Winter/Spring 1967

arrowhead

arrowhead

CONTENTS

COVER

The laboratory of Fletcher Industries in Great South Road, Penrose.

Arrowhead
House Magazine
of the
Fletcher Organisation
Produced by the
Public Relations
and
Advertising Division
of
Fletcher Group Services
Private Bag, Auckland
and printed by
Whitcombe & Tombs Ltd.

LABORATORY FOR INDUSTRY

IN Auckland, Fletcher Industries Laboratory staff has recently been rehoused in properly planned quarters commensurate with the importance of the work being carried out. The laboratory now has its own attractive building (shown on the front cover) at Penrose. The building was designed by Fletcher Group Services and built by Fletcher Construction.

The building comprises two test rooms and workshop, a climate control room, a chemical laboratory, library, conference room and offices.

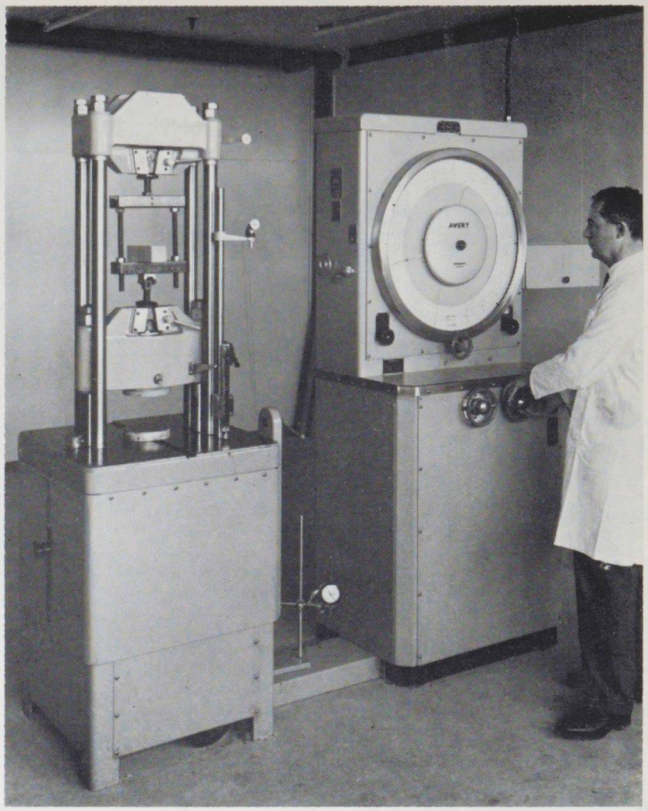
The main equipment in the first testing room is an Avery 7109 DCJ universal testing machine capable of carrying out a wide range of general physical tests on most materials used in the building industry, such as plywood, timber, metal sections, mortar, plastics, adhesives and fasteners.

In the second testing room, the largest space is taken

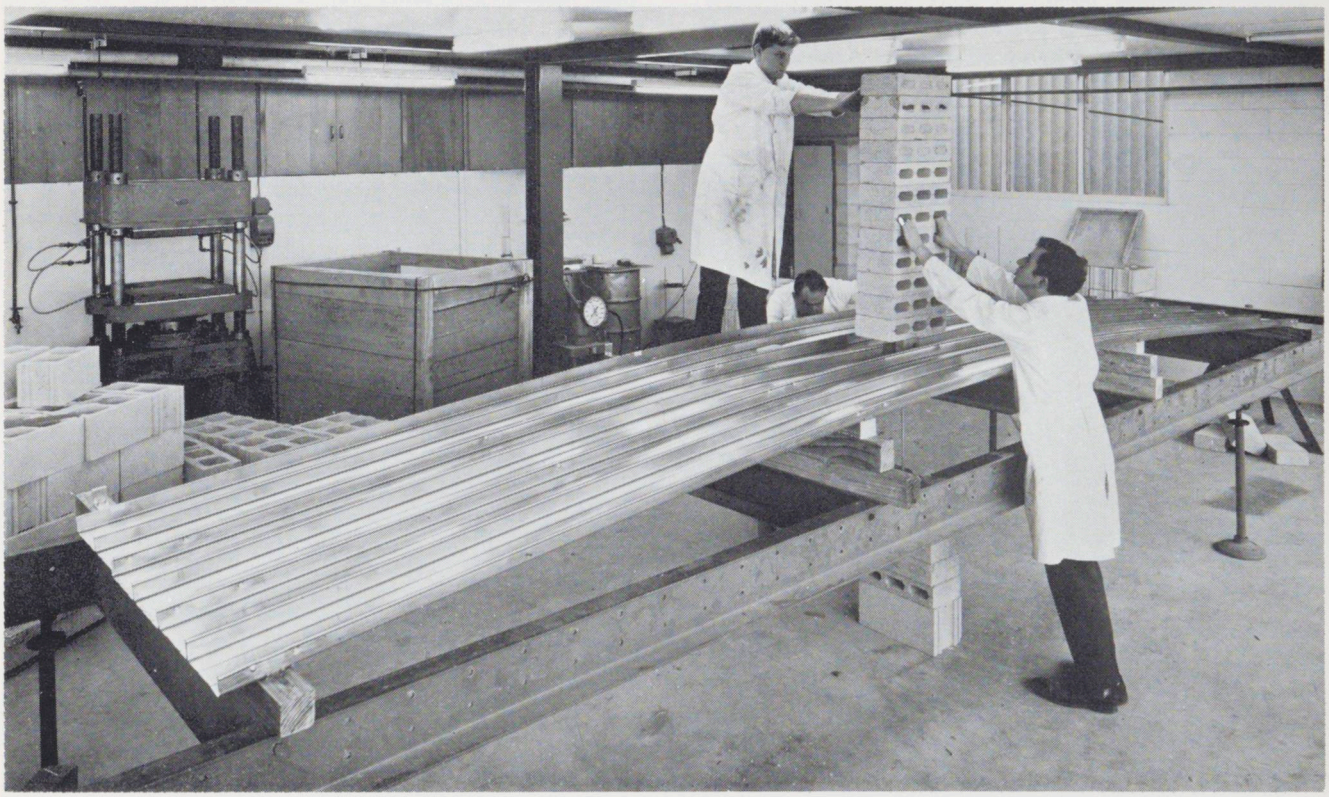
up with a test rig for roofing, sheathing and flooring materials. Here wind-loading and weight-loading rates for a variety of materials can be established. These properties can be evaluated under full-scale conditions using point and distributed loads to simulate actual usage and to determine safety factors.

There are also facilities for the testing of concrete blocks for compression strength, permeability, water absorption, and aggregate particle size analysis.

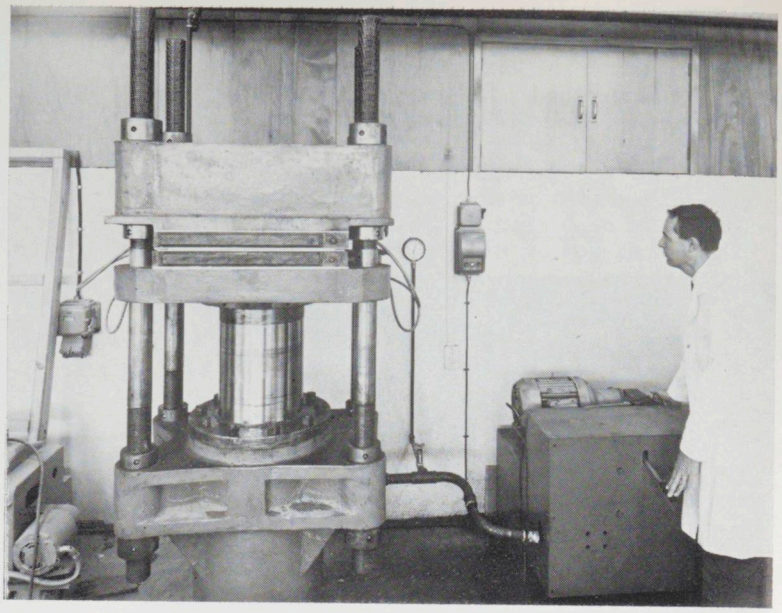
The climate-control room, which was installed by the



Left: Testing the breaking point of a concrete block. Above: The Conference room lined in Plyco flitch-run plywood panelling. Right: The Laboratory Manager, J. R. Yolland, testing the holding power of a screw in a selected timber. Below: Brownbuilt being tested for weight loading.



LABORATORY FOR INDUSTRY



Above: Trial lamination. Below Left: A section of the library. Below Right: A corner of the chemical laboratory.

Carrier division of Fletcher Mechanical Services, is able to condition a variety of materials within a range of 40° - 80° F. and a relative humidity of 30% - 90%.

Spray-finishing equipment is maintained for trial coatings of building components.

General facilities include a workshop with bandsaw, circular saw, buzzer and handtools.

For the test manufacturing of pressure laminated products such as plywood and particle board there is a 24 inch square plate hot press.

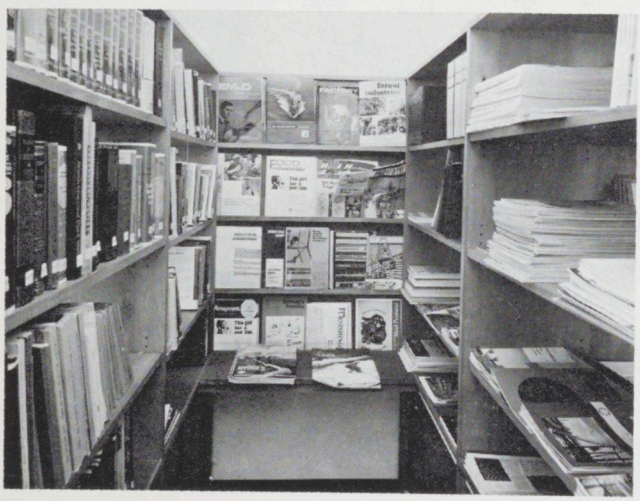
The chemical laboratory is capable of carrying out a variety of analytical operations including such special tests as wood preservative retentions, paint and resin properties.

The technical library has a range of books and periodicals relating to the building industry and it maintains a liaison with the Timber Development Association, Standards Association of New Zealand, Building Research Association and New Zealand Libraries Association.

The conference room is equipped with light-proof curtains for film screenings. Screenings of technical films are held once a week.

Future developments of the laboratory include providing metallurgical testing facilities and the structural testing of beams and portal frames using the existing special structure test floor.

While the laboratory is mainly concerned with the demands of Fletcher Industries and Fletcher Timber, its general facilities, such as library and conference room are available for all companies in the Group as are its technical facilities and in fact many do avail themselves of these.



WORLD FORESTRY EXPERTS VISIT FLETCHERS' PLYWOOD FACTORY AT CHRISTCHURCH

DELEGATES attending the FAO World Symposium on Man-Made Forests made a pre-conference tour of New Zealand, prior to the symposium held in Canberra.

Photograph shows some of the delegates inspecting Fletcher Timber's plywood factory in Christchurch. They are from left: Dr. Helmut Schmidt-Vogt (West Germany); H. Stewart Swan (Canada); A. Metro (Versailles); J. B. Dargavel (Victoria); P. Ponticelli (Rome); Professor Gugliemo Giordano (Florence), and Dr. Stig Hogner (Sweden).

