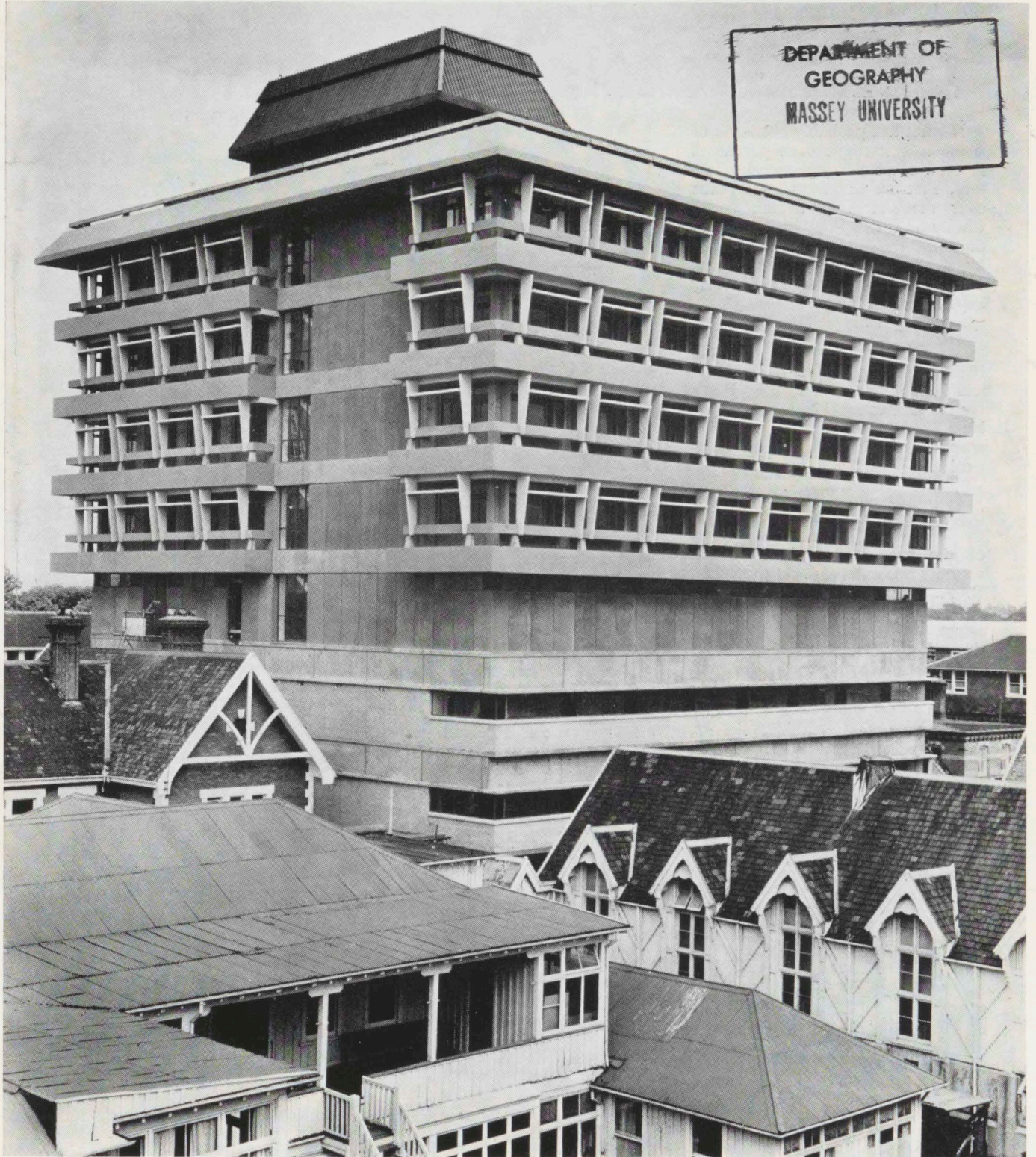
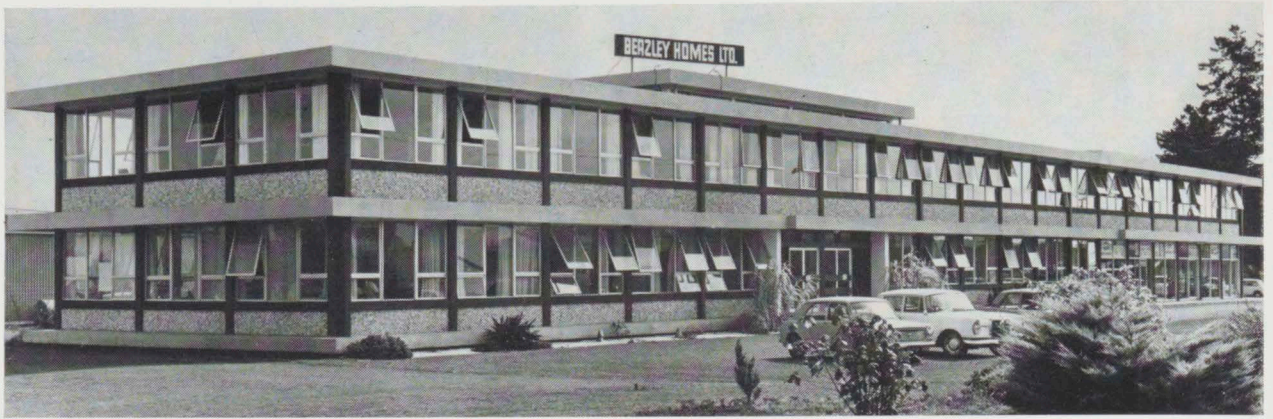


Summer 1973

arrowhead

HOUSE JOURNAL OF THE FLETCHER GROUP OF COMPANIES





BEAZLEYS JOIN FLETCHER GROUP

IN what has probably been one of the largest single cash purchases in New Zealand's commercial history, Fletcher Holdings have taken over the shares of a number of wholly and partly-owned companies that form the Beazley Group, owned by B. A. Beazley and his family. The agreement was signed in early September.

The acquisition has been made as at 31 March, 1973, and the Fletcher Group's 1973-74 accounts will include the profits of the Beazley operations for 12 months of the New Zealand operations and nine months of the Australian companies.

Although building homes has been a three generation affair with the Beazley family, the solid bones of the present organization were set only around 1954. At that time, B. A. Beazley at Mt. Maunganui and his father, F. Beazley at Tauranga, began to expand operations throughout the North Island. By 1961, they were in the South Island and a year later, the two merged to form a single company.

Now, the Beazley organisation probably accounts for close to nine per cent of single unit housing in New Zealand. It has over 90 franchise builders and agents in New



Top: The Beazley headquarters at Mt. Maunganui. Above: B. A. Beazley, H. F. Molony, Associate Director (Finance), and D. G. Sadler, Secretary, Fletcher Holdings, signing the sale and purchase agreement. Below: The offices of the associate company in Christchurch.

Zealand who work from Beazley plans and Beazley-supplied materials.

Using a computer system of specification writing and costing, Beazleys send out all pre-cut framing for houses as well as the costings to the last nail and can of primer paint. Like other builders at the moment, its franchise holders are under heavy pressure from new homebuilders and backlogs of one year (and even eighteen months in country districts) are not uncommon.

The organisation has engaged in substantial export housing projects, with the two most notable being Mt. Tom Price (Western Australia) and Bougainville. In Western Australia, against local competition, the organisation won a \$5.25 million contract to build 260 semi-executive houses in a desert-desolate mining area some 700 miles from Perth.





That was completed as also were 318 homes of more moderate standard in Bougainville for the copper mining company at a cost of \$2.75 million. Then there was a more than \$1 million contract to build 95 houses in New Caledonia.

Since then, Beazleys have pursued their South Pacific contacts and have established operations in Norfolk Island and New Caledonia. Other substantial contracts are currently under negotiation.

The best-known of the companies involved in the purchase is Beazley Homes Limited, the holding company that also controls the pre-cut and franchise operations at Mt. Maunganui. Then there is Barry Beazley Limited, the local construction company in Tauranga, Mt. Maunganui and Katikati, and Beazley Properties Limited, the land-owning segment of the group which handles the bulk of its developments.

Beazley buildings in Fiji (above), Brisbane (centre) and Noumea (below).



A further segment is Mount Timber and Hardware Company Limited, a full timber and hardware operation that is set up in the Beazley 30 acre complex at Mt. Maunganui. Ohiwa Forests Limited is a subsidiary in partnership with the Owens Group, in a 5500 acre mix of forestry and farming situated on the Whakatane side of Opotiki.

In Wellington, Paparangi Developments Limited holds 900 acres on the outskirts of Johnsonville.

