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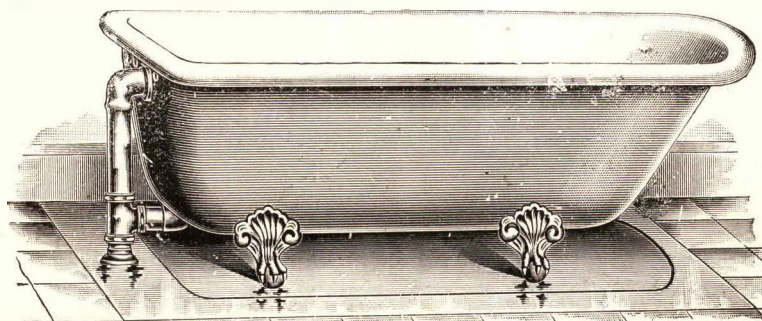
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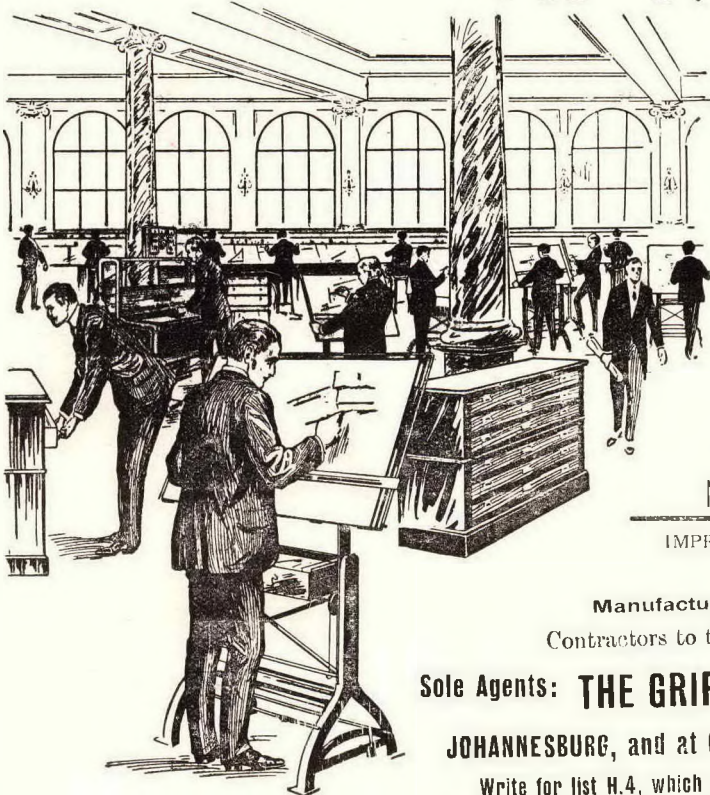
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The President and Members of Council extend to all our Members and Contributors very hearty greetings for Christmas and the New Year.

A BRIEF SURVEY OF TECHNICAL EDUCATION IN GREAT BRITAIN.

By H. E. Jones, B.A.,

Vice-Principal, Technical College, Durban.

“He who unites a thorough knowledge of his art with that practical dexterity which practice and practice alone can give will be the most complete and probably the most successful tradesman.”

The memorandum from which I quote the sentence appearing at the head of this article on Technical

Education was issued on the occasion of the opening of the first session of the Edinburgh School of Arts. It is a well-executed document setting out clearly and concisely the aims and scope of Technical Education as conceived by the founders of the Edinburgh institution who were amongst the pioneers of the movement to establish educational facilities of a practical nature to meet the needs of the workers. These clear-headed, far-sighted Scottish pioneers took account in their memorandum—as Scotchmen ever do—of the finances of the intending student, and in return for his money the student is clearly told what to expect.

“The great object of this institution is to

supply at such an expense as the working tradesman can afford, instruction in the various branches of science which are of practical application to mechanics in their several trades, so that they may better comprehend the reason for each individual operation that passes through their hands, and have more certain rules to follow than the mere imitation of what they have seen done by another.

“It is not intended to teach the trade of the carpenter, the mason, the dyer, or any other particular business, but there is no trade which does not depend more or less upon scientific principles; and to teach what they are and to point out their practical application will be the business of this institution.”

In 1800, Dr. George Birkbeck, Professor of Physics at Glasgow University, struck with the workmen's intelligence and desire for information whilst on a visit to a tinman's shop at Glasgow, arranged a course of lectures on science suited to their needs. This course of lectures was well attended and proved a great success. The movement in favour of giving practical instruction to the workers grew apace. In 1817 a Mechanics Institute was founded at Birmingham, and seven years later London followed Birmingham's example and the famous London Mechanics Institute was the result. By 1841 there were about 220 of these institutions scattered throughout the country. Two factors, however, militated against their success—a lack of sufficient primary education on the part of the students and a lack of adequate funds. Strange to tell, the former was not so easy to overcome as the latter.

The Exhibition of 1851 in many ways gave an impulse to the promotions of Technical Education. A sum of £186,436, representing the profits in the Exhibition, plus a State grant of £150,000, was applied to the purchase of the South Kensington Estate, and this became the home of the Royal College of Science, the Central College and the University of London. In 1853, the Science and Art Department was constituted, and despite many grave blunders it did much to foster the teachings of both Science and Art during the four decades or so of its existence.

The great Education Act of 1870 placed Elementary Education on a sound basis. During the next ten years the Elementary Schools supplied the Technical Institutions with a better type of students, and these

in their turn clamoured for a more practical teaching in the evening classes held by the Technical Institutes. Huxley emphasised the need when he wrote “If scientific training is to yield its most eminent results it must, I repeat, be more practical.” From now onwards it was realised that leaders of industry as well as the workers needed instruction of a scientific and technical nature to enable the nation to hold its own against foreign competitors.

The teaching of Technology was given a further impetus when the report of the Commission appointed to consider methods of technical instruction abroad appeared. Parliament conferred rating powers upon the local authorities for the purpose of promoting technical instruction within their respective areas. The Act of 1890 placed a grant of £800,000 a year at the disposal of the new County Councils for the same purpose, and in consequence Technical Colleges and institutions of a similar nature but of lower grade sprang up in every town of importance.

The Board of Education recognises two types of Technical Institutions, *vi.*, Local and Central. The Local Colleges serve their own particular area only. They are attended by part-time evening students and full-time day students drawn from all classes of the people. These students represent various grades of educational attainments from Standard Ex VI. grade to the post matriculation student. The scope of the work is also both varied and wide. Large and successful trade classes are held in engineering—mechanical, electrical and civil, building trades, photography, chemistry, gas manufacturing, domestic science, men's and women's tailoring, and in a hundred and one other subjects, embracing almost every section of technology, science, art and music, languages and commerce. The combination of theory with practice is wherever possible aimed at, and the union of the lecture with laboratory, drawing office, or workshop class is a principal feature of the work.

Great stress is laid upon the provision of grouped courses, and for all students under 19 it is advocated that such a course be made compulsory. It is recognised that the studying of any one subject which the student may care to choose without the corresponding study of the allied subjects is often a waste of time and always less satisfactory than the study of a properly planned group of allied subjects. For instance, the study of strength of materials without a knowledge

of building construction and mathematics is of little use. In any course the subjects are so grouped as to assist the student to acquire a sound scientific knowledge of the main principles underlying his trade or profession. It is not the province of a Technical Institution to teach a trade, but workshop practice or laboratory work—both where necessary—forms a very important part of the student's course of studies.

The Central Colleges concentrate in themselves all the higher work connected with a number of industries such as the cotton industry, the steel industry, chemical industries, etc. In many cases they constitute the University Faculty of Technology, and their students are undergraduates of the University to which they are affiliated. In due course upon the completion of their studies they become graduates in technology of their respective Universities, being admitted into the degree of B.Sc. (Technology). They often return to complete a year's research work for their master's degree—M.Sc. (Technology). These Central Colleges are often housed in magnificent buildings, and they have their libraries, museums, common rooms for students and dining halls. The social life of the student and his athletic interests are developed. Furthermore, these Colleges provide facilities for disinterested intellectual development by means of classes in Literature, Economics, History, and in the words of the Board of Education circular, "Any other humane studies which make for wise living and good citizenship." The demand for advanced students who have completed a special course in Technology leading to a University degree is said to be very great.

