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N.Z. BUILDING

PROGRESS

(With which is incorporated "The Scientific New Zealander")

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A Journal for Progressive men interested in the development of New Zealand's Architecture, Building, Engineering and Industries

CHAS. E. WHEELER - Editor

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

Contents for May

Editorial Comment

The Imperial Link.

New Zealand has just given a very stirring demonstration of its loyalty to the Crown, and we believe that His Royal Highness the Prince of Wales will leave our shores happy in the knowledge that this, his most distant dominion, is true to the core in its support of the British monarchy. We in New Zealand are very robust believers in Imperialism. We have had our lessons as to the value of the British Navy, the real practical value of close association with the United Kingdom; we live under a social order inherited from that community, and we know full well that our constitution enables us to provide ourselves with the purest democracy in the world. Thus there are sentimental and practical reasons for our loyalty to Britain. As Imperialists, we look to the King as the head of this great Empire—a figure of dignity removed from the bitterness of partisan struggles. Imperialism, centred around our monarch, is on a high plane. The King is the real connecting link between the Old Country and its overseas dominions. The splendid demonstrations which greeted the Prince in every part of New Zealand constituted a revelation to ourselves as a people, regarding our capacity to enthuse. We exceeded our reputation in this respect. So recent an observer as M. Andre Seigfried, Secretary of the French Mission, wrote upon his return to France: "New Zealanders are by temperament neither expansive nor demonstrative . . . Like their parent stock in Great Britain, they are cool, reserved and serious." But we were neither cool nor reserved in our demonstrations of friendship for the Heir Apparent, and his visit has been an epoch-making Imperial event on which we can mutually congratulate ourselves.

The Railway Strike.

The most serious and significant industrial trouble of the decade unfortunately occurred immediately upon the arrival of the Prince of Wales. During the period of consternation which followed a realisation that the railwaymen of the North Island were unanimously in favour of striking to remedy some long-standing grievances, many hard things were said about their lack of loyalty, but events, we think, have disposed of this slur upon them. The war record of the railway service is alone a practical demonstration of loyalty, for 3,500 railwaymen served overseas, though they could ill be spared from their work, and 550 made the great sacrifice. One of their number won the coveted Victoria Cross, and their other war decorations were at least up to the average. What seems to have precipitated the trouble was a letter from the Prime Minister to the railwaymen's organisations, three days before the Prince's arrival, declining the request that a form of Whitley Council should be set up to consider their many grievances. The fact that the Government accepted this proposal, after the strike, is an humiliating admission that the head of the Railway Department and the Minister made a grave error of judgment in forcing a climax, and creating a precedent for joint action by the railwaymen with more militant bodies of labour outside the public service. How serious is that mistake, time will show.

The Apex of High Prices.

We seem at last to have reached a point at which the prices of staple commodities are weakening. Wool, tallow, hides, and meat have suffered some decline in the world's markets, but compared with pre-war prices, the return to the producer is still excellent. While all who suffer from the stress of the high cost of living will welcome this improvement, we must hope that the decline will not be too thorough, for the whole prosperity of New Zealand is based on the returns from its primary products. Our economy is not broad based, but national thought is being effectively directed to a broadening process which is the most hopeful sign for the future. We must develop our secondary industries. Why should New Zealanders send so much raw material away from their shores, to import a considerable part of it again, worked up into manufactured articles on which they pay high prices, plus an average of 20 per cent duty? We have unrivalled sources of natural power, but we are slow in developing them. The pace must be quickened, and secondary industries encouraged. The Government, spurred by progressive leagues, seems to realise its responsibility, but it will have to be persistently badgered, otherwise we will lapse into the old policy of having our eggs practically in the one basket. It is a very fine indication of sound enterprise to find a large co-operative meat company in the North Island establishing a woollen factory. Labour shortage will possibly restrict this sort of development for a time, but there is so much room in New Zealand for the immigrant that there ought to be no two opinions about the wisdom of pushing on with a vigorous immigration policy. The time is most opportune, for the Imperial Government is paying the full passage rates of its discharged soldiers who wish to seek a new home in the overseas dominions. These gallant men deserve a welcome, for have they not fought for our freedom and security? The problem of absorption is not difficult just now, with a general cry for more labour, more production, but we should make faster pace with our housing schemes, otherwise this will be a still more serious trouble, and cause a falling away of immigrants which would have permanent disadvantages to the country. We notice that the Government has made provision for the erection of five hundred houses during the current financial year, but we regret that it has not had the courage to follow the English precedent, and subsidise suitable schemes of housing.

Averages Which Mislead.

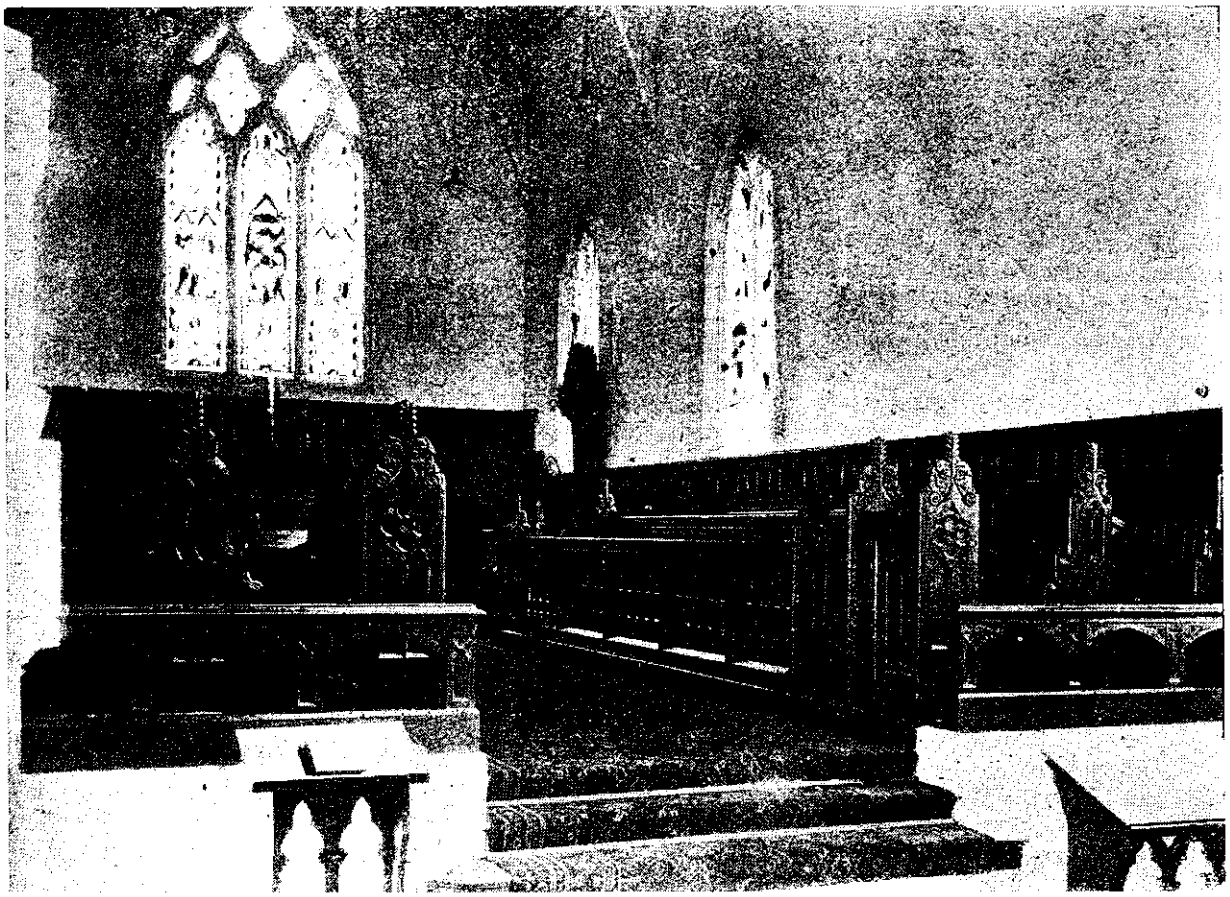
We dealt last month with the Government Statistician's methods of compiling those important index numbers relating to the cost of living, which now form the basis of wage adjustments. As an example of their unreliability we quoted the latest figures of average rent, and we propose now to show how misleading is the method of making up this average. Curiously enough, although there is no real check upon the accuracy of price lists collected from grocers and butchers, the rent figures are broader based, and are more likely to represent a true "average," though this is only another illustration of how figures may lie. Nearly every house agent in New Zealand, twice yearly, sends to the Government Statistician a return of rents collected, showing the sizes of dwellings. Care is taken to exclude dwellings in remote areas, so as not to depress the average by unusually low rents. But where the average is effectively depressed is in the fact that it is the poorer classes which have to rent houses. When a workman is able to afford it, he endeavours, possibly with the aid of a mortgage, to secure for himself a better dwelling than he can rent. Thus the proportion of rented houses is larger in the poor class residential districts than in the better class areas, so that the value of the averaging method does not work out with house-rents, owing to the relatively smaller number of rented houses in the better class areas. If any further argument were needed to show the unreliability of the official figures as an indication of what it costs the average workman to house his family, it is to be found in the figures themselves. The poorest paid man on the staff of the Government Statistician would not be content with the sort of dwelling which the official figures say can be obtained in Wellington for 24s. 2d. per week. As these statistics bear a close and direct relation to current wages, it is high time that the Government extended the price-collecting machinery so as to enable direct and scientific checks to be made of the nominal figures submitted for inclusion in the monthly compilations. Otherwise, with the good ground for suspicion now prevailing that the figures are not infallible, industrial trouble is being invited.