In Auckland, Beazley Homes have their own display village at Mangere — an unadvertised facility that draws hundreds of visitors a week — and in May last year, Beazleys combined with PTY Homes Limited of Putaruru in a company that is to specialise in home building in Auckland. Called Waitemata Properties Limited, this is a 50 : 50 venture.

Another 50 : 50 venture has been in Christchurch, Merritt-Beazley Homes Limited, where the company has a good share of home building not only in the city but also in other South Island areas.

In Australia, the main company is Beazley Homes Proprietary Limited (Brisbane) and Beazleys have pursued a vigorous promotion campaign for its building style in Queensland. There are links (either definite or proposed) with other building-orientated groups in that state but the West Australian and New Guinea companies are in abeyance following the completion of the



Mt. Tom Price and Bougainville contracts some years ago.

The Beazley purchase has been a dramatic, full-scale return to the mass housing market by Fletchers. Most people above the age of 40 automatically associate the group with the big State housing schemes both before and after World War II.

At its peak, the Fletcher Residential Construction Company (started under another name in 1938 with a capital of £30,000) was building 1500 homes a year and employing between 800 and 1000 carpenters. It was operating in the four main centres as well as Levin, Foxton, and other areas.

The company specialised in State housing as well as other Government contracts — it built hundreds of houses for the Army at Waiouru for example.

During World War II, the housing side stopped abruptly and switched into defence building of all types. Techniques were developed then that antedated the factory-built housing now becoming generally common. At various factories, mainly in Wellington, Fletchers pre-cut, pre-nailed and pre-fabricated buildings that could rise at speed on their destined sites.

After the change in government in 1949, State housing contracts

were reduced in scale and, by 1955, Residential Construction had ceased as an operating company.

Over the last 10 years though, Fletchers have purchased minority shareholdings in a number of medium-sized building companies in Auckland, Hamilton, Napier, Wellington and Christchurch. All have been well established and enterprising builders.



A. L. Carpenter, Joint Managing Director of Beazley Homes, who has been appointed to the Fletcher Holdings Board of Management.

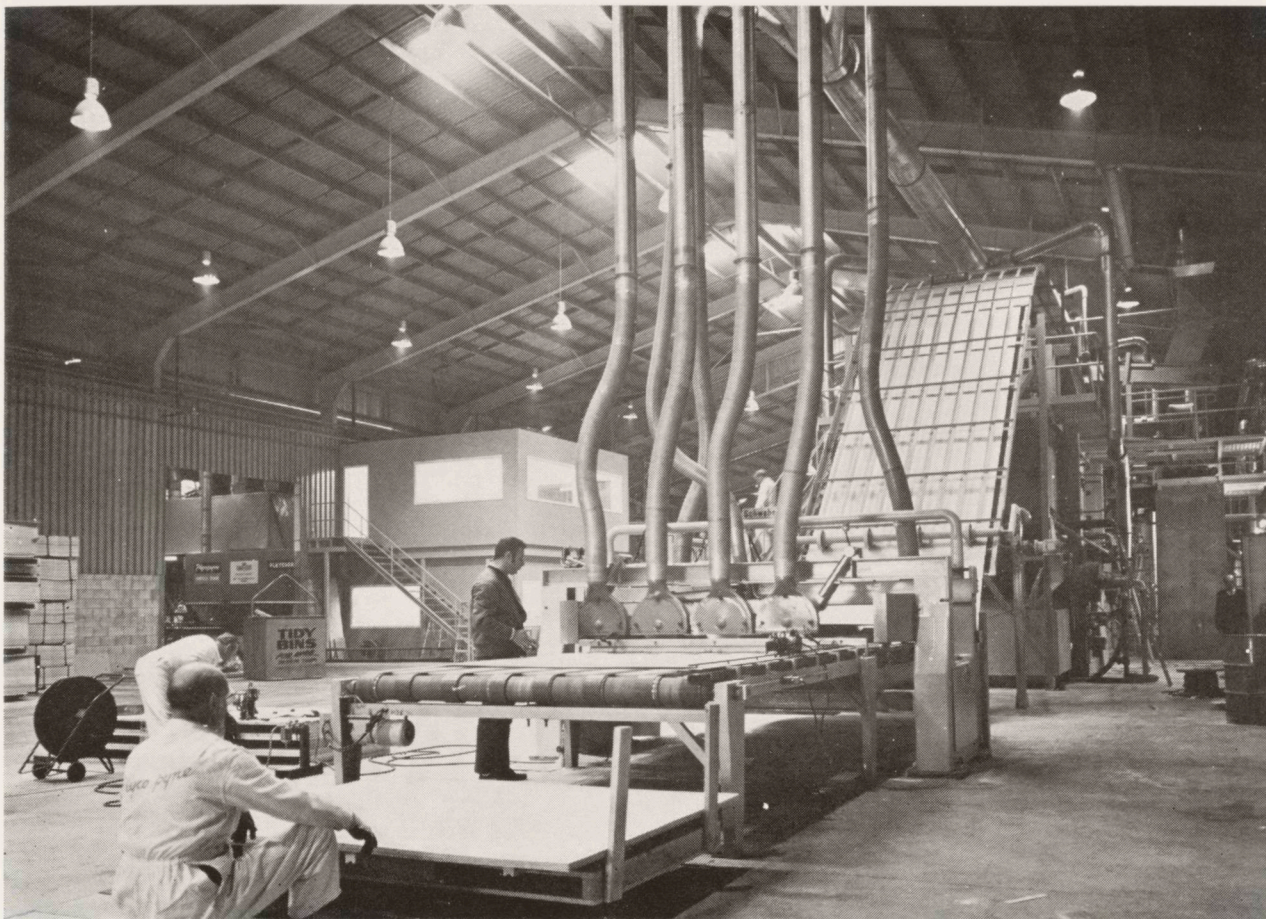
Some months before the Beazley purchase, the corporate planning section of Fletcher Holdings examined national trends in housing. It remarked that one of the main reasons why housing estimates for forthcoming years were so high above past levels was the change in the proportion of the population classified as heads of households. This is due to the post-war upsurge in births as persons born in those years reach ages in the 1970s when they form new households.

After discussing the effects of government policies on housing, migration levels, regional variations in building activity and the percentage of flat building (the latter appears to be levelling off now), the corporate planners gave their estimate of a possible annual level of activity over the next five years.

It was considered that house and flat completions would level out at a point slightly above 30,000 dwelling units a year. The five year annual level forecast:

	Houses	Flats	Total
Northern North Island	10,750	7,250	18,000
Southern North Island	4,750	2,500	7,250
South Island	4,500	2,250	6,750





Bisonboard being run under test. Below: A cabinet in the construction of which the new board was used for the backing and the door skins.

First in the Southern Hemisphere

BISONBOARD COMES ON STREAM

FLETCHER Timber's latest product, Bisonboard, is now on the market and finding a ready acceptance. Bisonboard is a new thin particle board (thicknesses one-tenth inch, one-eighth, three-sixteenths and quarter inch) and is produced at Taupo.

It can be used in a wide field of applications including wall and ceiling linings, furniture, joinery, door skins, sliding doors, cabinets and boxes.

The Bison Mende plant, on which it is produced in continuous sheet form, is the first to be installed in the Southern Hemisphere and only the 12th in the world.

It is capable of producing over 100 million square feet (on an eighth-inch basis) annually. This will more than take care of local demand and the plant thus has considerable export capacity. The main export markets will be the United States

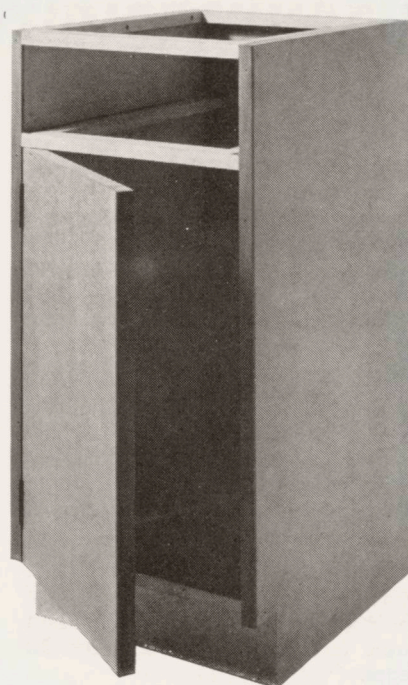
and Japan. Bisonboard is made in both countries but by a single company in each case and competitors are keen to secure their own supplies of Bisonboard.

As reported elsewhere in this issue, Fletchers propose to establish a second Bisonboard factory at Thames.

