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Arrowhead

DESIGNED BY DORMER BECK ADVERTISING LIMITED PRINTED BY ABEL DYKES LIMITED, AUCKLAND

FLETCHER-MERRITT
RAYMOND
CONTRACTORS

HOLDINGS LIMITED AUCKLAND

SPECIAL KAWERAU ISSUE

GREAT MILLING SCHEME TO GO AHEAD

Paper, Pulp, Timber to come from Kaingaroa

December 24th, 1951

The early starting of a newsprint and paper pulp industry to exploit the Kaingaroa forest in the New Year was announced by the Prime Minister, Mr. Holland, today when he said the Government had accepted, in general, the proposals of the Tasman Pulp and Paper Company—provided finance for the £29 million project can be arranged and provided the Government and the company can agree to certain adjustments to the company's plans.

Mr. Holland described the enterprise as the "largest single industrial plant ever to be established in this country."

Americans will help build the plant, but the *Star* is informed that there will be no American capital in the Tasman company. Mr. Holland will seek finance for the erection of the plant and the £14 million to be spent by the Government in ancillary services when he attends the London conference of Finance Ministers next month.

The plant will supply all New Zealand's newsprint and paper pulp requirements and still leave a large surplus for export. Much of this, and some timber, will be sold in Australia, helping to balance New Zealand's trading deficit.

Mr. Holland gave few details of the project. The details published in this page are of the proposals submitted by the tendering group, including the Government's intention to go ahead with the company's scheme, subject to satisfactory finance being arranged and subject to negotiation on certain details.

MR. HOLLAND: EVE OF GREAT EXPANSION

"New Zealand is on the eve of great industrial expansion," said the Prime Minister, Mr. Holland, today, announcing the Government's intention of proceeding with the establishment of an integrated newsprint, pulp and timber industry.

Two features of the plans were stressed:—

- They provide for the combination of a primary industry (the growing of forests) with the conversion of the industries for the production of newsprint, natural forest products into wood pulp and building timbers.

KAWERAU LINK OPENS

October, 1954 KAWERAU, Monday
The first train to Kawerau travelled along the new branch line at 3.30 this afternoon, drawing 26 wagons of construction material for the newsprint mill of the Tasman Pulp and Paper Co. Ltd. In doing so it crossed land which was a sanctuary for wild horses only a few years ago.

It was a welcome sight for Mr. C. Goldard, the American mill construction superintendent, who smiled and remarked: "Now we'll really be able to get cracking."

The eight-mile branch line runs from the Tauranga-Taumata line at Awakanga and has been pushed ahead quickly so that heavy materials and equipment can be run to the mill site.

After the engine-driver, Mr. F. Green, of Tauranga, handed over the controls to Mrs. E. W. Hammer, of New Zealand, the wife of the project manager, the gathering speed and movement of the train was the surprising of an engineering point of view. "There is no doubt that the country's main mode of transport is being really re-organised over cutting out

Registration of Tasman Company Soon

May 27th, 1952

Preliminary work in registering the Tasman Pulp and Paper Company is expected by the promoters in Auckland to take at least a week. They say it will take that time for the memorandum of association to be reformed when it is returned by the Crown Law Office, and for other documents to be completed.

Registration of the company with a nominal capital of £6,000,000 will be done in Auckland, it is believed.

Among the first steps after registration will be:—

- Decision on the site of the project.
- Negotiations with the Canadian ex-diretors of the project, for a contract with Sandwell, a member of the



An aerial photograph of Kawerau as it nears completion.

PUMPING STATION BUILT ON RIVER BED

Staff Reporter March 7th, 1955 Rotorua
After 14 days and nights of frantic work against the encroaching waters of the Tarawera River, engineers and workmen at Kawerau have succeeded in building an underwater pumping station on the bed of the river.

In three days the river will be allowed to resume its natural course through the reclaimed area.

A constant battle for mastery has been fought with the river to allow workmen to erect the reinforced concrete intake pumping station.

Four times the temporary dams blocking off a triangular area in the mill side of the river have partly given way and the poured water into the station site faster than it could be pumped out. But the prompt use of thousands of sandbags effectively blocked all the gaps.

Geothermal Steam soon to be applied at Kawerau

Staff Reporter Rotorua
Geothermal steam hores at Kawerau will be harnessed by the Tasman Pulp and Paper Company within the next six to twelve months to provide energy for its timber, sulphate pulp and newsprint mills. This was announced yesterday by Mr. M. L. Holiday, general manager of the Company.

Until geothermal steam is adapted for the hundred and one uses it could have in the mills, it is estimated that the mills

KAWERAU W ROTORUA and WHAKA

"Anybody's New

Staff Reporter
It is "anybody's" competition between towns of Whakarewa, Kawerau, Rotorua, Fletcher, chairman and Paper Company. Addressing the Commerce yesterday will be extremely not a popular at Kawerau in the mill goes definitely to have a growing shopping half an hour away from Rotorua. Its in the regular craft, will be service.

JULY - AUGUST 1955

Geyser Breaks Through

The most critical hour was reached when a 12-foot geyser of thermal water suddenly broke through where the for the station were about to be laid. The geyser, a layer of

will burn over 3000 tons of fuel oil a year, together with 35,000 tons of coal. Mr. Holiday said yesterday that the company was confident that geothermal steam would drastically reduce these figures.

The company is not deterred by the fact that geothermal drilling at Kawerau has been slowed down over the last six months by almost impenetrable rock layers by spongy strata, which are being softened by spouting with



Chairman of Directors, Fletcher Holdings Limited and Tasman Pulp and Paper Company Limited.

William Denny, Executive Vice President, Merritt-Chapman & Scott Corporation, New York.



George F. Ferris, President, Raymond Concrete Pile Company, New York.



P. R. Sandwell, President, Sandwell & Company Limited, Vancouver, designers of the plant.



J. C. Fletcher, Managing Director, Fletcher Holdings Limited.



Thank you ...

By the time these words are read we confidently hope that the plant at Kawerau will be on the verge of operation. It will indeed be of great personal satisfaction to me when production begins, and in the space of one page it is quite impossible to say all I want to say or to thank all those who deserve thanks.

I must first express my deep appreciation to the Prime Minister, the New Zealand Government and its officers, without whose splendid co-operation in every field we could not have succeeded.

I could mention a hundred names or more, but I am sure that none will be offended if I restrict myself to mentioning my good friend—A. R. Entrican, Director of Forestry, who has devoted a great part of his life to the pulp and paper project. I look upon 'Pat' Entrican as the symbol and representative of the many servants of the public who have contributed so much to Kawerau.

To our Canadian friends—Dick Sandwell and his field engineer, Ed. Barton and all who helped to design the plant, I say thank you on behalf of us all.

To our American friends—Walter Hammer, Charlie Goddard and Warren McEvoy and their international team who have run the job, I extend my warmest congratulations.

Of our own (Fletchers) men who deserve the highest praise and appreciation I have room to mention only Joe Craig, Jack Smith, Jack Bourke and Stan Kingston. To them and to our engineers and draughtsmen associated with the project, and to the great band of tradesmen, New Zealanders, Aussies, Englishmen and Dutchmen alike—I say thank you for a job well done.