The Dunedin Cathedral.

By BASIL B. HOOPER, A.R.I.B.A.,
Supervising Architect.

The first portion of this important, and in some respects unique building, being now completed, a short description and account of its erection may be of interest. As will be seen from the views only one third of the whole scheme has been carried out in the meantime, i.e., six bays out of seven in the nave. This leaves one bay of the nave, North and South transepts, choir, and tower to be built in the future. The general effect, except that of the "West" front is consequently to a great extent marred, the dimensions of breadth and height, compared to the length, being out of all proportion. These facts should therefore be taken into consideration when criticising the structure as a whole.

The site, although in a commanding and prominent position, is greatly cramped, especially at the main front, and this also, tends rather to depreciate the general effect of the design. Taking everything into account however, the new cathedral is a noble building, and one of which the whole Dominion can well be proud. The usual orientation has been reversed, as the site almost demanded that the main entrance should face the Octagon, i.e., the East. The conventional terms, will, however be adhered to throughout this description. The style adopted by the designers (Messrs Sedding and Wheatley—now Sedding and Stallybrass, of Plymouth, England) is a free rendering of 13th Century Gothic. The



The Chancel of the New Dunedin Cathedral, showing Choir Stalls, &c. (designed by Mr. Basil Hooper).
Sedding & Stallybrass, Architects, Plymouth, England. *Basil B. Hooper, Supvr. Architect, Dunedin.*

mouldings, tracery, etc., are however decidedly fresh and original, and have no appearance of having been slavishly copied. The window tracery, especially, is solid, and virile looking, in strong contrast to the flimsy and spidery type, we are all so familiar with. There is no carved ornament in the whole building, the design depending entirely on the massing and proportioning of its component parts, and the purity of its mouldings and tracery.

The West entrance is reached by a handsome set of N.Z. marble steps, consisting of two side and one central flight, intersected on both sides by massive pedestals. It is suggested that later on groups of statuary be placed on them. The doors have been criticised as being too small for the building, but in this, excellent precedent has been followed, as it is a fact that the majority of mediaeval cathedrals have doors quite as small in proportion, as the Dunedin cathedral has. The whole setting of the doorway however, with its richly moulded receding planes, bounded by simple buttresses on either side, and balustrade above, is quite in proportion to the front. The dimensions of the actual doors, provided they are large enough for the purpose, do not count in circumstances such as these. The doors themselves are built of solid teak, deeply moulded and panelled, and studded with brass headed nails. The niches above the doorway are filled with statues of Bishops Selwyn, Harper, and Nevill, and were carved in England, from photographs sent for the purpose.

The great West window, 40ft. in height, is flanked on both sides by turrets which finish at the top in octagonal form with open mullions. These are reached by spiral stairs, and command an extensive view of the town and harbour.

The effect of the West facade has been broadened by the addition of wing walls, over the ends of the aisles. These serve to tie the composition together, giving the appearance of support to the centre feature, and reducing its apparent height. The North and South sides are noticeable for the heavy aisle buttresses, from the top of which spring the flyers. These abut against the clerestory walls, and help to take the thrust of the nave vaulting, and carry it down to earth.

The interior is perhaps even more interesting and unique than the exterior. The double row of piers on each side, with recessed clerestory windows, makes a most unusual and charming picture, and combined with the glorious vaulted ceiling, the effect is most beautiful. The feeling of mystery so necessary for a successful church interior, is most evident in all these features, and is further heightened by the triforium arcade, with its deep shadowy recesses, running horizontally between the clerestory windows and the crown of the low arcade. The sense of as-

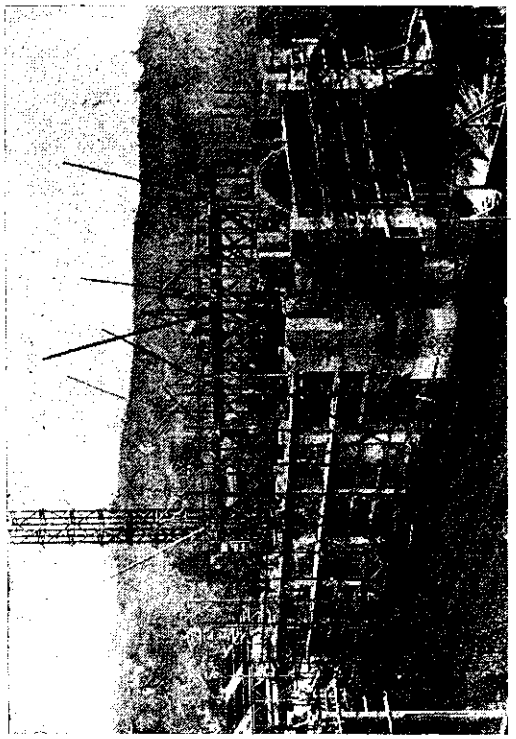
Dunedin Cathedral.

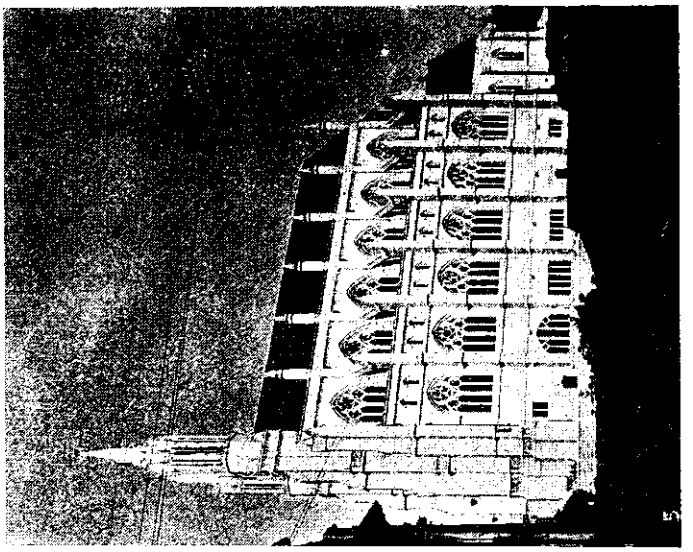
Interior looking "East." The temporary blank wall and Chancel will be removed when building commences again.

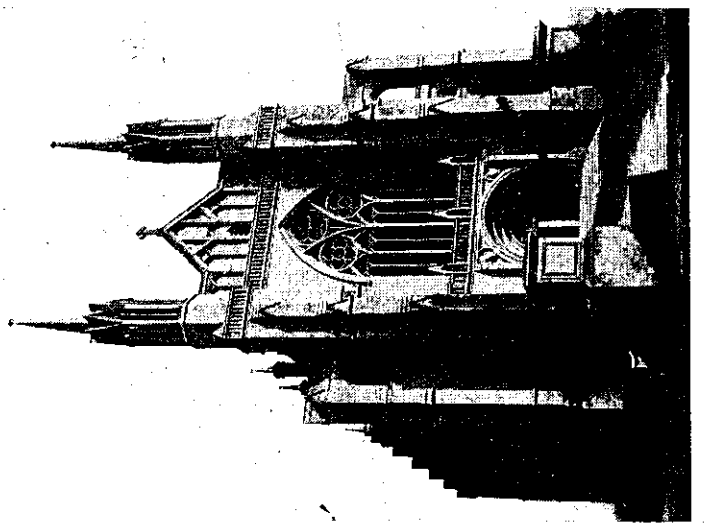
Sedding & Stallybrass, Architects, Plymouth, England.