Dr. Helmet Schmidt-Vogt, a Professor at the Freiburg University, Forestry Institute, West Germany, and a representative of IUFRO (International Union of Forest Research Organisations) is particularly concerned with work on suitable seed for high altitude planting. He is also the editor of the West German periodical, "Forest Planting for High Mountain Sites."

H. Stewart Swan is Head of the Division of Silviculture, Pulp and Paper Research Institute of Canada. He has published a great deal in the field of forestry nutrition and the use of fertilisers.

A. Metro is a Forestry Consultant at FAO in Versailles, France.

J. B. Dargavel is the Management Officer of A.P.M. Forests Pty. Ltd., at Maryvale, Gippsland, Victoria.

P. Ponticelli is an officer of the Italian national organisation for pulp and paper.

Professor Giordano is the Director of The National Wood Centre in Florence. He has published such works as "Poplars as a Raw Material for Particle Boards"; "Utilisation of Small-Sized Wood" and "The Barking of Round-Wood in Association with Pulp and Paper Requirements."

Dr. Hogner, Chief Forester of the Cellulose Company, Sundersvall, Sweden, has published widely on seed studies.

MECCANO SET HELPED MEET TIGHT SCHEDULE

CHIMNEY stacks — even 190ft. chimney stacks have been erected before, but when two such stacks have to be erected in a specified 8½ day period, a considerable measure of excitement is added to the project.

This was the case with the assignment given to Fletcher Construction's Civil Engineering Division at Kawerau. The job was part of a new development at Tasman Pulp and Paper's plant. The whole project — a new chemical recovery boiler — will cost $5.6 million, and Fletcher Construction are the principal contractors.

The task described on these pages entailed the removal of an existing 120ft. steel chimney stack and erecting in its place a 190ft. free standing steel stack weighing 40 tons and also the removal of an existing smelt tank vent stack and replacing it with a 190ft. guyed steel stack.

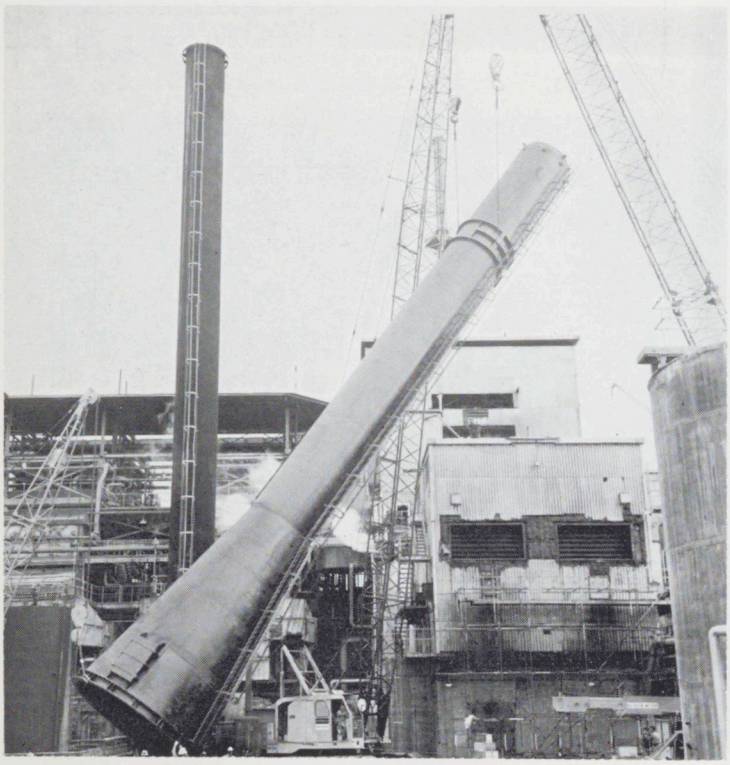
The work had to be carried out during an 8½ day shut-down of the existing recovery boiler.

Another time element was imposed by the use of a crane "borrowed" from the power station project at Marsden Point — with severe penalties for its late return.

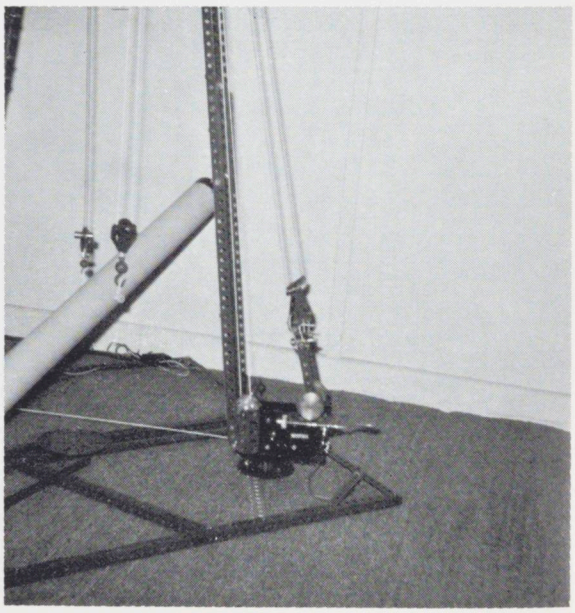
These factors called for the most detailed planning and this was where a boy's toy helped.

Steven, son of one of the Mechanical Superintendents (D. Joy), lent his father his meccano set and at Marsden Point a model of the cranes and stacks was built. With the help of these the lifts were calculated.

Another aspect of the meticulous planning involved the charting of the route and timing for the movement of the crane from Marsden Point to Kawerau and back, a return journey of some 600 miles. As this crane, a P&H8100, the largest mobile truck crane on wheels in New Zealand, has an all up weight of 85 tons and stripped to chassis and cab still weighs 43 tons, this was not without complications.



Left: The bottom section of the stack being raised. This section is 101ft. long and weighs 26 tons. Below: The operation being planned out with the meccano model.



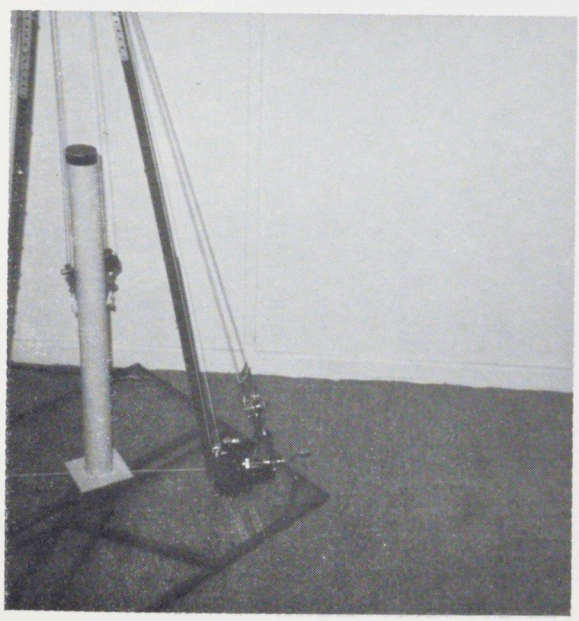
OPERATION KAWERAU STACKS

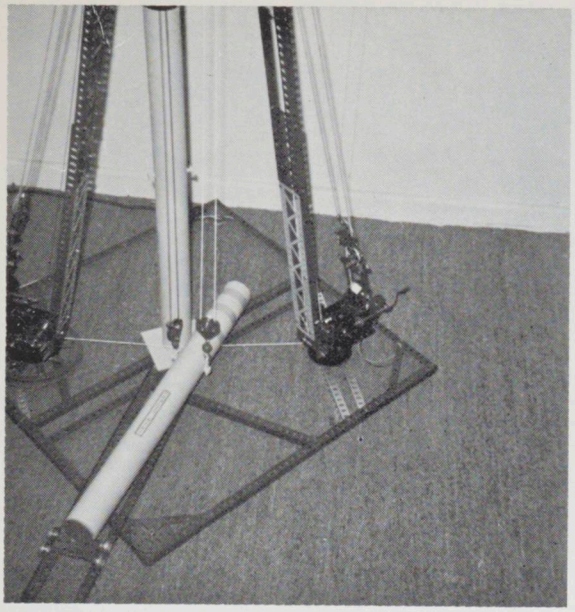
The devious route to avoid bridges and roads which could not take the weight of the unit was planned, with the assistance of the Ministry of Works, the Railways Department and the Transport Department, and A. J. Wilson, Purchasing Officer for Fletcher-Downer-Wilkins and Davies, was the guide. Three trucks were required to carry the boom and counterweights of the crane, which were removed before its journey. A second crane required for the lift — an American 7250 was already on the site.

Long hours were worked by the Fletcher Construction team to complete the assignment on time. The project was under the overall management of J. Lukas, Chief Engineer, Civil Engineering Division, Fletcher Construction; Mechanical Superintendents W. Vivian and D. Joy supervised the erection and cranes; J. Thomson, Fletcher Construction Project Manager at Kawerau, was responsible for the site engineering; and M. Muellar, Fletcher-Bernard Smith Foreman, and his crew of riggers, were assigned to Fletcher Construction for the duration of the job.

The main replacement stack was manufactured by Fletcher-Bernard-Smith at Otahuhu and trucked by road to Kawerau.

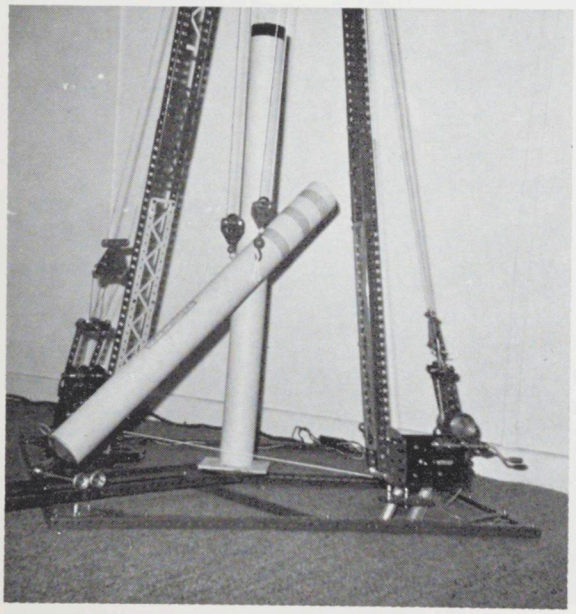
Above: The base section of the stack on its way up with the 20-ton truck crane drifting the base in over the foundation. Below: The base section in position and being bolted down. Below left: The same operation with the model.

