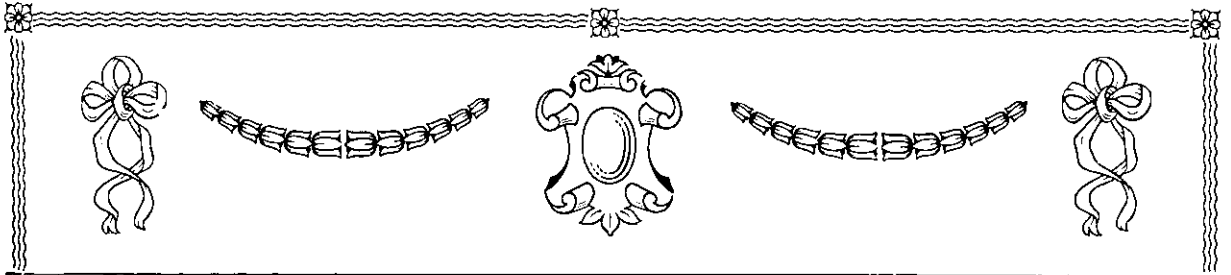


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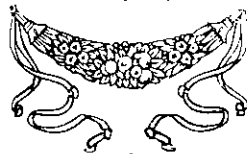
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Should subscribers continue to receive copies of this journal after expiry of current year, it will be accepted as an intimation that they are desirous of subscribing for a further period of twelve months.

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### Publisher's Announcements

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#### Our 30th Competition

---

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##### Bowling Club House or Pavilion

to be erected for a club having a membership of 100, with a full sized green as well as a Croquet Green for a Ladies' Club of about 25 members.

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Drawings to be to ½-inch scale and to consist of plan or plans, 3 elevations and a transverse section. Block plan showing greens to be to 1-16th scale. Drawings to be inked in and shaded. No colouring.

Mr. W. Fielding of Wellington has kindly set this subject.

Designs must be sent in, finished as above, under a nom-de-plume, address to **Progress**, 10 Willis Street, Wellington, and marked clearly, "Thirtieth Prize Competition" on outside, with a covering letter giving competitor's name and address and employer. Designs to be sent in by February 21st.

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#### Our 31st Competition

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##### Electric Light Lamp Post

in cast iron. The post is to carry one large arc lamp and is intended to be used throughout the city streets.

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#### Conditions of "Progress" Competitions

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

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#### Notice to Subscribers

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"N.Z. Building Progress" is posted each month through the G.P.O. at Wellington. If any subscriber should not get his copy, another will be sent him if we are notified in good time. The paper is supplied from year to year only, and if subscribers continue to receive the paper after expiry of the current year, we shall accept it as an intimation of their desire to continue for another twelve months. We undertake to supply the paper for such further term. Notice of discontinuance must be sent to the Manager, 10 Willis Street, Wellington in writing, as no Agent has authority to receive notice of discontinuance on our behalf. The subscription is 7/6 per annum. A discount of 1/- will be allowed off this amount if subscription is paid in advance.

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Official Organ of the Institute of Local Government Engineers of N.Z.

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WELLINGTON, AUCKLAND, CHRISTCHURCH, AND DUNEDIN, NEW ZEALAND, FEBRUARY, 1915

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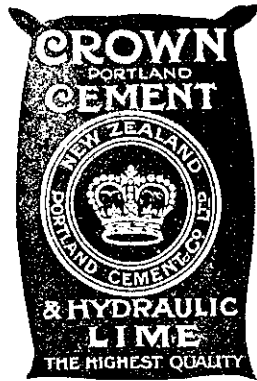
## Editorial Comment

It is consoling to see how the world turns round and business goes on though the politicians have come to a dead end in New Zealand. There were Jeremiahs who predicted that if a general election took place, the country's trade would get a set-back. However, the producing season set in even earlier than usual, and at such a pace that some anxiety was felt about the supply of shipping to get the stuff to England, for without access to our market 15,000 miles distant we might almost as well grow thistles as raise meat. The tonnage problem appears to have settled itself, but the political tangle needs judges to unravel in some cases, and judges must not be hurried. The Massey Government is acting wisely in going on with administrative work just as confidently as if it possessed one of those comforting Seddonian majorities for which it pined for nearly twenty years. Unfortunately, the Government's confident attitude cannot justify it in committing possible successors to big new schemes, consequently we are not likely to see any important State undertaking commenced until one side or the other is fairly seated in the ministerial saddle.

\* \* \* \*

Whatever the outcome, it is obvious that no party will have a very substantial majority in the new Parliament; nor will any politician secure enough solid backing to push through so evenly divided a legislative throng, any measure likely to arouse high party feeling. In our Town Planning article in this issue it is suggested that the politicians will have a splendid opportunity of doing useful non-contentious work of great importance if they pass a comprehensive Town Planning Act next session. Such a measure is badly needed, and we cannot understand how so able a gentleman as the Hon. H. D. Bell, Minister of Internal Affairs, could tell a deputation—as he did some time ago—that no fresh legislation is needed to carry out Town Planning Ideals. If a single local authority wishes to carry out some public improvement within its own boundaries, it has

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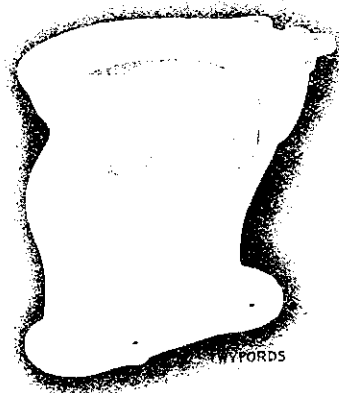
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undoubtedly all the power it needs in the Municipal Corporations Act and Public Works Act, but these statutes give it no right to impose conditions upon land-owners so as to ensure that future suburbs are laid out upon the best lines, with due regard to the health of the people and the beauty of their environment. sane town planning is really an enlightened selfishness, because it means a better disposition of the land and an improved return in the long run. Local bodies who wish to combine in schemes of town planning would, under the present conditions of the law; find themselves in no end of a muddle of hampering restrictions from which nobody but so skilled a lawyer as the Minister of Internal Affairs could extricate them. We sincerely hope that if the fortune of political war favours Mr. Bell's side, he will introduce a Bill to make easy the way of local authorities wishing to go in for Town Planning, setting up a national authority to advise and exercise general control. In this respect we are far behind so-called conservative England which has, among the officers of its Local Government Department, a controller of Housing and Town Planning with salary rising from £850 to £1,000 per annum, an assistant at £500, and five Housing Inspectors who do invaluable work in the thickly populated centres. "Progress" is not concerned about politics, and it is because of our town planning ideals that we regret the exclusion from the new Parliament of so enthusiastic and well-informed friend of the movement as the Hon. George Fowlds formerly Member for Grey Lynn.

\* \* \* \*

How are we to pay for the war? Accustomed as New Zealanders are to borrowing, most people absorb with confidence the professions of both sides in politics that there is no need to impose war taxation upon us. This might be good policy while the Motherland, out of its wonderful resources, can spare us millions on easy terms, but we must make up our minds that the burden is not going to be shouldered on to posterity. Borrowing for reproductive works can be justified, but borrowing for so wasteful a purpose as war can only be justified as a temporary measure.

The war costs England about one million sterling a day. Such an enormous sum could not be paid out of annual revenue, hence the 350 million loan, which however, is to be redeemed in from 10 to 14 years. The current year's finance, according to the Right Hon. D. Lloyd George will show a deficiency of £339,571,000. New taxation will yield fifteen and a half millions the first year, and loan-money will fill the remainder of the big gap, but taxation is to provide £65,000,000 next year. The increase needed to produce this enormous sum were announced by the Chancellor of the Exchequer as follows:—

1. The income-tax and supertax are to be doubled. This year, however, the increase is only to be collected in respect of one-third of the income. The tax (raised to 1s. 3d. in the last Budget) will be levied at the rate of 1s. 8d. this year, and of 2s. 6d. next year. The rate for earned incomes (now 9d.) will be 1s. this year and 1s. 6d. next year.

2. The duty on beer is to be increased by 17s. 3d. the barrel. This will allow the publican to charge the consumer an additional ½d. on the half-pint.

3. The duty on tea is to be increased by 3d. per lb.

The Chancellor of the Exchequer also announced that the Government propose to raise immediately a War Loan of £350,000,000, to be issued at 95, and to bear interest at the rate of 3½ per cent. It is to be redeemed by the Government at par on March 1, 1928, or, subject to three months' notice at any time between March 1, 1925, and March 1, 1928. In effect, therefore, it will be a 4 per cent. security.

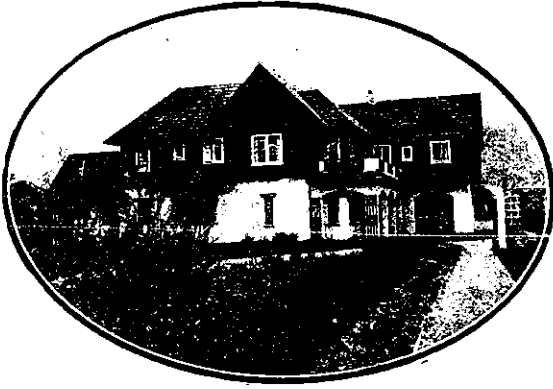
New Zealand's Treasurer must soon face the position, and we must pay just as cheerfully as we have voluntarily handed out our money for the Patriotic Fund. Our income tax normally is less than that of England. To double it would yield an extra half million sterling. Perhaps the totalisator tax might also go up, and "that most elusive person the teetotaller," as Lloyd George calls him, would not mind if the tea tax which he now escapes, came back again. The English war-tax on tea is 8d. per lb.; this on our very large consumption of tea would alone give the cheerful Minister of Finance no less a sum than £200,000. What of that hitherto untapped, though threatened source of revenue, petrol? The position is hopeful enough for the Treasurer, and those who pay will deem it cheap in return for the coming triumph of the allied arms. Business men who keep going, and consumers who keep buying, are doing their share towards that desirable end without waiting to be forced by the tax-gatherer.

\* \* \* \*

A new process for making coal dust, lignite, peat, or sawdust into briquettes suitable for use as a fuel has originated in France. This process consists in mixing with the material treated some gelatinous substance such as the flour made from rice, compressing the mixture into briquettes, and drying under a high temperature. In making briquettes from anthracite-coal dust, a mixture is made consisting of 2½ per cent. of rice flour and 97½ per cent. of coal dust. Hot water or steam is then injected into the mixture to transform the flour into a pasty mass, and the whole is thoroughly kneaded before it is passed to the fuel press. After being taken from the press, the briquettes are dried for three or four hours in a temperature of from 180 to 360 degrees F. It is said that the briquettes made by this process are capable of withstanding the action of water for a long period without danger of disintegration.

If this process is a proved practical success it will enormously extend the world's fuel resources by making available low-grade coal for power and household use. Large quantities of New Zealand coal go to waste for want of an inexpensive briquetting method, the system in which pitch is used as the consolidating medium being so expensive that the State Coal Departments briquetting works on the West Coast ended its unprofitable run by being closed down several years ago.





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# Our Town Planning Opportunity

What Should be Done in New Zealand

By CHAS. E. WHEELER

The present time affords a particularly suitable opportunity of dealing with Town Planning legislation for the Dominion. Without the backing of statutes, local authorities can do little to ensure that future suburban extension will be on sane, sound lines. Politicians will welcome this non-party subject.

