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WELLINGTON, AUCKLAND, CHRISTCHURCH, AND DUNEDIN, NEW ZEALAND, NOVEMBER, 1919.

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Editorial Comment

State Housing Efforts.

The Labour Department is not able at present to show that anything practical has been done in the way of building to meet the shortage of houses throughout the Dominion, but arrangements seem to be well advanced for building about a hundred houses of concrete in Wellington and the vicinity. About forty are to be built of concrete blocks, on a system which the Department states is well tested. The remaining houses will be erected on the old monolithic system with wooden boxing. We are not surprised to hear, in spite of rosy estimates made by politicians when the housing question was under discussion in Parliament, that the cost to the tenant-owner will amount to about £60 per annum for a five-roomed place. This is after allowing for cheap Government money. It shows that although there has been profiteering in other quarters, it has been prevented to a large extent among property holders. The Government recently advertised for a housing expert at £750 per annum to take charge of the Workers' Dwellings operations, but no appointment has been made. A good man with architectural qualifications was desired, and the chances are that the Government failed to get the expert at the price. Some day the Workers' Dwellings Board hopes to conduct building operations on its own account, but if it expects the whole of the practical work to be under the control of an officer at £750 per annum, it is likely to be disappointed, especially as the country will look for something exceptional in the way of cheap building when the State gets to work. There is now a wider limit to the total cost of the State-provided house, but the Labour Department has apparently failed in the majority of centres to get any contractor to tender within the margin. It is carrying out negotiations, and hopes to get some more buildings arranged for in centres outside the capital. The initial difficulties of the State undertaking, favoured as it was by the most enthusiastic parliamentary backing, will show the public how badly the building trade is handicapped at the present time.

Architects and Soldiers.

We are glad to be able to record that during the end-of-the-session rush, Parliament did not neglect to do justice to a number of architectural students who had prejudiced their prospects of becoming members of the Institute of Architects through their patriotic determination to serve their country in the Expeditionary Force. When the Architect's Act was passed in 1913, it was provided that articulated students of architects of not less than three years' experience might register as architects within five years of the passing of the act. This time limit expired in 1918, when at least thirty-five students who could have taken advantage of the clause were absent on active service. They returned to find that their right had lapsed, but the attention of the Government was called to the position, and a short act was passed without objection from any quarter, extending the time for making application for registration till December 31st, 1920. This little statute can be classed with the repatriation measures which have gone so smoothly through Parliament, as it enables these young men to pursue their career from the point at which they suspended it for higher service. They asked for no monetary assistance from the State, and are entitled to great credit for simply limiting their request to the removal of a hardship. They should make very valuable members of the profession, for an important part of their qualification will be the wider outlook and knowledge they must have gained from service in the Empire's cause.

Town Planning Conference.

The Minister of Internal Affairs, the Hon. J. B. Hine, rendered good service to the Town Planning movement by completing the plans of his predecessor, the Hon. G. W. Russell, in publishing the full report of the Town Planning conference held in Wellington last May. At this important gathering the papers and discussions focussed up all the useful knowledge which has been gleaned regarding the application of town planning principles to New Zealand conditions. It has been presented for handy reference in a volume of three hundred pages, fairly well illustrated. The last report of the Australian Town Planning Conference has also come to hand. This is equally comprehensive, and has the additional attraction of appearing in a beautifully designed cover in colours. The difference in the appearance of the two reports is illustrative of the status of the movement in the two countries. Here we are lucky to get an official report at all—in Australia the subject is deemed worthy of something special in the printer's art, so as to commend it to the general public. However, we find no fault with the New Zealand publication, for we are too pleased to get such a splendid record of a very valuable exchange of opinions. The papers receive a good deal of space, and much of the discussion is well reported. In an appendix are several papers which were received too late for presentation at the Conference. These include one on municipal town-planning schemes by Mr. Charles C. Reade; an illuminating summary of the present position of the housing and town planning movement in England, by Mr. A. G. Waller; a well-reasoned and enthusiastic advocacy of "fresh air schools," by Dr. Colquhoun (who writes from

practical experience of a Timaru experiment); and an interesting paper by Mr. W. H. McKenzie, chairman of the Buller County Council, who contributes some important facts showing how one part of New Zealand is put to perpetual expense and inconvenience through the failure to apply sound town planning principles in the early stages of its development. Mr. McKenzie's opinions were borne out during the discussions at the Conference, the most valuable feature of the gathering being the readiness with which practical administrators of local affairs admitted the real utility of the town planning movement. Though the recent session of Parliament was disturbed, and the conditions quite unfavourable to getting a Town Planning Act through the legislature, an effort was made to secure some modifications of the Municipal Corporations Act in relation to municipalities' power over sub-divisions. The Government could not see its way to deal with the matter, and under the circumstances can hardly be blamed, but the backing received by the town planning enthusiasts shows that the movement is well established, and that perseverance will shortly bring its due reward.

State Forestry

As was anticipated, the State Forestry Department is about to blossom out as a separate organisation, without attachment to the Lands Department. A growing staff is the first indication of this development. In addition to the Secretary, the annual report shows that a Research Officer is to be appointed, one of his first duties being to make a comprehensive investigation of the height, diameter, and volume increment of our chief trees throughout the Dominion, thus following up useful work which has been done in connection with the kauri by T. L. Lancaster, M.Sc., of Auckland University College. As the Department seems to be aiming at profit-making, in addition to its role of investigation and fostering of our forestry resources, it will need a big extension of personnel, but leaving out this early prospect, the report shows that a Director of Forests is to be appointed; also a Research Officer, six Forest Inspectors, a Chief Clerk, with junior clerical assistants and draughtsman. This staff, however, will be quite inadequate to do all the work that will be required in order to obtain a proper management of the forests, and it may be taken as certain that with the extension of operations additional officers will have to be employed in the near future. State sawmilling, hitherto confined to the Railway Department is to be extended. The report mentions that but for the conditions resulting from the war, sawmilling by the Department would have been started in one of the forests of the North. The Railway Department has agreed to transfer to this Department its interest in the Puketū Forest, between the Bay of Islands and Hokianga Harbour. This forest contains a large amount of kauri, and it is proposed to start milling in either this or the Warawara Kauri Forest during the coming year. As the area of the whole Dominion is 65,864,550 acres, it will be seen that the total area of forest still owned by the State is only 15.9 per cent on the total, whilst the area of milling-forest owned by the State is only 2.08 per cent. France and Germany have 17 and 26 per cent respectively of their total forest area reserved for commercial purposes.

Wanganui Improvements.

Durie Hill Garden Suburb Scheme.

The installation of a passenger lift has been the means of developing a Garden Suburb at Durie Hill, Wanganui. It appears that the Durie Hill elevator is only five minutes' walk from the Wanganui Post Office and lands passengers (after a trip occupying about 40 seconds) within one minute's walk of the Garden Suburb. The elevator is capable of making about 40 trips an hour with 15 to 20 passengers, and as the concession fare works out at about a penny per trip, the benefits of the country air may be enjoyed at a minimum cost of transit. Mr. Edward Crow, A.M.A.S.C.E., designed and supervised the tunnel, shaft and elevator construction, and is now engaged in designing the asphalt roads and footpaths.

Position.

According to Mr. Hurst Seager, F.R.I.B.A. (who reported on the scheme), there can be no doubt that the position is as fine a one as can possibly be obtained for the carrying out of a scheme of this kind. The fact that the site is only about six or seven minutes' distance from the Post Office, and that it is at an elevation of about 270 feet above sea level, gives it a very distinct advantage over other suburban developments. In this short time one can reach sections from which a magnificent view of the river and headlands can be obtained, and which are adjacent to park lands and playing-grounds. Conditions are thus created of which the people of Wanganui will probably not be slow to take advantage.

The Lay-out.

It will be noted by the plan illustrated herewith that the general lay out provides for the roads being arranged in such a way that they follow the contour lines, and thus the sections are reached by very easy grades. By avoiding any right angles the roads give access and good frontage to a larger number of sections than is possible under the usual method. This makes for great economy in road construction and in the sewage, gas, and electric light and water services.

The main entrance to the estate is at the north-western corner close to the lift. It will be a very effective one by reason of the division of the main avenue into curved roads, that to the right leading down to the circular garden at the north-western angle, and that to the left to the main avenue leading to the park, and to the roadways on the spurs. The entrance avenue continues in an easy curve and grade on the land which may be intended for a Residential College, but which, if not used for this

purpose, can be very efficiently used for sections as shown. It will be seen the sections vary very much in size. They are purposely formed in this way, because in all garden suburb schemes it is recognised as a cardinal principle that the suburb should be for people of very varying incomes. The suburb would not be intended for any particular class, but would be suitable for all members of the community. The smallest section is therefore about one-ninth of an acre, whilst they vary in size up to about half an acre. The only necessary restriction is that whatever the size of the houses, they shall all have the same architectural character, and this could be assured even in houses ranging from 3 or 4 rooms up to 9 or 10 roomed houses.

Roads.