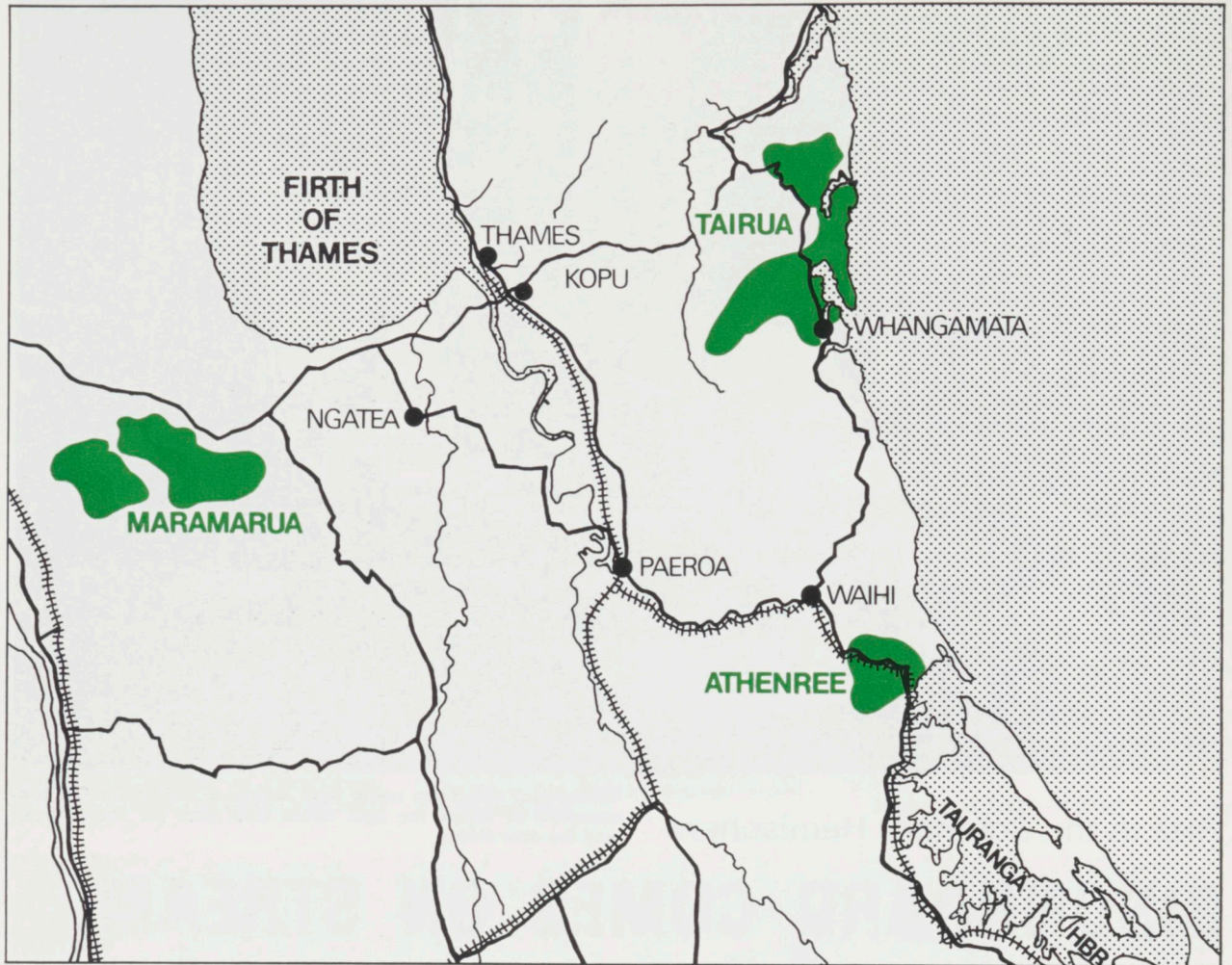
In addition, for the Taupo complex another plant to produce medium density particle board (used in cabinet-making) is on order from Bisonwerke and will be arriving from Germany next March.

With existing plant, geared to the production of high density flooring grade particle board, the Taupo mill will, by next September, be capable of producing 250 tons of particle board a day.

The extensions to particle board capacity at Taupo involve an investment of some \$7 million.



MILLIONS OF FEET OF TIMBER



ALTHOUGH Fletchers are engaged in a vigorous forest planting programme the benefit of this will only be fully felt towards the end of the century. Meanwhile the company has been facing an annual shortage of three million cubic feet of timber to meet the requirements of its market and had the prospect of increasing demand materially widening the gap in the years ahead.

This briefly explains the importance to the company of gaining the Tairua contract which gives the company cutting rights over State forests in Tairua, Athenree and Maramarua.

It is estimated that these, the last North Island uncommitted State forests, will provide 3.7 million cubic feet of logs annually for 20 years.

Initially Fletchers were interested in having the logs cut on contract by local sawmillers, but as a result of further Forest Service sales these small sawmills now have no surplus capacity. In the meantime equipment is being assessed for the sawmill which, together with a chipper, is expected to be in operation next year. The latter will use waste wood from the milling operations to provide chips for export to Japan through the existing chip loading facility at Mt. Maunganui. Chips may also be supplied to users in the Auckland area. Annual production of green chips is expected to be about 34,000 tons.

Another particle board plant will also be established. When this comes into production, chips will be diverted to it and the chip export trade to Japan will gradually diminish.

However, it is anticipated some two-thirds of the particle board production will be exported.

The total complex involves an investment of \$8 million and Fletcher Timber estimates it could, by spin-off industries as well as direct employment, add another 800 jobs to the region.

Fletchers have purchased an 800-acre farm at Kopu, south of Thames, and the processing complex will be erected there on a 50-acre site. The remainder of the farm will be utilised for a farm forestry project.

Fletchers aim to blend the complex into the countryside as much as possible. The factory area will be landscaped and an attractive stream that wends through the edge of the

TAIRUA

property will have special replanting attention. Recreation and sporting facilities will also be provided for the staff.

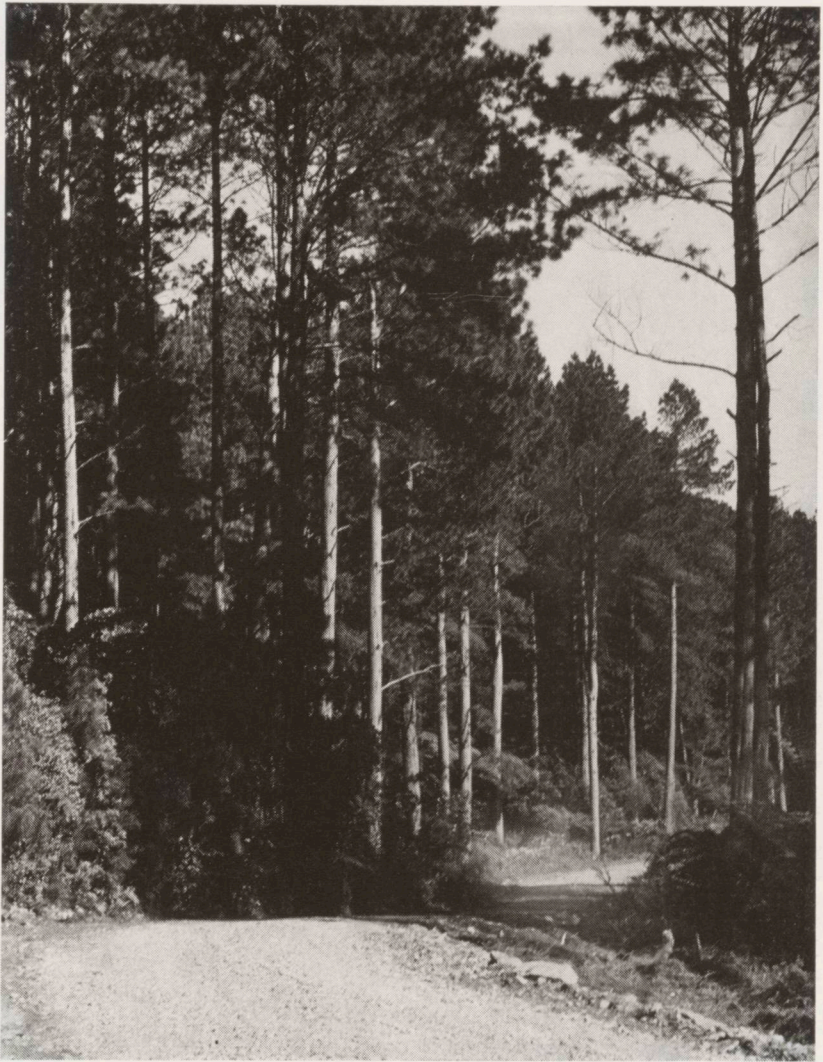
The sawmill will be among the first of its type in the country — a high-strain band sawmill. These bandsaws are kept under far greater strain than normal bandsaws and this gives the advantage of reducing the sawcut and improving dimensional accuracy. It is possible an electronic system of measuring the debarked logs will be introduced.

The initial timber processing at Kopu will be boric diffusion treatment and planer gauging. But drying kilns, a planer mill incorporating recutting and mouldings, and a precut plant are also planned.