It is well to point out that these big Colleges enjoy a very democratic form of government because they depend largely for their funds upon the big Municipalities which they serve. The College of Technology, Manchester, obtains a grant of £30,000 a year from the Municipality of Manchester and £3,000 a year is subscribed towards its funds by the neighbouring Local Education Authorities. This is entirely distinct from the State funds voted to assist the Colleges in their work. Instances of a liberal local support could be multiplied. Instances could also be given of generous contributions made by individuals who recognise the valuable work being done by these institutions and the need for furthering the cause of Technical Education.

With the failure of the apprentice system, and the ever-increasing nature of modern trades and industries it behoves us to leave no stone unturned to give to the youth of the Empire that training which alone will help us to settle the problems of increased production. We must again capture the foreign markets which were ours before the war. We must economise in material and in labour and so bring down the inflated prices of to-day,

which tend to foster the spirit of unrest amongst the masses. We must spend money on research to enable us to produce more and produce cheaply. It can be done and will be done if we handle the situation with breadth of view and foresight. The cry for economy must not hamper educational development. Economy in education is madness. It is the "too little" and not the "too much" knowledge that leads to disastrous consequences. All workmen whether they be works' managers, designers, or the actual artisans in every trade and profession, should have a thoroughly sound and up-to-date practical education, based upon the needs of the times we live in as well as upon the requirements of their trade or professions. This instruction will cost money, much money, but the investment will be a sound one and the returns will be such as cannot be measured in mere terms of £ s. d.

Space does not permit even a brief description of the new type of Secondary School which bids fair to be very popular in England, viz., the Junior Technical School; nor can the writer touch even briefly upon the new continuation classes to be established under the Fisher Act of 1918. The compulsory attendance of all the youths of the land on a number of mornings or afternoons a week until they reach the age of 18 is likely to affect at no distant date, both in quality and in numbers the future students of these Technical Schools and Colleges, and their influence upon the Community is likely to increase many fold during the next decade. In Great Britain the practical and scientific as well as the intellectual and social education given will help materially to enable the country to tide over this period of unrest and economic stress. The Colleges will assist scientific production and scientific research; they will help to avoid waste in the use of all kinds of raw material, and in many ways their influence will be both practical and beneficial.

In South Africa—though it is beyond the scope of the article to touch upon South African Technical Education, properly conceived and properly carried out it will assist very materially to settle our one great and paramount problem, viz., the relation between Whites and Blacks. The Indians and the Natives are already competing successfully with the Whites in almost every trade. There is, in my opinion, but one safe and true solution, and that is the provision of increased facilities of instruction for the white people engaged in the various trades and industries. "Knowledge is power," and it is the only real power that carries with it that supremacy which alone will maintain the status of the white population of the Sub-Continent. It behoves the Authorities to awake to the significance of providing increased facilities for Technical Instruction and Research.

South African Academy.

On the initiative of our President, Mr. D. M. Burton, it has been brought about that a start shall be made in the establishment of a South African Academy or Art Exhibition to be held annually. In other words, a modest but nevertheless earnest effort is to be attempted in the inauguration of a prototype of the Burlington House Exhibition, known as the Royal Academy. We all know that to this Royal Academy Exhibition year by year the best art workers endeavour to get admission for their works, and we also know that those works of art are eagerly sought for not only by fashionable London but by the art connoisseurs of the world. In architecture, painting and sculpture South Africa has produced no small array of talent (in cases one could almost say genius), and it therefore is by no means inopportune, now that peace has come upon the world, that the arts applying to peace should not have their full and proper sphere allotted to them in our midst.

We should, I think, feel quite confident of the support of patrons of the arts, like Lord Buxton, Lady Phillips and other South Africans giving their aid to further our effort. In fact we count on the culture of South Africa to encourage us.

But it would be of little value as a permanent

annual institution unless our painters, architects and sculptors, as well as our craftsmen, did not fully appreciate the chance which such exhibition gave them. It is true that artists are not commercially minded, but all artists produce their work to be seen and appreciated, and therefore there should be little doubt about our obtaining good and adequate examples of work done during the year at our annual exhibition.

In our first exhibition, to be held in February, nearly all architects, painters and other craftsmen have offered exhibits, so that the first "show" will be a success. We want to make it more and more an annual success. Every bit of good architecture in the country, and every really decent picture, every possible piece of sculpture (which branch of art must be more encouraged) must find a place in our exhibition. By this means our people will learn to know what is really good. For our artists are seekers after the best and the truth, and even in the so-called sordid atmosphere of Johannesburg, like Birmingham and other cities, there obtains a spirit of truth and beauty which only has to be aroused to be felt in the surroundings and homes of the people. And without egotism it seems to me architects are the people to look and to point the path.

H. G. VEALE.

A FEW NOTES AND IMPRESSIONS.

By Mr. Theo Schaerer.

(A former member of Council, now in London.)

An exhibition of model dwellings was held here some time ago, but I have not seen anything of real importance for an architect.

The don of the exhibition seemed to be from the public point of view the Pemberton Billing arrangement of a central heating stove, but I do not think anything useful will become of it. There are far better arrangements in actual use on the continent for many years, and the P.B. system has some very great drawbacks and defects, which of course the people will only realise when they have actually used the system.

There is no doubt a great opening for some real improvements on the existing heating system of private houses as now existing and practised in England, but it will take time to dissuade the people that the open fires are wasteful and should be dispensed with.

With regard to the Government scheme for the new housing, etc., very little has been done beyond an

enormous amount of talk and promises. The cost of labour and material is prohibitive for ordinary houses and it seems to me that improvements and better accommodation for the future must be looked for in another direction than the one everyone seem to be looking for.

Strange to say, I personally believe that the two competitions arranged by the "Daily Mail" and "Daily Express" newspapers here lately have had more practical value, and the public has no doubt taken a greater interest in them than the competition arranged about 18 months ago by the R.I.B.A. for the same subject

Another great item of the exhibition was represented by all sorts of devices to construct houses in concrete, with hollow blocks, etc. All those things look very well indeed at an exhibition, but when it comes to apply them in practice, with all the labour involved by returns, drop-ends, window sills, lintels and reveals, there will be some surprises, especially with the present price of unskilled labour (being almost as high and difficult to procure as skilled one), and with

the increasing demand the price will be as high as skilled labour. The more so as no doubt these fellows as soon as they have learnt the trade at the expense of the employer will sail forth in a trade union of skilled concrete workers, and all the rest of the restrictions attached thereto.

There is no doubt a good deal of room for improvements of all sorts in the construction and building trade, but the change must come gradually, as revolutionising the existing trades amounts to almost disorganising them and the result is disastrous.

Another very interesting study I shall try to make is, The Relation between Architects and their Clients through the various aegs, particularly the last 2-300 years. It is an extremely interesting subject, but very tedious and requiring long studies on account of the very great dispersion of the matter in all sorts of books and writings. I have come across many extremely interesting subjects during my researches at the British Museum Library, but it wants a lifetime to get through. and then one man could hardly achieve it. One thing is strange, that at all ages people were under the impression of having attained the summit of learning and of science, and they thought that hardly anything could be improved after they had left the subject at such heights of perfection.

In 1765 a Mr. Kirby in his "Perspective of Architecture," which by the way is an excellent book with beautiful plates, says among other nice things:—

"I make no doubt, however, that the method for drawing many of the printed examples will at least be considered as new, and I therefore do not see why this work has not as just a claim to the **Title of Original**, as anything that can be produced in **an age like this, when almost every subject seems to be quite exhausted.**" (What do you think of it?)

The said book is very interesting indeed, and I have seen at least two recent works on Perspective whose authors seem to have deeply looked into Kirby's work when writing their own, but have forgotten to acquaint their readers of the fact that dear old Kirby has known all this before their grandfathers were born.

In Kirby's book is also a description and some illustrations of "A New Architectonic Sector," which was then in use to draw the various orders. The original inventor seems to have been a certain Revisio Bruti, who adopted it to Seamozzi's Architecture, but for reasons best known to himself carefully suppressed the manner of laying down the different divisions. The said "Architectonic Sector" comprehended all the necessary measures for delineating the principal parts of architecture.

As far as I can see the said instrument was particularly for the use of workmen, but no doubt all the

members of the aristocracy, who at that time took such a great and prominent interest in architecture were familiar with its working and its use. It was Mr. George Adams, mathematical instrument maker to H.R.H. The Prince of Wales, in Fleet Street, London, who made those sectors in silver, ivory or wood, and it was said that Mr. Adams (no relation to the Bros. Adams) was able, with great accuracy by the same principle to lay down on the vacant spaces any other measures which the instrument is capable of receiving.

