrical and operating
7 : Out-patients
8 : Future ward
9 : Future pay-patients
10 : Lodge

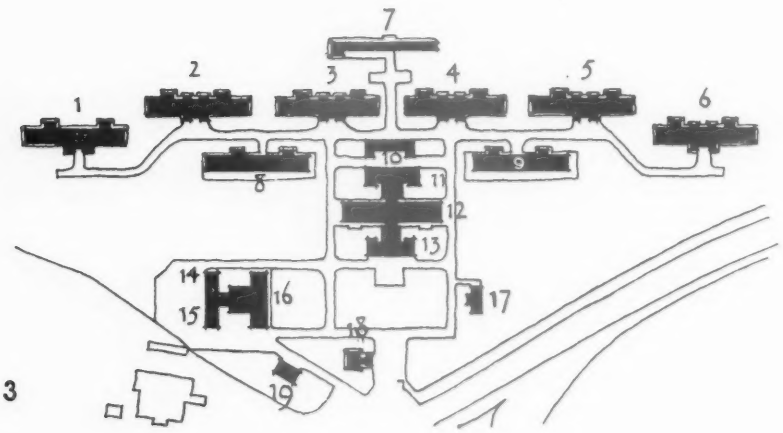


2

LLANDOUGH, CARDIFF

Willmott and Smith

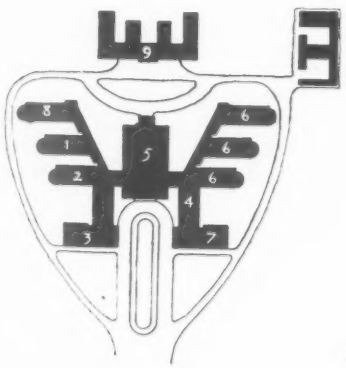
1 : Kitchen
2 : Ward blocks
3 : Administration
4 : Boiler house
5 : X-ray
6 : Operating theatres
7 : Laundry
8 : Nurses' home
9 : Superintendent
10 : Entrance
11 : Mortuary



3

COVENTRY ISOLATION. Stanley Atkinson

1-6 : Ward blocks
7 : Cubicle block and operating theatre
8-9 : Convalescent block
10 : Trolley shed and stores
11 : Kitchen
12 : Nurses' home
13 : Administration block
14 : Mortuary
15 : Garage
16 : Boiler house
17 : Medical superintendent's house
18 : Porter
19 : Ambulance driver and engineer



4

PONTYPRIDD

Bradshaw Gass and Hope

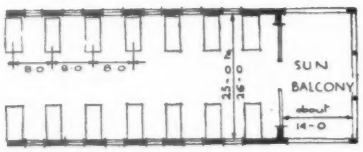
1 : Children's ward
2 : Medical ward
3 : Maternity units
4 : Administration
5 : Kitchen
6 : Surgical wards
7 : Theatres and special department
8 : Future ward
9 : Nurses' home

WARD UNITS

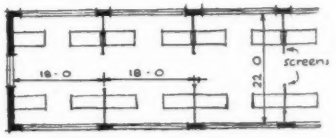
A ward unit is the portion of a hospital under the control of one ward sister; it provides for a maximum of 30 patients, of whom four should be in single-bed wards. The remainder may be accommodated in one large ward, but there is a general tendency to sub-divide the unit further, giving more adequate classification of diseases, and the large ward often comprises no more than 16 or 18 beds.

Alternative methods of arranging the beds in the large ward are shown in diagrams 1, 2, and 3. That shown in 1 has been generally adopted in the past and has proved very satisfactory in working; the dimensions are those recommended by the Departmental Committee on the Cost of Hospitals. Plans 2 and 3 have, it is claimed, advantages from the patients' point of view, and allow the use of wide windows (with practically open-air conditions in the ward, if desired), but may require extra staffing. The Committee does not suggest any standard dimensions for these types, but points out that the sizes given provide a floor area per bed about equal to that afforded by plan 1.

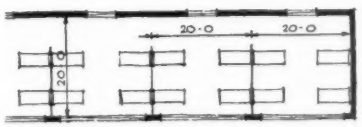
In types 1 and 2 the main axis should be, if possible, north and south; in 3, east and west. The height should be 11 ft. clear for a ward of sixteen or fewer beds; 12 ft. for a larger ward. These heights may be slightly reduced in types 2 and 3.



1



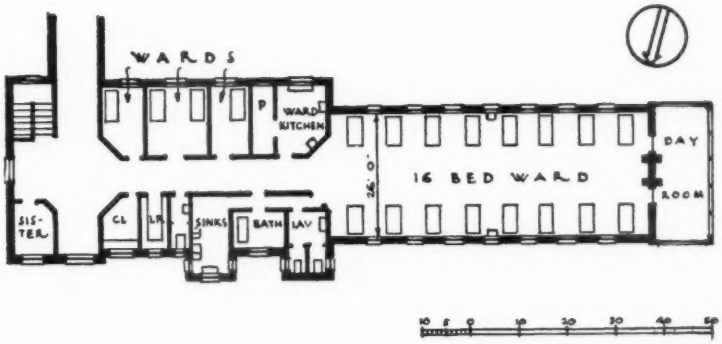
2



3

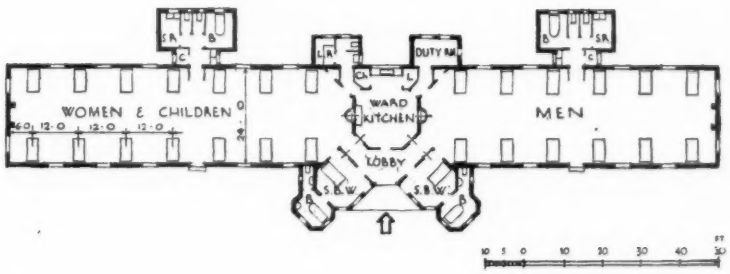
The following are the recommendations of the Departmental Committee for the service and sanitary rooms of the ward unit. Though they have prime reference to municipal hospitals they are also generally applicable to voluntary hospitals :—

	Area in sq. ft.
Sluice room (for emptying and cleaning bed pans, etc.)	100
Space for testing (clinical) ...	30
Bathroom	70
Ward office (sister's room) ...	70
Ward kitchen (for service of meals, preparing tea, etc.) ...	200
Duty (or utility) room (for sterilizing, etc.)	100
Linen and general stores, each ...	70
A light bay off the corridor, to be used as a day-room	100



4

4 : Ward unit at Monkwearmouth and Southwick Hospital, by William and T. R. Milburn, showing a typical treatment of the traditional ward plan.



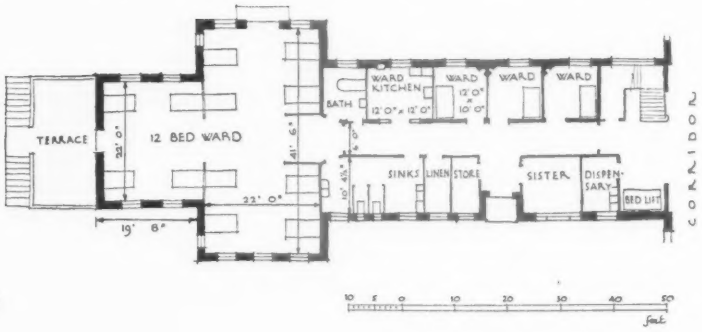
5

5 : Typical ward block at the City Isolation Hospital, Coventry. By Stanley Atkinson. Large wards of the traditional type with the wide spacing necessary in isolation hospitals. The sanitary annexes are a feature no longer common in the form shown, particularly in general hospitals.

P : Pantry
B : Bathroom
Ch : China
L : Larder

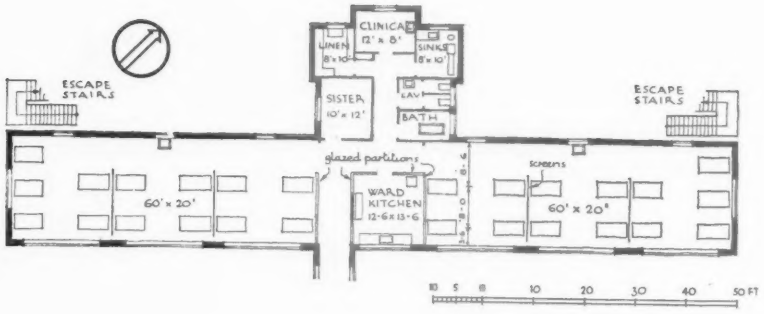
L.R. : Linen room
S.R. : Sink room
S.B.W. : Single-bed Ward

WARD UNITS



6

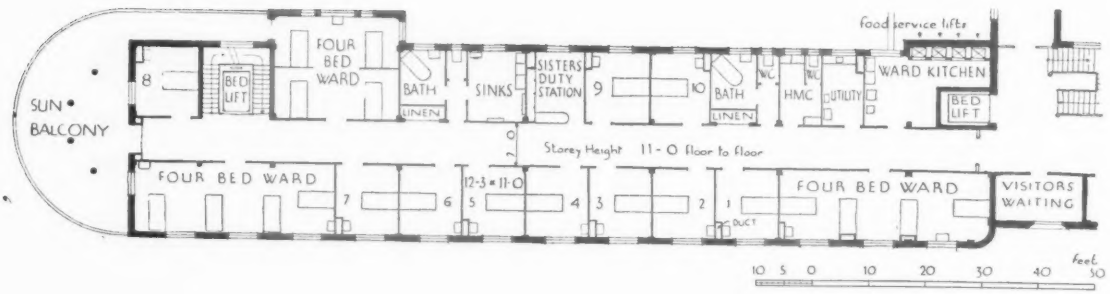
6 : Ward unit at Brentwood District Hospital. By Hugo R. Bird.
The 12-bed ward is an interesting variation on the types shown in diagrams 2 and 3, of particular value where it is desired to limit the total length of the unit.



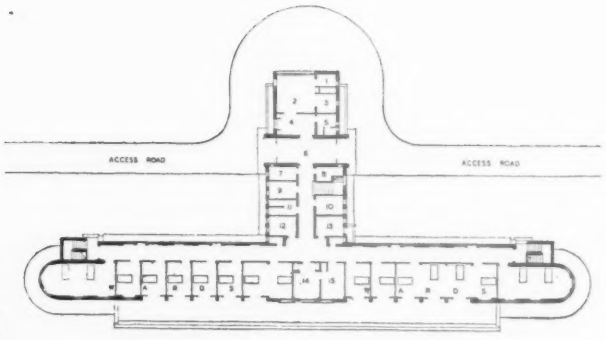
7

7 : Ward unit at Hertford County Hospital. By Elcock and Sutcliffe.
One of the first examples of the "parallel-bed" or "veranda" ward. A sun-balcony for open-air treatment is considered unnecessary for this type. Both large wards are supervised from the ward kitchen.

8 : Private patients' ward block at Leeds General Infirmary. Associated architects : Kitson, Parish, Ledgard and Pyman ; Stanley Hall and Easton and Robertson.
Ward units comprising a number of small wards and affording nursing-home facilities are being provided to an increasing extent by general hospitals.



8

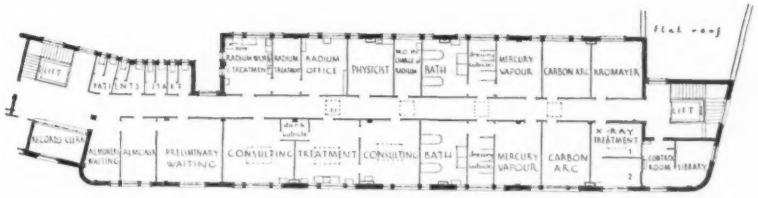


9

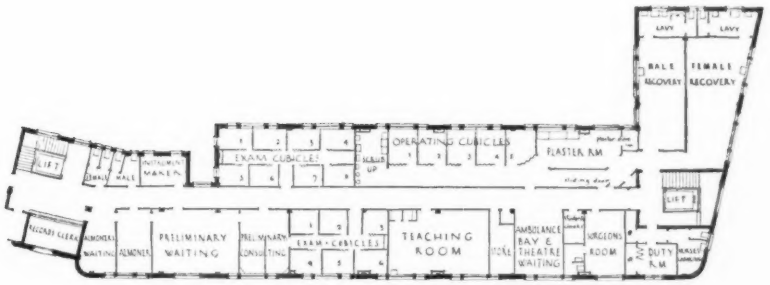
1 : Wash-up
2 : Operating theatre
3 : Sterilizing
4 : Anaesthetic
5 : Surgeons
6 : Lobby
7 : Patients' clothes
8 : Cleaner
9 : Linen
10 : Children's bath
11 : Staff lavatory
12 : Adults' bath
13 : Sinks
14 : Ward kitchen and duty
15 : Pantry

9 : Cubicle block at Paisley Infectious Diseases Hospital. By Sir John Burnet, Tait and Lorne.
A ward unit consisting of single-bed and other small wards for the segregation of the less common infectious diseases is necessary in isolation hospitals. An operating theatre suite is generally attached to this block.

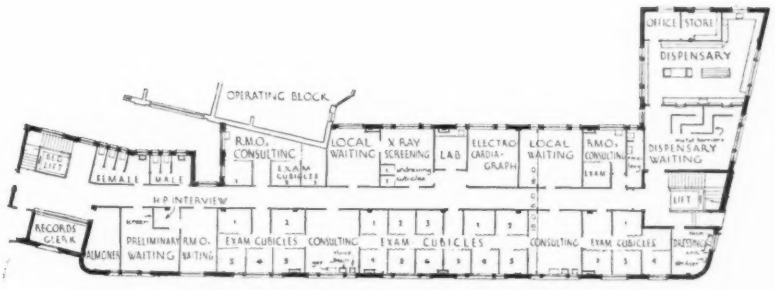
OUTPATIENTS' DEPARTMENT



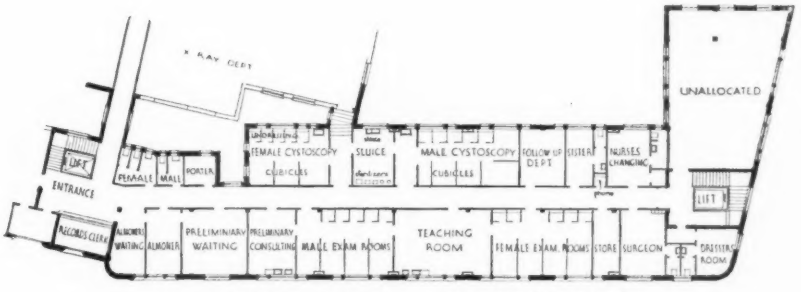
FIFTH FLOOR : SKIN AND RADIUM DEPT.



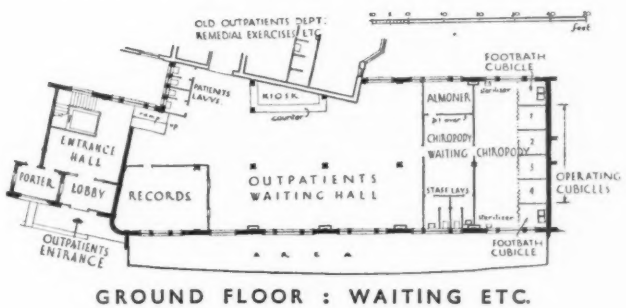
THIRD FLOOR : ORTHOPAEDIC DEPT.



SECOND FLOOR : SURGICAL DEPT.



FIRST FLOOR : MEDICAL DEPT.



GROUND FLOOR : WAITING ETC.

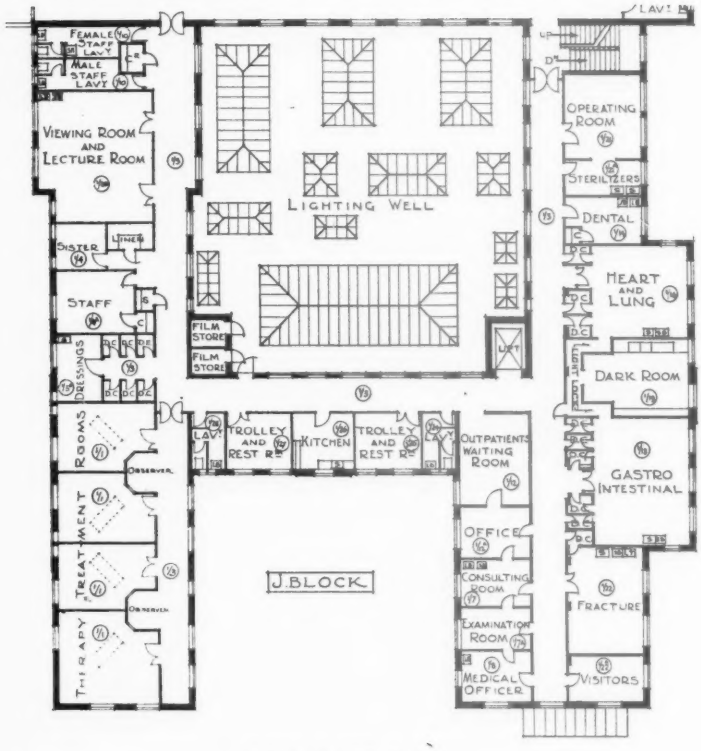
The main function of this department is the treatment of persons whose diseases are not such as to confine them to bed, but certain of its subdivisions—the X-ray department in particular—must also be accessible from the hospital wards, and lifts, corridors and doorways in these sections should therefore be of sufficient size to facilitate the movement of beds.