Discussions have been held with the Natural Gas Corporation on the provision of gas for large volume kiln drying and the corporation has expressed interest in the proposal.

The transport system for timber and particle board from Kopu to Auckland has not been decided. Barging is a distinct possibility although discussions have yet to be completed with the New Zealand Railways Department.

Right: A road leading from the highway into Tairua Forest.



NEW MEDICAL CENTRE IN CHRISTCHURCH

THE most modern medical teaching and research centre in New Zealand, at the Christchurch Clinical School, is now in full use.

Officially opened in September by the Prime Minister, the new centre, costing more than \$3½ million, was built by Fletcher Construction in only 17 months, possibly the fastest a building of this type has been constructed in New Zealand.

The new centre was designed by Thorpe, Cutter, Pickmere and Douglas, and completes the first stage of a reconstruction programme at the Christchurch Hospital.

The centre is an extension of the Otago University and is the teaching and research heart of the Christchurch Clinical School which covers four hospitals in the city. It is equipped with some of the most up-

to-date equipment, which more than adequately meets modern needs for medical teaching.

Fletcher Construction carried out all demolition work on the old buildings on the site and also underpinned existing buildings in a previous contract, before winning the contract to build the centre. Fletcher Mechanical in Christchurch, tendering separately, won the contract for the installation of the heating, ventilating and air conditioning systems and other services.

A cellular raft-type foundation of 3 ft. concrete filled with reinforcing steel was used for the centre because no suitable groundings could be found for piles on the site. It was calculated that the foundations would sink about 2 in. during construction, but the level was checked after each floor was poured and it

was finally found to have sunk only $\frac{3}{4}$ in.

Once the foundations had been laid and the floor construction started, Fletcher Construction maintained an average of one floor a month for eight months. The beams, slabs and columns were poured in situ, and the exterior of the building was clad in precast concrete panels.

About 800 tons of reinforcing steel and 3,900 cu. yards of concrete were used on the project.

The installation of the air conditioning, heating and ventilating systems, and the piping for the numerous services in the centre was one of the most complex Fletcher Mechanical has undertaken in such a short contract time.

(Continued on page 8)

MEDICAL CENTRE

The main air conditioning unit is situated in the plant room on the third floor of the building. Two main air ducts run up and down the centre of the building and the minor ducting runs off these through the corridors on each floor.

Because of the strict temperature controls required in certain areas of the centre, such as pathology and research laboratories, specimen rooms and other specialist areas, four Connor boxes and diffusers were installed on each floor.

The Connor boxes, manufactured under licence by Fletcher Mechanical in Auckland, automatically control the temperature and flow of air to a set area. A zonestat in each area is set at the required temperature and the Connor boxes maintain that temperature to within plus or minus one degree C.

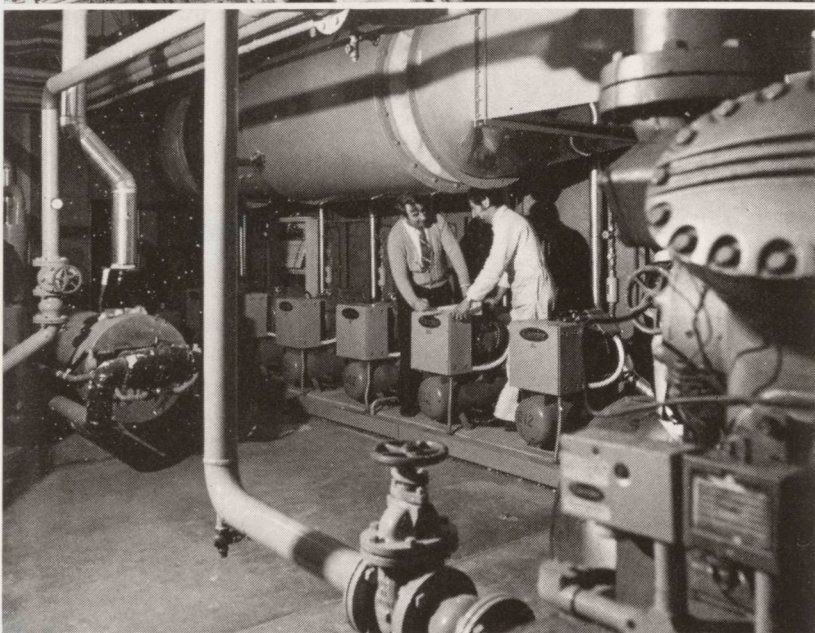
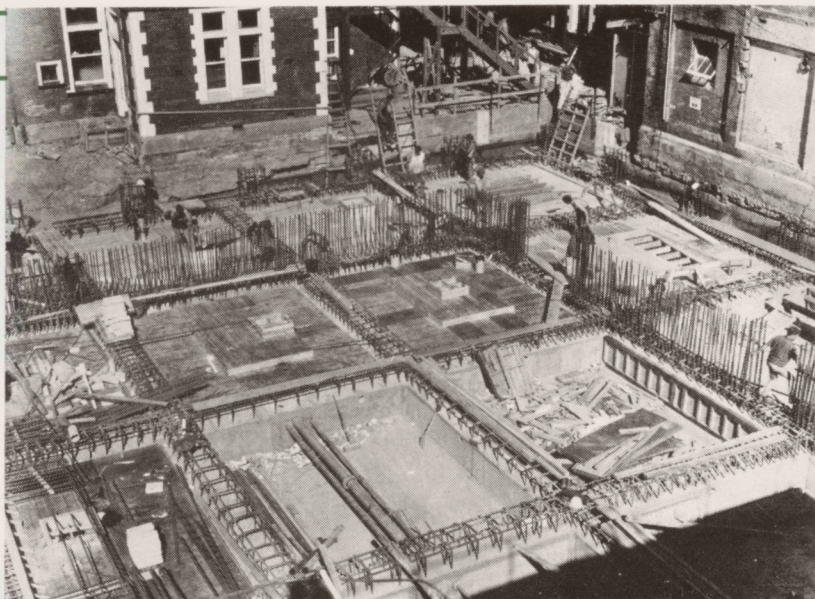
Heating and cooling of the air from the main air conditioning unit is carried out with coils, both of Carrier design and made by Fletchers. The cooling coil is fed with chilled water from two 30 DA120 Carrier refrigeration units situated in the plant room. These are spelled alternately each week.

These units, again made by Fletcher Mechanical in Auckland, are capable of extracting 1,020,000 b.t.u. per hour from water at 48°F. They also supply chilled water to the separate air conditioning system installed for the chromatography rooms on the second floor. Medical research carried out in these rooms calls for considerable changes in air temperature which cannot be met by the main system.

The 30 DA120 units also supply chilled water to the \$50,000 electron microscope situated in its own suite on the first floor. This microscope is capable of magnifying five million times.

The lower floors of the centre are given over to a wide range of medical research with laboratories constructed for specific aspects.

Each laboratory is equipped with a fume cupboard with an extraction system and a number of services for research purposes. These services include hot, cold, chilled and distilled water, nitrogen, compressed air, town gas, steam and a suction line.



Fletcher Mechanical installed 1½ miles of piping to carry these services through the corridors in the same space as the air conditioning ducting, sanitary piping, and electrical wiring. Each service pipe is colour coded to conform to hospital board regulations.

Six smaller Carrier refrigeration units, varying in extraction capacity from 1½ tons to 4 tons an hour, were installed in the plant room to supply chilled air for two cold laboratories on the second and fourth floors, and for 30 deep freeze lockers on the fourth floor. There are two units to each laboratory and two for the lockers.

The upper floors of the centre contain administration offices, a photographic laboratory, a compre-

hensive medical library, a student cafeteria and meeting rooms, and a lecture theatre.

Fletcher Construction's Project Manager for the medical centre was B. Hegarty and Site Foreman was W. Freeman.

Photographs show (front cover) the completed centre. The old buildings in the foreground will be demolished soon to make way for a new ward block for Christchurch Hospital; (top of this page) the raft foundation for the centre under construction; below, R. P. Kelly (left), Fletcher Mechanical's Site Foreman, and M. C. Briggs, Refrigeration Engineer with Fletcher Mechanical, make a final check in the plant room of the new centre. On the left is one of the Carrier 30 DA120 refrigeration units and in the background are the six smaller Carrier refrigeration units which supply chilled air for cold laboratories and deep freeze lockers.

"Rightful Place as Leader"

DEPUTY PRIME MINISTER'S TRIBUTE

A TRIBUTE to the Fletcher Group for the excellent job it had done over many years in the development of the New Zealand economy was paid recently by the Deputy Prime Minister and Minister of Works and Development, the Hon. Hugh Watt, M.P., when speaking at the opening of a new plant at Penrose for Armco Fabricated Products, a department of Fletcher Steel.