Up to now I have not been able to find anybody who knows anything about the said instrument, neither have I found one anywhere, but I have not been to see if there is one at the Soane Museum.

The last month I have made some studies of the Brothers Adams and have found some very interesting points very little known. I shall follow this subject up further, as I have come across some really good points in connection with Clerisseau, a French architect, who was one of the very first Grand Prix de Rome and very clever indeed. He accompanied one of the Adams Bros. all through Italy, and has no doubt carried out the bulk of the work. I do not know yet, but I would not be surprised to find that Clerisseau was very prominently connected with the restoration of the Palace of Diocletian at Spalato, one of Adams' works, which made him famous on his return home. This is a very important point, particularly at such a time as now, when the work of the Ecole des Beaux Arts, of which the Grand Prix is the culminating point, is so prominently before the eyes of the world.

The same Clerisseau exhibited some work in London, I believe about 1790. He worked somewhat in the same style as Piranesi, and was his contemporary, and the Soane Museum here in London has some of his original works, mostly Restorations in Italy.

Clerisseau was later appointed architect to the Empress of Rumia and built the Palace of the Hermitage in St. Petersburg. Another branch to be followed up of French Influence on Architecture in Russia.

A very good study of the Brothers Adams and their work is a prize essay for the A.A. by John Swarbrick, **A.R.I.B.A.** and also a special book edited by Messrs. Batsford in 1916.

An interesting point for me was to find that the Brothers Adams acquired a part of their stucco plaster patent from a countryman of mine, a Swiss clergyman named Liardet, in 1773.

In the same year, 1773, an Act of Parliament was passed enabling John, Robert, James and William Adams to dispose of several houses and buildings in the Parish of St. Martin in the Fields and Mary-le-Bow and offers their effects by way of chance in such

a manner as may be most for the benefit of themselves and creditors

They were doubtless enabled to obtain this Act owing to a verbal agreement to the effect that the Adelphi Arches were to be used as Government stores having been broken.

In accordance with the Act, on the 3rd March, 1774, the drawing of the lottery commenced, 4,370 tickets at £50 each were offered, making a total of £28,500.

On the 30th June I was at the dinner given to Sir Alfred Mond by the Society of Architects. It was a very successful function, and we are now all hoping that something really good will ensue and that it will not remain at the speeches delivered as it is generally the case.

The luncheon was attended by about 80 people, including some ladies, and many took the trouble to come round to the exhibition of the drawing from the Ecole des Beaux Arts, arranged at the Society of Architects in Bedford Square.

Besides the President, Mr. Snedgrove, who gave a good address, Sir Alfred made a very good speech, and many of those present were impressed by the happily chosen words and by the great knowledge of architecture and art in general which Sir. Alfred Mond displayed.

Mr. Davies and Mr. Simpson, the President of the R.I.B.A., also made good speeches, and so did Sir Lionel Earle, who amongst other good things said that the difference between doctors and architects were that the former could buy their failures whilst the latter could not.

PRESIDENT'S PRIZE.

Our President, Mr. D. M. Burton, has kindly offered a prize value £5 5s. for the best set of museum drawings of the West Doorway, S. Mary's Church Hall, Plein Street, Johannesburg, and for the convenience of Pretoria students the subject chosen is portion of Interior of Chancel, S. Aban's Cathedral, Pretoria, showing Reredos.

The drawings are to be drawn to a scale of 4 feet to an inch, and executed in black ink only (no colour). The drawings to consist of Elevation, Plan and Section, with 1/4 full size sections of mouldings. Portures in sectional plan and elevation may be blacked in solid.

Competitors must hand in their drawings to the Registrar not later than February 25th, 1920, and these should be accompanied by a signed declaration that the drawings are the unaided work of the student.

Permission to measure the work should be obtained from the Vicar of S. Mary or the Dean of Pretoria respectively.

REVIEW OF ARCHITECTURAL JOURNALS.

In the United States a Post War Committee on Architectural Practice has been formed, its chief aim being co-operation and to work together on common ground for the common good. It is stated that architects consider their duties completed when the interests of their particular clients have been satisfactorily attended to, and the public therefore does not look to them for further assistance; while the legal profession is looked to and largely expected to write our laws, and the medical profession demands the preservation of health by the expenditure of public funds, the architectural profession has not made itself felt with equal weight. Is it true that the profession is too detached from the actualities of contemporaneous thought and life and the practical problems of the day? The points dealt with are too comprehensive to treat in this column, but the matters touched upon include the following and are well worthy of consideration, viz.: Responsibility of the architect and his position generally, remuneration percentage and otherwise, supervision, advertising, relationship with contractors and quantity surveyors, tradesmen, competitions, education, etc., etc., each and every side of an architect's professional practice is carefully scrutinised to ascertain if there exists any reason for the non-acceptance of the public of the architectural profession with the same confidence as other professions.

Skyscrapers for London is a question creating considerable interest at Home. Ancient Lights, Fire Brigade, and Public Health are the three propositions up against them; nevertheless they have their enthusiasts who contend that London could house four times the number of people in the central districts by adopting them, the means and methods of communication being such that a considerable amount of time would be saved, as one American said, the time it would take to pay a visit to a man in London living the other end of a neighbourhood equivalent to that housed in two skyscrapers would be 30 minutes on the top of a bus, whereas he could do it in America in as many seconds, express lifts taking him from the top of one skyscraper to the bottom, then walking across the road and up the skyscraper on the opposite side, passing through a population of perhaps 20,000 people.

The Contract question, particularly the prime cost plus the profit basis, is causing some uneasiness at Home an account of lending itself to abuse by the men, whom it is impossible to keep unaware of the situation and who are anxious to take advantage of an oppor-

tunity to do a poor day's work; as an incentive to obtain the full day's work it is suggested the Contract should be based on a bonus to the workmen, but this necessitates considerable complications in surveying and does not tend to economy from the Employers' point of view, and profit sharing or co-partnership system is regarded as the most favourable.

The hospital of the future is a subject being discussed by medical men and of much interest to architects. The fear of pure air, particularly "night air," which was considered deadly to consumptives, is considered to have passed, and the modern idea is that the central feature should not now be a ward, but a verandah or balcony with its annexes; several interesting comments were given on this extreme and drastic revolution in hospital construction, the dust problem being considered a very severe menace, while some doctors argued that a well ventilated ward was preferable to and more easily adaptable than an open air ward, some doctors argued against cold, others that it could not be too cold, some against prevailing winds, others that they acted as excellent soporifics, some that sunlight was more important than fresh air, other that sunlight was not necessary, and until doctors themselves became more united on this question it is unreasonable to expect architects to settle the question, which reminds one of the late controversy over baths which many medicos are beginning to discover are not only not as necessary as has been preached, but in many cases are undesirable.

Apropos of the question the discussion arose as to whether aviation would not revolutionise the location of hospitals, which should then be in the country, the patient being immediately taken by aeroplane to some country district more suitable for hospital purposes than in the town. This question does not affect hospitals only, and it is already suggested that large towns are doomed and that the new tendency will be toward the establishment of the one industry town, the annihilation of distance overcoming the difficulty of transport and necessity for overcrowding into one great city.

In a letter to "The Times," London, Mr. Herbert Baker sets out certain principles relating to War Memorials in which he says, "The memorials, if they are to be worthy to commemorate the greatest event in our history, should, as a rule, be distinct shrines, with a sense of detachment which would arrest and focus the attention on the vastness of the national sacrifices. They should not be dissipated, nor lost amongst the windows and tablets recording lesser events; and the already crowded monuments of our "overflowing dead." The endeavour should be to create an atmosphere which will appeal to the highest side of human nature. No such appeal will ever be made by utili-

tarian buildings alone, whatever their beauty, use or need, nor with monuments set in ugly or restless surroundings. Nor should it be necessary to sound a note or warning that war museums—which must, for the most part, preserve the relics of the horrors and of the material ingenuities of war—would never worthily perpetuate the noble memories or express the spiritual ideals which have justified the war and its sacrifices. The memorials must be perpetual witnesses to the vision without which the city, or the nation perisheth."

