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The Editor will at all times be glad to receive Illustrated Articles on subjects of interest for consideration, provided the articles are short and to the point, and the facts authentic.

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Publisher's Announcements.

Our 59th Competition

We offer a prize of £1 1s. 0d. for the design adjudged to be the best for a

Main Entrance to an Art Gallery

The Art Gallery is proposed to be erected in one of the leading towns of New Zealand which has a population of about 12,000 people, and the whole building is estimated to cost about £12,000. It is to be a single storey building faced with white stone or white marble. The entrance is to be in the centre of a central projecting portion, and is to be reached by a short flight of steps—the floor of the building being about 3 ft. above ground level. The doorway or doorways are to be recessed a few feet, so as to form an open portico. As this is the chief feature in a building devoted to the fine arts, naturally there will be a certain amount of statuary, sculpture, etc., while the architectural treatment will be rich though restrained and refined. The style employed is to be Classic Renaissance, and the correct proportions of the Orders used with their various mouldings, etc., according to Vignola, must be carried out. The object is to enable the student to apply the knowledge he has acquired of the Classic Orders, in a practical manner.

DRAWINGS REQUIRED: Ground plan; front elevation; separate elevation of recessed doorways, side elevation, and section. Drawings to be inked in, and correctly rendered with sepia, the sectional portions filled in with Indian ink. Scale: ¼ in. to the foot.

Mr. Basil Hooper, A.R.I.B.A., of Dunedin has kindly set this subject.

Designs must be sent in finished as above, under a nom-de-plume addressed to "**Progress,**" 8 Farish Street, Wellington, and marked clearly "Fifty-ninth Competition" on outside with a covering letter giving competitor's name, and address of employer. Designs to be sent in by December 21st.

Our 60th Competition

We offer a prize of £1 1s. 0d. for the design adjudged to be the best for a

Post and Telegraph Office

for a small country town. To be erected in brick on a level section having a frontage of 40 feet to main street and 100 feet to a side street on the right. The accommodation to consist of (1st) A public office with a counter 12 feet long, with six desks for the public use, a telephone sound proof box having access from the public office, (2nd) A well lighted mail room of about 400 square feet in area; (3rd) A private letter box lobby in contact with mail room for attending to boxes and with public access from outside the building by door in front or side wall (the nest of boxes is about 6 feet square); (4th) A telephone room, with access from mail room, about 8 feet by 5 feet. Provisions to be made for posting boxes in contact with mail room and with posting slots on outside of the building in a conspicuous position. There shall be on an upper floor or on the same floor if preferred the following living accommodation for a postmaster or postmistress:—(1st) A sitting room; (2nd) two bedrooms; (3rd) kitchen; (4th) small scullery; (5th) bath room—also the usual pantry or cupboards.

Outbuilding shall comprise a wash house, coals, and w.c. Drainage for bath and storm water to a sewer in front street. Drawings of two elevations, floor plans, and one section to be to a scale of 8 feet to the inch finished in ink—for reproduction.

Mr. Jno. Campbell, Government architect has kindly set this subject.

Designs must be sent in finished as above, under a nom-de-plume addressed to "**Progress,**" 8 Farish Street, Wellington, and marked clearly "Sixtieth Competition" on outside with a covering letter giving competitor's name, and address of employer. Designs to be sent in by February 21st.

Our 61st Competition.

We offer a prize of £1 1s. 0d. for the design adjudged to be the best for a

Residence.

The client in this case comes to the architect with the following information for a new house:—The section is 27 ft. by 160 ft. and faces east, being one of a row of similar sites and is in the residential portion of the town, therefore being subject to a certain amount of smoke and dust. The site slopes to the back at a fall of 1 in 25.

The house is to be built in brick with a stone slate roof. There are to be hall; living room 18 ft. x 14 ft.; dining room 14 ft. x 14 ft.; kitchen and the usual offices. On the first floor there are to be three bedrooms, dressing room, bathroom, w.c., etc., and in the roof provision must be made for a play room. The cost of the house and laying out the grounds is not to exceed £2,000.

Mr. W. Gray Young of Wellington has kindly set this subject.

Designs must be sent in finished as above, under a nom-de-plume addressed to "**Progress,**" 8 Farish Street, Wellington and marked clearly "Sixty-first Competition" on outside with a covering letter giving competitor's name, and address of employer. Designs to be sent in by March 21st.

Conditions of "Progress" Competitions

The Editor reserves the right of publishing any or all the designs submitted, and while every care will be taken of drawings, no responsibility is accepted should any loss or damage be sustained. Those desiring their designs returned must send postage to cover cost of same. No award will be made unless at least three designs are sent in for any one competition. Unless otherwise stated drawings are to be in black and white only.

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WELLINGTON, AUCKLAND, CHRISTCHURCH, AND DUNEDIN, NEW ZEALAND, DECEMBER, 1917.

Contents for December

Editorial Comment

Capital and Labour.

The ever-present trouble to adjust differences between the worker and the employer under our capitalistic system has prompted two important organisations recently to take steps towards promoting more sympathetic relations between the opposing forces. At the annual meeting of the Associated Chambers of Commerce in Wellington, it was unanimously resolved to request all affiliated bodies to encourage the Workers' Educational Association, which is doing valuable service to the wage-earners by bringing within their reach sound education on political and economic subjects. Another instance of the employers' desire to come into more sympathetic touch with the wage-earner was shown in a discussion by the Wellington Provincial Industrial Association upon "Some Aspects of Citizenship in Relation to Industry and Education." The principal speaker, Mr. L. T. Watkins, favoured the establishment of an Arts and Crafts Guild, and suggested that if boys were apprenticed by document (as is usual), but presented through the Guild in meeting, with the Mayor in the chair, and representatives of the City Council present, as is done by the Lord Mayor and alderman of London in certain guilds, the boys might enter upon their apprenticeship somewhat impressed, and in quite a different frame of mind to the lads in present-day instances. The employer or the apprentice could appeal later to the guild if dissatisfaction existed. At the termination of the apprenticeships the completed indentures could be presented by the Mayor at periodic meetings—possibly even this little publicity would be an incentive for the boy to improve himself, so that a word of praise might be said for the way in which he had come through his trade schooling. The Association decided to invite views from the Trades and Labour Council, and we imagine that the Labour delegates, trained in the hard school of bargaining with employers, will get down to bedrock with a demand that the Guild should provide something more for the apprentice than an encouraging public ceremonial. The Arbitration

Court has in several awards empowered apprentices to obtain technical school training during working hours, and thus placed apprenticeship upon more useful lines than hitherto. As the outcome of the Guild suggestion we would like to see set up a joint body of employers and employed for the purpose of keeping in touch with all apprentices, renewing their position at intervals so as to guarantee that the training given is adequate, and that the apprentice is doing his share by maintaining his studies and diligence at work. Under such a system of close supervision, the apprenticeship period could be appreciably reduced in the case of capable youths, and the "living wage" point reached so soon that the obligation of poor parents to the apprenticeship system would be overcome, and fewer boys turned into the avenue of unskilled employment where wages are comparatively high at first, but never appreciably advance.

Unfair Competition.

The Institute of Architects ought to firmly handle the question of unfair competition from salaried men in the Government service, and other people in private employ who provide at a cheap rate plans unsigned, for "cheap" builders. It was reported at the annual meeting of the Institute of Architects that it is the practice of some architects of drawing plans for builders instead of for employers, for whom buildings are to be erected, at a rate of 2½ per cent. There was grave doubt as to whether even 2½ was paid in many cases. It was decided to point out to members that the practice was not approved by the Institute, and that members should never issue plans without their signatures appended. It was decided also, to advise the Builders and Contractors' Association that the Institute disapproved of this class of business, and asked the assistance of the association in putting a stop to it. It was pointed out, however, that some of the work was done by draughtsmen in architects' offices, and that much more of it was done by employees of the Public Works Department and of local bodies. It was decided that a letter be sent to the Minister of Public Works, the Public Service Commissioners, and the larger local bodies, informing them that these employees were competing unfairly with architects who had to man offices and meet other expenses.

Fancy Holidays in War-time.

Friday, November 1st, was St. Andrew's Day, though most busy people probably failed to notice it. They went about their work as usual, for holidays in honour of patron saints are strangely out of place when the whole country is striving hard to keep pace with the demand of the times for the most strenuous activity among those who are left at home to work. But the Government offices, banks, and insurance offices closed their doors. The fact that they are short-staffed apparently was not allowed to interfere with the privilege of a spell on a saint's day, so business people who pay wages on Fridays, even though saints' days come on the same date, were obliged to carry large sums over from Thursday, because the banks made holiday on the busiest day of the last week in November. Military Service Boards have been granting exemptions to the employees of hard pressed Government Departments, but what will they say to this stupid system of keeping up the fancy holidays of peace time after more than three years of war? Of all people, the Government should set an example to the community in taking seriously the responsibilities of those who remain at home to work. These fancy holidays, which upset the rest of the steady-plodding business community, are absolutely out of place at such a time as this. The Government has not even the excuse of saying it has not had attention called to the matter, for the National Efficiency Board, many months ago, reported to Parliament on Government holidays as follows: "The Board protested against the large number of holidays observed in Government offices, and submitted that the State should set an example in efficiency to the Dominion by reducing the number of holidays which are observed in the State Departments, and which, in the opinion of the Board, constitute a grave abuse."

"Touting" and Enterprise.

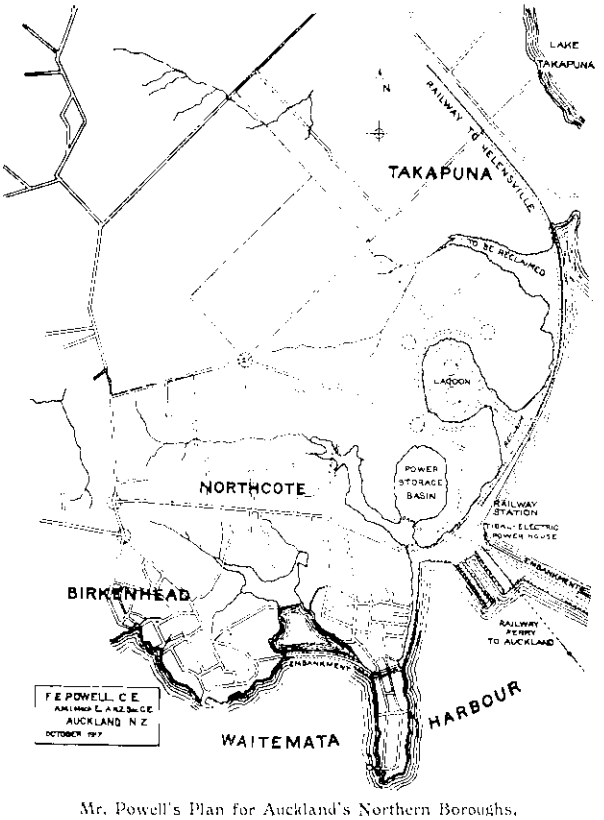
The building trade is in such a condition of restriction that it is not surprising to find keen competition among architects for the small amount of work obtainable. This has gone over the bounds of prudence and good taste in some instances, and at the annual meeting of the New Zealand Institute of Architects, a brisk discussion took place on the practice of "touting" for commissions. It ended in the passing of a resolution requesting every branch to form a Vigilance committee to confer with and report to the Discipline and Practice committee of the Council as to the best method of preventing unprofessional touting for business to the detriment of other architects. An instance was given of an architect in Wellington who had lost work from a client served for thirty years, through unsolicited sketches from another architect being accepted. In limiting the enterprise of architects the Institute is on delicate ground. Every decent professional man will deprecate "touting" to rob another architect of a commission, but there are many instances in which the architect gets a good idea for the utilisation of a piece of land, and submits suggestions to the owner, who may not have the knowledge or experience to decide for himself the best purpose to which to devote the site. Architects keep themselves conversant with the nature of the demand for buildings, and it can scarcely be regarded as unprofessional if business is induced as a result of a good suggestion, though this might prejudice the architect who does not get in first. Any idea that an architect is simply going to flourish because he has been in the profession a long time is likely to sap the best influences making for progress. The border line between legitimate enterprise and absolute poaching is not easy to define in general terms, and it will therefore be necessary, if the Institute is going to take effective and discreet action, to investigate specific complaints, and not try to evolve cast-iron regulations which will only serve as a protection to the more indifferent and unenterprising men in the profession.