Town planning must be kept in the public mind even during these stirring times of national stress, otherwise public opinion can not be educated to that happy pitch which will not tolerate the monotonous

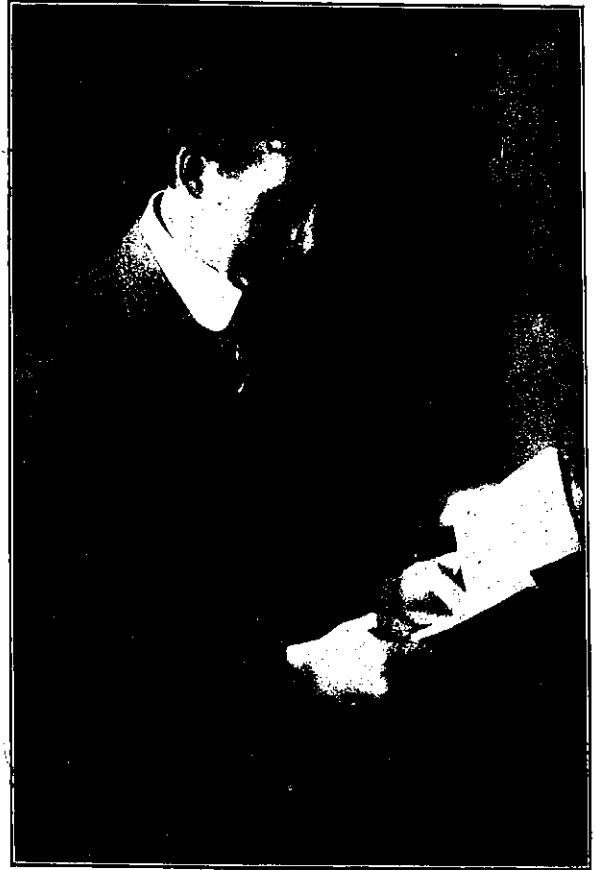
tion by wise forethought in town planning legislation and the encouragement of the beautiful in home building has its opportunity of earning from posterity the blessings we bestow to-day upon such



W. R. DAVIDGE, F.S.I., A.R.I.B.A., A.M.I.C.E., (London County Council).

His lantern lectures on Town Planning in New Zealand and Australia have shown that he is a gentleman of attainments only equalled by his enthusiasm for *The City Beautiful*.

expensive, repellant system of covering our suburbs favoured by the speculative builder and land syndicate. This is the time to take stock of the position and prepare for the renewed activity of suburban settlement following the war. Mistakes of the past are obvious all around us, and these are expensive to rectify, but New Zealand is only carrying one-twentieth of its future population, and this genera-



CHAS. C. READE.

A New Zealand journalist who has done useful original work for the Town Planning movement.

—Photo by Gerald E. Jones, F.R.P.S., Auckland

far-sighted pioneers as those of Canterbury, who so effectively provided for the education of generations then unborn.

The visit of the Town Planning experts, Messrs. W. R. Davidge (of the London County Council) and Mr. Charles C. Reade, a former New Zealand journalist now prominently associated with Town Planning, stimulated public thought and focussed up the forces in the Dominion favourable to the great movement. They have described in flattering terms New

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Zealanders' enthusiasm for Town Planning, and in a letter to "the Garden Cities and Town Planning Magazine," Mr. Davidge provides English supporters of town planning reform with a glimpse of colonial conditions well worth our attention as the opinion of a cultivated and frank outsider:

Writing about the interest taken in the Town Planning lectures Mr. Davidge says:



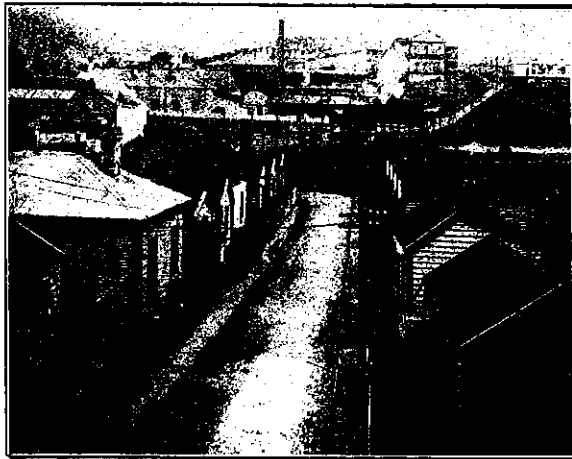
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ILLS TOWN PLANNING SEEKS TO AVOID.

Backs of houses on right hand side of Haining Street, looking towards Mt. Victoria.

"We have had packed halls everywhere, not only in the large towns, but particularly in the smaller places, which are just beginning to feel the possibilities of township. For instance in New Plymouth—a seaside place with a population of about 12,000—there was an audience of over 1,200 people, all as keen as anything to hear what is being done in the old country to improve things. The views of Hampstead and Letchworth always take the public fancy. At Wanganui, situated by the side of a river, there are entirely different problems, and each place has to be treated in a special way."

laying out a rectangular framework of streets over the whole hillside, but the stern realities of the steep hillsides have brought about a picturesque winding road, and although it has by law to be sixty-five feet between the fences, the road itself is in most cases reduced by stress of circumstances to twenty feet

"Christchurch, again, is situated in a plain as flat as a billiard table, but already the town is beginning to ascend the lower slopes of the Port Hills, which separate the town from the port of Lyttelton.

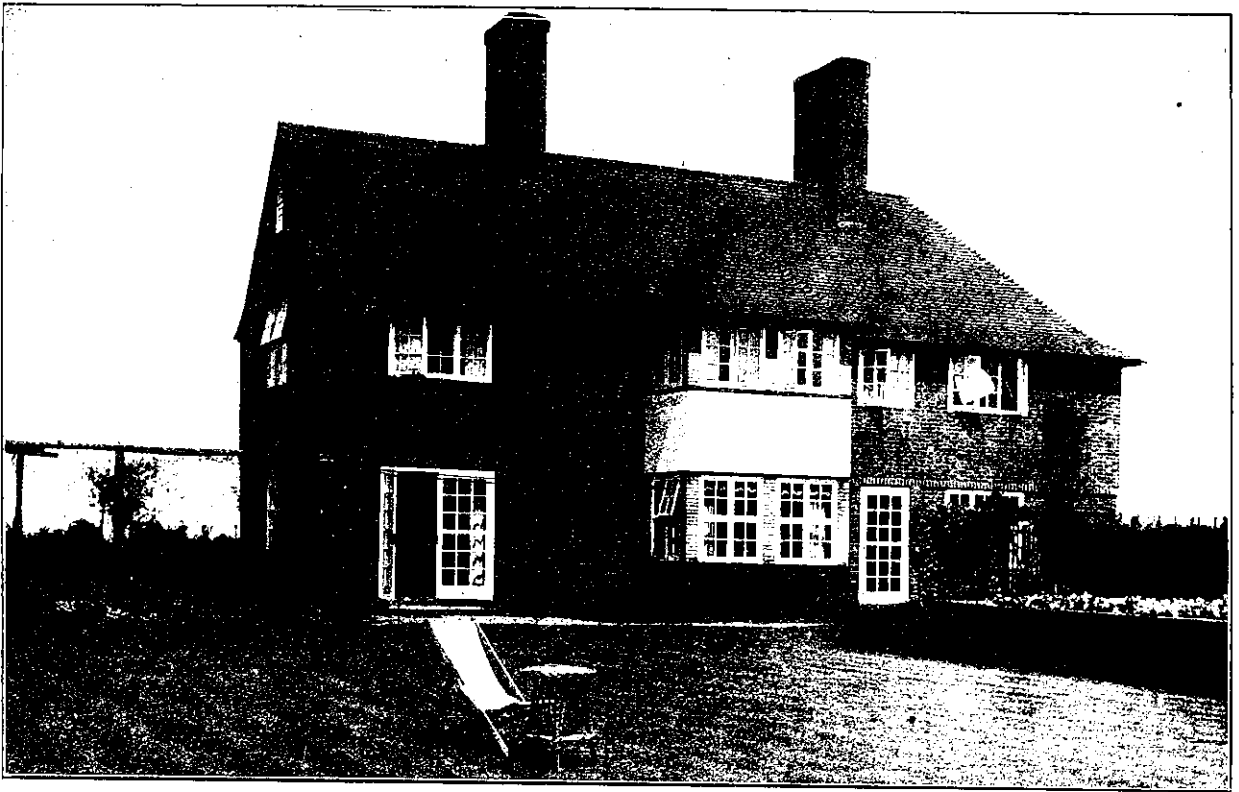
The development of some of these towns is really remarkable, and they are free from many of the irksome restrictions which limit our own towns. Lyttelton, for instance, has recently purchased some hundreds of acres of land across the harbour, which the town proposes to develop partly as a park and the remainder as a suburb on garden city lines. The majority of the Councils have a perfectly free hand to purchase land or expend money in any reasonable way, the only check being the necessity of obtaining the approval of the ratepayers to any loan expenditure.

Finally, Mr. Davidge states that there is a very strong desire that the effect of the lectures should

character are so hopelessly confused at the moment that both sides should welcome such a thoroughly non-party subject as Town Planning for parliamentary attention. "Progress" readers have noted by what has appeared in our columns that town planning idealists are active in several New Zealand centres, and that useful work is being done. The field is vast, not only in regard to the virgin ground of future suburban extension, but that of correcting mistakes of the past.

#### SOME OF OUR MISTAKES.

Auckland—Kipling's "Last, loneliest, loneliest, exquisite apart"—has grown like a mushroom, and has grown rank. Here the town planning idealist



LETCHWORTH GARDEN CITY HOME.

A more attractive back-yard view than preceding photographs.

not be lost, and local associations are uniting to consider the whole question of town planning. In the larger centres Town Planning Associations are being formed to carry out the work, and some of the smaller places, such as Wanganui, propose getting in touch with the home association with a view to obtaining a special set of slides with the aid of which they can carry on the work in their vicinity.

#### THE OPPORTUNITY OF TO-DAY.

How is New Zealand carrying on the good work so well outlined for us by our capable visitors? We have to make allowances for the distractions due to the war, but we must not lose what is really an exceptional opportunity of laying a good legislative groundwork for town planning. Politics of a party

finds much to regret, and fortunately a good deal to admire. The thoughtful and far-seeing generosity of Mr. Arthur M. Myers in presenting to the city a valuable area now covered with slum property will enable a beauty-spot to grow out of an old sore. Our illustration of Marion street, which branches directly off Auckland's principal business thoroughfare, Queen street, shows the class of untidy haphazard erection in the area soon to become a delightful park. This is an old part of the city, and allowance has to be made for that, but the settlement of the Jervois Estate in Ponsonby within recent years, on the dull drab rectangular lines of the drill-yard is a thing to mourn over. Let the reader examine the illustration, note the rows of close-packed dwellings of uninspiring type, giving joy only to the

lucky speculators who sold this vast draught-board at high prices per foot. A few trees in the street take off the severity of angularity here and there, but of shady avenues there is no suggestion except, by way of strange irony, in one of the street names. Yet the Jervois Estate has a fine inland aspect, and was quite capable of artistic lay-out by trained men; and had there been town planning legislation on English lines, the settlement would have been more economical. Streets have had to be macadamized a full chain width, though they are not arterial roads. Thousands of pounds have been spent on expensive road-making which could have been saved if the syndicate could have legally provided a central

matter has been allowed to subside in favour of other things which have been more actively "pushed."