We, Fletchers are proud of the part we have played in the partnership, Fletcher-Merritt-Raymond, but we recognise that the skill and experience of our U.S. partners in pulp and paper mill construction has been the most important factor in achieving success.

Fletchers have been going for nearly fifty years. I hope we will never grow too old to learn, and we have learned a lot from Kawerau. We have learned the value of meticulous pre-planning, of purchasing departments, of expeditors, of targets and budgets, and, when our colleagues from overseas fold up their tents to go home, they will have left behind them not just a fine modern plant, not just a knowledge and experience of new and improved methods of construction, but a great deal of respect and affection in the hearts of us all.

James Fletcher

Chairman of Directors
FLETCHER HOLDINGS LIMITED

HOW IT WAS BUILT

(1) THE STORY OF THE JOB



The job office at Kawerau with Mount Edgcombe in the background.

Kawerau was born when the Board of Directors of the Tasman Pulp and Paper Company meeting in the Treasury Board Room in Stout Street, Wellington, on September 30, 1952, decided to site the plant at a place near Te Teko, sometimes called Onepu, but not on any map, and subsequently named Kawerau. That is when it was born. Its origins could be traced back at least fifty years but more particularly to the early 1920's when the first large scale plantings of radiata (Monterey) pine and other exotics were begun on the high plains around the Rotorua region which now form the 260,000 acre plantation known as the Kaingaroa Forest. The origins of the forest are referred to elsewhere in this issue. Here we are concerned with the story of the job.

Construction on the preliminary buildings for the camp began in January, 1953, when a small gang led by Jack Bourke from Fletchers moved on to the northern end of the site. This is still referred to as the 'Maori War Period' by those who can now look back with good humour on the friendly skirmishes which took place with Monika Arahia and her colleagues. At that time neither the exact location of the mills nor the position of the town site had been agreed upon. Land purchase negotiations, soil testing and

other investigations had to be concluded before these decisions could be made.

While this was going on at Kawerau, Fletcher - Merritt - Raymond were mobilising their forces in Auckland. The cafeteria building from the Import Wharf job was hauled to Penrose in three sections and set up opposite Fletchers' head office. Alterations were made to accommodate the staff of Fletcher-Merritt-Raymond and the Consulting Engineers, Sandwell & Company Ltd., of Vancouver. On March 1, 1953, P. R. Sandwell flew down to New Zealand with his field engineer, Ed. Barton. On May 14 the first of the top personnel from Merritt-Chapman & Scott arrived, led by Walter Hammer, Project Manager; Charles Goddard, Project Superintendent; and R. H. Davidson, Office Manager.

More and more people packed into this little wooden office and Walter Hammer's massive bulk immediately became the dominant figure.

The preliminary paper work began, and a continuous stream of enquiries, quotes, tenders and purchase orders issued from this bedlam, technically known as the Auckland field office: Ralph Barrow's voice could be heard at Otahuhu.



E. W. Hammer, Project Manager, Fletcher-Merritt-Raymond.



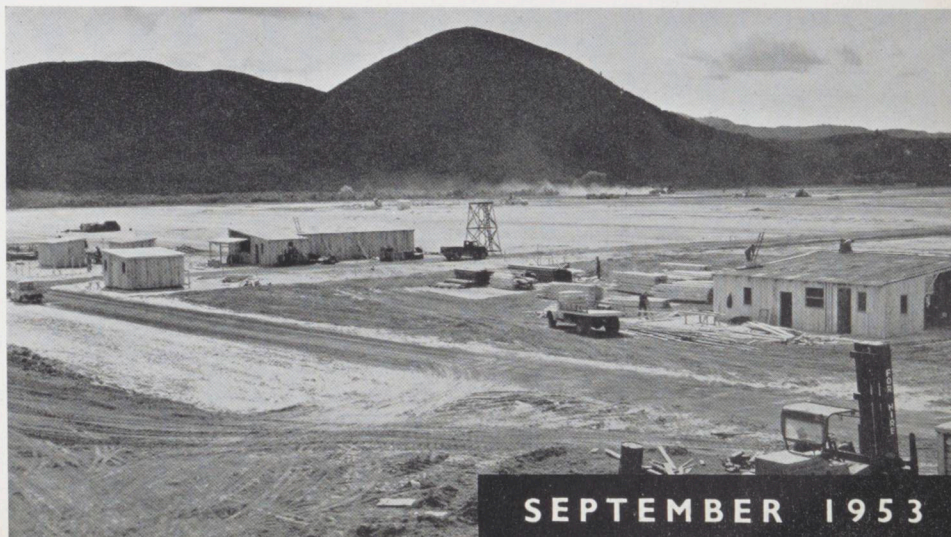
J. J. Craig, Managing Director, The Fletcher Construction Company Limited.



C. R. Goddard, Project Superintendent, Fletcher-Merritt-Raymond.



W. J. MacEvoy, Engineering and Construction Manager, Fletcher-Merritt-Raymond.



By the end of June, Charles Goddard and his key engineers took up residence in hotel accommodation in Rotorua. In August preliminary grading began on the site and, right on schedule, excavations for the first footings started on September 1. A start was also made on the new bridge across the Tarawera River, linking the plant site with the township.

In Auckland, the staff of Fletcher-Merritt-Raymond were being steadily drafted down to the site and their places were taken by Ed. Barton's team from Sandwells. In August, a new tenant managed to squeeze himself in—Geoff Schmitt, Secretary of the Tasman Pulp and Paper Company Limited.

The first of the permanent houses on the town site at Kawerau were completed in October, and Walter Hammer and his staff quickly took up residence and became the first citizens of the new town.

From then on a description of the job would be like a commentary on six Davis Cup singles matches all being played at once. No sooner had the footings for the administration building been poured than the newsprint machine room, paper and general stores began to take shape and the structural steel-work climbed into the air. Silos, chemical storage, water-filtration plant, grinder house — all went ahead simultaneously, filling in the pattern of the master jig-saw.

An impressive quantity of materials has gone into the job illustrating the tremendous daily activity over the last 22 months. Four thousand tons of structural steel and 3,000

tons of reinforcing steel have been fabricated and placed; 47,000 cubic yards of concrete, much of it involving intricate boxing, has been poured and millions of feet of timber have been used.

For 22 months carpenters, labourers, steel erectors, plumbers, boilermakers, in fact men of 12 different trades, worked up to 60 hours weekly, sometimes on Sundays and sometimes in the evening under arc lights, and by January of 1955 the total labour force had reached a peak of over 1,800 men. At one stage 88 welding machines were in use at the same time on various parts of the job.

The general quickness of construction makes it difficult to single out the high-lights of the job. Some of the more dramatic achievements were the erection of four eighty-foot-high silos each 40 feet in diameter in 11 days with teams working round the clock; the lifting into place of the five 54-ton sulphate pulp digesters; the placing of the three 120-foot-high boiler stacks; a continuous pour of 605 yards of concrete for the foundations of the chip silos during which the batch mixing plant worked at top capacity for 15½ hours non-stop; the fight against the river, geothermal steam and 'killer' gas to build the water pumping station.