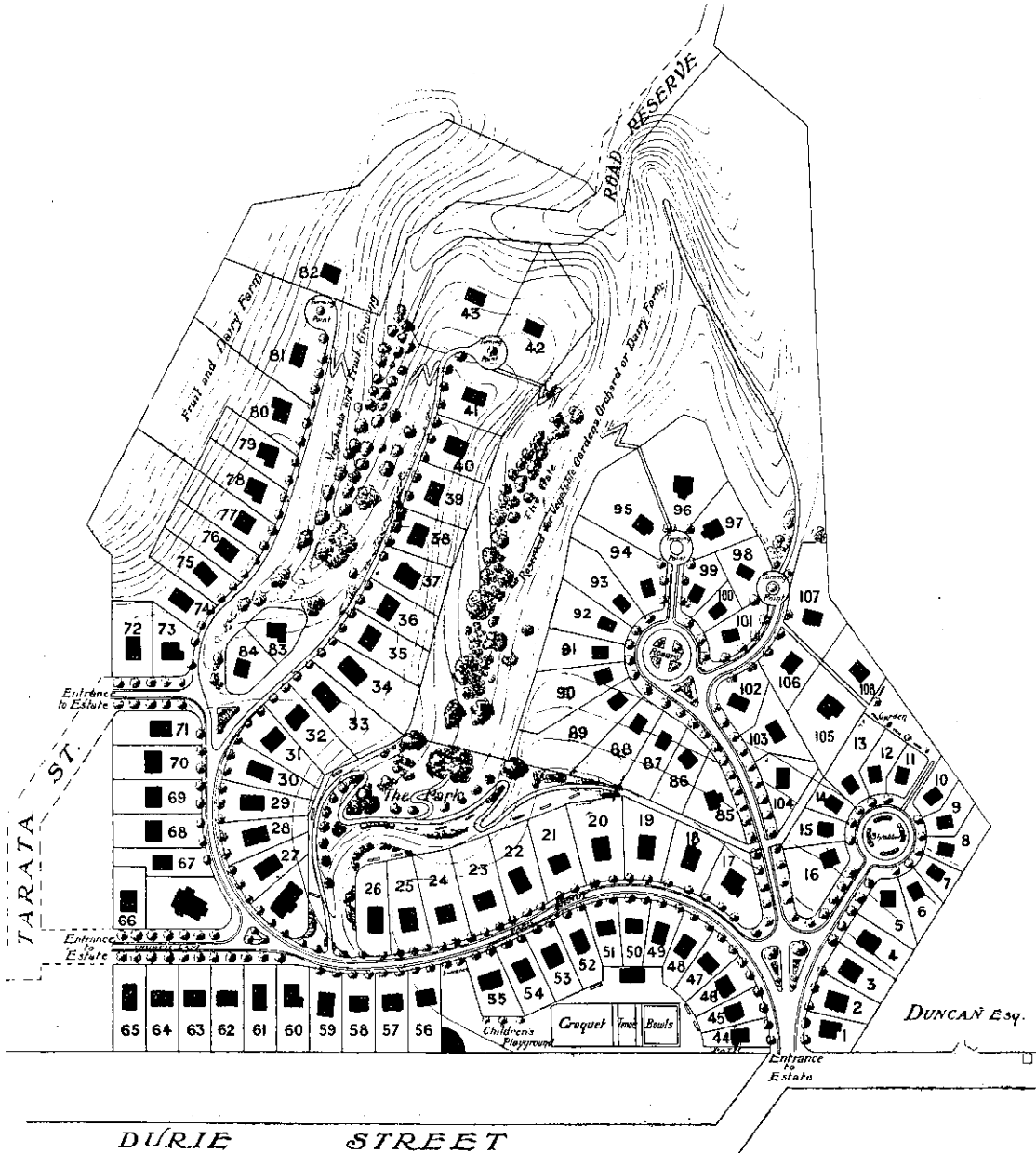
Continuing his report, Mr. Hurst Seager says that it is not necessary to have a chain-wide street formed for a residential area such as this. The roads cannot by any chance become main thoroughfares, and are simply formed for the purpose of reaching the houses which will be erected; but in case it may not be possible to secure titles unless a chain-wide road is dedicated it is proposed, as shown by the sectional drawings on the plan, to dedicate the full 66 feet, but to allow 15 feet 6 inches of this on each side to be used by the owners or tenants of the sections, as suggested by Mr. Crow. It is proposed that the space reserved for the actual roadway shall be 33 feet, and that this shall be divided into the actual road, 13 feet wide, and two footpaths each of 3 feet 6 inches, and the balance (6 feet 6 inches) on each side being laid in grass, a slight fence dividing the roadway from that portion of the reserve allotted for the houses of the tenants or owners. The trees shown would be planted within these fences, on that portion of the 66 feet thrown into the sections. The building line is in each case shown, and it will be noted that in no case are the frontages of the buildings less than two chains apart.

View from Houses.

In setting out the estate, the positions of the houses has been arranged so that all can get a good view. None of the houses directly block the view from the others. The houses surrounding the circular garden (the shrubbery) in the western angle are on land sloping towards the view over the river; thus the upper northern houses on the higher land can get a good view over the roofs of those on the

relatively lower slope. And this applies to other portions of the estate where, if the ground were perfectly level, the view would be blocked. The sections at the southern side of the main avenue (Park Avenue) are purposely kept large so that the space between the houses will afford views to the houses upon the smaller sections on the northern side. The

only low ground in relation to the rest of the estate from which a good view could not be obtained, is set aside for the bowling green, tennis court, croquet green, and children's playground. Access to these would be from the main avenue (Park Avenue), and also by a pathway at the north-east entrance. Space is left here for a pavilion. There are four



General Lay-out of Durie Hill Garden Suburb Scheme.

houses surrounding the park and along the spur will have uninterrupted, beautiful views of the river and the cliffs at the entrance of the river.

Parks and Recreation Grounds.

The site lends itself very well indeed to the formation of parks and recreation reserves. The

deep valleys coming up at the northern end to the general level of the estate, and falling at the southern end to a depth of about 60 feet or 70 feet. In all these valleys there is excellent soil, so that they could be utilized and naturally developed for dairying purposes. Unquestionably a dairy farm should form part of the estate, and the suggested position

for this is at the southern end of the spur lying between the east valley and the road reserve. Their use as a dairy farm would not prevent their use for recreation purposes, and several parts of them could be fenced off as allotments for vegetable and fruit gardens. These allotments would not be available for building purposes, but could be let to tenants or holders of the building sites, if they wished to carry out any form of cultivation. The valleys are beautifully sheltered, would be well watered, and be most suitable for any form of cultivation. A portion of the main valley (The Dale) is set aside as a park. This would have about three acres, and has already several trees in it. Others would be planted, and on the high parts seats could be placed. This park, as can be seen from the plan, would have a path leading to the houses on the western side of the estate. Both the turning places on the two spurs "East Way" and "West Way" would be planted, and be available as rest places. From both excellent views are obtained. A path also leads along the western valley to a view-point on the spur between the western and main valleys. A small plantation is also reserved on the western side, which commands a very fine view indeed of the river and of the town. The boundary of the estate on a portion of the eastern side lies at the bottom of the eastern valley. It will be seen that the whole of this valley, it is suggested, could be divided into four, so that the holders of the sections 73, 79, 80 and 81 would be making good use of this for their fruit and vegetable gardens, and the width of the sections enables them to get easy access to the bottom of them.

Drainage.

All the roadways are easily graded so that perfect surface drainage can be provided for. There is a sewer along Durie Street, and all the houses on the northern part of the estate can be drained efficiently into it. All the houses on the southern part of the estate can be drained into a sewer to be formed and led to an outlet at the southern end.

Water Supply.

If storage tanks are provided in the roofs, all the houses could be well supplied with water from the present reservoir. At a later time, when the proposed high level reservoir is built, there would not only be a good domestic supply, but also a high pressure for fire prevention purposes.

Access.

It will be noted that there are, in addition to the main entrance to the estate, two on the western side, and access will also be gained from the extreme south when the road, for which there is a reserve, is formed. Convenient access is therefore arranged for to all parts of the estate.

Church and Hall.

A space is reserved for the church at the intersection of the main avenue and the avenue leading to Tarata Street. This is a good central position, and

the church would be well placed in relation to the avenues at this point. Opposite this, at the section adjoining the park, is the hall. This would also be an extremely convenient position, as on any social gatherings in the park the hall could be used as a place of rest and refreshment, and it lies as central as possible. It is suggested that this hall should be built not only as a place for entertainments, but also as a social hall and library.

Zig-zag Paths.

Zig-zag paths are suggested across valleys connecting the three spurs.

Method of Development.

It is assumed that you would at once undertake, under the direction of Mr. Crow, the laying out of the roads and the formation of them, and the pegging out of the sections. The laying of drains and water supply for all that portion of the estate which you think should be first developed. You will, I expect, consider that all the sections on the western and northern sides as far as, and including the park, should be first dealt with. The drains and sewers should not be laid under the road or footpath, but at the backs of the sections, and mutual easements provided for. The road and paths can then be laid in a permanent manner and no expense will be incurred for digging up for connections, or for repairs. As the sanitary fittings of all houses are at the back, a great saving in house connection is thus gained. The same applies to water, gas, and electric services. The poles required could be utilized as posts for the back fences, and the estate would not be disfigured.