One turns with pleasure from Haining street to a backyard view of a Letchworth garden suburb house (see page 200) though it must be admitted that the type of house illustrated is beyond the scope of the Haining street dweller. The Labour Department is providing cheap homes for the people who can afford to buy on the easy-payment system, but no public body in New Zealand has yet brought into being a system under which the worker may rent a decent house in a tidy locality at reasonable cost. What is provided, too, is not architecturally beautiful, though the State ought to realize its responsi-



ASMAN'S HILL, HAMPSTEAD GARDEN SUBURB.

Economy of space and beauty of design.

macadamized track for wheeled vehicles, and filled the remaining sixty feet of road-space with grass, and tree-shaded paths.

Wellington's hills have provided a problem for the house-builder, who has often short-sightedly solved it by squeezing dwellings into odd corners facing the narrowest of streets. Mr. Charles C. Reade, whose photos of typical Wellington houses of this type we reproduce, roused public opinion upon the matter by a couple of admirable illustrated lectures. The City Council felt the responsibility of the position, and its engineer prepared a scheme for the improvement of Haining street, the most congested quarter, but the public anxiety having been eased by this concession, the

bility as a leader in these things, and pioneer the way to better-looking dwellings than the verandahed bacon-boxes considered "just the thing" for the manual worker. If it is said that space and cost are elements of difficulty, let us turn to English experience. In a country possessing one-twentieth of its potential population, the land difficulty ought not to exist, but as it does, the New Zealand planner has to meet the problem. Our illustration of Axman's Hill, Hampstead, shows a typical street in this garden suburb on the outskirts of North-West London. Over 7,500 people reside here where in 1906 the land was unbuilt on. The suburb was laid out by Raymond Unwin F.R.I.B.A., (architect of Letchworth Garden City). The principal part of the

houses were built by the co-partnership tenants and let at rents ranging from 7/9 per week upwards.

Another example of cheap housing without its inevitable New Zealand accompaniment of dull tawdiness is to be found in the thoroughly familiar Bournville settlement just outside Birmingham. Factory workers in this great midland city are housed under most squalid conditions, yet within a few miles of them are more fortunate employees paying less rent for delightful conditions. The illustration

Piako River could have been turned to good account but the frontage to it is limited to the strict needs of prospective business. What calls for hearty commendation, however, is the liberal way in which reserves have been made for the future community. The centre of the town is taken up with a recreation reserve of eight acres, and a roomy school site, while excellent corner positions in the town sub-division have been set apart for future municipal and other public purposes.



BOURNVILLE COTTAGES—RENT 4/6 WEEKLY.

These cottages, in the model industrial village established by Geo. Cadbury, are, as can be seen, substantially built. They contain two bedrooms, a large living-room, kitchen, scullery, etc.

of a typical Bournville cottage shows what can be done under enlightened control for 4s. 6d. per week. There are two bedrooms, a large living-room, kitchen, scullery, bathroom and the usual out-houses. The rent of every house includes allowances for depreciation and repairs, and the cheapest cottages return 4 per cent. upon capital.

The Government of New Zealand had an excellent opportunity of putting town planning ideals into practice when it laid out the new township of Pipiroa, on Hauraki Plains seven miles from the mining town of Thames, but the chance was missed. Natural features which might enhance the beauty of the future houses of the people were entirely disregarded in its draught-board arrangement. The

### War Pars

A big firm of English manufacturers effectively puts the present business policy into one sentence: "And when you are asked to buy goods 'made in Germany,' remember what Germany has made in Belgium"!

We trust that the Kaiser will not commit a *faux pas* by absented-mindedly decorating the Sultan with the Iron Cross.

The entrance of Turkey into the war presages a gobble of some sort.

## The Evolution of Domestic Architecture

By Basil Hooper, A.R.I.B.A.

(Concluded from January issue)

Having sketched out briefly the history and chief characteristics of Domestic Architecture, from earliest times to the present day, I will now confine my remarks to a consideration of some aspects of modern work. I think we must all agree that the principles which are being followed out, or attempted to be at

diameter would not stand a hundredth part of the weight put upon it. It is not so long ago that marbled mantelpieces were considered the correct thing, but of course the heat of the fire usually blistered the poor things. I will not however harrow your feelings further by mentioning any more of our past misdeeds, too many of which, alas, still live in our midst, and numbers are even now being further perpetuated. The characteristics of the ideal house, I take it, should be simplicity and reticence, both externally and internally. The details should be interesting and well designed, and any ornamentation should be of the best, and concentrated, with sufficient plain wall surface to set it off, and form a contrast. The eye be-



BACK OF HOUSE IN HIGH STREET, DUNEDIN,  
Showing the advantage of a sunny back aspect. The garden is private, sheltered and sunny.

[Basil Hooper, A.R.I.B.A., Archt., Dunedin.]

any rate, at present, are certainly a great step in advance of what has gone before, even in New Zealand. Who is there among my audience that does not recall the days when "shams" of all sorts were rampant; from the imitation tessellated vestibule floor, that introduced you to the paper marble dado in the narrow apology for a Hall. This paper was usually highly varnished, and looked quite effective until a few rents revealed its true character. Then of course the doors had to be Oak or Walnut, with birds eye maple panels, and so the art of the grainer was called in—and lo and behold, your desire was obtained, again brightly varnished. So lost were we all to a sense of truth and fitness, that (although this is out of our special subject) for instance light cast iron columns in a certain church not far from Pitt Street, were grained to represent marble, although a moment's thought would show that a marble column of that

comes satiated with too much ornament, and is far more pleased and rested when its attention is fixed on a few choice features. Even in quite a small house there is no need to usher your visitors into a narrow and attenuated entrance passage. Careful planning can quite easily provide a small square or rectangular Hall, that suggests cosiness and hospitality to those that enter it. A fireplace in it is an improvement, but of course is not necessary. The treatment of the staircase too, has undergone a change, for instead of crawling along its side, to reach the back rooms, we often find it set back in a compartment of its own, and entered through an open archway, thus gaining privacy and comfort for the Hall. The best type of modern Domestic Architecture, is however, chiefly noticeable for its compact and convenient planning. The servant problem has no doubt had a great deal to answer for in this, as now that people



so often have to do their own work, or are only able to employ a limited amount of labour, it is most important that all unnecessary space should be curtailed, and that all corners for dust should as far as possible, be eliminated. Mrs. Jones does not want to spend all the morning getting the dust out of the twists in the stair balusters, nor will Miss Brown appreciate the necessity of beeswaxing a landing floor that would be large enough for the Town Hall. Similarly Mary Anne, when you are lucky enough to have her, will revolt if she is condemned to carry the dishes from the Kitchen half a mile to the Dining Room. The wise Architect, especially if he has learned wisdom through having a household of his own, will see to it that the Kitchen is within a step or two of the Dining Room, at the same time preserving the dignity of that apartment by making the chief entrance to it from the Hall. He will not forget, either, that at least two

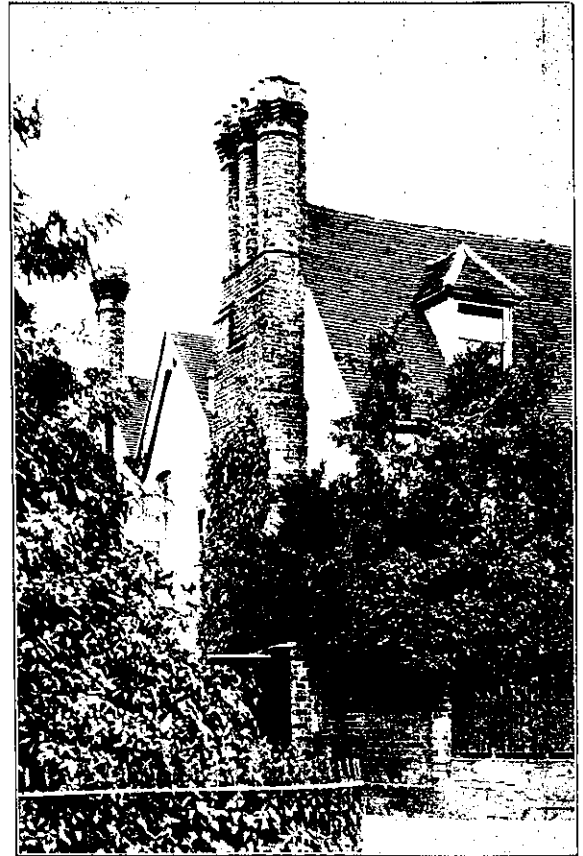
back no objection could be raised to it. It is often difficult to fit in the sun, with view, but in my opinion, the former is the more important, in these cold regions at any rate, and therefore the view sometimes has to be sacrificed. But usually, by a little thought, one or two rooms at least can be planned having windows back and front, so obtaining both desired results. All these little points need careful consideration, and it is in these ways that the architect can show whether he has studied the questions or not. Unfortunately a great number of houses are



ENTRANCE HALL, PRIVATE HOSPITAL, STAFFORD STREET, DUNEDIN.

Showing staircase set back from hall.

[Basil Hooper, Archt.]



CHIMNEY STACK IN SUFFOLK.

This stack is built of thin red bricks, five courses to the foot. The body of it is old work, but the upper part of the caps appears to be modern.

doors should separate the Kitchen from the Dining Room, or the Hall, or the consequences will be that sundry savoury, or unsavoury odours will find their way into these parts, greatly to the annoyance of everyone. Another very important feature in planning a house, undoubtedly, is the aspect of the different rooms. Who does not know the type of house, which has all its principal rooms facing the South, simply because it was thought the correct thing to look on to the street? The consequence is that in the place of bright, sunny, and cheerful rooms you have to put up with cold, and damp ones. How much better would it have been, if, casting tradition aside, the best rooms had been placed on the side and back of the house, thus getting the warmth of the sun, which is surely worth far more than an outlook on to an uninteresting thoroughfare. In some ways a sunny back is an advantage, as it enables you to obtain greater privacy for your verandah and balcony, and in these days of open air sleeping, that is a point worth considering. A bedstead on the front verandah would not be absolutely ideal, whereas at the

put up without the aid of an architect at all, and in that case the employer has only himself to blame if he suffers from the effects of untrained planning, and inartistic design. We live in an age of luxuries, though many of what in the old days would have been considered luxuries, are now supposed to be quite indispensable. Not so very long ago, a bathroom was only found in the houses of the wealthy, and indeed, very often not there. Even now, the tiniest cottage is not considered complete without one; and people will turn up their noses if the bath is not cast iron enamelled. Lighting too, is an all important essential in the

home, and the use of electricity has given abundant opportunities for numerous devices and conveniences. How much more comfortable it is on a cold and dark winter morning, to press a switch fixed near our pillow, and flood the room with light, than to stand shivering, like our forefathers did, and vainly try to obtain a spark from the tinder and flint? The position of the lights is a very important point. It is surely much better to consider where the dressing table will be placed, and then put the light over that position, than to place it in the centre of the room, where it is of little use to anyone, and only causes shadows to those using the looking glass. Our fireplaces have also undergone a change, from the early days of the Normans, with their hole in the roof, to our modern scientific slow-combustion well grates, not to mention the increasingly common hot water heating system, by which the whole house, passages and all, can be properly and economically warmed. I could go on "in ad infinitum" almost, recounting the various improvements, (including the all important cupboards) but I will let this suffice. Before concluding my paper however, I would like to add that I trust the lessons we learnt from the recent lectures on Town Planning, and Garden Suburbs, will bear fruit, and that the public will realise that it is quite as easy and cheap to build artistic, cosy and convenient, as ugly and inconvenient ones, and that judicious placing on the site, will help a great deal to improve the general appearance of the building, not to speak of the charming effects produced by well kept lawn and a few trees in the right place. I also trust this paper will have caused some here to realise, to some extent at least the interest, and the importance of "Domestic Architecture."

