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WELLINGTON, AUCKLAND, CHRISTCHURCH, AND DUNEDIN, NEW ZEALAND, JULY, 1920.

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Editorial Comment

Regulations —and More Regulations.

The building industry is now regulated from one end to the other. Possibly the latest series of official restrictions will have some effect in concentrating effort along the most useful channels, but it seems to us that the great bulk of building has already been done for highly useful objects connected either with the housing of the people or the development of our industries. It will not make for cheapening of building to create any preferential atmosphere around any class of work, and we have yet to see how officialdom will conduct itself now that it has been given a further large slice of power. Everything depends on the interpretation of the regulations which we print in full in this issue. Every building job worth £20 and over has to undergo the scrutiny of the Board of Trade officials, or the local bodies who will represent them, deciding whether work is essential before issuing a permit. Houses for the wage earner are admittedly most essential, but buildings for carrying on business are almost equally needed, and unless trade is encouraged, there will be no way of paying the high rents for the dwellings—for even State and municipal dwellings are not marvels of cheapness nowadays. For five or six years the country's business firms have been putting up with cramped accommodation, and warehouses and stores have been congested with the primary products of the country. The need for extension of business premises cannot be overlooked, and it will be necessary to watch very carefully the official decisions regarding priority of permits. After all, regulation will be nothing but a very inadequate palliative. How can dwellings be provided if materials are doled out in small quantities, and jobs are held up for days through non arrival of supplies? An increased output of timber, cement, bricks and similar products is the real crux of the position, and if the Government will direct its regulating activity into some practical channel for the improvement of shipping services in respect to coal and timber, the building of houses will receive

a real boost, worth more than a thousand regulations, which after all are simply paper promises. Our reason for the last expression of opinion is based on the fact that owing to the high cost of building, the industry has had to be almost completely employed on highly reproductive buildings. And if it is admitted that a building is going to bring a good commercial return, it is obvious that it must be needed. If the new regulations can do more than high costs in eliminating useless buildings, we shall be surprised. They provide no real guarantee that more houses will be built.

How the Regulations Work.

Some indication of how the regulations are to be administered is given in a statement by the Hon. E. P. Lee, President of the Board of Trade. He says that as the whole object of the regulations is to direct supplies to essential works, arrangements have been made to facilitate the process of obtaining permits for dwellings. The local authorities throughout New Zealand have been supplied with the necessary forms, and have been authorised to issue permits for dwelling-houses and essential farm buildings within their districts. Applications other than those for works which the local authority is authorised to deal with will be considered by the Board of Trade, with whom an advisory committee will be associated for the purpose. Works at present in course of construction will be allowed to proceed for a space of two months.

Timber Prices—A Contrast.

New Zealand's export of timber does not reduce by one plank the quantity of timber available for use in the Dominion, says the Hon. Sir Francis Bell, Minister in the charge of the State Forestry Department. He suggests that the millers can obtain a much higher price for their timber free on board vessels bound for overseas markets. This is so, but the export is strictly limited, and the millers have really as good a case for compensation out of the consolidated fund as those butter producers who are now demanding of Parliament that they be repaid about a quarter of a million levied on their butterfat during the 1916-17 season, so as to keep down the price of local butter to the New Zealand consumer when the export values were high. Of course, the miller has no chance of a State dividend of this description, because he is not so powerful in Parliament as the farmer. His difficulty will be to get a fair price under the handicap of constantly mounting expenses. We are glad to note that the Board of Trade watches the timber position constantly, and has allowed increased prices to be charged in accordance with increased expenses. There is official basis for the statement that on the average, the factor of wages is responsible for 70 per cent of the cost of timber at the mill. This is another illustration of the economic Dervish-dance in which all classes in New Zealand are now engaged—a chase after high wages, a retort by way of higher prices, then another chase after high wages. The pace is getting giddier all the time, and one wonders when the mad process will come to an end. The Govern-

ment tries palliatives, but seems helpless in the face of the problem. For instance, the Speech from the Throne on the occasion of the opening of Parliament contained a sad admission that it is impossible to prevent profiteering which goes on before imported goods are landed. Why is this impossible? Is New Zealand not part of the British Empire, and are not the British manufacturers and merchants the chief profiteers in regard to our imports? One of the lines of imported goods most generally used in New Zealand is handled in this country by a "dummy" company which is only a selling agent for the Home house, and does all its work on the extremely modest basis of 2½ per cent. profit. The real profit is put on before the goods are landed, and the real company made several millions of profit last year. This the New Zealand income tax, which at one time was more severe than the English tax. It also had the dummying system originated out of a desire to avoid advantage that it largely overcame the double income tax which had to be paid on companies operating both in New Zealand and the British Isles. Now it has become one of the principal devices of the profiteer, and the Government in effect, tells that enterprising class to go ahead, for it cannot be helped.

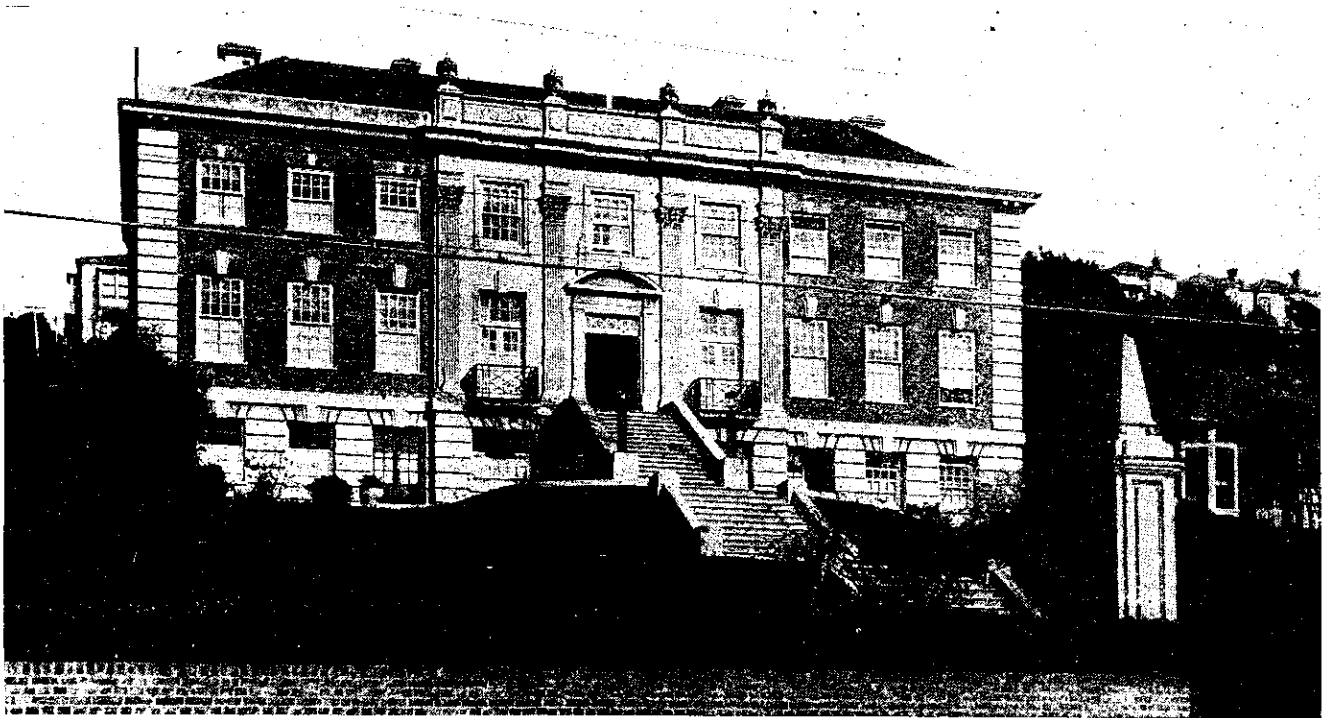
Payments by Results.

The recent trouble in Dunedin over piecework in the engineering trade indicates that New Zealand opinion is somewhat behind the times over this system. Strong objection was taken to an engineering firm running the piecework system, though its employees preferred this method of remuneration in proportion to effort. The National Federation of General Workers, an English organisation representing a million and a half employees, has resolved in favour of payment by results. This body consists of semi-skilled, and unskilled workers, and the resolution, we admit, would have been more important had it come from a great body of skilled workers such as the engineers. What killed the piecework system in England years ago, and still bars the way to its re-acceptance, was the short-sighted policy of employers, who begrudged the men the higher wages they could earn by extra effort, and gradually brought down the piece-work rate until this heavy effort was necessary to earn a living wage. If the piece-work system is to be used as a sweating system, it will never be accepted by the men. But under such conditions as the present, where the last ounce of effort is needed to make up for the gap in production due to the war, a system of payment by results, liberally administered, seems the quickest way to making up for the lost years. In some trades in New Zealand the employers, though afraid to raise the old trouble of opposition to piece-work, encourage good men by paying them more than the minimum wage, once they discover that their output is higher than that earned by men who are on the minimum. This is a modified form of piece-work, and it may lead eventually to acceptance of the real principle, once the men become satisfied that the employer is honestly desirous of allowing them to retain the full benefit of their increased effort. It is the most promising antidote to "go slow."

The Duty of Those Who Build.

At a recent meeting of the New Zealand Club when General Bramwell Booth was entertained at luncheon, an interesting aspect of building was touched upon which does not, we think, receive its due share of attention. In the course of his remarks when introducing the guest, Mr. William M. Page, President of

General Booth in replying said it was very gratifying that one of their buildings should merit the approval of the local architectural "nabobs." He was quite aware that most of the Army buildings were most atrocious from an architectural point of view, but they were too busy in the Army building



The William Booth Memorial College (Salvation Army), Aro Street, Wellington, the design of which was commented on so eulogistically by the President of the N.Z. Club recently when entertaining Mr. Bramwell Booth.