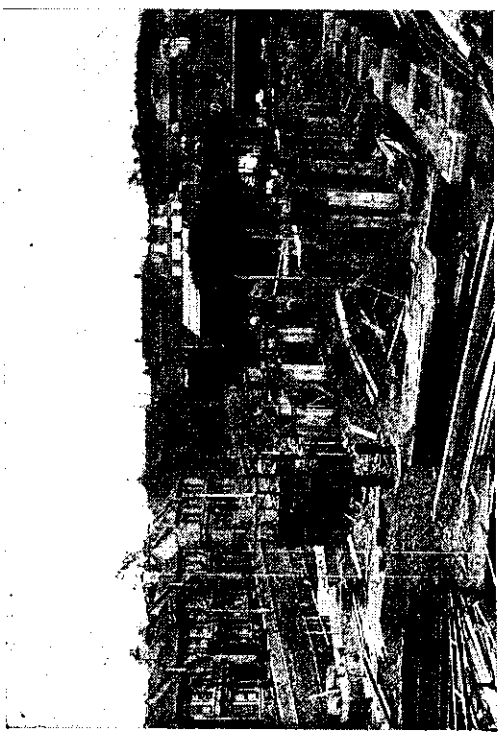
The North Aisle looking "West." Note the base mouldings of the piers, and the caps of the vaulting shafts.

Basil B. Hooper, Supr. Architect, Dunedin.









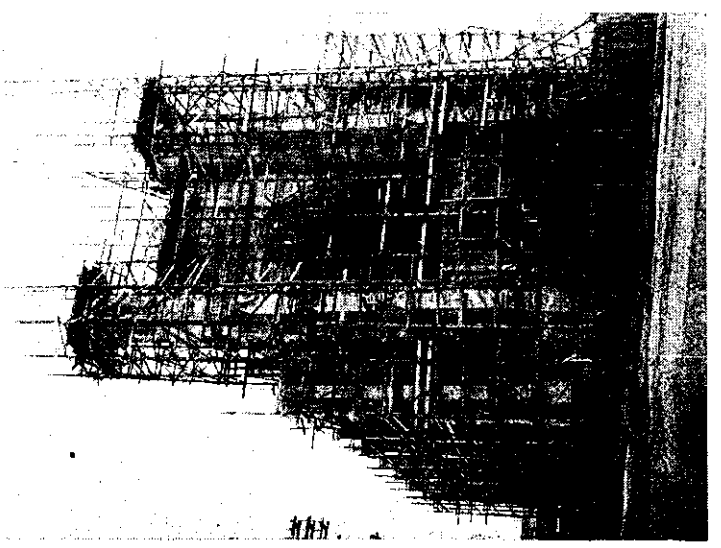
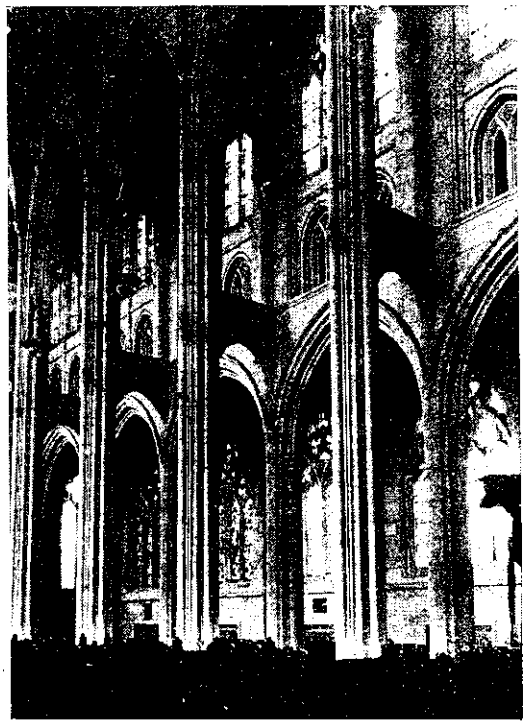


Fig. 1.—The foundations of walls and piers, Feb. 14th, 1916. Fig. 2.—Showing progress up to Sept. 2nd, 1918. Fig. 3.—April 28th, 1918. The masonry completed with the exception of the turrets. Fig. 4.—The "West" front complete. Fig. 5.—View taken from the North showing the buttresses at the temporary end wall and the temporary Chancel. The great size of the completed portion is evident when comparing it with the Chancel—itself of no mean height.

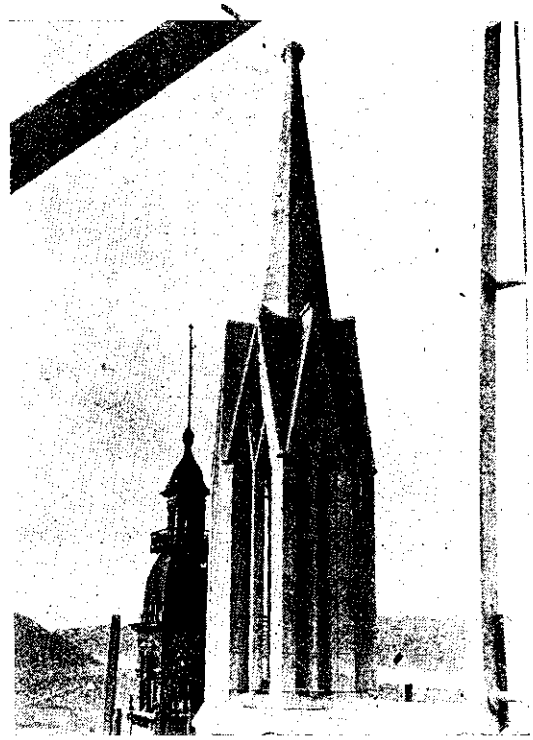
Basil B. Hooper, Supr. Architect, Dunedin.

Sedding & Stallybrass, Architects, Plymouth, England.

piring verticality too, so helpful to religious feeling, is noticeable in the long unbroken lines of the piers, with their attached shafts, running from bottom to top and supporting the feet of the vaulting ribs. The vaulting system is the most complete in New Zealand, the whole of the interior being finished in this way, throughout. The aisles and nave are ceiled with quadripartite ribbed vaulting, while the portions above the clerestory windows are ribbed barrel vaulted, transversely to the axis of the nave. All the intersections of the ribs are mitred, no bosses being introduced, the effect, though simple, being most successful and pleasing. The task of determining these intersections, was however most intricate, and the labour great, owing to the ribs all coming together at different angles and varying curves. The ridge ribs are of course arched, with a rise of 2 inches in 6ft. The "severy," or sheeting was made as thin and light as possible, and the whole of the back of the vaulting was covered with 2in. of fine concrete, with wire netting embedded, as a safeguard against any possible earthquakes. The effect of the interior is greatly enhanced by the glazing, which is carried out in leadlights of an original and pleasing design, the colours of the glass being in a number of variations of soft greens irregularly placed. There are also a certain number of stained glass memorial windows already fixed. The building is warmed throughout by an Ideal low pressure hot water system, with excellent results. The ventilation was designed to be artificially controlled by a suction fan and motor, placed above the vaulting. The ducts, etc., are all in position, but for the time being the fan and motor have not been installed, opening casements and fanlights being relied upon to introduce fresh air. The ventilation will however, never be really satisfactory, until the artificial system is completed. One of the most successful features of the place is the electric lighting, which consists of handsome bronze fittings, containing holophane bowls and gas filled lamps, hung from wrought iron brackets, fixed above the caps of the vaulting shafts. The light is beautifully diffused, and there is a complete and noticeable absence of the eye-strain so commonly felt when naked lamps are used. The chancel, which as will be seen from the photograph, is very small in proportion to the nave, is of course only a temporary structure, although built in a permanent manner.



Detail view of piers, triforium, high and low arcade, Clerestory. &c.
Sedding & Stallybrass, Architects, Plymouth, England.



Detail view of one of the turrets, May 29th, 1918.
Basil B. Hooper, Supr. Architect, Dunedin.

Dunedin Cathedral.

As far as possible the materials from the old church were used, including the roof, windows, flooring, etc. The fittings—choir stalls, prayer desks, altar, piscina, etc., were however all new and designed for their position by the supervising architect. Figured red pine was used, treated with bichromate of potassium, and dull French polished, the effect being a permanent rich deep brown shade, which will not fade, as the untreated red pine in time invariably does. The pulpit, also by the same designer, was based on the one in Siena cathedral in Italy, and is constructed of Oamaru stone, with N.Z. green serpentine columns and handrail. The carving of the whole of the upper portion, is yet to be

undertaken, and when that is done the effect should be very rich and striking.

For the meantime the nave has been seated with the pews from the old church, but it is intended to replace these later on with rush bottomed chairs, similar to what have been used for the aisles.

A noticeable feature of the interior is the beautiful cream colour and markings of the stone. This latter feature is especially noticeable in the piers, and other places where the hard quality was employed. Gay's Oamaru stone was used throughout except in the sheeting of the vaulting, where white and pink T.T. was mixed with the Gay's, to give a slight variety to the colour, and take away the monotony which might be caused by using the one colour right through.