Town Planning in Auckland

A Scheme for the Northern Boroughs

By F. E. POWELL, C.E., A.M.I.M.E.

The conditions in respect of the boroughs and part of Waitemata County on the north side of Auckland harbour offer one of the most favourable fields for the work of the Town Planner. Here at present are four boroughs, Devonport, Takapuna, Northcote and Birkenhead, separated naturally by the configuration of the country and all entirely residential in character. The district is remarkable for diversity of landscape,



Mr. Powell's Plan for Auckland's Northern Boroughs.

sea and harbour views, including delightful outlooks upon the Hauraki Gulf with its many picturesque islands, and in the other direction there are lake and harbour scenery, native bush and bold headlands. The land is of the usual undulating kind and offers many vantage points whence the observer may enjoy vistas of green stretches agreeably broken by groves and plantations of trees. Taken altogether as residential areas the country leaves little to be desired.

In spite of these natural advantages, many of those who appreciate their value to the full, are aware that something is lacking. The fact that the residents are cut off from the city of Auckland by the barrier of the harbour renders the district less desirable in the eyes of many, whilst the difficulty of communication between borough and borough tends to a lack of homogeniety, if not to positive insularity. Were it possible to travel quickly and cheaply between the four centres this alone would tend to fusion and a combination of interests, although it would still leave the inhabitants isolated from their work for the most part, and subordinate to city conditions.

Evidently then, if this north side is to develop a healthy autonomy, something is required that will not only bring the scattered units of the population into easy communication with one another, but that will bind them with a common object, more or less independent of the city of Auckland, as far as ordinary pursuits are concerned. The one thing that can produce this result is the establishment of business, commercial and industrial interests—in other words, a town or city—in the midst of the people concerned, and it is the discussion of this possibility and the conditions that would arise, that forms the subject of these notes.

Now a city is not planned merely to provide a community of interests, or if so planned could not be expected to have a healthy progressive existence, unless it provides the conveniences of trade and exchange, for which purpose it must be fed by produce of the surrounding country, while on the other hand it receives for distribution the imports required by the inhabitants. Obviously then, the site must be such as to suit wharves and other facilities for receipt of goods and must be convenient for railway and other means of transport on the landward side. It should be central, and a large part of its area should be reasonably level, not too elevated above sea level, and with a sufficiently large back country to admit of extension. Every one of these conditions is complied with at the site I propose near the head of Shoal bay. Further, the land is sparsely occupied, and none of the more thickly populated areas in the vicinity would be detrimentally affected. It is adjacent to a suitable position for wharves which would be well sheltered. It has physical features that could be turned to account from the aesthetic point of view, and has other advantages which many a great city might envy. It happens that a railway has already been planned by the Government to run from the north side to Helensville, and there seems every natural reason for this to start about the position shown on my plan.

However, the first item for consideration is the means by which the four boroughs can be brought into touch with one another. This could be done to some extent by the provision of an interborough tram system over existing roads, and obviously this is in any case desirable. But I propose to link up the areas in a more direct manner by constructing embankment roads from Devenport to Bayswater, from

Bayswater to Northcote, and again across Little Shoal Bay to Birkenhead. These embankments would also carry tram systems, so that from the extremes of Cheltenham beach and Birkdale it should be possible to reach the town centre in about 15 or 20 minutes. Reference to the plans will show the location of these embankments. Behind the embankments the sea water would be held up to high water level, providing large salt water lakes of good depth, where at present great muddy areas exist at low tide. By providing locks in the embankments these lakes will be made available for vessels suited to the draught of water inside, but the main shipping wharves would be in the open harbour outside, preferably in the position indicated on plan.

We now come to another proposition, made possible by the construction of the embankments. Assuming it will be unnecessary to keep full tide level inside them, and allowing say two feet of water to be drawn off each tide, it is possible to obtain by means of turbines a very considerable amount of power, which can be readily converted to electricity. The calculations show that something like 18,000 h.p. hours per day can be thus obtained at neap tides, and of course much more at spring tides, and the cost of such power would be reasonably low. Unfortunately the tidal variations in point of time would not allow of direct use of the power, but herein lies one of the peculiar features of the position in that a convenient storage basin can be made, whereby the power can be adapted to the actual needs. So suitable are the conditions that the amount of power would probably serve a town almost the present size of Auckland and this is looking far enough ahead to justify the scheme. The method of operation would be as follows. During ebb tide the large turbines would be operating from the difference of level of water inside and outside the embankments, the turbines being coupled to pumps which drive a portion of the water into the storage basin. Other turbines coupled to electric generators would draw their water supply from the basin at such times as would suit the demand. As is well known, the efficiency of this type of plant is high, the upkeep low, and there are no fuel expenses to meet.

Now as to the railway. This is suggested on the plan and it will be seen that it starts at the wharves, skirts the seaward side of the town site, rising gradually into the low land at the head of Shoal bay and thence by gently rising ground through the Wairau area at the back of Takapuna. The distance to Helensville and the north by this railway is some 10 miles less than the existing route but unless convenient means of transport across the harbour are provided this would probably not attract many passengers from the Auckland side. I do not propose a bridge, but there is an excellent alternative in a system of train ferries such as exist in many parts of the world, so that passengers would be able to board the train in Auckland and thus be carried over the harbour where the train would disembark for the north. It need hardly be pointed out that the provision of a railway in itself would tend to the establishment of a town at its point of departure, and further, by tapping country at present badly served in this respect would bring produce also to the same point.

So much for the means of communication: let us now consider the results. Looking at the plan it will be seen that of the two curious lagoons in the Northcote district, one has already been noted as a storage basin site. The other is admirably adapted to be formed into the central business portion of the projected town. The concentration of railway, tramways, wharves, power site, and so on involves a working population thereabouts, and the establishment of stores, warehouses, commercial houses and the like. Some land would be reclaimed behind the road and railway embankment—perhaps 100 acres—excellently suited to these purposes. The banks, shops, offices, etc., would congregate in the lagoon area, and beyond this, on slightly rising ground would be established subsidiary shopping and warehouse places. Further back still, in the large area of nearly level land skirting the railway up into the Wairau would arise factories, and industries of various sorts would be carried on by the aid of cheap electric power. Breaking into this area and diversifying it are more elevated ridges, where one might expect closely settled residential districts, with such buildings as libraries, churches and other public buildings to be erected in commanding sites. Gradually, the concentration of effort, and the amount of business to be transacted would cause the larger part of the population in the four boroughs to find their employment in the new city. Traffic with Auckland would not be less, but greater, but its character might be altered.

The main outlines have now been stated and the next stage is properly the work of the town planner. I propose only to refer to some of the broader features under this head, and especially to the layout of the central business site in the second lagoon. I suggest that this would be surrounded by a stone or concrete breast wall, oval in plan, filled in on the landward side and a broad causeway constructed not less than two chains wide, and nearly a mile in circumference. The lagoon would be filled with water forming a shallow lake. On the land side would be the shops, offices, banks, insurance buildings, places of amusement and the like. Parallel with the oval causeway would run a minor street, whence supplies and deliveries to and from the shops, etc., would be made by back entrances. Several radial roads would join these main roads continued in some cases out to other interconnecting roads. Four of these radial roads would be spacious avenues, leading up to open places which would be dealt with as in many of the great continental towns. In the lagoon a couple of small islands might be formed, beautified by trees and reached by narrow bridges. The tram system would complete the circuit of the great road, and by proper planning it would be seen how centralized and convenient shopping and business conditions can be made, as well as providing comfort and recreation possibilities.

Coming from Devonport there would be no need to cross the busy railway system about the wharves on the low level. The road would start to rise about opposite the ferry berths and would be carried on a viaduct to the higher ground where it would bifurcate to the business centre on the one hand, and towards Birkenhead and Northcote on the other. No doubt about this spot a transfer station would be established

enabling a passenger from any of the suburbs to change easily to a tramcar for any other point.

The low level road from the embankment would be carried along the eastern foreshore of Northcote point to a suitable position, whence a tunnel, (which seems the simplest proposition), would carry communication through to the suggested embankment across Little Shoal bay, thus serving the residents of Northcote Point and the lower end of Birkenhead. The back communication from Northcote to Takapuna (at present the main thoroughfare) as it exists is a steep winding road, with great scenic advantages, but without spoiling the latter an improvement would be made by the construction of a viaduct across the inlet, which incidentally would always look its best by the retention of the sea water behind the embankment.

In a scheme of these proportions only a general survey can be attempted at this stage, but I hope the above indicates not only the desirability—nay the necessity—of considering the matter in a practical aspect. I hope it will now be evident that a development of the kind is inevitable, and if that is so the importance of preparing for its advent should be obvious. Probably no better oppotunity ever occurred to make such preparations, nor could the Town Planner expect more congenial conditions for his work.

One can hardly avoid some argument in anticipation of those who—however well disposed towards the scheme—may regard it as too remote to deserve close consideration. This is the difficulty that all town planners must meet, and it is not enough to point out that our duty towards posterity demands a reasonable part of our time in such proposals as these. Of course there is the sound argument that land, etc., can be acquired now at prices that would make the way easy for our successors, and further it is possible to let them pay in due course, which they would no doubt gladly do. But some more immediate prospect is required to interest the average citizen deeply, and this is provided in the scheme. The railway may be regarded as a certainty within measureable time, and some part of the centralization is a necessary corollary. Given a railway, communication must be made with all districts, hence the embankments and other roading facilities. The power scheme follows from this, and brings electric traction in its wake. All these conditions are likely to occur within a very few years—obviously then, before any of them become crystallized facts the general scheme should be agreed upon so that energy is not wasted in future alterations. Ample public discussion of the subject is the first requirement, so that it might be thrashed into shape, after which any part of the scheme may be undertaken with the certainty that it will eventually settle into place with the rest.

Willoughby, in his "Hygiene," states:—"The air of a room should be completely changed three or four times per hour—i.e., every twenty or fifteen minutes. A greater rate of movement cannot be borne if the air be cold, but may be scarcely perceived if it be warmed before admission. With a change every fifteen minutes, two persons would require for comfort, a room, say, 10 by 15 feet and 10 feet high."

Military Honours for Architects.

The following members of the architectural profession in New Zealand have gained Military Honours:—

Captain F. E. Greenish, M.C.

Captain Greenish commenced the study of his profession in Sydney and came over to New Zealand in 1908 when he was employed for some time as draughtsman in the offices of Mr. J. M. Dawson, F.N.Z.I.A. and Mr. C. F. B. Livesay. He was afterwards in partnership with Mr. O. Beere and subsequently practised on his own account in Hawera. He left for the front with the 9th Reinforcement and was awarded the Military Cross in June last for the general excellence of his work in the field notably at the Messines battle.