After the estate is laid out and the services provided the question arises, how shall further developments proceed? There are several methods, each finding favour with estate owners. The advantages and disadvantages of each are as follows:—

Freehold.

This system is not in favour with those who wish to see the suburbs developed on sound and artistic lines. After the first sale, the original owner loses control, buildings quite out of character with the original conception are erected, and disfigurements appear. If the object, as in too many cases, is merely to make money, this method has much to recommend it, but it is fortunate that this excellent site is in the hands of one who wishes rather to create something which will add distinction to the town. Land agents, of course, much prefer this method of development, as their only interest is to get a big commission for very little trouble. If the suburb is treated as an investment rather than as a speculation, the owner can obtain a very good profit, and at the same time, ensure that the artistic character of the suburb shall be preserved. This may be effected by building the houses and letting them on a long lease either to private individual owners or by leaving portions of the suburb to building companies known in England as Public Utilizing Societies and Co-partnership Societies.

Building and Letting.

It is certainly wise in order to give the suburb a good start, that a certain number of houses should be built of the character it is desired should be maintained, and that they should be let at a rental giving a fair and just return on the capital expenditure. The designs for these houses might be obtained in competition from local architects. As many architects as submit designs worthy of erection should be engaged to erect them on different parts of the suburb. Subsequently, people leasing or buying land (whichever is decided) should be recommended to employ the architect whose design has been erected near their proposed lease. In this way variety will be gained and yet each portion of the suburb will have an individual character.

Leasing the Land.

Whether the land is leased to individuals or to societies, it must be let with building clauses defining the style of the house—not only the cost of it—as it is usually done. In an estate of this kind there might be several co-partnership societies for the development of a different part of the suburb. As can be seen by the plan, there are several distinct portions such as those I have tentatively named, The Shrubbery, The Rosary, Park Avenue, East and West Ways, which could well have a distinctive character in harmony with the rest of the suburb. I am of opinion that by far the best method of development is by the leasing of portions of the estate to co-partnership societies, by which every tenant would have a proprietary interest not only in his own house, but in those of his neighbours.

A society might be formed to develop the whole estate, but as that would involve rather extensive responsibilities it would, I should think, be much easier to arrange for associations to develop various portions. The essential feature of such an association is that a group of intending occupiers take shares to the value of not less than £10, which entitles them to an equal vote with those who take up several shares or advance money on loan. Interest is limited to 6 per cent. Immediately a building is finished a tenant is ready to occupy it, so that there is no loss of interest on outlay.

Every shareholder would have the right to occupy his allotted dwelling for as long as he chooses, provided he keeps it in decent order and pays the rent. Community of interest tends to insure the amenities being preserved and that nothing is done which is objectionable. On the contrary, as each tenant has a financial and proprietary interest in the whole estate, its well-being would be the care of all, and friendly and social intercourse would be fostered. Should a tenant desire to leave, he could do so at any time by relinquishing his tenancy, and either retain his shares or transfer them to the association at their face value. This is a great benefit compared with the ownership of a freehold, which might have to be sold at a loss.

As the profit to the shareholders is limited and the value of their portion of the suburb would increase, money would be available for maintaining the sports ground, children's playground and reserves, and for contributing a fair share to the beautifying of the whole suburb.

Institute of Architects.

Dunedin Branch Annual Meeting.

The annual meeting of the Dunedin branch of the New Zealand Institute of Architects was held last month. The branch chairman (Mr. B. B. Hooper) occupied the chair, and there was a good attendance.

In moving the adoption of the annual report and balance-sheet, the chairman said that in spite of industrial troubles they hoped that architects would now again begin to share in the general prosperity. With certain exceptions architects had been the worst hit through the effects of the war, and they quite deserved a busy time now. With reference to the advertising of the profession as a whole by the institute he felt very strongly that that was the right thing to do, and it was quite time it was done. The student classes had improved greatly, chiefly owing to the returned soldiers taking advantage of the free tuition. The balance-sheet showed that unparalleled economy had been exercised. As President of the New Zealand Institute (Mr. J. L. Salmond) had worthily upheld the credit of the branch, and deserved the thanks of the whole body of members. The report and balance-sheet were adopted.

The following officers were elected for the ensuing year:—Branch chairman, Mr. P. V. Wales; vice-chairman, Mr. L. D. Coombs; hon. secretary and treasurer, Mr. H. Mandeno; committee, Messrs. D. G. Mowat, B. B. Hooper, J. L. Salmond, G. W. Gough, and E. W. Walden; hon. auditor, Mr. H. E. Wilson. A hearty vote of thanks was accorded the retiring officers.

Here and There.

In the course of the discussion on the Housing Bill in Parliament Mr. C. J. Parr, of Auckland, suggested that an effort should be made to erect houses tasteful in design, and from that the discussion moved to the question as to who was to supervise the Department. Members urged that a special Department should be created, run by a man with imagination. It should not be managed by the Labour Department, which already had enough to do. Mr. Massey defended the Labour Department, which already had the matter in hand, and he felt confident the present Secretary of Labour would prove capable of doing what was expected of him. He was not going out of New Zealand for his officers.

On clause 7, defining the constitution of the Housing Board, Mr. Massey agreed to an amendment under which the superintendent and deputy superintendent of workers' dwellings shall hold office on the board until successors are appointed, and that the board shall include an architect and engineer.

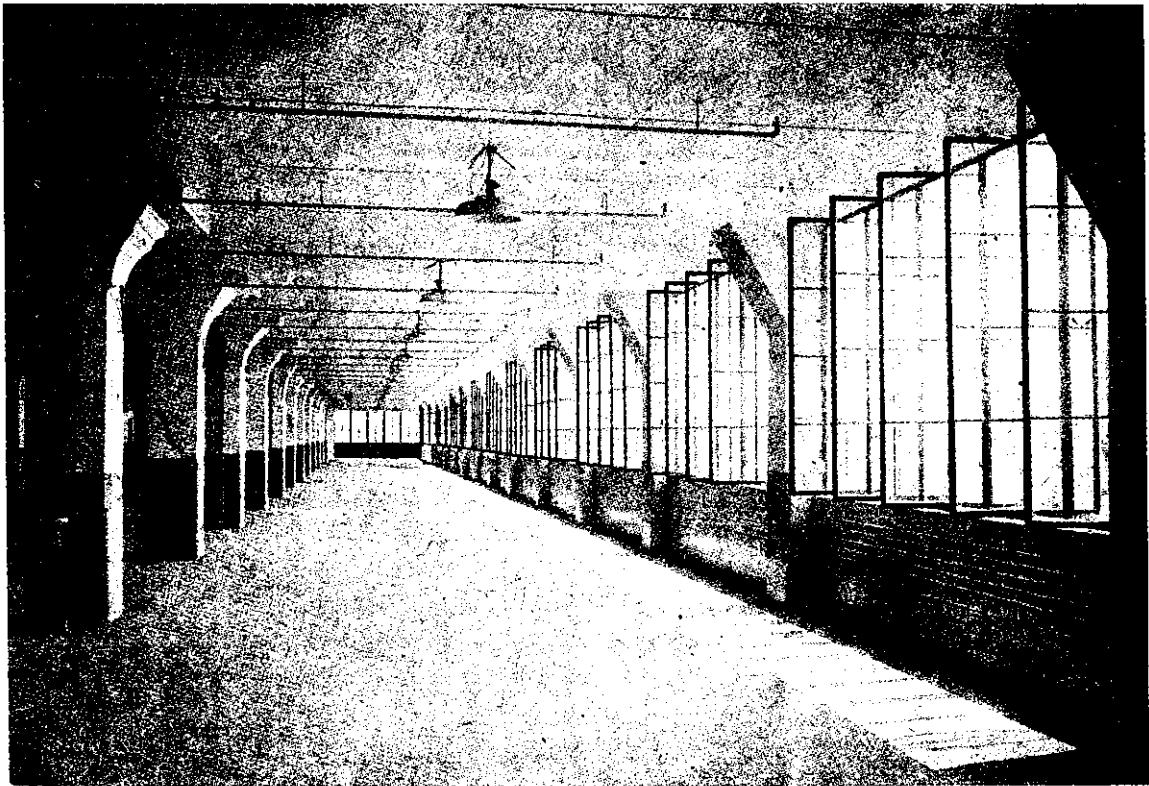
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In connection with the housing question it is interesting to note that four Dunedin architects, viz.:—Messrs. Salmond & Vanes, Anson, Mowat and Leslie Coombs have been commissioned to design 10 houses each for the City Corporation.

and Ehrenfried Company, Ltd., to assist in the improvement and beautification of the town. The only condition of the gift is that the portion of the land that is not required for road improvements shall be beautified by the erection of rockeries, or by some other scheme, and maintained for the free use of the public.

* * * *

The Christchurch City Council last month accepted a scheme for the acquisition of sufficient land for the erection of at least two hundred houses. Provision is made for sale of the houses, when erected, on easy terms, spread over a varying period of



Interior View of a Modern Factory.