Architects: Mr. Stanley Fearn and the late Austin Quick.

the Club, congratulated General Booth and the Salvation Army on the William Booth Memorial College in Aro Street. He said—"It is not often that public or other bodies, or indeed individuals, realize the duty they owe to the citizens when they set new buildings in our streets. The Salvation Army, however, so far as Wellington is concerned, is a notable exception, for, speaking as an architect, I consider the college in Aro Street one of the most architectural buildings in the country. It strikes a charming note in a drab neighbourhood and is a continual pleasure and joy. The Institution is a most excellent one, and the work will go on all the more successfully by reason of its being housed in a comely building."

character to pay much attention to architecture. In speaking of the early days of the Army he expressed the opinion that his father built better than he knew. By paying great attention to character building the son is doing better for architecture than he knows, for, without character a people will never have a worthy architecture.

Nevertheless, General Booth and the Salvation Army are to blame if they never pay any attention to the architectural value of their buildings. In the case of the Wellington building Providence must have guided them to an accomplished architect, and so they acquired a worthy building. But it might very easily have been otherwise, and evidently, on the General's own confession, it is very often other-

wise. The General cannot afford to neglect architecture. It is a potent and powerful ally in the campaign to which he has devoted his life.

Architecture, like any other art, requires to be encouraged; indeed there can be no art without encouragement and it is because of the lack of encouragement that we have so few fine buildings. Our ideals and outlook on life are reflected exactly in our architecture. When our ideals are fine and noble our buildings will be beautiful and worthy. Is it not a fact that those who build do not sufficiently realize their duty to their fellows and their time? Do they exercise as much discrimination and care in the selection of an architect as they do in the selection of their tailor or grocer? Has an architect's client ever been known to insist that the design should be improved architecturally? There is no reason whatever why all our buildings should not be as satisfactory as the building previously referred to. It is not a question of money. It is a question of brains and how the money is spent, and we have no hesitation in saying that the great majority of people who build get sorry value for their money. They are to blame, moreover, in failing to contribute to the general welfare and happiness of their fellows for, beyond question, the lack of beauty in our everyday life is one of the great evils of our times and is perhaps the root of all evils.

Pugin said, "Let every man build to God according to his means but not practise showy deceptions." Building to God means designing in such a manner that every one who looks upon the building will be helped and uplifted. It means that those who build must not place stumbling stones in their brothers' path, and every building of ungenerous men is a stumbling stone for all who pass by.

Showy deceptions are not necessarily cheap jerry erections but include all buildings which do not satisfactorily fulfil the purpose for which they were designed, which are not soundly constructed and healthy, and which are not truly proportioned and modelled with grace. They also include those buildings whose fine facades hide an unsatisfactory inside, commonplace flanks and a mean back.

C. H. Spurgeon caught the whole idea for he wrote with reference to Chapel Building Committees—

"They make a front just like St. Paul's,
Or like Westminster Abbey,
And then as if to cheat the Lord
They make the back part shabby."

We have been sufficiently interested to visit the Booth Memorial College and are bound to state that, in our opinion, it has all the qualities Mr. Page claims for it. We find, too, since General Booth's visit it has aroused considerable interest and that many people did not previously know of its existence. It was designed by Mr. Stanley Fearn, architect, of Wellington, and, whilst the President of the New Zealand Club congratulated the Salvation Army we heartily congratulate the architect. We have obtained a photograph of the building from Mr. Fearn which we have pleasure in reproducing for the bene-

fit of our readers, and we feel sure they will agree with us that it *does* strike a very refreshing note, and that a few more buildings of the same type would do much to relieve the architectural dreariness of our cities.

Building Regulations.

Full Details of New Restrictions.

The following is a complete copy of the Regulations controlling the building trade of the Dominion and the supply of materials which have now come into operation under the powers given to the Government under Section 26 of the Board of Trade Act, 1919:—

1. These regulations may be cited as the Board of Trade (cement, brick and timber) Regulations, 1920.

2. These regulations shall come into operation on the day after the publication thereof in the New Zealand Gazette.

3. For the purposes of these regulations the term "development work" includes any new construction, maintenance or repair work of any nature whatsoever, in which it is proposed that any cement bricks or timber shall be used the estimated total completed cost of which exceeds £20 save and except (a) the formation construction or repair of any road bridge railway or tramway out of moneys appropriated to such works by Parliament or (b) the maintenance of any works occupied exclusively in the production of cement, bricks or timber.

4. After the coming into operation of these regulations it shall not be lawful for any person to commence any development work or subject to clause 5 hereof to continue any such development work except in pursuance of such a permit issued in that behalf by or on behalf of the Board of Trade. Every application for a permit shall be in writing and shall describe the work and state the quantities of cement, bricks and timber required for that work.

5. Works in the construction of which cement, bricks or timber have been actually used prior to the coming into operation of these regulations shall be deemed to be works in course of construction and for a space of two months from the date of the gazetting of these regulations shall for the purposes of clauses 7 and 10 hereof be deemed to be development works for which a permit has been issued and is in force unless by notice given by the Board of Trade to the person for whom such work is being done it has been directed that such work shall be discontinued and all such works shall after the expiry of the said space of two months or after such notice to discontinue be deemed to be development works in respect of which no permit has been issued unless the person for whom such work is being done has applied for and obtained from the Board of Trade authority in writing to continue such works.

6. Any permit issued under these regulations shall be revocable at the will of the Board of Trade.

7. No person shall deliver any cement, bricks or timber for the purpose of being used in any development work for which a permit has not been issued and is not in force at date of such delivery. A statement in writing signed by the contractor or the person for whom the work is being done asserting that a permit for such work has been obtained under these regulations and is in force may be accepted by any person as evidence of such permit and the production of such statement shall relieve such person so supplying cement, bricks or timber from liability to penalties under these regulations.

8. In granting any permit under these regulations the Board of Trade may make such terms and conditions as to the quantities of cement, bricks or timber that may be delivered in pursuance thereof or such other terms and conditions as the Board of Trade thinks advisable for the regulation and control of the cement, brick or timber industries.

9. No person to whom any cement, bricks or timber has been delivered for any development work for which a permit has been issued under these regulations shall thereafter without the consent of the Board of Trade deal with such cement, bricks or timber or be concerned in dealing therewith or permit the same to be used otherwise than for the purpose of such development work and in accordance with the terms and conditions prescribed in the permit for such development work.

10. Any person who receives or uses any cement, bricks or timber for any development work for the construction of which a permit is not in force under these regulations, or fails to comply with the terms and conditions on which any permit is issued, commits an offence against these regulations and shall be liable accordingly.

11. The Board of Trade may delegate its authority to issue permits under these regulations to any local authority upon such terms and conditions and with respect to such works or classes of work as the Board thinks fit and any local authority so authorised may issue permits accordingly in respect of any such development works in its district. The Board may at any time revoke such delegation.

12. The Board of Trade may from time to time appoint such persons as it deems fit to be a committee of advice on matters relating to the administration of these regulations.

13. All persons to whom permits or authorities to continue development works are issued under these regulations shall produce the same for inspection by any person authorised by the Board to demand the production of same and failure to so produce shall constitute offence against these regulations and render the person so failing liable accordingly.

14. The Board of Trade may by notice in writing require any person whose business includes the production or distribution of cement, bricks or timber, to supply a specified quantity of cement, bricks or timber for any specified development work or for any work mentioned in paragraph (a) or (b) of clause 3 of these regulations or to any locality and failure to supply such specified quantity of cement, bricks or timber within a reasonable time after the

receipt of such notice shall be deemed to be a breach of these regulations and the person to whom such notice is given shall be liable accordingly.

15. Any person who makes any false or misleading representations with intent thereby to obtain a permit under these regulations or to obtain cement, bricks or timber, either for himself or for any other person or who in any manner deceives or attempts to deceive the Board of Trade in any matter relating to the administration of these regulations shall be guilty of an offence against these regulations and shall be liable accordingly.

Pahiatua Municipal Electric Scheme.

Many perplexing difficulties have been encountered by the municipal authorities in Pahiatua (a picturesque and thriving borough with a population of between 1300 and 1400) in the carrying out of their electric light and power scheme. Its successful completion marks a very important forward step in the history of the district. Before finally proceeding with it, the Council obtained much information and data from other towns where electricity is in vogue. In addition, the Mayor (Mr. J. D. Crewe), and members of the Council consulted experts and made personal inspection of plants in various boroughs. Contracts were in due course let, but the subsequent war, of course, greatly interfered with the progress of the scheme and considerable difficulty was experienced in obtaining material, to say nothing of the vastly increased cost of the latter.

At the outset, Mr. J. H. Ryder, Manager of the British General Electric Co., Ltd., Wellington, was specially commissioned by the Council to submit a detailed report on an electrical scheme for the Borough. Some time later the services of Mr. G. Lauehlan, Consulting Engineer, Wellington, were engaged, but that gentleman subsequently resigned the appointment. The Council then invited applications for the position of engineer, and from among several applicants the late Mr E. J. Fenn, A.M.I.E.E. of Auckland, was selected.