## Germany from Within

### Views of Distinguished Neutral

#### "A PATHETIC ADVENTURE"

We recognise that the economic pressure put upon Germany and Austria through the throttling of their commerce is a big factor making for the Allies success, and it is quite evident, from what the London "Times" correspondent in Copenhagen has gleaned in an interview with a high authority, that the Germans are already awakening to the hopelessness of their position. "From a distinguished citizen of a neutral country, whose name I am sending you privately, a banker by profession, whose long-standing business relations with the country required him to spend the past seven weeks in Germany. I have received a graphic account of the aspect which events present to a keen observer" writes the "Times" correspondent. "His views are not only those of a man of affairs, but of one who, through his professional connections with Germans of eminence in politics and commerce, enjoyed unusual opportunities for gauging the actual attitude of

mind with which this class views the war. It is, of course, at complete variance with the rosy tint in which the "inspired" German Press depicts the situation for the deception of the public both at home and abroad."

It would be a grave fallacy (said my informant) to judge German affairs by the German newspapers of to-day. They must not only suppress what the Government does not want printed, but are required to publish practically that, and that only, which the Government lays before them. I refer, of course, to news and views of all sorts bearing on the war. Everything, for instance, tending to suggest that the rigours of war are slowly but surely undermining the national economic fabric is strictly contraband. It is that feature of the situation, naturally, which makes the liveliest appeal to the imagination of a



THE EGYPTIAN MUMMY.

"Good Lord! I believe something is moving here!"

--*Kladderadatsch* (Berlin).

We can trust our New Zealand boys on the spot to "shake things up," though not exactly as the Berliners would wish.

business man. My every-day contact with Germans of my class, extending over a period of many weeks, leaves me firmly convinced that those of them who must know now realise that Germany has been plunged into a tragic and pathetic adventure. Even the great industrialists of Rhineland-Westphalia, though many of their works are occupied in the production of war materials to a wholly unprecedented extent, are depressed and melancholy over the awful struggle into which Germany has been precipitated.

These are men who cannot be deluded by official optimism and bluster. They are men accustomed to deal with facts. Nothing else impresses them. What are the facts? The General Staff told the

great captains of industry, who in Germany are hardly a less important factor in the conduct of a war than the Staff itself, that the plan of campaign—reduced to essentials—was this:—We shall smash France within three weeks, then wheel about and deliver Russia a knock-out blow before she has had time to complete her mobilization. Belgium will offer only the resistance of sullenness. England will not “come in” at all. The German Government had the positive assurance of leading Englishmen to that effect. Well, this hammer-and-tongs programme has not come off. Cogs have slipped at numerous vital points. Belgium’s resistance, to begin with, was more than sullen. England did “come in.”

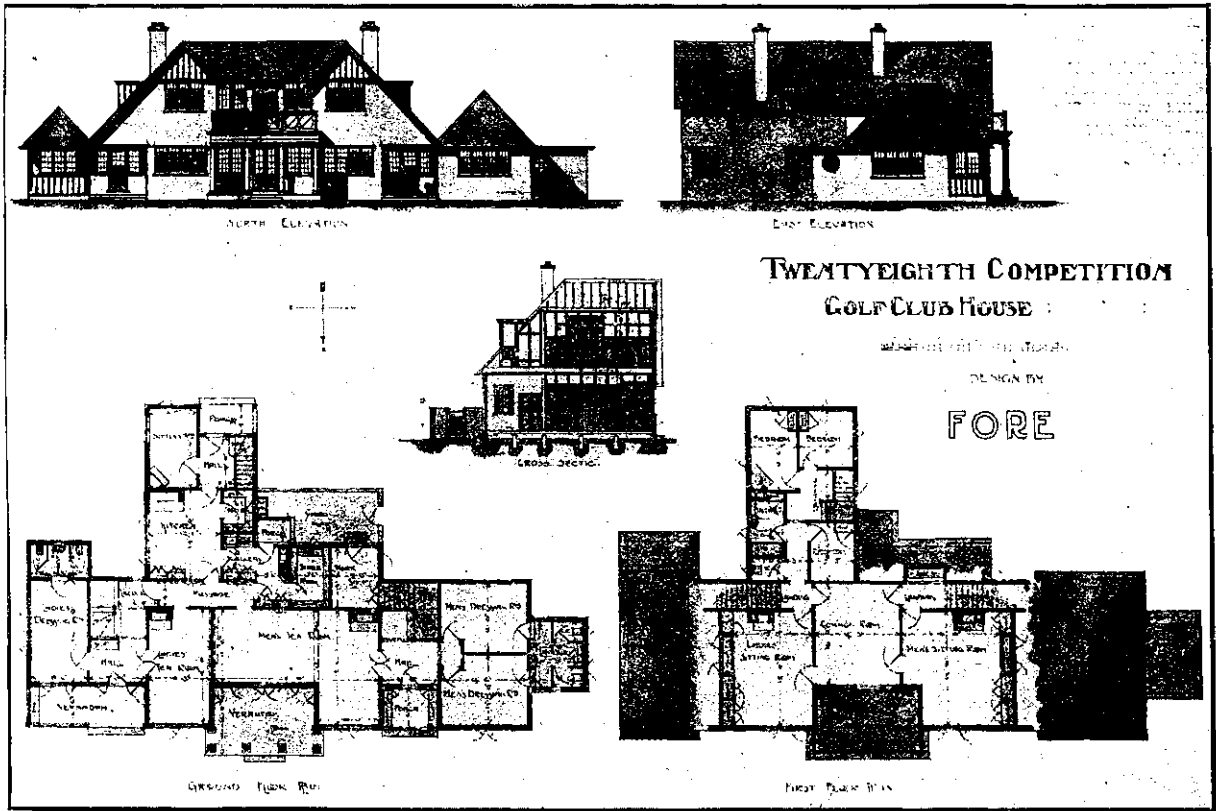
## Golf Club House

### Our 28th Competition

WON BY “FORE,” CHARLES B. McARTHUR, WITH MR. W. GRAY YOUNG, WELLINGTON.

#### Results and Judge’s Comment

Only two designs were sent in for this competition, viz:—that of “Fore,” by Charles B. McArthur, with Mr. W. Gray Young of Wellington, and



WINNING DESIGN, “FORE,” BY CHAS. B. McARTHUR, WITH MR. W. GRAY YOUNG, WELLINGTON.

Paris was not occupied by August 25th, and Russia, far from being “knocked out,” has not ever reeled. Not a single one of the General Staff’s objectives has been attained. Checkmated in all directions, Germany has little but an enormous death-roll to counterbalance the terrific effort the first 100 days of war have cost her.

These are the immutable things which thinking business Germans see and know. They know more than that. They realize that, thanks to a very far-seeing economic and financial organization, their trade and commerce have thus far—barring the annihilation of the German Merchant Marine—been dislocated perhaps to no greater extent than the trade and commerce of their enemies.

“Mons,” by Ed. D. Reidy, c/o Messrs May & Moran, Auckland. On the recommendation of the judge, Mr. Basil Hooper, A.R.I.B.A., of Dunedin, we have decided to award a prize, though it is not in accordance with the conditions governing “Progress” Competitions, which stipulate that at least three designs must be sent in before an award is made.

The judge reports as follows:—

“It is somewhat disappointing to receive only two entries for this subject, as it is no doubt an interesting one, besides being comparatively simple. However, very likely a number of those who would have competed have enlisted for active service, and this, together with the holiday season would partly

account for the paucity of entries. Of the two designs, I have no hesitation in placing that by "Fore" first. He has sent in a convenient and well arranged plan, together with a pleasing and well proportioned elevation, and the only pity is that there is no idea of seeing it take shape in actual brick and mortar.

"Mons" design, while containing many points of interest, shows that no attention has been paid to cost, as the £1,500 allowed would be totally inadequate. The sizes of the different rooms are far too great, and many apartments have been given that have not been asked for. This in itself of course loses it a number of marks. In the matter of draughtsmanship also, "Fore" is much superior, as he uses a firm bold line, while "Mons" gives us a thin and sketchy one, which makes the whole drawing look decidedly weak.

The only point in which "Fore" has laid himself open to disqualification is that he has only given two elevations in place of the three asked for, but as his design is otherwise so good, I have waived that item. A few criticisms on "Fore's" design may now be of use to himself, and to other students.

I consider that all the dressing rooms are a trifle small, and no provision has been made for lockers or hat stands.

As economy had to be considered it would have been better to have put the space occupied by the halls and porch into the dressing rooms, and taken the stairs direct from the tea rooms, which for all practical purposes, would be quite good enough. Urinals are not really necessary, with two W.C.'s, and they are usually rather offensive. The ladies' verandah should be wider, as in warm weather players often have tea outside. I presume doors are intended for the tea rooms to passage and not openings merely? The windows in the ladies' tea rooms opening on to the men's verandah would be better omitted, as privacy to both sexes would be lost with them there. The folding partition between the tea rooms is quite a good idea, but the objection to it is that it would not be at all sound proof, and it might happen at times that some conversation in the mens' tea room would not be suitable for the ladies' ears. And vice-versa of course! The fireplaces, being in the corners, would be better placed across the corners, both for appearances and heating. The scullery, and the workshop, also are a bit too small. The meat-safe is in a very hot position, getting the blaze of the afternoon sun, and could be placed outside the larder with advantage. Coming to the first floor plan there should be one decent sized bedroom in the caretaker's suite; but there is not one that would take a double bed even. The South windows would certainly have to be omitted to allow any bed space at all. A door is intended no doubt, between the ladies' landing and the caretaker's passage. As to the elevations, there is very little I can recommend to improve them. But perhaps if the hipped wings had projected 3-ft. or 4-ft., it would have relieved the long flat front. The mens' lavatories also would be better at the back, like the ladies'; also their roofs would look better if hipped and tiled.

For "Mon's" benefit, I would point out that separate stairs for ladies and men were asked for, while neither a lounge nor loggia were specified. The access to the larder and pantry through the scullery is not good. Upstairs, the passage space is excessive and very inconvenient. The idea of heating by means of hot water is not a good one for this type of building. As a matter of fact, the fires in the tea and sitting rooms would only be lit perhaps on Saturday afternoons in the winter, and a costly heating installation lying idle would be too much dead asset most of the time. "Mon's" plans are not figured, which is a serious omission in a competition drawing.

In conclusion I feel sure the two competitors have benefitted by the amount of thought they have had to put into their designs, and trust we shall see more of their work later on."

BASIL HOOPER, A.R.I.B.A.

## Ships of the Nations

### Britannia Still Rules the Waves

The progress of the maritime world during the year 1913-14 is shown in interesting detail in the annual report of Lloyd's Register of shipping; a copy of which is to hand from the secretary of Lloyd's Register. The list of vessels classed in Lloyd's Register Book, the tome which holds a record of every craft afloat, at the end of June last totalled 10,621 merchant ships, registering nearly twenty-four million tons gross. Of these the tables show that 9,636 were steamers built of iron and steel, that 871 were sailing vessels of the same materials, and that the wooden and composite vessels, steam and sail, numbered 114. The steam tonnage, of course, composed the great bulk of the total, these vessels aggregating twenty-two and a half million tons. The sailing ship is passing away, and the whole of the "windjammers" sailing the seas make up a tonnage of 1,336,238, or only about 5 per cent. of the world's mercantile marine. The new sailing ships built during the year numbered only forty-nine, as against a fleet of 664 new steamers.