The planning problem of the Outpatients' Department is largely one of circulations. In present English practice the central feature of the plan is a large waiting-hall ; there is, however, a tendency to replace this, in whole or in part, by local waiting-rooms attached to each department. Undressing cubicles, where required, should be provided in sufficient numbers to allow the treatment and consulting rooms to be in continuous use, and should be so planned that a patient, when undressed, need not enter a public corridor and, having dressed again after examination, can find his way out without having to re-enter the consulting-room. Patients leaving should not have to pass through the main waiting-hall, but the dispensary, with its local waiting space, should be conveniently placed for them.

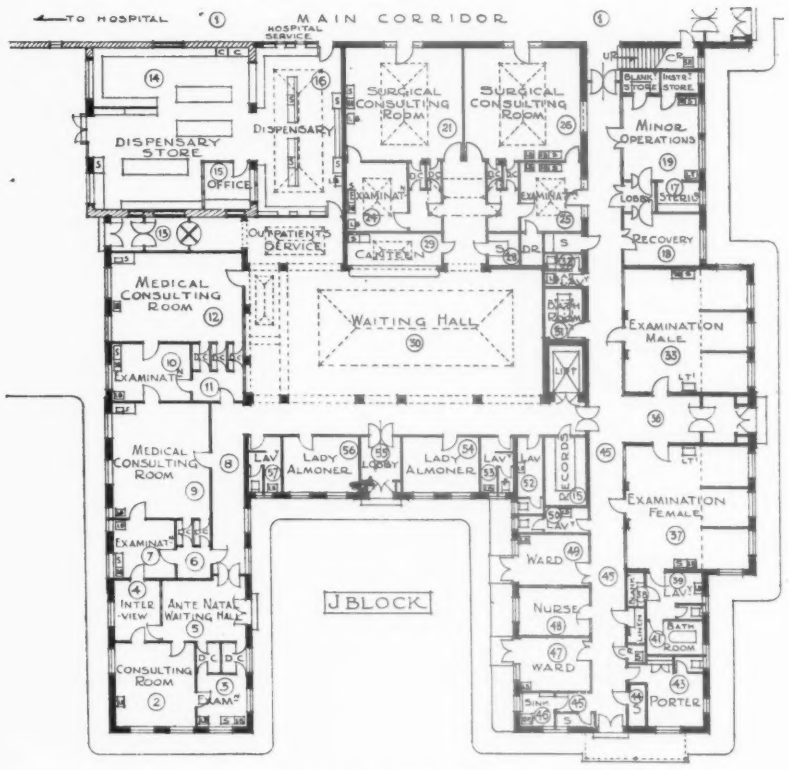
The Casualty Department is generally planned in close relationship with the Outpatients' Department proper, but should have a separate entrance and receiving-room so that outpatients waiting cannot see accident cases being brought in. It should have easy access to an operating theatre and to the hospital wards.

Plans of the Outpatients' Department, Leeds General Infirmary. Associated Architects, Kitson, Parish, Ledgard and Pyman ; Stanley Hall and Easton and Robertson.

OUTPATIENTS' DEPARTMENT



FIRST FLOOR PLAN



GROUND FLOOR PLAN

Extensions to Hammersmith Hospital, G. Topham Forrest, Chief Architect to the L.C.C.

This new outpatients' department is a recent addition to the existing hospital and illustrates a more orthodox type of plan than Leeds. It is a much smaller department. The rooms at ground floor level are arranged round the large waiting-hall. There are three storeys in all; the second floor level remains for the moment in carcase form pending ultimate requirements. The accommodation includes medical and surgical clinics; ante-natal clinic; and therapy treatment rooms.

In large outpatients' departments the following clinics must usually be given accommodation :—

Medical
Surgical
Massage and electrical treatment
Light treatment and diathermy
X-ray
Skin
Ear, nose and throat
Eye
Dental
Orthopaedic
Fracture clinic
Venereal
Casualty

The Casualty Department is open at all hours, and accidents and emergency cases pass through before going to the wards or being sent home. The Departmental Committee's (M. of H.) first Report on the Acute General Hospital schedules the accommodation of a casualty department as : waiting room, three examination rooms (different sizes), nurses' room, surgical-dressing room, and minor operating theatre, single-bed ward and bathroom.

No standard practice can be quoted as a basis for outpatient department planning. The size of department and the units required therein vary considerably in every case.

L.B. : Lavatory basin
S : Sink
Sh. : Slop hopper
C. : Cupboard
F.C. : Fume cupboard
D.C. : Dressing cubicle
S. : Store
Cr. : Cleaners.

OPERATING THEATRES

Accommodation

The first report on the Acute General Hospital by a departmental committee appointed by the Ministry of Health makes the following recommendations on the sizes of rooms for the operating theatre suite of a non-teaching hospital :—

	Single Theatre Unit
Theatre	22′ × 18′
Anaesthetizing	140 sq. ft.
Sterilizing - room and hand-washing facilities	230 sq. ft.
Instrument cleaning and sink room	90 sq. ft.
Plaster-room	140 sq. ft.
Combined linen and dressings-room, general store and sisters' room	170 sq. ft.
Nurses' changing room	120 sq. ft.
Surgeons' changing room	150 sq. ft.
Corridor	8 ft. wide

Taking advantage of roof lighting for some of the rooms, the above provision can be made within a total area of 1,850 sq. ft.

Sizes are also given for a twin-theatre unit. The above sizes are stated with special reference to municipal hospitals, but obviously in the main will cover the requirements of the voluntary general hospital also.

Theatre units vary according to the following types of hospital :—

A : Large teaching hospital

B : Large general hospital (non-teaching)

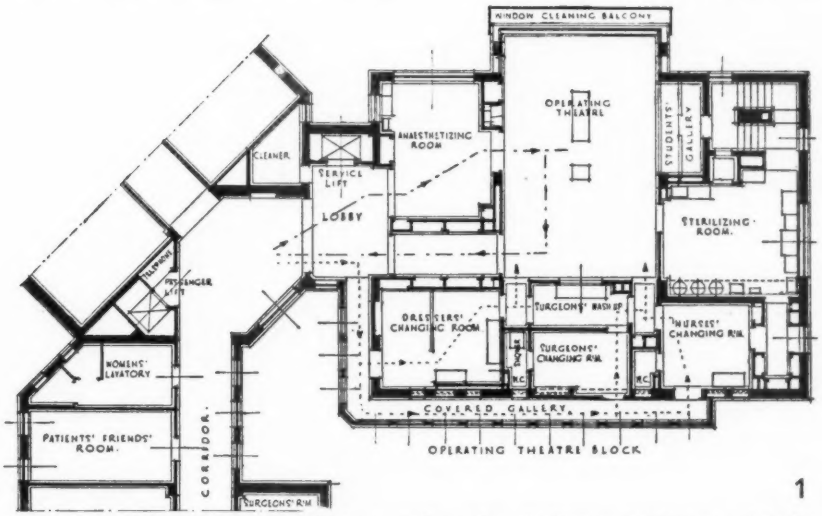
The above often have twin-theatre units.

C : The general hospital (up to 100 beds)

D : The small general and cottage hospital

E : The specialized hospital

1 : Operating table
2 : Table with bandage drums
3 : Surgical dressing table
4 : Revolving chair
5 : Dressing table
6 : Soiled cotton wool
7 : Wall operating table
8 : Instrument table
9 : Pump
10 : Soiled linen
11 : Wash basin
12 : Dressing pails
13 : Water still
14 : Hot cupboard
15 : Instrument cupboard
16 : Hatch
17 : Instrument cleaning apparatus
18 : Instrument sterilizer
19 : Salt solution sterilizer
20 : Sterilizer
21 : Cupboard
22 : Instrument cupboard
23 : Shelves
24 : Ice chest
25 : Table
26 : Sink

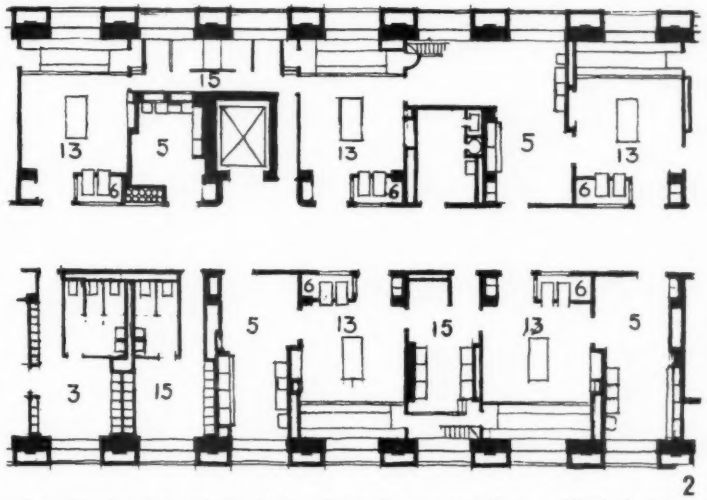


1

1 : St. Bartholomew's Hospital : Single operating unit. Architects, Lanchester and Lodge. An operating theatre in a teaching hospital. The circulation is carefully devised to allow for the various movements.

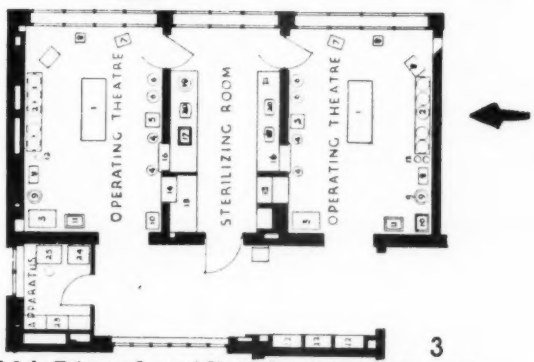
KEY to plan on page 1142

1 : Recovery
2 : Nurse
3 : Nurses' changing room
4 : Surgeons' changing room
5 : Preparation room
6 : Sterilizing room
7 : Sink room
8 : Ward kitchen
9 : Visitors' changing room
10 : Duty room
11 : Instrument cleaning
12 : Anæsthetizing
13 : Operating theatre
14 : Instrument room

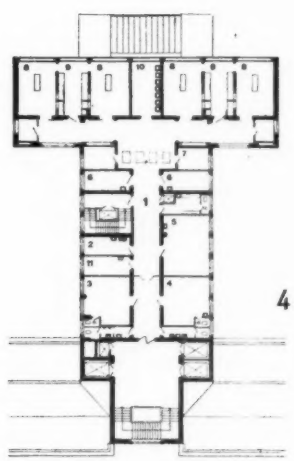


2

2 : Los Angeles General Hospital : Surgical operating floor. Allied Architects' Association. An interesting example of American planning in a large hospital centre, showing theatres, nurses' and surgeons' rooms, scrub-up, preparation and sterilizing rooms.



3

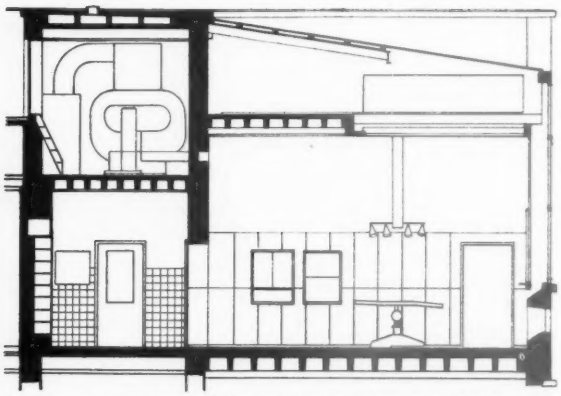


4

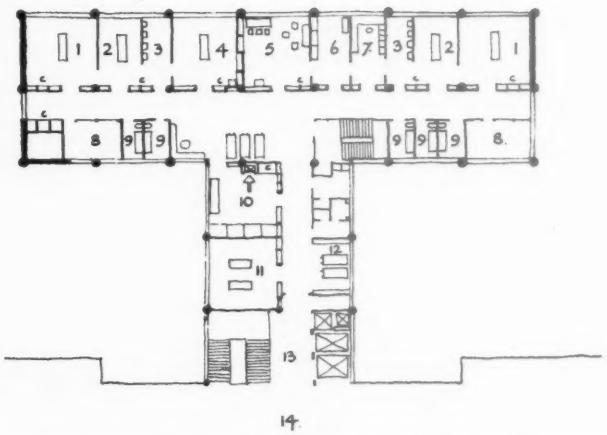
3 & 4 : Tübingen Surgical Clinic : Detail plans of one unit of twin theatres. Architect, Hans Daiber. One of two units with joint ancillary accommodation. Interesting for the details of apparatus which it shows. There is also a very large lecture theatre in this building in which demonstration operations can be performed

L

OPERATING THEATRES



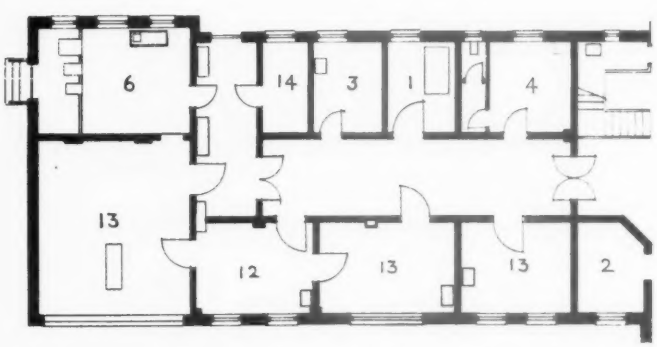
Tübingen. Architect: Hans Daiber. Section through theatre. Double windows are usual in Continental hospitals. Air conditioning and heating plant are provided above the lobby. Electrically operated blinds are placed in the space between the windows.



Operating theatre unit at 8th floor level at the Bata Health Centre, Zlin, Czechoslovakia. Architect: Dr. Uklein. An interesting plan showing a twin theatre unit. The provision and position of surgeons' recreation room, blood transfusion room and central sterilizing room should be noted

1 : Operating theatre
2 : Anæsthetizing room
3 : Wash up
4 : Plastic room
5 : Surgeons' recreation room
6 : Instrument room
7 : Laboratory
8 : Instrument sterilizing
9 : Surgeons' bathroom
10 : Central sterilizing room
11 : Blood Transfusion room
12 : Waiting room
13 : Main staircase and Lift Hall
14 : Ward unit
c : Cupboards

(For key to plan see page 1141.)



Monkwearmouth and Southwick Hospital. Architects, W. and T. R. Milburn. One large and two small theatres are here provided in the same unit with joint ancillary accommodation. The arrangement of the sterilizers in the sterilizing room is an interesting one.

Standard Requirements—

1 : Entrance for patients on stretcher trolleys into lobby and through anæsthetizing-room to theatre; return direct through lobby to wards.

2 : Entrance for surgeons and nurses through respective changing rooms into preparation or scrub-up room and into theatre.

3 : The recommendations of the Departmental Committee are "that the instrument cleaning and sink room is for the washing of instruments and disposal of surgical wastes and dirty theatre linen. It should contain a slop hopper sink and an ordinary deep sink and draining-board. Direct access to the outside for linen bins should be provided, and both the sink room and sterilizing room should open from the theatre without a door."

4 : North window lighting considered preferable where site permits.

5 : Dark blinds are essential—usually fitted externally — to allow for working under artificial light.

6 : Dressing sterilizer is not usually provided in theatre sterilizing room, but in a convenient position elsewhere to serve the whole hospital.

7 : In teaching hospitals provision must be made for students to watch operations in the theatre. This is usually done by means of galleries.