Building bye-laws are always of interest, and the following is taken from one of the Australian journals regarding ferro-concrete buildings. Referring to a particular building recently erected, it says: Under the old building bye-laws the walls would have had to be 27 inches thick, built of concrete steel under the new building bye-laws they are only 6 inches thick, representing a saving of no less than three feet six inches in frontage on each floor. It is not only the building bye-laws but public health bye-laws that need considerable amendments to bring them into line with modern developments in buildings of all descriptions, there is something radically wrong when people can return from their travels in America and Australia and wishing to erect modern buildings on the lines of those in the countries mentioned, find they are completely thwarted by antiquated building and health bye-laws, and it is to be hoped that if anything is done in amending the Building and Health Bye-laws of Johannesburg it will not be tinkered with, but drastic and advanced methods adopted to bring them into line with other modern countries.

Sir Oliver Lodge has been personally investigating the question of Protection from Lightning, and the following is of interest. The problem of complete protection is not an easy one, approximate or rough and ready protection which is good enough for an ordinary building is insufficient for dangerous material. One of the few facts established in electrical science is that a complete metallic enclosure protects everything in its interior as long as it is complete, for instance an ordinary parrot cage forms a practically perfect protector. Nevertheless in buildings an electric light wire or telephone wire enables outside disturbances to get to the interior.

The use of points which in buildings is of universal use is for promoting silent discharges and such points tend to reduce the dangerous tension in the air, but in so far as they tend to make an easier path for a lightning flash which otherwise might not occur, they have disadvantages in a place where sparks and fire are dreaded.

Notes on Recent Factory Legislation.

R. Beattie, A.M.I.S.E, A.R., San., Inst., Inspector of Factories, Transvaal & O.F.S. Provinces.

This subject is of interest to architects and builders because under Section 31 of the Factories Act all plans for alteration of existing factories or construction of new factories must be submitted to the Inspector of Factories by the Local Authority before being passed. The short notes below will serve as a guide to architects and occupiers of factories.

Application for registration should be made to the Inspector of Factories on special form (F.2). Each application is to be accompanied by a sketch plan of the premises, drawn to a scale of 1/8 in. to the foot.

The details to be shewn on such plan are:—

- (1) Number of square feet in each room.
- (2) Position of doors, windows, etc.
- (3) Position of sanitary arrangements, and in this respect the conveniences should be defined for males and females, also for native males and native females.
- (4) Washing arrangements (lavatory basins, etc.) should be marked.
- (5) If more than one floor, each floor should be shewn separately.

It is important to note that the minimum height allowed in a room used for factory premises is 10 feet, but where ventilation is specially good, and the cubic space sufficient, the Minister may grant permission on the recommendation of the Inspector for rooms to be used which are less than 10 feet high. With regard to sanitary conveniences, it may be pointed out that all such accommodations and the approaches thereto (where both sexes are employed) should be entirely separate for each sex, so as to ensure privacy.

Washing Accommodation is to be provided in all factories, and in this respect lavatory basins should be fitted as near as possible to the work. In the case of food factories, special washing accommodation is required, and this should be provided apart from the factory, and the accommodation may serve as a combined wash and cloak room.

Cross Ventilation is very necessary, and some form of constant ventilation, apart from opening windows, should be provided, such as air-bricks, tubes, louvres, etc. Where gases, fumes, dust and other impurities are produced it may be necessary to provide fans or other appliances to remove them. This is advisable in flock factories, chemical works, printing works (lino-type rooms), etc.

Overcrowding is dealt with by estimating the number of square feet in the room—25 square feet is the minimum allowed for each worker. Supposing a room measured 40 ft. by 20 ft., the number of square feet would be 800. This divided by 25 would give the maximum number of workers allowed in the room, viz., 32. But obviously, if such room contained obstruc-

tions on the floor space, such as machinery, etc., it would be necessary to deduct portion of the space occupied by these articles from the 800 square feet of the room.

The remaining portion divided by 25 would give the number of persons to be accommodated.

It is important to provide each individual worker with 25 square feet in order to prevent accidents, etc., where machinery is used, and also to minimize risk of contracting tubercular disease where workers are seated at benches, or desks.

The factory should be well lighted in all parts by natural light, and in this respect it is well to remember that where the light is chiefly from the north (and more especially from the roof) it may be necessary to provide facilities (blinds, screens) for protecting the workers from too direct a light.

The provision of a form of rest room while not specially demanded by the Act should be considered in cases where females are largely employed. The Act lays down that no female and no boy under the age of 16 years shall take a meal in a room whilst any handicraft or manufacturing process is being carried on therein. Further, no female nor any boy under 16 years of age shall do any work in a factory during a meal interval. Obviously it would be advisable, say in a printing works, dye works, chemical works, for the workers (and especially women and boys) to retire from the workrooms completely during lunch hours, etc. The air in the rooms could then be thoroughly changed in the interval, and it must be remembered that this is not always possible during the working hours, for inclement weather, draughts, etc., have to be considered. It is not always convenient for workers to leave the factory, and go home for meals, nor even to a restaurant.

Provision is made for a sufficient supply of pure drinking water being provided for the free use of employees, and generally the factory must be kept in a clean state and free from nuisance.

Fire Escape.—It is advisable that in factory premises where more than six persons are employed upon a floor situate above the ground floor, a means of escape in the event of fire must be provided, and all doors should open outwards, and all staircases and steps leading from one floor to another should be provided with substantial handrails.

All rooms in a factory have to be numbered, and the floor space painted on the outside of the doors (if no doors then on the walls) in letters 1 inch high, as follows:—

No.....
FLOOR SPACE
.....Sq. Feet.

Woodcuts.

By Gerard Moerdijk, A.R.I.B.A.



A real knowledge of woodcuts or otherwise wood-engraving can only be obtained by a careful study and comparison of the prints themselves, and writings on the subject are of little use except as a means of enlightening readers who are unaware of the existence of such prints, or else for explanation of technical processes.

The woodcut is so-called because it is carved on a block of wood. The lines or surfaces are engraved on the butt-end of some soft wood, usually pear, apple or lime-wood. The lines or areas which print black have been left in relief while the surfaces round them are cut away. The relief on the block is then blackened and the print made on damp paper. In modern wood-engraving the block is slightly whitened with Chinese white so as to produce a light tint on which the artist draws either with a pen or with a pencil and brush. If it is to be a line woodcut the cutter simply digs out the whites with a sharp burin or scalpel, and that is all he has to do, but if the drawing on the wood is shaded with a brush, the cutter has to work upon the tones in

such a manner that they will come relatively true in the printing. This is by no means an easy matter, and the result is often a disappointment; besides, the artist's drawing is destroyed in the process.

It has not hitherto been satisfactorily ascertained whether wood-cutting came to England from the East or was rediscovered by some European artificer. The precise date of the first European woodcut is also a matter of doubt, but we have certain data which at least set limits to the possibility of error. European wood-engraving dates from the beginning of the 15th century. There is a cut in the Museum at Brussels dated 1418, and this is supposed to be the earliest of all European woodcuts. The earliest wood-engravings consist of outlines with white spaces and smaller black spaces, but shading is rare or absent. Before the real shaded woodcut was produced a French engraver called Milmet used a method called "crible," a word for which there is no convenient translation; it means riddled with small holes. The effect of light and dark in this kind of engraving is produced by sinking a great number of small holes of different diameter into the



wood, which of course show white on the print. When wood-engraving became more advanced, "crible" no longer prevailed except occasionally in borders for pages. In the course of time when engravers became more expert and were not so careful to spare themselves trouble and pains, cross hatching was introduced, first more as a variety to relieve the eye than as a common method of shading.

In the 16th century the simple kind of wood-engraving reached such a state of perfection that the best work of that time has never been surpassed. Wood-engraving of the 16th century was conventional, much more so than subsequently, but this very conventionalism enabled it to express its purpose with greater power and decision. The wood engraver of those days did not care in the least about aerial perspective, and nobody expected him to care about it. Nor did he trouble his mind about local colour, and

generally omitted it except when it suited his fancy. He only shaded when he wanted to give relief, but never worked out anything like a studied effect of light and shade, nor did he feel any responsibility about the matter. What he really cared for and generally attained, was a firm, clear, simple kind of drawing, conventional in its indifference to the mystery of nature and to the poetic sentiment which comes to us from that mystery, but by no means indifferent to facts of a decided tangible kind. The wood-engraving of the 16th century was a singularly positive art, as positive as carving; indeed, most of the woodcuts of that time can be translated into carved panels without much loss of character. The most famous woodcuts of this period are those by Holbein and Albrecht Durer, notably the former's *Dance of Death*.