Lieutenant Stanley Natusch, M.C.

Lieutenant Natusch was born in Wellington in 1889 and was educated at Napier High School. He entered the office of his father Mr. C. Tilleard Natusch and remained until the outbreak of war when he joined the Canterbury Infantry as a private on 14th August, 1914. He served with the Main Body in Egypt and Gallipoli and was mentioned in despatches. He was commissioned 2nd Lieutenant on his return to Egypt. He gained his second star in March 1917 while serving in France and was awarded the Military Cross for his conduct at the battle of Messines. He is, at the time of writing, in England where he is recovering from wounds received in action.

Lance-Corporal J. H. Edgecumbe, M.M.

Lance-Corporal Edgecumbe was born at Frankton in the Waikato, and after leaving school he was articled for three years to Mr. W. A. Holman, F.N.Z.I.A. of Auckland. In March, 1913, he went to England to study for the R.I.B.A. examination and on the declaration of war joined the Royal Engineers. He was awarded the Military Medal in September, 1916, for conspicuous bravery in maintaining communications (with five others) under heavy shell fire.

Lieutenant Edwin Royden Wells, M.C.

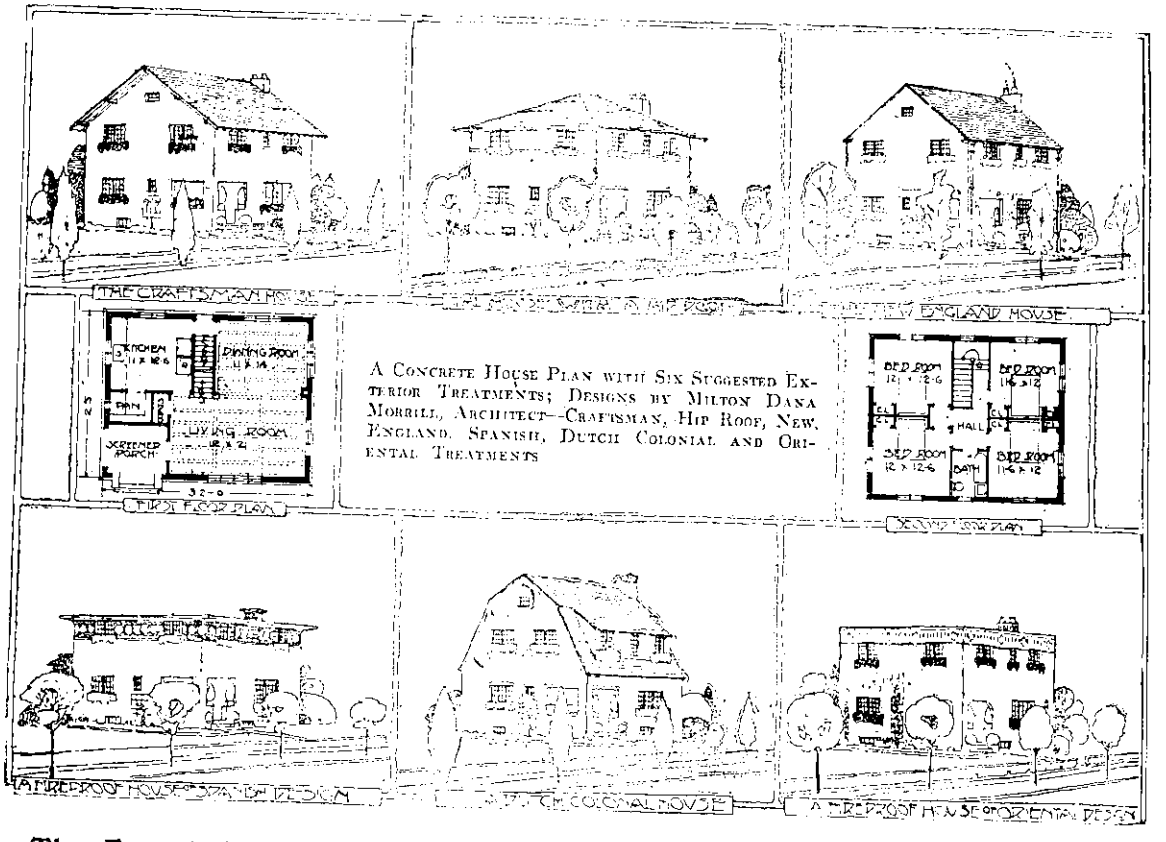
Lieutenant Wells was a member of the old institute prior to its incorporation. He left New Zealand as a Second Lieutenant in the 6th Reinforcements attached to the Otago Mounted Rifles. He was promoted Lieutenant on the 4th April, 1917, and in July last was awarded the Military Cross for gallantry on the field of action.

Architects Obtaining Discharge in England

The council of the New Zealand Institute of Architects desires to repeat for more general information that an arrangement was made last year with the Minister of Defence (The Hon. Sir James Allen, K.C.B.) by which members of the institute on completion of their service with the forces may apply for their discharge in England and this discharge will be granted on the recommendation of the General Officer commanding their division. It must be understood, however, that if discharged in England members must themselves provide their return passage to New Zealand.

Six Ideas for a Single House Plan.

The accompanying illustration suggests six different exterior treatments for a single plan of a seven-room house. The designs are by Milton Dana Morrill, an American, architect. Each of the schemes might readily be worked out in concrete for walls and floors. The "Craftsman," "Hip Roof," "New England" and "Dutch Colonial," as the styles are called, would ordinarily have frame roof construction, but the "Spanish" and "Oriental" houses should preferably be fireproof throughout with concrete roofs.



A Concrete House Plan with Six Suggested Exterior Treatments; Designs by Milton Dana Morrill, Architect—Craftsman, Hip Roof, New England, Spanish, Dutch Colonial and Oriental Treatments

The French Town Planning Act.

Some Recommendations to the Hon. Russell.

The Auckland Civic League placed before the Hon. Mr. Russell last session some very interesting and important suggestions regarding Town Planning in a letter sent him while the Town Planning Act was under discussion. "We beg to put before you," says the secretary of the league "the main features of a Town Planning Act passed by the Chambre des Deputés in May, 1915. (1) For all towns of 5,000 inhabitants and over, a plan of future extension shall be drawn, determining the lay, the width, the disposition of future streets, also the number of residences to the acre, the position of squares, gardens, etc. The sewers and general sanitary system, water supply and if necessary drainage.

(2) The Board shall consist of the mayors of city and boroughs and chairmen of roadboards also of architects selected by the Institute of Architects, of engineers civil and electrical, of surveyors, of men representing commerce, art, labour, education, etc.

(3) The plan or scheme shall be submitted to the Local bodies and when approved by them be brought before the House in the form of a Bill. The Bill being passed no buildings shall be erected or roads laid out except in accordance with the scheme."

The Civic League gives its own suggestions as follows:—

Composition of the Board.—We claim the presence of professional men with technical knowledge to be absolutely indispensible on a Town Planning Board.

Town Planning Scheme.—The principle of planning for the whole of the city is a vast and far reaching ideal of Town Planning and is amply illustrated by the Continental towns, which present beautiful comprehensive designs of places, boulevards, avenues, etc., as compared with the English custom of planning by suburbs. We contend that by drawing now a large plan of extension for each city of New Zealand, the future developments of the towns will be assured on beautiful symmetrical lines and will save to the coming generation those costly alterations, widening of roads, cutting new thoroughfares, etc., to which we have had to submit.

Power of Town Planning Board.—By refusing the Town Planning Board the power to levy money, en-

force or control works the bill would avoid friction between the Board and the local authorities.

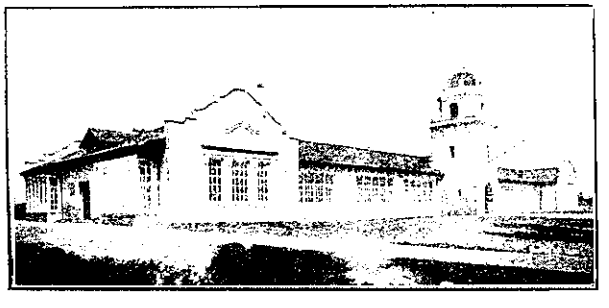
Private Rights.—The Bill undoubtedly affects private rights. It should be laid down as one of its fundamental principles that individuals own land or any other natural source of wealth and beauty only as a trust, and have no right to prejudice the development of the beauty of the city for the sake of personal gain.

Compensation.—In some instances, as when a man's only section is spoiled by a road drawn through it, compensation should be necessary. Such compensations ought to be paid by the local authorities and we would suggest that a conciliation board be appointed out of the Town Planning Board to act as mediator between private owners and local authorities.

After studying the English Bill of 1909, Mr. Myers' Bill, the South Australian and the French Bill, we have come to the conclusion that the French principle of determining at once the future extension of the city is the one that can assure at the smallest cost the greatest result and we respectfully beg that you adapt this principle to New Zealand."

Advantages of the One-Storey School.

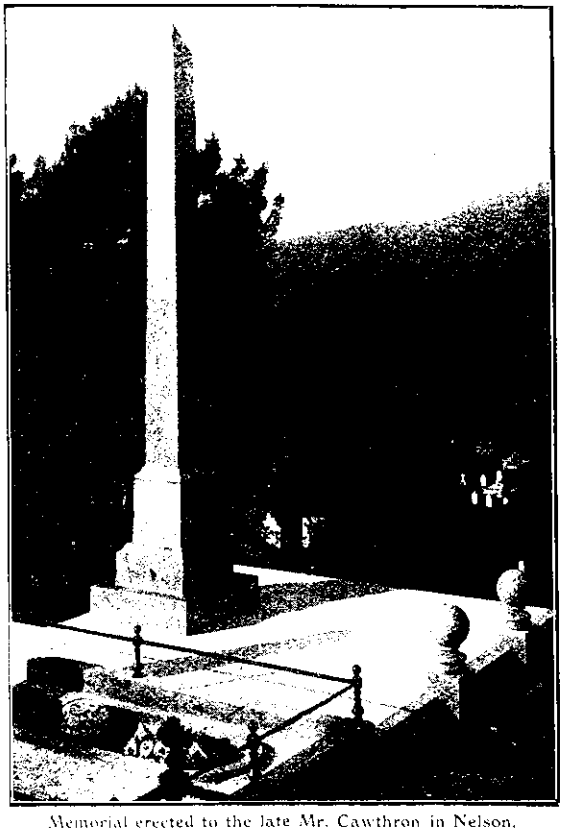
A pleasing example of the one-storey school is to be seen in the accompanying illustration, which shows the Columbus School in Salt Lake City, Utah. This building was constructed last year, and cost £13,000. The cost per cubic foot of 5½d.; per pupil, £23; per classroom £1,084. The above cost provides a reduction of 30 per cent. below the average cost of the last five fireproof buildings previously erected in Salt Lake City. H. D. Bowman, superintendent of buildings and grounds of the Board of Education, Salt Lake City, cites the following advantages of this type of building over the two-storey fireproof construction:



Columbus School, Salt Lake City.
Pleasing example of the One-Storey School House.

First, decreased first cost; second, safety to life from fire or panic, caused by elimination of stairways and direct exits; third, better arrangement for educational purposes; fourth, elasticity for extensions and reconstruction.