The Hillside (Dunedin) branch of the Amalgamated Society of Railway Servants adopted the following motion unanimously: "We view with deep concern and emphatic disapproval the proposal of a wealthy syndicate to build a treatise in Dunedin costing approximately £40,000, during the present acute state of the housing problem. We further consider that while our returned soldiers are, owing to the scarcity, paying inflated prices for their homes, the wealth (much of which has been amassed during the war) of such syndicates should be used to relieve the present distress by building homes for the people instead of places of amusement."

A gift of two sections of land valued at £600 has been made to the Thames Borough Council by the Hon. Arthur M. Myers, M.P., and the Campbell

years, to suit the circumstances of the applicants. It was stated that the expenditure involved was between £150,000 and £200,000. There was plenty of land within easy access of Cathedral Square which could easily fill the bill.

* * * *

A Wanganui telegram states that the Society of Friends has purchased four dwellings, with land approximating thirty acres, on St. John's Hill, adjoining Virginia Lake. They intend to develop a boarding school and Quaker settlement generally.

* * * *

The clergy in Christchurch are really taking an interest in industrial strife. According to a Christchurch daily paper, it is reported that at a recent Synod meeting the question was dealt with in a re-

port submitted by a select committee which had been told off for the job. In the report the Committee recommended that the Whitley report should be adopted by employers and employed with regard to the demand by workers of a share in the control in those industrial conditions on which their livelihood depends. With regard to housing, the report stated that "a large number of persons in New Zealand are at present housed under conditions which are a grave menace to their physical and moral well-being. It is the duty of the State and of local authorities to ensure the provision of sufficient and healthful housing accommodation (1) By compulsorily acquiring and holding land, if need be; (2) By planning the development of towns with a due regard to the provision of open spaces; (3) By themselves undertaking the building of houses in those districts in which the supply of houses is or is likely to be inadequate."

Bricklayers' Award.

Interpretation of Suburban Clause in Christchurch.

The Court of Arbitration has given its interpretation of the bricklayers' award, on questions arising out of clause 8 thereof, dealing with suburban work.

The questions submitted to the Court by the Inspector of Awards were:—

1. When an employer pays train or tram fares, are the workers to be paid for the time actually occupied in travelling outside the one-and-a-half miles radius from the Chief Post Office; or are they to be paid one hour's pay for every three miles travelled?

2. Are workers entitled to be paid when returning from work?

3. Are employers bound to provide a conveyance, or pay the ordinary train or tram fares for the workers when returning from work?

His Honour Mr. Justice Stringer states:—The suburban clause in the above award appears to have been agreed to by the parties when before the Conciliation Council, and was embodied in the award as recommended by the Council. The clause, however, is unusual and defective, and probably does not express the real intention of the parties; but construing the clause as it stands—which we are bound to do—the answers to the questions submitted must be as follows:—

1. The worker is entitled to be paid for all time occupied in travelling beyond the one mile and a half radius, and such time is to be computed at the rate of one hour's pay for every three miles travelled. The rate of three miles per hour was, no doubt, intended to apply to cases where the worker walked to his work, but the language of the award is clear that the worker is to be paid this time rate even when conveyed to the work, and by whatever means he is so conveyed.

2. There is no provision that workers shall be paid the above rate, or any rate, when returning from work, and they are, therefore, not entitled under the award to any payment for the return journey.

3. The employers are not bound to provide a conveyance, or pay the ordinary train or tram fares for the workers when returning from work, the award making no provision in this respect.

The parties have used language which has, in our opinion, been correctly interpreted by the Inspector of Awards in the last paragraph of his statement of facts.

Light Weight Concrete.

Considerable interest has been created among engineers in Britain in a light-weight concrete employed in the construction of reinforced concrete vessels of large tonnage building in America for the United States Government. This concrete was adopted for this form of construction after an extensive series of tests on concretes of all kinds carried out by the United States Shipping Board. The tests proved that a concrete eminently suitable for use in reinforced concrete structures, and having a much lower specific gravity than that of ordinary concrete, can be obtained by introducing an artificial aggregate having a specific gravity less than unity. It is well known that the strength of concrete depends primarily on the strength of the binding material, and on its adhesion to the larger aggregate. This adhesion is greater to a marked degree with the light aggregate under discussion owing to its greater surface area. To produce this increased adhesion a larger proportion of cement must necessarily be introduced, resulting in what is commonly known as a rich mixture, and, consequently, a more costly material. However, says the British journal, *Engineering*, its adoption in certain reinforced concrete structures must undoubtedly prove economical. Large span reinforced concrete bridges and similar works are at present severely handicapped owing to the weight of the concrete employed in their construction, and it is in cases of this nature that the light aggregate will serve to overcome this difficulty to a large degree.

DAD'S VIEW.—THE PASTOR—"So God has sent you two more little brothers, Dolly?"

DOLLY (brightly)—"Yes, and He knows where the money's coming from. I heard daddy say so."—*Tit-Bits*.

* * * *

LABOUR TROUBLE.—HIS BETTER HALF (regarding him from the bedroom window)—"Where you bin this hour of the night?"

"I've bin at me union, considerin' this 'ere strike."

"Well, you can stay down there an' consider this 'ere lockout."—*Tit-Bits*.

A CONCRETE BRIDGE, California.

A handsome, yet simple concrete bridge built by the Young Construction Co., of Los Angeles, California, is illustrated in this issue. The bridge is 700ft. long and cost about £4,000, and was built over the San Luis Rey river at Oceantide.

There is nothing new in the 3-hinged arch rib type of bridge, for such bridges have been built in all parts of the world, although the type is not as common as the elastic arch or girder construction. There is a 3-hinged arch rib bridge at North Main street, Los Angeles. This bridge, however, is of the

method of construction. Both bridges were designed after the Thomas System, on which patents have been secured by Mr. W. M. Thomas, C.E., now a resident and practicing engineer of Los Angeles, an associate of the American Society of Civil Engineers, and a member of the firm of Thomas and Post. The contractors on the San Diego structure were The Young Construction Company of Los Angeles.

The highway commission of San Diego county had under way 450 miles of new county highways, being built under the bond issue of £250,000. Along



Concrete Bridge in Sections—The Bridge assuming shape.



Concrete Bridge in Sections—The Bridge ready for use.

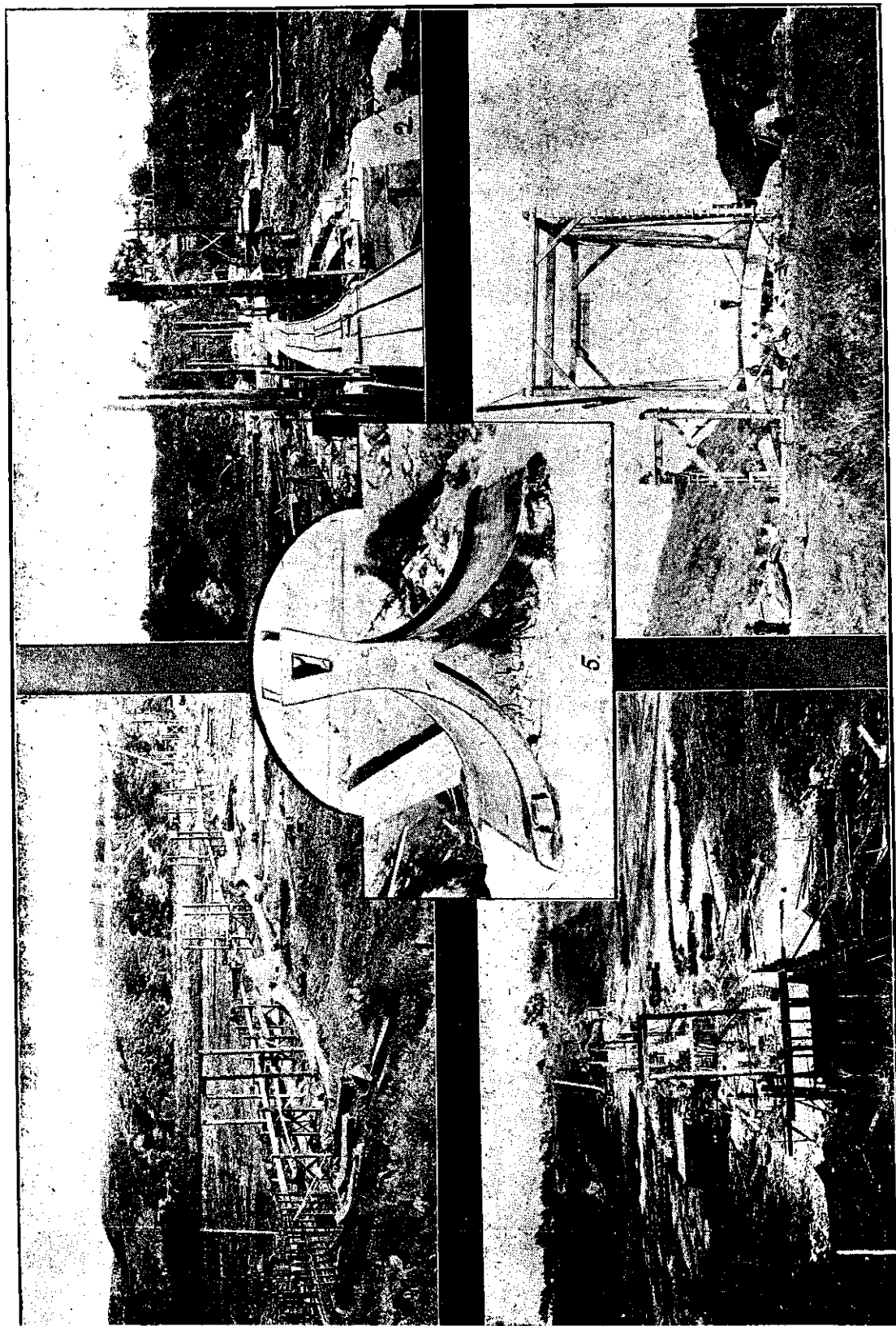
compressible joint hinge type, while the San Luis Rey bridge is of the hinge open spandrel type.