8 : Built-in 'X-Ray' viewing cabinets are necessary in the theatre. These can be devised to be loaded from the lobby.

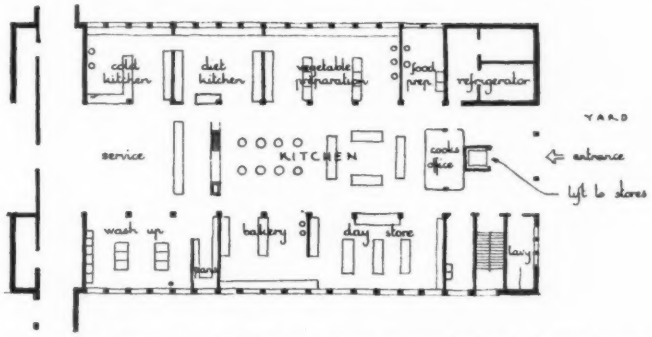
9 : Heating must be such as to maintain a temperature of 80 degs. with 10-12 air changes per hour. Conditioned air heating is being increasingly used.

KITCHEN UNITS

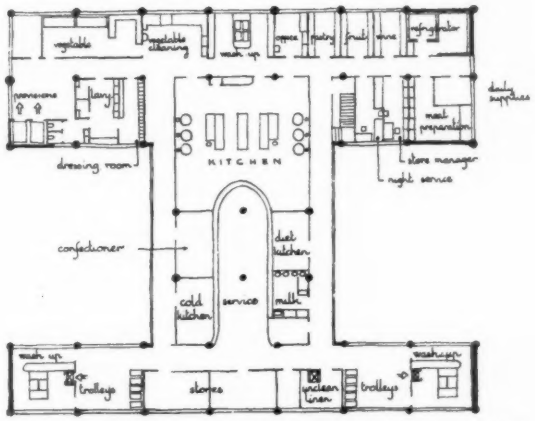
The Departmental Committee on the Cost of Hospitals appointed by the Ministry of Health recommends that one kitchen in a hospital should serve both patients and staff. Their report is in favour of kitchen units being placed at ground-floor level. An interesting point raised is that kitchen units are often difficult to extend, and that it is often the best plan to build the kitchen at the outset to the ultimate size and devote part of the space to stores for the time being.

The kitchen unit must be planned on the basis of the progression of the food from delivery to the ultimate consumption and clearing away. The units of progression are briefly as follows : Reception, stores and larders, food preparation, kitchens, service and trolley space, wash-up and sculleries, crockery and utensil stores. In addition, rooms for the personnel.

The kitchen is the pivot of the unit and should be directly accessible from all the ancillary accommodation. A growing practice is to place the main working plant in the centre of the kitchen under a deep hood vented into a forced extract duct. Anthracite cookers are made in units which can be multiplied according to the needs into "batteries." Clerestory lighting is probably the best natural light and ensures a lofty room.

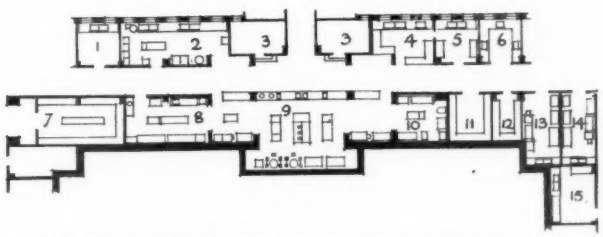


1 A typical layout. A kitchen for a large general hospital. It is assumed that storage is below. The plan is based on a central kitchen with central plant and a series of bays on each side as subsidiary accommodation.



2 Main kitchen, The Bata Health Centre, Czechoslovakia. Architect : Dr. Uklein. This unit is on the top floor at 12th storey level, served by lifts from the goods yard. On the floor below are the staff dining rooms. The food reaches the wards from the lifts in the two trolley bays. These lifts open directly into the ward kitchens on each floor.

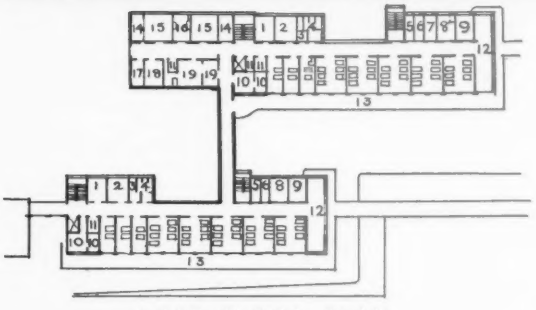
4 Leeds Infirmary : Kitchen to serve Private Patients' Block. Associated Architects : Kitson, Parish, Ledgard and Pyman; Stanley Hall and Easton and Robertson.



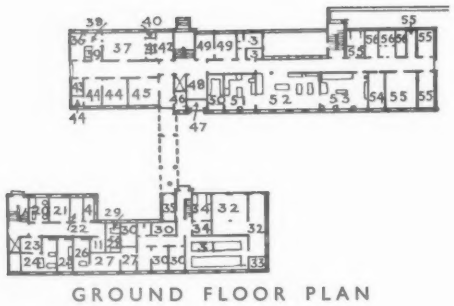
3 Main kitchen (fourth floor) Freemasons Hospital, Ravenscourt Park. Architects : Sir John Burnet, Tait and Lorne.

1 : Milk distribution
2 : Vegetable preparation
3 : Cooks' store
4 : Wash-up
5 : Crockery scullery
6 : Trolley wash
7 : Grocery store
8 : Meat and fish preparation
9 : Main kitchen
10 : Pastry room
11 : Bread store
12 : Passover store
13 : Jewish kosher meat
14 : Jewish kosher fish
15 : Pantry

The hospital contains 144 beds. There are a surgical block and a medical block with a corridor connection. The wards (2-bed and 6-bed) are planned facing south, with a continuous balcony running the whole length of each block. The kitchens and medicinal baths are planned on the ground floor.



FIRST FLOOR PLAN



GROUND FLOOR PLAN

FIRST AND SECOND FLOORS

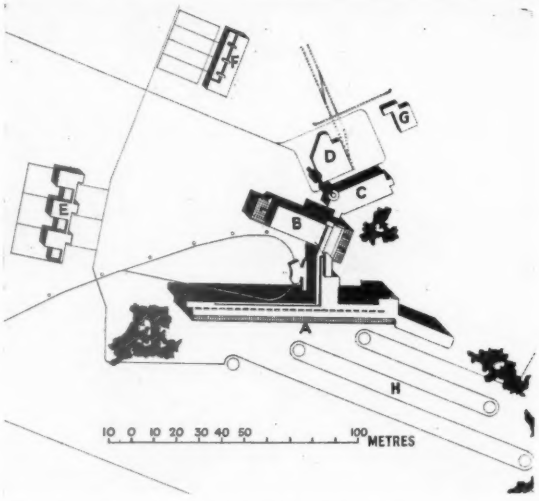
1 : Consulting rooms
2 : Baths
3 : Staff bathroom and W.C.
4 : Patients' W.C.s
5 : Clean linen
6 : Dirty linen
7 : Ward kitchen
8 : Kitchens
9 : Nurses' day room
10 : Doctors' rooms
11 : Changing room
12 : Day room
13 : Balconies
14 : Ante room
15 : Operating theatre
16 : Sterilizing room
17 : Room for dressings
18 : Orthopædic room
19 : R.M.O.

GROUND FLOOR

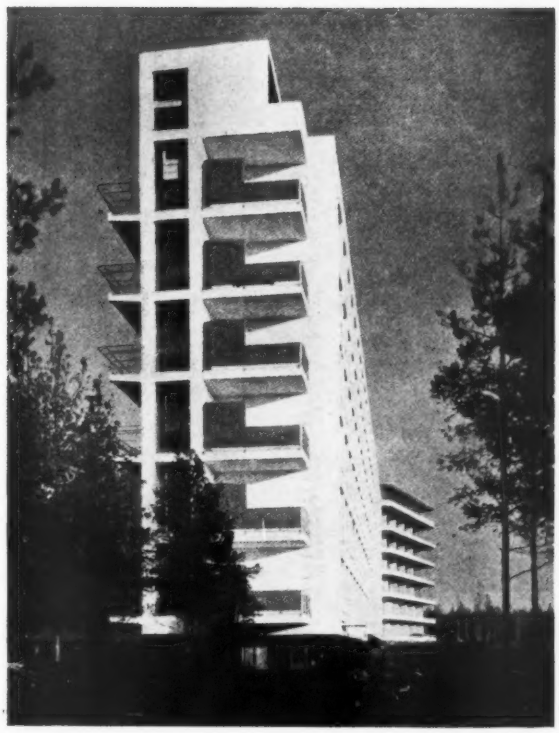
20 : Light treatment
21 : Sunray treatment
22 : Inhaling room
23 : Supervision
24 : Baths
25 : Diatherm
26 : Hydro-electric bath
27 : Bath rooms
28 : Vapour bath
29 : Long bath
30 : Engineers' rooms
31 : Heating chamber
32 : Fuel store
33 : Boiler room
34 : Pump room
35 : Workshop
36 : Endoscopic room
37 : X-ray room
38 : X-ray room
39 : Apparatus
40 : W.C.
41 : Dressing cubicles
42 : Waiting room
43 : Dark room
44 : Laboratory
45 : Doctor's room
46 : X-ray photo store
47 : Lobby
48 : Hall
49 : Registration room
50 : Kitchen utensils store
51 : Scullery
52 : Kitchen
53 : Sink room
54 : Staff dining room
55 : Food store
56 : Cold storage

FREIBURG MUNICIPAL, GERMANY

DR. SALZMANN

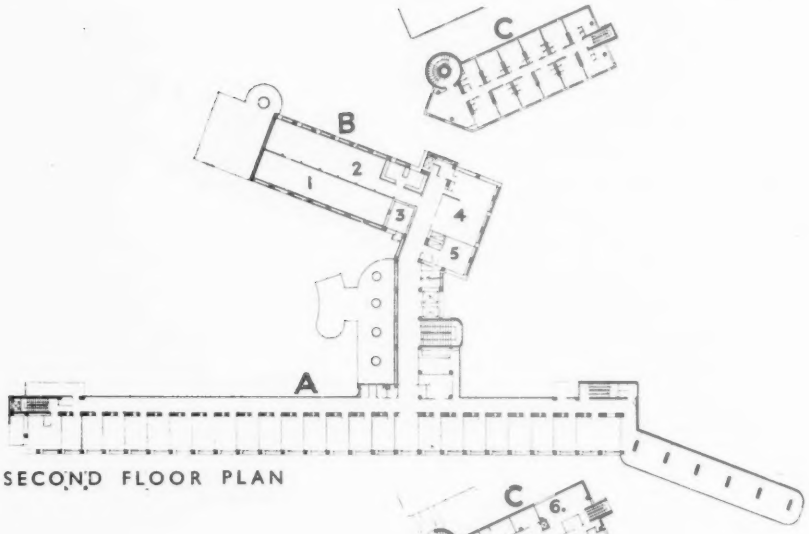


The South-west Finland Tuberculosis Sanatorium at Paimio is a self-contained community. It is designed on a central axis with radiating wings as shown on the block plan above. The main wing A contains two bed-wards and the lying-in halls. Wing B contains administration, operating theatres, and dining halls, etc. Wing C is the service wing, with laundry, kitchens, etc., and wing D is the power house. G is the garage and H the gardens. Top, the administration building; right, the north wing.



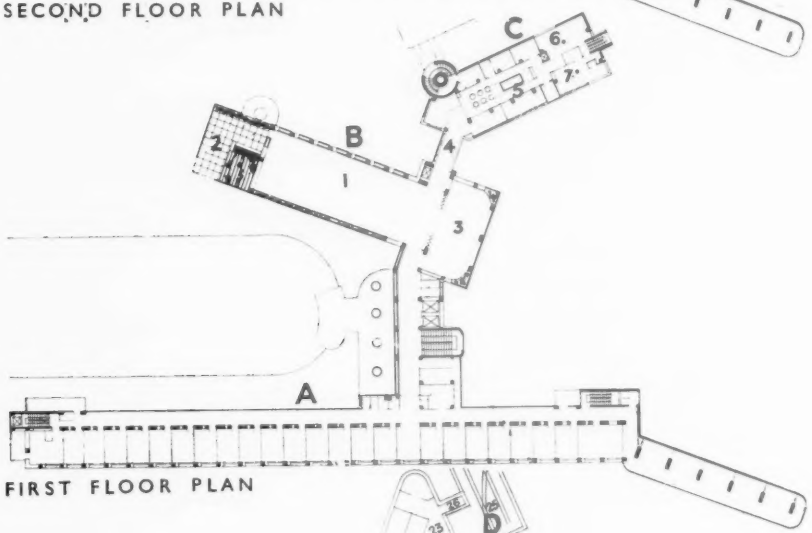
PAIMIO SANATORIUM, FINLAND

ALVAR AALTO



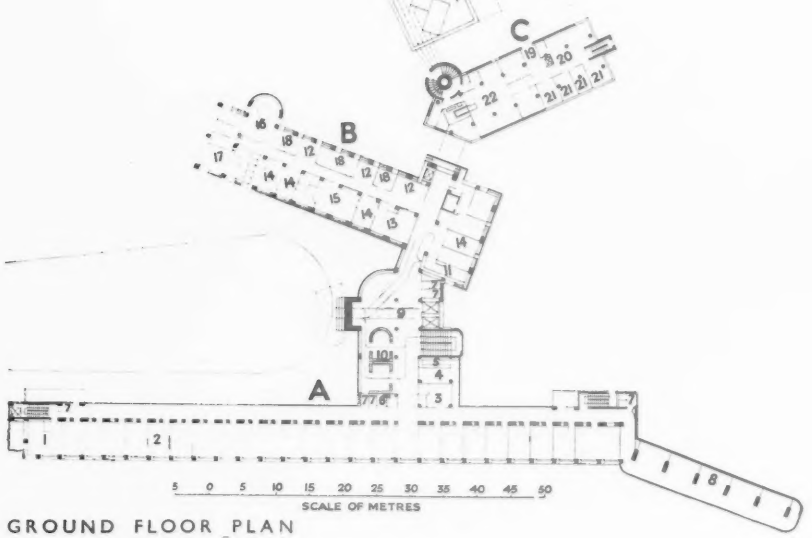
SECOND FLOOR PLAN

Second Floor Plan.—Wing A. As on the ground floor. Wing B. 1. Upper part of dining-room. 2. Reading room and library. 3. Cinema projector room. 4. Dining and recreation rooms for nurses. 5. Guest rooms. Wing C. "Hotel" for staff with assembly room in the angle.



FIRST FLOOR PLAN

First Floor Plan.—Wing A. As on the ground floor. Wing B. 1. Dining hall. 2. Summer terrace with pergola, etc. 3. Recreation room. 4. Service room. Wing C. 5. Kitchen with refrigerators, cloak rooms, etc., housekeeper's storage room for flour, sugar, cold and warm foods, and scullery. 6. Staff dining room. 7. Housekeeper's quarters.