The Minister said the Fletcher name held a rightful place as a leader in New Zealand industry. The Fletcher Group had introduced the steel industry to New Zealand, and the initiative and drive of the company had been a key factor in the development of Pacific Steel at Otahuhu, Auckland.

The Fletcher Group had also been a leader in utilising export knowledge from overseas to the benefit of the New Zealand economy. Referring to the Armco plant, which he commissioned, the Minister said it was exciting that the Fletcher Group and Armco had amicably joined together to manufacture in New Zealand products which had previously been imported. The Minister said the Ministry of Works and Development would be interested in the new Armco products.



Above: The Deputy Prime Minister speaking at the opening of Fletcher's Armco factory in Auckland. Below: Curving nestable steel pipe.

Before the Minister spoke at the plant opening, a Director of the Asia Pacific Area (International Division) of the Armco Steel Corporation, M. Bailey, spoke of the pleasant and satisfactory arrangement that Armco and Fletcher have enjoyed. Over the past 12 years, Fletcher Steel had represented Armco as the distributor for Armco mill and fabricated products to the markets of New Zealand, American Samoa and Fiji.

The International Division of the Armco Steel Corporation began its overseas sales activities in Brazil in 1911 and its overseas manufacturing activities in the same country in 1915. Today it had some 32 manufacturing plants associated with 24 companies operating outside the U.S.A. and Canada. These included both wholly-owned organisations and joint ventures with host country nationals. The latter category was the faster growing group. Armco products were sold in more than 100 countries, he added.

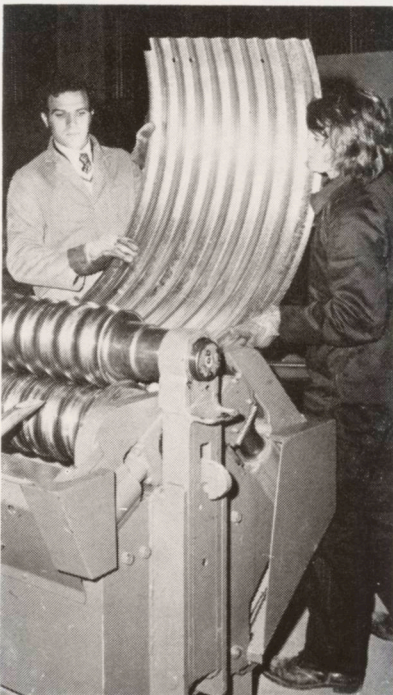
Another important facet of Armco's International Division activity was the licensing of the steel making know-how to overseas steel producers. Today Armco had some

47 active technical aid steel making and processing agreements with steel makers in Central and South America, Europe and the U.K., India, Japan and Australia.

The creation of the Armco Fabricated Products Department of Fletcher Steel, he continued, marked the very first instance of Armco licensing any firm in the world to manufacture two of its major construction products — Multi-Plate and Nestable Corrugated Steel Pipe. This was an indication of the great confidence Armco had in the Fletcher Organisation and the confidence New Zealand engineers have shown in using Armco products for highway, railway and storm drain construction.

Now these customers and other prospective customers would have their own local service for these construction items.

In the Armco company they placed only two other aspects of manufacture at the same high level as a quality of product. These were the safety of the work force and service to the customer. He was certain the Fletcher Organisation had a similar philosophy.



AFTER 70 YEARS, A NEW "NEW CRITERION"

IN the good old days when you could buy a half-handle of beer in public bars for threepence, the Auckland hotels where you would be most likely to find a V.I.P. visitor were the TransTasman, the Grand and the Waverley. Now they are all gone.

Gradually going too are the smaller pubs which were popular meeting places each with their own coteries of regulars. One of the best-known of those beyond a flat walk from Queen Street was the New Criterion on the corner of Albert and Wolfe Streets.

Now it has also gone under the demolition hammer to make way for a major site redevelopment.

Despite its name, the building was 70 years old and acquired the "new" in its name some 30 or more years ago when Ann Powell was the licensee and refurbished and upgraded the hotel. During that era it was always referred to in full as Ann Powell's New Criterion.

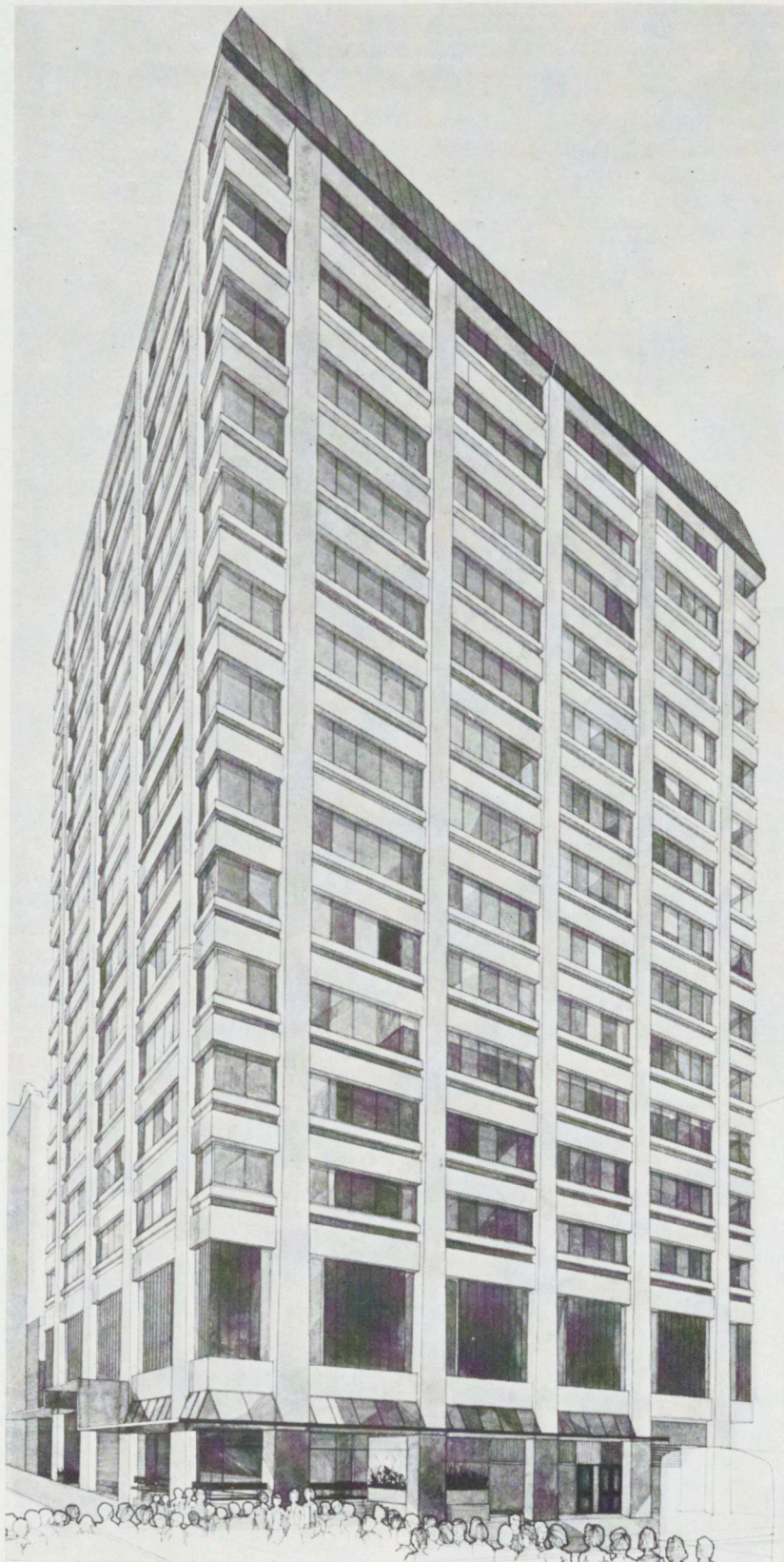
Now the locals can look forward to an air-conditioned tavern in its place. In the meantime, the proprietor has leased the former Ambassador Hotel in Quay Street and renovated it to carry the name of the New Criterion Tavern.

Re-development of the old hotel site is being carried out by Fletcher Development for the T & G Mutual Life Assurance Society. The building is to have two separate functions — that of a tavern, with an office tower above. It is being designed by the Fletcher Design Group.

The New Criterion Tavern will occupy the first floor, and part of the ground floor. The 12 floors of offices will be well-appointed, fully carpeted and air-conditioned with a spacious enclosed foyer on the Wolfe Street corner.

Paved courtyards with shrubs and seating will provide an attractive pedestrian space at street level.

Initial foundation work began this winter on the \$4 million building project which Fletcher Construction has scheduled for completion in early 1976.