Analysing the returns of vessels classed in the Domesday Book of the sea, it is seen that British ships still lead the world. There are 6,270 vessels flying the red ensign of the British mercantile marine, with a total tonnage of 13,782,899, while all the other ship-owning countries can muster not more than 4,351 ships between them all, a fleet registering 10,087,766 tons, or about three and three-quarter million tons less than Britain's argosy. In the matter of construction during the year about sixty per cent. of the new ships were built for the British Empire (United Kingdom 1,164,519 tons and the colonies 39,592 tons), leaving the various other countries of Europe, Asia, Africa and America to divide the remaining forty per cent. between them. In the year under review the record total of over two million tons of shipping was constructed under the supervision of Lloyd's Register. It will be interesting to see how the war affects the shipbuilding industry during the next year.

# New Zealand Automatic Bakeries, Ltd.

## HOW "KELLOW" BREAD IS MADE

After reading day by day in the daily press about the steady increase in the price of bread, and the way in which the bakers have been reluctantly obliged to pass this increased cost along to the consumer, it has become almost an accepted thing that the margin of profit made by the baker is so ridiculously small, that it is with difficulty that he maintains his position among the suppliers of necessities at all.

It comes as a considerable surprise therefore to find that here in Wellington, where competition is supposedly keenest, a body of hard headed business men has been enterprising enough to float a Limited Company capitalized at £35,000 (of which some £18,500 has already been expended in buildings and machinery) solely for the manufacture of the "staff of life."

Yet the explanation is of course simple. From the earliest days, when the "public baker" became an established fact, and the ordinary individual no longer depended only on "home made" bread, there has been a constant striving on the part of the buyers to ensure that any portion of the process involved in the manufacture, should stand the test of absolute cleanliness. This meant the elimination of the human element in its entirety, that is, as far as human contact with the bread during any part of the process of manufacture went, and when it is remembered that only as far back as twenty years ago the dough was still often kneaded by the homely method of trotting barefooted up and down the troughs, whereas to-day it is in no portion of the process touched by human hands (or feet) it will be realized that an immense amount of time, money and thought have been expended to realize ideal conditions of bread making.

That these conditions have been attained we received ample demonstration the other day, when Mr. W. A. Kellow the Managing Director, and Mr. J. S. Burn the courteous Secretary spared themselves no pains to ensure that we received a thorough initiation in the modern methods employed.

It is impossible to describe the process in detail, or to reproduce all the photographs placed at our disposal, but a brief description will we think prove interesting.

The building of the New Zealand Automatic Bakeries Ltd., stands up when viewed from the harbour and hills as a landmark, and when we state that the daily capacity of the factory is some 15,000 loaves it will convey a better idea of size to the average layman than actual measurements in feet and inches.

The factory, as its name implies, is as nearly automatic as possible, and as gravity is made to do the necessary work wherever possible the process of manufacture naturally starts at the top floor and gradually descends until the loaves are loaded in

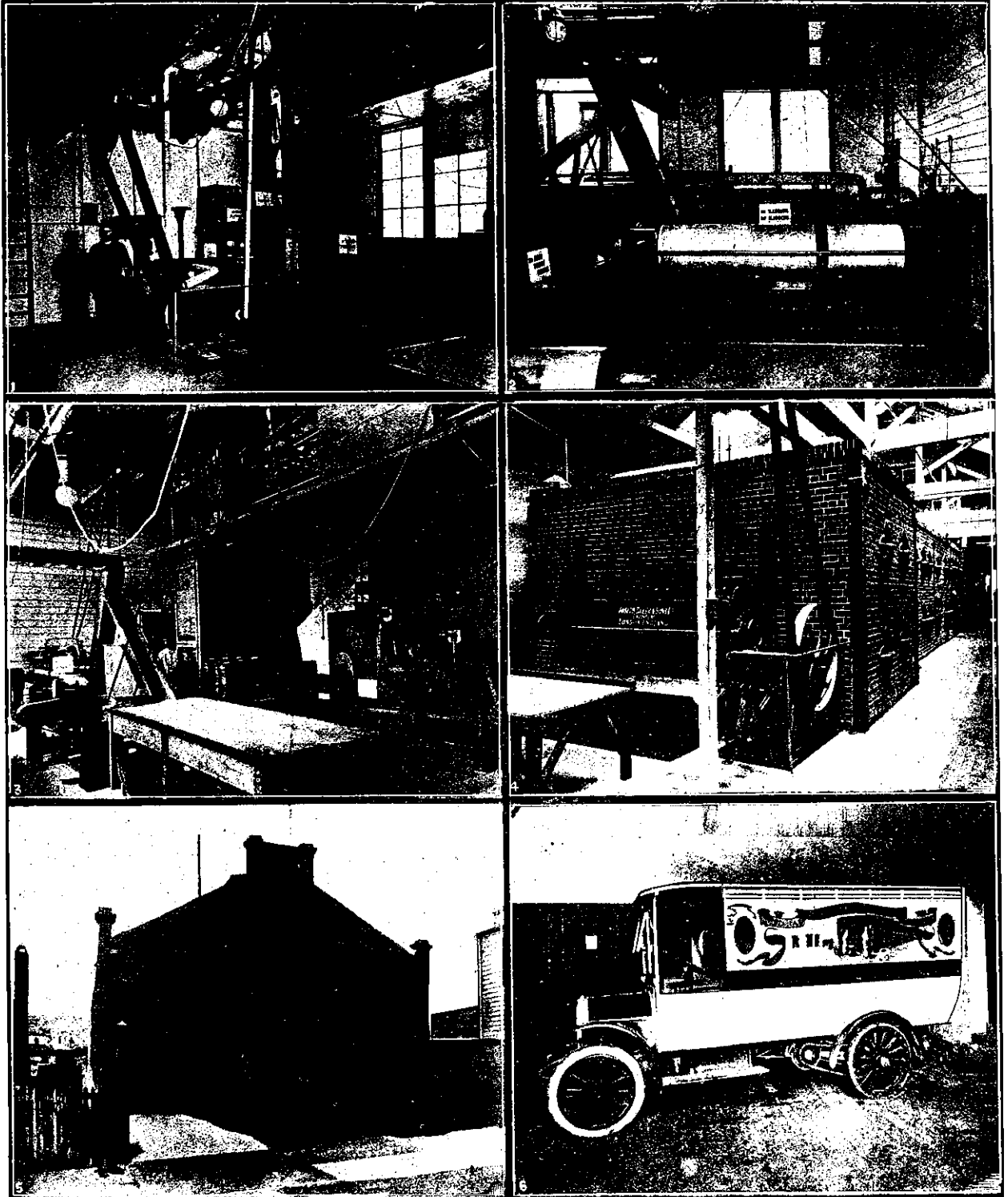
the cartway on the ground level. The sacks of flour are elevated to the top floor by an automatic safety lift, and it should be mentioned here that the whole of the machinery is electrically driven. Here the bags are stored, the storage capacity being about 1,000 tons.

As few grades of flour are similar, the first process is to blend the various shipments to a mixture decided upon by the blender, and this is effected in a rotary machine divided into three variable compartments each of which can be set to hold a certain quantity of flour. From the bottom of the blender



NEW BUILDING FOR THE N.Z. AUTOMATIC BAKERIES, LTD., TARANAKI ST., WELLINGTON.

it is elevated, passed through a sifter and stored in a ten-ton vertical bin. From the bottom of the bin it falls automatically into a delicately adjusted scale pan, which, when the correct weight is reached, deposits the flour into the rotary mixer on the floor beneath. Here beside the mixer are two measuring tanks for water, each fitted with steam heating apparatus for regulating the temperature. The water is added to the flour already in the mixer, and within five minutes one ton of dough is ready for tipping into the trough. In these troughs the dough lies for from 6 to 8 hours for the purpose of what is known as "proving" or working, and it is during this and following periods of proving that the yeast does its work.



#### AUTOMATIC BREAD MAKING.

1. Dough Dividing and Weighing Machine and First Dough Elevator, showing part of First Prover. 2. Dough Moulder and Kneader, showing part of first Prover. 3. General view of corner of ground floor Machinery, showing second Dough Elevator, part of second Prover and Loaf Panning Machine. 4. View of Oven, showing delivery end. 5. Company's stables in Tory Street. 6. One of the motor delivery vans.

From the trough the dough descends to the floor below and into the "dough divider." In this machine, on which alone a page might well be written, the dough is rammed into a series of cylinders, each exactly set to hold the necessary weight, tipped to a vertical position, then neatly cut off by the dough knife and flipped clear of the machine on to a rotary drum, round the surface of which it passes guided by semicircular chutes into the elevator leading to the "first prover." Each lump of dough, now neatly circular in form drops into a separate canvas pocket and is conveyed through the prover, (heated when necessary) a journey occupying some half hour, and thence by traveller to the patent moulding machine where further shaping takes place. From here the loaves are again picked up by elevator and passed through the "second prover." This prover delivers the dough to the final machine which automatically rolls out the dough, re-rolls it in the familiar "Jam Rolex Poly" fashion, to remove air bubbles, shapes the loaves and finally drops each loaf into the tin shape waiting to receive it.

The tins containing dough are then picked up by a "third prover" where steam is the agent employed, and from there they are delivered direct to the travelling ovens. These ovens are 60 feet long, and are run at a temperature of about 600 degrees, the trip of a loaf occupying about 35 minutes from end to end. At the far end of the journey the finished loaves are placed on wire racks to cool, the empty tins being run down an inclined roller slide, back to the baking room for further filling.

The delivery arrangements, and carter's checking devices are well thought out, but it must suffice to say that the actual delivery is done from house to house deliveries by the familiar horse and cart, while hotels, hospital and long distance deliveries are handled by up-to-date motor delivery vans.

We feel safe in saying that the ordinary householder who is privileged to inspect the care and scrupulous cleanliness attained by the use of these modern methods, will feel far less dissatisfied in paying his monthly bread bill, even at the present enhanced prices, than he had before his initiation.

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## University Grounds

### How They Should be Planned

#### AN ATTRACTIVE IDEAL

Perched up on a hillside, surrounded by dwellings and public roads, we can hope for very little in the way of attractive and suitable grounds for Wellington's university, but broader ideas prevail in regard to the site for the new Auckland University College which is so badly needed, and the Northern educationalists will find encouragement and assistance in the plans of the West Australian University Senate for laying out the grounds of the university at Crawley.

Premiums of 100 guineas and 25 guineas for first and second prize designs are being offered by the Senate for the best schemes for laying out the grounds and gardens, including the disposition of the buildings of the University of West Australia. The site is at Crawley Park, two miles from Perth and four miles from the ocean, and is in full view of all river traffic passing between Perth and Fremantle.