The final detailed designs for the plant were far from being finished when construction began. When the Tasman Company got the 'green light' to go ahead it was decided not to wait for the completed plans which might take nearly two years to finish, and it is to the credit of the designers and



E. S. Barton (right) with group of Sandwell's key men at Kawerau.



R. H. Davidson (second from right) Office Manager, and his staff.



J. Cosio (in dark shirt, centre) Job Engineer, and his staff; W. N. McTurk, Field Engineer, in white hat, is kneeling in front row.



R. J. Barrows (left) Purchasing Agent, and his staff.





W. J. MacEvoy (left) and a group of his staff.



A. J. Briggs (standing left front) Paymaster, with his staff.



Members of the Job Committee.



A group of the Supervisors. Equipment Superintendent, M. A. Watson, is absent.

the contractors that under these conditions the job was kept to schedule. More than once the 'plane from Vancouver only just beat the construction men waiting anxiously for the details of the next stage, and yet it was still possible to pre-plan and integrate labour and equipment, and no serious hold-ups occurred through the job. This is even more creditable when it is realised that the equipment for the plant came from all over the world—from the United Kingdom, U.S.A., Canada, Norway, Sweden, Switzerland, Holland, Australia and Germany. The smooth running of the job was lubricated with educational training, and a series of evening lectures were given by the Fletcher-Merritt-Raymond supervisory group to the job foremen and leading hands.

Of course there have been hundreds of minor problems of late deliveries, temporary shortages of key labour and occasional labour disputes, but all have been overcome and settled.

As New Zealanders accustomed to New Zealand methods we were surprised at the amount of preliminary preparatory paper work—the statements, invoices and purchase orders in triplicate, but it did not take long for us to realise what an essential part of scheduling and budget control these records were.

We would say that the main reasons for success were: pre-planning; a constant measuring of results against targets and an attitude of mind which accepted major problems as a normal part of the construction business, but which, at the same time, refused to

take 'no' for an answer or to admit that anything that was right and necessary was impossible of achievement.

Only eighteen U.S. personnel were in the Fletcher-Merritt-Raymond team led by Walter Hammer, Project Manager; the rest were recruited from New Zealand, Australia and Canada. Together they have built a huge modern plant in under two years—and we take our hats off to them.

ACKNOWLEDGEMENTS

In view of the importance of Kawerau both from the national and the Company point of view, we decided to devote this issue of 'Arrowhead' entirely to the 'Tasman' project. In the course of compiling it we have had the full co-operation of a number of Government Departments and also the Tasman Pulp and Paper Company Limited, whose help we gratefully acknowledge.

We particularly wish to thank the New Zealand Forest Service for editorial material and photographs and also the New Zealand Railways for photographs of the Murupara-Kawerau line.

Commercial photographers whose work has been used in this issue include R. F. Crone, Rotorua; Sparrow Industrial Pictures, Auckland; Whites Aviation, Auckland.



HOW IT WAS BUILT



The queue on pay day.

(2) THE STORY OF THE CAMP

This article was contributed by Pat Donoghue, until recently Camp Director and resident on the site since early 1953.

Nearly 1,700 men report for work at 7 a.m. each morning on the mill site at Kawerau. A proportion of them (about 200) are local residents and come to the job by bus and car; a few come from the caravan camp, but the biggest majority have been housed in the single men's camp alongside the mill site or in the township of Kawerau where partly-completed houses have been used for providing single accommodation. The biggest bulk of them, therefore, have had to be fed, housed and even entertained or provided with recreation facilities by the Company.

In engineering terms the Camp Director was briefed with the responsibility of ensuring that 1,700 men go on the job daily, well fed, well rested and properly refreshed from participation in some form of recreation.

Food is probably the most important item affecting the men's health as well as their morale, and all food supplies were procured through regular purchasing channels by the Purchasing Agent who was instructed to buy only

the best and plenty of it. Caterers were instructed to keep their menus rotating as attractively as possible and that everybody was to have as much to eat as he wished. Menus were based on an ideal balanced diet for New Zealand as advocated by the Health Department, and the kitchens were under constant supervision of a Government Health Inspector.

To adequately feed 1,700 men three times a day requires not only hard work but considerable skill and organisation. To give some idea of the quantities involved, the following figures taken at random show total weekly consumption: 120 sacks of potatoes; 120 cases of tomatoes; 1,200 lbs. of butter; 1 ton of bacon; half-a-ton of tea; 1,600 gallons of milk; 56 crates of eggs and one ton of fresh frozen vegetables.

On Fridays a typical menu involves: 480 lbs. of frying fish; 160 lbs. of smoked fish; 700 lbs. of roast beef; 250 lbs. of frying chops and 600 lbs. of braising steak.

All meals, particularly lunch, where only half-an-hour is allowed, have to be served quickly, and a delivery of 90 meals in one minute has been clocked on the mill-site cafeteria, and

600 men are served in twelve minutes as a regular performance. Tea and cakes for 2,000 men are delivered to the field for 'smokos' each day, and cut lunches and tea for 1,200 men, not lunching in the cafeteria, are provided at noon daily. The standard of the meals has always been commented on favourably.

Rest is purely a personal matter. The Company set out to provide first of all the basic minimums—a good mattress and wire sprung bed, sufficient, good, clean blankets to satisfy the coldest man, a kapok pillow with a clean cover and a clean cover for the mattress.

Quiet-living workers were put together with those similarly minded, but we never were able to discover the yard-stick by which to measure one man's idea of quiet against the other. We found that even the quietest man is likely to start off a noisy party when a few of his old friends collect in his hut for a yarn. Nevertheless, all requests for a move to another hut or room have, within reason, been attended to, and every complaint of excessive noise, keeping others awake, has been investigated and settled. All the facilities are there for a good night's rest; much is up to the individual and to the community as a whole.

It may not be considered that recreation is essential in the same terms as food and rest, but in camp life out in the country it is of vital importance.

In town at the end of a day's work a man leaves the job behind and returns to his home, his family or his 'digs', sometimes by way of the local pub, where he meets and talks with friends with different interests and from different walks of life. At Kawerau, and on country jobs generally the whole atmosphere is dominated by 'The Job' and it is not possible to get away from it often enough.



A concert in the recreation hall.

The main and most successful substitute at Kawerau has been the cinema, where something of outside life can be brought into the camp and where men can get relaxation and enjoyment in an entirely different, though artificial, atmosphere.

Almost every form of sport has flourished and has been fostered by the Camp Director, the only condition being that each club be properly formed with a democratically elected committee and officers, and that members show by their performance their willingness to do something for themselves; it has been a policy of practical encouragement, not charity.

Many men are quite happy to relax in their bunks with a good book or listen to the radio; others like a 'cuppa' or a 'noggin' in congenial company. Football and cricket are played; there are Judo and weight-lifting clubs and indoor bowls; darts is popular, archery, fishing (in surf and fresh water) and hunting are enjoyed by many.