DUNEDIN MOTOR HOTEL

THE Sheraton Motor Hotel, the first entirely new fully licensed hotel to be developed in Dunedin since the late 1930's is now being built by Fletcher Construction at a cost of \$3 million.

Situated between Timaru Street and Otaki Street, the new motor hotel will consist of a bar block, an accommodation block with 24 twin bed units, car parks, all surrounded by a large landscaped area. It is expected to be completed at the end of the year.

The motor hotel is being built for a consortium consisting of two Dunedin families and New Zealand Breweries, which has a 26% interest in the venture.

The motel is aimed at the large tourist market passing through Dunedin each year, and the bars will cater for the big work force in the area.

The complex, designed by New Zealand Breweries' Architectural Department is being built on land which has all been reclaimed. Because of this, the hotel/motel has been restricted to two storeys and both blocks have been constructed on a floating concrete slab foundation.

The bar block will consist of a lounge bar, public bar, restaurant and bottle sales department, for local patrons, and a private bar, lounge and dining room for motel guests. It is being constructed with concrete slab floors and block walls with extensive window areas. There will be feature ceilings in each of the bars.

The 24 units of the motel are in two 2-storey blocks constructed with concrete slab floors and block walls. Each unit will have private facilities.

Fletcher Construction Contracts Manager for the Sheraton Motor Hotel is A. Scoon and Site Foreman is J. Aldcroft.

Photographs show construction of 12 of the motel units (top) and (below) the bar block.



TAVERN FOR AUCKLAND



A model of the new Potter's Wheel tavern which is being built by Fletcher Construction for the Portage Licensing Trust in New Lynn, Auckland. The bold, modern JASMaD design emphasises the brick and pottery history of New Lynn.

Samoans' Objective

A CHURCH WITHOUT PEER

WITH a spirit akin to that of mediaeval cathedral builders, the villagers of Gataivai on the West Samoan island of Savai'i are intent on constructing a Methodist church without peer. No one quite knows when it will be finished (the job began in 1969) nor indeed what it will cost; the only certainty is the unconquerable determination of the people of Gataivai.

The village church now under construction will serve 900 men, women and children. Recently 20 men from the village spent three months in New Zealand working to help pay for a laminated timber truss frame that they purchased through Fletcher International.

The men arranged to pay in as much as \$10,000 over the period into special bank books to cover the cost of the building framing. Freight-ing costs for the villagers are an enormous burden, everything has to be transhipped at Apia and barged over to the island.

The huge laminated beams and associated steel work (the church is 153 feet long) have already been shipped to Savai'i. After barging from Apia they were unloaded so that one end was supported on a parishioner's truck. The other end of the load with the bulk of the weight was then carried by dozens of Samoans who walked seven miles behind a slow moving truck to the village.

Iosia Taulelei, a Wellingtonian who arranged the visit by the 20



The Director of Fletcher International, B. W. Gollan (seated far left), discusses the church shipment with villagers from Gataivai. Seated in the middle is Iosia Taulelei.

men from Gataivai, said that the village first decided on a new church in 1965. The existing church was too small and was falling down.

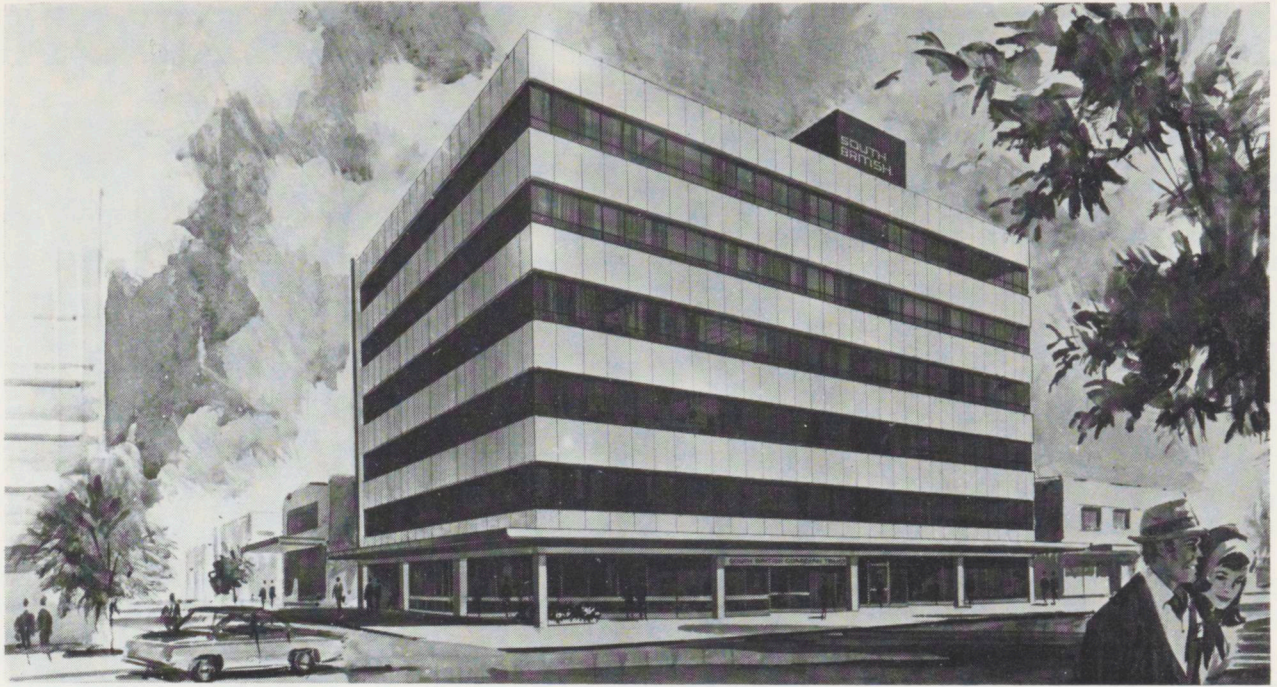
It was agreed the new church had to be a good one as well as big and the raising of money started. For the first three months of each year, donations were set at \$1 for each child, \$2 for a working man and \$10 a matai (head of family) a month. As well, various groups within the village such as the young women's fellowship, raised sums of up to \$300.

In about eight years, the village collected \$28,000 and in 1969 construction began. The builder, Faleupolu Taulelei, who was with Fletcher Construction in Wellington in the 1950's, has constructed other Methodist churches in Western Samoa and, with four assistants and a pool of enthusiastic local labour, the main structure is now complete. He and his men work free and are fed and clothed by the villagers. He has told the village that another \$25,000 on materials for the interior should see the church complete.



GANG-NAIL SCORES AGAIN

Just as buildings with gang-nail trusses in Fiji came through "Hurricane Bebe" unscathed, so did similarly constructed farm buildings escape damage in the Canterbury snow storm this winter. This woolshed erected with a Fletcher truss roof withstood a load of up to 10 ft. of snow — it was designed for a 3 ft. load. Other gang-nail truss buildings came through undamaged, whereas of other buildings in the same area — Ashburton County—160 barns collapsed.



North Shore's First MULTI-STOREY OFFICE BLOCK

A FLETCHER - BUILT multi-storey office block, the North Shore's first, will soon take shape in Takapuna, Auckland.

South British Insurance has moved to temporary premises while their present offices, at the corner of Lake Road and Huron Street, have been pulled down to make way for the new high rise building.

Fletcher Construction will start the \$1 million project in January,

1974. The completed office block will be handed over to South British in September, 1975.

Organising and advisory services to the South British Group were provided by Fletcher Development and architectural services by the Fletcher Design Group. Developments Manager is D. A. Woodall, Contracts Manager is R. Smith and supervising architectural services are headed by W. H. Gray.

Increased demand for office space on the North Shore has resulted in the new South British building being virtually fully tenanted even before construction gets underway. On the ground floor will be the Bank of New South Wales. The other five floors contain a total of 25,700 square feet of air conditioned space. Some 4,200 square feet of retail space will be available in the building and provision has been made for ample basement tenant parking.



FIRST OIL FOR POWER STATION

On hand for the first delivery of oil to the New Plymouth Power Station were three Fletcher Bernard-Smith executives overseeing their part of the project. Shown from the left are J. Spencer, Contracts Engineer; E. Bouwer, Site Manager; and T. H. Baker, Engineering Manager. At right is the New Zealand Electricity Department Project Engineer (Electrical and Mechanical), P. Denton.

ANCIENT SKILLS IN MARTON

CONTAINERIZED shipping and higher standards of hygiene have overtaken Fletcher Timber's cooperage at Marton and mean the end of an era for the barrel-making operations.

At the height of barrel demand a few years ago the cooperage employed 10 men who often worked through their vacation period to meet orders. They turned out the material for 23,000 barrels annually, and outside the small factory close to one million feet of white pine was stacked 20 feet high for air-drying before going into the mill.