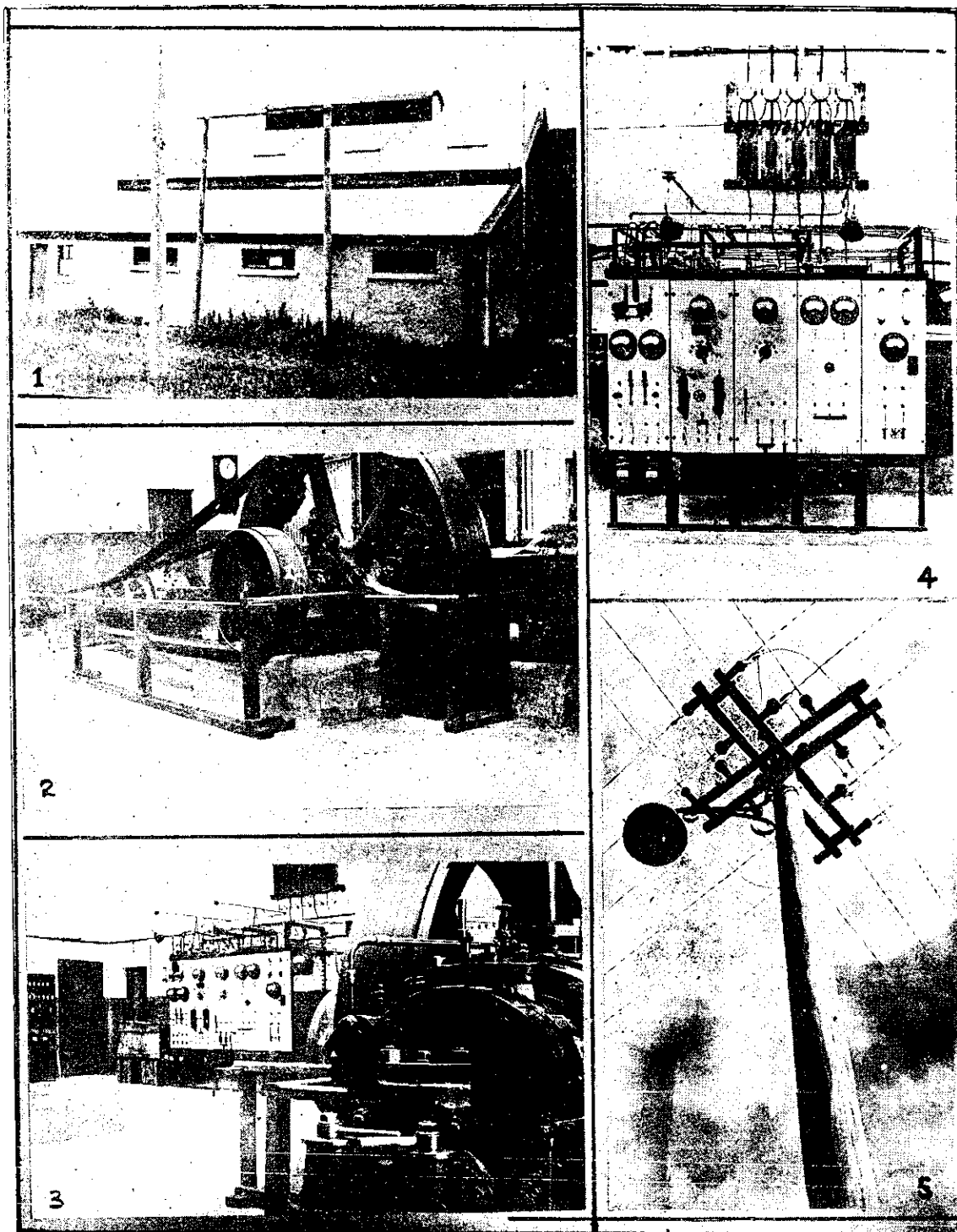
The work of erecting the power house was done by day labour by the Council's employees under the supervision of the Borough overseer (Mr R. Parker), considerably under the estimated cost, and £60 under the estimate of the Consulting-Engineer, the late Mr Fenn.

The Council put aside out of the original loan a sum of £875 to assist in installing the light, and the Mayor stated that for £3 down and a regular monthly instalment, any citizen could get the light put in up to £15 in value.

The Mayor mentioned the comparative prices of gas and electricity. Electric light was 9d. per unit, and that unit was equal to gas at 7s. 6d. per 1000 feet. With regard to installation materials, Mr. Parry, the Chief Government Electrical Engineer, had informed him some years ago that it was not likely that there would be any drop in the price for at least five years.

At the official opening, attended by representative citizens, the current was switched on by the Mayoress

Pahiatua Electric Power Scheme.



1.—Power Station.

2.—Fly Wheel.

3.—View of Engine Room.

4.—Switchboard.

5.—Typical Pole.

(Mrs J. D. C. Crewe) amidst great applause. Great credit must be given to the Mayor for the admirable persistency with which he stuck to the scheme in spite of many difficulties and discouragements. The resident Engineer (Mr W. L. Cullen), who has carried out important installations in other towns, has been warmly congratulated by many on his very efficient and conscientious services. The Town Clerk (Mr G. C. Miller) has also been of considerable assistance.

The original loan for the scheme was £10,000. Subsequently advantage was taken under the Act to raise an extra £1000 on this amount, and negotiations were afterwards completed for the raising of a further loan of £6000.

The plant comprises the original overhead network, approximately nine (9) miles of copper mains, supported on ironbark poles, as designed by the late Mr E. J. Fenn, A.I.E.E., Auckland, and partially erected under his supervision, and a generating plant composed of a mixture of original and temporary machinery.

Practically every street in the town is reached by the mains, and a fairly complete system of street lighting has been installed, consisting of some sixty lamps of 100 and, in the main street, 200 candle power each.

The power station is a spacious reinforced concrete building (with a tiled "Pollite" roof) containing producer, engine and battery rooms, also store and office. It was designed by the Consulting Engineer, Mr. Fenn, and erected under the supervision of Mr R. Parker. The water supply is taken from the public baths main, and water used for cooling the engine is returned to this main. A tank, holding some 2000 galls., has been provided on a tower at one end of the building, in case of temporary stoppage of the pump.

The plant in the power station consists of Cambridge Suction Gas Producer, 100 h.p., burning Wai-kato coal, motor driven pump, and the necessary power and lighting switch boards and wiring; all supplied by Messrs Turnbull and Jones (Wellington), under their contract. This, together with the Premier storage battery (installed by the contractors, Messrs The Electric Construction Coy., Auckland), comprises the whole of the original plant the Council has been able to obtain to date.

The temporary plant installed consists of 62 h.p. National gas engine, supplied by Messrs Niven and Co., of Napier, belted to a Westinghouse dynamo, three wire Balancer, Battery booster and Switch-board. All of the temporary plant has been erected by the Borough Electrical Department's staff.

Current is supplied on the three wire direct current system, at 460—230 volts.

Nett Charges for Electricity.

Lighting	9d. per unit.
Power and Heating	4d. per unit.
Power on restricted hour basis	3d. per unit.

Quite recently, the original plant, which has been on order at Home for some years, came to hand. The number of consumers at time of writing, was nearly 150.

The Otago Architectural Students Association.

An Architectural Students' Association has been recently formed in Dunedin for the purpose of improving, and enlarging upon the present educational system of the Architectural pupils of this city: also to place their position under the notice of the Institute of Architects, and thus afford each individual a better opportunity than he may be able to provide for himself.

The office bearers consist of a President, (a practising Architect of the town,) and a secretary, treasurer and committee of students. The names are as follows:—President: Mr. Basil Hooper, A.R.I.B.A.; Hon. Secretary: W. Shardlow, c/o Ansonbe and Smith, Architects, Union Bank Chambers, Dunedin; Treasurer: E. H. Smith; Exec. Committee: E. V. Davys, E. Hutton, N. Wales.

The objects of the Association are to encourage healthy rivalry amongst the members, giving them confidence and ability, and making them keen in their studies. To promote a friendly social spirit and afford opportunities of discussing matters pertaining to architecture.

Provision has been made for architectural books and magazines, and a club room has been procured and suitably furnished to act as lecture room, library or sketching room as required.

The competitions held and lectures delivered will deal also with subjects which the present educational scheme omits. For example, during the summer months the members will take measurements of buildings of good design as recommended by the president. Sketching, time designs, papers prepared by students, and open to criticism, and lantern lectures, etc. Simple designs such as a Georgian summerhouse in a formal garden, bandstands, entrance to a public building, etc., will figure in the competitions.

It is the desire of this Association to link up with those of other centres by correspondence, and the secretary would be very pleased to make the acquaintance of any fellow students visiting Dunedin, such students will be made most welcome at the club room.

Brickworks at Mauriceville.

Some months ago it was announced in this paper that a well known brickmaker of the West Coast—Mr. Neighbours—had visited Mauriceville and discovered huge deposits of some of the finest brick-making clay in the Dominion. As a result of that visit, the firm of Neighbours and Williams has decided to establish brick and pottery works at Mauriceville. The machinery and plant have been procured, and the erection of kilns will be commenced immediately. It is anticipated that within the next two months bricks, salt glazed ware, and fancy pottery will be on the market. The firm intends catering for the Wellington and Wairarapa trade, and will employ quite a number of hands.