The Camp Manager has quite a large staff of assistants. Small matters like controlling and maintaining keys and locks for the huts are important and take time. The cleaning and sterilising of the toilets and washrooms with a portable cleaning plant is another important function. There is a man on night-shift on the mill-site who deals with all the little emergencies from lost keys and sick men to prowlers, disturbances and fire emergencies. Each hut is scrubbed and disinfected when it is vacated and pillow and mattress covers are changed.

The physical checking and counting of men entering and leaving the camp is a big job in itself, and involves complex records aimed at providing the Management daily with an exact account of vacant beds available for new recruitments.

An important officer is the Absentee Checker who collects the list of all absentees from the Time Office each morning. From the camp records he marks off the camp address and then visits each hut concerned. His first duty is to locate any sick men and forward their names to the Doctor for attention. Unwarranted absenteeism is the business of the foremen and super-



Shanty Town or 'Snake Gully', a private 'residential area' outside the Company's control.



The Cafeteria at meal time.

intendents in the field, and each day every man living in the camp is accounted for.

There is a camp driver, a camp plumber, a steam fitter and a carpenter, all of whom are kept busy seeing that the facilities and services are well maintained and in efficient order.

Recreation is handled by the Recreation Officer—Charlie MacDonald, who is unfortunately missing from the photograph. With his projectionist, he arranges for pictures to be shown five nights a week in the recreation hall and one night at the railways and caravan camp. 'Housey Housey' is played in the cafeterias, and for two nights each week the recreation hall is given over to sporting activities, and, whenever possible, visits from first-class concert parties are arranged.

We are often asked if the great mixture of nationalities causes any difficulties. The answer is a definite no; we have found that there is no difference between individuals in their basic requirements and so far as language goes, a Kiwi may often find a broad Scot just as hard to understand as would be a man from Central Europe. In the camp there are no privileged groups or



A soccer match in progress.

sectional distinctions: the only national tendencies that are apparent are that the Aussies seem to lead in the 'two-up' schools and the Maoris have more parties and in-laws than anyone else.

Although over 3,000 men have passed through the camp and with the current numbers the tally is up to 5,000, during the whole of the camp operation only one case of wanton destruction of camp property has occurred, and at no time has there been any group request for anything unreasonable. The goodwill and co-operation as shown both ways between residents and the camp staff have gone a long way to help to run what has no doubt been one of the best camps of its kind in New Zealand.



Pat Donoghue, Camp Director (centre, hands in pockets) and his staff. Monica Hardman in doorway at rear.



The Prime Minister, the Right Honourable S. G. Holland, and the Deputy Prime Minister, The Honourable K. J. Holyoake, inspecting the new wharf at Mount Maunganui, with A. R. Entrican.

tor of Forestry, to nourish and guide the scheme through great technical difficulties and in face of considerable doubtings, apathy and actual opposition. Now, thirty years later, Adamson's scheme for Kaingaroa Forest is being fulfilled at Kawerau.

The actual establishment of the forest began in 1901 when prison camps were set up in the area. Prison labour established 300 acres in 1902 and planting at the yearly rate of 300-500 acres continued until 1920, still using prison labour. In 1917, however, a camp was set up in the forest and returned servicemen were employed. The area planted each year grew larger and larger until, in 1929, 34,000 acres (22½ million trees) were planted. The rate of planting declined as the growing trees needed pruning, thinning or replacement, but consistent self-regeneration is clearly visible to even the casual observer. The main species, the famous radiata (Monterey) pine, occupies the largest area (120,000 acres) and other species include ponderosa, corsican, lodgepole, bishops' and Weymouth pines, Douglas fir, and some areas of giant redwoods.

Of Kaingaroa Forest, approximately 275,000 acres have been set aside as the Murupara Working Circle, and it is from this area that the Tasman Pulp and Paper Company will obtain 23 million cubic feet of logs annually for an initial 25-year term. This year, 14 million cubic feet of radiata pine will be cut, and the Kawerau project will, of course, be mainly dependent on this species.

It can be seen that apart from commercial considerations, Kaingaroa represents an asset to New Zealand which must be protected at all costs, against disease and animals, and especially against fire. The fire fighting service of Kaingaroa is well organised and highly efficient, as indeed it has to be; the assets at stake are incalculable in terms of money. So far, there has been no major fire in Kaingaroa, and there are signs that the general public is aware that the success of the whole Kawerau project, and the thirty years of planned forestry which it fulfills and represents, depends finally on public support, and recognition of the responsibility of the community.

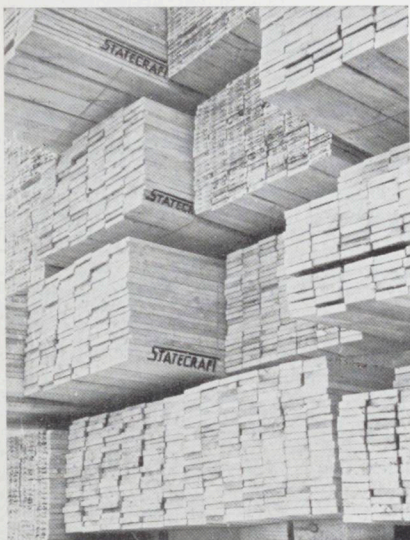
THE HISTORY OF THE FOREST

Picture to yourself a vast area of desolate country in the centre of the North Island, extending from Lake Rerewhakaaitu and Mount Tarawera in the north to Lake Taupo in the south, and bounded east and west by the Rangitaiki and Waikato rivers; made barren by waves of pumice ejected in prehistoric eruptions; treeless except for a few small clumps of bush in sheltered

gullies, and waterless except for scattered small springs and seepages; devoid of life except for bands of wild horses existing precariously on sparse tussock; with no signs of human occupation except a military road from Waiotapu to the barracks at Fort Galatea and rough tracks to the Urewera ranges, to Hawkes Bay, and along the course of the Rangitaiki River to the old Rangitaiki Hotel.

It was on this unpromising tract that in 1897 four small experimental plots of trees were planted. These four plots were the beginning of what is now a forest covering an area of 347,000 acres—Kaingaroa, the largest planted forest in the world.

Credit for the utilisation of the Kaingaroa Forest as the arsenal for a pulp and paper plant must go to William Adamson, of the famous engineering firm of Walmsleys, Bury, England, who was invited by the State Forest Service (as it was called then) to advise on what could be made of the desolate plains between Rotorua and Taupo. In December, 1925, he saw the promise of what could be achieved and it was on his advice that the large scale plantings were carried out. It was left to the then Engineer-in-Forest Products, Alex. R. Entrican, later and still, Direc-



Typical radiata pine timber for export.

The Future of the Forest

For the next twenty-five years and probably for fifty years after that, the Tasman Pulp and Paper Company will obtain 23 million cubic feet annually from the Murupara Working Circle. Much of this will be manufactured into papers and newsprint, but a large quantity of timber will be sold on home markets and exported to Australia. Throughout New Zealand, exotic forests planted during the 'twenties' and 'thirties' are reaching maturity, and, in line with the national policy of conserving indigenous timber supplies, more and more exotic timber will be marketed.