The final product was casks in "shook" form — barrel staves, tops and hoops for shipment to North Island freezing works. There, coopers employed by the works put the shook together as barrels for packing lamb pelts and sausage casings for export. Lamb pelts are used extensively in the footwear and clothing industries and sheep pelts are made into chamois leather.

At a certain stage of packaging and shipping technology, barrels are ideal because they are both a container and their own "wheel" for being moved by rolling. But containerized shipping is based on packing goods economically in large boxes which travel as a complete unit to the final destination. Putting barrels into boxes wastes too much potential shipping space; therefore, the freezing works are now shipping lamb pelts on pallets, which can hold two and a half times as many pelts as conventional casks and which can completely fill the big square and oblong containers.

Hygienic standards, too, have caught up with the wooden barrel as a package for sausage casings.

The Manager of the Co-operative Wholesale Society's freezing works at Longburn, T. Hastie, explained that standards of hygiene were advancing so quickly that if New Zealand was to continue trading with Continental countries and North America, there was no alternative but to comply with their regulations demanding the use of inert, non-porous, non-reacting material — such as steel or plastic — for sausage casings casks.

Continental countries were now condemning the use of all wood in casings working departments, in order to comply with their own



rigid food hygiene regulations. The ban includes wooden containers.

So, Fletcher Timber's Marton cooperage is finding its mainstay markets being wiped out. Already, staff is down to four men, and the stock of white pine is just being drawn down and not being replenished.

Fletcher Timber, to keep up with the times, is now looking for new markets for its barrels and casks.

Change and "keeping up with the times" is the story of this 20-year-old Fletcher company ever since Fletcher Timber took over the Cooks Cooperage in Palmerston North in 1953.

After a move to Petone in 1954, the company was transferred to Rotorua in 1958 in order to be near the North Island supplies of white pine.

Nearness to supply, however, meant that the factory was not con-

venient to delivery routes to meat works in Taranaki, Hawkes Bay, Wellington, Wairarapa, Manawatu and Feilding. In consequence, in 1959, the cooperage was relocated in the more central borough of Marton which is about half-way between Wanganui and Palmerston North.

From this location, the cooperage supplied freezing works with "shook" for 80-gallon casks for the sausage casings. But this production is now coming to an end.

The work force is already making smaller casks and planter tubs for nursery centres and shops and also small wine barrels for display counters in wine shops.

The Auckland Area Manager of Fletcher Timber, D. J. Whale, is having discussions with New Zealand wine makers about storing and aging wine in Fletcher casks made from Australian sheoak wood, which has the advantage over white

NEW FREEZING SYSTEM DEVELOPED

FLETCHER Bernard-Smith, a leading developer and builder of blast freeze tunnels for freezing meat in cartons and cream for export, has now developed a new system for freezing whole carcasses of sheep.

Working for a refrigeration specialist, Fletcher Bernard-Smith's new machinery is being designed for the space and handling requirements of R. & W. Hellaby's Shortland Works.

Hellaby is undertaking an internal upgrading programme to be completed in 1975, which will allow the company to meet expected hygiene requirements laid down by the Common Market, the United

States and Japan — the three largest export markets.

The main feature of Fletcher Bernard-Smith's system is that it will utilise a "pawl blanket" to pull the sheep carcasses along rails in timed sequence through the 100 ft. long freezing chamber.

With freezing space also limited to a 30 ft. width and 23 ft. height, the system calls for three tiers of rails, each capable of handling 1,786 carcasses per day.

Freezing capacity is 5,000 carcasses per 24-hour period. Upon completion of this freezing time, the carcasses will emerge from the rear of the chamber and automatically join the works conveyor system for packing for shipment.

The new system is an outgrowth of Fletcher Bernard-Smith's development of two previous blast freeze tunnels for Shortland and one for Hellaby's new works at Whangarei. These tunnels freeze lamb in 35 lb. packs and sheep in 50-55 lb. cartons for export to the United States and Japan.

The same technology was used for a blast freeze tunnel built for the East Tamaki Co-operative Dairy Company in Manurewa by which the dairy freezes cream in five-gallon plastic packs for export to the United States.

At Shortland, nearly all frozen carcasses are bound for markets in the United Kingdom.

pine in not being porous. Of late, the wine makers have bought empty imported whisky and brandy casks, but with domestic demand soaring, it is hoped a market can be found here for Fletcher Timber barrels.

In a sense, the Marton cooperage can be seen as a skilled trade in search of a new function. Coopering in New Zealand is a dying skill and, unless new markets are found, this skill will be lost to the country.

Barrel making at the Fletcher factory follows a series of steps which appear to be simple but which actually call for a good deal of judgement.

Working with a number of machines built by themselves, the Factory Manager, P. Harris, and his three-man staff cut the white pine into uniform lengths for staves and puts the staves through a "stave machine" to shape them and bevel the edges. Then comes the real test of a cooper's skill — "standing the barrel". The 29-stave barrel, held together by a master hoop and one holding hoop, is next placed into a "steam bell" for three or four minutes in order to soften the wood and bring the fibres back to life.

Meanwhile, the 28-inch diameter barrel heads are made from four pieces of white pine, and a "heading machine" rounds off the head and gives it an edge to fit into the "crow" of the barrel, which is an inside slot at top and bottom.

From the steam bell, the barrel is wrapped at each end with a wire

and pulled to give it a barrel shape and a bilge. It is then put through a "crowing machine" to give it an inside groove. The heads are put in at bottom and top and tamped down to fit into the crows.

Then small nails — called "dogs" — are driven in to hold the hoops in place because when the barrel dries, the hoops may loosen. Once at the factory, the wetness of the

pelts swells the staves into shape and into tightness. The Marton factory also makes its own hoops.

As a sideline, the factory provides wood shavings to a Palmerston North bacon plant for smoking hams.

Photographs show (on previous page) "standing the barrell" and below a range of today's production.



WOOL INSPIRES WINNING LIONIDE DESIGN



WHEN Fletcher Plastics decided to hold a competition for new designs for Lionide wall covering, it knew it was bound to receive some unusual designs, but perhaps none as unusual as those submitted by a young Wellington student which took the first and fourth prizes.

While most designers took to their drawing boards, fourth-year Wellington Polytechnic student, Andrew Ng, took to his camera. Searching among textured natural materials, he hoped to capture a pleasing design through the lens of his camera.

His efforts produced highly magnified black and white blow ups of sectioned wool fibres which also pleased the judges who gave him the fourth, as well as the top prize, in the 1973 Lionide Design Awards competition. He has won other design contests, and is currently preparing plans for a playground for deaf children in the Wellington suburb of Belmont.

Second place was won by Michael Cox, of Kelburn, and in third place Patricia Tennent, also of Kelburn. First prize was a \$500 cheque. Cheques for \$350, \$200 and \$75 were presented for second, third and fourth prizes and seven

Fletcher Plastics manager, F. Brown, congratulates the first prize winner in the Lionide contest, Wellington student, Andrew Ng. Looking on is one of the judges, M. Cleverley, of the New Zealand Industrial Design Council. Behind them are the winning entries.

consolation prizes of \$50 were also given.

Organised in association with the New Zealand Industrial Design Council, it was hoped the competition would encourage New Zealand designers to help Fletcher Plastics develop a new range of Lionide patterns that would find ready acceptance by New Zealand's architects, interior decorators and other users of the product.

FLETCHER GKN PURLINS SPAN HUGE PLANT

MORE than 18 miles of steel purlins, supplied by Fletcher GKN, now span the gigantic roof over the new \$12 million plant near Hawera of Kiwi Co-op Dairies Limited.

One of the largest dairy manufacturing complexes in the world, the plant covers 20 acres and is

expected to have a far reaching influence on Taranaki and the New Zealand dairy industry when it opens early in 1974.

The Fletcher GKN purlins utilised in the factory roof structure allow greater span lengths and aid in cutting down overall building weight.

When the dairy factory begins operations it will serve 640 farms and replace 23 dairy factories. At the season's height it will process a milk flow of up to 240,000 gallons a day.

This output will be used to manufacture most needed products as required — cheese, butter and milk powders.

NEW PUKEKOHE GRANDSTAND

TO horse and to car enthusiasts, Pukekohe means racing, and the roar of a race-day crowd is now echoing out of the brand new \$700,000 grandstand built by Fletcher Construction for the Franklin Racing Club.

The basic element in the design was to provide seating for some 20,000 fans with an uninterrupted view of both the horse and the car racing tracks.

The approach from the rear reveals the most up-to-date design in New Zealand — bold, clean roof and wall lines, traverse ramps over an access road for easy entry, and glass-enclosed stairways.

From the front the view is of three separate viewing decks cantilevered out above two working floors. The ground floor holds the race day administration area — jockeys' room, showers, weighing and judicial rooms; and the first floor contains the Franklin Racing Club's headquarters and a reception lounge.