One of the first impressions gained on entering the cathedral, is the extreme purity and dignified simplicity of the design, and this is without doubt partly caused by the exclusive use of stone, and the absence of harsh, crude colours, such as mar too many otherwise good designs.

A short account of the actual building of the cathedral may now be of interest. Early in 1915, the old church was cleared away, and the foundations were put in by day labour, the foundation stone being laid on June 8th, 1915. Tenders were then called for the superstructure, resulting in that of Mr. W. McLellan, of Dunedin being accepted. A start was made early in 1916, Mr. Wm. Haigh, of Christchurch, being appointed clerk of works. On the contractors' staff the general foreman was Mr. Jas. McLellan, and the masons' foreman Mr. John Tweedy. Great credit is undoubtedly due to the contractor and these two especially, for the successful carrying out of this job, as in many ways both the construction and design were quite new to New Zealand. The cutting and preparation of the stone was greatly accelerated by the use of up-to-date machinery; in some cases—notably the machine for cutting mouldings on the curve—invented and constructed by the foreman himself.

As far as possible timber has been eliminated in the construction, the only place where it has been used, beyond the doors and fittings, being the roof trusses over the nave. The aisle roofs are of concrete reinforced with expanded metal, and covered with Neuchatel asphalte. The main floor and the triforium floor, are also of reinforced concrete, the former being reinforced with round rods, on the beam and slab principle. Neuchatel asphalte on concrete has also been used for the roof gutters in place of wood and lead, as originally intended, so that the amount of deterioration and maintenance should be infinitesimal. The core of the walling is concrete, waterproofed, a very fine solid job resulting, with no sign of damp anywhere.

As a great many of the walls in the basement are faced with white lime and sand bricks, and the whole of the interior of the nave and aisles is stone faced, there was very little boxing to be done. Concrete therefore made a far more economical core than brick would have done, besides being immensely superior and convenient in the way of bonding, etc. For the greater part of the job, a concrete mixer of the "batch" type was used, with very good results, very much better than the "continuous" mixer that was used for the foundations. As may be imagined, the scaffolding was a very big item, also the centreing for the nave vaulting. As a matter of fact however, practically the only centreing needed was for the ribs, the sheeting being run across from rib to rib in one length as far as possible, the upper portion only being slightly supported in the middle.

Owing to the war, there was a certain amount of trouble in getting imported materials, but fortunately the bulk of the materials used, consisted of concrete and stone, which of course were local products. The green American slates took about two years to be delivered after ordering, and arrived just in the nick of time. By dint of ordering well ahead, however, everything essential was obtained, and where it could not be, compromises, and substitutes of sometimes a better nature were employed.

The sub-contractors' works, upon which so much usually depends, were all well and faithfully carried out, the names of the firms being as follows:—Heating—Messrs G. W. Davies and Co.; Electric lighting and power—Messrs Turnbull and Jones, Ltd.; Glazing—Messrs Bradley Bros. of Christchurch; Plastering—Thos. Didham; Plumbing—Messrs A. and T. Burt, Ltd.; Chancel fittings—Messrs C. and W. Hayward; Wood carving—J. Scott and Co.; Stone carving—Mr. E. L. Shank.

Architectural Competition.

A competition has been advertised by the Auckland University College Council, by which architects are invited to submit preliminary sketch designs in competition for the erection of an Arts Building and Accessories, which it proposes to erect on the site known as the Metropolitan Ground, facing Princes street, Auckland

From the preliminary sketch designs six (6) will be selected, the authors of which will be invited to submit final designs, and on their so doing, in accordance with the prescribed conditions, a final selection will be made of a design to be placed first, and each of the five unsuccessful architects will receive an honorarium of a hundred pounds (£100). The author of the first design will receive as a premium the sum of five hundred pounds (£500).

Designs for the preliminary competition must be delivered, addressed to the Registrar, Auckland University College, Symonds street, Auckland, by the 14th August, 1920. The award for the preliminary competition will be made within 21 days of the above date. The date for sending in the designs in the final competition will be determined hereafter, but at least 12 weeks will be allowed, and the final award will be made within 21 days of the date so determined.

Copies of conditions and particulars may be obtained on application to the Registrars of the University Colleges at Auckland, Wellington, and Christchurch, of Otago University, Dunedin, and of the Universities of Sydney, Melbourne, Brisbane, and Adelaide.

Those applying for conditions must deposit the sum of two guineas (£2 2s), which will be returned to those competing when a selection is made.

No mention is made as to how the designs will be assessed, or by whom, although a Wellington paper mentions the name of Prof. Wilkinson of Sydney University as one of the judges.

R. O. Gross, Sculptor.

We are glad to be able to publish some work of Mr. R. O. Gross, a recently arrived sculptor in Auckland.

Mr. Gross was trained in London and whilst a pupil of Mr. A. Toft the well known artist, won the King's prize for modelled design, being third in the National competition. He had a wide and varied experience in many of the leading London studios,

The Sculptor at work. Mr. R. O. Gross, of Auckland.

among them being Farmer and Brindleys, Daymond and Son. Later he went to South Africa and carried out a considerable amount of work for Mr. Herbert Baker, F.R.I.B.A., principally on the Capitol building, Pretoria, where the total cost of the carved and modelled detail was well over seven thousand pounds. Whilst in South Africa Mr. Gross exhibited several studies in South African exhibitions promoted by the South African Society of Artists of which he was a member.

Key Stonehead for Capitol Buildings, Pretoria, Africa, by R. O. Gross.

All architects and kindred artists will welcome Mr Gross and his work to New Zealand. In this land where commercial art at present holds sway, his presence should prove a stimulus to fine art throughout the country. The photos bear witness of his wide capabilities in all mediums and savour of the fine creative ability and strength of handling which is so pleasing in all his work.

Mr. Gross will no doubt be pleased to undertake any commissions for architects such as garden figures, carved woodwork, architectural detail and decorative motifs in any material, at his studio, 402 Victoria Arcade, Auckland.

Non-essential Building.

The decision of the Government to put a stop to non-essential building until the houses available more nearly meet requirements has caused the Minister of Finance to receive many anxious inquiries as to whether the restrictions apply to various buildings proposed to be erected throughout the country in the near future. The Minister in reply explained the restrictions and will exercise his power of prohibition where required to do so in the interests of the public.

Key Block in Stone for Capitol Buildings, Pretoria, for Mr. Herbert Baker, by R. O. Gross, Auckland.

Fountain for A. M. Mostert, Esq., Balfour, Transvaal, by R. O. Gross, Auckland.

Study of a Kaffir Boy, "Potentiality," by R. O. Gross.

Study of a Kaffir Boy, "Potentiality" (side view), by R. O. Gross, Auckland.

Conference of Education Board Architects

Held at Wellington, March 24-5th, 1920.

A conference of Board architects convened by the Canterbury Education Board met at the Education Board Office, Wellington, at 10 a.m., Wednesday, 24th March, 1920. All boards were represented.

Present:— Messrs G. Penlington (Canterbury, Chairman); J. Farrell (Auckland); C. J. Dowland (Hawkes Bay); C. H. Moore (Taranaki); E. R. Hodge (Wanganui); A. McDougall (Wellington); A. H. Leaper (Nelson); J. Rodger (Otago); W. K. McCaw (Southland).

Mr. Forsyth, Chairman Wellington Education Board, welcomed the Delegates to this, the first conference of Board architects. He was sure that great benefit would result from this meeting of Board architects through conference and discussion on school building, practice and requirements. He looked forward with confidence to progressive improvement in school architecture. To this desirable end such meetings must appreciably contribute.

On the invitation of the conference, Mr. Spencer attended both days to discuss a number of important matters, and, as far as possible, to explain the views of the Department on the questions discussed.

Aspect—Lighting.

In a discussion on the general aspect of the school, all delegates present were of opinion that the N.E. to E. lighting is the best procurable and, therefore, gives the most satisfactory results. In this connection was discussed the most suitable window for lighting and for thorough class-room ventilation.

Cost.

In considering the cost of construction of various types of schools, delegates gave estimates of cost in their particular districts, which showed a fairly wide range of cost. After hearing Mr. Spencer in the matter of standardisation, it was generally agreed that local conditions and size of buildings vary to such an extent that it is not possible to fix a standard.

Water Supply.

The matter of water supply was discussed at length. Preference was expressed for tanks both concrete (built above the surface) and the ordinary 400 gallon square tanks where no other supply is available. Filters were not considered as of any benefit unless under the supervision of the teachers and cleaned out at regular intervals.

Building Maintenance and Construction.