At present the exotic forests supply 246 million board feet out of a total cut of 575 million board feet, but within less than a generation the exotic cut will be more like 650 million board feet out of a total sawn-timber production of 750 million board feet. Although in 1940, production of exotic timber was only 75 million board feet (and then it was largely rated as a boxmaking timber), it is expected to rise to about 360 million board feet by 1956-57. Such a phenomenal increase in exotic timber production cannot fail to have far-reaching effects on the timber and construction industry, effects which are already evident and were foreseen.

Great strides have been made recently in the milling and merchandising of exotic species. With the supply of indigenous timber rapidly diminishing, timber merchants, architects, builders and other users of timber



The first rail load of logs coming down the new line from the forest.

are virtually being forced to accept exotic timber for many purposes for which previously only the best indigenous timber was considered suitable. Some architects and lending institutions are still reluctant to experiment with the use of exotic timber, but this reluctance is disappearing with technological advances made in usage and treatment. Modern sawmills, wood preservation plants and dry kilns are now producing a timber which can (and eventually must) replace indigenous timber in practically every phase of timber construction.

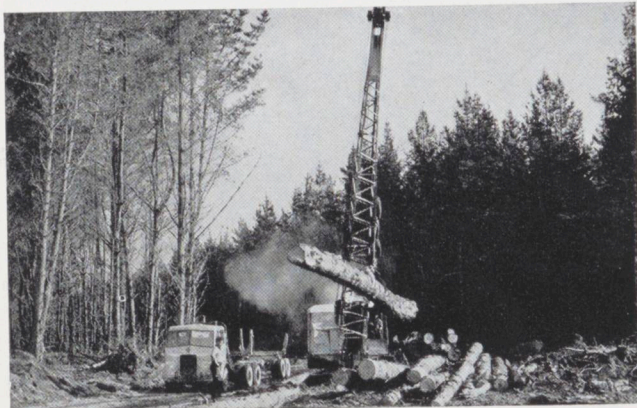
The chief shortcoming is in an adequate supply of dressing grades for weatherboarding and flooring and this is likely to continue for many years until silvicultural treatment yields a higher proportion of the higher-grade exotic timber.

The immediate shortage of higher-grade timber is being countered by the

knot boring and plugging machine, which is widely used in Scandinavia and Northern Europe for up-grading the lower grades of the characteristically knotty, pine timber.

The wide use of radiata pine for furniture, panelling and shopfittings is familiar to most New Zealanders. Such buildings as the Kelston School in Auckland, the concrete form work at Kawerau, and the houses of the new townships at Kawerau and Murupara show that in radiata pine the New Zealand building industry has a source of supply that can meet its major requirements satisfactorily. Although it cannot be fully determined how the use of radiata will affect building construction and design in New Zealand, its 'arrival' in quantity is timely and of vital importance to our economy.

Both these articles were prepared from information supplied by the New Zealand Forest Service.



Logging in the Kaingaroa Forest.



Stock piling the logs for railing to the plant.

HOW THE GOVERNMENT HELPED

To build the world's fourth largest integrated pulp, paper and sawmill in a remote part of a remote country (globally speaking) was an achievement in itself, but this is only part of the story.

Distances from port, main highways and existing railheads meant that these services had to be provided or linked up urgently, not just to service the industry when in production, but to transport to the site the steel, cement and timber for the construction work and the plant and machinery to put life into its great carcass.

In the original Kaingaroa Log Sale Proposals, the Government undertook to link up the mill with its source of raw materials and with the outside world for the distribution of its finished products. The Government also undertook to build homes for the workers for this New Zealand's newest industry. While Fletcher-Merritt-Raymond were building the mill, large-scale Government works were going on simultaneously—the Railways Department was blazing trails from the forest outlet to the mill site, from the mill to the main line and from the main line to the new port at Mt. Maunganui; the Ministry of Works were busily engaged on new highways or renewing old ones, and work on the new pier and port for Mt. Maunganui was under way. The Government planned the

town of Kawerau and, although it was Fletcher Construction who were the main contractors on the town site, planning, calling of tenders and supervision of construction was in the hands of the Government.

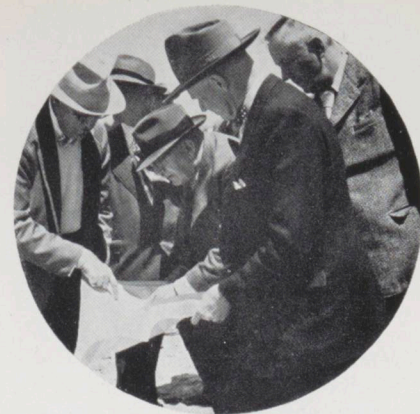
Roads

A completely new road connecting the town site and the mill with the Rotoma-Whakatane highway and involving considerable time savings between the site and Rotorua, was quickly cut through by the Ministry of Works and has been in full use for many months.

Ninety-two miles of high-standard roading are being cut in the forest to bring the logs to the railhead. Thirty-six miles of these roads have already been completed, and logs are being hauled over them while the balance of the work continues.

Railways

The longest link was the construction of the line from the forest to the mill. Photographs indicate the steep and rugged nature of the country which involved over 3½ million yards of earthworks. The laying of the track was done in record time: it was fabricated in rail lengths, and sections were laid by crane, the whole thirty-two-mile operation taking only 6½ months. On the 4th April, 1955, the first trainload of logs left the forest siding for



Left to Right: Messrs. E. W. Hammer, B. C. Ashwin, Sir James Fletcher, A. R. Entrican and E. R. McKillop.

Kawerau. Special log transporting wagons and locomotives estimated to cost over £500,000 are being provided by the New Zealand Railways.

Two smaller stretches of railway line have also been completed. The first was the nine miles linking the mill with Awakaponga Junction on the main Taneatua - Auckland line. This was completed by the end of August, 1953, and so, almost from the beginning of the job, there has been a rail connection of inestimable value between Auckland and the site. The four-mile section from the port at Mt. Maunganui to the main line at Te Maunga was completed in April, 1954, in time to enable the five 54-ton digesters to be railed to the mill—they had been towed by tug from Auckland.

Kawerau Town

In 1953 the town site was covered in lucerne and sheep grazed unconcerned at the momentous decisions which would shortly affect their paddocks. Government planners designed



Jack Bourke (left) with housing foremen on the townsite.



One of the smaller geothermal steam bores alongside the site at Kawerau.

a township to house 3,500 people with an estimated total of 550 houses, shops, schools, post office, police station, hotel and administration buildings. Sealed streets, concrete footpaths, water supply, sewerage and storm water drainage are being rapidly installed. A half-million-gallon reservoir has been erected on the hills above the town.

The greater proportion of the completed houses will eventually be occupied by the permanent employees of the Tasman Company, but during construction, completed houses have been occupied by key construction and engineering staff, while many partly-completed homes have been used as single quarters for construction personnel.