In the 17th and 18th centuries the art became

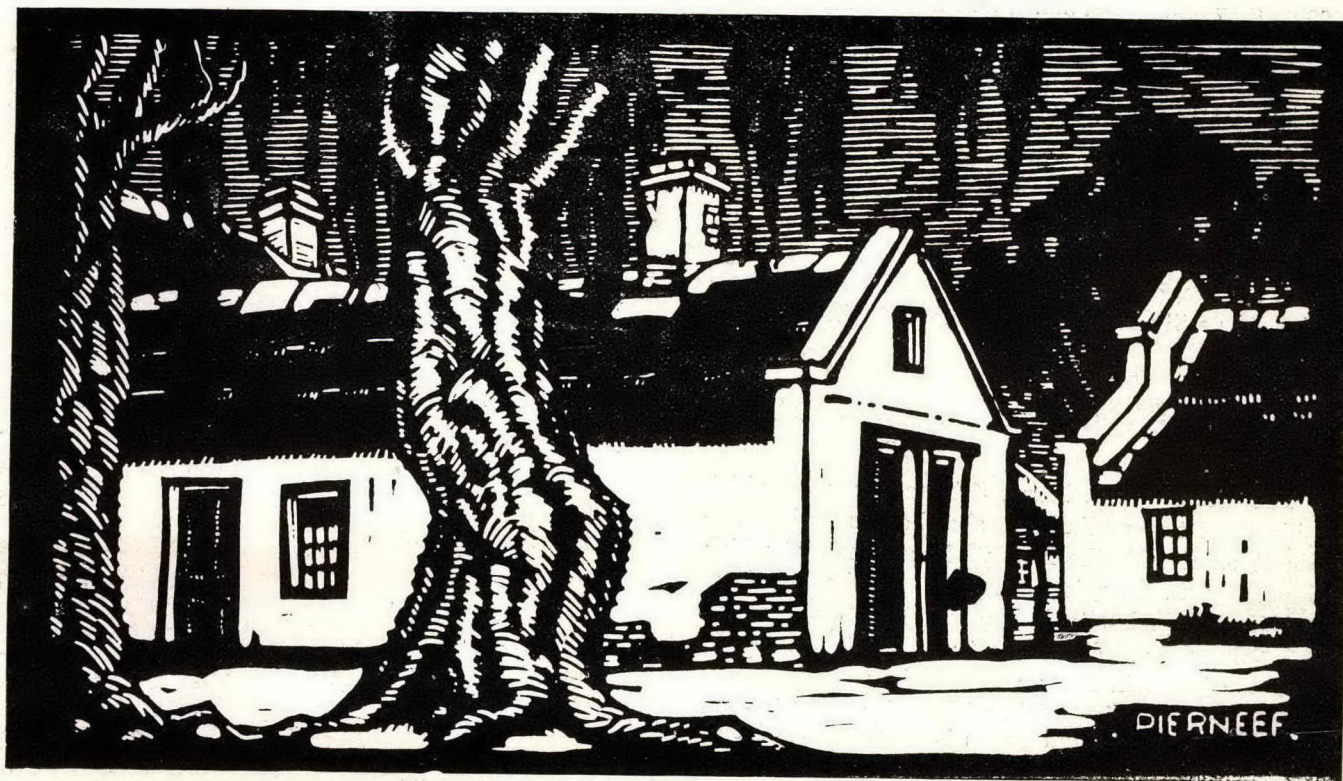


extremely productive and was the general means of illustrating. The greatest wood-engraver of this period was an Englishman called Thomas Bewick, who lived and worked about the end of the 18th century. A great number of books were illustrated by him. Another great illustrator was Dore, who drew and engraved the woodcuts illustrating Dante's *Inferno* and *Don Quixote*.

Up to the middle of the 19th century the woodcut was the chief means of book and newspaper illustration, but since then it has been driven out of the field by process work of various kinds. It is still occasionally used by a sympathetic publisher here and there, who deplures and would arrest its decay. But the photograph and its facsimile reproduction has captivated the public who want illustration and who do not want art. Thus the woodcut succumbed as a result of the law of supply and demand. The apparent superiority of truthfulness claimed by the photograph over the artist's drawing is a factor in case, the public forgetting that a photographic print shows us what a scene or

thing looks like to the lens, rather than what it looks like to the eyes of the spectator. The factor of economy also told heavily against the woodcut, the cost

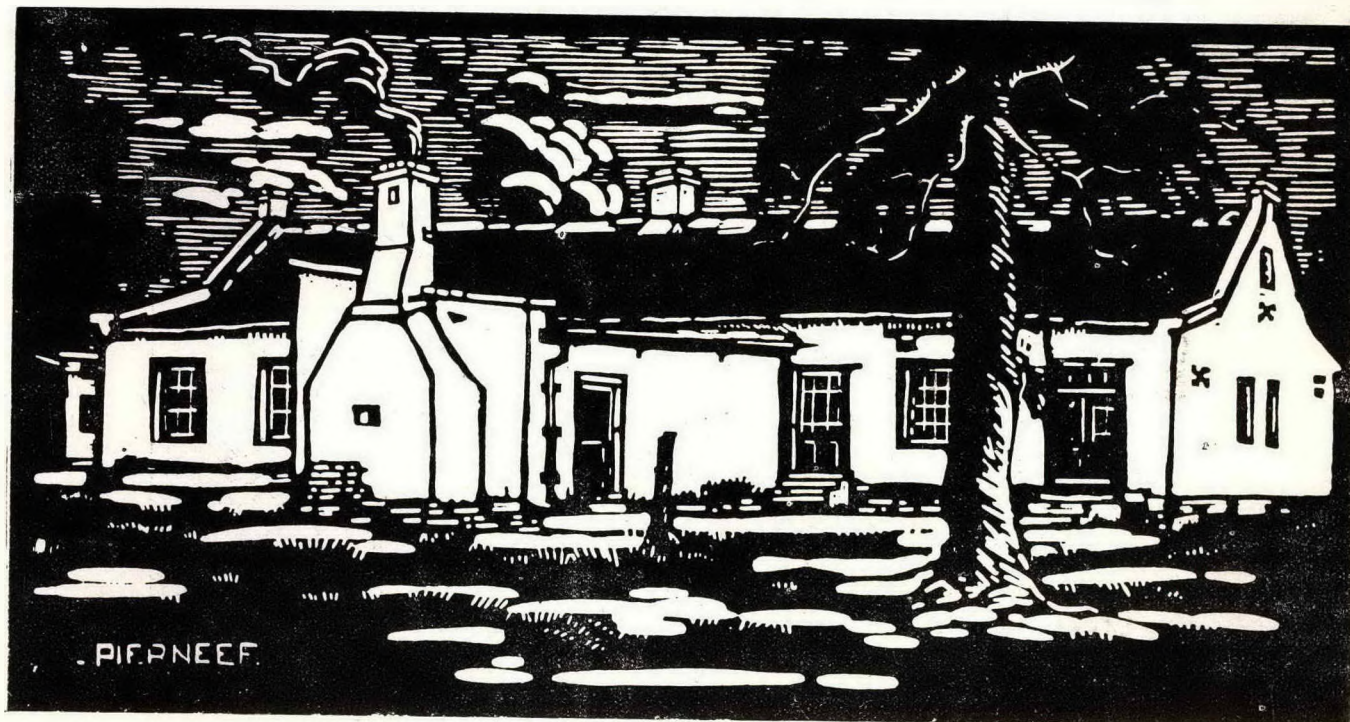
books were circulated all over the world. The extraordinary technical perfection to which the art had been brought robbed it of its artistic interest. The more



of a photograph being only a fraction of that of the woodcut.

Wood-engraving at one time was all the rage in America. These cuts published in magazines and

an artist refines and elaborates his technique and the more he develops extreme minuteness and excessive dexterity, the nearer he comes to the photograph and the more he succeeds in killing his own individuality.



And, after all, it is the individuality of an artist that counts most in any work of art. Although these American woodcuts were so amazingly complete, they became grey and monotonous, and were really not very different to the photograph except that the latter was still more grey and more monotonous. Thus extreme elaboration defeated its own end.

There are still many wood-engravers, but the woodcut is an object of interest rather than of use. If ever it is used again as a general method of illustrating it will result from a revolt against the greyness and dull uniformity of the process block.