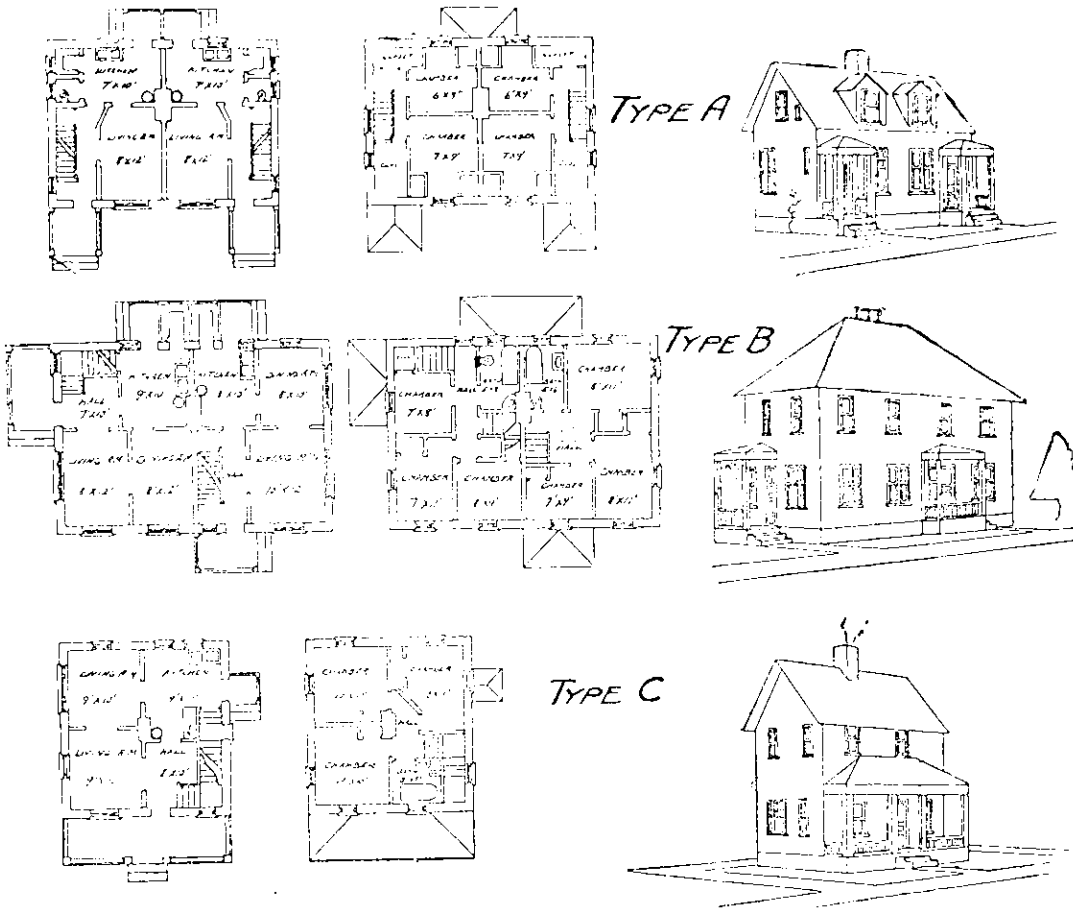
Railway Rolling Stock.

Attempts to Remedy Shortage.

Some remarks on the shortage of trucks and other rolling stock on the New Zealand railways were made by the Minister of Railways (Mr. Massey) in reply to a Canterbury deputation which waited on him recently.

Mr. Massey admitted that the difficulties in keeping up the supply of rolling stock were very great. The Government had intended to give full effect to

there would be an improvement in regard to rolling stock before next harvest. There would be an increased area under wheat, and for this reason alone a larger number of trucks would be required. He assured the deputation that the Government was extremely anxious to bring the service up to date, and to provide for the enormous amount of business that was to be done. Never had so much business been done on the railways as during the past six months. There had never before been such a busy period, and the volume of railway business must be an indication of the industry and prosperity of the country.



Three Types of American Houses on which Cost Comparisons are given.

the report produced by Mr. Hiley in 1913, and the report was being already acted upon, but for many reasons well enough understood it was not possible to do this at once. The difficulties were partly financial, and partly due to shortage of labour and material. He said that the Department was doing its best to overcome the truck shortage. They had been able to build very few trucks during the war, but since the war had ended they had been endeavouring to place orders not only in New Zealand, but also in England. They had asked for tenders for 2500 trucks in the Old Country, and also for 25 engines, though if it had been possible to have the engines built here the Department would not have gone outside of New Zealand for locomotives. He hoped that

"Commonsense Homes for New Zealanders."

A practical guide for those who are building homes in this country, is just about to be published by the proprietors of "N.Z. Building Progress". It contains a large number of carefully selected designs with scale-plans, perspectives and photographs, as well as estimates of the completed cost under present-day conditions. The volume is not only a very useful practical guide, designed exclusively to deal with New Zealand conditions—our residential requirements, climate, sites, and materials—but is also a very fine testimonial to the ability and talent for design possessed by New Zealand architects. The published price is five shillings.

Quantity Construction of Houses.

Cheaper in Concrete than wood in America.

The adaptation of the concrete house for multiple construction, such as in an industrial housing enterprise, has been successfully made in large groupings in Manhattan, and other American cities. The suggested plans, shown here, are, however, interesting for another reason, in that they involve the standardization of operations, and the interchangeability of parts rather than the fixing of a final type. They are the design of the Flynt Building & Construction Co., Palmer, Massachusetts, and the builders state that they are able to make an arrangement, so that each house is different from its immediate neighbours, to avoid that monotony which characterizes mill cities, built up of an absolutely fixed type of house.

These houses were originally designed for a client who contemplated a rather extensive development and wanted to erect an economical type of house and particularly one in which the maintenance would be reduced to the minimum.

The houses were designed to be as comfortable and livable as possible, the client even being willing to forego any ornamentation which would not materially contribute to the beauty of the building. It was agreed that the beauty of the concrete building lay more in its proportions than in applied ornamentation.

The prospective illustrated houses shown are therefore intended primarily for those who desire neat, permanent, and attractive, but not ornate houses of a very substantial construction. They do not, however, exhaust the possibilities of this kind of construction, but merely indicate three suggestions and show at how reasonable a cost such houses can be built. A practically unlimited variety of types may be constructed without material change in costs.

In order to make the houses comfortable, it was planned to use the Van Guilder type of hollow wall construction, the plaster on the interior to be applied directly to the wall, and it was intended that the dividing wall in the two-family houses should be of concrete construction. This feature was introduced more from a fire prevention standpoint than any other, though it would have contributed materially towards preventing the transmission of sound from one side of the house to the other.

The Flynt Co., likewise, intended to construct the floors of ordinary joist construction with under-flooring on the first floor, having either a comb grain yellow pine or fir top floor. The second floor was to have only the top flooring, and the attic only the under-flooring. The interior trim was to be of yellow pine or fir throughout, except for the doors, which would probably have been birch.

An estimate made in Jan. 1920 by Chas Dingman, Engineer to the Flynt Company shows that a house built in concrete at Type "A" would cost £516; Type "B" £724, and Type "C" would cost £806.

Probably the most interesting feature about the new figures is that it will cost less at this time to build houses of concrete, when they are built in quantities, than it will to build them of ordinary

frame construction. Furthermore, in the few months' interval between 1919, and January, 1920, the cost of concrete houses increased 67.6 per cent., whereas, the wooden houses increased in cost from 93.8 per cent. to 102 per cent.—a very striking comparison.

Of course, the explanation of this apparent inconsistency is in the fact that during the last half of 1919, the prices of practically all kinds of building lumber advanced very rapidly, while the advances in prices of cement, sand, gravel, crushed stone, and other materials were very much lower.

In the Van Guilder type of construction there is practically no wood used for forms, and, therefore, the only depreciation of form lumber that is included is that used in the cellar walls which were to be of solid poured concrete.

Details of the Three Types.

If bath and wash basin be omitted from either type "B" or "C", £40 per family may be deducted. The difference between this cost and the cost quoted for type "A" being explained by changes necessary in type "A" to accommodate the fixtures.

Type "A" provides a kitchen, pantry, living room, toilet, two chambers and two closets, for each family.

Type "B" provides a kitchen, pantry, living room, dining room, reception hall, bath, three chambers, three closets and storage space in the attic, per family.

Type "C" provides the same accommodation as Type "B", except that the rooms are generally larger and the pantry is built into the kitchen.

An examination of the illustrations will further show the comfortableness and the good arrangement of the rooms.—"Concrete."

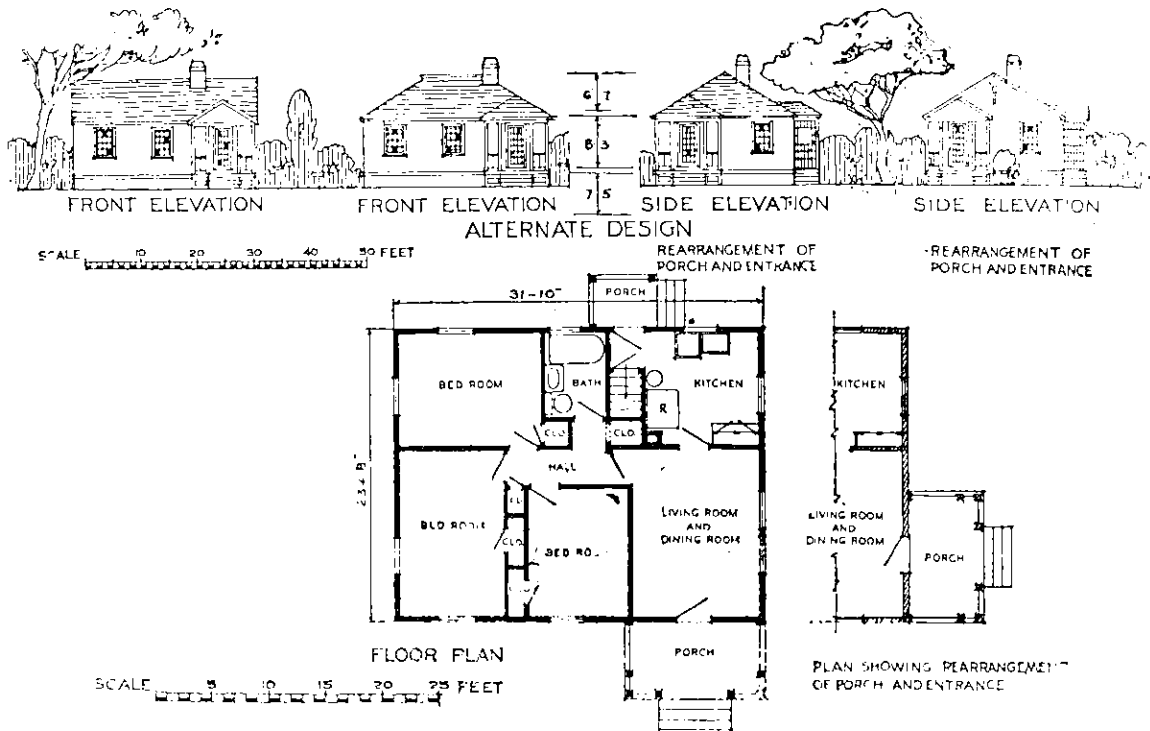
Dominion Federation of Building Trades.