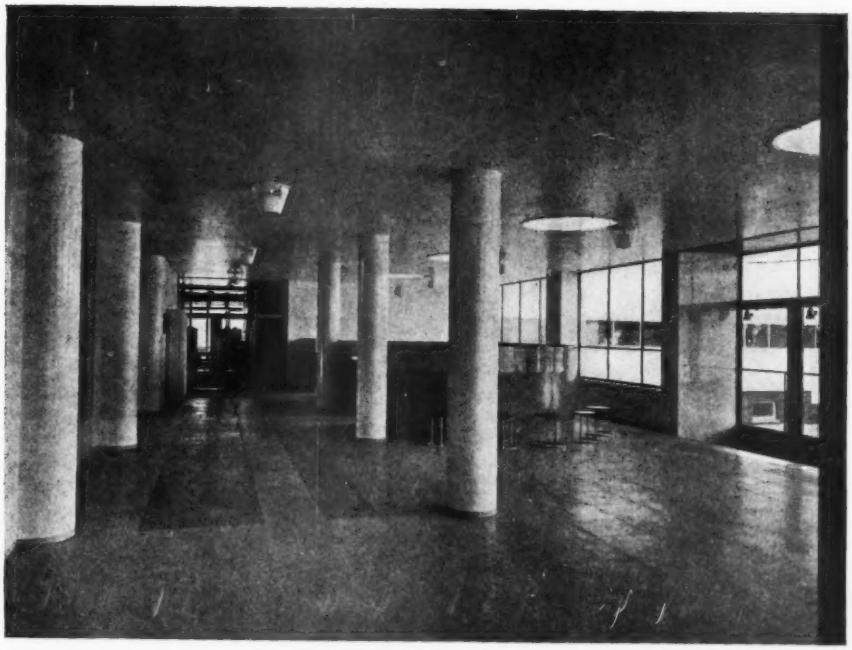


GROUND FLOOR PLAN

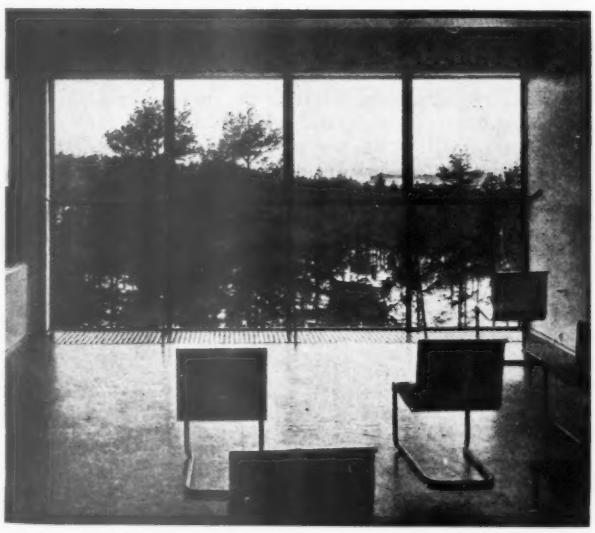
Ground Floor Plan.—Wing A. 1. Nurses' quarters. 2. Patients' rooms. 3. Divisional day rooms with glass walls. 4. Washing room, utensils, general cleaning and disinfection. 5. Laundry. 6. Sputum analysis room in two divisions, with double lift to sterilizing room on the first floor. 7. W.C.s, urinals, bidets, footbaths, etc. 8. "Lying halls" for the more serious cases. 9. The entrance hall. 10. Shoe changing room. Wing B. 11. Porter, post office, wireless, telephone exchange, etc. 12. Waiting niches for patients in corridors. 13. Administration rooms and doctors' consulting rooms. 14. Doctors' room. 15. X-ray. 16. Operation theatre. 17. Therapy. 18. Laboratories, dentists' and apothecaries' rooms. Wing C. 19. Entrance for provisions and for kitchen and bakery. 20. Sorting room for provisions. 21. Cold storage. 22. Bakery. Wing D. 23. Power house 24. Boilers. 25. Tunnel for coal trucks. 26. Shower.

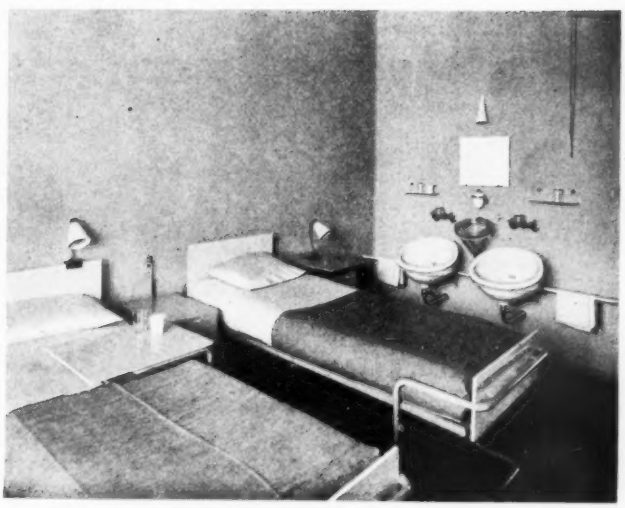
PAIMIO SANATORIUM, FINLAND

ALVAR AALTO



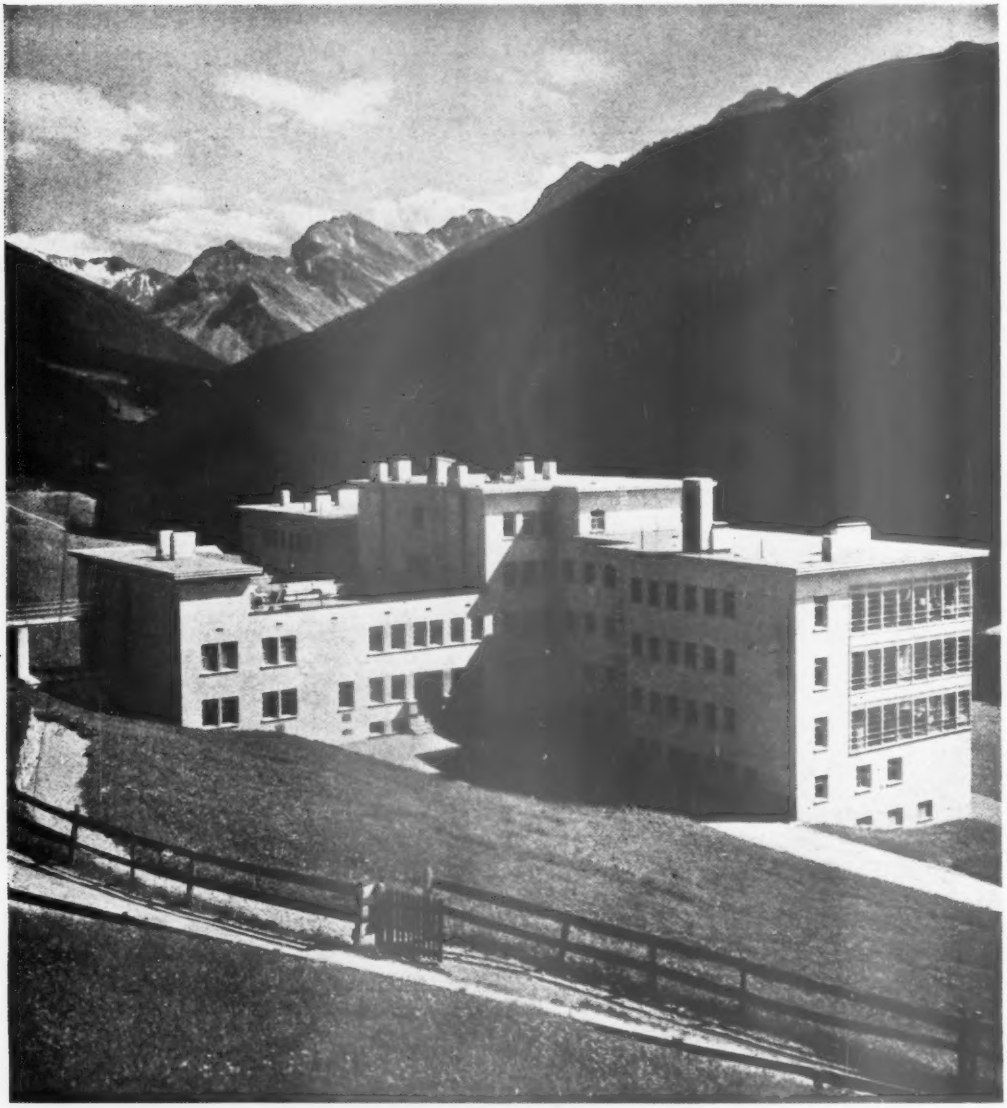
The photographs show : above, vestibule off the main court ; left, guard rails designed to throw off the rain-water, and prevent staining of the wall surface ; right, a bedroom showing the built-in wardrobe and the double window ; bottom, left, the patients' reading room on the second floor ; bottom, right, a typical two-bed room.



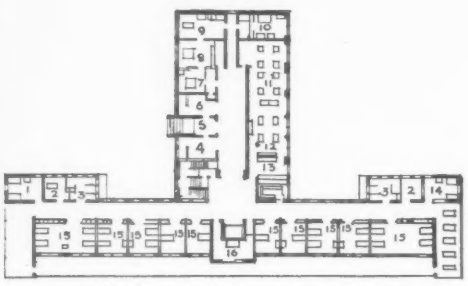


PAIMIO SANATORIUM, FINLAND

ALVAR AALTO



The sanatorium, which is situated in the Alps, contains 63 beds, and is planned with a series of small ward blocks, facing south on to open terraces. The operating theatre, X-ray department and administration offices are planned in a block facing north.



GROUND FLOOR PLAN

CLAVADEL SANATORIUM, ITALY

R. GABEREL

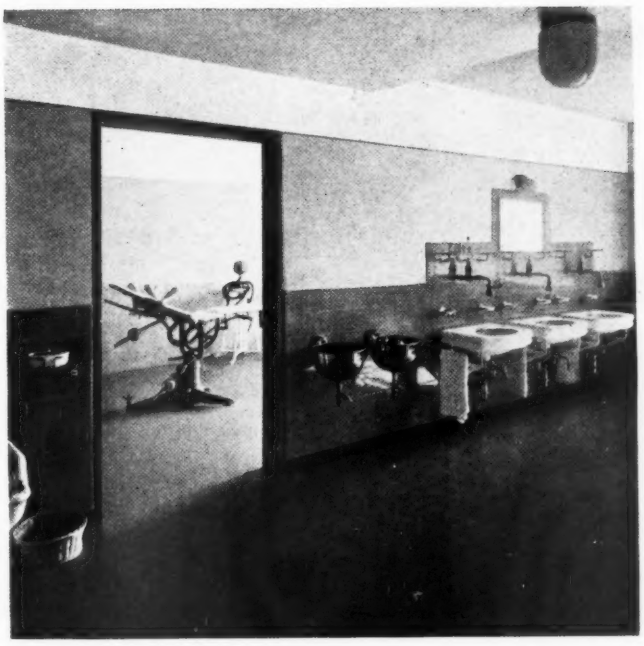
GROUND FLOOR

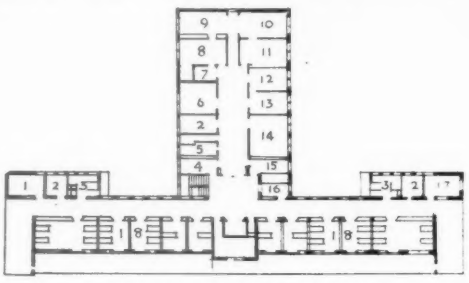
1 : Isolation ward
2 : Bathroom
3 : W.c.'s
4 : Quartermaster
5 : Main entrance
6 : Quartermaster
7 : Telephone room
8 : Cashiers
9 : Administration
10 : Porter's room
11 : Recreation room
12 : Dining room
13 : Office
14 : Nurse
15 : Wards
16 : Assistant nurse

FIRST FLOOR

1 : Isolation room
2 : Bathroom
3 : W.c.'s
4 : Waiting room
5 : Records
6 : X-ray apparatus room
7 : Dark room
8 : X-ray room
9 : Ante-room
10 : Operating theatre
11 : Preparation room
12 : Visiting surgeon
13 : Doctor
14 : Laboratory
15 : Office
16 : Linen room
17 : Nurse
18 : Ward blocks

The photographs show : above, a typical ward : right, operating theatre, taken from the preparation room

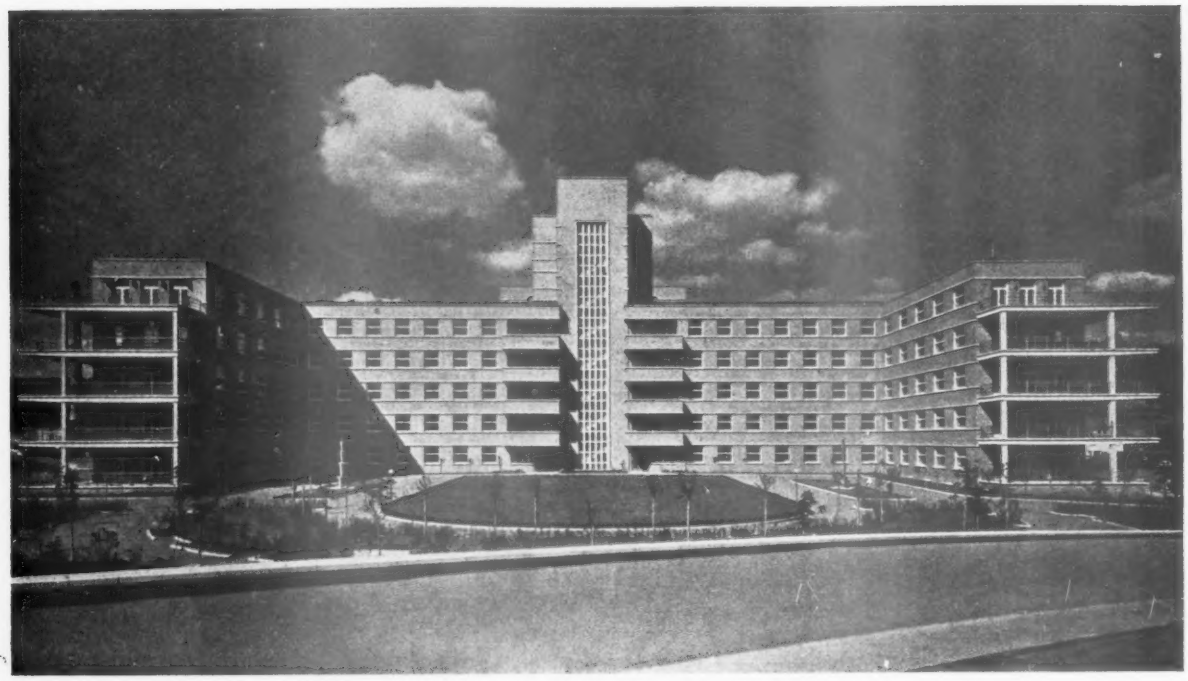




FIRST FLOOR PLAN

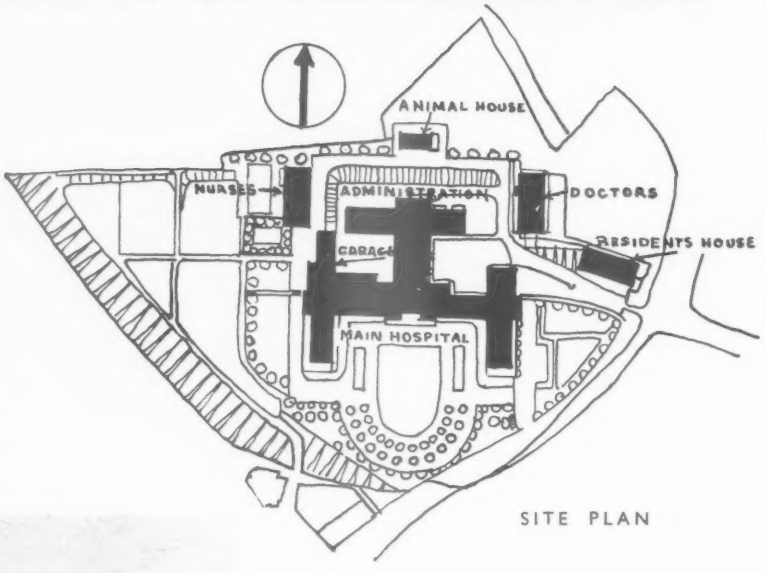
CLAVADEL SANATORIUM, ITALY

R. GABEREL

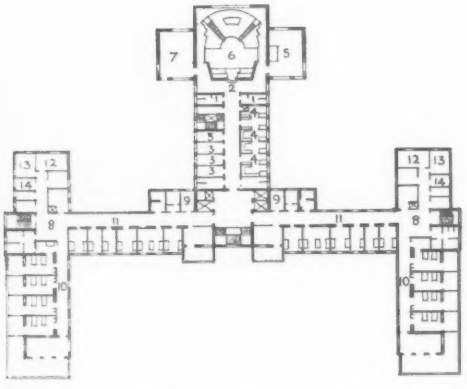


The clinic is divided into three main parts : hospital building, containing the ward; treatment building; and, separate from these, the buildings for doctors, nurses and staff. The whole of the south front is devoted to the five-storeyed hospital building, which, with its two wings running south and containing large sun terraces, surrounds the garden for the patients. The western half is for men, and the eastern for women and children. The nine divisions are all exactly alike, each containing thirty-three beds.

The third main wing projects to the northward and contains the operating theatre, lecture-room and administration offices.