As elsewhere, the advent of the one-storey school house met with a great deal of criticism in Salt Lake City, but the authorities have succeeded in converting most of the sceptics and it is now believed that this type of building will ultimately become the standard elementary school building in this territory.



Memorial erected to the late Mr. Cawthron in Nelson.
Designed by Mr. G. M. Simpson.

Unattached Architects.

A question of some importance to members of the New Zealand Institute of Architects as representing the profession of Architecture which is likely to attract notice in the near future is that of persons who are members of Architectural Societies outside of this Dominion remaining unattached to this Institute and so being, for all practical purposes, beyond the jurisdiction of any responsible body.

While the council does not go the length of suggesting that full members of, say the Royal Institute of British Architects should be required, as a condition of membership, to ally themselves to the allied society of the country in which they reside, it feels disposed to suggest that no licentiateships should be continued nor any new ones granted to residents within this Dominion unless the person concerned is a member of this institute.

In a very short time from now the door of the institute will be entirely closed to all but those who enter either through the examination room or are admitted *ad eundem statim*, and it behoves the few architects remaining aloof to take advantage of the opportunities remaining before their exclusion must become permanent.

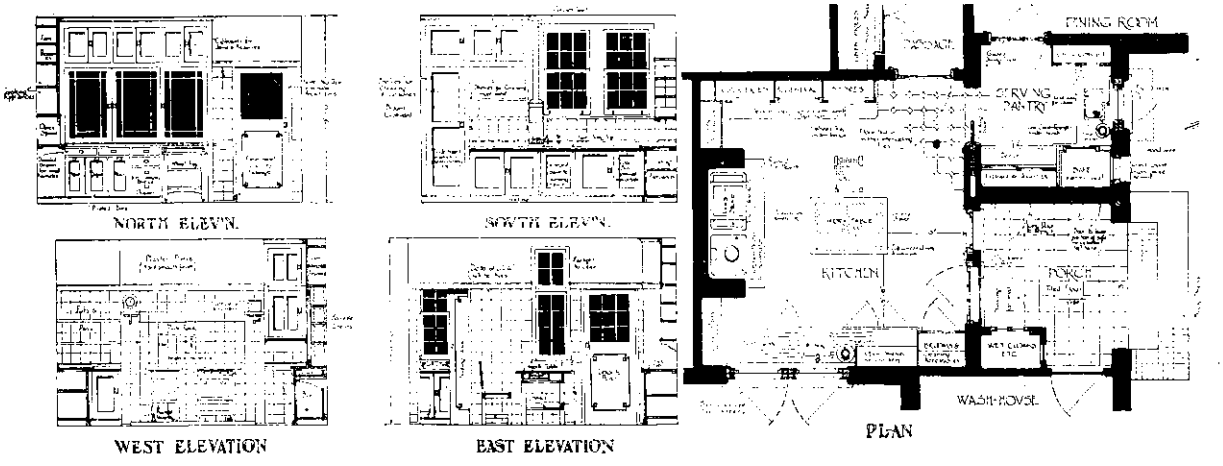
Our 57th Competition.

For a Model Kitchen.

This competition, which was set by Mr. Leslie D. Coombs, A.R.I.B.A., of Dunedin, drew four designs, viz:—"Cookeasy," by Eric Wiseman, with Messrs. Hoggard and Prouse and W. H. Gummer, A.R.I.B.A., of Auckland; "Efficiency," by Joseph F. Ward, with Mr. Reginald Ford, Wanganui; "October Morn," by Nigel Wallnutt, with Messrs. Mahney and Son, of Auckland; and "Reveille," by Harold L. White, with City Engineer's Department, Auckland.

As stated in the conditions, this competition was set to stimulate the practical side of a student's knowledge, and has been judged by the people who are intended to use it—the ladies.

The designs were submitted to four different ladies, with the following result:—"Efficiency" has two firsts, "October Morn" and "Reveille" a "first" and "second" each, and "Cookeasy" has two "seconds." The prize therefore goes to "Efficiency."

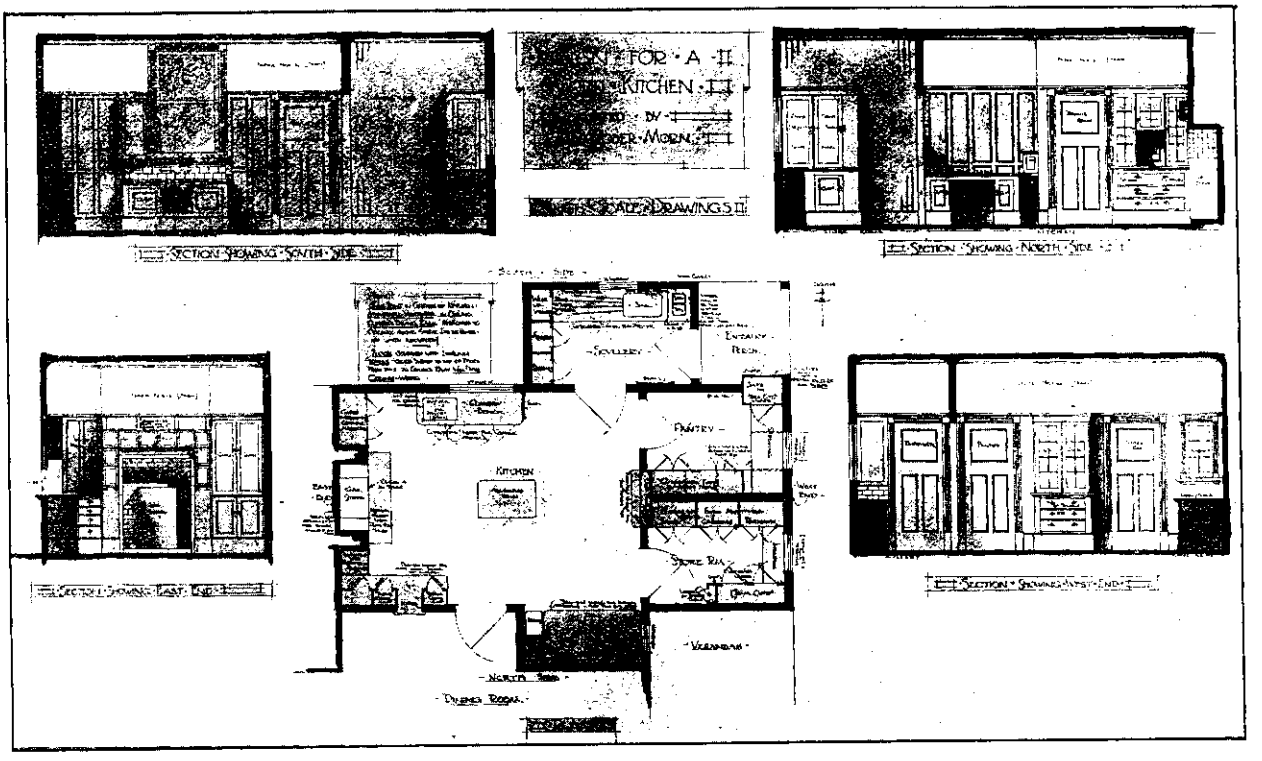


Winning Design. "Efficiency," by Joseph F. Ward (with Mr. Reginald Ford, Architect, Wanganui).

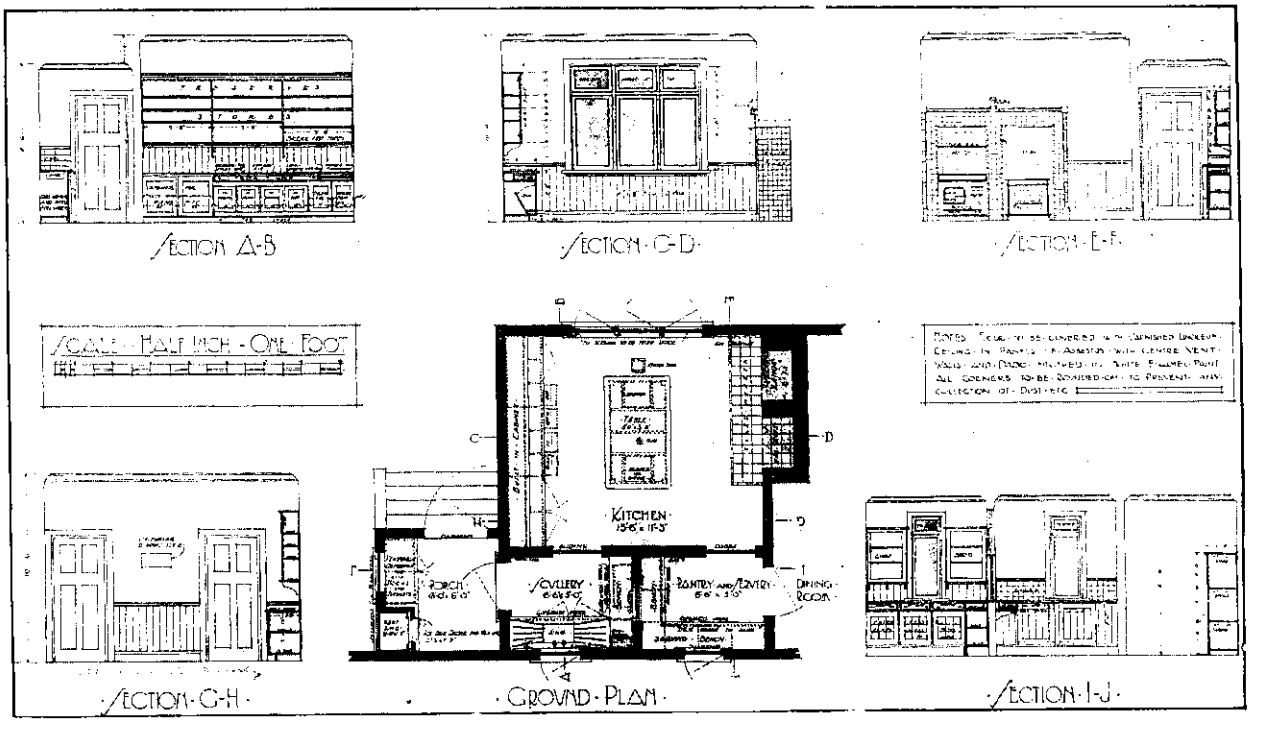
Competitors will, no doubt, be glad to know why they were placed in the above positions, and to assist them the comments of the lady judges are given below.

Mrs. A. B. Speight, of 164 Forbury Road, St. Clair, Dunedin, writes:—"After consideration, I have decided that "October Morn's" kitchen has the most conveniences, and would be the easiest worked. The oiled wood is easier to keep clean than the white enamel which one or two of the others have specified. The clothes drying rack is a great convenience, also the ironing table and cookery bench with the pastry slab. The want of a range would be felt here in Dunedin. Space has been left for that, but both gas and range would be an improvement. I would place "Reveille" second. The built-in cabinet is very handy, but I would prefer a separate pantry quite away from the scullery. Having to go through the pantry into the dining room is a drawback. "Reveille's" is a very well thought-out plan on the whole. In "Efficiency's" design the tradesmen would look straight into the kitchen—a drawback, I think. The two sinks mean more work, and are not necessary. Tiles on floor suitable for warm climate, but cold for Dunedin. "Cookeasy's" plan is a very good one, but there is a want of cupboards, drawers, etc., showing, and very few modern conveniences. None of the plans show an electric or gas iron—a very great help to a busy housewife. It was very hard to decide, which would be the easiest worked, just looking at the plans. Now, if I had stood in the centre of any of the kitchens completed I would have decided so much easier."