As an indication of the enlightened mind of the Senate upon this important question, the Chancellor, Sir J. Winthrop Hackett K.C.M.G., M.L.C., LL.D., publishes the following notes in the conditions of the competition:—

It is surprising the demands made by what may be called the agrarian needs of a modern university, especially taken in conjunction with the latter day conception of advanced research. In planning such a University, provision has to be made for the buildings common to all, such as the Grand Hall, the General Library, the General Museum, Lecture and Examination Rooms, and the like. The School of Medicine will require special quarters—laboratory, dissecting theatre, etc. Then, there must be large provision for instruction in Biology, Bacteriology, *Materia Medica*, and a host of other subjects. Similarly, Mining and Engineering will have to be considered. Facilities will be required for dealing with Physics, Metallurgy, and Assaying. Then, there is the Agricultural Faculty. It is to be hoped that the gardens of old Crawley House will be preserved and improved, so that ample recreation grounds may prove a source of delight to all—students and visitors alike. But, besides these, special plots will have to be dedicated to the service of agricultural instruction. Moreover, there is need of a residence for the Vice-Chancellor, and, it may be, residences for the professors and lecturers will have to be borne in mind."

"Then, in a modern University, sports must take a foremost place, and much space will be demanded for tennis, football, and other forms of manly and healthful recreation. Above all, the deep water river front with which this beautiful area is favoured can be made, as regards boating, sailing, bathing, fishing, etc., one of the rarest attractions offered by any of the Universities of Australia. Finally, to quote words I have used before, I take it that provision for colleges will be demanded, on whatever basis they may be established. I am bold enough to believe that a University wholly divorced from the college system is calculated to impart but a meagre proportion of the full advantages which should be secured to our students from a University course."

A few official copies of the conditions, including contour survey of the sites and locality plan, are available upon application to the Editor of "Progress," 10, Willis street, Wellington, and we will be pleased to send them to intending competitors. The competition closes on May 31st next.

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"The building that aims at being anything more than useful and strong must first be polite."—*Garbett*.

## The New "Commercial Agent" for our Railways.

### The Right Thing—The Wrong Man

The motive-force required for Mr. E. H. Hiley's railway improvement scheme is a three-and-a-quarter million loan. Without it, the Department will not be able to go far in securing more economical working of the lines. Ancient "coal-eaters" of locomotives, and expensively operated steep grades make big inroads on the revenue which no amount of efficient management can really minimise. A start was made with re-grading the worst pieces of main line several years ago, under the Hon. J. A. Miller's direction, and the completion of the Newmarket-Penrose duplication and regrading in the Waikato no doubt enabled the Department to cut off over an hour from the original timing of the Main Trunk expresses, besides enabling the Class A compounds to pull a heavier train. One feature of Mr. Hiley's ambitious and much-needed scheme is reorganization of the traffic working branch of the railways. Hitherto it has been worked on the typical conservative lines of a Government Department. The railways are provided for the public, but there is no attempt to solicit business. Possibly the easy assumption is that the Department holds a monopoly, but the competition of coastal trading steamers and commercial road vehicles may force it to wake up. Mr. Hiley's businesslike view is that with a concern heavily capitalised it must do the largest possible amount of business. If the traffic does not come, it must be sought and encouraged. At first sight it may seem impossible to make business for a monopoly which it could not get without effort, but a "live" management will easily discover new sources of revenue, and if it listens sympathetically to the public demands it will always have some propositions to consider. A new official, the commercial agent, has been appointed for this work. He is to act as the sympathetic advocate of the public in any departmental consideration of new services, revision of rates or other improvement of the facilities for transport. A thoroughly experienced railway officer, Mr. T. W. Waite has been appointed. He knows the system from end to end, having served in many grades of the Traffic Department during his railway career of 32 years. Such a long departmental training must surely unfit Mr. Waite for the new role. He is saturated with the principles of economical railway working—New Zealand style—and can scarcely be expected to change the mental habits of a lifetime within a month or two. Unless Mr. Waite undergoes some marvellous transformation we prophesy that as a "business booster," an advocate of traffic-developing experiments and unprofitable ventures which will grow to paying-point, he will be a failure. The new general manager ought to have gone outside the Railway Department for his commercial agent if he wished to satisfy the railway's customers that they are to be given a really useful "friend at court."

## The Month's Building

### Auckland

#### NEW STATE SAWMILL FOR WAIPOUA FOREST

The decision arrived at by the Government to utilize the immense quantities of kauri and other milling timbers in the Waipoua State Forest, and to erect in connection therewith a State sawmill, continues to arrest the attention of Northern Waikato timber employees who approximate 600 in number, and on whom are dependent some 2,000 of the population. The site of the proposed mill has not yet been decided upon, and three locations have been mentioned, the areas concerned being at Waipoua; Waima, at the head of the Kaihau Valley; and at Dargaville.

The old post office building in Shortland Street, Auckland, is soon to disappear, and be replaced by an up-to-date Government building, in which the Deeds, Crown Lands, and other State Departments will be housed. The erection of the new building has been approved by Cabinet, and Mr. B. Kent, president of the Auckland Chamber of Commerce, has been informed that so soon as finances permit the work of construction will proceed. Draft plans have been prepared, and Mr. Kent has the assurance of the Government that so soon as the money is available the new building will be erected.

An important building scheme was mooted by the Mayor, Mr. D. Teed, at the meeting of the Newmarket Borough Council last month. Mr. Teed stated that the Newmarket Public Hall in Broadway was quite out of date and totally unsuited to meet present-day requirements. On more than one occasion recently the hall had proved much too small for meetings that had been held.

Near Broadway the Borough Council has a valuable reserve, triangular in shape, and Mr. Teed suggested that this area should be utilised by erecting upon it a public library and public hall. Both of these conveniences, he said, were badly wanted in Newmarket. It was possible that there might be some legal difficulty in the way of using the reserve for such a purpose, but he did not think that this would be insurmountable. His suggestion was that the property comprising the existing hall should be sold and the new hall and library could be erected out of the proceeds. The council could thus avoid the necessity of going to the ratepayers for a loan.

The members of the council expressed approval of the Mayor's proposal.

#### COMPLETION OF ST. PAUL'S

An interesting ceremony, marking a new stage in the growth of St. Paul's Church, was performed lately by the Mayor, Mr. C. J. Parr. A small contract was accepted for the preparation of the foundations of a new chancel to replace the temporary wooden structure, erected when a lack of funds prevented the completion of the building in stone. Mr. Parr turned the first sod in connection with the necessary excavations, in the presence of the vicar of St. Paul's, the Rev. C. A. B. Watson, and of many parishioners.

The Church of St. Paul's was built 20 years ago at a cost of £7,000. A tender was received at that time to complete the building, erect a spire, chancel, etc., for £4,000. The finances of the church did not admit of the acceptance of this tender, and the delay has proved a costly one. It is estimated that a sum of at least £7,000 will now be required to build the chancel alone.

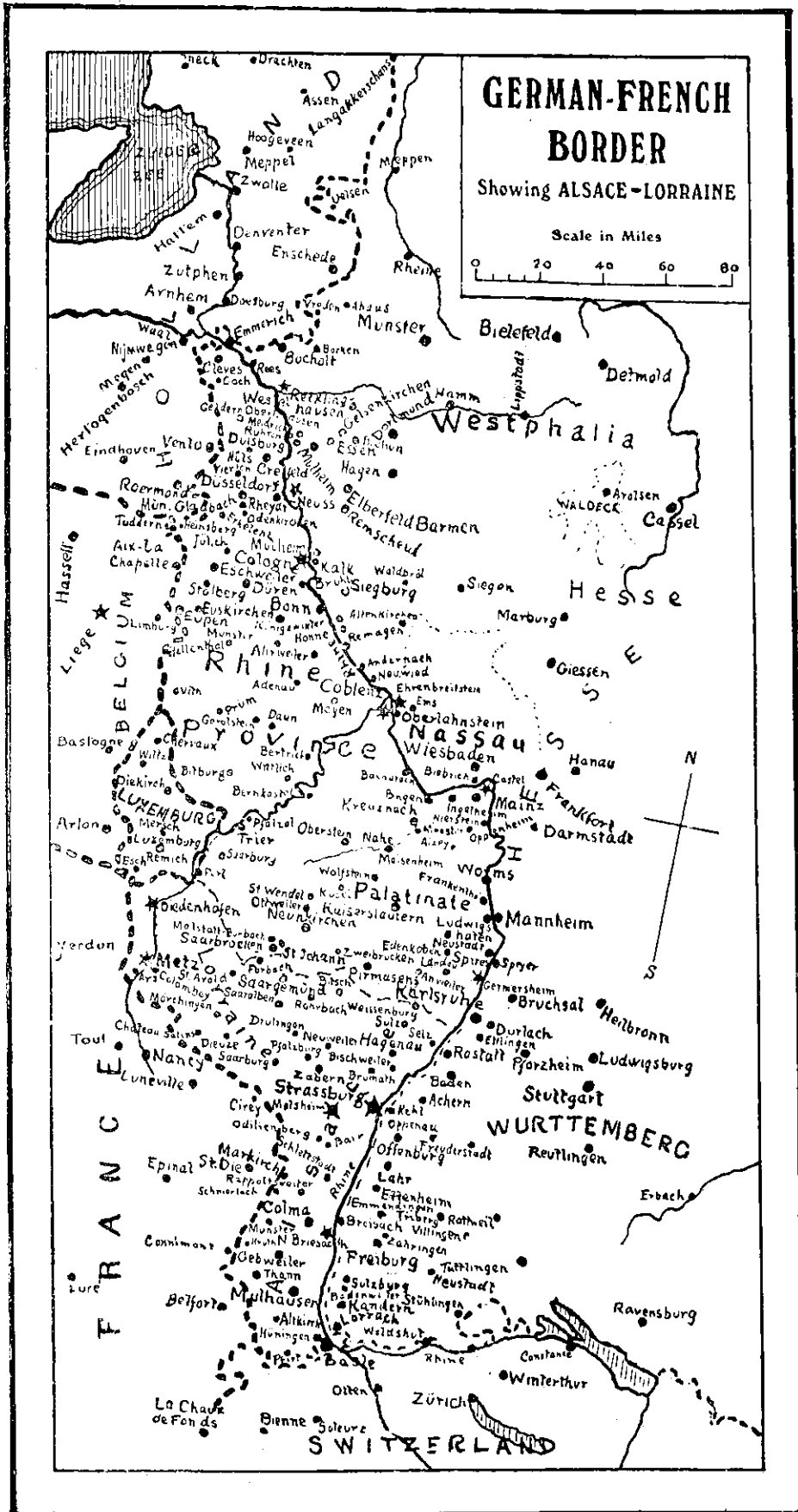
#### FREEZING WORKS

Plans for the establishment of two new freezing works in the Auckland district have been announced. The directors of the Auckland Farmers' Freezing Company have decided to proceed with the erection of works at Horotui, four miles south of Ngaruawahia, in the Waikato, and Messrs Vestey Bros., owners of many works in Australia, have undertaken the establishment of works in the neighbourhood of Auckland and the extension of the Whangarei works.