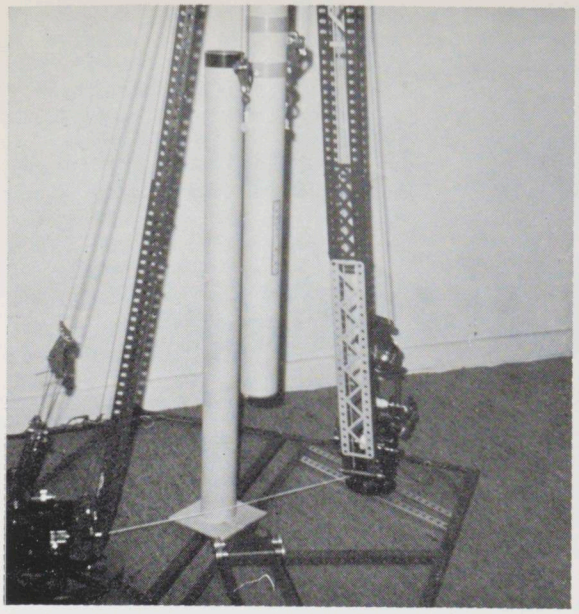


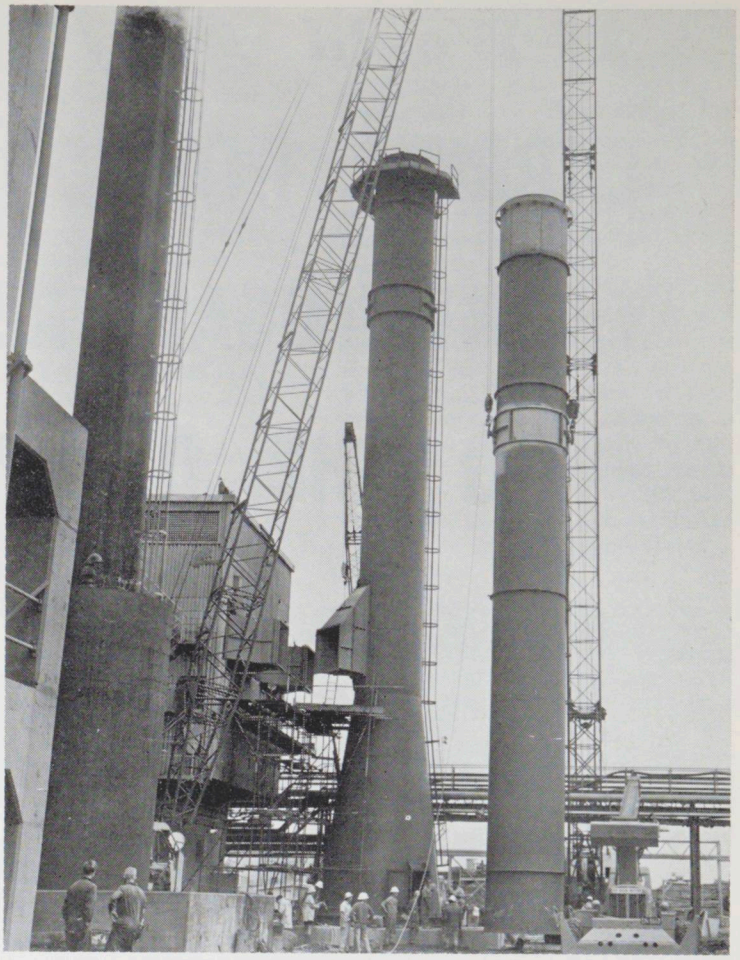


OPERATION KAWERAU STACKS

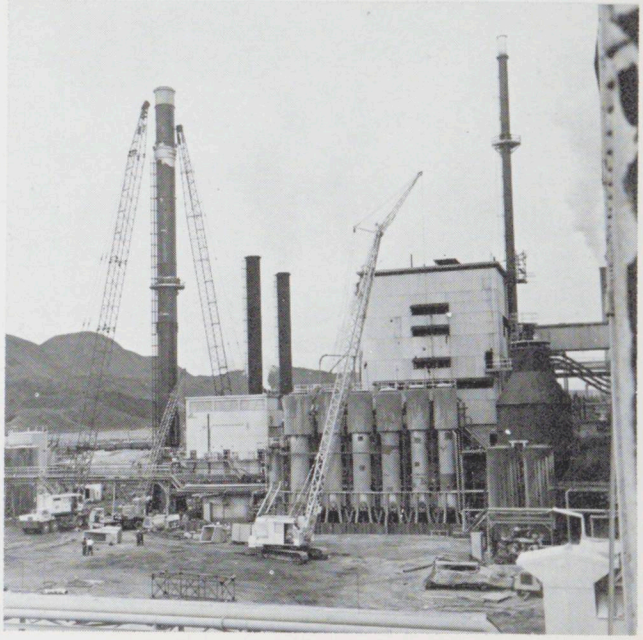
Above: Cranes in position with 170ft. and 180ft. booms ready for raising the top section; and model of the same operation. Below: Top section of the stack being assisted into position by the Austin Western crane.





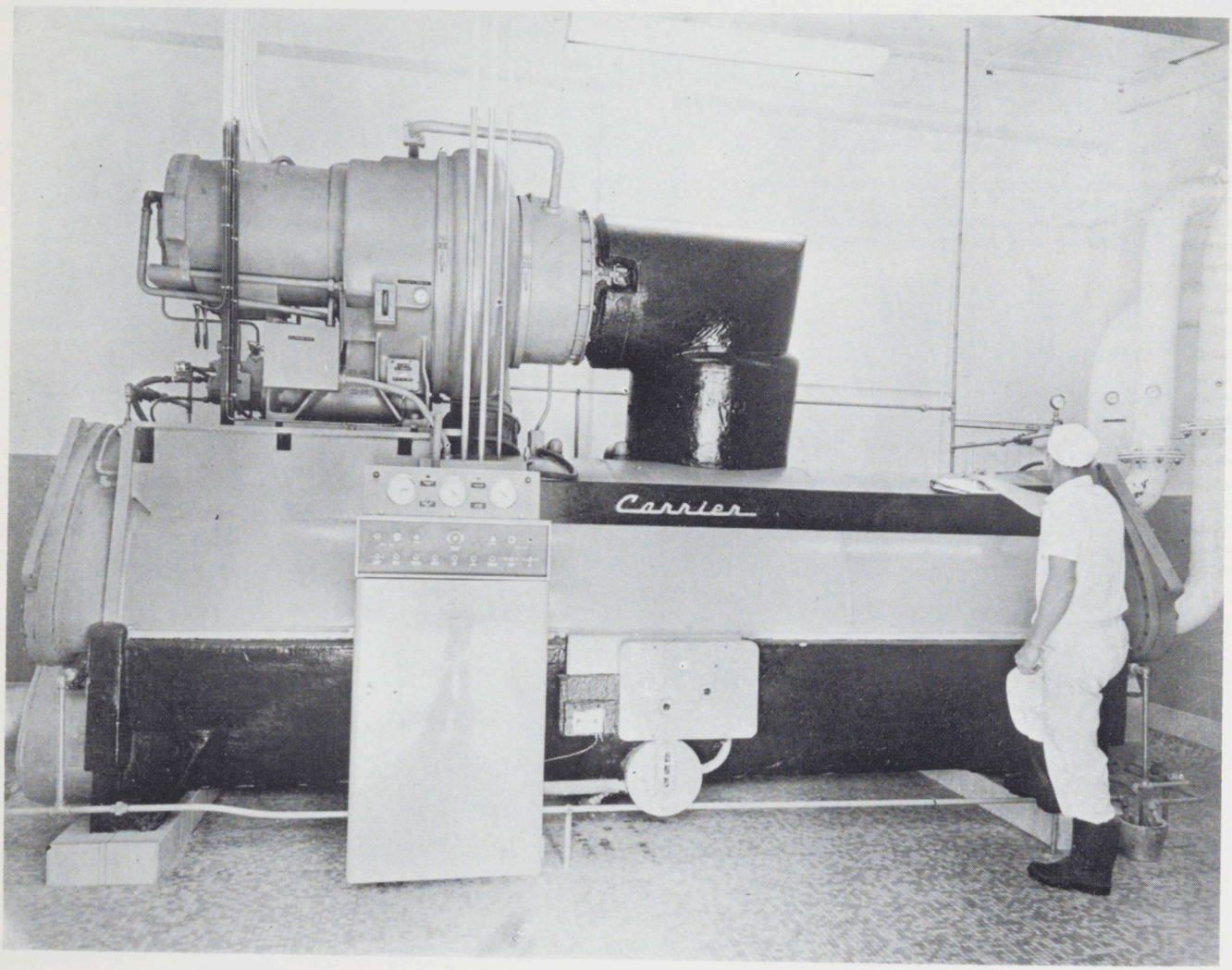


Above: Top section of the stack, 89ft. long and weighing 14 tons in position for final raising. Below left: A group of Tasman engineers watching the top section coming into final position. The 190ft. vent stack is in the background. Below right: The main stack in position and ready for the welders.



A World First?

CARRIER INTRODUCES HERMETIC CENTRIFUGAL REFRIGERATION TO THE DAIRY INDUSTRY



FARMING in New Zealand and industry allied to it has many achievements to its credit which have been internationally acclaimed. But it can keep in the forefront only by continual progress and it is pleasing that the Carrier division of Fletcher Mechanical Services has helped the dairy industry achieve another first. This is the introduction of hermetic centrifugal refrigeration machines to dairy factories.

When, a few months ago, Fletcher Mechanical Services installed one of these plants at the Rangitaiki Plains Dairy Company's factory at Edgecumbe, near Whakatane, this was believed to be the first such application in the Southern Hemisphere and possibly in the world.

The installation followed extensive study by consulting engineer, C. Stuart Raines, and engineers of the dairy company, with subsequent assistance from Fletcher Mechanical Services.

Generally speaking, refrigeration methods in dairy factories have rested rather heavily on past practice. This has resulted in a reluctance to think in terms of other than complex reciprocating ammonia systems, with their attendant high pressures, refrigerant leakage hazard, and large floor space requirements, together with a need for increasing levels of plant operator time and skill.

The need for chilled water below 40°F. is now very suspect, due to the many changes in the industry's requirements, for major loads now come from the demand for chilled water used in double plate heat exchangers for cooling treated cream before storing, and skim milk if required for milk powder. Normally, these operations require chilled water at 45° and 50° respectively, and they are usually simultaneous operations.

In the Rangitaiki study, it was found that plant matched for the maximum combined duty was sufficient for all combinations of cooling requirements, including the removal of sensible heat from the stored treated cream and reduction to not below 45°F., the production of chilled water at 40°F. for butter washing, and a new requirement for 40°F. chilled water for air conditioning of the butter making, holding and packing rooms.

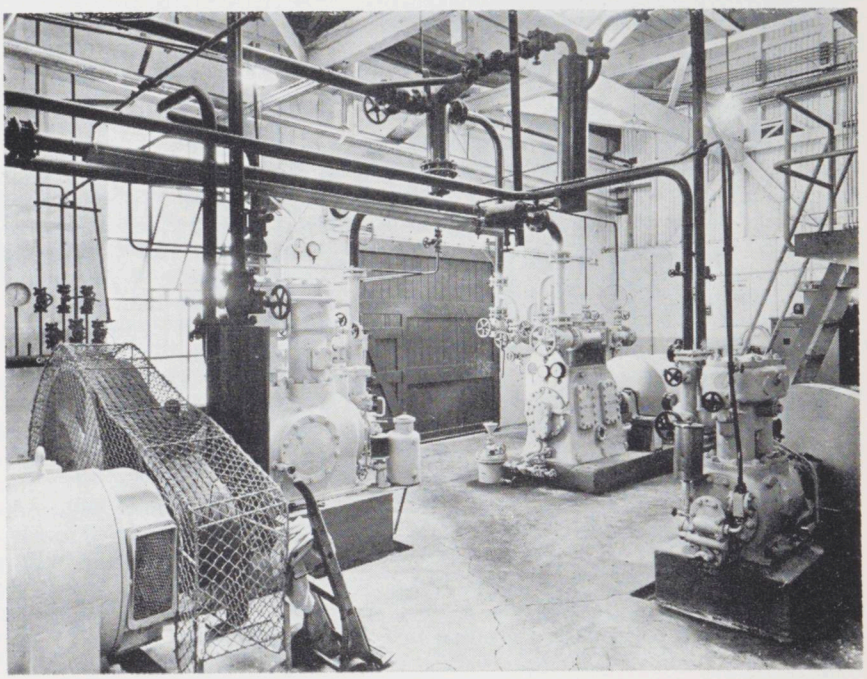
It was found that, with the right equipment, all these duties were suited for indirect cooling with chilled water at 40°F., allowing maximum flexibility of operations and the minimum of plant and this under central control.