The question of day versus contract work was very fully discussed, and although the day work system is productive of perhaps a better class of work, it was felt that it should not be encouraged where it was possible to secure tenders as it led to a great deal of office work, buying and directing generally, and the difficulty of procuring materials and labour caused the architect and his staff a great deal of work, while it was generally thought that all repair work should be carried out with the Board's own staff. The 10 per cent method of erecting buildings, etc., by contractors was looked upon as most unsatisfactory from every point of view. It was considered best that all buildings should be of one storey, except where the site is limited, and cannot be enlarged, or is on hilly ground. The basement could be used for play sheds, boiler rooms, etc.

Assembly Halls.

Mr. Hodge, of Wanganui, after exhibiting many photographs of various schools in the Wanganui district and photographs of the halls and the uses made thereof, read a very interesting paper on the uses of an assembly hall and the school building generally, which showed clearly the advantages gained, principally to the health, safety and convenience of the pupils by such an adjunct. The whole of the delegates approved of the principle, and it was decided to recommend to the Boards that the senior inspectors be asked to take steps to obtain assembly halls for all large schools.

Size of Rooms.

Regarding the size of classrooms, it was decided that class rooms for the most part should be 26ft. x 24ft. A diagram was presented by Mr. Spencer showing a suitable desk arrangement for three class rooms. For infant departments class rooms might be built 30ft x 24ft. in conjunction with rooms of about 24ft. x 24ft. (with movable partition for assembly purposes).

Corridors.

It was decided that 10ft. be the minimum width for large schools, where hat and cloak rooms form part of the building.

Open Air Schools—Ventilation.

A paper on open air schools was read by Mr. Moore. The general opinion was that sashes in class rooms should be arranged to open up as much as possible to give the greatest amount of open space under suitable weather conditions. The two questions concerning the best methods of ventilating and lighting class rooms caused much discussion and it was agreed that the best ventilation obtainable was the cross system, although it was recognised that ceiling and Tobin tubes have considerable advantages. The lighting from the left is without question the best for class rooms, skylights not being favoured except as a means of improving rooms where the lighting is deficient. This applies more particularly to the older buildings.

Retiring Rooms and Offices.

It was decided that every school of two or more classrooms should have an office for the use of the head teacher and staff; that schools of four and five

rooms should have one retiring room; that schools of more than five class rooms should have two retiring rooms, one being for men and the other for women

Desks.

A paper was read by Mr. Penlington on the most suitable school desks and standardisation of same. After discussion it was agreed to defer the matter to some future conference.

Painting.

The painting and interior decorations of the schools and classrooms in particular was discussed. Several schemes of tinting were considered, and it was thought that the most suitable for interiors were certain shades of greens, cream and French gray, the ceilings in all cases to be a flat white. The outside of schools should be painted in tints most suitable for the climate.

Rebuilding.

Regarding the rebuilding of schools or residences, it was recommended that each case be decided on its merits. When a second person is called in to report on the condition of a building the Board's architect should accompany him in the inspection.

Artificial Heating of Schools.

It was found that in the mild climatic conditions of the north, artificial heating is required for a short time only during the winter, but further south, especially in Southland and Otago, the heating has to be maintained for quite six months of the year. The conference came to the conclusion that for large schools and especially those erected in brick or concrete, hot water heating of the "Ideal" or "Beeston" systems should be installed. For small country schools in the colder parts of the Dominion, where fuel is not plentiful, a slow combustion jacketted stove now used in Otago would be most satisfactory. It was understood that the Department would not contribute, except by subsidy, to installation of heating systems in old buildings.

Drying Rooms.

In discussion, Mr. Spencer suggested that a radiator in the coak rooms would meet the requirements. The delegates considered this would not be sufficient, and that a specially arranged drying room would be necessary to meet the requirements.

Cloak Rooms.

It was decided that in the erection of large schools, provision be made in the plan for separate cloak rooms.

General.

Other matters considered were, the question of the Boards holding a stock of building materials and special accounts in relation to same; the purchase of materials; grants for workshops; the various delays in procuring grants from the Department for buildings; and also the provision of janitor's cottages for the larger schools. The above items were discussed and various delegates gave valuable information concerning the items, but nothing definite was arrived at, and the matters are therefore deferred. The general opinion expressed by the delegates was that the conference had been of great educational value to the Board's architects, and apart from the conference itself, the general discussions that took place both at the sittings and after, were most interesting and instructive. It has brought the architects together for the first time, and there appears to be a brotherhood existing that was quite impossible outside of the conference. No professional jealousy has been displayed in any discussion or act, and there is no doubt that the various architects will consult one another on any subject in which they may be in doubt.

Hearty votes of thanks were accorded to Mr. Penlington, the Chairman, and Mr. Spencer for attending the conference; to Messrs Penlington, Moore and Hodge for valuable papers; to the Wellington Education Board for use of Board room, etc.; and to Mr. McDougall, who acted as secretary.

Subject to the consent of Boards, it was decided to hold the next conference at Wanganui, on or about this time next year. Mr. Hodge undertook to make any arrangements necessary for rooms, etc., and the visiting of schools in his district.

Book Reviews.

"The Home I Want."

"The Home I Want," by Richard Reiss, published by Hodder and Stoughton, London, 2/6 net.—We can heartily recommend this book to all those interested in the housing movement. The book summarises the main facts and legislative provisions as existing in England up to September 1919, and gives some working suggestions as to the plans and internal arrangement of cottages, the layout of land for building purposes, and other practical matters.

The author in his introductory remarks, points out that the actual extent to which improvements in housing conditions will be carried out in each district depends upon the local inhabitants. Many Acts of Parliament have been passed giving local authorities wide powers, and it is safe to say that if these powers had been properly exercised, the housing problem would have been largely solved. He stresses the necessity of preparing adequate plans at once, and points out that the housing problem is one of the basic problems upon the solution of which other problems depend. He shows how health, for instance, is bettered by a comparison of Shoreditch with Letchworth. In the latter town the infant mortality is only 30 per 1000 infants under 12 months, while in Shoreditch the number was 165 per thousand. Strong arguments are given showing how education, agriculture (including village life), and intemperance, can be improved by better housing conditions. Besides the space devoted to housing there is a chapter on town planning, and another on Town Planning Act of 1919, giving the very latest information on the subject that ought to be of the greatest value to our New Zealand housing reformers.

SAWMILLING SECTION.

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Editor: W. T. IRVINE.

Special Summary on Sir David Hutchins' Report, by Chas. E. Wheeler.

Sir David Hutchin's report on the Kauri Forests of the North, and Forest Management, is a bulky compilation of two hundred pages. As it is entitled "New Zealand Forestry, Part 1," we may expect further productions from Sir David's prolific pen. Though we anticipate that our practical sawmilling readers will not completely agree with the official forester's views, especially his very optimistic estimates regarding the reproductive power of New Zealand forests, the importance of the report, and Sir David Hutchin's good standing as a forester, warrant a fairly lengthy summary of the document.

Commencing with a historical review, the author deplores the burning and waste of our kauri forests.

"It has taken the calamity of this great war to rouse attention to the fact that careful demarcation and judicious redemption may still restore a large part of the Kauri forests. Kauri seed remains long dormant in the ground; Kauri seedlings endure most evils short of being burnt, and fire-protection is so easy that it will go with forest-development and scarcely be thought of. The task now before the country is to build up national forest estates by raking into the national net every acre of Kauri forest or land where Kauri forests can profitably be restored!"

"Kauri, with half a million acres of demarcated forest, could still pay the cost of the war—perhaps twice over.

An energetic policy of demarcation and redemption, put in force at once, would find half a million acres of restorable Kauri forest without much difficulty. It would mean little more than sixteen times the area of the Waipoua Forest. From inquiries which I have made at the Lands Deparment and a study of the coloured land-tenure map (May, 1916) issued by the Lands Department, it seems clear that demarcation and redemption can certainly secure half a million acres of restorable Kauri forest in Coromandel Peninsula and Hokianga (north and east of the Waipoua and Waramara Forests)."

Sir David Hutchins refers to the methods of forest management in France and Germany, and claims that this half million acres of Kauri forest, cultivated as he suggests, would settle 6,666 families on the soil, earning good wages. Working half on small farms, and half in the forest, as in Europe, the population supported would be some 1,000,000. The country would be opened up with roads and parcelled out into farms and demarcated forest, the latter enclosing some small valley farms suitable to *la petite culture* (home farming) scattered through the demarcated forest areas.