Mrs. T. A. Walker, of Wadestown, Wellington, says:—"Having gone carefully through the four plans of kitchens submitted, I have no hesitation in saying that I consider the plan by "Reveille" the one that would be most easily worked by a woman without assistance. "Efficiency" and "October Morn" have gone very thoroughly into detail, and the plans have been most carefully thought out, but I am inclined to think that the plan of "Efficiency" is more suitable for a house of 8 or 9 rooms, and where help is kept. As no woman with a house of only 5 or 6 rooms would think it necessary to have two geysers in connection with the kitchen arrangements, and the china of a house of that size could quite easily all be washed in one sink. The arrangement of door on to porch is not too good a one, as unless the door were closed there would be a constant draught between it and the stove, which would not be very comfortable for anyone standing at the sink. The plan of having no architraves or mouldings is a capital one, and the idea of no corners for the accumulation of dust should appeal to the heart of all good housewives. "October Morn," which I place second, has also gone very fully into details, and there is very little he has omitted in the way of convenience, but I have rejected this plan principally on the ground that in a house of 5 or 6 rooms a fair-sized pantry with safes would be all that is neces-



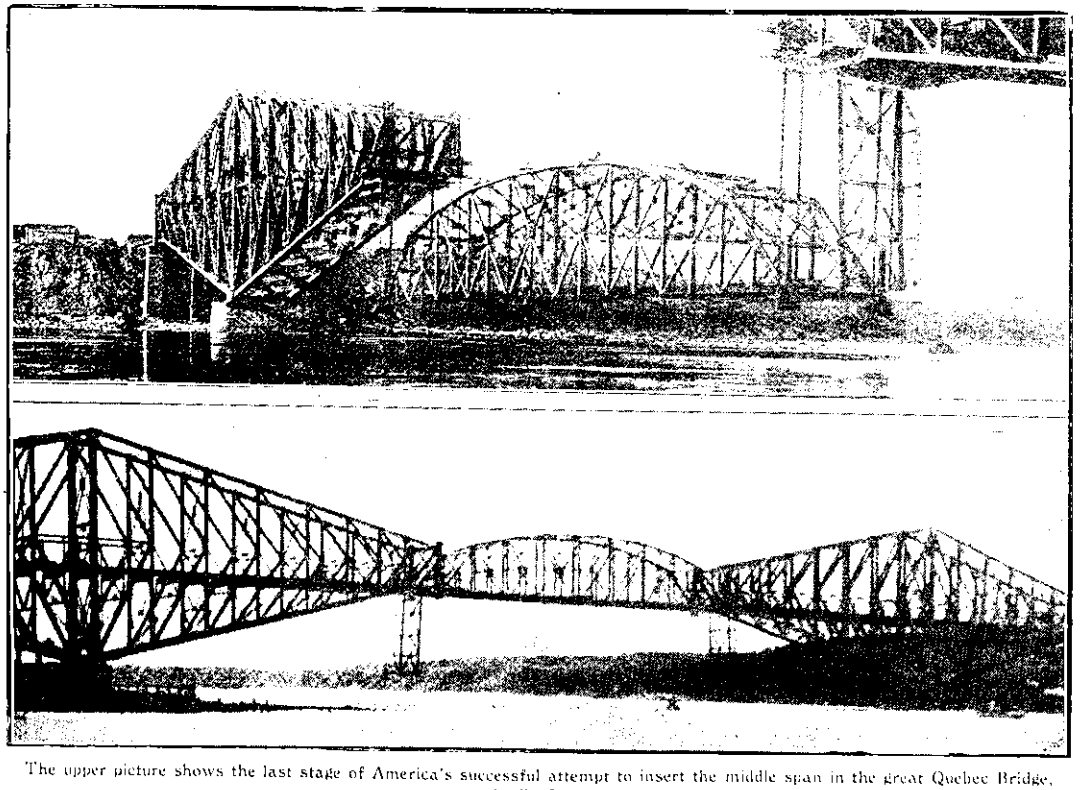
Design, "October Morn," by Nigel Wallnutt (with Messrs. Mahoney and Sons, of Auckland).



Design, "Reveille," by Harold L. White (with City Engineer, Auckland).

sary, and that a store-room only means extra work. I think his plan must have been intended for a left-handed lady, judging by the position of gas point over ironing table. The plan of "Cookeasy" is quite a good one, but has not so many cupboards and shelves, which every woman loves to have. The door into passage from servery would need to be a sliding one or there would be collisions should anyone happen to be passing through what time the table was being laid or dishes cleared from dining table. "Efficiency" and "Reveille" are evidently both believers in the "swat that fly" principle, witness the fly screens over both doors and windows. "Reveille" is the only one who has thought of the from the sun. "Reveille" and "Cookeasy" are both mentioned as having omitted the directions of the points of the compass. "October Morn" has put a bench on one side of the sink only. Mrs. Fisher, like many other people, says she could judge better of the respective values of the designs if she could see the kitchens themselves instead of only the plans.

Mrs. Robert Whitson, of 22 Holly Road, Christchurch, writes to say that all the plans are very interesting to the housekeeper, but that she had no difficulty in placing them on the list in the order she would prefer. "Reveille" and "October Morn" both had what is to her mind too serious a fault to be overlooked. They do not open on to any passage,



The upper picture shows the last stage of America's successful attempt to insert the middle span in the great Quebec Bridge, over the St. Lawrence.

The lower picture shows the completed bridge, with the centre span in position. The bridge as it stands is the greatest cantilever bridge in the world.

poor housewife's toes when she goes to the cupboard, and the architect who allows those few inches under the scullery bench and dresser would be everlastingly blessed by the woman of the house. I am quite sure that if every woman had a kitchen built after the plan submitted by "Reveille" there would not be the need for domestics that exists at present."

Mrs. F. M. B. Fisher, of Fitzherbert Terrace, Wellington, writes to say that she considers "Efficiency" sent in the best design, and "Cookeasy" the second best. She draws attention to the fact that some of the competitors omitted the direction points of the compass, there being no means of judging whether competitors have endeavoured to keep their kitchens cool by planning them away and one would have to go through the dining room every time one had to go from the kitchen to any other part of the house. "October Morn" loses again on having so much floor space to clean. "Efficiency" gains points over "Cookeasy" in being better provided with cupboards, and its wheel tray is a splendid idea. I therefore place them as follows:—"Efficiency" 1st, "Cookeasy" 2nd, "Revielle" 3rd, "October Morn" 4th.

THE CAMPANILE OF GIOTTO AT FLORENCE.—

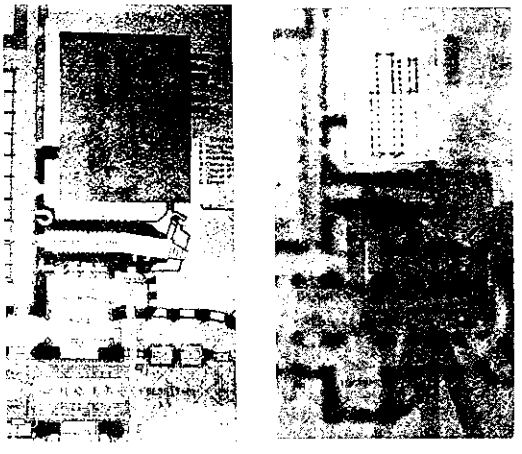
The characteristics of Power and Beauty occur more or less in different buildings, some in one and some in another. But all together, and all in their highest possible relative degrees, they exist, as far as I know, only in one building in the world, the Campanile of Giotto at Florence.—*Ruskin.*

The Lighting of Picture Galleries and Museums.

By S. HURST SEAGER, F.R.I.B.A.

(Continued from November issue).

I have spoken of "painful reflections" advisedly, for I am convinced that the reason people get so extremely tired and suffer from headaches after but a brief study of pictures or exhibits is on account of the straining of the muscles of the eye when looking at pictures or show-cases which reflect images of illuminated objects. We must all have been conscious of the strain, but we perhaps have not realized that it does not result merely from the confusion of the picture by the superimposing of images by reflection on the same focal plane, but by the superimposing of a reflected image in a



Figs. 4 and 4a. Experiment to prove that the reflections on a glazed picture are in a different focal plane from the picture itself.—Thus creating a constant eye strain.

Fig. 4 Shows the effect when the camera is focussed in the plan of Gloucester—the upper reflected plan is merely a blur.

Fig. 4a Shows the effect when the camera is focussed on the upper plan—the plan of Gloucester is now a blur.

different focal plane from that of the picture. An experiment has made this perfectly clear. Figs 4 and 4a show photos taken of two plans, one placed within glass and the other placed on a wall behind the camera, and illuminated so that its reflection is clearly seen in the reflecting dark surface of the glass. In the photo Fig. 4 the camera was focussed on the plan of Gloucester Cathedral within the glass which is seen to be quite sharp, while the reflected plan above it is merely a light blur. In the photo 4a the camera was focussed on the reflected plan which is now sharp while the lower glass covered plan is considerably blurred. Thus it is proved that the reflection is far within the picture, is in fact as far within it as the illuminated object is in front of it, and the size of the reflected object is in inverse proportion to the distance of the object from the picture. The reflection and the picture cannot therefore be clearly seen at the same moment, and there is a continual struggle and strain upon the eye in the endeavour to rivet the focus on the picture. It may be said that the eye is continually adapting itself to varying focal lengths in viewing the objects around us. This is true, and it can do so without strain because in no instance is one focal length superimposed upon another, as it is in the case of pictures with reflecting surfaces. The exact position and size of the reflection in the

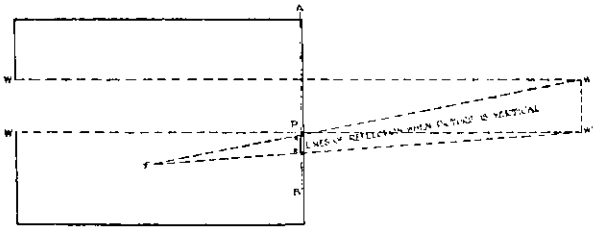


Fig. 5. Section of Gallery, showing reflection of window in picture when the picture is flat against the wall.

Explanation.—W.W. Window or illuminated object.
W.W. Representation of window the same distance from the wall as the window (the visual image).
A.B. The plane of the picture.
P.B. The picture or reflecting surface.
E. The eye of spectator.
R.R. The reflection in the picture.

picture can at once be determined by means of a diagram (Fig. 5) representing the size and position of the illuminated object within or beyond the picture. Lines drawn from the extremities of the representation to the position of the eye of the spectator will, if they pass through the picture, show the size and position of the reflected object in it. This diagram is drawn on the assumption that the picture or reflecting surface lies in a vertical plane, and the position of the representation is found by drawing lines perpendicular to it

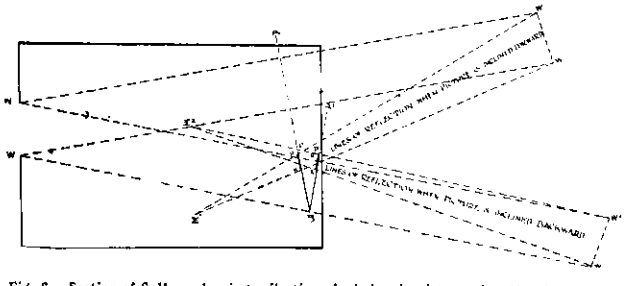


Fig. 6. Section of Gallery showing reflection of window in picture when the picture is inclined to the wall.