Each of the three viewing levels have bar and betting facilities. Stair wells connect all floors, and separate outside stairways provide an emergency exit.

Facing the track at the top level's right end is the press box with facilities for telecasting.

The main construction feature was that the concrete was poured in situ instead of being precast. The new grandstand rests on the site of one of the old stands. After demolition and excavation, some 3,000 yards of each were used for filling.

Contracts Manager for Fletcher Construction was R. H. Harrison and L. Bain was Foreman. Architects were J. Rex Roberts and Partners, Palmerston North.

Photographs show (above) the rear view of the striking new grandstand and below the race track side.





NEW TANK TO SPEED UP JET FUELLING

THE ever-increasing need for faster turn-around of planes at major airports has hastened moves for a more efficient method of refuelling aircraft at Auckland International Airport.

Work was recently completed on a large jet fuel tank which forms an integral part of a new refuelling arrangement at the airport. It is connected by an underground pipeline, which was pre-laid, to a hydrant system on the new international tarmac area in front of the three-storey terminal building. This hydrant system terminates at 18 separate points which have been so located on the tarmac that they are within easy reach of the fuelling couplings of any of the types of large aircraft likely to be seen in Auckland.

The 450,000 gallon steel tank was constructed by Fletcher Bernard-Smith, as a joint project for Shell, BP and Mobil, the three suppliers of fuel to the aircraft industry at Mangere.

Measuring 56 ft. in diameter and 30 ft. in height, the tank consists of $\frac{1}{4}$ inch steel in hoops 6 ft. high, butt welded and epoxy-lined. Two similar tanks will follow at intervals, as required.

When the tank came into operation to supplement the existing system, which consists of eight small semi-buried tanks each of 25,000 gallons, total capacity at the airport was more than trebled.

Until now the fuelling system at Auckland airport comprised a fleet of mobile tankers and trailers with a capacity of 8,000 or 10,000 gallons each and having a maximum fuelling rate of nearly 500 gallons per minute. With one of these vehicles attached to each wing they could fill DC8, B707 and VC10 aircraft at just under 1,000 gallons a minute, which is their maximum fuel acceptance rate.

Although mobile refuellers have the advantage of being able to service aircraft at any part of an air-

port they do contribute to the congestion which always occurs when aircraft are being turned around at an international airport. A stopover is usually of 60 minutes duration and every endeavour is made to confine the fuelling operation to 30 minutes, during which time 20,000 gallons or more may have to be loaded.

B747 and DC10 aircraft have a fuel acceptance rate of 1,600 gallons per minute and a total capacity of 42,000 gallons and 30,000 gallons respectively, but, of course, a plane actually in service never requires these volumes to be loaded at any one time since it will have just arrived with substantial fuel reserves on board.

The total designed capacity for the new hydrant is 5,000 gallons per minute, which requires careful engineering calculations to enable this quantity of fuel to be pumped through a half-mile length of 18-inch pipe so that several aircraft may be fueled at the same time.

CAMLON PROVES SUPERIOR

CAMLON, a pvc coated material manufactured by Fletcher Plastics and used for making tarpaulin covers and for waterproof clothing is enjoying excellent sales both in New Zealand and overseas.

Recently Fletcher International air freighted 7½ tons of the material to Australia.

The photograph below shows the material, after fabrication by Michaelis Bayley Limited, of Melbourne, in use with the large interstate transport organisation, Mayne Nickless.

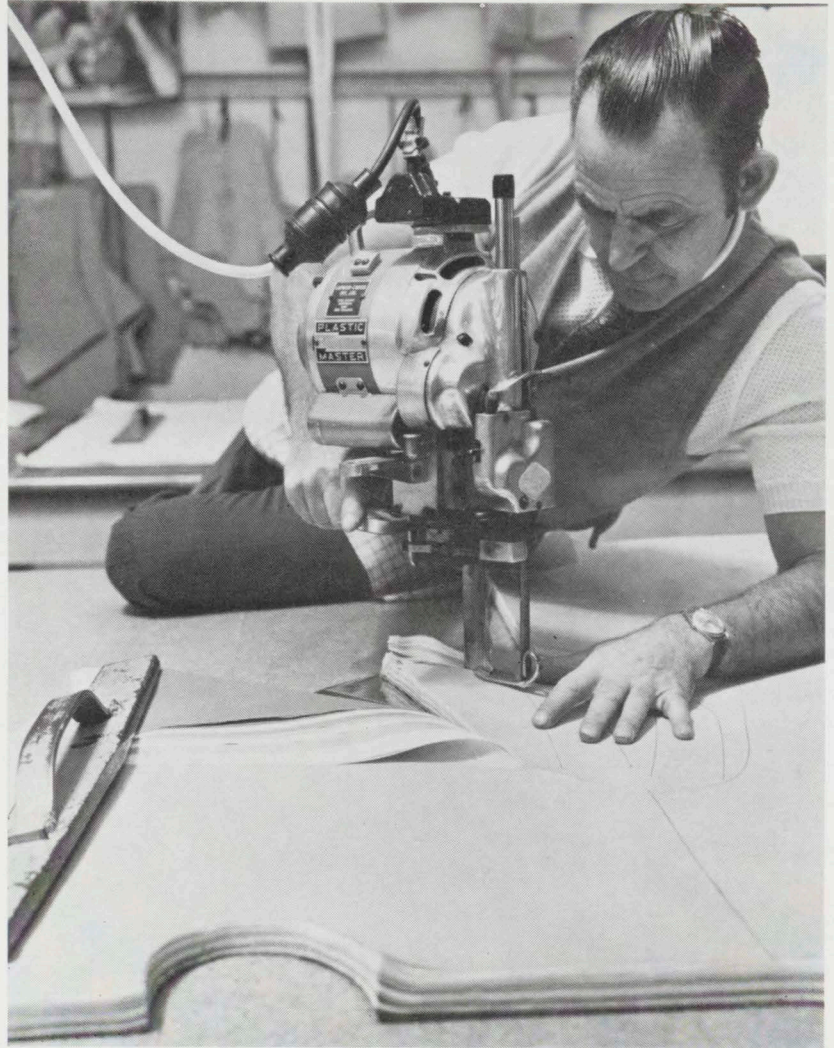
In New Zealand, a major customer is Line 7, the country's leading manufacturer of waterproof clothing. (See photograph, right.)

Founded only eight years ago, the company produces 1500 garments a week and has an annual turnover of \$½ million — of which about \$100,000 now comes from an ever-increasing export trade.

Although Line 7 is probably best known for its yachting jackets, (both short and long) the company is also a major manufacturer of overalls and trousers for farmers, industrial workers, motorcyclists — in fact anyone who wants a snug, waterproof garment. Seventy per cent of Line 7's garments are made from Camlon.

Fletchers produce the Camlon, under a manufacturing agreement with Galon, a Swedish company which is a world leader in the manufacture of this type of material.

The Managing Director of Line 7, B. P. Wilson, reports that Fletchers' Camlon is superior to any material he has seen overseas and his company has no worries about



garments being returned because of faulty material or leaking.

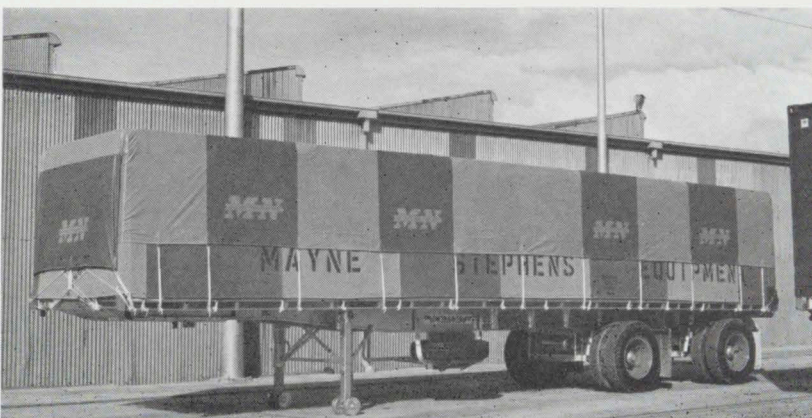
Each year Fletchers, the sole manufacturers of Camlon in New Zealand, supply 60,000 yards in

various colours to Line 7, which cuts and styles it into the various garments.

Once cut, the seams are stitched and then high-frequency welded to ensure the garment is waterproof. The stripes are also welded onto the jackets and trousers.

Line 7 exports its full range of products to England, the United States, Canada, Italy and Australia. It also supplies waterproof yachting gear to some of the leading ocean racers in the world. These include yachts like Kialoa II, American Eagle, the New Zealand Southern Cross Cup team and the new Admiral's Cup yacht, Barnacle Bill.

The company is confident that Line 7 will become one of the world leaders in waterproof clothing and predicts that Camlon will always be the main fabric used.



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