The uniqueness of the bridge here illustrated lies in the fact that all its several members were built on the ground, where they were left until the concrete was sufficiently cured, and then hoisted into position. The arch ribs were poured in two sections and the spandrel posts cast separately. After these were put in place on piers and abutments the forms were bolted in place for the deck. By this method the excessive cost of falsework was saved. The designer maintains that these arch ribs or beams can be made in this manner and hoisted into place for less money than it takes to build the falsework required in constructing an arch of the same proportions after the usual methods prevailing.

The San Luis Rey bridge is second of its kind erected in the State, the first one having been built over 8 years ago at Santa Cruz by the same engineers. The San Diego County bridge, however incorporates later developments and improvements in design and

these thoroughfares were to be constructed a number of bridges and culverts. Necessarily, with this comparatively small sum of money to cover so large an amount of construction work the commissioners had to figure closely, and were limited in expenditures for any particular part of the work. Chief Engineer A. Fletcher of the commission favoured concrete bridges, and both the commission and taxpayers desired this form of construction wherever possible. In determining the appropriation for the bridge over the San Luis Rey river an amount could be allowed that would seemingly warrant the construction of only a combination wood and steel bridge, and plans and specifications were drawn by the engineering department to meet these conditions.

These plans and specifications called for a combination wood and steel structure 690 feet in length, fourteen feet above the river bed; to complete the highway connection less expensive fills were provided. Under these specifications bids from £2600 to £3200 were secured. But in calling for bids the commission



CONCRETE BRIDGE IN SECTIONS.

- 1.—The Sections ready for elevating into position.
 2.—Arch Supports.
 3.—One of the Hinge Joints.
 4.—The Sections in position for Pouring.
 5.—The Moulds ready.

made provision for alternative propositions for a reinforced concrete bridge. An alternative bid was accordingly submitted by the Young Construction Company for a 690-ft. reinforced concrete bridge designed under the Thomas System, the bridge being about £4,000. This alternative bid was accepted after the highway commission's engineering department checked the plans carefully, and the county secured a longer bridge and saved a large sum in cuts and fills.

The bridge was designed to carry a load of 250 pounds to the square ft. It consists of six spans, four of which are 103 ft. in length, the two end spans being 107 ft. The bridge is 19.4 ft. in width over all, with 18 ft. roadway. The foundation for piers and abutments consists of thirty piles to each pier and abutment, the piles being cut off two feet below mean low tide, the foundations thus extending down about three and half feet below the river bed. The bridge is located about half a mile back from the ocean and on account of the tide action no danger from scouring was anticipated. The riverbed is firm gravel. Each pile was figured to sustain a 17-ton load. The foundations of piers are 12 ft. in width and 26 ft. in length. The concrete used in piers and abutments was 1:3:6. A departure from accepted practice in this vicinity was made by the use of beach gravel in the concrete aggregate, to which was added 15 to 25 per cent of broken stone, the gauge varying to suit the work. There is no reinforcement in piers. In the arch ribs the concrete aggregate was 1:2:5, beach gravel also being used. The arch ribs were made on the ground under the respective positions which they were later to occupy in the completed structure. These arch ribs or beams are 11 feet on centers and are reinforced with a steel frame work consisting of twelve $\frac{3}{4}$ -in. round rods and $\frac{1}{4} \times 1\frac{1}{2}$ -in. flats, the reinforcing being connected at the crown end of the beam to cylindrical plates of steel having a ball joint mated into a cup in the opposite beam, the semi-spherical protuberances. At the reverse ends of the beam are $\frac{1}{2}$ -in. semi-circular plates forming portions of the hinges at skew-back on the piers. The hinge shoe on piers consists of 1-inch bolts, the rods extending deep into the concrete.

The spandrel posts, also made separately on the ground, were poured in 12 x 16-in. sections, the concrete aggregate being the same as in the arch ribs; that is, 1:2:5. The longer posts are reinforced with four $\frac{5}{8}$ -in. round rods; the shorter posts have four $\frac{1}{2}$ -in. rods. These rods were left protruding from the sides, top and bottom of the posts. The rods extending from the top form a tie to connect the spandrel arches with the spandrel posts; the rods protruding from the bottom have a thread, and they extend through the rack, beam and bolt the spandrel post to the beam; the rods extending through the sides of the beam are embedded in diaphragm cross braces and hold the posts to a rigid position.

Holes are left in the spandrel posts and the wooden centering for spandrel arches to provide means for firmly bolting the floor supports to the spandrel posts; the monolithic concrete deck was then poured in the usual manner. The floor was re-

inforced with $\frac{5}{8}$ -in. round rods running transversely across the bridge and the outside cantilever portion of the floor has rods running longitudinally 6-inch on centers.

Before the bridge was tested officially, the ribs of three arches were subjected during construction to a very interesting test as to their stability by inadvertent unsymmetrical loading after the pile supports were removed from supporting the arch ribs. The floor was started at the north bank and carried across toward the south bank. Thus these three arches had the weight of the floor and spandrel arches to carry without any load to balance them on the opposite side. A strain sheet was made, and it showed a thrust on the unloaded arch beams on the opposite side to pass to the outside edge of the reinforcement of the beams, also passing down through the foundation and passing out toward the opposite side of the pier outside the supporting piles while this loading was in progress. Careful observations were made of the arches to see if any unequal settlements or other signs of alarm appeared, but no deflection or other irregularities were noticed on the work.

The bridge is finished with a $1\frac{1}{2}$ -inch railing and the deck is covered with 2-inch asphalt surfacing. Construction was started about September 1910, by the Young Construction Company under the supervision of Mr. Thomas and Resident Engineer Yost for the highway commission.

The three hinged arch is recognized as having many advantages over the other types of construction, particularly where seismic disturbances may occur or settlements of foundations may cause cracks in the arch ring, in that it has greater flexibility than any other class of design. The designer of the San Luis Rey bridge claims for this type and method of construction used that it will make possible the building of concrete arches of large span that have heretofore been considered too expensive on account of the great cost of falsework having no value after the structure has been completed and which is not necessary where the arches are built on the ground and hoisted into place. It has been found in the Santa Cruz bridge referred to previously that the 83-foot arch raised or lowered $\frac{1}{2}$ -inch with a difference of twenty-five degrees in temperature, and in the San Luis Rey structure a raising or lowering of .18-inch was observable with a variation in temperature of twenty degrees.

Schemes for the erection of 3800 houses in Manchester have been approved. According to estimate, the city's requirements are for 17,000 houses.

* * * *

REMODELLED NAME.—“Why do you keep referring to von Ananias? There is no such person mentioned in the Bible.”

“I put the ‘von’ in myself. The name of the original mendacity expert should be Germanized as much as possible.”—*Washington Evening Star*.

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 Forestry League held its Annual Meeting on the 16th October, when there was a fair attendance, including Sir Francis Bell and the Hon. D. H. Guthrie. Sir James Wilson presided and in his address reviewing the year's proceedings referred to the work that lies ahead of the new Forestry Department, as soon as the Commissioner and Assistant Commissioner of Forestry have been appointed. In particular he advocated—

(1) That demarcation should be pressed on, so that none of our remaining forests should be sacrificed if the land is more suitable for timber growing than for settlement.

(2) That a census of the private plantations be taken to ascertain: (a) the extent, in area; (b) the class of timber; (c) the probable size and height of timber suitable for milling, and (d) the age of plantations.

(3) That a vigorous policy should be at once adopted to plant the various areas of sand dunes on Crown Lands which are all close to centres of population and the railway system.

(4) The passing of a Forest Act to give full powers to a Minister to set up a separate Forest Department, properly staffed and provided with sufficient means to carry out the policy announced by Sir Francis Bell, so that the whole subject of our forests, and the conditions under which the various native species grow can be studied with a view of conservation and regeneration as well as the continuance of planting on inferior lands.

(5) Above all that no delay should take place in securing to the Forest Department as great an area as possible in the kauri growing district (a timber which has been classed as the most valuable in the world).