SITE PLAN



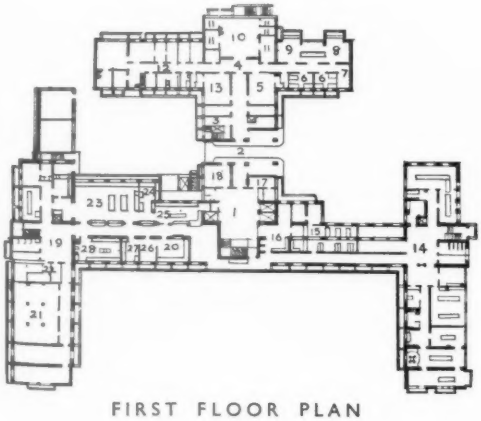
SIXTH FLOOR PLAN

TÜBINGEN CLINIC, GERMANY

HANS DAIBER

The photographs are: above, looking along one of the balconies; right, a typical ward.

THIRD FLOOR PLAN



FIRST FLOOR PLAN

FIRST FLOOR

1 : Entrance hall
2 : Passageway
3 : Students' staircase
4 : General clinic
5 : Women's waiting room
6 : Recovery room
7 : Plaster of Paris room
8 : Septic operating room
9 : Aseptic operating room
10 : General clinic
11 : Examination room
12 : Orthopædic dept.
13 : Men's waiting room
14 : Dining rooms for doctors, nurses and staff
15 : Offices
16 : Waiting room
17 : Porter
18 : Reception of patients
19 : Kitchen wing
20 : Cold kitchen
21 : Stores
22 : Refrigerating chamber
23 : Kitchen for boiling and roasting
24 : Diet kitchen
25 : Scullery
26 : Provisions
27 : Meat preparation
28 : Vegetable cleaning

THIRD FLOOR

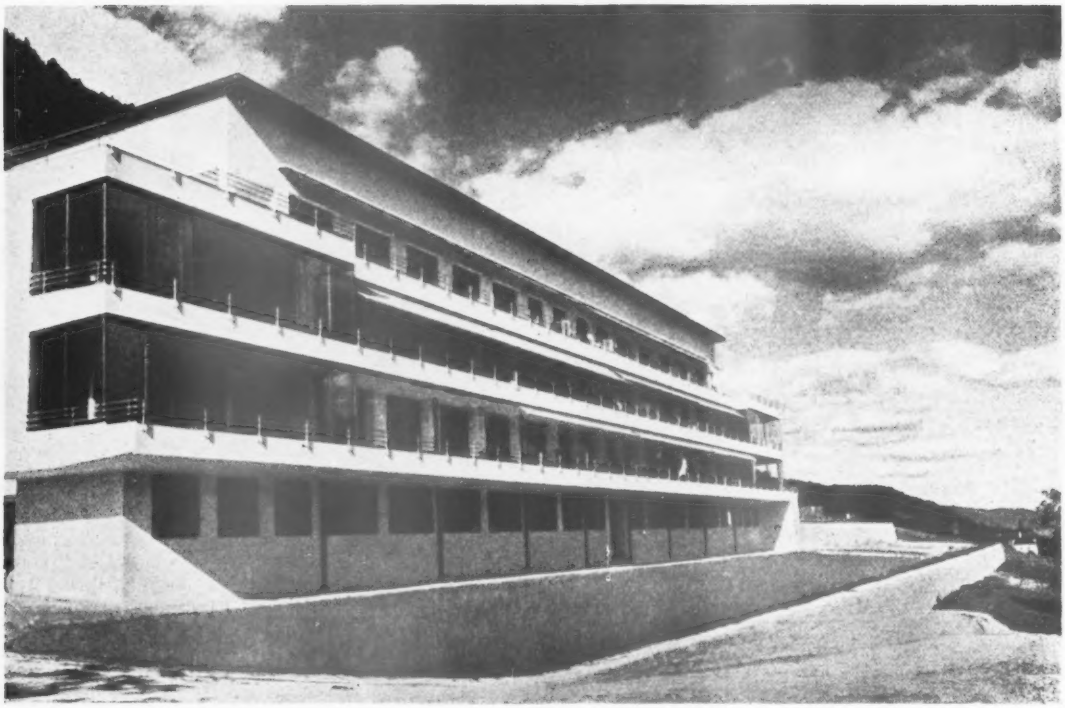
1 : X-Ray dept.
2 : Men's waiting room
3 : Women's waiting room
4 : Artificial sunlight
5 : Collection of films
6 : Röntgen operating room
7 : X-ray photograph rooms
8 : Dark rooms
9 : Therapy
10 : Elaboration of films
11 : Third class women's wards
12 : Dressing theatre
13 : Nurses
14 : Day rooms
15 : Rest balconies
16 : Third class men's ward
17 : Nurses
18 : Tea kitchen
19 : Baths
20 : Box rooms

SIXTH FLOOR

1 : Students' lavatories
2 : Students' cloak-room
3 : Dictating rooms
4 : Library
5 : Theoretical lecture-room
6 : Large lecture and operating room
7 : Specimens
8 : First and second class wards
9 : Boxroom
10 : First class ward
11 : Second class ward
12 : Dressing theatre
13-14 : Nurses

TÜBINGEN CLINIC, GERMANY

HANS DAIBER



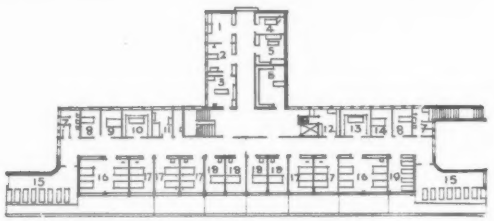
GROUND FLOOR
1 : Disinfecting room
2 : Scrubbing room
3 : Soap store
4 : Office
5 : Milk store
6 : Nurses' room
7 : Dirty linen
8 : Laundry
9 : Ironing room
10 : Drying room
11 : Linen room
12 : Hydrotherapy
13 : Assistants' dining room
14 : Nurses' dining room
15 : Staff dining room
16 : Kitchen
17 : Lecture hall
18 : Staff room
19 : Doctors' dining room

FIRST FLOOR
1 : Laboratory
2 : Doctors' room
3 : Consulting room
4 : Reception room
5 : Superintendent's room
6 : Dispensary
7 : Lavatory
8 : Bathroom
9 : Single ward
10 : Day room
11 : Nurses' room
12 : Ward kitchen
13 : Day room
14 : Isolation ward
15 : Verandah
16 : Four bed ward
17 : Two bed ward
18 : Private ward
19 : Childrens' Cots

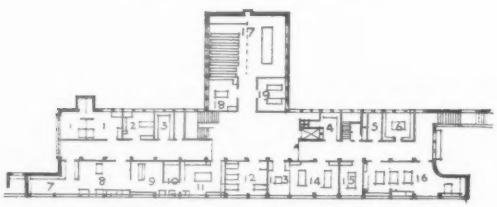
The hospital consists of a main building containing medical, surgical and maternity wards ; also a separate building for tubercular cases, connected by a corridor with the main building.

There are four floors to the main building. The ground floor contains the kitchen, laundry and electrical treatment rooms ; the first floor the medical wards ; the second floor the surgical wards ; and the third floor the maternity wards and rooms for the nurses and staff.

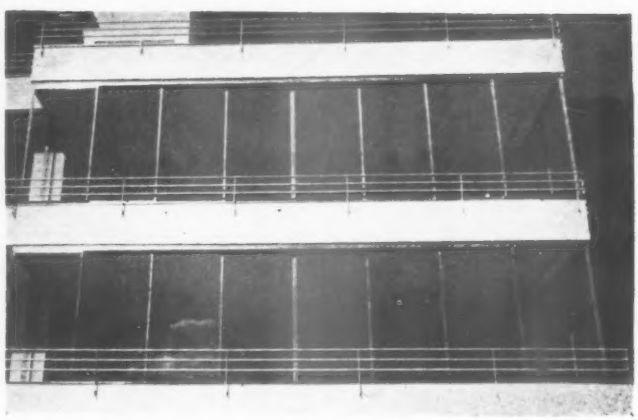
There are no large wards, but a series of one-, two- and four-bed wards all facing on to an open terrace. The usual number of beds in the main building is fifty-eight, but they can be increased to eighty. In the tuberculosis wing there are thirty beds with accommodation for a further twelve.



FIRST FLOOR PLAN

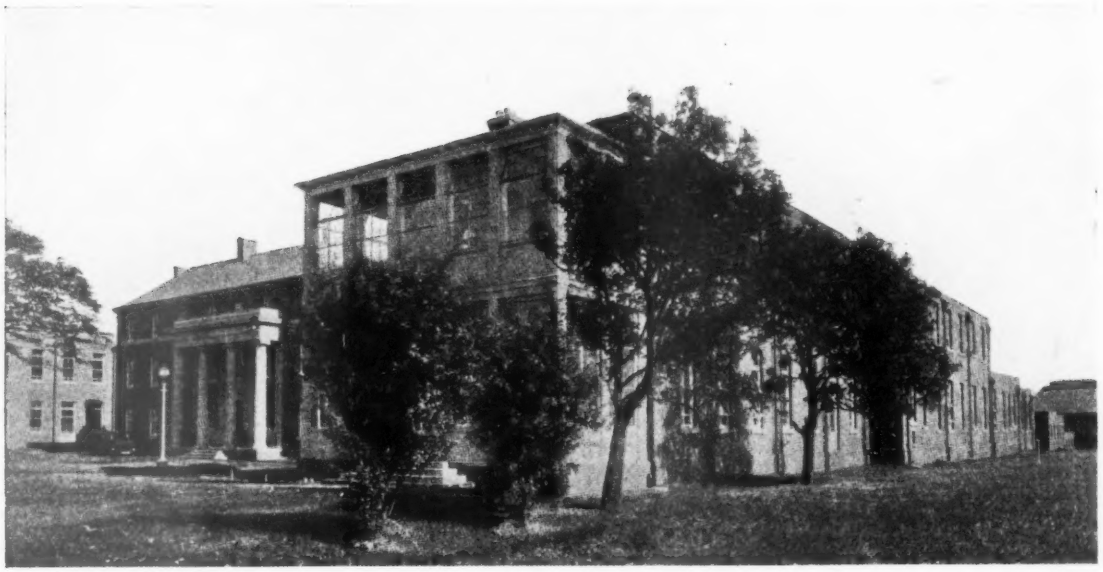


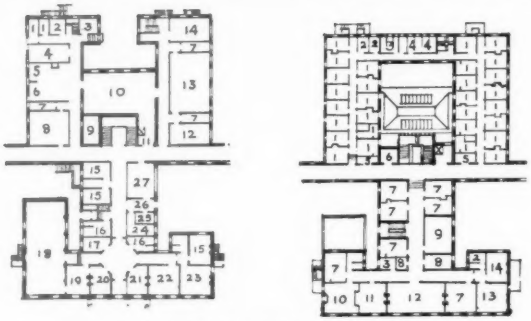
GROUND FLOOR PLAN



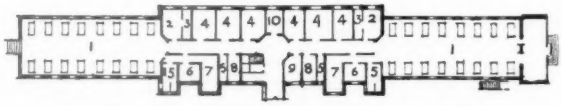
ST. IMMER, SWITZERLAND

SALVISBERG AND BRECHBÜHL

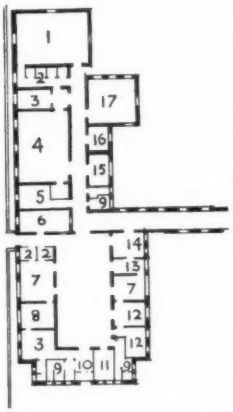




ADMINISTRATION BLOCK:
GROUND AND FIRST FLOOR PLANS



WARD BLOCK: GROUND FLOOR



OUTPATIENTS

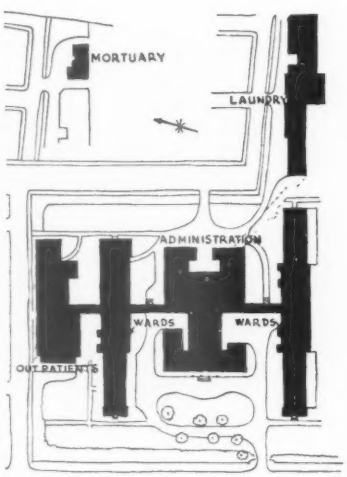
The accommodation comprises a central three-storey administration block, wards for 104 patients, operating block, and outpatients' block. There are five ward units, two for men, two for women and one for children, each unit being self-contained.

ADMINISTRATION BLOCK
GROUND FLOOR

1 : Larder
2 : Housekeeper
3 : Goods receiving
4 : Store
5 : Vegetable scullery
6 : Scullery
7 : Pantry
8 : R.M.O.'s dining room
9 : Linen
10 : Kitchen
11 : Servery
12 : Sisters' dining room
13 : Nurses' and maids' dining room
14 : Maids' sitting room
15 : R.M.O.'s bedroom
16 : Cloaks
17 : Record room
18 : Board room
19 : Secretary
20 : Office
21 : Waiting room
22 : Matron
23 : R.M.O.'s sitting room
24 : Waiting room
25 : Porter
26 : Accidents entrance
27 : Accident and receiving room

FIRST FLOOR

1 : Single bedroom
2 : Bathroom
3 : W.C.s
4 : Lavatory
5 : Store
6 : Linen
7 : Sister's bedroom
8 : Linen room
9 : Serving room
10 : Sister's day room
11 : Nurses' reading room
12 : Nurses' recreation room
13 : Matron's sitting room
14 : Matron's bedroom



WARD BLOCK

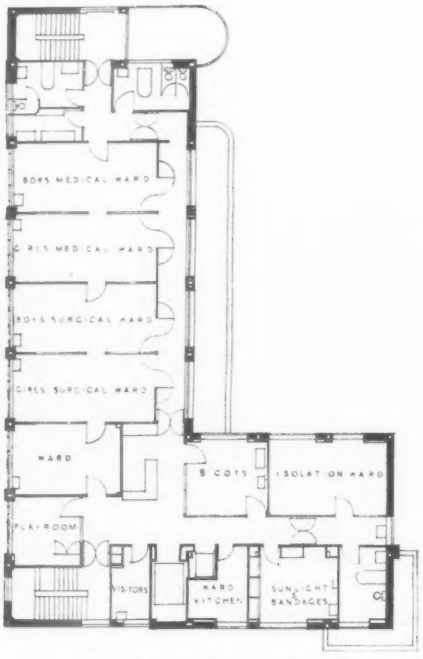
1 : 16-bed ward
2 : Kitchen
3 : Pantry
4 : 2-bed ward
5 : W.C.
6 : Bathroom
7 : Sink room
8 : Linen room
9 : Clinical room
10 : Ward sister

OUTPATIENTS' DEPARTMENT

1 : Ultra-violet rays
2 : Dressing cubicles
3 : Recovery room
4 : X-rays
5 : Dark room
6 : Dispensary
7 : Examinations and consulting room
8 : Operating room
9 : Lavatories
10 : Entrance hall
11 : Office
12 : Surgical dressings
13 : Examinations
14 : Casualty and receiving room
15 : Plaster room
16 : Switch gear
17 : Massage room

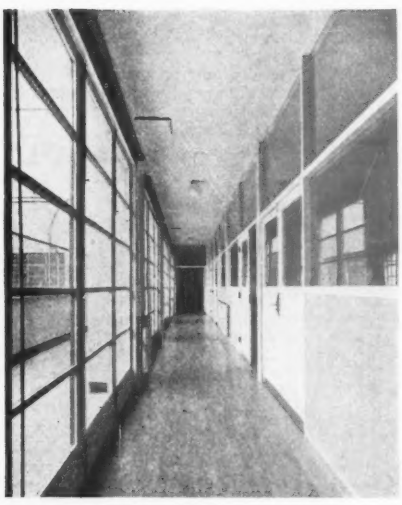
MONKWEARMOUTH,
WILLIAM AND T. R. MILBURN

M



FOURTH FLOOR PLAN

The accommodation in the addition includes maternity wards, children's wards and nurses' bedrooms. It is planned on four floors, the children's wards being on the fourth floor, with access to an open terrace.