Other advantages included a simplification of factory piping systems by removing any refrigerant piping, units and controls from the factory or clean area, allowing easier and less cleaning. Also an advantage was the elimination of ammonia's high operating pressures, which required inspection and strict maintenance of pressure parts, as well as being of considerable danger to staff on its inadvertent escape from the system.

Carrier Centrifugal Refrigeration machines use a non-toxic refrigerant with liquid at normal room temperatures enabling it to be poured from a container, easy detection of any leaking refrigerant, high efficiency and reliability, automatic unattended operation, the ability to automatically cope with load fluctuations down to 10% and other advantages.

It was found that a factory with an hourly process rate of 20,000 gallons of milk for powder and butter would require 260 tons of refrigeration, which can be supplied in one machine occupying a space less than 15ft. long by 6ft. 9in. wide by 7ft. 6in. high, incorporating compressor, condenser, chiller and controls, with additional space only for circulating and service pump.

The machine installed at Rangitaiki, is fed by river water as its condensing medium, with no special filtration arrangements, and after several months of operation, both condensing and chilling heat exchangers were opened for inspection and found to be in excellent condition, with no accumulation of foreign matter, and no apparent affect of scouring from water contaminents.



The Carrier 19D 255 hermetic centrifugal refrigeration machine fits into a small corner of the plant room occupied by the old machine.

Part of the old ammonia plant, which occupies a large area and produces only about half the capacity of the new machine.

MURAL TILE 67

MURAL Tile 67 brings a new look to suspended acoustic ceilings. This is a development by Fletcher Insulation and Acoustic Services which was released earlier this year and the arresting and changing pattern it adds to commercial environments is illustrated above. This photograph was taken in the new Auckland Savings Bank building at Manurewa.

The "new look" of Mural Tile has had an immediate appeal to architects throughout New Zealand and they have already specified it for such buildings as the Auckland Savings Bank, Whangarei and Manurewa; the Auckland Electric Power Board, Newmarket; the T. & G. Offices, Wellington; the Union Hotel, Napier; and the Glaxo Offices, Palmerston North.

A number of other major contracts are listed for installation in the near future.

Mural Tile is a breakaway from the standard regular patterned acoustic tiled ceilings. The tiles are still fibrous plaster but the face pattern has been carefully developed to give a more abstract design which alters with viewing from different angles. Fixing is concealed, panel strength has been increased and sound absorption rating compares favourably with other well-known Flesound Acoustic Tiles. Sound waves pass through the concealed slots and are dissipated in the fibreglass backing built into Mural Tile 67.

The seismigrid suspension system — another Fletcher Insulation development — is ideal for use with a Mural Tile 67 ceiling. This is a two-way concealed suspension grid which features a "seismigrid" clip, self-locking in the event of earthquake movement.

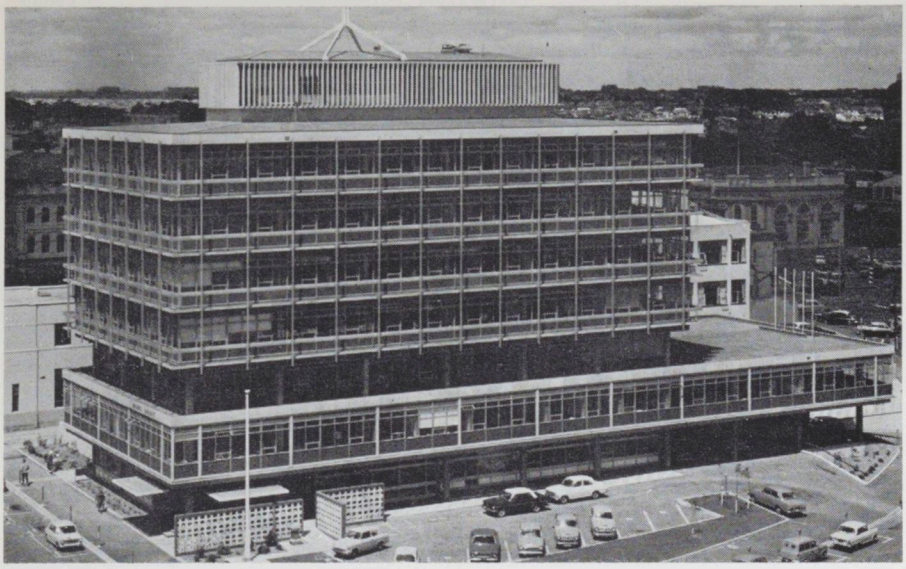
PLYCOPYNE FOR A.D. 2117

A SAMPLE of Plycopyne particle board was among some 50 articles (representative of this day and age in New Zealand) which were sealed in a time capsule at the official opening of the Bank of New South Wales' new Queen Street, Auckland, building. Photograph shows the Bank's Auckland Manager, James Cameron, assisted by a Bank hostess, Mrs. J. Chapman, packing the capsule.

After the stainless steel capsule was packed the contents were then subjected to fumigation and drying with appropriate gases and then filled with argon — an inert gas. At the official opening ceremony of the Bank's new building, the Prime Minister sealed the capsule, which will be opened on 8 April in the year 2117, 150 years hence when the Bank will commemorate its tri-centenary.

Among the items included were a set each of the old coins and of the new decimal currency coins; a greenstone Maori tiki; a recording of a Maori chant music and a "pop" record by the Beatles; a copy of sports rule book; a Rugby football; a cricket ball; a racehorse shoe; a copy of the 1966 budget; a piece of Kauri gum; a recording of mid-day traffic sounds in Auckland City and the 12.30 p.m. N.Z.B.C. news. Copies of several newspapers were also included as well as samples of plastic and woollen materials, a current airways timetable and several Bank publications and photographs.

Plycopyne was chosen as being a building material appropriate to this age. Plycopyne was the first particle board made in New Zealand and it is only nine years ago that it appeared.



FLETCHER CONSTRUCTION BUILDINGS IN THE SOUTH

THREE Fletcher Construction contracts were included in the review of recent Otago and Southland architecture in conjunction with the annual conference of the New Zealand Institute of Architects, which this year was held at Queenstown. The buildings were the Dunedin Hospital Clinical Services Block, Fletcher Merchants' Building Materials Supermarket in Dunedin and Menzies Building in Invercargill.

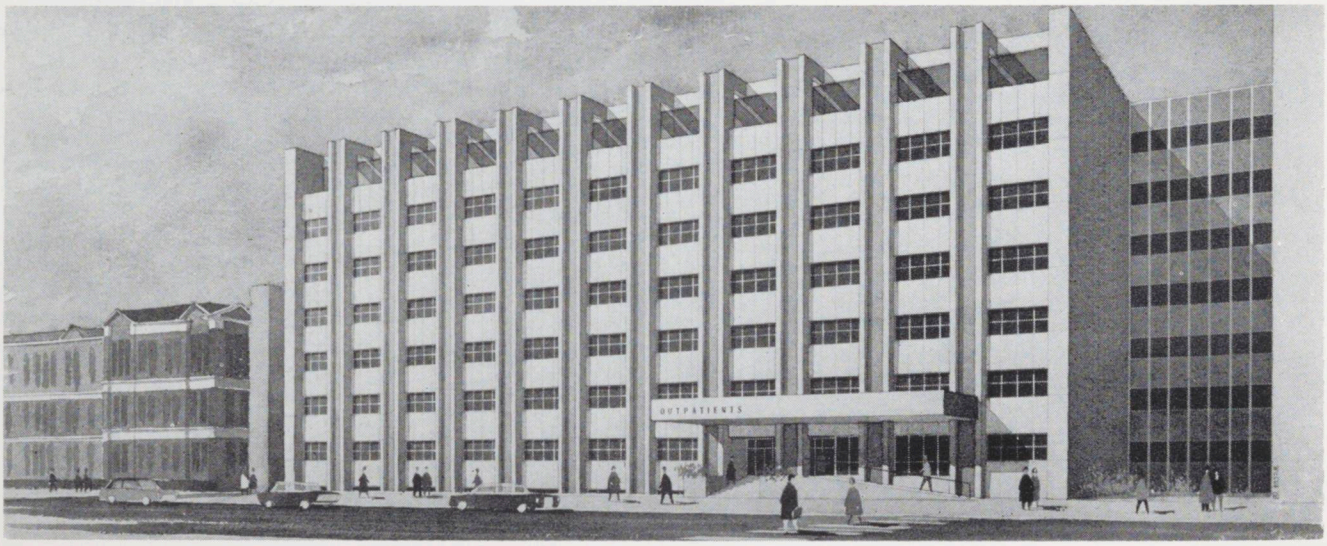
The Fletcher Merchants' Building Materials Supermarket provides a service to builders never before attempted on such a large scale in New Zealand. The builder can drive through from the Parry Street end and all timber, wallboards, mouldings and hardware are fed on as he drives down the 300ft. length-31ft. wide causeway within the 140ft. span building, to drive out again into Anzac Avenue.

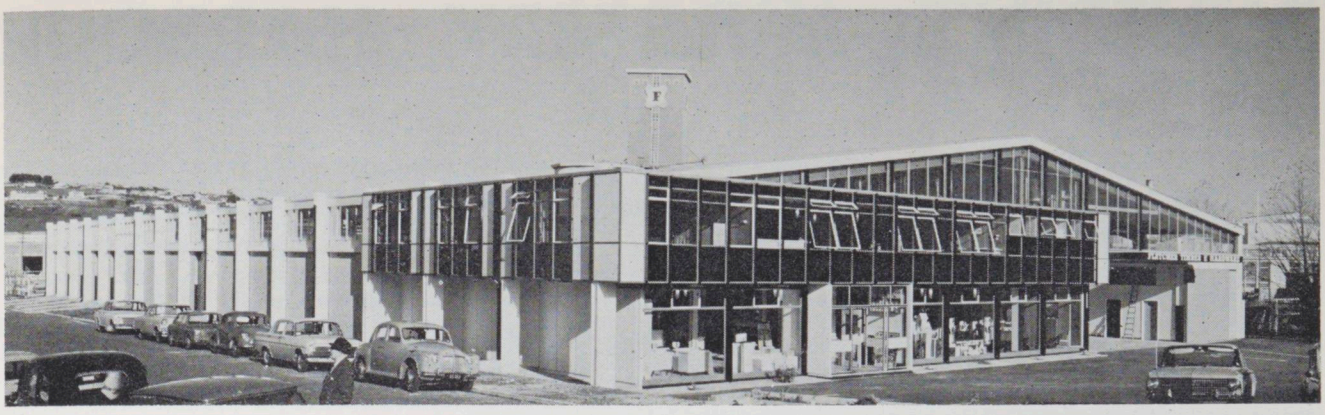
The administration area and showroom are housed on the Anzac Avenue frontage on two floors within a glazed box protected from the direct rays of the sun by vertical steel louvres.