"I here take a general average of 200 acres of forest to support a family. But if we take European figures the employment in valuable forest, such as Kauri forest, would be at the rate of one family per 75 acres. Probably about 200 acres per family may be taken as a general average of employment when once New Zealand forests were got into order as cultivated forests. Further, with the powerful sun of New Zealand latitudes, the ample rainfall, and generally rich soil, together with the unique timber market of the Southern Hemisphere, both forest production and population may be expected to eventually rise higher than in Europe. It seems quite reasonable to expect that with its normal area of 16,000,000 acres of national forest there will eventually be a permanent forest population in New Zealand of between 1,000,000 and 2,000,000 souls. The small English war-insurance forestry scheme of 2,000,000 acres only (with 1,770,000 as a war precaution) is calculated to permanently settle on the land 25,000 families—say, 125,000 souls—or in the proportion of one man per 71 acres."

Kauri, a Quick Grower.

Discussing the Kauri rate of growth, Sir David quotes the experience of the Hon. E. Mitchelson with some trees planted in his garden at Remuera. "At twenty-three years of age the following diameters: Kauri, 10in.; Totara, 13in.; Rimu, 8in.; Puriri, 9in. I remeasured these trees in 1916 and found the growth well maintained." Other authorities (Capt. Campbell Walker, Mr. J. C. Firth, and Dr. Hochstetter) are quoted as showing their opinion that the Kauri rate of growth is double the average rate of normal timber-growth in the pine forests of Europe. The author spent a day in measuring the growth-rings of felled Kauris near Dargaville, and his conclusions support the contention that Kauri is a rapid grower. "Kauri," he concludes, "grows in thickness nearly twice as fast as the five chief European forest-trees, and in height-growth 2.3 times as fast. It grows about as fast as the quick-growing Cluser-pine of Southern Europe." This leads him to give the following advice: "Conserve the native trees, for they grow about twice as fast as European forest-trees; but if one has to go to the expense of planting, use introduced trees, and take the risk of disease or other failure."

Gum Bleeding.

Sir David deals very comprehensively with the practice of gum-bleeding or resin-tapping. He shows that this is regularly done in European forests, while in India it is being practised increasingly, with the best results. If properly conducted it cannot injure the timber. In fact, Sir David suggests that it may

promote a better growth. "The general aspect of resin-tapping in other countries is that whereas formerly it was done indiscriminately, and ruined much good forest, it is now being increasingly done under proper control, to the good of the forest revenue, and without harm to the timber. In France, and latterly in some of the Indian forests, the forest revenue is greater from the resin than from the timber. In Gascony resin-tapping improves the timber undoubtedly, and is believed to improve the growth, acting as a tonic. The industry there goes back to Roman times.

"I see no reason why resin-tapping in the future Kauri forests of New Zealand should not be as lucrative as in Gascony, where as an industry it compares with sheep in New Zealand, affording, however, considerably more employment; in fact, to a large extent it has replaced sheep there. Gascony under sheep was a desert compared to what it is now. Few of the picturesque shepherds on stilts are now seen; but one can travel for a whole day, in a quick train, through an endless succession of farms where, as mentioned above, ordinary farming and resin-tapping work in together; and all this in the climate of the Canterbury Plains!"

A Lost Forest.

Puhipuhi Kauri Forest, north of Whangarei, is taken by the author as an example of how the neglect of a systematic forest policy has caused enormous wastage of the country's natural assets. Fire went through this fine area of kauri at various times from 1887, when one-third was destroyed. It was originally 17,000 acres. As the timber became destroyed, dairying came in, and Sir David's comment on the change is this:—

Employment: Forestry versus Grass.

Though the forest was so good the soil was mostly poor, and naturally became poorer with the loss of the forest covering. On the best of the soil dairying is in progress, with the result, from inquiries I made on the spot, that 200 acres give employment to one family and bring in about £1 per acre yearly in butter-fat, or 10s. net after deducting about 10s. per acre as the cost of labour.

If the forest had been worked conservatively under trained foresters during the time that the crop of timber in the virgin forest was being cut, there would have been two or three times this amount of employment—in logging and milling the timber, in roading and in organising the forest against fire, and in ensuring the full regeneration of the forest with the maximum Kauri crop.

Mr. F. Mander, M.P., who milled a considerable part of the Puhipuhi Forest, and some others, have informed me that it contained a large proportion of young timber. Thus the timber returns from the Puhipuhi Forest would have been continuous from the start of systematic working. There would have been little or no transition period. The forest by now would have been earning some £7 per acre per year net, taking the present market Kauri royalty at 10s. And Kauri timber is rising so rapidly in price that in a few years the Puhipuhi Forest would have been in the position of the normal Kauri forest and earning some £10 net per acre per year. Full employment would then have been at the rate of about one man per 75 acres, as against one man per 200 acres under dairying.

Money Return.

The money-yield of dairying on this poor soil, impoverished by destroying the forest, is now estimated, as above, to average yearly barely £1 per acre gross, or 10s. per acre net. The yield of the normal Kauri forest, allowing only £1 11s. per acre for Kauri "gum," is estimated at a yearly average of £12 7s. 8d. gross (for timber, "gum," fungus, and all forest produce), or £10 16s. net. This is arrived at by taking Kauri royalty at 16s. 8d. per 100ft. sup. q.g. (2s. per cubic foot)—a fairly high figure, but a figure which it is believed Kauri will ultimately reach, since in the coming timber scarcity it is precisely timbers of the durable softwood class which will become most valuable—timbers such as Teak, Kauri, Cedar, and Mahogany. It may be mentioned here that 16s. 8d. per 100 ft. sup. has already been realised for Cedar in Queensland and for Stinkwood in South Africa. Those who prefer to do so can estimate the future Kauri royalty at half this, and the revenue from the Kauri forest will still be high —viz., £7 17s. 8d. gross and £5 16s. net. The lower figure is about the highest revenue from the most profitable of cultivated forests in Europe; but it must be remembered that such forests yield timber of a lower grade than Kauri—viz., perishable softwood—and that they are open to the competition of other forests at no great distance away. This is not the case in New Zealand. Whether the Kauri royalty be taken at 1s. or at 2s. the cubic foot—which are about the extreme limits—the revenue from a good Kauri forest such as Puhipuhi would be higher than that from all farm lands on such soil.

Present-Day Values: Puhipuhi Timber.

	£
Royalty-value: 510 million sup. ft. at 10s. per 100 sup. ft.	2,550,000
Sawn timber average net value: 510 million sup. ft. at £1 5s. per 100 sup. ft.	6,375,000

These figures represent, in round numbers —two millions and a half lost to the Public Treasury, and an industrial loss of some six millions and a third production in New Zealand; and what is more, production of a raw material—timber.

Against this loss there is nothing to set except the grazing on the burnt forest land and the proportion of timber worked up during and after the burning of the forest—viz., 60 million sup. ft.—together with the saving (a drop in the ocean) of some few thousands a year in the local cost of a Forest Department to look after the timber and protect the forest from fire.

Management of Forests.

After discussing in the course of 73 pages, the historical side of forestry, with many interesting

quotations from European, Indian, and South African practice, Sir David Hutchins proceeds to outline a general working plan for managing Kauri forests. He considers that the Kauri tree of the future must be one which will mature at 90 or 100 years, at which it will be 24in. in diameter, with about 3in. or 4in. of sapwood, and about 60ft. of bole. In mid-European forestry Spruce gives usually the best returns, and its rate of growth in the best quality of forest resembles that of the standard timbers in New Zealand—Kauri, Totara, and Rimu. In first-quality European Spruce forest at the age of 80 years (when the timber acrim is at the highest—viz., 200 c.ft.) the average tree is 1 ft. in diameter and 93 ft. total height. In Spruce forest of average quality (when the timber acrim is barely past the maximum—viz., 140 c. ft.), at 100 years of age the average tree is 10 in. diameter and 79 ft. high (Schlich's Yield Tables). This is an indication only of what should be the economical size of the Kauri tree of the future, for Kauri must be grown larger in order to get a fair proportion of heart-wood."

"A Kauri tree 2 ft. diameter under bark at base (or, to speak quite accurately, above the base bulge, which is very small or sometimes quite absent in Kauri) and 60 ft. of bole, if one allows 5 in. of diameter for taper to the centre of the trunk, would cube 118 c. ft. This is the true volume. Taking what is approximately the cubic content of the squared log by the English log rule of "the square of the mean quarter-girth" (Hoppus), the Kauri tree of the future will have a cubic content of 93 c. ft. quarter-girth. Allowing 25 per cent. for waste in sawing, 93 c. ft. q.g. would represent 837 sup. ft. of sawn timber. If, however, one took the "two-thirds-diameter squared" log rule which is used in nine States of the United States of America, the superficial feet would work out to 801.4 sup. ft., or 890 board feet, taking Professor Somerville's general factor for the chief American log rules. As will be seen later, I take rather more height and less taper than the average Kauri, as the "Kauri tree of the future" will be a tree grown in close forest; and I assign it a cubic content of about 100 c. ft. quarter-girth measurement."