The question of forming a Building Trades Federation of New Zealand was discussed at a conference of delegates representing unions in the building industry held at Wellington recently. Mr. E. Phelan, president of the New Zealand Timber Workers' Federation, presided. The following bodies were represented:—Timber workers of Invercargill and Westland, Furniture Trades Federation, National Organisation of the Amalgamated Society of Carpenters and Joiners, Wellington Building Trades Federation, painters of Christchurch and Nelson, Master-ton unions, electrical workers of Wellington, Canterbury Building Trades Federation, Auckland labourers, King Country sawmill workers.

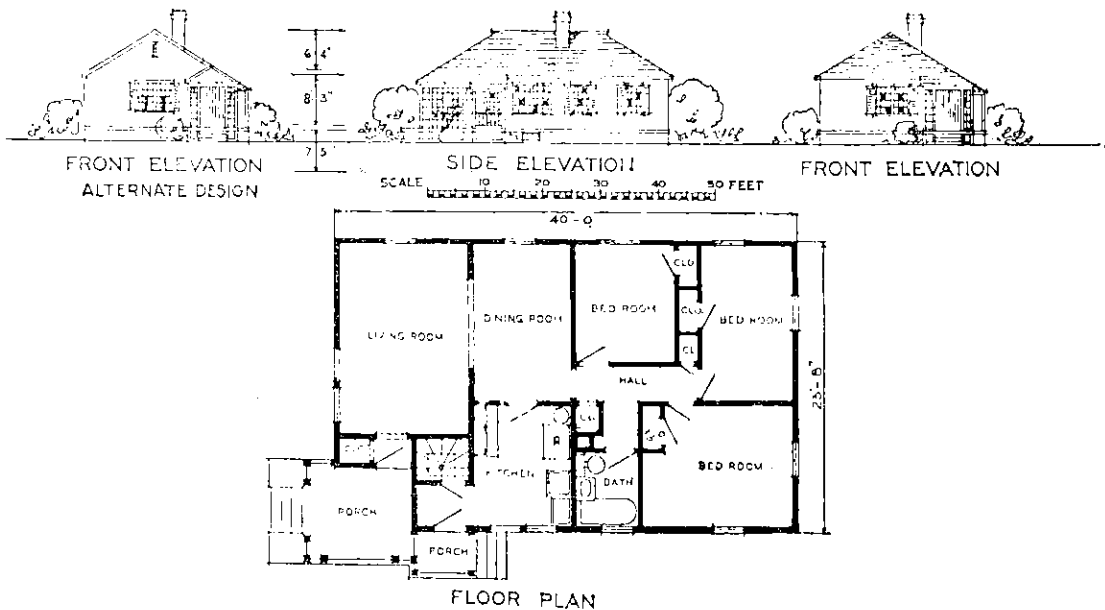
The following motion was carried:—"That this meeting affirms the principle of closer unity in the building trade, and recommends the provincial organisations concerned to still continue their efforts in the direction indicated, and when such provincial federations have been effected all provincial federations shall appoint delegates to attend a Dominion conference, to be held in Wellington, with the ultimate object of creating a Dominion Federation for the industry."

Mr. H. Hunter (Christchurch) was appointed secretary pro tem., and instructed to get into communication with the provincial organisations.

Ideas for Plan Hunters.



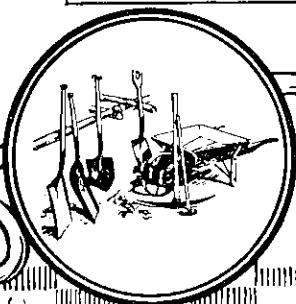
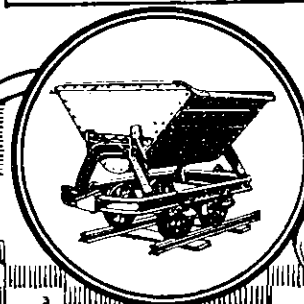
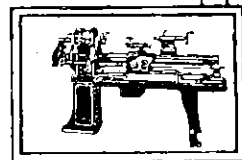
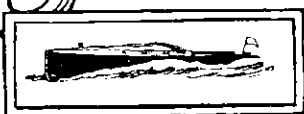
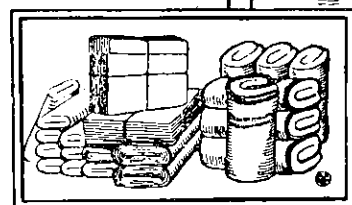
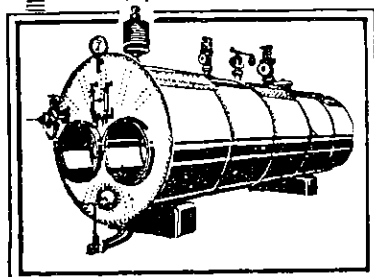
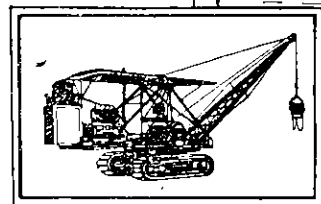
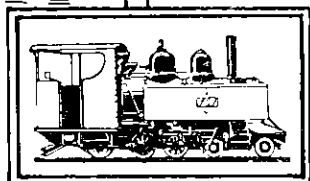
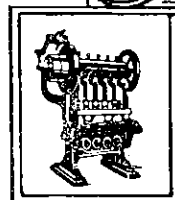
Another Plan for a five-roomed Bungalow, drawn for the U.S. Housing Corporation.



A Plan for a six-roomed Bungalow, drawn for the U.S. Housing Corporation.

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SAWMILLING SECTION.

[This Section is published by arrangement with the Dominion Federated Sawmillers' Association (Incorp.) in the interests of the Sawmilling Industry of N.Z.]

Editor: W. T. IRVINE.

The great demand for timber has been the means of increasing the number of mills, and on the West Coast we understand something approaching twenty are in course of erection. A Christchurch company under the title of the "Great Western Timber Co., Ltd.," has just issued a prospectus with a capital of £125,000 to operate about 10,000 acres of milling rights near Okarito—South Westland—and another large company has been formed to take over the Auckland Rimu Timber Co., Rotorua, and acquire the milling rights of increased areas of milling bush on Lake Rotoiti, to be called the Rotoiti Timber Co., Ltd., with a capital of £75,000. Notwithstanding the present shortage of timber, for building purposes, it would appear that the supply may catch up with the demand sooner than expected, in which case we may require to look for increased overseas trade. Millers are doing their utmost to supply local needs, but if these are met up to the limit of their capacity they cannot be expected to wholly discontinue trade with Australia, with the chance of cutting off a connection that may be of great value later on.

Building regulations have now been gazetted and it will be necessary to obtain a permit for the supply of cement, bricks, and timber for any building involving an expenditure of over £20. Local bodies throughout the Dominion have been supplied with application forms so that no unnecessary delay may occur, and they are authorised to grant permits for essential buildings such as dwellings and farm houses. Other applications for permits must be forwarded through the local Inspector of Factories, to the Secretary Board of Trade.

Since the new Award for the Auckland Industrial District came into force on 10th May, application has been made to the Board of Trade for an increase in the price of timber to compensate for the increased cost of production. A further new award is being applied for by the Wellington Timber Workers' Union, and also by the King Country Timber Workers' Union. Meantime wages have been steadily increased owing to various causes, and the millers in many instances have already anticipated the new awards. In consequence the Board of Trade has agreed to an increase of prices ranging from 1/- on half inch lining to 2/6 on heart lines and 3/3 on Kauri—which will take effect from 1st July. So far as the West Coast is concerned f.o.b. Greymouth prices have been increased 1/6 per 100ft., and owing to this and increased freight, the Christchurch merchants have increased their prices 3/- per 100ft.

The Timber Workers' Federation has just concluded its Annual Conference in Wellington, and the following are some of the resolutions that were passed, viz.:— "That the principle of an eight-hour day from mill to mill be approved for bushmen." "That the Government be urged to appoint inspectors to inspect bridges, tram lines, and skids—to ensure safe working." "That boys under 16 years of age be prohibited from employment in bush sawmills." "That the Government be asked to provide adequate pensions for all widows and orphans." "That the Bankruptcy Act be amended to ensure payment of wages, as a first claim against all estates." "That all Inspectors of machinery be instructed to see that breast bench saws are provided with a 'fin' to protect the sawyer—and that locomotives have effective brakes."