* * *

In the unavoidable absence of Mr. Jos. Butler a paper on "Natural Afforestation" prepared by him was read by his deputy—and a further paper on "Economic utilization as a factor in Forest Conservation" by the President of the Federation was read by him in person. The sawmilling side of the Forestry question from the utilitarian point of view was therefore kept in evidence, and we feel that sawmillers are studying their own interest by being members and keeping in touch with the League.

* * *

The following resolutions submitted by Mr. Jos. Butler came up for consideration, viz.:

"That the Forestry League approach the Minis-

ter of Forestry with a request that all charges for extension of time for removal of standing timber from Crown Lands and State Forests be remitted, and also that legislation be introduced that will tend to decrease the cost to the owner of retaining standing timber in the forest.

"That the League point out that this is only a reasonable request in view of the fact that the Minister has placed restrictions upon the working and export of timber from Crown Lands which make it virtually impossible for the sawmiller to remove the timber within the time stipulated in the conditions of sale.

"And further that it is desirable in the interests of the country generally that the Sawmiller should be encouraged to leave the timber standing as long as possible, consistent with the economical conduct of his business."

To these resolutions the recommendation of the Executive "That a reasonable time for extension of cutting rights should be granted free of increased cost," was approved by the meeting, and this decision will be sent to the Minister.

* * *

The Housing schemes and shortage of timber supply have had a prominent place in the daily press for some time, and the Waihi Borough Council recently passed a resolution, desiring the support of other Councils and Chambers of Commerce throughout the country, in a recommendation to the Government that the export of building timber should be prohibited until the local demand is satisfied. We are of opinion the shortage is attributable to the Railway cut, and all town yards are bare of stock. But the actual facts so far as Main Trunk mills are concerned, go to show that since the resumption of traffic no building timber has been exported, and 12½ million feet have been lifted by the Department within a period of 6 weeks, being an increase of 4 million feet over the corresponding period of last year. According to a return of the Union S.S. Coy. shipments from the West Coast to the ports of Lyttelton and Wellington have increased by 6½ million feet as compared with the previous year, all of which goes to show the Sawmiller is doing his utmost to meet the demand. Verily the lot of the Sawmiller is "not a happy one." He is denounced as a destroyer of timber, then as charging excessive prices, and finally that he will not or cannot supply the demand, so what's the use.

With regard to the question of price fixation and profiteering some very pertinent remarks by Harold Cox, a well known financial authority in Great Britain, have come under our notice. Mr. Cox starts out by quoting some remarks made by the British Food Controller—Mr. Roberts, who says—"If the price of any article is kept forcibly under the market price (whether by a prosecution for profiteering or otherwise) the demand will remain above the supply and the whole supply, unless it is rationed, will be absorbed at once. In practice, the seller who is faced by more buyers than he can satisfy, and is forbidden to raise his price directly, will favour one buyer or other for some special consideration. He will get his higher price indirectly, if not directly." Mr. Cox goes on to say the position could not be better stated—Price is the mechanism by which traders regulate the relationship between demand and supply. If they are deprived of the power to do this, the ordinary machinery of commerce breaks down, and it is necessary either for the State to step in and establish a system of rationing or else to wink at an inevitable violation of the law. If for instance, two buyers are contending for the same pound of tea, either the State must step in and say they can only have half a pound each, or else the dealer must be allowed to choose between them and the most honest way in which he can exercise that authority is by fixing a price the one will give and the other not. No Acts of Parliament will ever override this elemental fact.

No definition of "profiteering" is attempted. A high price charged by one trader might barely cover the expenses of another, although the former may reap a good profit. The difference would probably depend not alone on their buying power, but upon their establishment expenses, and the volume of their turn over. No business man in certain trades can possibly work on a fixed per centage of profit. He must make a higher per centage of profit on some lines to compensate for losses on others.

* * *

With regard to the Butter equalisation scheme and the compensation of £170,000 it has been decided to pay to suppliers of the local market at less than the current export price, the Federation approached the Government and pointed out that there should be no differentiation between butter and timber or indeed any other product, and if the principle holds good in one case it should do so in all. The question of unrestricted export and export price for local consumption has also been freely discussed at Farmers' Union meetings, and following a resolution of the Auckland Branch of the Union bearing upon the point a letter was sent to that body by the Federation desiring to know if it approved of the principle being extended to timber. After long consideration the following resolution passed by the Executive of the Auckland Branch N.Z. Farmers' Union has been received, viz.:

"That we approve of non-interference with the establishment of the market value on the basis of the export price, but consider that such timbers as Kahikatea, which is necessary to the Dairy Com-

panies, should be resumed and reserved by the Government for that purpose."

If we are limited to price for local consumption we claim to be unrestricted in export, and if restricted in export the best price obtainable according to market conditions locally should not be interfered with."

The Seasoning of Timber.

A Plea for Kiln Seasoning.

By A. E. HIGGINS.

From the "Gum Tree."

Australian Forest League's Publication.

In recent reports on the general subject of timber preservation it has been pointed out that there were a number of problems in connection with this matter which require further investigation and the absolute proof of certain theories in order that we may adopt some recognised procedure to counteract the greatest of all timber curses—Warping, Checking, Shrinking, etc. One of the things that has to be considered is the effect on any given timber of certain methods of seasoning, and whether timber will have longer life naturally seasoned or kiln seasoned or green, and whether or not the period of waiting will affect our output.

With regard to the solution of these problems we have to start off on accented conditions as they are to-day, not as we should like them to be. Certain factors need therefore to be stated as a preliminary:

1. Our consumption of timber is tremendously ahead of our local output. Further, if we wait for a natural seasoning we shall only become deeper in the mire while letting foreign merchants gain control of the market.
2. Our local hardwoods require seasoning far more than do the woods of other countries taken generally.
3. If we are to build up an export trade we must begin now, and cannot afford to wait one moment, for only by exporting hardwood can we justify the use of soft woods.

Reconstruction is the order of the day almost the world over: shipping problems are becoming less acute: the clamorous demand for timber the world over is greater now than it ever has been, and will be greater still in five or ten years' time. This all necessitates prompt, immediate, drastic action.

It is a fact that to-day we are importing far more timber than we were a little while ago. It is a corresponding fact that Australian Hardwoods have a largely decreased proportionate output—this after all the timber talk of the past four years. I am aware that this article will render me liable to very open criticism in the eyes of some of our timber merchants, but I want to point out that we are primarily Australians, and only secondly timber merchants or others interested in timber, therefore we must necessarily start off prejudiced in favour of the local article, and

as a duty we must foster the use of it. It is our birthright, and just in the same way that a man who has a child which is handicapped in some form or another will put up with shortcomings in order to further the advancement of that child, so it is our duty if we profess to live up to the moral of the "Gum Tree" or the Forest League to primarily consider what is best for Victoria—what suits our pockets second.

A little while ago I was talking to a timber merchant who told me that that month he had turned down orders to the extent of many thousand pounds, because he had no seasoned stuff, but he had four or five million feet of timber weather-drying, and he was conscientious enough to keep the stuff until effectively dried, so that while the four or five million feet were waiting perhaps a year to be put on the market, other timber was pouring into the country.

Thus there is a great plea for some quick effective method of seasoning, and had this amount of timber been kiln-seasoned and supplied to the market immediately, just that much less importation would have been necessary; in other words, proceeds would have gone into the pockets of Victorians instead of drifting to Japan or America.

Now it is well known that there is a vast difference in the length of life of seasoned and unseasoned timber, yet the consumers have shown very little interest except for profits. Some attention has been given to checking, warping and shrinking, but very little at that. For this purpose both kiln-drying and air-seasoning are largely in use. Kiln-drying, which steams and dries the wood at a uniformly rapid rate by subjecting it to various intense climatic changes in enclosed spaces, has become a necessary factor in timber for car-building, manufacture of furniture, tools and many other articles in ordinary use in America, and without it the construction of the finished product would even sometimes be impossible.

Complaints are daily, nay hourly, made by all users of the various Eucalyptus that the timbers twist and warp far more than they did years ago. The explanation for this is probably to be found in the tremendous development in recent years in these industries which require the use of timber in large quantities. As a matter of fact properly-seasoned timber in many cases cannot be obtained at all, and green timber or very partially-seasoned timber is the order of the day.

Professor Von Schrenk, of the American Forestry Service, is a great advocate of kiln-seasoning, and he claims that kiln-seasoned timber is not only absolutely uniform but that the germs of decay are destroyed during the heating process, and that the timber is therefore much more durable, while in air-seasoned timber the germs merely remain dormant and spring into life again when brought into touch with moisture absorbed from outside. In addition to the actual water which is exuded by the opening of the cells, much other matter is also done away with without apparently injuring the texture of the timber or in any way affecting the breaking strain.

Amongst a body of Victorian cabinetmakers kiln-seasoned timber was almost unanimously preferred to

air-seasoned timber, working up much more easily and being selected with confidence instead of almost each piece having to be tested. As already said, it is a commonly accepted fact that dry timber will not decay nearly as fast as wet timber. Nevertheless the immense superiority of seasoned over unseasoned wood for all purposes where resistance to decay is necessary has not been sufficiently recognised.