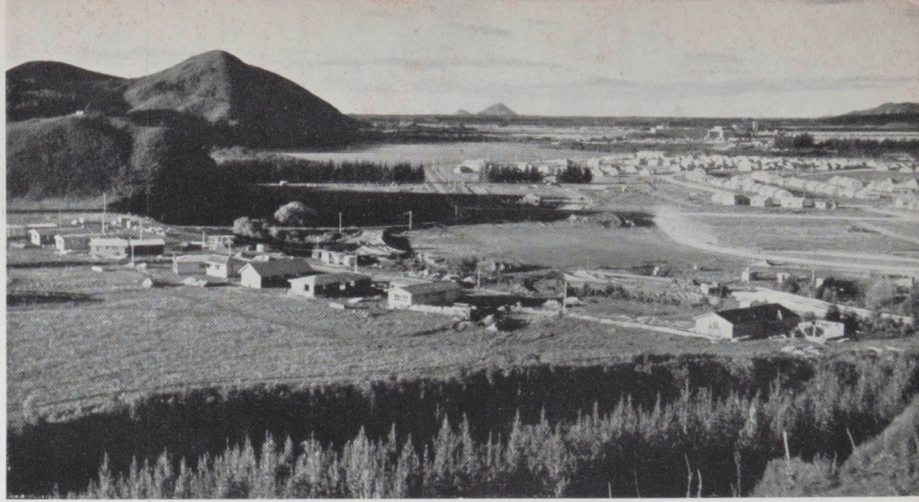
Murupara Township

This is another Kawerau on a smaller scale, to house forest workers. It will consist of over 200 houses to begin with, with ample provision for expansion, and another 50 houses are under construction at the Forest Service settlement of Kaingaroa, ten miles distant. A modern permanent camp to house 150 forest workers has also been built at Murupara.

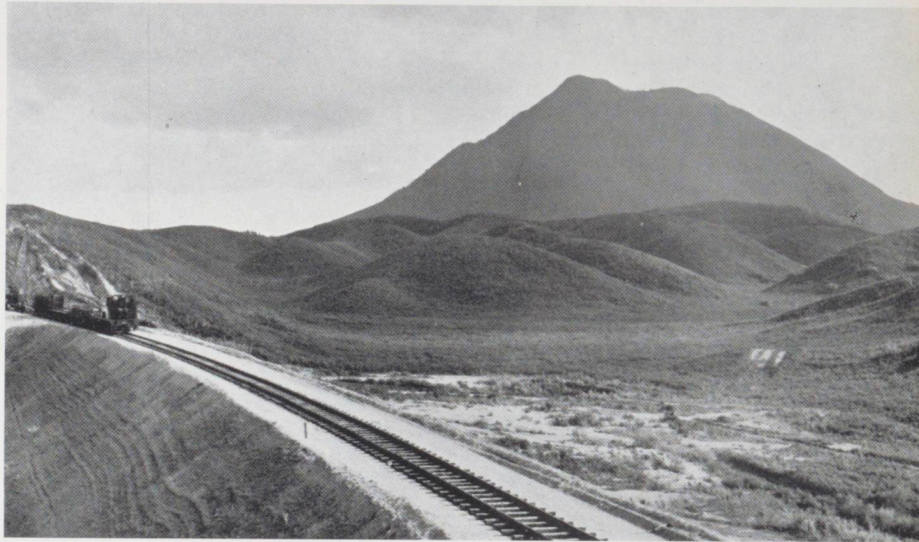
Electric Power

The State Hydro - Electric Department has erected a 110 kv power line from Edgecumbe to Kawerau, built a sub-station at Kawerau and extended

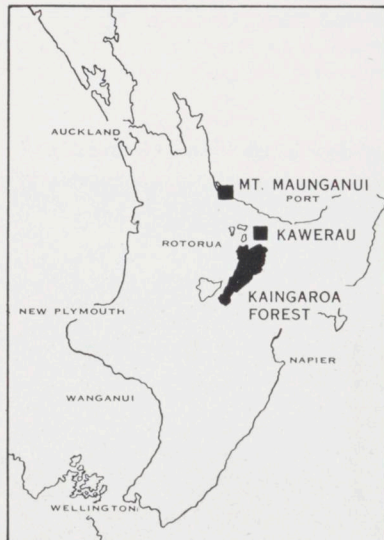
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A view from the reservoir of Kawerau town and mill.



A section of the new line from Murupara to Kawerau with Mt. Edgecumbe in the background.



Unloading the first shipment of raw materials for Tasman—a cargo of salt cake—at the new wharf at Mt. Maunganui.

HOW PULP AND PAPER ARE MADE

By DR. R. S. JOBIN

'Tasman to make newsprint from pine.' Statements such as this have appeared so frequently that the fact that paper can be made from wood is apt to be taken for granted. But there is something remarkable in this achievement and, judging by the size and complexity of the plant at Kawerau, it is no simple process.

What, then, is paper, and how is it made from wood? If a sheet of paper is examined with a magnifying glass it will be seen to consist of a felted mat of short, hairlike fibres, the largest fibres being about one-tenth of an inch in length and just over one-thousandth of an inch in diameter. The short, slender fibres can easily be seen if a piece of paper is torn and the torn edge examined against a light. These fibres are the basic raw material for the manufacture of all kinds of paper.

A piece of wood can be considered as a bundle of these short, flexible fibres held together with a natural adhesive called lignin. The fibre itself consists principally of a substance called cellulose, which is also found in cotton. The fibres in cotton wool, however, are about ten times longer than those in pinewood, and have to be chopped into short lengths before paper can be made from them. The fibres in pinewood are just about the correct length for paper manufacture, but they must first be separated from the wood.

There are two methods of bringing about this separation, one being called

the groundwood process, and the other the chemical pulping process. Both methods are employed in the manufacture of newsprint, and each produces as its end-product a suspension of fibres in water, which is referred to as 'slush-pulp'. If a quantity of this slush pulp is poured into a frame fitted with a finely-woven, wire-mesh bottom, the water will drain away and leave a wet mat of fibres. This wet fibrous mat can be consolidated by pressing to give a sheet somewhat resembling cardboard, and is referred to as pulp.

Groundwood Pulp

Groundwood is one of the lowest grades of wood pulp, but it is particularly well suited to the manufacture of newsprint, and furnishes about four-fifths of the fibrous material requirements. The groundwood pulp is prepared in the slush form by forcing 4-foot-long, debarked logs lengthwise against a revolving 67-inch-diameter grinding stone, and spraying the stone with water to wash away the fibres, fibre bundles, and fibre fragments which have been torn away from the wood log. The stone is artificial, and the depth and pattern of the cut influence the quality of the groundwood pulp produced. At Kawerau there are eight grinders, each capable of producing 30 tons of pulp daily, and one 5,500 h.p. motor drives two grinders.

Logs of 16-inch diameter or less with the minimum of heartwood are most

Dr. R. S. Jobin is Technical Manager of Tasman Pulp and Paper Company Limited.