In France, where the art reached its highest perfection it is still used to a certain extent. It flourishes

on the true artistic instinct and intelligent appreciation of the public. The French as a people have excellent taste. But even in France it was considered necessary to found a society of wood-engravers with its own magazine receiving official recognition and encouragement to counteract the process block.

The woodcuts in this issue have been kindly lent by Mr. J. H. Pierneef, the Pretoria artist, and are selections from a portfolio of woodcuts made and printed by himself. The series illustrates old houses of Pretoria. The houses are of historical rather than of artistic interest, but the woodcuts certainly show the ability of the artist to transform into things of beauty that which in reality is but commonplace.

Our Illustrations.

Frontispiece.

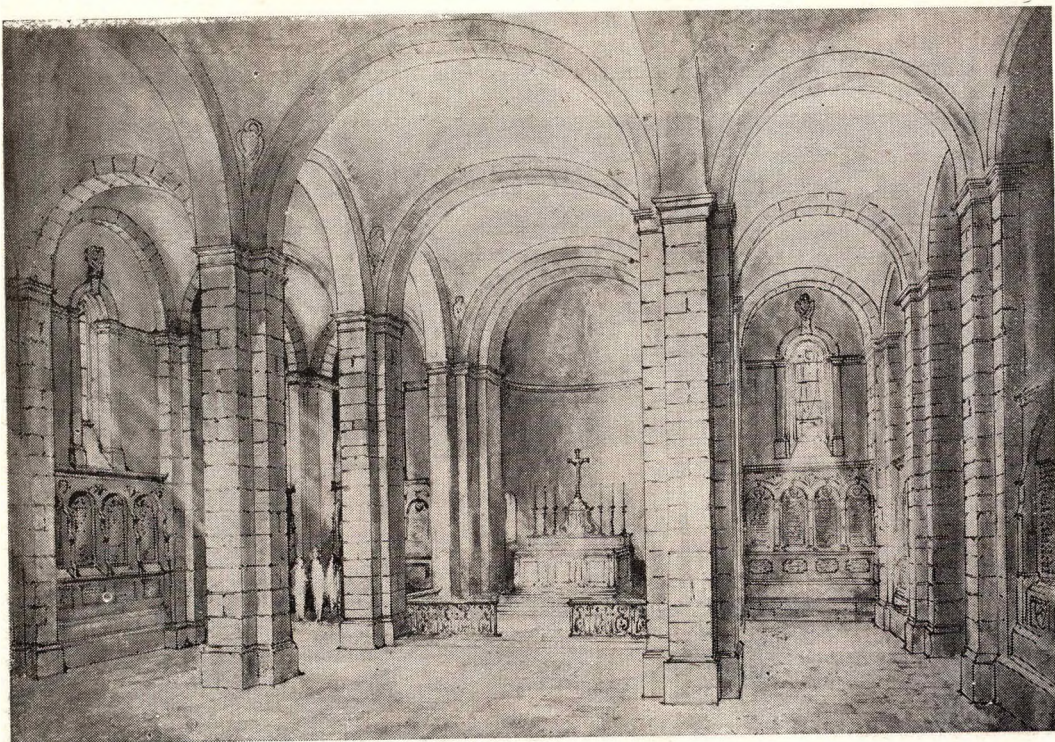
The Church of S. Mary, Johannesburg, of which we illustrate two preliminary sketches, is designed to be built on the Northern side of the block of which the present S. Mary's Hall occupies the Southern side. The Church site is the full 200 Cape feet in length, along De Villiers Street.

The scheme includes vaulted Nave of six Bays, 36 feet wide by 60 feet high, with Aisles and Cloisters on either side, North and South Transepts, and Channel of three Bays and Apse. In the North-East corner is placed a War Memorial Chapel of three Bays,

Aisles and Apse. This Chapel is seen in the interior sketch and in the foreground of the exterior. This will be among the most important features of the whole scheme.

New Medical School and University Hostels, Johannesburg.

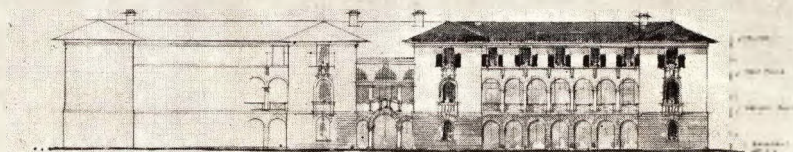
In this issue we publish the premiated design in these competitions which created keen competitive interest in the architectural profession throughout the Union. The assessors' reports on these competitions are also published in this issue.



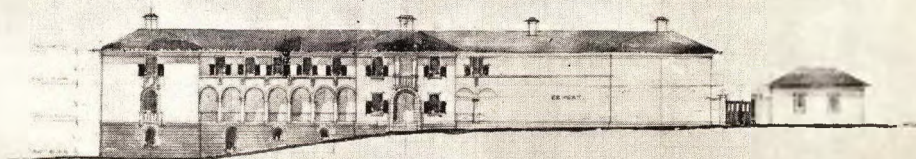
Memorial Chapel, Interior, S. Mary's, Johannesburg.