It will be objected that timber in any large sizes, over and above inch boards cannot be kiln-seasoned, but it has been proved that it can be done, although squares, etc., need a far more gentle treatment than boards, and of course take a correspondingly longer time, and providing large sizes are seasoned sufficiently gently (in order not to break down the walls of the cells), no detrimental factor has been observed. The intimate relation between the presence of water in wood and the rate at which wood decays requires a brief reference to the causes of wood decay, but it is sufficient to point out that low forms of plant life called Fungus grow in wood, and by so doing disintegrate and dissolve portions of the wood fibre, and as a result of this the wood changes in its physical structure and is called decayed.

When the Fungus has extracted a sufficient amount of material, it forms on the outside of the wood, and in the larger and more prolific kind, forms fruiting bodies known as punks and toadstools, and these when in decay are blown about and infect sound wood. In kiln-seasoning the germ life of this is killed, and it is very doubtful if the outside application of moisture can ever effect it in the same manner. Moreover, in spite of the existing prejudice against kiln-seasoning, it can never be stated that it is preferable to use green timber, and this seems to be the only alternative as far as our local market is concerned.

It will readily be seen to be impossible to wait while large supplies of timber are air-seasoned, otherwise we may as well abandon the idea of securing a local market for our timbers, let alone building up an export trade. The natural feeling throughout Australia against the use of Hardwoods and in favour of imported timber has been almost entirely caused through lack of seasoning, and perhaps lack of grading as well, and as a very considerable portion of timber in Victoria is used for building and furniture (building, of course, using the larger amount), architects and builders have spent more time in discussing seasoning than perhaps in anything else. Unfortunately many attempts have been made to pass off merely baked timber for seasoned timber, and this has resulted in "case hardening," with much subsequent twisting and warping, and on no less than two former occasions has Victorian timber been absolutely turned down in London because of these failures.

The financial position also needs great consideration with regard to air-seasoned or kiln-seasoned timber. How many of our small sawmillers, or even the big men, can afford to cut and stack timber for a year at a time, entailing a tremendous output of capital, and yet have nothing coming in. This is what it undoubtedly means, and although the big timber men with large resources of capital may be able to

buy for cash and stack green, and then wait a year before selling in order to obtain a much higher price for dry stuff, even this will not affect the local market to any great extent, a great deal of the timber we use being sent direct from the mill to its destination, and thus escaping the timber-yard altogether. Here, then, is the plea for a general trial of kiln-seasoning.

Finally we should make development a chief factor; but if development should lessen the gain of profiteers, we may expect to reap a harvest of hatred; but never mind, we are in this world to develop ourselves and the world's resources, not merely to get rich, and if former ideas stand in the way of this development they should be dropped without hesitation.

We are living in serious times, yet in times of great possibilities. The old world is dying fast, and a new one is forming. Caste, custom, privilege must sooner or later, forcibly or peaceably, give way to the new idea, and if we can arouse ourselves to action we may still avert the curses of the next generation for the wasting of our great national birthright, "Timber."

The Case for Natural Seasoning.

By V. B. TRAPP.

I would not be at all surprised to learn that when Noah built the Ark there was a paper controversy whether it should be built with artificially or naturally seasoned timber. For many years past there has been considerable discussion as to whether artificial seasoning is satisfactory or not. In Australia there is no reliable information, and as there are at least 500 patents for the seasoning of timber, it is about time it was decided which one, if any, is the best. The Americans have taken this vast question up, and even to-day are in doubt. With their own timber (I mean the Pines) artificial seasoning has been proved anything but a success. For several years many have been experimenting on the Eucalypt, as it was believed to be the best of all the Hardwoods. In an article by H. D. Betts and C. Stowell-Smith in reference to seasoning, they report:—

"The seasoning of the Eucalypt offers the most difficult and pressing problem in connection with extending the use of Californian-grown Eucalypts. In strength, hardness and durability, several of the Californian-grown Eucalypts have shown themselves practically equal to certain of our native woods that are particularly useful on account of those very properties, but no satisfactory method of seasoning Eucalyptus lumber has yet been worked out on a commercial basis."

The American Bureau of Science has taken this matter up, and decided that every effort should be made to find out whether the Eucalypt could be artificially seasoned and the best way.

In a report by Reynolds Hill to the United States Department of Agriculture, he mentions:—"In the case of different kinds of timber or of different timbers of the same kind grown under different climatic conditions they have to be differently treated."

This is too true about our Eucalypts, and so far we in Australia have done little or nothing to find this out. In his report he further states:—"The most effective seasoning is without doubt that obtained by the uniform slow-drying which takes place in properly-constructed piles out of doors under exposure to the sun and the wind."

In summing up his report, he emphasises the fact that "artificial seasoning is only a makeshift at the best," and should be used only to complete the open-air seasoning when timber is urgently needed.

The reports from Great Britain are most disconcerting. The whole of their stock of seasoned timber has been used up, and it is estimated that it will be five years before the same stock will be available. It is a well-known fact that goods manufactured in Great Britain are always reliable, and it is also well known that there is really no artificial seasoning of timber, certainly not for the better class of work.

In Australia we have heard much about artificial seasoning, but no one has been able definitely to decide whether it is satisfactory or not. Some five or six years ago a few of those interested in our timbers decided to make all enquiries, and were quite willing to place £100,000 into the venture. Two well-known experts in timber were instructed to visit America and inspect the various seasoning plants and report. On their return they emphasised this fact, that with the Eucalypt it should certainly be stacked in the open 9 to 12 months before attempting to be artificially seasoned, and recommended if this were so it would be far better to have it wholly open-air seasoned. I may mention that this confirms the opinion Professor Ewart has always had.

The Americans have thoroughly studied the artificial seasoning of the Eucalypt, and have pointed out that it is different from other Hardwood. It is quick-growing, and trees should be matured from 40 to 60 years, whereas with the other Hardwoods it takes from 100 to 150, perhaps 200 years to mature. If artificial seasoning is forced on the Eucalypt, or rather if the Eucalypt is artificially seasoned before open-air stacking, in all probability some fungus growth or dry rot would take place. The outside of the board may be seasoned, but the inside not, and the pores of the timber should be allowed to dry in the open.

The British manufacturer holds this view, that he knows natural seasoning, and as it is reliable he is not going to jeopardise his reputation by artificial seasoning.

Some time ago a private test was made to prove that artificial seasoning was better than open-air seasoning. Several samples of natural-seasoned timber were weighed and measured and then treated artificially, and in each instance these timbers did not shrink but increased in weight. No one can explain the reason.

Undoubtedly for cheap work and work that is not required to last, artificial seasoning may be found satisfactory, but on the other hand, there is no getting away from the fact that naturally-seasoned timber must give a far better result.

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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 new factory for the making up of garments is to be erected by the Kaiapoi Woollen Co. at the corner of Walter's Road and Cromwell Street, Mt. Eden.

Mr. Selwyn Goldsboro' invited tenders last month for addition of memorial chancel in stone to Christ Church at Papakura, and Mr. G. W. Allsop, F.R.I.B.A., called for tenders for a new Hospital in brick at Taumarunui.

There is a scheme on foot to erect a series of flats (suburbs) in Auckland to ease the house scarcity problem. No less than 5 large modern apartment houses are contemplated, and work has already begun on one. Mr. Gerald Jones is the architect. When completed, these flats will accommodate 200 families at an estimated cost of £200,000.

CHRISTCHURCH.

The Public Works Dept. called for tenders for a new St. Heien's Hospital, Christchurch Hospital, last month, and also for a Post Office in brick at Papanui.

During the month Messrs. Collins, Harman, & Munnings invited tenders for alterations to Nurses' Home at Christchurch Hospital.

Messrs. J. S. & M. J. Guthrie invited tenders for a Memorial Hall at Mt. Somers; a residence at Oxford, and three cottages at "Holmslee," Rakaia.

Mr. Roy Lovell-Smith invited tenders for the erection of two-storey residence in brick, Riccarton Road, a residence in Gloucester Street, and another in Linwood.

Messrs. England Bros. invited tenders for a house in Garden Road.

The City Council adopted a scheme for the acquisition of sufficient land for the erection of at least two hundred houses. Provision is made for the sale of the houses, when erected, on easy terms, spread over a vary-

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ing period of years to suit the circumstances of the applicants. It was stated that the expenditure involved was between £150,000 and £200,000. There was plenty of land within easy access of Cathedral Square which could easily supply the requirements.

EASTBOURNE.

Building permits for over £10,000 have been issued by the Eastbourne Borough Council for the six months ending 30th September, and applications for permits for approximately £4000 are at present under consideration.

FEILDING.

Mr. H. A. Jones, of Masterton, invited tenders for the erection of a theatre and shops in brick or reinforced concrete in Kimbolton Road, Feilding.

HAWERA.

The plans for a new Technical School at Hawera have not met with the approval of the Director of Education, who says the cost of erection must be reduced.

MASTERTON.

Mr. H. A. Jones called for tenders for the erection of a new "Homestead" on the Soldiers' Settlement at Ahia-kouka.

PALMERSTON NORTH.