The Exhibition of Timbers produced within the Empire has opened in London and according to the cables India takes pride of place. New Zealand is mentioned but as the Forestry Dept. and the Government did not countenance an official exhibit, we presume private enterprise has done something to show the resources of this Dominion and the beauty of its timbers. Irrespective of any export restriction it is surely a good thing to show the natural products of all the Dominions, when an Empire exhibition has been organised for that purpose.

"The Needs of Forestry in New Zealand" was the subject of an address delivered by Captain M. Ellis, Director of Forestry, before the conference of the Council of Agriculture. In the course of his remarks he made special reference to landholders and their responsibilities. "It ought to appeal to farmers with particular force," he said, "that the unwise devastation of forest lands, apart from the immediate and terrible waste it involves, has done a great deal to accentuate the problem of coping with the onset of noxious weeds. Obviously land areas which, once stripped of forest, are incapable, or hardly capable, of yielding even poor grazing, are in many cases those on which noxious weeds find a breeding-ground, and flourish and spread unchecked. On the other hand, as forest restoration extends, much will be done to limit the range and spread of noxious weeds. In the existing state of the timber market, great importance attaches to the point that orderly methods will avert a great waste of timber, and at the same time that the development work which is required to put forests into a state of permanent production will permit the harvesting of timber which at present is

to all intents and purposes inaccessible. The waste of timber in existing conditions has long been recognised."

* * *

Captain Ellis declared that if the Forestry Department was to carry out its work efficiently and economically, if its national forest policy was to be in all respects successful, the State must be pledged that:—

1. All the forest resources of the country will be managed by the forest service.

2. All the non-agricultural lands of the country carrying forest values, or that are more suitable for tree growth than for agriculture, will be grouped into national forests dedicated in perpetuity to the people of New Zealand.

3. A comprehensive inventory of the forest resources of the Dominion will be begun as soon as forest technicians are available.

4. A policy of enterprise will be adopted as to forest education.

5. There will be a businesslike management adopted, one in which a full and harmonious co-operation is secured between the State Forest Service, public bodies and private corporations and individuals.

6. There will be an expansion of the principle of co-operative profit-sharing and assistance in tree-planting by individuals, private and public bodies.

7. There will be worked out a system of equitable forest taxation, such as is now in vogue in Great Britain, France, and in several States of the U.S.A., by which it will be possible for the individual to practice forestry, and thus ensure to himself a supply of timber, and a profit to the community.

8. A Forest Act will be enacted at an early date—an Act which will be broad enough and liberal enough to permit of deliberate action over a period of years.

9. A forest products laboratory will be established to investigate all wood problems; and the economical utilisation of the timber resources of the country.

Lastly, Captain Ellis emphasised that it was essential that the Forestry Department should be given a free hand in its own sphere.

* * *

We think the Forestry Department and Government are to be congratulated on the appointment of Captain Ellis to the important position he now holds as Director of Forestry, and that the sawmilling industry throughout the country will receive from him every sympathetic consideration. In addition to his scientific qualifications, we believe Captain Ellis is thoroughly alive to the commercial side of the problems he will be required to solve in the interests of the country as a whole.

* * *

One of the objects of the Australian Forest League is the advancement of educational and legislative measures, and the encouragement of individual effort tending to ensure the maintenance, extension and renewal of the forests of Australia.

Our Forest Assets—Report by Sir David Hutchins.

The Case for Conservation.

Timber, Settlement and Revenue.

Two broad conclusions are presented in the report by Sir David Hutchins on "New Zealand Forestry" which has just been issued by the Government. One is that the native forests of this country are still capable of becoming one of its richest national assets—an asset which for all time will yield a big annual return of wealth, lighten the burdens of taxation, lower the cost of living, and support close settlement on extensive areas that otherwise will be barren and will carry a sparse population or none at all. The other main conclusion is that unless immediate measures are taken to conserve the remaining native forests and work them as forests are worked, with enormous annual profit, in Europe and in many other parts of the world, the opportunity of preserving them as a wealth-producing national estate will speedily disappear. These conclusions, stated in the report with all possible emphasis, are based upon the first comprehensive survey of the indigenous forests of the Dominion ever made by an expert forester. Indiscriminate forest destruction has gone so far, Sir David Hutchins declares, that only a short further persistence in the present policy will render the restoration of the forests almost impossible at any reasonable cost. "That will mean," he adds, "the final loss of the finest forests in the Southern Hemisphere, and with them the loss of an export trade worth, in the future, more than either wool or dairy produce. It will mean the loss of the best industry New Zealand has ever possessed or is ever likely to possess, and the handicapping of two or three other industries in depriving them of their raw material at economical rates. It will mean a continued rise in the present high cost of living. . . ." On the other hand, the distinguished author of "New Zealand Forestry" has much that is encouraging to say about the possibility of restoring the native forests to rich productivity. These forests, he points out, have been persistently undervalued. His own opinion is that on the whole they may be classed as above the average of forests elsewhere. The kauri, he adds, is "unique in the world" as a timber producing tree. The largest kauri of which the dimensions are on record contained twice as much timber as the largest of the Californian big trees. Again, the average millable forest of New Zealand carries about double the timber "stand" of the Appalachians Forest, which is being redeemed for the American nation at a cost of millions, and was described by the late ex-President Roosevelt as "the heaviest and most beautiful hardwood forest of the Continent." One of the most interesting and valuable sections of the report is based upon an exhaustive investigation of the rate of growth of New Zealand as compared with European trees. The broad conclusion reached

is that the principal New Zealand trees grow about twice as fast as the five chief forest trees of Europe—oak, beech, Scotch pine, spruce, and silver fir. Kauri, the report observes, is superior to oak in every respect but strength, and as a tree it grows some 50 to 75 per cent. faster than oak. In showing what New Zealand has lost by the wasteful destruction of forests, Sir David Hutchins uses a particularly striking illustration. He remarks that the Puhipubi kauri forest, which was destroyed by fire years ago, occupied a space of 17,000 acres, an area less than that of Wellington Harbour from the sea to Somes Island. This single forest, he observes, if it had been preserved, and fully stocked with young kauri, would now have been worth an amount that would cover the cost of rebuilding Greater Wellington from the bare ground, "with better-graded streets, and the boulevards its peerless site merits."

Forests that will Endure.

While he emphasises the loss that has been suffered in the improvident destruction of forests, Sir David Hutchins is, of course, even more concerned to show how they can be profitably worked in future. In dealing with doubts that have been raised as to whether the native forests can be perpetuated successfully and with profit, he relies not upon his own knowledge and experience only, but upon a considerable body of evidence collected over a long period of years by New Zealand observers. It must suffice here to state briefly that he expresses a most decided opinion not only that the native forests can be preserved, but under that cultivation, as it is understood in Europe and elsewhere, they can be made immensely more productive than they ever were in their virgin state. The cultivated kauri forest, it is estimated, will produce eight times as much timber on a given area in a given time as the wild forest. Sir David Hutchins points out in this connection that the forests of Prussia, in a climate less favourable to tree-growth than that of New Zealand, have increased their timber-yield nine times, and their money-yield more than ten times during sixty or seventy years—a man's lifetime. Though detailed and interesting comparisons are drawn in the report between the native forests and plantations of imported trees, it can only be mentioned here that Sir David Hutchins rates the plantations as in every way vastly inferior to the indigenous forest, whether they are regarded simply as an investment or as a source of future timber-supply. Where plantations are made in the open, he thinks it will usually be best to plant imported trees, but he is doubtful whether such plantations will become established as self-regenerating forests. On the other hand, he is of opinion that a number of imported exotics would spread naturally if planted in the native forests to thicken the stand of timber to the acre.

An Important Source of Revenue.

As showing the possibilities of future forestry in New Zealand, Sir David Hutchins declares that half a million acres of kauri forest—an area that might yet be restored—would ultimately return a net amount of more than £10 per acre per annum, or

over £5,000,000 per annum in the aggregate, to the State. With the forest at this stage of production, this half-million acres would also afford settled homes and permanent employment for nearly seven thousand families. As they stand, the kauri forests offer some scope for permanent settlement, and a considerable amount of employment in forest restoration and development work; and Sir David Hutchins states that in the process of restoration the return from "well-timbered acres" would more than cover the outlay on areas from which the kauri forest has well-nigh disappeared. Ultimately the kauri forests, on account of their rapid growth and the valuable timber they yield, will be the richest in the Dominion. Since for the time being, however, these forests have been reduced to a mere remnant, more important possibilities so far as the immediate future is concerned attach to other classes of forest, notably totara. Totara forests of great value and extent, Sir David Hutchins remarks, remain to be demarcated, and he is of opinion that these forests are only less valuable than kauri. He adds that his estimate of an ultimate net return of over £10 per acre per year from kauri forest will be applicable with but little reduction to a large part of the forests in the northern half of the North Island.

Forest Settlement.

The present total area of forest in New Zealand not on native land or otherwise privately owned is ten and a half million acres, and of this only a small part, the report states, is as yet under nominally protective forestry. According to European standards, New Zealand ought to have sixteen million acres of permanent forest, but Sir David Hutchins suggests that on account of the mountainous character of much of its land this country needs a larger proportion of forest in order to secure the fullest extension of settlement and a maximum volume of production. If demarcation on approved lines is undertaken in this country, only poor land (much of it mountain country of little value for ordinary settlement) will be retained or set aside as forest. Sir David Hutchins estimates, however, that cultivated forest on this poor land, the bulk of it included in the "unoccupied third" of the Dominion, would ultimately support, on the soil and in sawmills, about as many people (workers and their families) as now constitute the total population of the Dominion. Such forest estates, he declares, would be amongst the most valuable in the world—they would easily surpass the most valuable forests in France and Germany—and they can be put in order usually for a fraction of the value of the timber on them, or at the worst for the cost of grassing.