Explanation.—The lettering corresponds to diagram (Fig. 5).

through the object and setting off the distance of the object from it. If the plane of the picture is not vertical, then the position of the representation will be found in exactly the same way—that is, by drawing lines from the object perpendicular to the plane of the picture, whatever the angle of the plane may be, as shown in the diagrams Fig. 6. From this it is obvious that if a picture is slightly tilted back the reflections will only be seen if the spectator is raised above the normal height, and that if it is tilted forward only when below it. The exact point

at which reflections will be seen are in each case accurately determined. By this system we can determine not only the position and size of reflections in any reflecting surface from any point of view, but we can also determine the required position of the lights, in order to prevent any reflections being seen from the point of view found to be most suitable for viewing the picture.

In order to avoid reflections from the sources of light the lines drawn from the eye to the representation of the window must pass through the plane in which the picture lies either above or below, or in a side-lighted room at the side of the picture—never through it. (See Fig. 12).

2. *Any illuminated object becomes in itself a source of light, and its image is reflected, as above stated in Law 1, in proportion to the relative illumination of the object and the reflecting surface.* That is to say, if a glazed picture is very dimly lighted and any object in front of it well lighted, then the reflected image will overpower the picture. If, on the other hand, the picture is well lighted and the objects in front of it dimly lighted, then the reflection, although there, will be scarcely apparent—so weak, in fact, that the enjoyment of the picture will not be interfered with. This can be easily proved in the following way:—First, place a glazed picture close to one side of a window and at right angles to it, and then stand close to the other side of the window. Both picture and spectator will in this way be equally illuminated, and the picture and reflected image will be striving for mastery. Second, move the picture back into the shade of the wall, and let the spectator remain illuminated as in the first case, and it will be seen that the reflected image is powerfully dominant. Third, now bring the picture into the first position, move back into the shade of the wall on the other side of the window, and it will be seen that the reflected image has nearly, if not quite, disappeared.

As I have already stated, it is these reflected images of illuminated objects in a gallery which cause the greatest trouble, and yet it is these which have not hitherto been guarded against. They are in nearly all galleries most annoying, for if you approach the picture from the left at any angle, it reflects the right wall. If you approach it on a line at right angles—that is, directly in front of it—the wall behind you and you yourself are reflected; while if you view the picture at any angle from the right, the left wall is reflected, together, in each case, with all illuminated objects.

Now this could not possibly occur—as proved by our experiment—if in every case care were taken for the picture to be illuminated much more brightly than the spectators or objects in the room. This sounds so simple that it is, I can readily believe, extremely hard to realize that this law has not been at once acted upon by any one when designing a gallery for the exhibition of pictures.

I have pointed out that with the usual top light the floor is more brightly lighted than the walls. It thus become a source of reflected light, and its reflected image will be seen in all glazed pictures on "the line."

A polished or light coloured floor capable of reflecting light—as for instance the white marble used in the floors of the additions to the National Gallery—should for this reason be avoided, and the floor covered with some dark light-absorbing material.

In the experiment made with the picture at the side of the window, it will be noted that the reflected image is always more powerful in the dark parts of the picture, and will often be very pronounced there, while in the light parts it may almost disappear, and if it has a white mount it may in that quite disappear. This leads us therefore to the statement of another law, viz.:—

3. *That the darker in tone the reflecting surface, the more powerful will be the reflected image.* From this we learn that the darker the picture the greater must be the contrast between the lighting of the picture and the lighting of the room. Dark pictures, to be effectively seen, must be in the highest possible light, while light-tone pictures may be placed in a subdued light with less risk from reflected images. Therefore it is possible to minimise the ill effects of an imperfectly lighted room by acting on this rule when hanging the picture.

4. *Light diminishes inversely as the square of the distance from its source.* The same law applies to heat, and an illustration of the effect of a fire will perhaps be more convincing. Close to a fire you know the heat is intense enough to scorch; four feet away, the square of the distance being sixteen, we get by our law only one sixteenth of the heat of the fire; at eight feet, the square being sixty-four, we only get one sixty-fourth of the heat, showing, of course, in passing, the wastefulness of our open-fire radiant heat system. I have taken this illustration because our susceptibility to heat is constant, and we can by our feelings readily appreciate the truth of the law. Fortunately for us, our eyes have a wonderful system by which the amount of light admitted is regulated. The iris contracts in a bright light and expands in a dull one, so that by this very beautiful arrangement the number of bright rays of light which would enter the eye is reduced, and the number of dull rays increased, so that whether we stand in a very bright light or a very dull one a normal effect is produced. You will remember that if the contrast is great—as it is if you suddenly step from bright sunlight into a dark room—nothing can be seen till the iris has accommodated itself to the altered circumstances, and the same is true if we pass quickly from a dark room into sunlight. This plan of Nature's for keeping the amount of light which enters the eye as far as possible constant, makes it difficult for us to realize the truth of this law as applied to light, but those of us who have photographed plans or large drawings in a room with side light know how quickly the light diminishes. We find that if the plan is even only two feet wide the value of the light on the one side is so different from that on the other that with a correct exposure for the central part, over-exposure will occur next the window and under-exposure on the side of the plan next the room. The camera has discovered that the law exists as stated.

This law has an important bearing upon the lighting of picture galleries, for it teaches us that the higher we make our top-lighted rooms, the duller, the more gloomy the rooms will be. We arrive in this way—as at the Pinacothek at Munich, (Fig. 2a), which is forty-five feet high—at the same effect as we have seen to be produced by shutting off the rays from the skylight by translucent innerglass. But this law has its most important bearing upon side-lighted rooms. In a top-lighted room the value of the light is the same in any one horizontal plane, so that the pictures along that plane are all either brightly or dimly lighted. Except, therefore, in the case of very large pictures occupying a considerable part of the vertical surface, the pictures will be fairly evenly lighted. In a side-lighted room, on the contrary, the light is equal in vertical planes and diminishes rapidly along any horizontal line on the side walls, but will be evenly dull or evenly bright on the wall facing the window in proportion to the distance between them.

Side-lighted rooms, as usually designed, are extremely unsatisfactory, and will be as long as architects consider the position and proportion of the windows in relation to the exterior instead of considering them solely in relation to the lighting of pictures. The idea of classical proportion and pleasing fenestration in accord with antique standards must be abandoned, and the problem solved from the standpoint of scientific correctness demanded by our early Victorian writer. He had a true idea of the importance of the elements for complete success in the designing of galleries, for you remember he placed scientific correctness first, after this "structural perfection," and only after the requirements of these two were satisfied did he ask for "architectural magnificence." In most of the buildings containing side-lighted rooms the sequence of thought has been reversed. Windows of the usual form have been placed low down in the wall, with the result that on the back wall the reflections are extreme, and it is only by reason of the spectator blocking the direct rays of light and thus placing the pictures in shadow, that they can be seen at all. The back wall forms, in fact, as bad a position for the exhibition of pictures as could be devised. The side walls, if not too long, are well lighted for small pictures. Those near the window are brightly lighted, but none are free from reflections, for here, as in the case of top-lighted rooms, the spectators are standing in the best-illuminated space.

5. *Rays of light, if unimpeded, radiate from their source equally in all directions*, so that if we imagine a ball of light in the centre of a sphere, the whole of the inner surface of the sphere will be equally lighted, and as the diameter of the sphere is increased so will the light falling on its surface be diminished. If the light is on one side of a rectangular room, the lighting of the walls will be uneven because different parts of their surfaces lie in the planes of concentric circles of varying diameter (Fig. 7).

In the case of daylight, this law holds good only within the angle made by the reveals of the openings. That is to say, that if we cut a hole of any form either in the walls or ceiling of a room, the limit of the rays of light passing through it will extend only up to a line drawn from the outer edge of one side to the inner edge of the other. The space beyond this will be in shadow, and will be lighted only by reflected light from the surfaces of the floor and ceiling. This can easily be proved at any window opening. The same law will be found to hold good whatever angle the opening makes with the horizon. So that given any opening

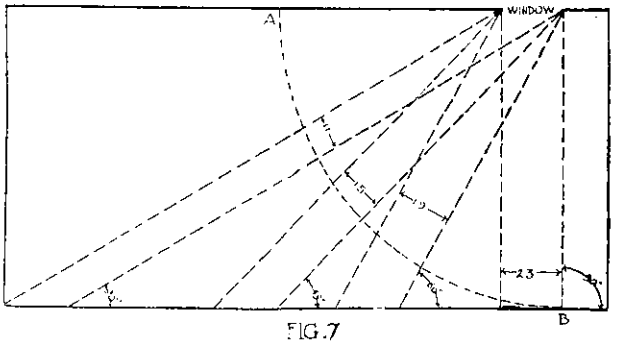


FIG. 7

DIAGRAM SHEWING RELATIVE VALUE OF BEAMS OF LIGHT FALLING ON AN OPPOSITE WALL OR FLOOR.

Fig. 7. *Explanation*—The relative values of the beams of light on the arc (A, B) are shown by the figures between the dotted lines. The wall opposite the window diminishes as the angle becomes more acute in accord with Law 4.

in walls, ceiling or roof, we can at once determine what portion of the room will be lighted by direct rays of light and what by reflected light, and we should not make the mistake so often seen of skylights put in in such a way that the walls on which the pictures are placed are wholly lighted by reflection.

6. *Dark colours absorb light while pale colours and polished surfaces reflect it.*—This law must be kept in mind in designing picture galleries, for we must aim at having no reflected lights to interfere with the direct lighting of the picture. We must therefore have dark neutral colours on both walls and floors.

We have now enumerated the laws which must be understood and abided by if we are to solve satisfactorily the problem of designing picture galleries and museums. I have already stated partly the deductions to be drawn from these laws, but now let me summarise them before showing how they may be carried out in practice.

1. To avoid reflections in the pictures from the source of light, the angles made by the lines from the source of light to the picture must be greater or less than the angles made by lines drawn from the picture to the eye of the spectator when standing in the most suitable position for viewing the picture.

Note.—As this position will vary according to the size of the picture, it follows that the lighting suitable for large pictures requiring a distant point of view may be quite unsuitable for a small picture requiring a close point of view.

2. To avoid seeing in the pictures reflected images of spectators and objects in the room, the spectator

and objects must be in a subdued reflected light, in marked contrast to the direct lighting which must fall on the pictures.

3. The darker the pictures the more brilliant must be the lighting upon them and the greater the contrast between the direct lighting of the pictures and the reflected lighting of the room.

4. In order to obtain a brilliant light on the pictures, the pictures must be as close to the source of light as the other conditions will permit, and the lighting must not be obscured by secondary ceiling lights or glazing.

5. The pictures must be within the space formed by lines passing through the inner and opposite outer edges of the light opening.

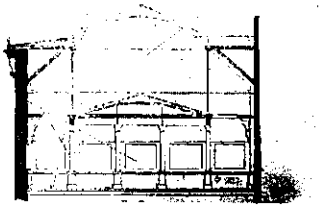


Fig. 8. Gallery at Munich. Showing a screen placed over the spectators in the endeavour to prevent their reflection in the pictures.