The construction consists of steel portal frames with tilt-up reinforced concrete wall slabs welded to columns. The external face finish was gained by a retarder being spread over the panel and brushed clean to expose the aggregate. Metal windows give high lighting and the long run steel roof has P.V.C. sheet top lighting.

Architects were Miller, White and Dunn; Structural Engineers, J. R. G. Hanlon; and Electrical Engineer, S. C. Seear. Fletcher Construction's Contracts Manager was G. Middlemass and Foreman, H. Mullen.

Menzies Building, which houses Government departments, is a reinforced concrete structure containing a gross floor area of 73,600 sq. ft. with floor slabs extending beyond window walls to serve the dual purpose of protection from sun and weather, and to provide adequate safe conditions for window cleaning. The building is clad with aluminium window framing and fibreglass





Menzies Building, Invercargill (left) and a perspective of the Dunedin Hospital Clinical Services Block (below). On this page an exterior view and two interior views of Fletcher Merchants' Builders' Supermarket in Dunedin.

spandrels. The penthouse, to which a v.h.f. radio mast is mounted, contains lift overrun and machinery as well as oil/gas-fired boiler installation. The whole building is clad with aluminium window framing and fibreglass spandrels. The building was named after James A. R. Menzies, first Superintendent of Southland.

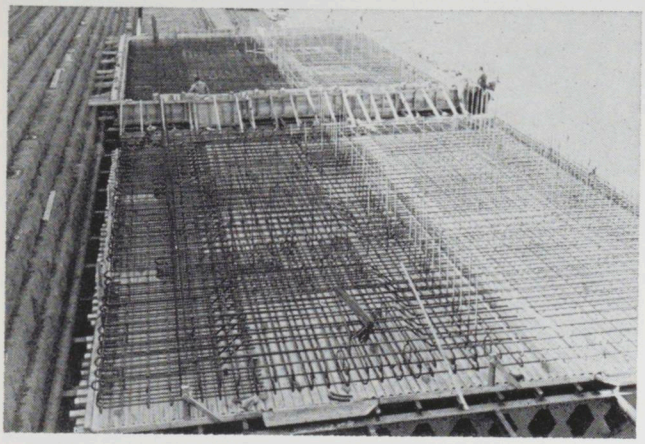
Architects are the Ministry of Works, Dunedin (Government Architect, F. G. Sheppard; District Architect, W. A. Garth; Resident Architect, J. H. Barnes; Clerk of Works, J. Holt); Fletcher Construction's Contract Supervisor was J. Mulholland and General Foreman, D. Proud.

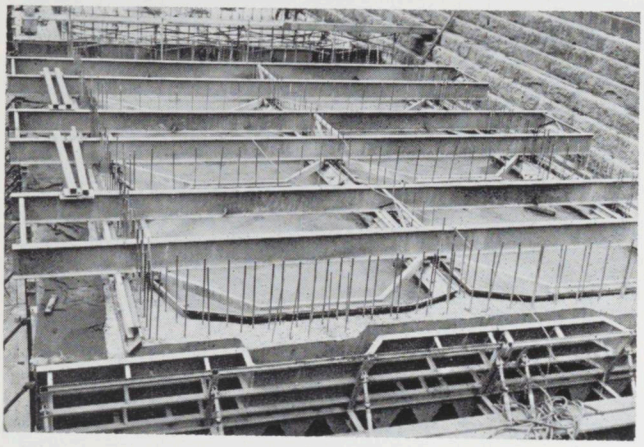
The Dunedin Hospital Clinical Services Block is the first stage of a major rebuilding programme for this hospital. The building, which is designed to bring together the casualty department and admissions, all outpatient clinics, X-ray, clinical laboratories and operating and central service departments, has a gross total floor area of approximately 150,000 sq. ft. It is an eight-storey reinforced concrete structure with precast concrete external facings and good quality low maintenance internal construction and finishes.

The main contract is due for completion early in 1968 and the new clinics and departments will be progressively occupied by the hospital over a period of several months.

Architects are Stephenson and Turner, and Structural Engineers, Rankine and Hill. Fletcher Construction's Contracts Manager is G. Middlemass, Project Manager is M. McKinnon and Foreman is C. Garrett.

DUNEDIN'S MULBERRY HARBOUR





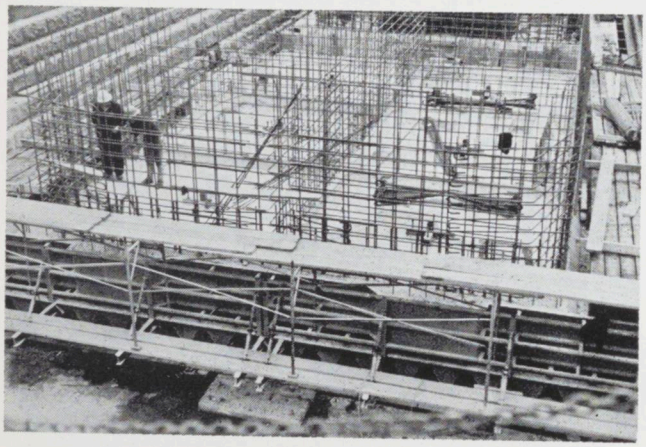
DUNEDIN'S new export wharf at Port Chalmers is the first construction of its kind in New Zealand. The principle behind it is similar to that used in the building of the Mulberry Harbours for the Allied invasion of Europe in World War II.

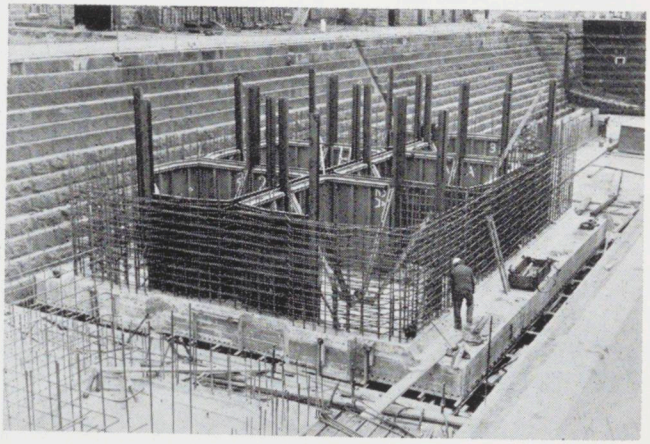
The Dunedin contract calls for the building of 28 prefabricated caissons. These are being partly constructed in the Otago Harbour Board's dry dock and then floated out to another site for completion. They will eventually be sunk on a prepared base in the harbour basin to form a wharf nearly 1500 ft. long and provide two deep water berths and a transit shed. The whole contract will take about two and a half years to complete.

Fletcher Steel was awarded the subcontract for the supply of 2000 tons of fabricated reinforcing steel. Each caisson contains 57 tons of steel and measures 51ft. square by 40ft. high. The total weight of a caisson when floated out of the dry dock (see photographs) is 600 tons. It draws 13ft. of water, and at this stage still has to be extended a further 24ft. in height.

Mulberry Harbours were synthetic harbours constructed during World War II at the Humber, Harwick, the Wash and the Medbury to be used in "Operation Overlord" — the invasion of Normandy. These synthetic harbours consisted of flat-bottomed barges or caissons made of concrete and these structures could be added to, according to the depth in which they were to function. When empty of water they floated and thus could be towed to their destination. On arrival the seacock was opened and they settled down on the sea bottom. Subsequently they were gradually filled with sand. These structures ranged in size from 50ft. x 40ft. x 20ft. to 120ft. x 80ft. x 40ft.

By this means a torpedo and weather-proof harbour, much like an atoll, was created in open sea, with regular pens for the destroyers and submarines and alighting platforms for aeroplanes.



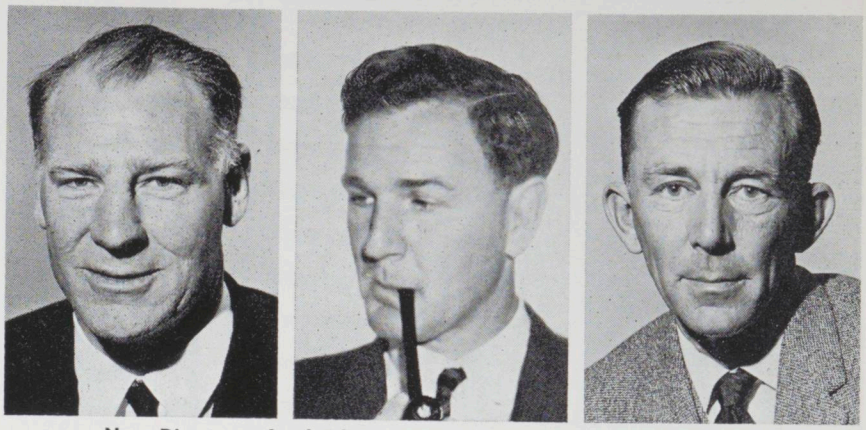


Fletcher Group Reorganisation

IN April a reorganisation of companies in the Fletcher Group was carried out with a view to increased efficiency and economies in operating costs. As a result of this reorganisation, all the timber interests of the Group — from logging to the processing of wood products have been made the responsibility of Fletcher Timber; all manufacturing activities (except wood products) have become the responsibility of Fletcher Industries; and all builders' supplies merchandising activities have been coordinated within Fletcher Merchants. There has been little or no change in the activities of Fletcher Construction, Fletcher Steel and Fletcher Trust.

In addition an Executive Committee has been established to coordinate all activities of the Group. Membership of the Executive Committee consists of J. C. Fletcher (Chairman), W. A. Bourke, A. W. Craig, J. J. Craig, J. S. Fletcher, K. G. Fraser, H. F. Molony and J. S. Watt. They are known as Group Directors.

Consequent on the reorganisation of subsidiary companies, there have been changes in the boards of the main subsidiaries, but the list of directors remains unchanged except for three new appointments.