Reckless Improvidence.

As showing with what reckless improvidence the native forest has been given over to destruction, Sir David Hutchins points out that during the last fourteen years over 829,000 acres of bush land have been alienated without any attempt at forest demarcation. He also cites numerous examples from the "Crown Lands Guide" of land which might be very valuable as forest offered under lease or for outright

sale for trifling sums. In one case twenty thousand acres of "very wild country, mostly bush," in the Westland district, were offered at an annual rental of £10 for the whole twenty thousand acres. Another example is that of 11,852 acres of precipitous mountain forests in Marlborough offered in eight lots for outright purchase at an average price of 6s. 3d. per acre. As to what is happening in Auckland province, the report cites from the "Crown Lands Guide" examples of land carrying some kauri and other trees—land possibly capable of being developed in time into fully stocked kauri forest—offered for sale at prices in the vicinity of £1 per acre. Sir David Hutchins estimates the current alienation of demarcatable forest (on Crown and Native lands) at about 30,000 acres yearly. A smaller national loss, he observes, would be involved in destroying the State plantations of imported trees than in continuing this ruinous policy of forest alienation without demarcation.

The Remedy.

The remedial measures recommended by Sir David Hutchins are epitomised in a concluding passage of his report:—"The alienation of farther good forests on poor or steep mountain land should be arrested without delay, and forest demarcation put in hand to finally separate the land best suited for forestry from that best suited for farming. To do the demarcation and to work the forest estates as soon as they are formed, there should be a technical, non-political Forest Department, on the lines of the American Forest Service."

Britain's Forest Lands.

Scheme for Increasing the Acreage.

Efforts to increase the acreage of forest land in the United Kingdom are detailed in a report issued by the Forestry Commission.

In dealing with the planting programme for this year, the shortage of forest tree seed was met to a great extent, state the Commissioners, by purchases in Austria and elsewhere, and by gifts from the United States and Canada.

About 34,000 acres of afforestable land are in course of acquisition by purchase or on lease, in some cases below the market value, and in others as free gifts from land-owners. Over 10,000 acres are in England, 5,000 in Ireland, and the remaining 18,000 under acquisition are in Scotland. Planting is proceeding in thirteen centres.

Forest apprentices are receiving a two-year course in the Forest of Dean, the New Forest, and in Chopwell Woods, near Newcastle, and additional schools will be opened during the year.

An Imperial Conference to consider the forest resources and policy of the Empire is being organised for July, when a number of interested persons are expected in England for the British Empire Timber Exhibition. The conference, it is hoped, will lead to the establishment of an Imperial Bureau of Forestry.

New Zealand Pine.

The Queensland Minister for Lands (Mr. J. H. Coyne) announced recently that the Victorian Farmers' Union had placed before him the following resolution:—

"That in view of the expressed intention of the New Zealand Government to prohibit the exportation of white pine, this Conference directs the attention of the authorities to the necessity of planting large areas in New South Wales and Queensland, with hoop pine as a substitute, and that the Forestry Department be approached to preserve areas of mountain ash and any other native timber that is suitable for butter boxes."

In doing so, the Secretary of the Union urged upon the Queensland Government the necessity for taking steps to further the object in view.

Mr. Coyne pointed out that this resolution strikingly confirms the declaration of the Queensland Director of Forests in his annual report for 1918, that "the 25 000,000 super. feet of timber annually required by the Australian dairying industry for butter boxes, must come chiefly from Queensland. So also the several million feet of pine used in the local manufacture of wooden matches."

"The inter-dependence of dairying and forestry," said Mr. Coyne, "is permanent. We can dispense with neither. The chief difficulty is to strike a balance. So far too great a proportion of our restricted pine lands has been alienated, and the Forest Service is facing the dismaying problem of making good from its limited resources the enormous deficiency that must follow upon the completion of the passing of the alienated areas furnishing at present two-thirds of the annual softwood cut of the State. The Forest Service this year is propagating a million hoop pine plants. This is a mere handful as compared with the requisite output, but suitable planting sites are not always available owing to heavy excisions in the past."

In connection with paper-making the Western Australian Forestry expert says: What is needed is a properly equipped paper making laboratory established in a Forest Products Laboratory. For first trials to make a selection of the many materials available, small autoclaves, grinders, beaters and a small machine would be required. When a preliminary survey has resulted in selecting a few most promising sources of suitable pulp, larger size plant would be required to demonstrate possibilities on a semi-commercial scale. In addition, a paper chemist and an expert paper-maker would be of great assistance and save much time and expense. Besides the larger question of newsprint, the supply of books, writing, wrapping and numerous other grades of paper from chemical pulps needs investigation. Possibly a use for some of the enormous timber waste in Australia would follow this investigation.

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"Progress" will be pleased to have its friends contribute from time to time, their experiences. If you have any new ideas, or old ones for that matter, they will be welcomed. Let us hear from you.

—EDITOR.

Building Notes.**AUCKLAND.**

A campaign for funds to increase the accommodation at Papatoetoe School for Orphans has begun in Auckland. The sum of £15,000 is needed to complete the scheme according to the original designs.

The Education Board, through their architect, Mr. John Farrell, invited tenders last month for an Infant School in wood, at Whakatane, and additions to Mangere Bridge School.

The P.W. Dept. invited tenders for new Post Offices at Waitoa and Taupiri last month.

Mr. J. Currie invited tenders for alterations and additions to a residence in Park Avenue.

The City Council is raising a loan of £10,000 from the State Advances Dept. for the purpose of erecting Workers' dwellings.

CHRISTCHURCH.

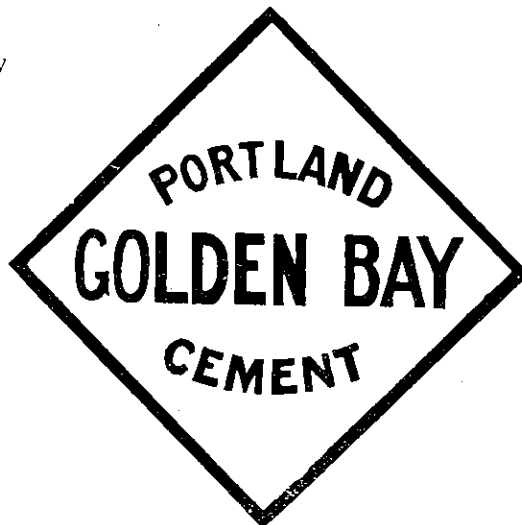
Cabinet has decided to grant £15,000 for additional buildings for the Canterbury College Engineering School in accordance with plans agreed upon between the Superintendent of Education and Prof. Scott.

The progress to date of the City Council's housing scheme was set out recently in a report presented by the Housing Committee to the City Council. The report stated that the committee had decided to erect eight houses on the block of land in Huxley street, Sydenham, which would allow 41.3 feet frontage, with an area of 25 perches of land. Competitive designs were being invited from architects practising in the city, the first selected design to carry a premium of £50, and the second £25. When the designs were received, the committee would make a selection and submit them to the Council, together with a recommendation as to the first and second successful competitor. The report was adopted.

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CANTERBURY AGENTS

HAMILTON.

The extent to which building operations are being carried on in Hamilton at present is shown by the value of building permits issued by the borough engineer, Mr. W. H. Stevens, during April and May. The figures were:—£54,171 10s, as against £19,162 for the same months of last year, an increase of £35,009 10s.

MASTERTON.

In spite of the high cost of labour and material, building operations are still very active in Masterton, both in respect to private residences and business premises. At no time in the history of the town has such animation been shown as during the last few years. During the year 1919 no fewer than 111 permits for building were issued in the town. For the first five months of this year the average has been still greater, no fewer than seventy-one permits having been issued up till June 10. These do not include the workers' dwellings. The value of the permits issued last year, and for the first five months of this year, was as follows:—1919, £62,505; 1920 (five months), £43,718. Should the operations continue as active during the next six or seven months as they have during the first portion of the year—and several large contracts are shortly to be let—the permits for 1920 should exceed £100,000 in value. It is safe to say that during the last three years, including the environs of the town, building to the value of nearly a quarter of a million pounds have been erected. A Masterton builder stated that he estimated the value of the buildings at present under construction within a mile of the Post Office at £50,000.

WELLINGTON.

A new Catholic school, St. Catherine's High School, has been opened at Kilbirnie at a cost of £2500 (including land). It is a reinforced concrete building with four class rooms 21ft. x 20ft.

Engineering Notes.

The Thames Harbour Board is seeking permission to raise a loan of £275,000 for the purpose of constructing an outer harbour and the necessary harbour works in connection therewith.

The Lyttelton Harbour Board is also desirous of borrowing the sum of £150,000 to be used in the construction of certain harbour works as follows:—Electric capstans, additions to wharves, electric cranes, and deepening the harbour.

A poll of ratepayers in Auckland was taken last month on the proposal to raise £50,000 for electrical extensions as recommended by the Mayor, Mr. Gunson. The engineer, Mr. Wyllie, is to be sent to United States and England to buy the necessary plant.

A poll was taken early this month in the Te Awamutu power district on the proposal to raise £120,000 for reticulation. The voters were unanimously in favour of the loan, no votes being recorded against it. The materials for the work are now being landed, and operations will be commenced at an early date.