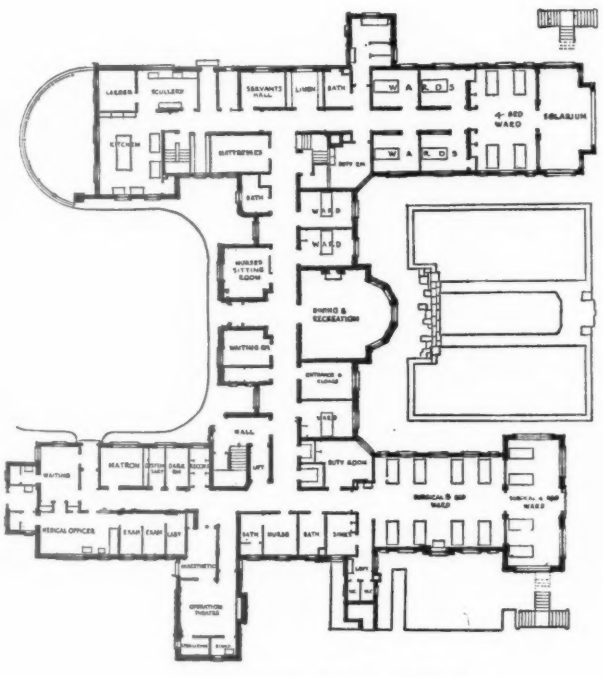
GROUND FLOOR PLAN

GERMAN, LONDON

SIR JOHN BURNET, TAIT AND LORNE

The sanatorium is planned to cope with the peculiar situations which obtain in a population of 600 boys, where the principal illnesses are infectious diseases. There are two 12-bed wards, three 4-bed wards, and 24 single-bed wards.

Generally the patients' rooms face south onto a large garden. In the centre of the ground and first floors are the recreation rooms. On the north-west angle and approached by a separate entrance is the outpatients' department, and near it, the operating theatre. On the first floor, over the outpatients' department, are the nurses' quarters, and on the opposite corner, approached by a separate entrance, the kitchen unit, with accommodation for domestic staff above.

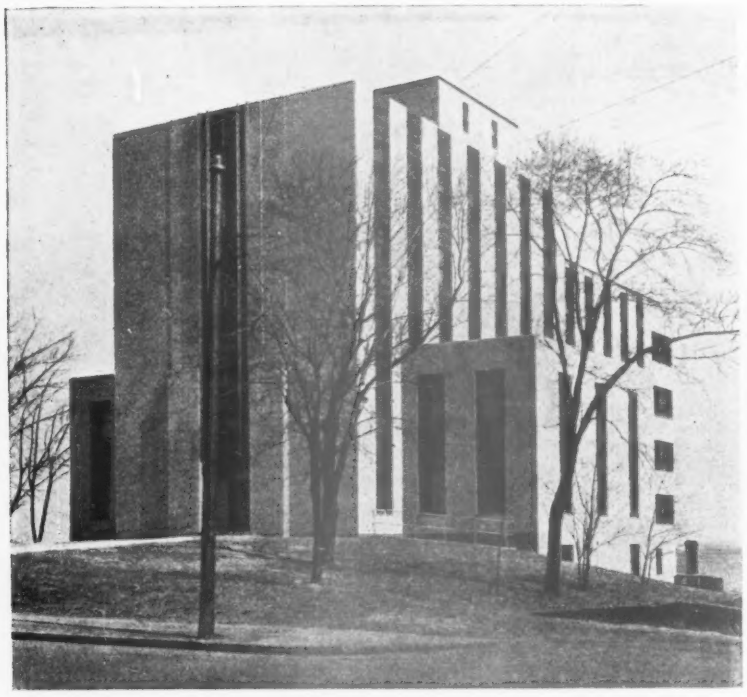


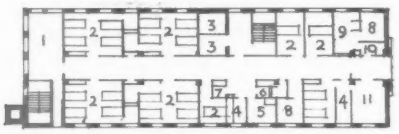
GROUND FLOOR PLAN

FIRST FLOOR PLAN

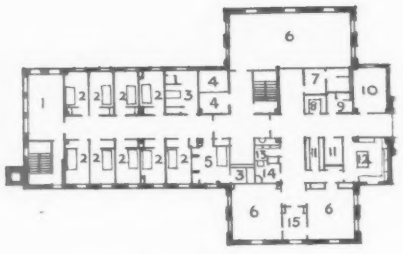
SANATORIUM, RUGBY SCHOOL

PITE, SON AND FAIRWEATHER



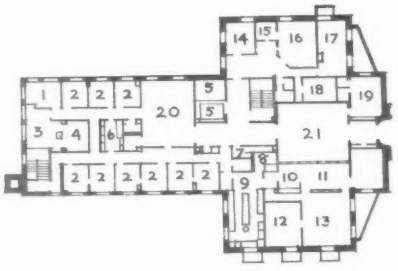


THIRD FLOOR PLAN



SECOND FLOOR PLAN

A 46-bed hospital. The principal feature is a large outpatients' department. The building has been designed for a 4-storey expansion.



GROUND FLOOR PLAN

BASEMENT PLAN

1 : Fuel
2 : Boiler house
3 : Locker room
4 : Linen room
5 : Store
6 : Lifts
7 : Laundry
8 : Housekeeper
9 : Mortuary
10 : Hall
11 : Refrigerators
12 : Kitchen
13 : Dining room

GROUND FLOOR PLAN

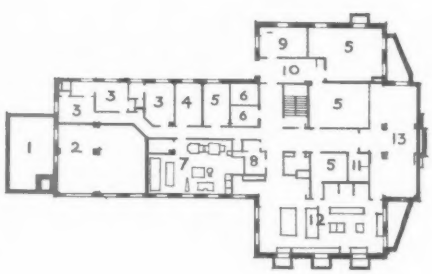
1 : Dental room
2 : Examination rooms
3 : Ear, eye, nose and throat
4 : Dark room
5 : Lifts
6 : Sterilizing
7 : Porter
8 : Drug store
9 : Laboratory
10 : Dispensary
11 : Office
12 : Board room
13 : Administration
14 : Therapy
15 : Machine room
16 : Radiography
17 : Viewing room
18 : Developing
19 : Doctor's room
20 : Outpatients' waiting room
21 : Lobby

SECOND FLOOR PLAN

1 : Nurses' living room
2 : Nurses' bedroom
3 : Bathroom
4 : Lifts
5 : Superintendent's room
6 : Operating theatres
7 : Doctor's room
8 : Supplies
9 : Nurses' room
10 : Septic operating theatre
11 : Sterile supplies
12 : Nurses' work room
13 : Instruments
14 : Utility

THIRD FLOOR PLAN

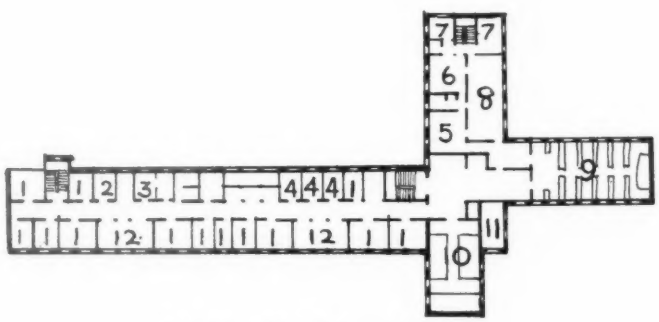
1 : Day room
2 : Wards
3 : Lifts
4 : Utility
5 : Diet kitchen
6 : Porter
7 : Linen
8 : Bathroom
9 : Nursery
10 : Work room
11 : Labour room



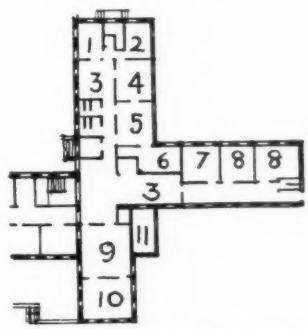
BASEMENT PLAN

MILLER, DULUTH, AMERICA

ELLERBE AND CO., AND ERICKSON AND CO.



FIRST FLOOR PLAN



GROUND FLOOR PLAN

GROUND FLOOR

1 : Administration
2 : Registration
3 : Waiting room
4 : Doctor's room
5 : Examination room
6 : X-ray room
7 : Electrical treatment
8 : Special baths
9 : Assembly room
10 : Evangelic chapel
11 : Visitors' room

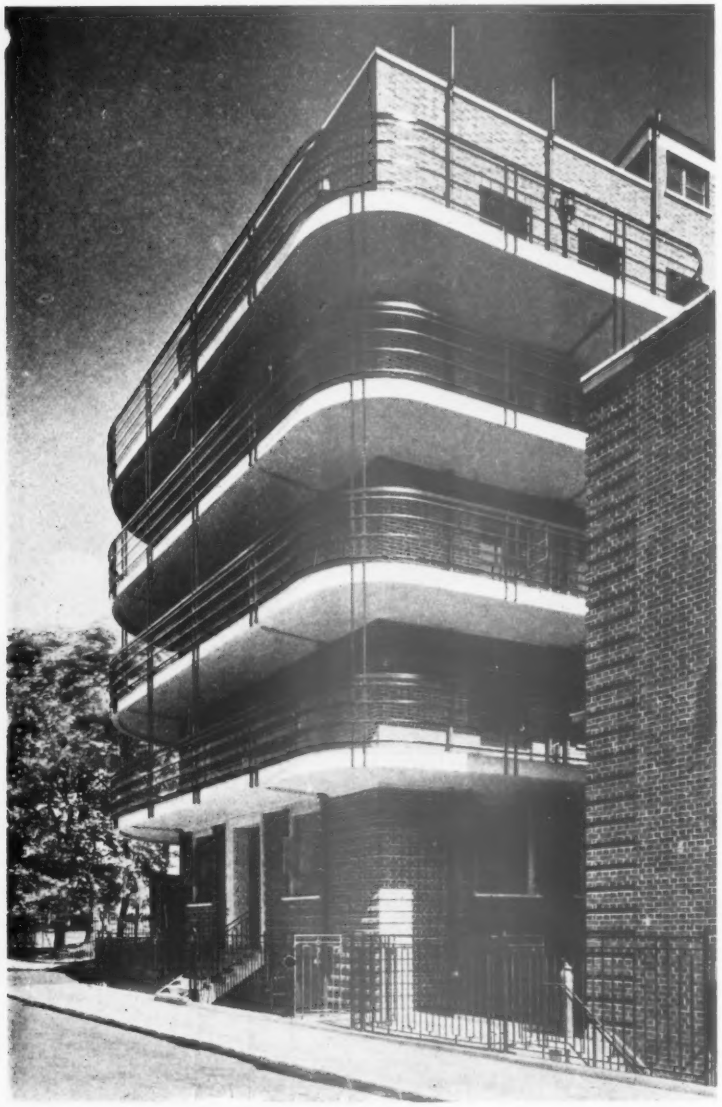
FIRST FLOOR

1 : Wards
2 : Nurse
3 : Nurse
4 : Lavatories
5 : Scullery
6 : Vegetable cleaning
7 : Larder
8 : Kitchen
9 : General dining and lecture room
10 : Catholic chapel
11 : Small dining room
12 : Lounge

The convalescent home contains approximately 120 beds for women. There are several large wards, containing in all about 40 beds, and also small private wards. X-ray and electrical treatment departments are on the ground floor. There are two chapels, one on the ground and one on the first floor.

LINDENBERG CONVALESCENT, GERMANY

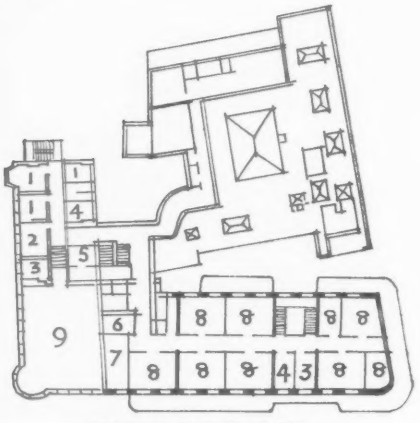
DR. R. SCHACHNOR



The addition consists of a block five storeys in height comprising on the ground floor chiefly accommodation for the resident medical officers and staff, with patients' accommodation on three floors over.

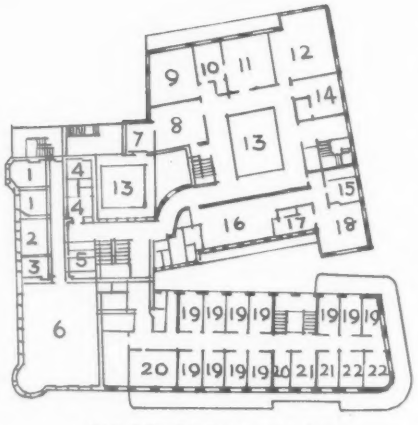
The first floor has eight single-bed wards for nursing-mothers with day rooms, etc. The second and third floor plans are relatively similar, but accommodate each two single-cot wards, one three-cot ward and six four-cot wards. The top floor, as well as a further six single-cot private wards, houses the main operating suite.

The remainder of the hospital consists of the original building, and the recent addition by the same architects, which accommodates the out-patients' department.



SECOND FLOOR PLAN

GROUND FLOOR PLAN



FIRST FLOOR PLAN

GROUND FLOOR
1 : Waiting room
2 : Mond Memorial Hall
3 : Porter
4 : Secretary's clerks
5 : Secretary
6 : Nurses' dining room
7 : Bed lift
8 : Service pantry
9 : Dispensary
10 : Clinical assistant
11 : Main consulting room
12 : Infants' weighing and receiving room
13 : Clerks
14 : Main hall
15 : Dispensary waiting hall
16 : Almoner
17 : Almoner's clerks
18 : Casualties
19 : Undressing room
20 : Surgical consulting room
21 : Clerks' dressing room
22 : Medical waiting room
23 : Senior R.M.O.
24 : Matron
25 : Assistant matron
26 : Registrar
27 : Medical director
28 : R.M.O.'s dining room
29 : Pantry
30 : Bedrooms

FIRST FLOOR
1 : Nurses' room
2 : Ward kitchen
3 : Sink room
4 : Bathroom
5 : Blanket store
6 : 12-cot ward
7 : Dark room
8 : X-ray room
9 : Light treatment
10 : Plaster room
11 : Massage
12 : Ophthalmic and dental
13 : Light well
14 : Consulting room (Ear, nose and throat)
15 : Anæsthetic room
16 : Recovering room
17 : Wash-up
18 : Operating theatre
19 : Nursing-mothers
20 : Mothers' sitting room
21 : Sink room
22 : Observation cots

SECOND FLOOR
1 : Maids' room
2 : Ward kitchen
3 : Sink room
4 : Bathroom
5 : Store
6 : Linen room
7 : Kitchen
8 : Children's wards
9 : 12-cot ward

CHILDREN'S, LONDON

C. STANLEY PEACH AND E. STANLEY HALL

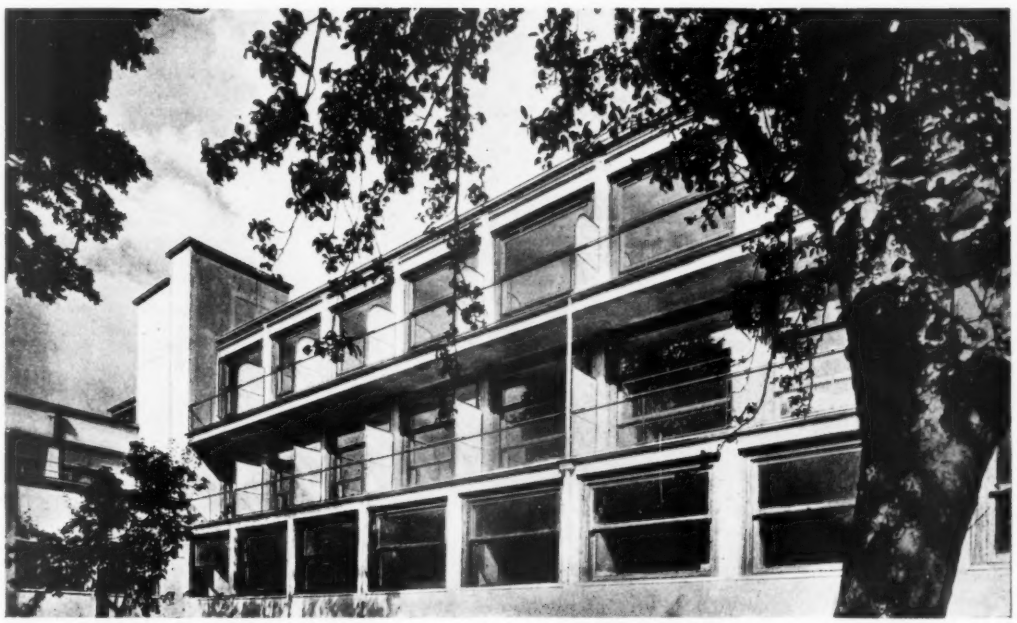
The hospital contains no large wards, but a series of single-bed wards with access to a continuous balcony on each floor. The nurses' home is connected with the main building on the ground floor.