"In the plan for a normal Kauri forest sketched here the acrim, it is evident, will be low till the better growth produced by the foresters' regeneration methods have taken effect, and the revenue will not be benefitted till that timber is fit to cut. I will assume that a few years after regeneration there will be an acrim of 100 c. ft., and that this acrim will spread gradually over the whole forest as the present crop of timber is cut and the forest regenerated. It will be 100 years before the first of the regenerated Kauri is fit to cut; and if twenty years be taken to work through and regenerate the old virgin-forest timber, it will be 120 years from now before the improved regrowth forest is all fit to cut. In the meantime the fellings and revenue will only be from thinnings and from the mid-rotation Kauri reserved trees left over when cutting out the old timber of the virgin forest mentioned above. Then, from 100 years the revenue will be rising rapidly as the first of the improved forest matures.

"As mentioned above, I assume for the normal Kauri forest, after the virgin-forest timber is cut, and during the 100 years of the "transition period" that must elapse before the regrowth timber matures, an average yield of 35 c. ft. q.g. of millable timber per acre per year—15 Kauri and 20 other. After that, 100 c. ft. q.g. Kauri per acre per year of millable timber. This 100 c. ft. q.g. is the normal yield. It will never be less than 100 and may rise gradually to 200.

"During the 100 years of the "transition period" there will be less than 35 c. ft. q.g. to cut at first, more afterwards.

Forty Lean Years, with Fat Years at the End.

The 35 c. ft acrim will be made up at first of light thinnings among the secondary species and some deferred regeneration fellings of the Kauri virgin forest. These at first will yield nothing like the 35 c. ft. per acre per year, the average yield estimated for the whole period. This, in fact, will be the lean period in the working of every Kauri forest, just as seventy or a hundred years later there will be a fat period with a plethora of mature Kauri. It will be the business of the "working plans" forest officer to so anticipate and defer fellings that the yield will be more equalised, and with it, of course, the distribution of the age-classes. He can help the lean years by running some of the virgin-forest fellings into them; he can help the plethora years by anticipating or deferring the felling of the 100-years rotation; and in doing this he is helped by nature, for that is the time when Kauri is growing rapidly and holding up its acrim against any rapid decline. In other words, there will be large supplies of Kauri timber on hand, and it will depend on the timber-market and on Government demands whether the timber is harvested twenty years sooner or forty years later. What the forester will be looking at will be a good distribution of age-classes in the felling compartments. Ultimately there will be a series of compartments with ages varying from one year old to 100 years old dotted about the forest and numbered from 1 to 100.

Towards the end of the "transition period" there will be a quantity of timber amongst the secondary species that will have to be thinned out, and some of the Kauri timber that in size will be nearly equal to the "Kauri tree of the future," with 2 ft. diameter and 60 ft. bole. The average 35 c. ft. acrim of the "transition period" will be derived mainly from four sources:—

(1.) Virgin forest; some deferred regeneration fellings.

(2.) Kauri reserves at the mid-period.

(3.) Heavy thinnings towards the end of the "transition period."

(4.) Where suitable, twenty-year crops of butter-box and packing-case timber planted in vacant places.

The last item would be on waste areas falling within the forest-demarcation boundary, perhaps covered with Gorse, Blackberry, or scrub which might eventually, when cleaned with Insignis planting, go into Kauri, Cedar, or other valuable timber forest. Insignis-pine, on account of its high yield of second-rate timber, is best placed in suburban forests. Owing to the neglected condition of forestry in New Zealand there are large areas of such Crown land which, if near a demarcated forest, would naturally be put into it so as to be turned to account.

Revenue Other Than Timber.

In addition to the timber, there will be some considerable revenue from what is usually termed "minor forest produce." Here resin-tapping is nearly certain to figure largely. Firewood, too, and fungus will also bring in some revenue. Fungus-gathering was helpful to the settlers when butter was only worth a few pence a pound. It is still regularly collected in the northern forests, being sold at 3d. to 6d. per pound for export to China. I hope, too, that an industry killed by poor forestry and now extinct in New Zealand—charcoal-burning—may be revived under the protecting care of better forestry, together with the teaching of better cookery at the technical schools. Few things would help more to improve a somewhat inferior diet than the substitution of French cookery with charcoal from New Zealand forests in place of cookery with gas or imported American oil.

Employment.

Sir David is of opinion that the Kauri, on account of its valuable timber and gum, can support an organisation as complete as any good forest in Europe, where the average works out at one full-time employee per 105 acres. An elaborate balance sheet of a Kauri forest is reproduced by the author, who considers that during the first period (the working of the virgin forest) the timber in such a forest as Waipoua would produce £18 17s. 10d. per acre, and the kauri gum may be worth 10s. an acre more.

In the second or transition period, there would be a revenue from fellings and thinnings, which would provide a net return of £1 4s. 2d. per acre.

The third period is reached in 80 to 120 years, when the forest is fully stocked. "The forest is also well on its way to that gradation of ages which is essential to regular production coupled with economical milling. Foresters will gradually complete the age-classes as they regulate the fellings. For this third period it becomes possible to frame with more exactitude the figures of revenue and expenditure, using figures from forests in a similar condition in other countries. The preceding figures, depending more or less on the present quality of the forest, are variable. The following figures, with the forest better stocked and approaching regularization, are definite and variable only within certain close limits:—

Revenue—

	£	s.	d.
Timber yielded by the 100 c. ft. q.g. Kauri acrim referred to above at 2s. per c. ft. (16s. 8d. per 100 ft. sup)	10	0	0
40 c. ft. q.g., more or less, of other timbers, at 8d. per c. ft. (5s. 6d. per 100 sup. ft.)	1	6	8
Kauri "gum" from a fully stocked Kauri forest, with light tapping from all the trees, and heavy tapping from those being felled: as a rough general estimate, say £1 11s. per acre per year, including fungus, firewood, and all minor forest produce	1	11	0
	£12	17	8

Expenditure—

	£	s.	d.
Labour at full European rates for a full forest: Permanent yearly average at the rate of one man per 75 acres—man at £150 yearly, with house, ground, etc. Labour includes all forest work up to putting the logs by the roadside, road-making, timber-felling, natural-regeneration aid work, and interplanting where necessary	2	0	0
Supervision: One man per 2,000 acres, materials, and direction as above, per acre per year	0	1	8
	£2	1	8

Therefore average net revenue per acre for the third or final period is £12 17s. 8d., less £2 1s. 8d., equal to £10 16s.

"At 4 per cent. £10 16s. capitalises to £270. This is an important figure in considering land-values, since on a 4-per-cent. basis, or twenty-five years' purchase, land under normal Kauri forest will have a capital value of £270. Just as the stocking and age-classes of any existing Kauri forest approaches the normal Kauri forest will its present value (capitalised at 4 per cent.) approach £270 per acre. Thus it is only land in the very best districts of New Zealand that has a higher value than well-stocked Kauri-forest land. This brings one round to European conditions, where patches of forest land and agricultural land stand side by side, and it wants little change in relative prices to say which is the most profitable.

High Net Revenue.

"£10 16s. per acre per year is a high net revenue from even the most productive forest. It will be criticised. The various figures on which it is founded have already been discussed. The Kauri "gum" and "other timbers" are uncertain, but do not bulk for much in the estimate; the former is probably underestimated. Of the £12 17s. 8d. only £1 11s. is the estimated yield from Kauri "gum," firewood, and all minor forest produce. No one yet knows what systematic resin-tapping will produce. If resin-tapping should be abandoned altogether for

Kauri, the correction to these figures is but slight and is easily made. It is much more likely that Kauri resin-tapping will be conducted successfully, and that there will be a substantial addition to these figures in consequence.

"The timber-yield item in the above estimate figures at only 140 c. ft. q.g. per acre per year, of which 100 is from the Kauri and 40 from other timbers. This is a comparatively low figure for such a climate as New Zealand, and is certain to rise."

The book deals also with interplanting, the use of exotic trees for northern forests, fire danger, and risk in planting insignis-pine and other exotic trees. Then in the last thirty pages, Sir David recapitulates his arguments and selected facts, and draws a comparison between New Zealand's disregard of the future of its forests, and the regular revenue obtained by systematic forestry in European countries. Here and there throughout the book are bits of quaint doggerel which seem quite out of place in a semi-scientific bulletin, but Sir David's efforts do not appear to have been subjected to an official editing, so his curious verses appear as mnemonics, to "point the moral and adorn the tale." They are, unfortunately, hard to memorise, but a sample above the average is as follows:—

Mnemonic.

State Forests in Europe give good returns:
Four and a half millions net the Prussians,
One and one-fourth gross millions to pillaged France,
Not to mention each Hun State, the Swedes, and the Russians.
For gross returns in each class of forest--
Huns 24 millions, Japs 12, Swiss 2 or 3 does it.