• PROPOSED RESIDENTIAL BUILDINGS •
• UNIVERSITY SITE • JOHANNESBURG •

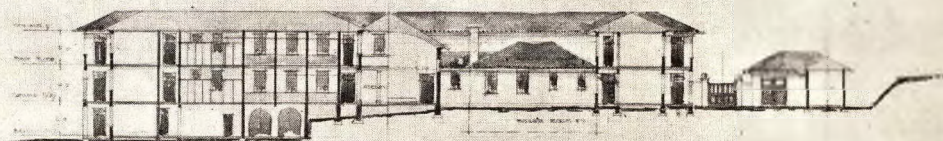
Scale of Feet



• FRONT FACING PLAYING FIELDS •



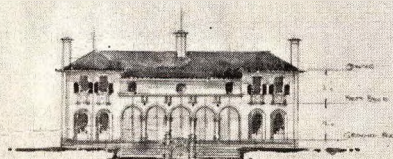
• FRONT FACING ROAD •



• SECTION A.B. •

• PRINCIPAL'S RESIDENCE •

Scale of Feet



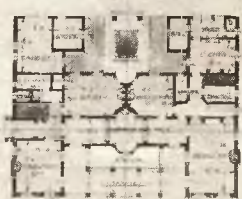
• FRONT TO PLAYING FIELDS •



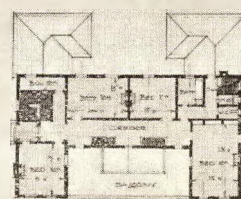
• FRONT TO ROAD •



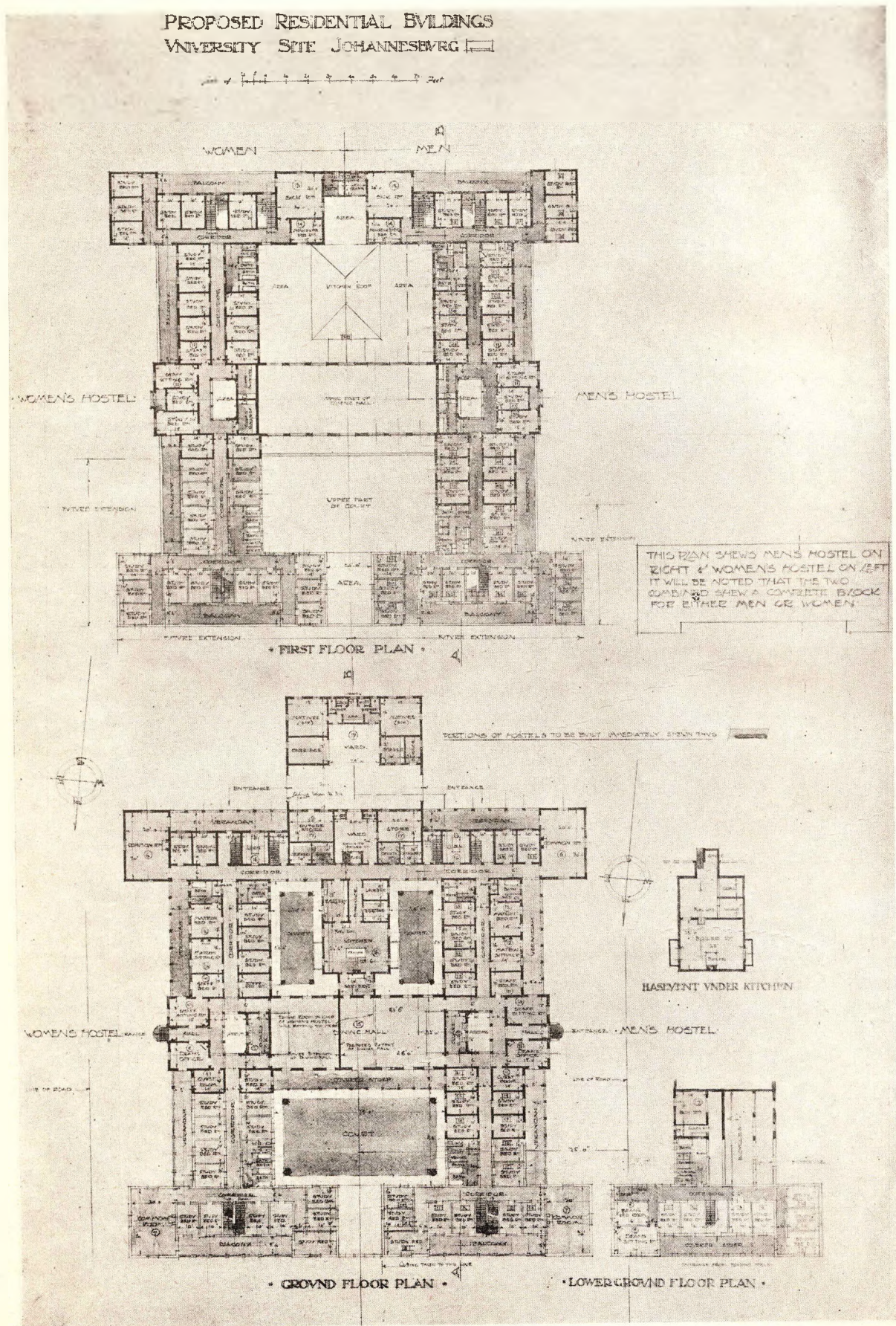
• SECTION A.B. •

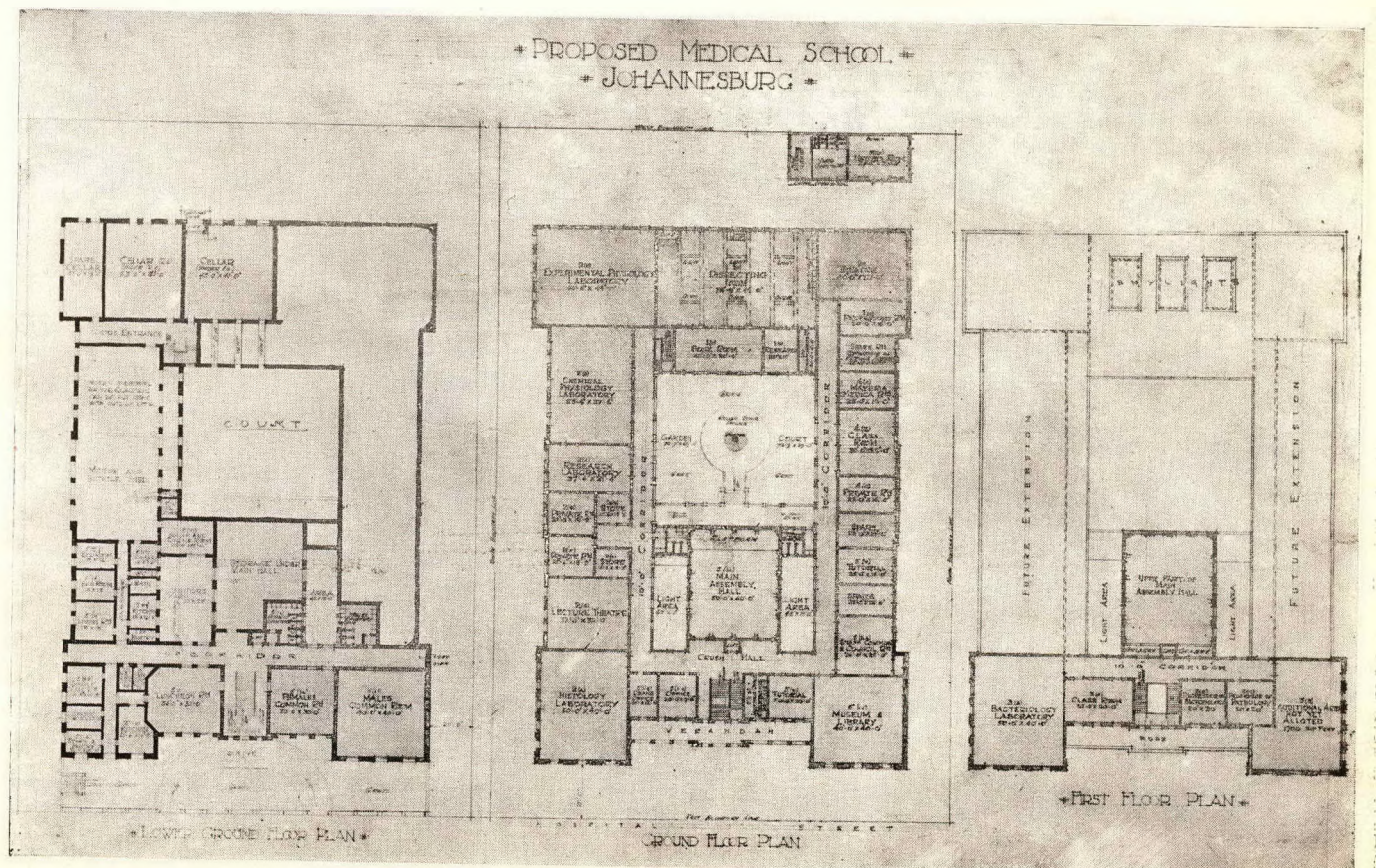
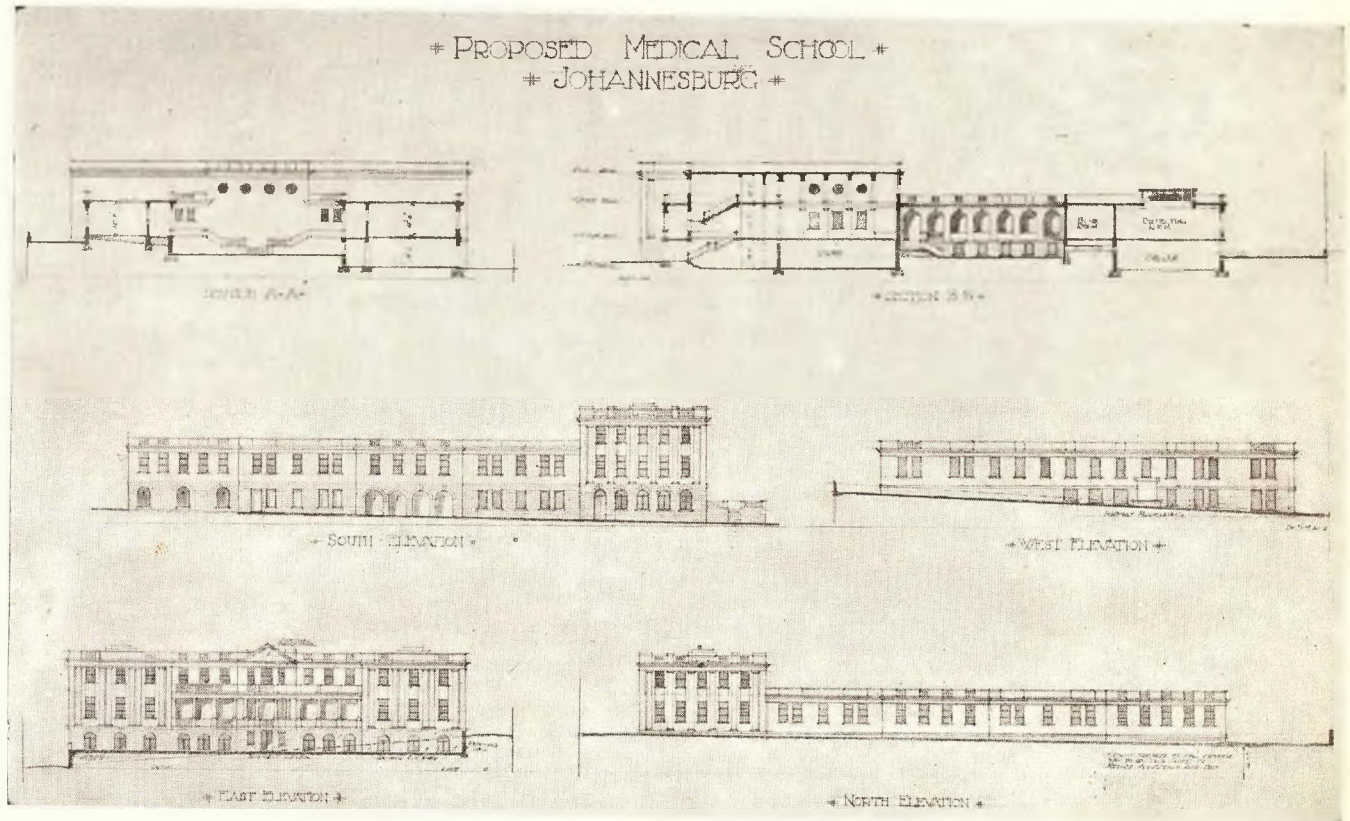