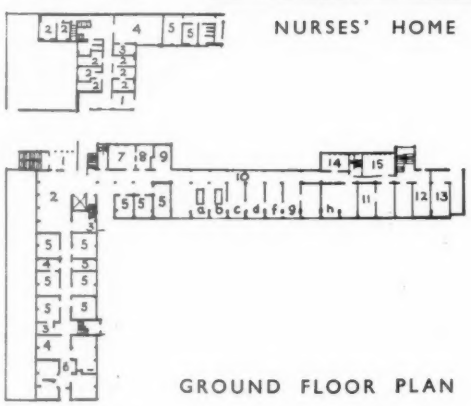
GROUND FLOOR
MAIN BLOCK
1 : Entrance
2 : Waiting room
3 : Doctor's secretary
4 : Small waiting room
5 : Consulting room
6 : Radiological institute
7 : Inhaling rooms
8 : Administration
9 : Office with service lifts
10 : Kitchen block :
(*a*) Kitchen
(*b*) Diet kitchen
(*c*) Cold store
(*d*) Refrigerator
(*e*) Fish store
(*f*) Scullery
(*g*) Goods entrance
(*h*) Dry goods
11 : Linen
12 : Shop
13 : Mortuary
14 : Staff dining room
15 : Sewing room

GROUND FLOOR
NURSES' HOME
1 : Matron's office
2 : Nurses' rooms
3 : Office
4 : Dining room
5 : Maids' rooms

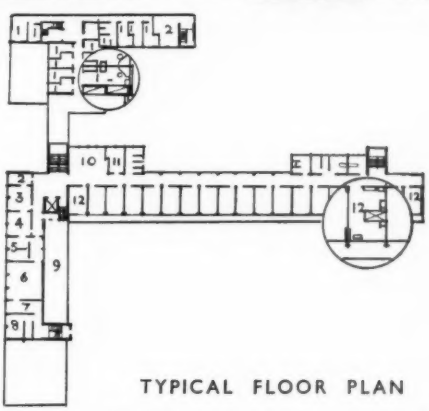
TYPICAL
FLOOR PLAN
2 : Doctor's secretary
3 : Waiting room
4 : Consulting room
5 : Anteroom
6 : Operating theatre
7 : Sterilizing room
8 : Doctor & assistant
9 : Terrace
10 : Common room
11 : Ward kitchen
12 : Wards

NURSES' HOME
1 : Nurses' rooms
2 : Sister's room





GROUND FLOOR PLAN



TYPICAL FLOOR PLAN

BERLIN-WILMERSDORF, GERMANY

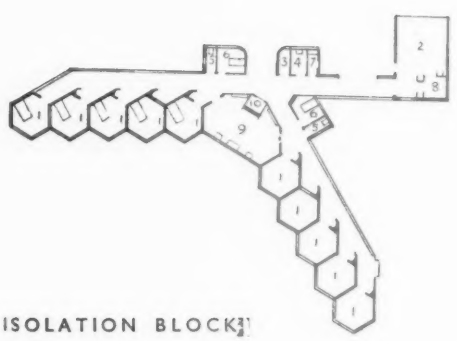
DR. OTTO BARTNING

Additions to an isolation hospital. The additions are : 1, Isolation cubicle block ; 2, pavilion block ; 3, mortuary ; 4, nurses' block ; 5, kitchen.

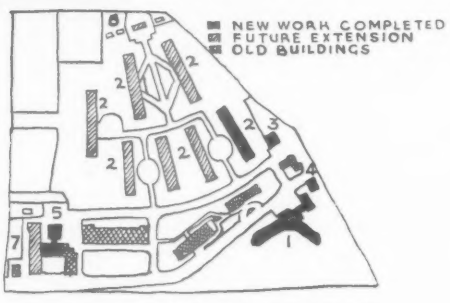
The photographs show : the pavilion block and, left, the isolation block.

ISOLATION BLOCK

1 : Cubicles
2 : Operating theatre
3 : Patients' clothes
4 : Sink room
5 : Patients' w.c.
6 : Patients' bathroom
7 : Nurses' lavatory
8 : Sterilizing room
9 : Duty room
10 : Calorifiers

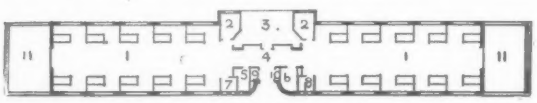


ISOLATION BLOCK



PAVILION BLOCK

1 : Ten-bed wards
2 : Bathroom
3 : Duty room
4 : Central corridor
5 : Nurses' lavatory
6 : Sink room
7 : Patients' lavatory
8 : Patients' lavatory
9 : Calorifier
10 : Patients' clothes
11 : Terrace



PAVILION BLOCK

TOLWORTH ISOLATION

P. J. B. HARLAND

THE HOSPITALS ILLUSTRATED

GENERAL AND SUB-CONTRACTORS

NEW BRADFORD ROYAL INFIRMARY (page 1097). — The principal sub-contractors and suppliers included: Limmer and Trinidad Lake Asphalt Co., dampcourses; Empire Stone Co., artificial stone; H. Barrett and Sons, Ltd., structural steel; Carter & Co., tiles Trussed Concrete Steel Co., patent flooring; Art Pavements and Decorations, Ltd., terrazzo; J. P. White and Sons, Ltd., flush doors; Rosser and Russell, Ltd., central heating; Shanks & Co., sanitary fittings; Henry Hope and Sons, Ltd., casements; Waygood-Otis, Ltd., lifts.

HAREFIELD SANATORIUM (pages 1105–1109). The general contractors were E. D. Winn and Co., Ltd., and the sub-contractors and suppliers included: Pickerings, Ltd., lifts; Indented Bar and Concrete Engineering Co., Ltd., concrete reinforcement; Highways Construction Co., Ltd., asphalt work in roofs and dampcourses; D. G. Somerville and Co., artificial stone; E. Parkinson & Co., Ltd., roof tiling; Vigers Brothers, Ltd., wood block flooring; G. M. Hammer & Co., Ltd., laboratory and dispensary fittings; John Bryden and Sons, Ltd., dark blinds in X-ray dept., etc.; James Gibbons & Co., Ltd., metal doors and windows and locks and ironmongery; Clark, Hunt & Co., G. Gardiner & Co., Ltd., and Kingsmill Metal Co., ironwork in special box gutters and verandahs and in balcony and staircase handrails and grilles; J. Sankey and Sons, Ltd., sheet metal skirtings and architraves; J. A. King & Co., Ltd., ferro-concrete pavement lights; Faience and Tile Crafts, Ltd., terrazzo flooring; Kleine & Co. (Duromit Department), duromit paving; Frazzi, Ltd., Paropa paving to verandahs and roof garden; Shanks & Co., Ltd., sanitary fittings; Frederick Thomas & Co., Ltd., lighting fittings and X-ray viewing boxes.

BIRMINGHAM HOSPITALS CENTRE (pages 1110–1111). The general contractors were William Lovatt and Sons, Ltd.; consulting engineers, Henry Lea and Son; consulting structural engineers, Scott, White and Wheeler. The principal sub-contractors and suppliers included: Redpath Brown & Co., Ltd., steelwork; Manlove, Alliott & Co., Ltd., sterilizing and laundry plant; John Gibbs, Ltd., metal windows; Reliance Telephone Co., Ltd., private automatic telephone installation; Limmer and Trinidad Lake Asphalt Co., Ltd., asphalt roofing and dampcourse; Brightside Foundry and Engineering Co., Ltd., pipework and plant for engineering service; Henry Hope and Sons, Ltd., windows; Diespeker & Co., Ltd., terrazzo works; Alfred Bagnall and Sons, Ltd., painting and decorating; Pinchin, Johnson & Co., Ltd., painting materials; Cork Insulation Co., Ltd., Eldorado roof insulation; G. N. Haden and Sons, Ltd., water services and ventilation; Richard Crittall & Co., Ltd., Invisible Panel Heating; Waygood-Otis, Ltd., lifts; Caxton Floors, flooring; Parker, Winder and Achurch, Ltd., sanitary fittings.

NEW SURGICAL AND OPERATION THEATRE BLOCK AND NEW SOUTH MEDICAL BLOCK, ST. BARTHOLOMEW'S HOSPITAL (pages 1112–1114). — The general contractors were Dove Brothers, Ltd., who were also responsible for the demolition, excavation, foundations and reinforced concrete. The principal sub-contractors and suppliers included: London Brick Co., Ltd., and H. C. Parker & Co., bricks; Redpath Brown & Co., Ltd., structural steel; Kleine Company, Ltd., fireproof constructions; Frazzi, Ltd., Paropa roofing; Ruberoid Co., Ltd., roofing felt; Hemel Hempstead Patent Brick Co., Ltd., partitions; Haywards, Ltd., patent glazing; H. H. Martyn & Co., Ltd., cast lead; Jos. F. Ebner, Ltd., and Acme Flooring Co., wood block flooring; W. Warne & Co., Ltd., rubber flooring and stair treads; Art Pavements and Decorations, Ltd., and Diespeker & Co., Ltd., terrazzo; Sika-Francois, Ltd., waterproofing materials; Richard Crittall & Co., Ltd., boilers, central heating and ventilation; Bratt Colbran, Ltd., stoves, grates, and mantels; Gas Light and Coke Co., gas fixtures; Sumerling & Co., Ltd., gas fixtures, gas fittings, bed pan washers, and water supply and water-softening plant; H. J. Cash & Co., Ltd., electric wiring, electric light fixtures, clocks, bells and telephones; Dent and Hellyer, Ltd., Shanks & Co., Ltd., and Adamsez, Ltd., sanitary fittings; British Oxygen Co., Ltd., oxygen plant; Frigidaire, Ltd., refrigerating plant; Manlove, Alliott & Co., Ltd., and James Slater & Co., Ltd., sterilizing equipment; Medical Supply Association, Ltd., poison cupboards; Merryweather and Sons, Ltd., fire fighting appliances; J. Starkie Gardner, Ltd., metalwork; Waygood-Otis, Ltd., lifts and folding gates; L. F. Roslyn, R.B.S., carving; Thomas Falco & Co., Ltd., dampcourses and asphalt; James Gibbons, Ltd., door furniture; Crittall Manufacturing Co., Ltd., casements and window furniture; Henry Hope and Sons, Ltd., operation theatre windows and window furniture; Haskins, rolling shutters; Carron Company, iron staircases; Joseph Avery & Co., sunblinds, dark blinds, etc.; Hobbs Hart & Co., locks; James Adams and Son, and Robert Adams, Ltd., door springs.

WESTMINSTER HOSPITAL (NURSES' HOME AND MEDICAL SCHOOL) (pages 1115–1118). — The general contractors were Holloway Brothers, Ltd., who were also responsible for the foundations, reinforced concrete, stone, fireproof construction, plumbing, plaster, joinery and stonework. The sub-contractors and suppliers included: H. J. Moyes, Ltd., demolition; Limmer and Trinidad Lake Asphalt Co., asphalt; J. A. King & Co., Ltd., pavement and roof lights; R. Y. Ames, bricks; Dorman Long & Co., Ltd., structural steel; Trussed Concrete Steel Co., Solcheck tiles and special roofing; Hemel Hempstead Patent Brick Co., Ltd., partitions; Haywards, Ltd., lantern lights and dome lights; Korkoid Decorative Floors, patent flooring; J. Jeffreys & Co., central heating, boilers, and ventilation; F. H. Wheeler & Co., electric wiring, electric heating, and bells; Doulton & Co., Ltd., and Henry Wiggin & Co., sanitary fittings; Gas Light and Coke Co., gas fixtures; Roneo, Ltd., stair treads; Nettlefold and Sons, Ltd., door furniture; Crittall Manufacturing Co., Ltd., casements and window furniture; Frederick Jukes, metalwork; Birmingham Guild, Ltd., metalwork; Ace Laminated Products Co., joinery; W. B. Simpson and Sons, Ltd., tiling; John P. White and Sons, Ltd., wardrobe fittings; Furdecor, Ltd., wardrobe fittings and furniture; Waygood-Otis, Ltd., lifts.

THE KENT AND SUSSEX HOSPITAL (pages 1120-1121). — The general contractors were John Jarvis, Ltd. The principal sub-contractors and suppliers included: Trussed Concrete Steel Co., Ltd., reinforced concrete work, skeleton framework, "Truscon" floors and roofs, cantilever parapets, water-tower, staircases, bridge and covered way to nurses' home, spiral escape ramps, and Solcheck tiles for flat roofs; Crittall Manufacturing Co., Ltd., metal windows; High Brooms Brick and Tile Co., Ltd., bricks; J. H. Nicholson & Co., Ltd., heating and hot water supplies; John Bolding and Sons, Ltd., sanitary fittings; Limmer and Trinidad Lake Asphalt Co., Ltd., asphalting; J. Slater & Co. (Engineers), Ltd., kitchen equipment; Waygood-Otis, Ltd., lifts; Walpamur Co., Ltd., paint for walls and ceilings; Runnymede Rubber Co., Ltd., rubber floor coverings; James Gibbons & Co., Ltd., locks.

SCARBOROUGH HOSPITAL (pages 1122–1123). The general contractors were Foster and Dicksee, Ltd., and the sub-contractors and suppliers included: London Brick Co., Ltd., walling bricks (Flettons); Caxton Floors, Ltd., hollow-tile R.C. floors, R.C. stairs, etc.; James Slater & Co., Ltd., heating, hot-water, ventilating, sterilizers and coking plant (automatic combustion plant to boilers for heating, etc.); J. Peers and Sons, Portland stone copings, sills, etc.; Scarborough Gas Co., portcullis gas fires; Troughton and Young, electrical installations, fittings, emergency lighting equipment, etc.; Blundell, Spence & Co., Ltd., paint; Hollis Bros. & Co., Ltd., Ysack block floors; Art Pavements and Decorations, Ltd., terrazzo and marble work; Carter & Co., Ltd., tiling; Crittall Manufacturing Co., Ltd., steel windows, roof lights and fanlights; D. and J. Tullis, laundry agent; Doulton & Co., Ltd., sanitary goods, drains and fittings, and linen chutes; Limmer and Trinidad Lake Asphalt Co., asphalt work (roofs and tanking); Johnsons Reinforced Concrete Co., reinforcement and R.C. foundations; Bratt, Colbran & Co., Ltd., special electric ward fires; James Gibbons & Co., Ltd., ironmongery and medicine cabinets; J. P. White and Sons, Ltd., flush doors (also lead lined doors); W. Rowntree and Sons, Ltd., board room furniture; Birmingham Guild Ltd., iron railings, name panels, bronze floor covers; Moler Products, Ltd., hollow partitions (Fosalsil); Merchant Trading Co., Ltd., panelled (standard) doors; George Wright, Ltd., coal fires; Etchells, Congdon and Muir, Ltd., electric bed service lifts and hand power goods lifts.; Educational Supply Association, pathological laboratory fittings.

ROYAL MASONIC HOSPITAL, RAVENSCOURT PARK, W.6 (pages 1125–1126). The general contractors were: John Mowlem & Co., Ltd.; Gardiner and Theobald, quantity surveyors; J. Stinton Jones, consulting mechanical engineer; J. Bylander, consulting structural engineer; J. G. Camp, clerk of works; Gilbert Bayes and Charles L. J. Doman, sculptors. The principal sub-contractors and suppliers included: Ashwell and Nesbit, Ltd., heating, ventilation and hot water supply; Joseph Avery & Co., blinds and curtain rails; Armstrong Cork Co., Ltd., cork flooring; British Vitrolite Co., Ltd., mirrors and splash-backs; Crittall Manufacturing Co., Ltd., metal windows and doors, lanterns, etc.; Cope & Co., tiling; Coronet Brick Co., Ltd., facing bricks; Cement Marketing Co., Ltd., cement; Candy & Co., Ltd., stove interiors; Diespeker and Co., Ltd., constructional floors and terrazzo wall and floor tiling; Dorman, Long & Co., steelwork and welded steel balconies; Jos. F. Ebner, wood block floors; Educational Supply Association, Ltd., dispensary fittings; Expanded Metal Co., Ltd., expanded metal; Emerson and Norris, Ltd., sundials and casting of figures; Fenning & Co., Ltd., marblework; T. and W. Farmiloe, Ltd., glazing; James Gibbons, Ltd., ironmongery; Gent & Co., clocks; Highways Construction Co., asphalt works; Haskins, Ltd., shutters; J. A. King & Co., Ltd., pavement and roof lights; Leeds Fireclay Co., Ltd., sanitary ware; London Brick Co., Fletton bricks; Marryat and Scott, Ltd., lifts; Manlove, Alliott & Co., Ltd., sterilizing apparatus; J. H. Sankey and Son, Ltd., partition blocks; John Tann, Ltd., strong room doors; Samuel Williams and Sons, Ltd., artificial stone; Benjamin Electric, Ltd.; Troughton and Young, Ltd., light fittings; General Electric Co., Ltd., electrical equipment, Zeiss Ikon, Ltd., special light fittings; Quasi-Arc. Co., Ltd., welding; Pel, Ltd., steel furniture; Cox & Co., over bed tables; Mander Brothers, Ltd., paint; Benham and Sons kitchen equipment for main and ward kitchens, etc.; Robert Adams, Victor spring hinges; Lion Foundry Co., Ltd., railings.