The two main projects involve an expenditure of £50,000 each, and the additions at Whangarei will cost £25,000 to complete, a total of £125,000. Each of these new works will

(Continued on page 218)







## A Matter of Compression

Modern cars do not often suffer from too high a compression, at any rate when they are new or clean internally, as makers will go to a deal of trouble to ascertain the highest ratio which their engines will comfortably stand. Some three years ago, however, the writer had a great deal of trouble with an engine which had really too high a compression, and the overcoming of the ensuing trouble proved very interesting. The car was very fast, but did not climb particularly well, for the engine got too hot, and very soon began to knock on a stiff gradient, even with the ignition well retarded. When standing, the engine turned over in a very irregular fashion, and would not run really slowly. Ignition, carburetter, and valves were overhauled, but all to no purpose. The car was then returned to the makers, and they effected a slight improvement, which, however, disappeared in the course of a few weeks. The makers had two more trials, but without permanent effect. It was then noticed that the rate at which carbonisation was set up was extraordinary, and that possibly the amount of deposit on the piston top and cylinder head might be sufficient to increase the compression ratio to such an extent, that it was considerably affected. It was resolved to test this supposition. The valve caps on the engine were of a generous size and unusually deep. Four iron washers were turned up a quarter of an inch deep, and one was inserted beneath each exhaust valve cap. The effect was magical. The engine would then tick round at 120 to the minute, and the car would climb hills without a sign of a knock, even when the gradient forced the engine to its last gasp. The same still applies, and it no longer overheats or self-ignites, and carbonisation is no longer the bugbear it used to be. In every respect the engine is more pleasant to drive. When the cylinders were next taken off, fibre washers, about 1.32 inch in thickness, were placed between the cylinders and crank case, and the iron washers beneath the valve caps could then be dispensed with. No one who has not made such experiments, can realize what a tremendous difference or improvement can often be effected by a decreased compression. It is obvious that the stress on the bearings is much lessened. As a matter of fact, the engine in question after the alteration, ran 15,000 miles without having the bearings attended to, though in the previous six months the whole engine had been taken down twice and overhauled by the makers. The speed of the engine was not decreased to any appreciable extent. Acceleration was slightly better, and consumption showed a small improvement.

The worst thing about the loss of a Turkish soldier is that it causes so many widows.

## The Clutch Stop

A large proportion of modern cars are constructed without any stop or anti-spin device on the clutch, the makers apparently relying on the exhibition of skill on the part of the driver to avoid any noisy gear change. While it is impossible to generalize on a matter of this kind, we must confess to a rather blind faith in the efficacy of the clutch stop. True, many cars get on well enough without it, but all the same the inclusion of it is a more positive way to get good results. As long as a car is new and in good order, with well-shaped teeth to the gears, changing is not so very difficult without a stop. But it is when some of the components have become worn, when the clutch disc spins, not light and free, but with a persistent motion, it is then that a clutch stop is essential. Wear on the spigot end of the crank-shaft or the socket bearing of the clutch and disc, or, again, non-adjustment of the multiple-type of clutch—any of these interfere with the original sweetness of gear-changing on a car. It is rarely difficult to devise a clutch stop, and any intelligent mechanic should be able to make and fit one with a few hours and at small cost. It should be so arranged that for changing down—when the stop is not wanted—it does not come into action. In other words a full down-thrust of the clutch pedal should be needed before the stop is reached.

## Tire Wear

Makers of tires spend a great amount of time and money in demonstrations as to the wearing qualities of their products, and they also accumulate many testimonials showing the most remarkable performance by users. It is quite true that there are bad, as well as good, tires on the market, and I always think that the motorist who consistently complains of bad luck with his tires has only himself to blame. Misuse is the most prolific source of bad wear, and it is really astounding the difference there is between the driving of those motorists who have some regard to the efficiency and value of their cars and others whose aim seems to be to cover the greatest distance in the least amount of time, irrespective of road surface. The ordinary motorist is a great sinner in this respect. He does not feel the money wasting away, but he invariably "kicks" when it comes to settling up the bills!

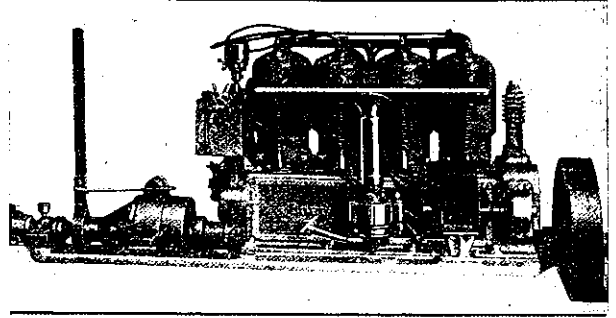
A little better thought will show that a very few miles at a rate of, say, forty miles an hour over bad roads will do more damage to the tires than dozens, nay hundreds, over good roads at reasonable speed. It is the pace that kills—brings the treads to ruin; ruptures the canvas, and breaks the beads.

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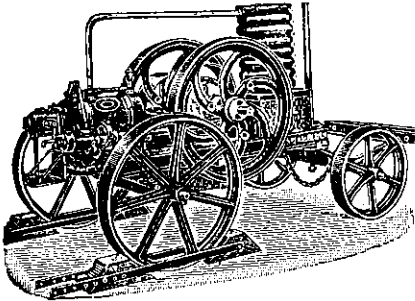


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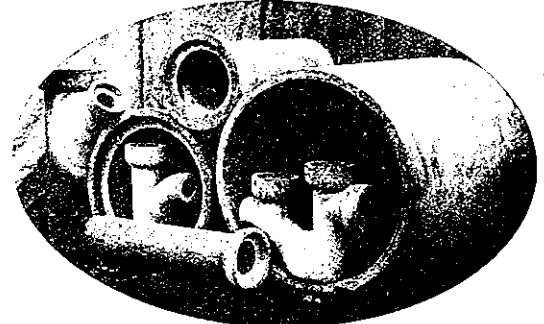
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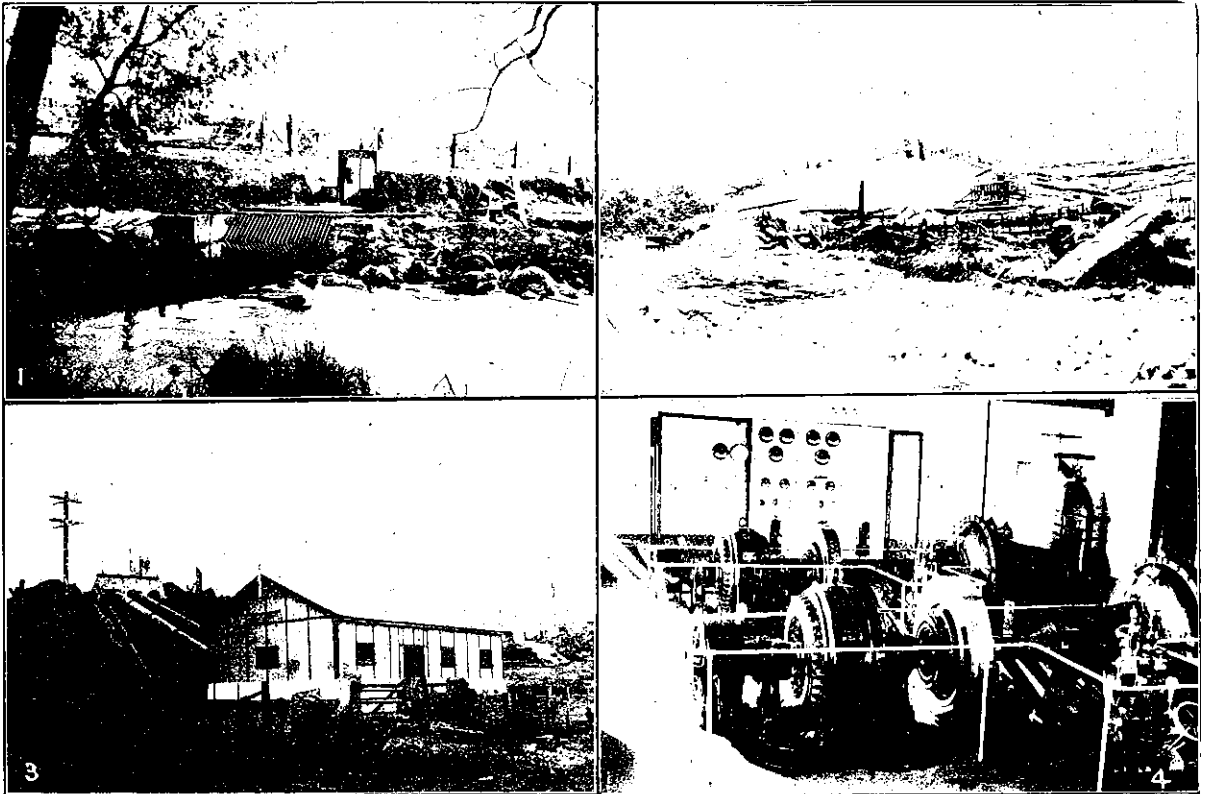
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# The Ohakune Hydro-Electric Plant

ANOTHER SUCCESSFUL SCHEME

Ruapehu, one of the snow-capped sentinels of the North Island of New Zealand, is the source of many rivers large and small. The Waikato rises on the north-east side of the mountain, while the Wangachu takes its waters from the southern slopes, one of the principal tributaries of the latter being the Mangawhero, which flows through part of the Tongariro National Park and the Borough of Ohakune.

would be found to have water power literally at their back door were the possibilities properly investigated. Ohakune is a typical example of this, for it was discovered by the engineers that within the Borough's own boundaries the Mangawhero river had enough fall for producing a sufficient supply of electricity for lighting and power purposes to meet the requirements of the town for some years to come.



1. Intake, shewing Screening and Headgate. 2. Site of Power House under snow. 3. Front view of Power House, shewing Pipeline and Spillway. 4. Interior of Power House.

A short time ago the Ohakune Borough Council raised a loan of about £9,000 for the purpose of installing an Electric Lighting Plant, and after appointing as their Consulting Engineers Messrs. Turnbull & Jones Ltd., who had designed and carried out a similar scheme on very successful lines at Mangaweka, the potentialities of the Mangawhero River were reported on and the scheme recommended by the Engineers was immediately proceeded with.

A description of the works should be of considerable interest to the engineering profession, and to members of other local bodies who may be contemplating electric lighting proposals. So many towns in New Zealand are situated close to rivers, and

A low rubble dam was therefore thrown across the river a few chains south of the Main Trunk railway near Ohakune railway station, and the water diverted through a screen and regulating gate shown in Fig. 1, into the flume which conveyed it to the power station, less than half a mile distant. The flume has a cross section of five feet by four feet nine inches with a fall of 1 in 1,200 throughout its length, and is constructed principally of concrete. Where the flume crosses under the roads it has been roofed over with ferro concrete, the fluming in course of construction being shown in Fig. 6, and where it is carried over creeks or on artificial fillings timber fluming has been used.

At the extreme end of the fluming the water enters the forebay shown in the back view of the power house. This forebay is designed with a long spillway capable of taking all the water the flume can carry, viz., the equivalent of 250 horse power. When the turbines are not in use the water discharges over the spillway and down a race floored with brick into the underground tailrace, which also leads the water from the turbines into the river about  $3\frac{1}{2}$  chains away. The forebay is fitted with a sludge valve, which can be used for discharging into the tailrace any silt which comes down the flume. Screens are also provided for holding back any debris which might injure the turbines. From the forebay two penstocks of rivetted steel pipe, each 27-inches in diameter, convey the water to the turbines in the power house below, and provision has been made for the installation at a later date of a standby unit.