He has a background of both research and production work in the pulp and paper industry. Before joining Tasman he was Principal Research Officer of the British Paper and Board Industry Research Association; was a member of an O.E.E.C. Mission to North America after the war, and his special field as a member of the Mission was the manufacture of sulphate pulp.

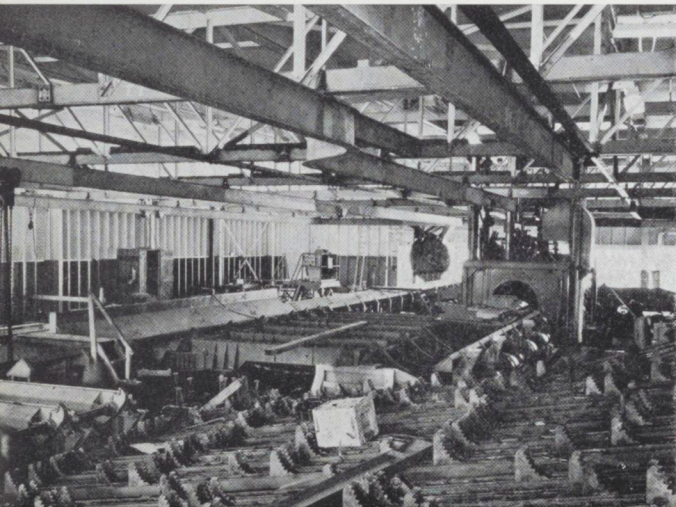
He has also travelled extensively in Scandinavia and Europe.

suitable for the production of groundwood pulp. The logs of radiata pine, in lengths up to 40 feet, arrive at the mill from the Kaingaroa Forest in rail wagons. Sorting of the logs according to their suitability for groundwood pulp, chemical pulp or sawn timber is carried out in the Wood Preparation Room after the bark has been blasted off by high-pressure water jets, of 1,200 lbs. per square inch. Oversize logs can be split, if necessary, for the Groundwood Pulp Mill, while crooked logs and sawmill waste can be chipped for the Chemical Pulp Mill.

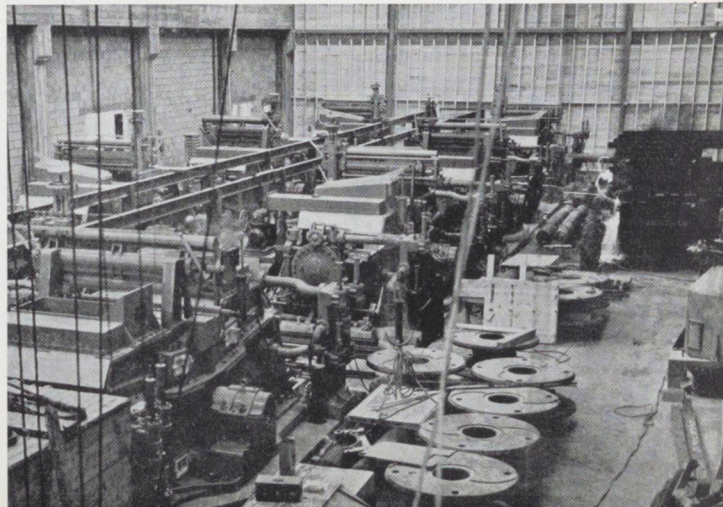
Chemical Pulp

About one part of chemical pulp to four parts of groundwood pulp is employed in the manufacture of newsprint. The object of the chemical pulping process is to remove the non-cellulose binding materials which hold the fibres in the wood and thus free the fibres undamaged, in their natural length. In contrast, the groundwood fibres are broken down to a considerable extent in the grinding process and are also rather stiff due to the presence of encrustants which have not been removed from the wood. Pure groundwood newsprint would be difficult to run over the paper machine, because

Interior of Wood Preparation Room showing the hydraulic barker in background.



The log grinders in the course of assembly.



The log dump at the mill.

of its low strength properties, but the addition of twenty per cent. of the longer and more flexible chemical pulp acts as a reinforcement and enables high production rates to be achieved on the paper machine.

Freeing of the fibres from the wood is accomplished by cooking wood chips (about 1" square and 3/16" thick) under pressure in a liquor containing caustic soda and sodium sulphide. The binding materials are dissolved in the liquor, and a yield of fifty per cent. (on a dry wood pulp basis) of fibrous pulp is obtained. The pulp is brown and is later bleached to a creamy-white colour with bleach liquor obtained from the chlorine plant. The mixture of bleached chemical pulp and the groundwood pulp is pumped in the slush form to storage chests to feed the paper machine.

The chemicals present in the used cooking liquor are recovered by first evaporating the liquor to a syrupy consistency and spraying it into a recovery furnace and boiler as if it were oil fuel. The fifty per cent. of binding materials dissolved from the wood burn in the furnace, producing more than enough steam to meet the needs of the Chemical Pulp Mill. The chemicals run out of the bottom of the furnace in a molten form, suitable for regeneration with lime.

The Chemical Pulp Mill will produce about 150 tons per day of pulp. About 40 tons are bleached for newsprint production, and the remaining 110 tons are formed into a thick web of dry pulp which is cut into sheets and baled for export.



Newsprint

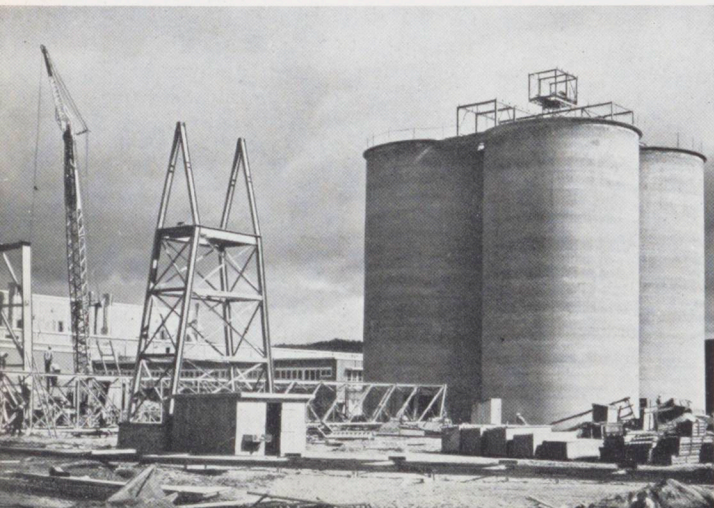
The manufacture of newsprint as a continuous web involves three major steps: (i) the suspension of fibres in water is formed into a wet sheet of paper by filtering the suspension on a wire mesh screen; (ii) the wet sheet is removed from the wire mesh and dried on steam-heated cylinders; and (iii) the wide roll of newsprint produced is cut into rolls of smaller width suitable for the customer.