INFECTIOUS DISEASES HOSPITAL, PAISLEY (page 1127–1129). The principal sub-contractors and suppliers included : Crittall Manufacturing Co., Ltd., metal windows ; Redpath Brown & Co., Ltd., steelwork ; F. McNeill & Co., Ltd., bitumen roofing ; Toffolo Jackson & Co., tile work and terrazzo; Gray Ferro-concrete Co., Ltd., Brizolit ; Manlove, Alliott & Co., Ltd., sterilizers, operating theatre ; Wylie and Lochhead, Ltd., ward furniture.

QUEEN VICTORIA MEMORIAL HOSPITAL, WELWYN, HERTS (pages 1130–1131). The general contractors were J. Wilmott and Sons (Hitchin), Ltd., and the principal sub-contractors and suppliers included : Excel Asphalte Co., Ltd., asphalt ; Daneshill Brick Co., Ltd., bricks ; Caxton Floors, Ltd., fireproof construction ; Acme Flooring and Paving Co., Ltd., wood block flooring ; James Slater & Co. (Engineers), Ltd., central heating ; Shanks & Co., Ltd., sanitary fittings ; Williams and Williams, Ltd., casements ; A. J. Shingleton, sunblinds ; Aldous and Campbell, Ltd., lifts.

TUBERCULOSIS HOSPITAL, SULLY (pages 1132–1134). The general contractors were E. D. Winn Co., Ltd., and the principal sub-contractors and suppliers included : J. Avery & Co., Ltd., dark blinds ; H. N. Barnes, Ltd., metal architraves ; Beer and Warren, plumbing ; Best and Lloyd, Ltd., external light fittings ; Bratt Colbran & Co., Ltd., sunk fires and gas fires ; R. W. Brooke & Co., Ltd., wood block floors ; Caxton Floors, Ltd., fireproof floors, flat roofs, and stairs ; Cellactite and British Uralite Co., Ltd., Cellactite roofing : Cork Insulation Co., Ltd., insulation to mortuary ; Edwin Danks & Co. (Oldbury), Ltd., chequer plates ; Dawnays, Ltd., constructional steelwork ; Empire Stone Co., Ltd., cast concrete lamp-posts ; Ferranti, Ltd., electric fires ; G. Farmiloe and Son, Ltd., glass dome lights ; James Gibbons, Ltd., ironmongery, balustrading, mortuary racks, instrument cupboards, sterilizer hood, etc. ; Haskins, Ltd., rolling shutters ; Hitchins Flush Woodwork, Ltd., flush doors and cupboard doors ; Leeds Fireclay Co., Ltd., sanitary fittings ; Leyland and Birmingham Rubber Co., Ltd., rubber flooring ; Mellowes & Co., Ltd., metal roof and lantern lights, greenhouse ; Permanite, Ltd., Permanite roofing ; Wm. Sugg & Co., Ltd., gas incinerators ; J. and E. Hall, Ltd., refrigerating plant, with cold storage room : Brightside Foundry and Engineering Co., Ltd., kitchen equipment and steam sterilizing ; New System Private Telephones (South Wales), internal telephone system ; Waring and Gillow, Ltd., chairs and settees ; Silverdale Manufacturing Co., ward bedside lockers, designed by architects, in collaboration with doctors.

Manufacturers' Items

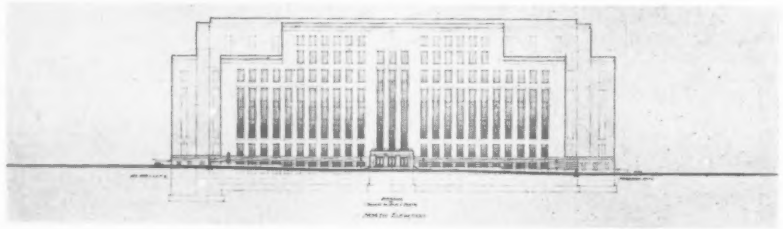
The 1937 edition of the paint catalogue issued by Messrs. John Line and Sons, Ltd., 14 Alfred Place, London, W.C.1, is now available. In it particulars are given not only of the materials manufactured by themselves, but also of most of the principal proprietary brands on the market. The tint book of Petragloss, which we have also received from them, contains fifty-two standard colours in addition to white, broken white and black. This hard gloss paint is recommended by them for exterior or interior application on plaster, cement, wood or ironwork, and particularly for use in hospitals, and other public buildings where durability is desired.

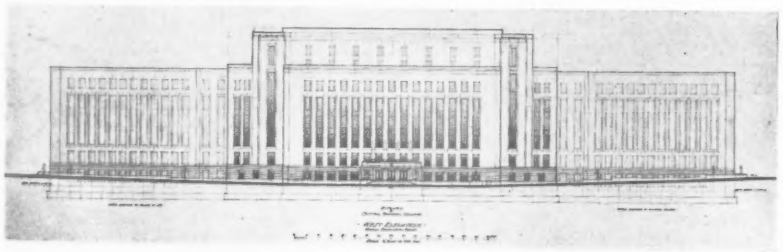
The name of Messrs. Kerner-Greenwood & Co., Ltd., was omitted from the list of contractors of the Silver Jubilee School, Bedford, published in our issue for June 10. This firm's "Pudlo" brand waterproofer was used in the reinforced concrete foundations.

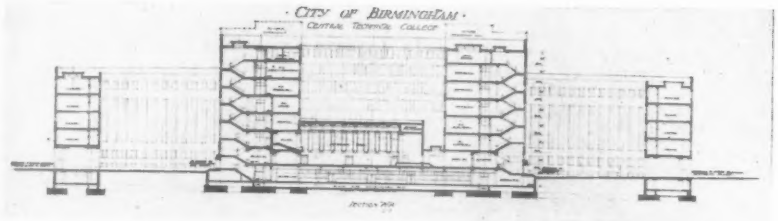
At the annual general meeting of the British Plastics Federation, Ltd., Mr. H. V. Potter, B.SC., F.I.C., M.I.CHEM.E., managing director of Bakelite Limited, was elected chairman, and Major H. C. Parker, A.M.I.E.E., a director of Thos. De La Rue & Co., Ltd., was elected vice-chairman of the Federation for the ensuing year.

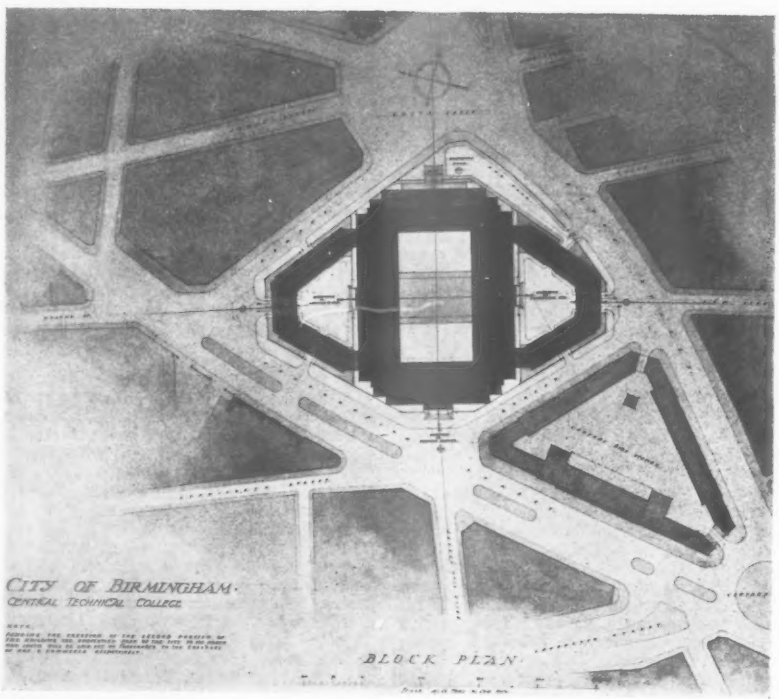
THE BIRMINGHAM COMPETITION

DESIGN PLACED FIRST: BY H. V. ASHLEY AND WINTON NEWMAN









Elevations, section and site plan of the design placed first in the competition for proposed central technical college, commercial college and college of arts and crafts, Birmingham.

THE BIRMINGHAM COMPETITION

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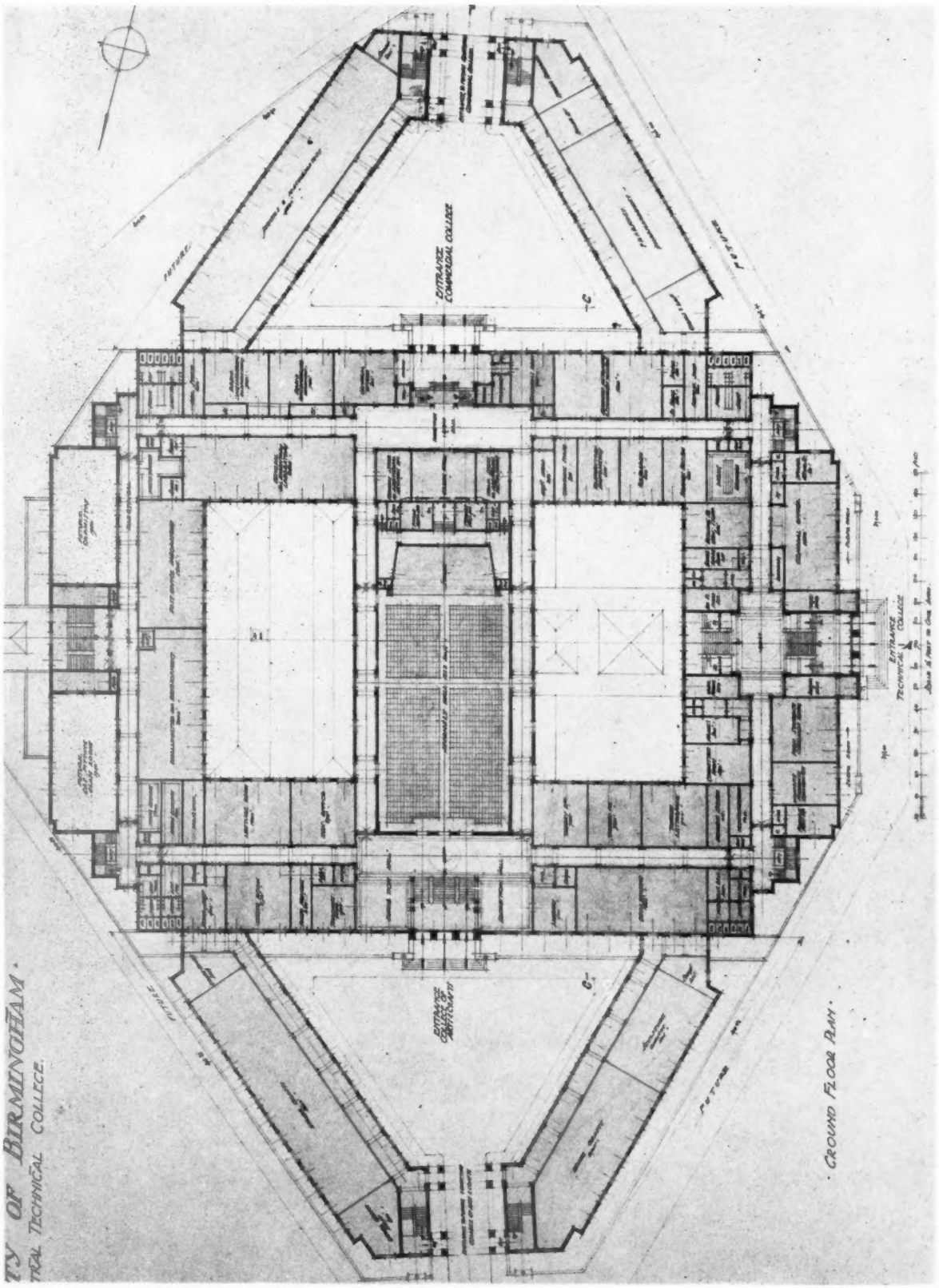

BY H. V. ASHLEY AND WINTON NEWMAN

THE BIRMINGHAM COMPETITION

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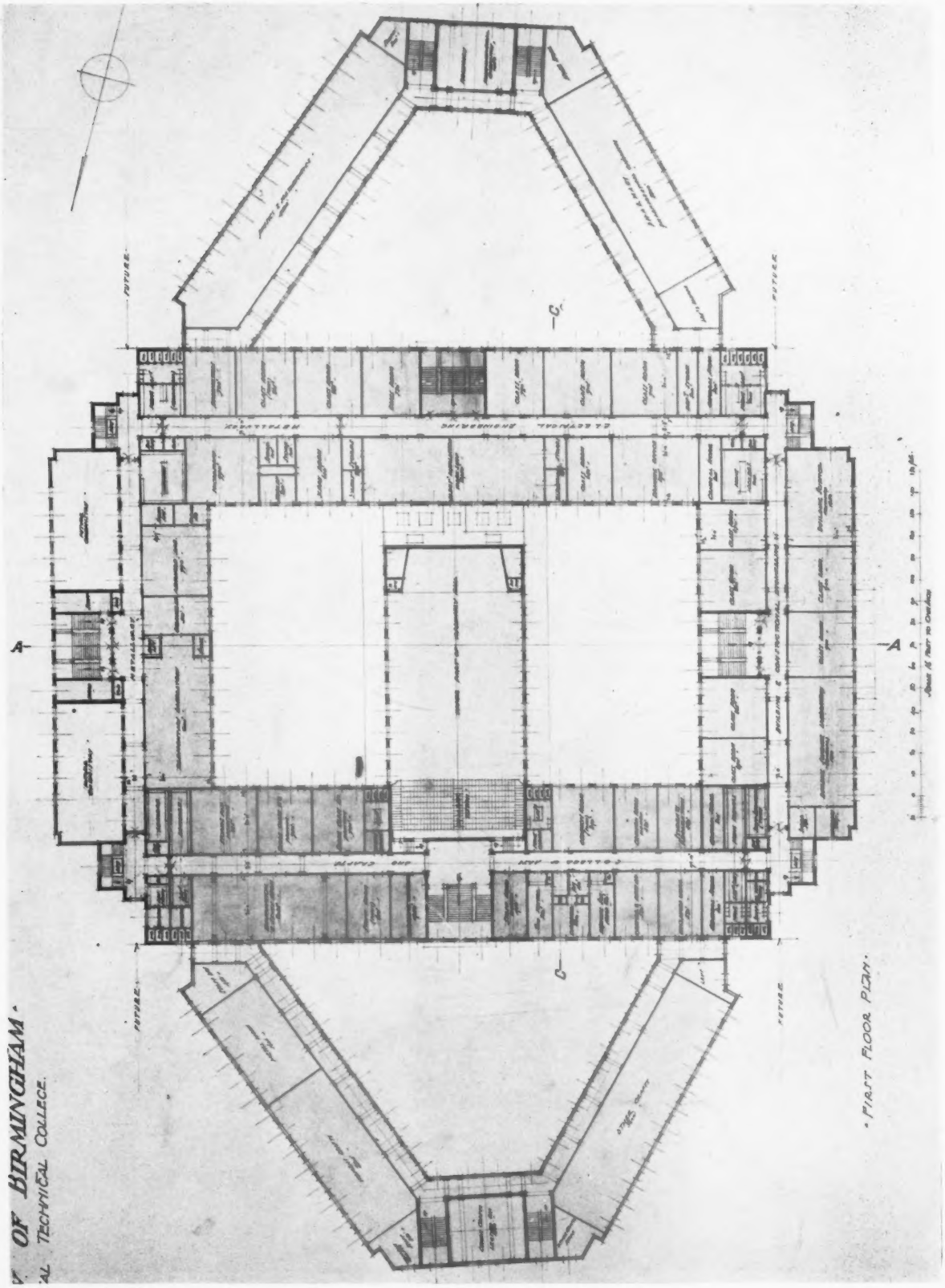

BY H. V. ASHLEY AND WINTON NEWMAN