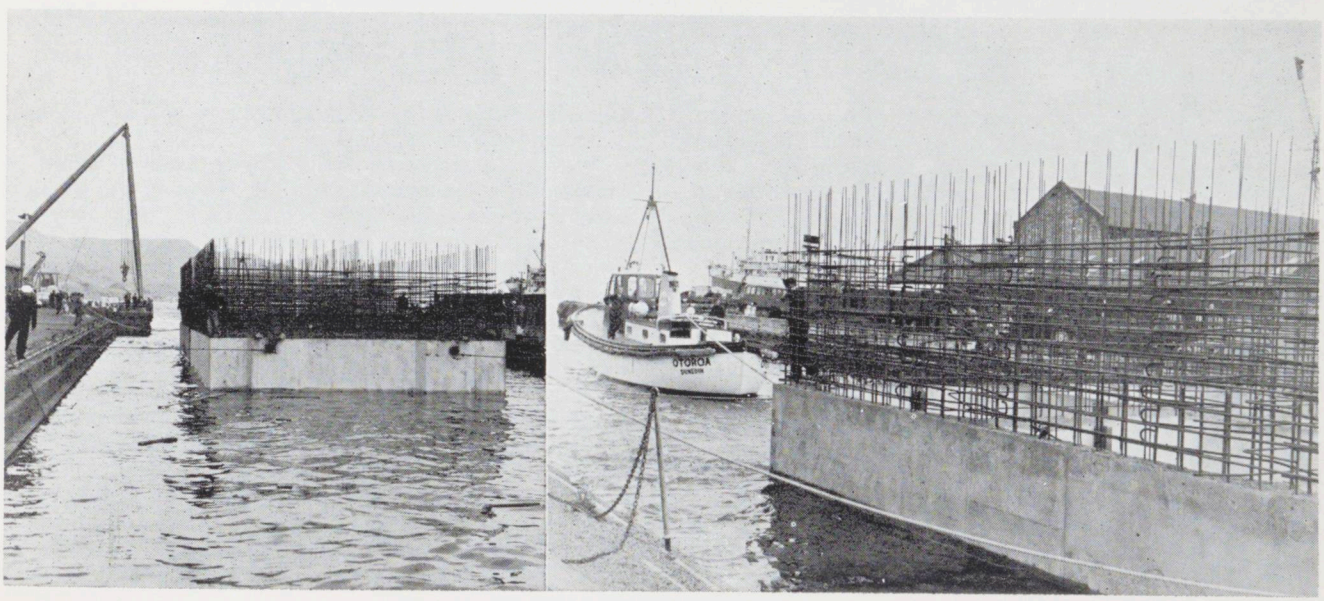


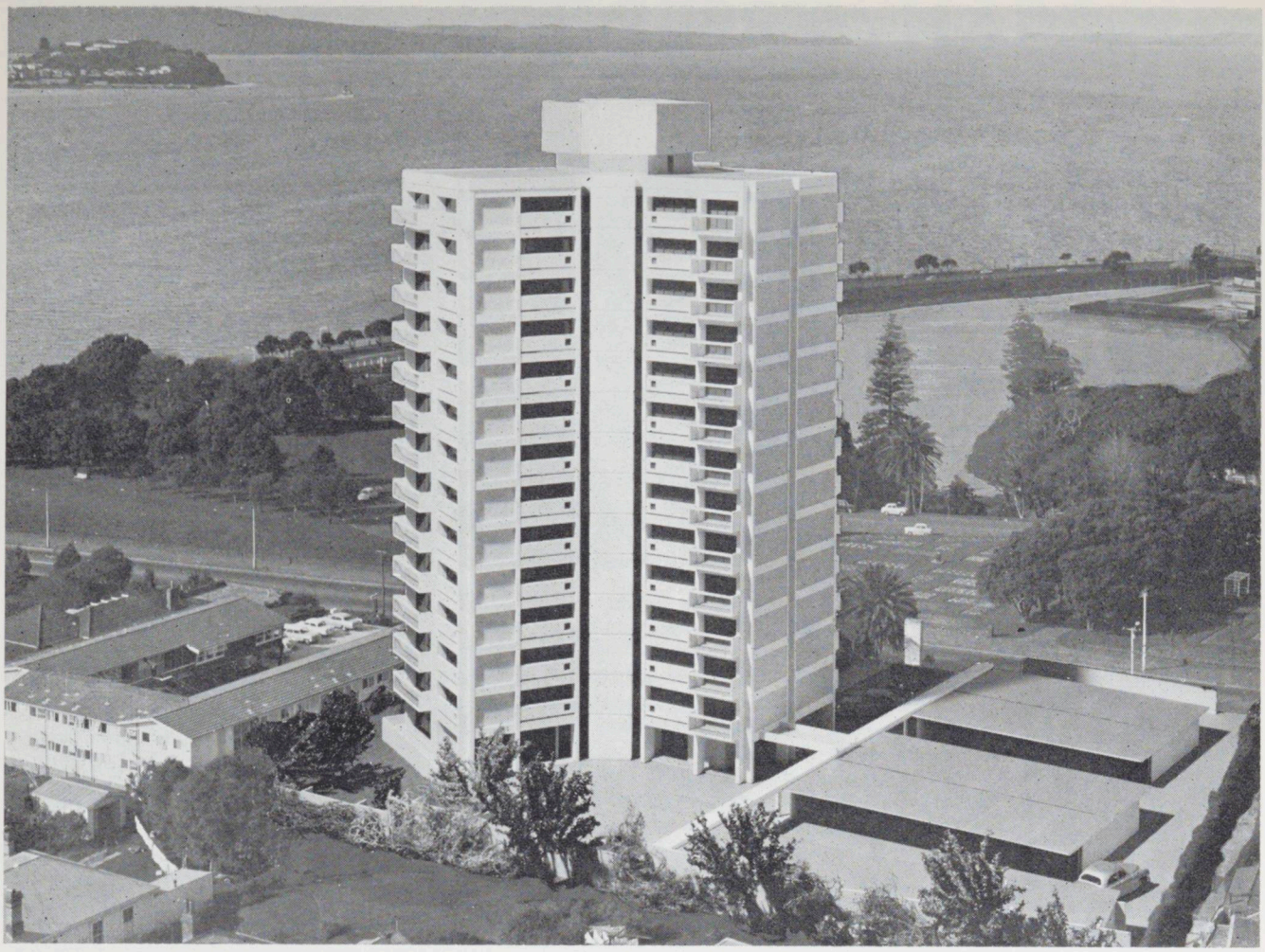
New Directors of subsidiaries: J. G. Smith, C. W. Hall, T. W. H. Hobbs.

J. G. Smith, Manager of the Civil Engineering Division, has been appointed to the board of Fletcher Construction; C. W. Hall, Chief Engineer of the Design and Engineering Division of Fletcher Group Services, joins that board; and T. W. H. Hobbs, Secretary of Fletcher Trust, becomes Executive Director.

J. H. Churton, a Director and General Manager of Fletcher Trust, becomes Managing Director, and L. Smith has been appointed Secretary.

In the reorganisation of Fletcher Industries, two general managers have been appointed. They are G. C. McKay (Northern Division), formerly Production Controller, and A. J. D. Robb (Southern Division), formerly Manager of Fletcher Industries' linseed division.





HIGH RISE APARTMENTS FOR OUTSTANDING PARNELL SITE

DESIGNING has been completed and the site cleared for the building of a 14-storey block of individual apartments in Parnell opposite the Rose Gardens. This is a Fletcher Trust project. Designing is the responsibility of Fletcher Group Services (Architect, H. R. Phillips), and building will be carried out by Fletcher Construction.

The block will consist of thirty-three 2-bedroom apartments, three on each floor from the second to the twelfth floor; six 1-bedroom apartments, all on the first floor, and an entrance lobby and resident caretaker's flat on the ground floor. There will be at least one large penthouse.

All the apartments will have delightful views, either across the Parnell Rose Gardens, Judges Bay and the Parnell Baths to the waterfront drive; across the harbour to the islands of the Gulf, or towards the Museum and the Domain Gardens, across the city to the Waitakeres in the distance. The site is a mile from the centre of the city and only minutes away from the popular Eastern beaches — Mission Bay, Kohimarama and St. Heliers. There are shops within walking distance and a bus passes the door.

Placing an accent on the 'outdoor mode of living' is evidenced not only in the over-all design of the building which is Y-shaped to allow all the rooms in each apartment to catch the sun, but also in the balconies from all living rooms and some bedrooms. The grounds will be landscaped and planted with trees, shrubs, flower beds and lawns.

Spaciousness in the apartments has been guaranteed with each wing of the building containing over 1300 sq. ft. and penthouses and sub-penthouses from 2,000 sq. ft. to 4,000 sq. ft. in area. The floor layout in all apartments is such that only service rooms are adjacent to neighbouring units or public circulation areas. Solid concrete walls, together with thick concrete floors, will completely eliminate transference of sound between apartments.

The kitchens in all apartments are well-planned with ample storage space, stainless steel sinks, waste disposal

units and eye-level ovens. The floors will be vinyl-covered, ceilings gloss-painted and walls tiled to door height. In the two-bedroom apartments the kitchens will have natural timber finishes, they will also have two bathrooms. In the main bathroom there will be ample space for a washing machine and drier.

The construction of the building will be of reinforced concrete frame, vinyl-sprayed and with brick or glass infill panels. Parking accommodation is provided for 43 cars and there is additional parking space for visitors' cars. The apartments will be individually owned through share-holding in a company to be formed to acquire the whole property.

A contest was held to choose a name for the apartments and from a very large entry, the name Kilbryde was chosen. Kilbryde was the name of Sir John Logan Campbell's residence nearby.

Sir John Logan Campbell named the house after the ancestral home in Scotland. Kilbryde Castle was built by Sir John de Graham in 1460 and acquired by Sir James Campbell in 1669.

Sir John, who was born in Edinburgh and graduated a doctor of medicine, came to New Zealand in 1840 and bought Brown's Island, where he lived for a period before moving to Auckland. A former home is preserved on One Tree Hill where he was buried.

Besides being a successful businessman, he was Mayor of Auckland and a Member of Parliament. His benefactions to Auckland amounted to some £400,000. He died in 1912.

The Campbells took up residence at Kilbryde in 1881. The house was on the seaward side of the present tea kiosk, which was the home of the Gillies family. In 1915 the Gillies Estate and Kilbryde were combined to form Parnell Park. Earlier Kilbryde had been bought by the Harbour Board in order to obtain the riparian rights. The Kilbryde homestead was used as a hospital in the 1918 influenza epidemic and was pulled down in 1920.

The house had five bedrooms, drawing room, dining room, music room, study, sewing room and hall. There were also two servants' bedrooms and besides the kitchen and scullery, there was a housemaid's pantry as well as bathrooms, lumber room and other storerooms and workroom. There was also a stable which housed the Brougham.

Photographs show (page 18) a model of Kilbryde Apartments superimposed on a photograph of the site and (page 19) an Auckland Public Library photograph showing Sir John Logan Campbell and Lady Campbell on the lawn in front of the old Kilbryde.

KILBRYDE

Two photographs, by courtesy of the Sir John Logan Campbell Trust, showing the drawing room of Kilbryde. The Editor gratefully acknowledges the assistance given by the Sir John Logan Campbell Trust, the Auckland Museum and the Auckland Public Library.

An aerial view of Fletcher Timber's new exotic timber mill with Taupo and the lake in the background.

MINISTER OF FORESTS OPENS TAUPO MILL

FLETCHER Timber's new million-dollar mill at Taupo was officially opened earlier this year by the Minister of Forests, the Hon. Duncan MacIntyre.

"The erection of this new mill," the Minister said, "is not only another step in Fletcher's own industry but a step forward in New Zealand into a greater realisation that our trees are one of our main products. The mill is part of a remarkable industrial development which has occurred in this century. It is interesting to cast our minds back and to realise that it was the Lands Department which originally made tests here. In 1898 the Lands Department cultivated a 50-acre block and planted many varieties of grass and some 50 varieties of trees. The trees won. In the short space of the last 30 years — in fact of the past 10 years — the forestry industry has been developed and expanded far beyond the dreams of most of us.