The Mayor of Waikato has received the following communication from the Minister for Public Works relative to the electric supply to the hospital and to consumers in the main street:—'It is expected that the Department will be in a position later on to undertake this work either on its own account or on behalf of the borough, as the latter may

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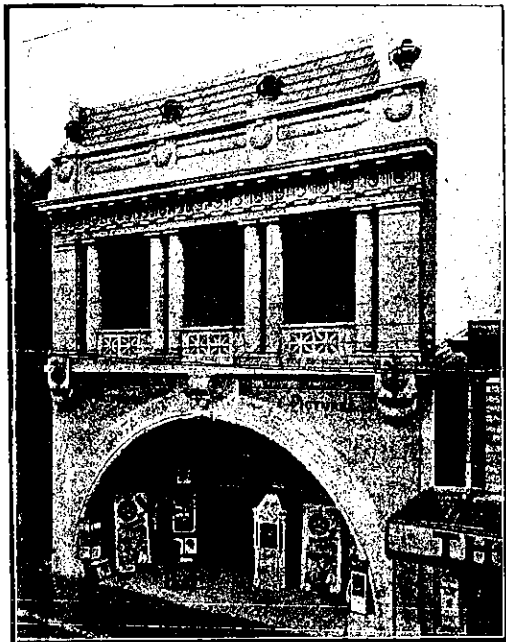
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elect, and to supply power accordingly, either retail or wholesale, in accordance with the standard scale of charges."

On the proposal to raise £120,000 for electric reticulation in the Te Awamutu Electric Power District, a poll taken on July 1st was unanimous, no votes being recorded against the proposal.

The Borough Council of Palmerston North recently decided to take up the tramway question again, the position having undergone a change since the decision of the Government to remove the railway line from the centre of the town was made known.

Messrs William Ferguson (Wellington), Blair Mason (Dunedin), and Cyrus Williams (Christchurch), the Engineering Commission to the Waioa Harbour Board, have submitted a scheme of harbour works at Waikokopu. The cost of the first instalment would be £165,000, and the main scheme £268,000, a total cost of £433,000. If the main scheme were proceeded with, the first cost is estimated at £333,000, a saving of £100,000, and for that sum the Board could obtain complete shelter for vessels of a draught of 35 feet. The Board has decided to ask Mr. Blair Mason to state his terms for supervising the work.

The proposal by the Mount Eden Borough Council to raise a loan of £50,000 to carry out various road improvements in the borough was submitted at a poll of ratepayers last month. The sum of £48,250 will be expended on the construction and improvement of roads and streets now partially constructed and incomplete; the formation and improvement of roads and streets not previously formed; and the provision of all plant and machinery required for such work. The sum of £1750 will be spent on the laying out and improvement of Potter's Park.

ENGINEERING TENDERS.

Tenders are invited up till August 7th by the Public Works Dept., Wellington, for electrical equipment for Otira tunnel. Tenders also close on 20th July for 4,300 h.p. water turbine and 300 k.w. generator for Lake Coleridge scheme. Tenders close on July 20th for 100 miles of bare copper cable. Tenders also closed last month for the supply of steel reinforcing rods.

The Thames Valley Electric Power Board desire tenders this month for 1700 Ironbark poles; 9000 cross arms; 9000 U bolts; 2000 mixed wooden poles.

The Napier Harbour Board invite tenders up to August 9th for about 135 tons of mild steel round bars.

The Rotorua County Council invite tenders up to August 4th for the supply of twelve distribution transformers.

The Timaru Harbour Board invite tenders up to Nov. 15th for 3 electric capstans.

The Public Works Dept. invite tenders for the manufacture, supply and delivery till Oct. 20th, 1920, of seven plate girder spans for the Hope River Bridges, Midland Railway. The Dept. also invites tenders up to Nov. 3rd for a water wheel and generator for Hammer Springs.

The Auckland Harbour Board invites tenders for air compressor plant and pneumatic hand hammers.

Tenders are invited by the Waioa Bridge Conference for the construction and erection of the Northern Waioa Bridge at Dargaville, up to Aug. 17th, 1920.

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The Buller County Council, Westport, require a resident Engineer, salary £400. or £500 if the applicant is a Licensed Surveyor.

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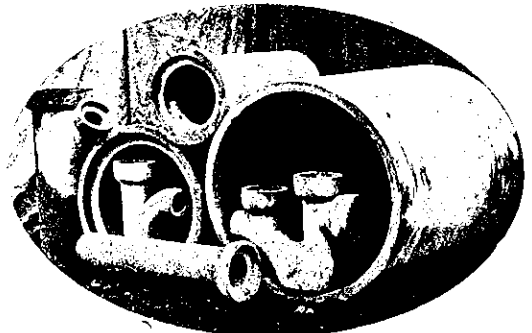
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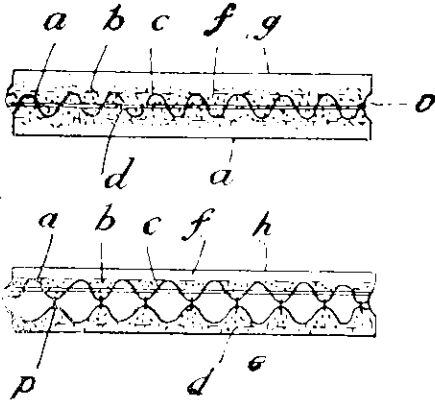
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Patents of Interest to Builders.

Reinforced Concrete Building Construction. A patent, No. 42,901, has been taken out by S. A. Robertson, of 12 Fairfax Road, Epsom, Auckland, Constructional Engineer, by which parts of building made in accordance with this invention comprise one or more sheets of corrugated iron, sheets or strips of wire netting secured thereto on one or both sides, and concrete laid on one or both sides of the



corrugated sheet so as to embed the wire netting and be securely held by the netting to the sheet. In some cases rods are passed transversely through the corrugations. The concrete may be stone, concrete, or coke-breeze. The work may be finished off with neat cement, rough-cast, plaster, or otherwise.

Building Slab and Hollow Vessel.—A patent, No. 43,094, has been taken out by A. J. Rouch-Cuming, of London. Ac-

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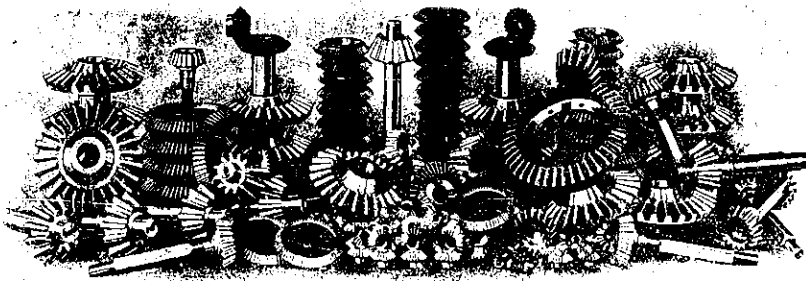
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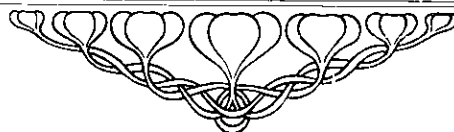
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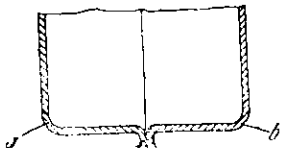


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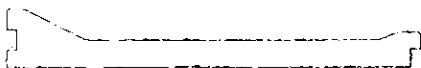
WELLINGTON, N.Z.

cording to one method, a pair of metal trays are formed from metal sheets by pressing them in dies so as to leave a flange or lip round the edge. This lip is turned over to form a bead. The two trays are now coated with vitreous enamel, or, if preferred, other enamel, but any enamel used must be very strong and impervious to render the metal non-porous. The edges of the bead are then cleaned and preferably given a thin coating of tin. One tray is then



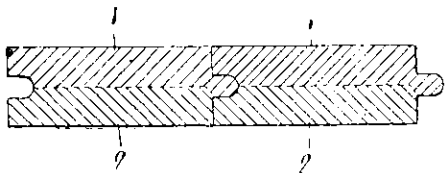
inverted over the other and the edges united together. Another way of forming a slab or panel is to take a metal tube and flatten it on a mandrel to form a thin rectangular shape. The tube is then coated inside and out with enamel by dipping and firing, and the open ends are closed with flat metal enamelled stampings having a dished edge which are preferably soldered into place. A further way is to take a single tray as in the first instance and close it by means of a flat plate.

Building Block.—A patent, No. 41,587, has been taken out by J. O. Olsen, of Hunter Street, Dannevirke. The invention consists in forming the tile at its groove end with an abutment projecting from its inner surface all down its height so as thereby to form a broad end face down the approximate centre-line of which the groove is formed, and in also thickening the tongue end of the block and forming the tongue to project down the inner edge of the



broadened face thereof. This allows for relatively wide tongues and grooves being employed, so that a consequent stronger joint is effected between the ends of adjacent blocks in each course. In addition, the inward projection of the block's thickness at the joint affords a ledge on which the wire-netting bond may rest, as such strip extends along within the wall-cavity, and has its two edges gripped between the horizontal joints of the wall-shells on both sides of such cavity.

Constructional Concrete.—A patent, No. 42,710, has been taken out by T. Crendon, of Prison Reserve, Mount Eden, Auckland, which consists of a building block or slab made of aggregates of concrete, one aggregate being the usual hard and strong concrete, and the other aggregate a softer concrete made of cement and crushed coke, coke-breeze, or crushed pumice and the like, the aggregates forming together a solid mass, one part of which is very hard and the



other comparatively soft. The part made of hard concrete forms the exterior of a wall, and the softer part the interior thereof, and inasmuch as the softer part is not subject to variations of temperature, breeze and pumice being bad conductors of heat, the humidity in the atmosphere coming into contact therewith is not condensed to any harmful extent, thereby overcoming a serious objection met with in ordinary concrete and in stone buildings.

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