The present plant consists of two Reaction "Francis" type turbines made by Messrs. Boving & Co., and each capable of giving 100 brake horse power under a total head of 40 feet. The turbines run at a normal speed of 600 r.p.m., and each is controlled by a Boving patent automatic oil pressure governor guaranteed to control the turbines with a momentary variation of speed not exceeding 3% with 25% change of load, 6% with 50% change of load, and 15% speed variation with full load thrown on or off. The flywheels are of cast steel, accurately balanced and proportioned to prevent a pressure rise

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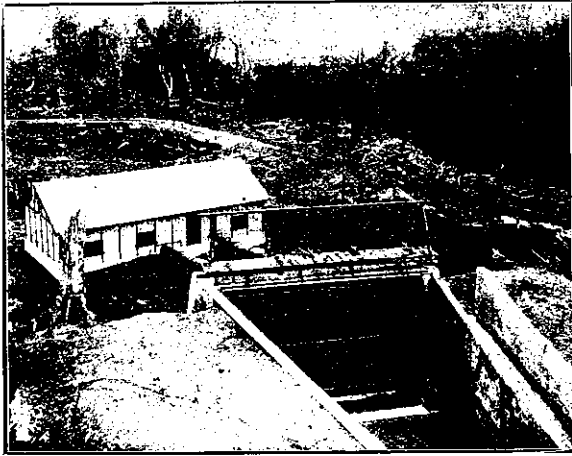
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in the pipe line exceeding 40% of the normal when full load is suddenly thrown off the turbines.

To each turbine is direct connected through a flexible coupling a 60 k.v.a. revolving field, 3-phase alternator, generating at 2,400 volts 50 periods. These alternators are fitted with ten poles and are star connected with the neutral terminal earthed. The exciter is direct coupled to each alternator shaft and bracketted on the same bedplate, making a most compact arrangement, as can be seen from the photo-



5. Forebay and back view of Power House.

graph of the interior of the power house. The alternators as well as the switchgear and instruments were manufactured by the British Westinghouse Electric & Manufacturing Co. Ltd., of Manchester, and the substantial appearance and compactness of design of the whole plant are the leading features which strike the visitor on first viewing the interior of the station.

The switchboard is fitted with all necessary instruments for indicating the current supply, and the machinery is effectively protected by Westinghouse lightning arrestors placed on the wall behind the switchboard. So as to protect anyone working on the outside lines, isolating switches are also fitted to the outgoing feeders.

Although no storage of water has been provided in the present scheme, as soon as this is necessary, either because of the increase of load on the turbines, or owing to drought, an ideal natural storage is available with the expenditure of very little capital. This consists of diverting the Mangawhero into an extinct crater situated a few hundred yards upstream from the intake.

The power house building itself is worthy of some notice. It is about 50 feet long by 24 feet wide. The foundation walls are in concrete raised 2 feet 6 inches above the ground level, and the superstructure consists of a timber framing lined inside and out with Poilite. The concrete walls outside have been rough cast, and the Poilite painted giving the whole a very artistic finish.

The main streets of the town, including Ohakune East, have been reticulated for private and street lighting. The poles used throughout are of natural round Australian ironbark, the crossarms being of best North Island rata. The reticulation system is fed at 230 volts for lighting and 400 volts for power from 1-20 k.w., 2-10 k.w., and 1-5 k.w. transformers mounted on poles at different parts of the town. Seventy-five street lamps each of 50 c.p., have been provided for the lighting of the streets. The brackets used are of very neat design with special reflectors formed to the correct curvature for the effective reflection and diffusion of the light.

Already 50 consumers are connected to the supply mains, and the local picture theatre and foundry have motor installations. It is anticipated that before two years are over the whole of the houses in Ohakune will be connected up to the very efficient electricity supply which is now available for lighting and power purposes.

This power scheme is well worth investigating by anyone interested in electricity supply, and the com-



6. Ferro-concrete Fluming.

compactness and low cost of the scheme reflect great credit on the enterprise of Mr. T. P. Keily, late Mayor, who originated the scheme, Mr. G. Goldfinch, the present Mayor, who has seen it carried out, and the engineers, Messrs. Turnbull & Jones Ltd., who are responsible for the design and supervision of the work.

### The Month's Building—(Continued from page 211)

have a capacity of 3,000 sheep per day, while Whangarei is being increased to that capacity.

The new plant which has just been installed at the Auckland Freezing Company's Westfield works, near the city, brings them also up to the 3,000 capacity. The machinery for Messrs Vestey Bros.' works is now on the water, and an endeavour is being made to commence operations in July. The Waikato works will not be open until December.

#### Dunedin

Some three years and a half ago Mr. Hugh Ward and Miss Grace Palotta, who at that time were appearing in Dunedin with Mr. Ward's Company, set themselves to gather in subscriptions for the purpose of enabling additions to be made to the local public Hospital accommodation. The splendid result is seen to-day, when a building costing some £16,000 has just been completed, and was lately opened by Mr. J. H. Walker, chairman of the Hospital and Charitable Aid Board.

The main point of difference between the King Edward Pavilion and the other Hospital buildings is that the whole of the floors are laid with decolite instead of wood, which does away with joints. Furthermore, there is an operating room in connection with the pavilion, which really makes it a separate hospital. The ground floor contains three small wards, each 13-ft. by 16-ft., a large ward 100-ft. by 26-ft., a clinical room 15-ft. by 16-ft. 6-in., and a kitchen containing the usual conveniences. The upper floor is on practically the same lines as the lower one, except that an operating room takes the place of the clinical room. There are two sanitary towers. The roof is flat, and contains a sun room, so that if the weather is stormy the patients can obtain the shelter and comfort of the glass house, while in pleasant weather any part of the room can be utilised for a sun bath. In addition to the sun roof there are balconies at each ward, each 8-ft. wide. The pavilion is lighted by electricity throughout, and there is an electric automatic lift running from the floor right up to the roof.

The building presents a very fine appearance, and inside it has been laid out on most up-to-date lines. The structure certainly reflects the greatest credit, both on the architect (Mr. P. Y. Wales) and the builder (Mr. R. Meikle). It is about eighteen months since the foundation stone was laid, and it must be a matter of great satisfaction to know that it has been completed pretty well free of debt.

Twelve tenders were received at the meeting of the hospital and Charitable Aid Board for the erection of the nurses' home at the Dunedin Hospital, and that of Messrs Fletcher Bros., of Dunedin, for £15,957 was accepted.

#### Invercargill

During the twelve months 214 permits were issued for new buildings, and alterations, and the total value amounts to £111,000.

A fine block of buildings has recently been finished to the order of Messrs W. Lewis & Co. This block is really the forerunner of a building which when completed will embrace the remaining portion of the Esk St. frontage, and continue along Dee St. as far as the old Albion Hotel.

The building consists of five floors and basement, faced with Oamaru stone, and fitted with cantilever verandah.

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### TO ELECTRICAL ENGINEERS AND OTHERS

The Hon. Chas. Algernon Parsons, C.B., is desirous of having his inventions relating to Dynamo Electric Machinery subject matter of Letters Patents of New Zealand numbered respectively 17,946 and 26,334 brought into actual manufacture and use in this Dominion and with this end in view invites application from those who are prepared to acquire the patents or licenses under them.

Communications should be addressed to BALDWIN AND RAYWARD, Patent Attorneys, at Wellington, or any of their branch offices.

### TO ENGINEERS AND OTHERS

The Hon. C. A. Parsons, C.B., desires to sell outright or grant licenses under his New Zealand patents improvements in and relating to turbine machinery of which the following are particulars No. 12,495 for an invention relating to Steam Turbine Rings of Blades; 13,355 for a Turbine; 14,905 Steam Turbine Blades; 15,351 Marine Steam Turbines; 15,601 Condensers working in conjunction with air pumps; 19,713 Controlling means for Valves; 19,757 Production of high vacuum and in Cooling by Evaporation; 20,806 Packing devices for the Shafts of Steam Turbines and other Rotary Motors; 22,032 Turbines Rotary Compressors; 23,190 Blades for Turbines, Compressors, etc.; 23,888 Machines for Shaping Turbine Blades.

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The proprietors of the New Zealand Letters Patent No. 32,425 granted to E. D. Priest (General Electric Co.) for an invention relating to dynamo electric machines, is desirous of granting a license or licenses for the manufacture and sale of the invention in New Zealand.

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**Napier**

Building permits issued by the Napier Borough Council last year authorised the erection of buildings to the value of £61,259, as against £39,552 the preceding year.

**Oamaru**

The number of building permits granted by the Borough Council during 1914 shows a falling-off compared with the previous year. Only two for new business premises were granted, those for Mr. S. B. Paterson's shop in Tees street and the North Otago Times Building, though the year saw the completion of the new Polytechnic, commenced the year before. Permits for the erection within the Borough of 16 dwellings were granted; also for six sheds, seven garages, one store-room, one class-room, and three wash-houses. Permits for additions and alterations, however, showed an increase, totalling 26. Of these many were for improvements and extensions to business premises.

**Wellington**

Although building has not been the most active of trades in Wellington for two or three years past, there were, in the beginning of 1914, distinct signs of a revival, and had it not been for the war, there is no doubt better figures would have been reached.

Apart altogether from the money that is being expended by the Government in buildings the value of buildings erected during the year just ended is £266,396 (covering 523 permits), which is a considerably less amount than has been spent in this city for some years past.

The largest building now in course of construction in Wellington is the new Houses of Parliament, and steady progress was made up to a point. A temporary check that arose through difficulty in obtaining flawless stone in the necessary sizes now having been overcome work is now again proceeding apace. Another large Government building (the contract for which has not yet been let) has been started, by the building of the foundations of the new Police Court on the site of the old Theatre Royal, in Johnston Street. A storehouse has been erected on the old lawn tennis court at the rear of the Assembly Library building (in Hill Street), and additions are being made to the Government Printing Office by Messrs J. and A. Wilson. Government buildings of the future will be the new Central Railway Station and the new Law Courts, in connection with which the western end of Whitmore Street (between the Courts and the Government Buildings) will be taken in, giving the Government another 80-ft. frontage to Lambton Quay. The foundations of a new Te Aro Police Station are being put in at present on the new site at the corner of Lower Taranaki Street and Wakefield Street.

Some very nice business blocks have been erected during the year in the city, which are in every case a big improvement on their predecessors. Among these are the three-storey brick building erected for Mrs. Walter Reid in Willis Street; the motor garage and offices erected for Hatriek & Co. at the corner of Lower Taranaki Street and Wakefield Street (opposite the site of the new Police Station); the new garage and office building erected for Kirkecaldie and Stains on the long-vacant site on Lambton Quay next the Public Trust Office; C. Smith's fine modern shop block in Cuba Street; Ellis and Manton's commanding four-storey brick warehouse in Old Custom-house Quay; and J. H. Bethune and Company's office block on the corner of Featherston and Brandon Streets.

**FREEZING WORKS AT TAIHAPE**

At a meeting of seventy shareholders of the Taihape Freezing Works, it was reported that 7,240 £5 shares had been subscribed. This was 340 in excess of the number required to enable tenders to be called for the erection of works on the site of 82 acres purchased at Winiatia. It was unanimously decided to call tenders for the erection of works which are expected to be in operation next season.

Mr. Henry E. White, the well-known theatre architect, has received instructions to prepare plans and specifications for the new municipal theatre at Hastings. This work was in hand when war broke out, and was held in abeyance until the financial situation became clearer. Satisfactory arrangements have now been made by the Borough Council for the raising of the money, and tenders will shortly be called for the erection of the theatre.

**TO MANUFACTURERS AND OTHERS.**

The proprietors (International Manufacturing Company) of New Zealand Letters Patent No. 28988 of 11th January 1911 for "Improved method of and apparatus for promoting combustion of fuel in furnaces" are willing to dispose of the interest in the Patent or to grant licences thereunder on reasonable terms, with the object of having the manufacture of the patented articles carried on in New Zealand.

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