"Today we find many types of products being made — papers, cardboards, newsprint and other such things. Now, not only do we produce these items in quantities sufficient to meet our own needs but we also have a surplus which is earning very considerable overseas funds for us.

"The industry is also developing new processes and I know that Fletchers are in the forefront of this search for new processes — new things we can do with wood, and I find that each month something new is being looked at and something new is on the market, all coming from these trees which were so well planted years ago."

The Minister then referred to the pioneering work carried out by the Waipa Mill, run by the State, and said the new Taupo mill had so benefited from that experience that it was able to claim to be "the most efficient and modern mill in the Southern Hemisphere."

He then referred to the very serious effects of erosion and praised the efforts in recent years of millers to combat this by following conservation principles.

One of the ways in which erosion could be curbed was by the planting of more trees on farms. "The farmers will in time realise that in their steeper gulleys which will erode if animals run on them, they actually have a very worthwhile asset if they plant trees on them and look after them," he said.

"This concept of the farmer realising that he has a very valuable crop in trees is something that we all have to foster. I look forward to the day when a farmer will send

The Managing Director of Fletcher Holdings (J. C. Fletcher) welcomes the guests at the official function. Seated from left are Mrs. Besley; the Chairman of Taupo County Council (H. M. Besley); Mrs. Fletcher; the Minister of Forests; and Mrs. MacIntyre.

in his annual crop of trees to this mill just as he sends off his crop of lambs to the freezing works or sends off his butter to the dairy factory. This is something which is with us now in some cases but is something which must be expanded much more."

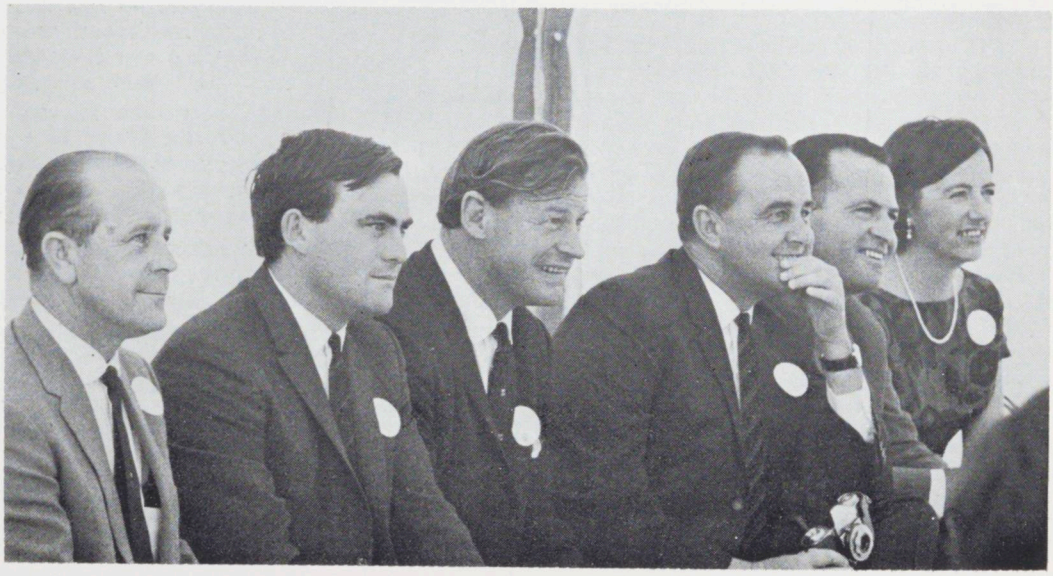
"We have, in New Zealand, to increase the efficiency of the utilisation of our timber; we have a requirement now of planting up to 30,000 acres per year — at least a million extra acres planted in trees by the year 2000.

"You here at Fletchers are doing all you can, and you —with the cutting rights that you have in this district, together with the fact that you are loggers, millers, processors of timber and timber merchants, are a tremendous factor in the growth of New Zealand. This mill is a future step towards your expansion, an expansion which will benefit the timber industry, the Taupo area and New Zealand generally."

The other guest speaker at the function, the Chairman of the Taupo County Council (H. M. Besley), after welcoming Fletchers to the district, praised the full utilisation by the mill of the timber.

"All that is left after the job here is a little sawdust and a little bark. And that is all disposed of. It does not create a problem, and we from a council's viewpoint are very grateful that there are not accruing problems that can occur from sawdust getting into streams."

Mr. Besley said that the mill's value to the district was very great. The mill provided employment, which was in itself quite a help to the district. Also it was economically producing something that the district could grow economically.



Overseas guests—from left: C. C. McPhail, Associate Director, Harrisons & Crosfield (A.N.Z.) Ltd.; R. Home, Timber Manager, Harrisons & Crosfield; J. B. S. Hutchinson, Marketing Manager, Fletcher Timber; R. V. Cadden, Director, G. D. Cadden Pty Ltd., Sydney; P. W. R. Darnoc, Managing Director, Weyerhaeuser (Aust.) Pty. Ltd., and Mrs Darnoc.

"I think," he said, "when you can relate those two in industry, particularly an exportable one, it means a lot to New Zealand."

Mr. Besley felt that there was a growing awareness for a need for a balance between tree farming and ordinary farming. This, he said, could materially assist in water run-off and lake conservation which were very real problems in the area. "We regard tree farming as complementary to our lake shore reserve scheme. We feel that the two can be tied in together and we feel that tree farming could be a profitable partner to this proposed scheme.

"Industry is known to attract industry and there will be no exception here. There are already moves for other industries to be established and our county welcomes these proposals — we shall do all we can to help," he concluded.

The Managing Director of Fletcher Holdings (J. C. Fletcher), after welcoming the guests, gave some background facts about the Tauhara forest project, from which logs for the mill are being drawn. Plantings were first started in this forest in 1926, with the main plantings taking place between 1928 and 1935. These plantings were carried out under the auspices of two Australian companies — Afforestation Pty. Ltd. and Matured Pine Trees Ltd. Fletchers' first association with Tauhara arose through the purchase in 1960 of the interest of the Tuck Brothers who held long-term cutting rights. In 1963 Fletchers acquired the freehold of the forest, an area of 25,100 acres, of which 21,000 acres were planted. Currently the Company was attempting to purchase an additional 5,000 acres of adjoining land from the Maori owners. The basis of purchase of it, as approved by the Court, was a partnership that involved joint participation rights to the future pine crop that would be planted on the area.

"The mill we are to open today has been designed by our own engineers with assistance from a number of local and overseas consultants," he said. "The mill was built and equipment installed by our own construction company. However, I would like to acknowledge at this time the debt we and all the exotic timber millers owe to the invaluable pioneering work of the Forest Service, particularly in exotic mill design that originated with the first Waipa prototype."

"The mill has been specifically designed for better customer service, especially through its ability to provide longer lengths and fractional sizes. Our company is confident that the increasing maturity and sophistication of the exotic milling industry will accelerate the trend towards a wider acceptance of Radiata for all building purposes and especially for exterior joinery and other class applications. However, we realise there is still a need for wider promotion of the virtues of Radiata timber as produced from today's sawmills."

Following the official opening ceremony there was an inspection of the mill after which Fletchers entertained their guests at a luncheon. The guests included New Zealand and Australian timber interests, the M.P. for the district, Mrs. Rhona Stevenson, and local body and State service officials. Among the guests was V. T. Fail, who was the first forest manager responsible for the planting of pine in the area.

THE Taupo mill was designed with these basic concepts in mind: maximum utilisation of all the wood in the log; maximum grade recovery from the sawn timber produced; maximum versatility in production patterns and highest standards of finish and presentation. To this end the following equipment was incorporated: a precise length log cutting electric chainsaw, mechanical debarker, bandsaw log headrig, vertical resaw, horizontal resaw and recutting resaw, multisaw edger, automatic end-trimmer and a waste chipper.

Logs are delivered to the mill by truck and unloading and stock piling is carried out by a travelling gantry crane. Logs are then pulled singly into a bullchain trough by one of two winches and conveyed to the cut-off saw. This unit is a chainsaw in contrast to the more usual circular cut-off saw and the main advantage of this is that precise log length can be achieved.

The next stage is the debarking process carried out by a Nicholson mechanical debarker with a capacity of up to 54in diameter. All operations at the debarker are synchronised by an operator perched above the machine with push button controls.

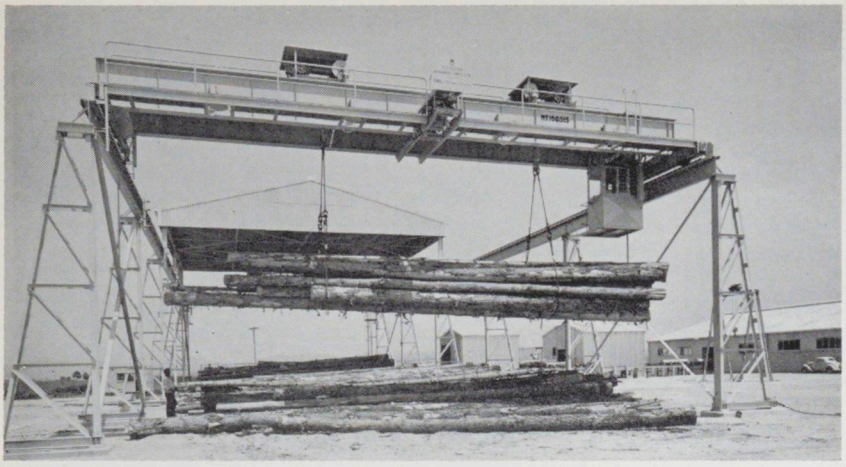
Between the cut-off saw and the debarker is a surge area for holding a limited stock of logs and a similar surge area is provided between the debarker and the first saw in the mill — the bandsaw log headrig and log carriage. The headrig has 8ft. diameter wheels and is of American manufacture. It runs a 14in. wide x 13 gauge saw 48 feet long. The riderless log carriage is locally made with the Canadian setworks.

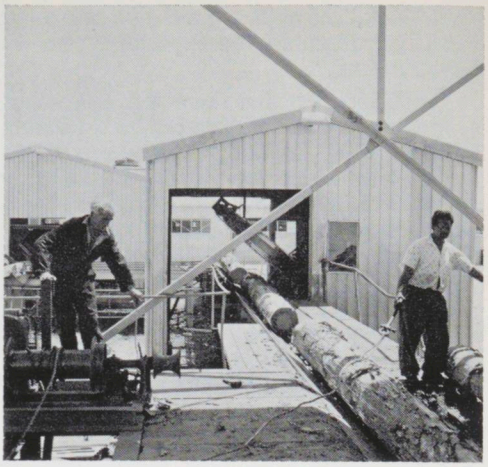
The log carriage delivers on to the main rollcase which runs the full length of the mill and the "turner-down" ensures that each piece of log produced is delivered to its appropriate destination.

Following the cut made by the horizontal saw the material moves by rollcase to the drop sorter where there are alternative means of disposal.