The author's merits as a forester are undoubted, but his skill and knowledge in this direction cannot be said to extend to the literary side. His report is probably the most discursive and incoherent ever printed by the Government. It rivals some of those remarkable ebullitions perpetrated in the Seddonian times by American journalists whose "boosts" of the Dominion were reprinted in official papers. The Americans, at all events, enjoyed enough literary skill to make their narratives read smoothly, but Sir David Hutchin's report is such a remarkable jumble of fact, opinion, quotation, and mnemonic doggerel, that we earnestly suggest the desirability of the Government engaging a capable editor for his next production, otherwise its value will be seriously discounted by the impossibility of easily understanding what the learned author desires to convey.

We understand that copies of this report may be obtained from the Forestry Department, Dominion Farmers' Institute, Wellington.

Building Notes.

AUCKLAND.

A new six-storeyed home for nurses is to be added to the Auckland hospital. The plans have been approved by the Hospital Board, and the building is to be of reinforced concrete with brick foundations. The plans are by the Board's architect, Mr. Alloop, who has recently returned from a trip through the United States and England. The building will have a frontage to Park Road, on the site at present occupied by the old nurses' home. The plans provide for 150 bedrooms. After allowing for 96 nurses who are at present in temporary quarters, there will be rooms for 50 additional nurses. Provision is made for the lady superintendent and three lady doctors, and a large lecture hall and sick-ward for nurses are also included in the plans. Proposals for remodelling the steam-heating

service at the hospital were submitted by Mr. H. A. Walker, consulting engineer to the board. It was recommended that the atmospheric, or vacuum, system should be installed in place of steam radiators. This would necessitate the use of two boilers, which the board had already purchased, and other extensions would have to be made to the plant. The proposals formed part of the scheme whereby the institution would have its own electric-lighting installation. It was decided that one of the boilers be installed at once, to afford relief during the winter, and the architect and engineer were instructed to confer regarding the preparation of plans for suitable buildings to house the complete plant.

Mr. R. Hammond invited tenders during the month for a house in wood at Mt. Eden. Plans and specifications to be seen at the offices of Messrs Hoggard and Prouse, and W. H. Gummer, N.Z. Insurance Buildings.

The Education Board invited tenders through the Board's Architect, Mr. John Farrell, for a new school at Tuakau in brick; additions in brick to school, Whitiora; erection of new school at Whangarei Heads; erection of new school in wood, at Okahukura; erection of new school building in brick, at Remuera, and a teacher's residence at Ngatea.

Messrs Fleming, McDonald and T. C. Mullions invited tenders for the erection of a house at Westfield.

CHRISTCHURCH.

Messrs Collins, Harman and Mannings invite tenders for additions to a church at Darfield, and also for two residences in Clyde Road, Christchurch, in wood.

Messrs J. S. and M. J. Guthrie invited tenders for a house at Amberley during the month.

Mr. G. T. Lucas invited tenders for a brick residence at Lyttelton, and alterations to the Vicarage at Fendalton.

Messrs Ellis and Hall invited tenders for a house at Ashburton (in brick and wood).

FEILDING.

The Wanganui Education Board invite tenders for the erection of a Technical School at Feilding. Plans can be seen at Canterbury Education Board's offices.

MASTERTON.

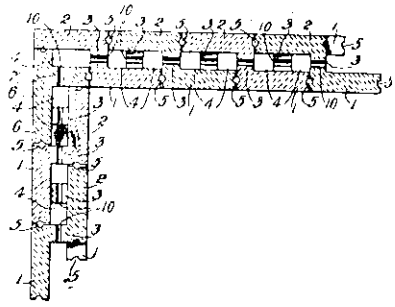
Messrs Watson and Gooder invite tenders for the erection in brick of a residence for Mr. R. McKenzie.

WELLINGTON.

The housing shortage was responsible for a labour rally in the form of a public meeting held in the Town Hall this month at which the following motion was moved and carried:—That as the shortage of houses is more acute than at any time in the history of the Dominion, that as families have frequently to live in single rooms, that as no proper housing accommodation is available for the people already in the country, that as every immigrant family arriving renders the situation more serious, that as many of the houses inhabited are dilapidated, unhealthy and insanitary, and a considerable number actually condemned by the Health authorities, this meeting demands that Parliament make adequate provision, financially and otherwise, for an organised housing scheme on a sufficient scale to remedy the present shortage of housing accommodation, and thus meet the needs of the people. This meeting further demands that as the shortage of houses is more acute than in 1916, when the first war legislation protecting tenants was passed, and as all such war legislation will be automatically repealed in August next, thus rendering all tenants, including discharged soldiers and their dependents, liable to exorbitant increases of rent, and to eviction without any protection whatever, that the war legislation which limits rents be embodied in ordinary Statutory law and that clause 56 of the Housing Act, 1919, be amended so as to secure to all tenants the protection at present accorded to soldiers, discharged soldiers, and the wives and mothers of soldiers, and discharged soldiers.

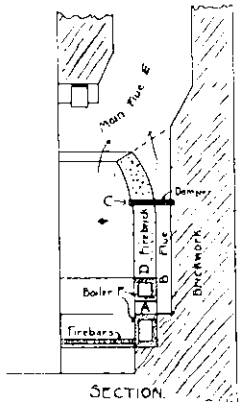
Patents of Interest to Builders.

Building Block.—A patent, No. 41,964, has been taken out by Messrs. A. Stevens, N. A. Stevens, and H. G. R. Mackay, Wellington, which comprises two slab portions disposed in echelon relation and parallel with



one another so as to constitute portions of the inner and outer surfaces of the wall, and a transversely disposed web portion uniting the adjacent ends of said slab portions. Other features are contained in invention.

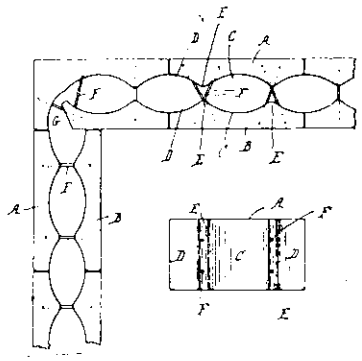
Open Fireplace Flue Arrangement.—A patent, No. 41,024, has been taken out by J. M. Reid, Willis Street, Wellington, which consists of a secondary flue passing



through the firebrick back of fireplace, or through a boiler at back and sides of fireplace, such flue leading up the back of fireplace and into the main flue.

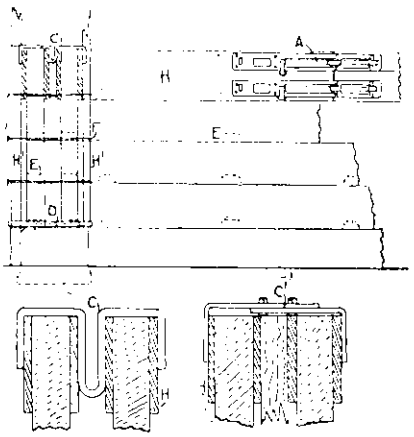
Building Block.— A patent, No. 41240, has been taken out by T. C. Mullions, Sneeton's Buildings, Auckland, which invention consists in constructing each block of two members arranged face to face, the relatively outer surfaces of each of which, as well as their top, bottom, and end surfaces, are made plain, while their adjacent inner surfaces are shaped to form vertically extending ribs projecting from such surfaces in positions respectively opposite one another and at desired intervals in the block-length, and which two members are then tied together so as to leave a continuous space between

them, by means of wire ties extending across between the ribs and embedded at their ends into the respective



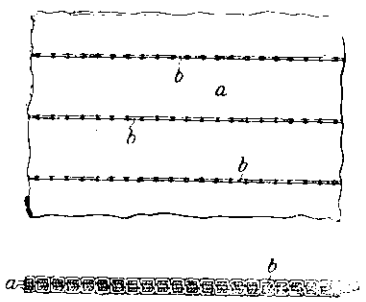
members. These wire ties are embedded in the block during the moulding thereof.

Concrete Construction Appliances.—A patent, No. 42,593, has been taken out by W. J. Dyas, Kensington, Dunedin, which comprises the combination of special bolts for securing boards end to end ,also special bolts for securing the boards at an angle. The invntion also



consists of special cramps, either in one or several pieces, for adjusting to various thicknesss of wall or walls. Bands in one piece or in more for the purpose of adjusting to the sizes of walls or studs, for supporting studs that in their turn support the boxes or formes, are also employed.

Ply Board or Sheet Manufacture.—A patent, No. 42,382, has been taken out by S. E. Saunders, Whippingham, Isle of Wight, England, which comprises a plural-



ity of layers of thin board or veneer united together by means of stitching of thread, twine or the like. Grooves may be formed in which the stitches are laid,