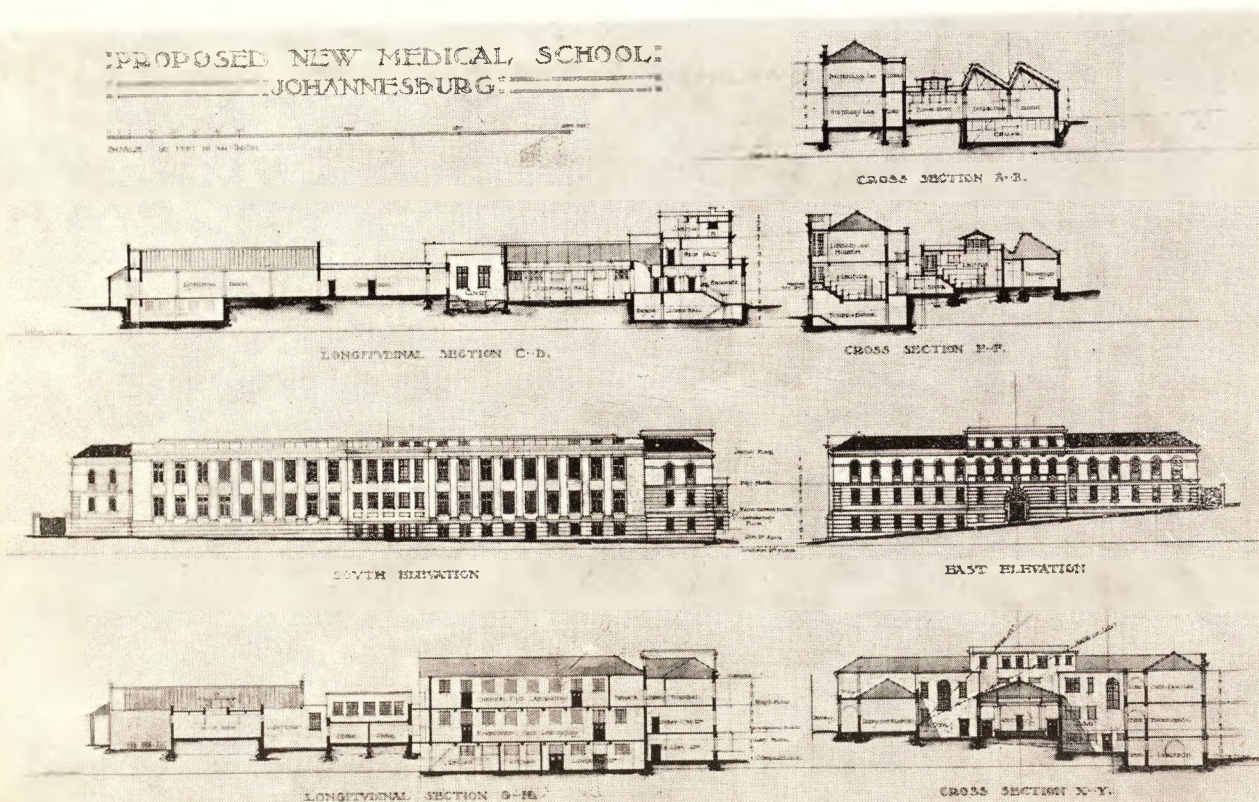
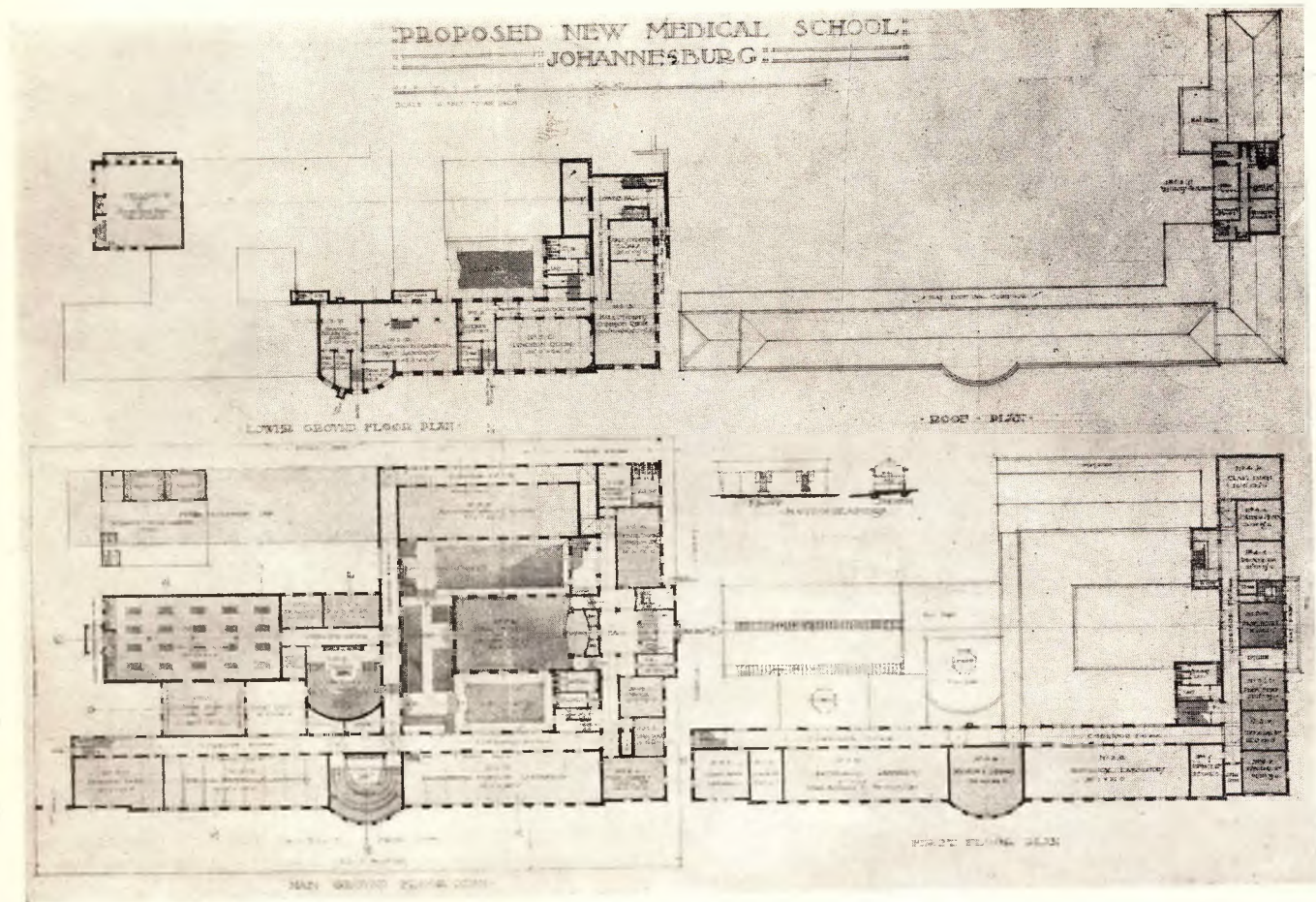
GROUND FLOOR PLAN



FIRST FLOOR PLAN







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