6. The rays of direct and reflected light which fall on the walls and floors must be absorbed by dark colourings.

I have hitherto referred only to glazed pictures, because they form the crucial test as to whether or not the gallery is successfully lighted. It is true that unglazed pictures can be seen, and fairly well seen, even under conditions in which it would be impossible to see glazed pictures. But although they can thus be seen without the annoyance of reflected images, still they can be seen to far greater advantage under the conditions absolutely imperative for glazed pictures. For although no reflected images would be seen, light would be reflected from the surface of the pictures, sometimes appearing as bright patches of light and sometimes as spots of bright light in the uneven surfaces of the brushwork, which rob the picture of its true value. I do not therefore agree with the writer in the "Architectural Review" who, with reference to the new rooms of the National Gallery, said that it is only when glazed pictures are to be exhibited that it is necessary to take special precautions in lighting; that if the pictures in the National Gallery had not been glazed, no complaints would have been heard. Certainly no complaints would have been heard, but it is a poor ideal in this or any other sphere of human activity which demands only that a work shall be no worse than what we are accustomed to. Such was not the ideal of the writer I have quoted, who asks that we may obtain "not a building good enough, but the best possible."

Let us now see what attempts have been made to reach the ideal of perfect lighting, and then what form our galleries should have in order to fulfil the requirements laid down.

At Munich I was interested to see the principle of shading the spectators adopted. (Fig. 8). A ceiling was formed over the central part of the gallery, leaving a space of about eight or nine feet all round to allow the light from the skylights to fall on the pictures. The arrangement, it was said, was not new, and it is stated in the leader already referred to "that it was applied in a room in Newman Street, Oxford Street, London, built for the exhibition of West's pictures; and Messrs Papworth, in their work, Museums, Libraries, and Picture Galleries" (I have not had an opportunity of seeing it), "describe a gallery built for Mr. Allnutt, of Clapham Common, between 1829 and 1833, where the lighting is on the same principle. Sir Charles Eastlake, who considers that the window or source of light by which a picture is seen, and the picture itself, ought not both to come within the range of vision at the same time, thought very highly of such an arrangement." Although the pictures could be well seen at Munich, the effect was not as successful as it should be, for two reasons, first because, the skylights being high, only a very diminished light fell on the pictures, and, secondly, the gallery was too wide, thus leaving too large a space in deep shadow. Still, the experiment was very interesting and contains the germ which, if properly developed, would lead to success. If later designers had only realized this, instead of abandoning the idea in favour of the brilliantly top-lighted rooms, we should long ago have had examples which might well be followed.

The gallery in which the greatest amount of success has been reached for individual pictures is the Doré Gallery in London. It is, of course, only a small place, not larger than many artist's studios, but by means of dark floor covering and arrangement of dark divisional and wall curtains, each picture is separately seen, splendidly lighted by direct light from a hidden source. You can see no windows, no skylights, but the most brilliant light is that falling on the pictures. This is as it should be. There is, it is true, no structural perfection or architectural magnificence, but the lighting is certainly scientifically correct, and we cannot too often insist upon this as being the first consideration. These are the only two instances I know of where successful departure has been made from the usual type. An American Commission lately travelled over Europe to study its picture galleries with a view to the erection of one in America. They came to the conclusion, I believe, that an Italian palace makes the most satisfactory gallery. That there is a delightful charm about these old palaces I readily admit, but they are very far from perfect as picture galleries. They were designed as homes for the Italian princes and nobles, and as such were adorned with pictures some well, some ill lighted. In this they are no worse than many of the specially designed galleries, so that it is easy to believe that a verdict might be given in their favour.

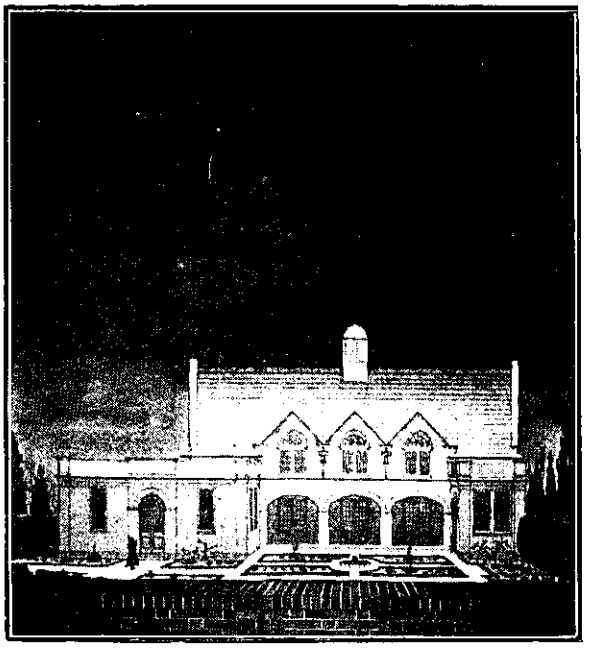
(To be continued.)

Huxley, in his "Elementary Physiology," states that in bedrooms "at least 800 cubic feet of well-ventilated space" is essential for each adult.

Proposed New Building for Free Kindergarten.

Wellington is badly in need of a suitable building for kindergarten purposes. Ever since Miss Richmond founded the Institute in Wellington, the school has been carried on in any building that has been available for the purpose. Funds have been low, and the teachers have had to put up with accommodation that could not be considered suitable—hence the call for a new building.

It is gratifying to note that the drawing of the plans of a suitable building has been generously undertaken by Messrs. Atkins, Bacon and Mitchell of Wellington, free of charge. We illustrate the front view. The building is to be erected on a site already acquired



Proposed New Headquarters for Kindergarten Association, Wellington.
Atkins, Bacon and Mitchell, Architects

at a cost of £700, and fully paid for, in Taranaki street, and is estimated to cost £3,000.

A drive leads from the street to the grounds which are laid out in small garden plots suitable to be tended by the children. The plan is 'L' shaped, grouped round the two sunny sides of the rectangular section.

On the southern side of the site and conveniently adjacent to the drive is situated the Administration block which comprises a council meeting room with office accommodation, three well fitted cloak rooms for girls, boys and teachers, a kitchen and a waiting hall. Behind the Administration block are several class rooms and adjoining these and extending along the southern boundary is the main Kindergarten hall. The design and finishings of this hall are of the most modern character, and they include a fine open framed roof, also a small recessed stage at one end of the hall.

Along the northern side of the hall are large dormer windows over, and french doors under a very broad colonnade which will be used as open air class rooms. Off the end of this colonnade is a spacious sand room with northern windows ensuring maximum sunlight, which will be used as a playing space for the children in inclement weather.

From the Kindergarten hall is an easy going stair to a landing built out as portion of the proscenium finishings of the stage and from it is a doorway leading to a roof garden and playground built over the Administration block and the class rooms.

The general equipment of the building is to be such that the children will be able to be taught to do everything for themselves.

The furniture of the doors, used by the children, is to be designed at such a height as to enable the smallest child to open them. All sanitary and other fittings in the cloak rooms are specially arranged for the convenience of children. Again, the equipment of the kitchen is such that the children may be taught how to prepare meals and afterwards assist in washing up and the putting away of the crockery and utensils in specially designed cupboards and racks provided for the purpose.

Architects and the War.

The architectural profession in this country is providing its quota of soldiers for the front as with all professions. An official statement from the Institute of Architects shows that 22 per cent. of its members have joined His Majesty's Forces. There are 15 Fellows, and 57 Associates, four of whom have obtained Military Honours. Eight members have fallen or died of wounds. The full list is printed below:—

Arden, Captain N. H.: 3rd Infantry.
Andrews, Private W. P.: 36th Mounted Signal Troops.
Anderson, Corporal E. C. R.: 26th Artillery.
Busby, Act. Capt. Wm. Baldwin: Killed in Action.
Bacon, R. F.: Home Service, Censor's Office.
Bartley, Corporal A. M.: 33rd Infantry.
Barclay, Private J. W.: 16th Infantry.
Binney, Lieutenant R. K.: R.F. Artillery.
Baddeley, Lieutenant E. G.
Ball, J.
Brown, L. T.
Ball, Private A. P.: 17th Infantry.
Callender, Lieut. George Wilfred: Killed in Action.
Coleridge, Sergt. E. W. G.: Home Service.
Cray, Sergt. T. S.: N.Z. Medical Corps (returned Invalided).
Currie, Lieut. W. A.: Motor Boat Patrol.
Chadwick, Private R.: N.Z.M.C.
Cowan, Private K. T.: 19th Infantry.
Cuthbertson, Captain D. M.: N.Z.F.A. (6th Howitzer Battery).
Davenport, W. H.: Driving Motor Ambulance (France).
Downer, Private E. E.: 31st Specialists.
Duke, Lieut. C. R.: 5th Australian Pioneers.
Edgecumbe, L-Corporal J. H.: Royal Engineers (Signal Sec.)
Frame, Sub-Lieut. R. B.: N.Z.A.S.
Fearn, Sergeant S.: 5th Wellington Mounted Rifles.
Ford, Sergt. A. C.: 16th N.Z. Engineers.
Greenish, Captain F. E., (M.C.): N.Z. Rifle Brigade.
Graham, L-Corporal P. H.: N.Z. Engineers.
Grierson, Corporal, H. C.: 33rd Infantry.
Gooder, Gunner F. E.: Home Service.
Gummer, W. H.: 36th Mounted Rifles.
Guthrie, Gunner M. J.: 33rd Artillery.
Holst, Corporal P. E.: 29th Artillery.
Hawkes, Sergeant E. T.: 4th Battalion N.Z. Rifle Brigade.
Haughton, Captain V. P.: N.Z.F.A. (Returned Wounded).

Jones, Private Gerald E.: N.Z.M.C.
Jackson, Private R. G.: 25th Infantry.
Jaggard, Sapper R. T.: N.Z. Engineers.
James, Sergeant E. T.: 18th Infantry.
Jones, Sergt. A. Morris: N.Z. Engineers.
James, Sapper C. A.: N.Z. Engineers (Specialist Section).
Jamieson, Sergt. E. H.: N.Z. Engineers.
Lucas, Sergt.-Major G. T., (W.O.): 1st Anzac Head Q. Staff.
Leslie, Private T. J.: 26th Infantry.
Marchant, Capt. F. Norman: Died of Wounds.
Murran, Licut. H. S.: N.Z.M.C.
Massey, Sergt. H. L.: 27th Infantry.
Murray, Lieut. H. St. A.: 11th Australian Engineers.
Millar, Sergt. C. G.: 2nd Infantry.
Millar, Sergt. A. B.: 18th Infantry.
McLeod.
McLeod, 2nd Lieut. M. K.: Killed in Action.
Natusch, Guy
Natusch, Lieut. Stanley, (M.C.): Main Body Cant. Inf'try.
Quick, Sergt. Wm. Beynon A.: Killed in Action.
Pierce, A. P. H.:
Palmer, Private A. J.: Home Service.
Phillips, Private E.: 33rd Infantry.
Poulington, Lieut. G. F.: 33rd Infantry.
Piper, L. S.
Rough, Lieutenant J. W.: Royal Engineers.
Reidy, Bombadier E. D.: 14th Artillery.
Rout, Lieut. A. C.: N.Z.F.A. (Returned Wounded).