Mr. Edmund Anscombe, of Dunedin, invites tenders for the erection of an Infants' School in brick at Palmerston North.

RANGIORA.

Mr. T. Duncan Brown, of Christchurch, called for tenders for the erection in concrete of a new Presbyterian Church.

At a meeting of the Rangiora High School Board, a telegram was received from Mr. White, whose tender had been accepted for the new High School building, withdrawing his tender owing to the difficulty of obtaining the necessary labour. It was decided to accept the tender of Messrs. Shankland & Taylor, whose tender was the next lowest, provided they would agree to carry out the work.

WELLINGTON.

During the month the Wellington City Council, inspired by the housing scarcity, called for tenders for the erection of five houses at Maranui, but failed to get any response.

The new church, St. Mary's of the Angels, designed by Messrs. Clere & Williams, of Wellington, had its foundation stone laid last month. Mr. Renner is the builder.

Mr. E. W. Coleridge has begun practice again, and advertised for tenders for two residences at Lyall Bay.

PHONE 1649

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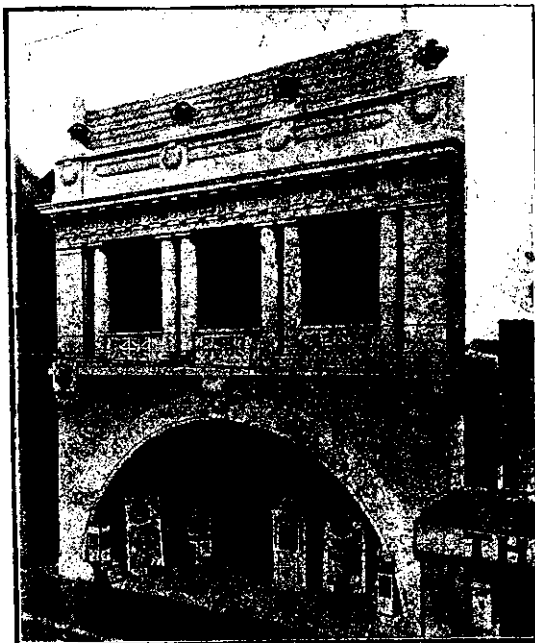
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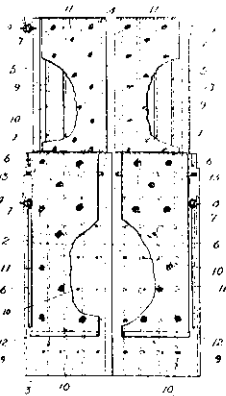
Mr. D. Murray Kean also invited tenders in brick for a residence at Lyall Bay.

Mr. Wm. Fielding called for tenders during the month for a peace memorial for the Wellington Bowling Club.

Mr. W. Gray Young invited tenders for the alterations and additions to Salvation Army Soldiers' Hostel, Vivian Street.

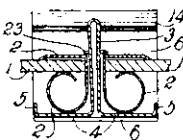
Patents of Interest to Builders.

Concrete Tile Presser Box—A patent, No. 40,795, has been taken out by A. Bairstow, of Petone, and A. S. Kerr, of Lower Hutt, which consists in providing a two-part box wherein a plurality of slates can be pressed simultaneously. One way of mixing the box is to divide same diagonally, the part with the bottom attached being the holder, and the other part which is slidable on the holder being the



shutter or closer. The shutter or closer is capable of being clamped or locked to the holder in any position. The inner surfaces of the sides of both the holder and the shutter or closer have series of grooves cut therein, from which drainage-holes open through the outer surface of said sides. The interior of the box is lined with porous material such as canvas, in two or more pieces.

Skylight Glazing Bar—A patent, No. 41,951, has been taken out by H. Starke, of Christchurch, which comprises in combination with sheets of glass provided around their edges with metal beads or reinforcement-clips astragal or glazing-bars, each hemispherical cover. Similarly, the same object may be attained by the employment of gimballs to



which the pointer is fixed and from which depends a weight for the retention of the same in the perpendicular position. And, instead of a hemispherical glazed or transparent cover being applied to the instrument, a metallic cover provided with circumferential and radial slits or the like may be employed, through which can be discerned the position of the pointer and the subsequent inclination indicated.

Concrete Tile Manufacture and Apparatus—A patent No. 40,332 has been taken out by W. McLeod, Victoria Avenue, Wanganui, which comprises using a concrete pallet; using a system of cars and carriers for drying and curing the tiles; using a pallet-carrier for drying and curing the tiles; and using a mould-box for making concrete pallets having

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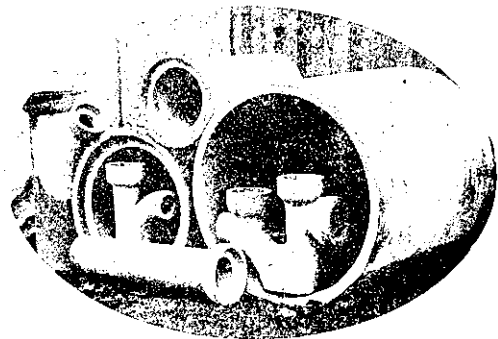
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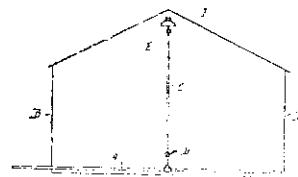
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hinged sides, a frame fixed to a bench on which two wedge-pieces are secured by a swinging-joint for firmly securing the ends of said hinged sides whilst the pallet is being



formed, buttons to prevent said sides swinging back when the said box is turned over, and a resting-plate for the top of said box. Other features are contained in invention.

Hothouse Heating—A patent No. 41,823 has been taken out by W. O'Brien, builder, and A. Morse, farmer of Whakatane. It consists in the combination with a steam-pipe system extending round the bottom of the enclosure, of a



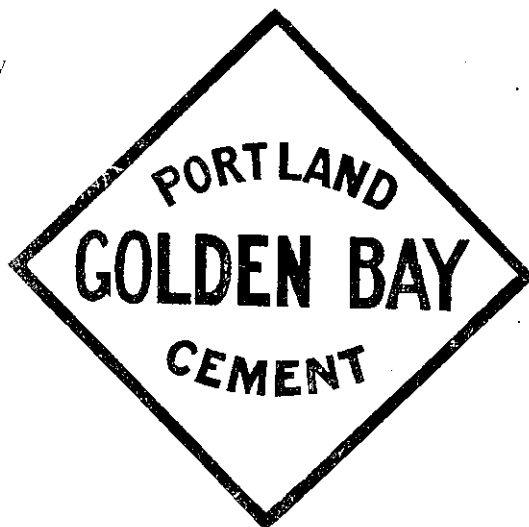
branch carried therefrom and arranged to pass horizontally along within the top of the enclosure, such horizontal portion having spraying-nozzles arranged at intervals in its length and directed upwards, and concave baffle or deflector plates arranged one above each of such nozzles.

Caseiment Stay and Holder—A patent, No. 41921, has been taken out by J. H. Johns, of 415 Swanson Street, Melbourne, which comprises a staple of peculiar construction that is

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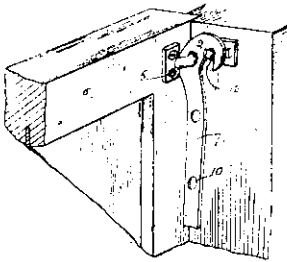
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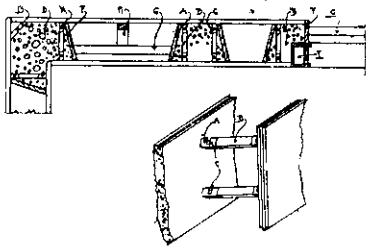
CANTERBURY AGENTS

placed on the casement-frame, a hooked lever attached to the staple, and an anchored stud on the jamb of the



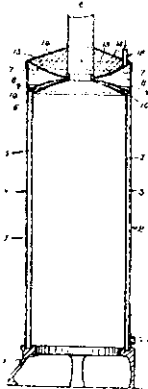
window that engages the lever to hold the casement or window open and also the hook thereon when the same is shut.

Concrete Boxing—A patent, No. 41,055, has been taken out by P. T. Wash, Crown Hotel, Port Aburiri, Napier. It consists of tying two sides of a cavity wall by embedding angle-irons in the members thereof and connecting same



by clipping together with angle-iron ties. Also of tying all the members of one course of a cavity wall, both transversely and longitudinally, in such manner as to be impossible for any section to rack.

Water-heater—A patent, No. 40,654, has been taken out by W. B. Peninghouse of Papanui, Christchurch. The heater comprises an inner cylinder and an outer casing arranged concentrically and separated by a narrow water-space, which is connected to the ordinary hot-water-supply pipe. The top of the cylinder is dome-shaped, and has an uptake for the escape of the waste gases of combustion, while



the top of the casing is dished, and the uptake passes through same. A considerable space is provided between the top of the cylinder and the top of the casing, an annular baffle-plate with a series of holes near its periphery being fitted in said space. Outside the casing the dished top is filled with asbestos and [or] fireclay or the like to conserve heat.

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