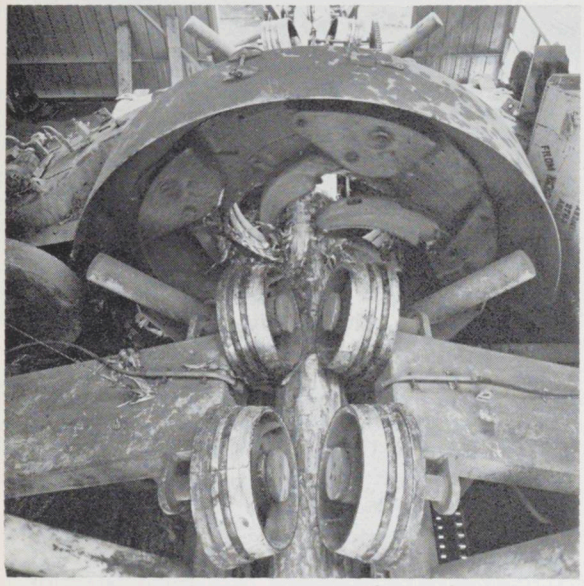
One choice of destination following the log headrig is the vertical resaw. This bandsaw has a 12in wide blade in a vertical position running on 7ft diameter wheels and is the main production machine in the mill. It receives the largest portion of each log and by a combination of centre-sawing and a dimension sawing process produces the framing and boards appropriate to the grade of timber in the log and the sizes brought.

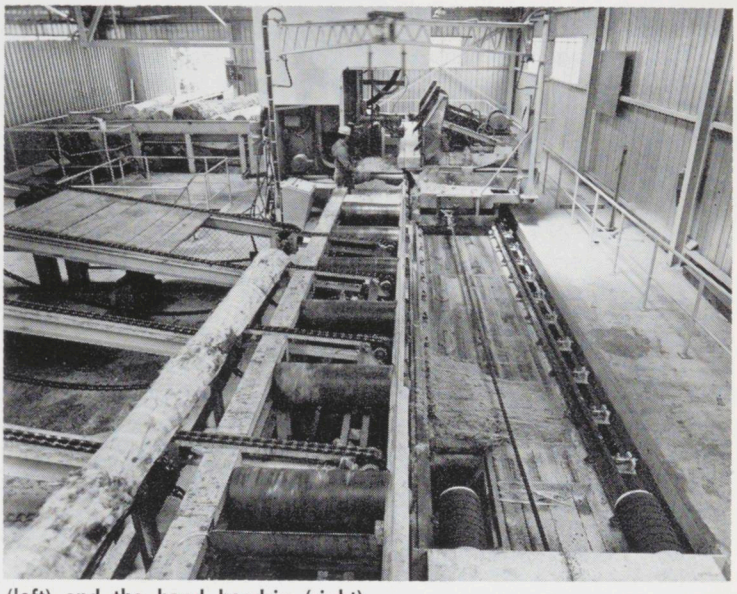
The second machine supplied direct from the log headrig is the edger. This consists of two banks of inserted tooth circular saws — one bank being fixed and the other bank movable to give a variable distance between the banks. The edger delivers direct to the marking table which runs the full width of the mill and receives timber from the headrig, vertical resaw and the edger. Two qualified graders or markers inspect each piece as it passes and decide if further manufacture is needed. If so those pieces are pulled out a short distance and thereby actuate a swede — a timber-pulling device which delivers them on to a conveyor to a further vertical resaw. On the marking table all timber going further down the table has passed the markers as being manufactured to the required standards and is then automatically trimmed to exact multiples by a multi-saw overhead trimmer. It is then dunked in an anti-sap-stain chemical bath and moves



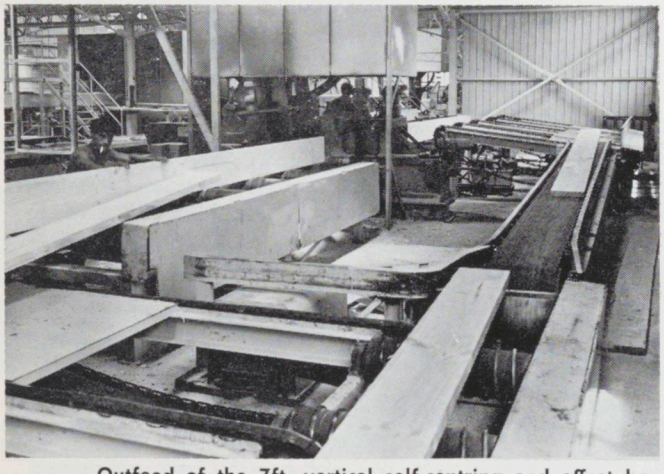


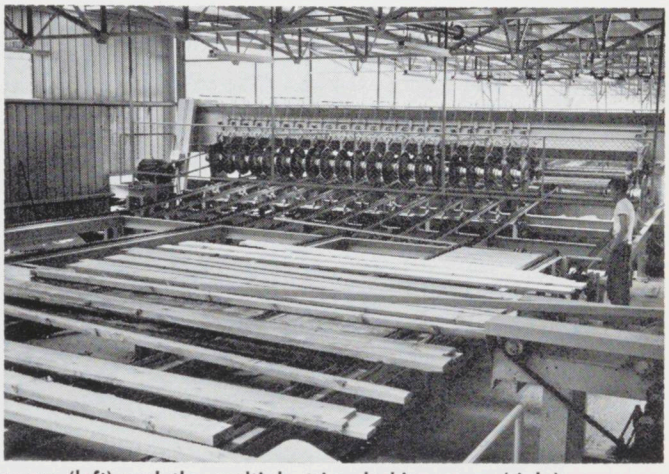
The log gantry (left) and the log chain and bobbing saw.



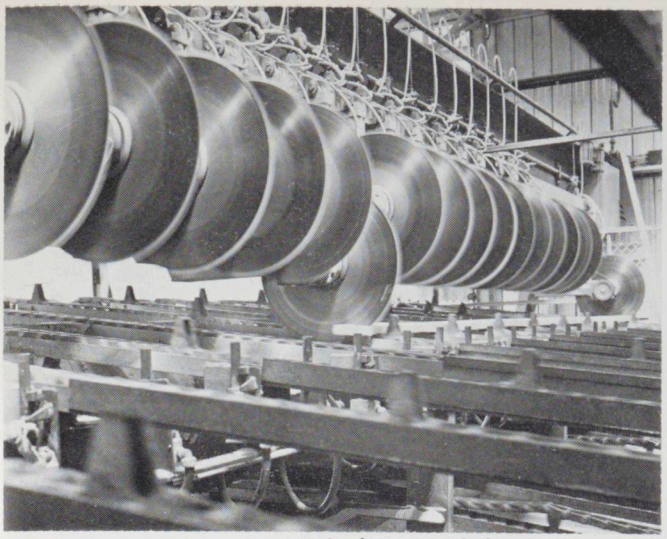


The mechanical debarker (left) and the band headrig (right).

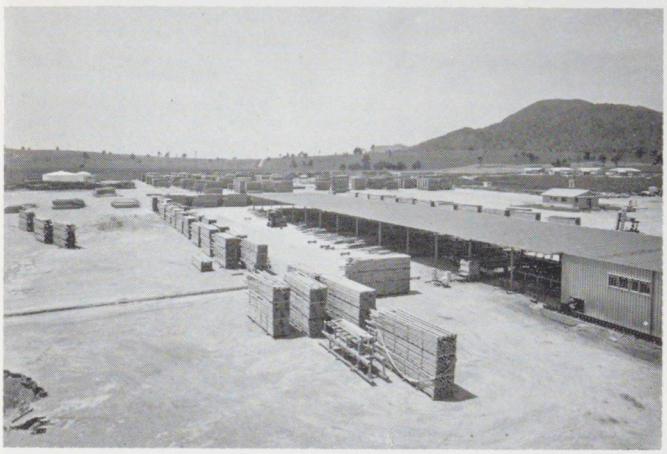




Outfeed of the 7ft. vertical self-centring and offset band resaw (left) and the multiple trim docking saws (right).



A close up of the docking saws (left) and the sorting tables (right).



The yard with the sorting tables in background (left) and loading chips from the hopper.

inspecting the mill — from left: Mrs Poole; Mrs MacIntyre; A. L. Poole, Director-General of Forests; Hon. Duncan MacIntyre, Minister of Forests; A. T. Jewell, Managing Director, Fletcher Timber; L. R. Grace, Member of Taupo Council Council, K. C. A. Carter, President of the New Zealand Sawmillers' Federation; J. T. Currie, Director, N.Z. Forest Products Limited.

on to the sorting table where it is sorted into packets, each containing pieces of the same size and grade.

While this is being done, waste is being directed towards its final destination and slabs and other material which is potentially chippable is diverted on to the "slash deck" which moves sidewards on to the chipper infeed conveyor. The chips are produced as close as possible to a uniform size, suitable for pulp manufacture. They then pass over a chip screen where the "overs" and "unders" are sorted out. The "overs" go back to the chipper for further chipping and the "unders" are rejected. The good chips are carried outside the mill and are stored in large chip bins pending delivery to the pulp mills. This is one of the first sawmills to install a chipper.

The equipment in the mill incorporates the latest designs from overseas and items of plant have been purchased from Canada, U.S.A., United Kingdom, Japan and Australia, as well as New Zealand.

Table centre-piece (above) for the luncheon which followed the opening was a team of horses pulling a log — all sculptured in butter. Below left: Ngaire Faulkner, daughter of the mill foreman, D. Faulkner, presents the Minister's wife with a bouquet, while (right) Wendy Smith, daughter of T. B. Smith, the mill electrician, makes a presentation to Mrs. Besley, wife of the County Chairman.

BECAUSE FLETCHER PINE COMBINES ALL THESE ADVANTAGES

It is milled from the finest logs — Saw logs for Fletcher Pine come from Tauhara Forest, Taupo, on the central pumice plateau which is ideal for growing top quality timber.

It is milled in the most up-to-date plant — Fletcher Timber's million-dollar mill at Taupo is the most up-to-date exotic bandsaw mill in New Zealand and bears comparison with any in the world. It is designed and equipped to give the most effective production of quality grades.

It is graded to meet all specifications — Whether required for building, joinery, furniture-making or other manufacture, there is a Fletcher Pine grade to suit.

All grades including top quality grades are readily available — Output, on a single shift, from Fletcher Timber's Taupo mill, is 80,000 super feet per day or 19 million super feet per year — thus Fletcher Pine in all grades is readily available.

FLETCHER timber

PRIVATE BAG, AUCKLAND

F1542

designed & built by Fletchers

New Zealand's most modern exotic sawmill — the £500,000 mill at Taupo — is an example of the design and build facilities of the Fletcher Group. The overall mill planning was the responsibility of Fletcher Timber, the detailed design of the equipment and the building was carried out by Fletcher Group Services and the mill was constructed by Fletcher Construction.

These design and build facilities of the Fletcher Organisation are available to millers outside the Group, not only in New Zealand, but in the Pacific Islands and South-East Asia.

The design and build services of the Fletcher Organisation may also be called upon for other industrial or commercial projects.

FURTHER INFORMATION ABOUT THE SERVICE MAY BE OBTAINED FROM THE CHIEF ENGINEER

FLETCHER
group services

Private Bag,
Auckland, New Zealand.

AK 3013