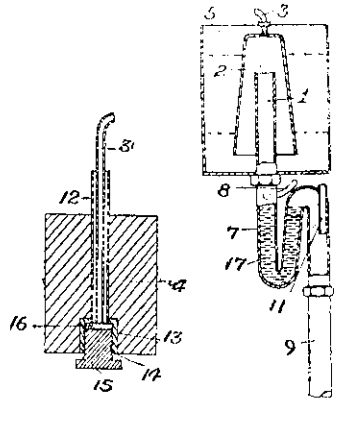
Ramsay, Private F. C.: 26th Infantry.
Reid, Private G. S.: 23rd Specialists.
Reese, Private Andrew Dalziell: Killed in Action.
Savage, L.-Corporal W. H.: 18th N.Z. Engineers.
Sedion, Lieut. J. S. S.: Royal Horse Artillery.
Stevens, Sapper C. E.: N.Z.E., Main Body.
Stevenson, Private Allan: Killed in Action.
Trevithick, L.-Corporal C.: N.Z. Engineers (Sanitary Section.)
Todd-Whincup, Private R. S.: Queen's Royal West Surrey Regt.
Tompsett, Private Norman: 5th Infantry.
Talboys, Sapper R. G.: 13th Signal Company.
Vanes, Sergeant R. Newton: 30th N.Z. Engineers.
Wade, Lieut. H. L.: Auckland Mounted Rifles.
Wood, Gunner C. W.: 27th Artillery.
Wilson, Private W. V.: Home Dental Service.
Walch, Sub-Lieut. A. B.: Motor Patrol.
Wells, Lieut. E. R.: 6th Infantry.
Wren, Lieut. W. J.: 25th Australian Infantry.
Watson, Lieut. T. B.: Died of Wounds.
Young, Private J.: N.Z.M.C. (25th).

Patents of Interest to Builders.

Skylight.—A patent, No. 39,209, has been taken out by Frank Ross of Hastings, plumber, according to which the sides and lower part of the capping are made integral, and the upper part of the capping has hooded ends, which fit upon and

retain the upper ends of the sides of the capping. The upper part of the capping is integral, with a flashing which passes under the roof-covering. The capping of the combing and the capping of a central bar are retained by means of a minimum number of fastenings.

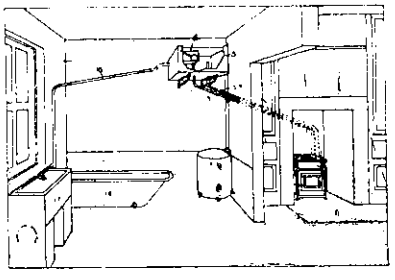
Cistern for W.C.'s.—A patent, No. 37,818 has been taken out by Samuel Mills and George Mills of Auckland, carpenters. According to this invention, the upper end of the flown or flush pipe is fitted with an S trap below the cistern, and from such S trap an inner tube or the outlet-pipe from the cistern extends upwards through the bottom of the latter. Over the



inner tube or outlet pipe is provided a hollow cone or siphon bell, from the top of which is led an air-inlet pipe, the outer end of the latter being adapted to be opened and closed by the movement of a float actuated by the rise and fall of the water within the cistern. Water is fed into the cistern at a point near the bottom of the latter by an ordinary ball cock, and an air-lock is established in the cone

or siphon bell and the inner tube and trap, which air-lock normally restrains siphonic action from occurring until such time as it is desired a flush shall take place, when the air-lock is broken down by opening same to the atmosphere.

Gas Stove Hot Water Supply System.—A patent, No. 38,577, has been taken out by T. S. Mould, Agent, of 430 Little Collins St., Melbourne, according to which a boiler or coil of pipes is disposed within a gas stove or cooker, the gas stove or cooker being specially designed and constructed to receive same. By this means the heat used for cooking is further utilized to heat the water contained in the said boiler or coil of pipes disposed within the stove. In the event of hot water only being required, apart from cooking, an independent gas-jet is carried right along the back of the stove and immediately under the boiler. The boiler or coil of pipes disposed within the gas stove or cooker is fitted with the usual flow and return circulating-pipes, which connect it with the tank at the higher level; this tank



has within it, or forming part of it, another and smaller tank with which it directly communicates, and the smaller tank is connected up with cold-water service-main, or other equivalent source of supply in a known way, and the supply of water to it is regulated by the usual ball cock or the like in it. The discharge of the small feed-tank into the larger hot-water storage-tank is at or near the bottom of the latter, and the cold-water feed will pass into the hot-water tank when the level of water in it falls, due to hot water being drawn off from it; while the hot-water draw-off house-service conduit on the storage-tank is disposed a substantial distance above the bottom. The hot-water delivery-point from the boiler into the hot-water storage-tank will be some distance up from the bottom—say, from one-third to two-thirds of the depth of the tank from the bottom—and the return of cooler water from the tank to the boiler will be near the bottom; while the hot-water draw-off point for use will be some distance up from the bottom of the tank.

Building Notes.

AUCKLAND.

During last month the opening ceremony took place of St. Joseph's school Grey Lynn.

The school is built on a property with a frontage of 300 ft. to the Great North Road and a depth of from 300 ft. to 225 ft. the purchase price having been £4,200. On one side two houses have been renovated and additions made, to form a commodious presbytery, and against the other boundary is a convent, accommodating the teaching staff of sisters, which has been removed from its former site in Sussex Street and renovated and enlarged at a cost of £1,300. The new school, situated between these buildings, has a solid and pleasing appearance. It is constructed in brick, with cement and rough-cast facings. The contract price for its erection was £3,500. The five class-rooms have been fitted with the latest school furniture, and are admirably adapted for teaching purposes.

Messrs. Chilwell and Trevithick, A.R.I.B.A., called for tenders for new wool stores in the Strand, for Messrs. Dalgety and Co. Ltd.

Messrs E. Mahoney and Son are calling for tenders for premises to be built in brick for the Bank of New Zealand at Te Puke.

CHRISTCHURCH.

Steps are to be taken at once to erect a building to replace Canterbury Hall, Christchurch, destroyed by fire recently. Mr. Walter Fuller, of Wellington, manager in New Zealand for Fullers' Vaudeville, Ltd., who have a ten years' lease of the property, was present at a meeting of directors of the Hall Company held recently, and placed the views of his firm before the directors. The proposals of the directors include the erection of a new vaudeville theatre, with a seating capacity of about 2,000 people. The stage will be 50 ft. deep—large enough for any theatrical production. The plan of the whole undertaking provides at present, for the erection of a Bijou Theatre to take the place of the Alexandra Hall and Victoria Hall. It will seat about 800 people, and will be for use for concerts and dances. The offices in the building will also be re-erected on up-to-date lines. It is intended to put the whole work in hand with the least possible delay.

Messrs. Ellis and Hall called for tenders for a cottage at Bury Street, Sumner.

Messrs. England Bros. called for tenders for a store during the month, and the Education Board called for tenders for a new school in brick at St. Albans.

DUNEDIN.

Permits issued by the City Council for new buildings have somewhat decreased of late although a considerable number of permits have been issued for re-instatements, alterations, and additions to existing premises. Owners being desirous of studying economy in the outlay of money and bearing the discomfort and makeshift that would not possibly be put up with in normal times. Of course we must take into account that there are a number of families of which some have taken up the defence of their country, having left the home, consequently there is more accommodation left for those remaining. The different trades are fairly well engaged, works in progress being extensive additions to Columbo College for girls—John McGlashan College for boys—St. Margaret's College for girls and additions to Girls' High School. Extensive additions consisting of Lecture Hall and Swimming pool at the King Edward Technical College. The Pavilion at St. Clair esplanade is now completed and extensive bathing accommodation is under construction at the baths. Extensive alterations and renovations are being carried out on the Grand Hotel, the whole of the Oamaru stone front being cleaned down and coated with stone preservative. By the great efforts of the City Fire Brigade what promised to be a very disastrous fire was arrested in the premises of Thomson and Coy. Cordial manufacturers, the timely save held the fire to one portion which has now been temporarily fixed up and enables the firm to proceed with the contracts to the Government of their famed mineral waters. A more serious fire swept the premises of John Edmonds, Shipchandlers and General Ironmongers, the destruction of their valuable and varied stock must be felt as a direct loss to the building trade when such materials cannot be replaced.

Plans and specifications have been prepared by Mr. Basil Hooper, A.R.I.B.A., for electric lighting the new cathedral and tenders were recently called, resulting in that of Messrs. Turnbull and Jones being accepted, for the sum of £1,055. The chief feature of the lighting is in the type of fitting, specified for the nave and aisles. These consist of 16 in. by 14 in. Holoplane glass bowls, with massive bronze moulded rings, relieved with pierced quatrefoils, the whole measuring 26 in. in diameter. The fittings are suspended by 12 chains, meeting at a point, from where the main chain takes the

weight. These are hung from heavy wrought iron brackets in the nave, fixed above the capitals of the main vaulting shafts, and in the aisles from the intersections of the vaulting ribs. The whole will be in thorough harmony with the architecture of the cathedral. The fittings for the aisles are arranged to give semi-indirect lighting. That is, a great portion of the light is cast up to the white stone ceiling and reflected from there towards the floor thus obviating shadows, and giving a soft evenly distributed light. The nave fittings are of the direct diffused type, that is the lamps are concealed, but the light is diffused from the fitting itself. The great height of the nave ceiling makes it impossible to use reflected lighting, but there should be no trouble from glare, owing to the softly diffusing nature of the glass bowls. It is hoped that by these means, the system will be as perfect as possible, and the unpleasant and annoying effect on the eyes produced by strong naked lamps, will be entirely obviated. Half-watt lamps, which consume only half the amount of current that the ordinary lamps do, are specified, so that the running charges should be small. For the exterior, handsome copper lanterns have been specially designed, one on each side and one over the main doors, hung from wrought iron brackets. There are also lights on the outside of all subsidiary doors. The vestries, meeting rooms, etc., in the basement are all well lit, and in addition lights are placed in the turret stairs, triforium, organ gallery, and all places where required. Electric radiators are installed in the office and vestries and power is being provided for the ventilating fan motor, and organ blower motor. Altogether the system is most complete and up-to-date in every particular, and worthy of the great building it is to serve.

WELLINGTON.

Tenders are to be called for the erection of a new building to house the Fire Brigade Station, Constable Street Wellington.

The Wellington Hospital Board has borrowed £33,000 from the Public Trustee for the erection of new buildings and additions to existing buildings.

It is proposed to erect a Marist Brothers' training college in New Zealand at a cost of £10,000. Donations received so far include two sums of £100 each from Wellington citizens and £250 from an old boy of the Marist school.

A civil action was commenced in the Wellington Magistrate's Court before Mr. W. G. Riddel, S.M., last month, in which C. Tilleard Natusch and Sons, architects, of Wellington, proceeded against John Bortley, settler, of Christchurch, for the recovery of £71 17s. 6d. The claim was for services rendered by plaintiffs in the preparation of plans and specifications of two shops and outbuildings to be erected in Jackson Street, Petone. Tenders were called for the erection of the premises, but the work was not gone on with, as none of the tenders were accepted by the defendant. The estimated cost of the proposed buildings was £2,200, and the lowest tender was £93 above the estimate. The defendant said that the estimate given him was £1,700. He had arranged for £2,000 to meet the costs of building, and alleged he informed the architects that a tender was not to be accepted if the estimate was exceeded. In the case of the erection of the building not being gone on with defendant offered to pay the architects for work done, and paid £10 into Court to cover this. Further hearing was adjourned.

Notice to Subscribers

"N.Z. Building Progress" is posted each month through the G.P.O. at Wellington. If any subscriber should not get his copy, another will be sent him if we are notified in good time. The paper is supplied from year to year only, and if subscribers continue to receive the paper after expiry of the current year, we shall accept it as an intimation of their desire to continue for another twelve months. We undertake to supply the paper for such further term. Notice of discontinuance must be sent to the Manager, 8 Parish Street, Wellington in writing, as no Agent has authority to receive notice of discontinuance on our behalf. The subscription is 7/6 per annum. A discount of 1/- will be allowed off this amount if subscription is paid in advance.