Formation of a continuous wet sheet of paper is achieved by projecting a flat jet (about 280 inches in length and 1/2 in. to 1 in. in thickness) of fibres suspended in water on to a horizontal fast-moving endless wire screen. As the pulp suspension is carried along on this endless wire-mesh belt the majority of the water drains away, leaving a wet mat of felted fibres. The wet mat has very little strength, and is, therefore, sucked off the wire on to an endless belt of thick wool fabric, called a 'pick-up felt', which transfers

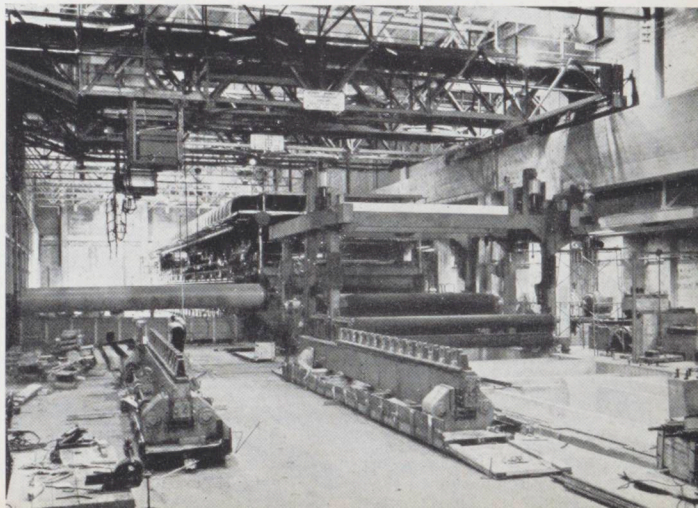
the paper sheet to press rolls, where additional water is squeezed out and the wet sheet is consolidated sufficiently to allow it to be fed through the drying cylinders. The paper is dried by passing it over 49 revolving, steam-heated, horizontal cylinders, the paper being held against these cylinders by a continuous band of thick cotton fabric called a 'dry felt'.

The dried paper is then wound into a great roll about 23 feet wide and 5 feet in diameter. Such a roll is too large for any printing machine, and the next step is to cut the large roll into smaller rolls, the largest of these being 72 inches wide and 34 inches in diameter and weighing about 14 cwt. The paper machine can run at speeds of up to 2,000 feet per minute, and the winder, on which the large rolls are cut into smaller rolls, can run at speeds up to 6,000 feet per minute. The entire process from the wire screen to the winding up of the dried paper occupies less than 45 seconds. Rated production is 220 tons of newsprint per day.

The chip silos showing the conveyors in the course of erection.



View from the wet end of the newsprint machine.



Personalialia



AUCKLAND

Congratulations: To Sean McKeown (F.C.C. Office) on the birth of a daughter, Deirdre; to Ted Malatios on the birth of a son; to Murray Neads (Vulcan) on his engagement to Ann Skerrett; to Elizabeth Abernethy on her marriage to Mr. William Thompson on June 25.

Welcome: To Misses Leslie and Riordan (Vulcan); Mrs. Marie Cox, now in invoices, after being in charge of tea in the offices for the past year; Bob Golland (Plywood); H. Klass (Sales Division); Faye Meredith, Jan Faber, Pam Fielder and Raewyn Millar (Office); Frank McHugh (Acoustic Division). Newcomers to Purchasing Division are Alex McMullan, of Clifton Springs, New York, who first saw New Zealand as a member of the U.S. Marine Corps., and Sam Waugh of Glasgow.

Ken Grenney is back in Auckland after being abroad for two months on business in Australia, America, Britain and Europe.

Farewell: To Mrs. (Mac) McDermott, who left Plywood after 13 years' service. An electric cake-mixer was Mrs. McDermott's farewell gift.

Rene Starling (Sales Division) has gone to Australia.

Mr. McEvoy has returned to America after his spell of duty with Merritt-Chapman & Scott at Fletcher-Merritt-Raymond.

WELLINGTON Wisdom

Welcome: To Ernie Dean (Credit Manager) and Stan Hoskings (Traveller) at Fletcher Sales and Services; Jacqueline Morse and Roger Bridgeman (Acoustic Division); Miss Marsden (Palmerston North Office); Mrs.



The Fletcher Holdings team who won the Wellington Mercantile League Shield.

Back Row: S. Taylor, E. Todd, B. Turner, D. Drinkwater (Hon. Sec.), R. Stringer, R. Guy, W. Preston.

Front Row: G. Trim, S. Bellamore, T. Fox (Capt.), B. Smith (Vice-Capt.), E. Anderson, W. Curgenvan.

Pauline Breedon (Fletcher Sales and Services Office); and Anne Dick, back at Sales Division after a trip abroad.

Congratulations: To Len Burgess (Sales Division) on his marriage, and to Harry King on his return to work after illness.

CHRISTCHURCH News

Congratulations: To C. J. Ross and A. J. Webster (Plywood), G. W. Grayburn (Construction), D. F. Sommerfield (Plumbing Division), who are recent fathers; to Norman Mahoney (Office) on his marriage; to Wallace Bridgman (Plywood Laboratory) on

his marriage; to Doreen Humphries (Office) on her engagement.

DUNEDIN Diversions

Congratulations: Births have been announced to Ron Spiers, Bob Gibb and Don Matheson (Invercargill). Fletcher Steel reports the marriage of Sandy Robertson to Margaret O'Neill, and of Marie O'Neill to Graham McDonald.

Welcome: To Mrs. S. F. Cole (Purchasing), Mrs. N. Auld, Miss K. Barr (Main Office), Bob Cooper (Plumbing Division). Snow Fearn and Andy Lamont are welcomed from the Construction Company.

SPORT

Best of 66: Besides winning the Wellington Mercantile Cricket League's G Grade competition and promotion to a higher grade for next season, the Fletcher Holdings team was awarded the Heineman Cup for the best aggregate in all grades. Bill Preston's was the highest batting aggregate in the League, in which 66 teams were entered.

Double Century: Charlie Davies, of Duroid, recently caught 100 snapper from his launch *Korora*, next day caught another 100; the rumour that he used Hydroseal for bait remains unsubstantiated.

"Bourke's Bruisers": Against a Te Teko side, the Kawerau First Fifteen won their opening game of the season by 11 points to 8. With Jack Bourke and Bill Firman as coaches, the team should shape well. Bill represented Wanganui at Rugby for many years and has played in All Black trials.

Indoor Game: Of 48 Indoor Bowling teams competing in Christchurch for the Bradley Cup, three have been entered by Fletchers' Club which has also challenged Fletchers' Dunedin bowlers. This is a choice of formidable opponents, for on a points aggregate over six rinks, Dunedin recently won with a 42-point margin when playing the Love Construction Company for the Love Cup.

WHAKATANE

In a note from Kawerau, Rex Moyle reports: "The Whakatane Board Mills job is drawing to a close, and Superintendent Norm Thackray will be getting out of working clothes for the party." Mr. Thackray is pictured below (centre), in his working clothes, as he confers with colleagues on the job.



(To the Editor)

Sir—Someone, obviously a poorish type from some place called Wellington (presumably a Tangled Town of sorts), has gloatingly forwarded me a copy of your publication in which the following scurrilous sentence appears: "The Hutt Valley, ten miles removed from the City's heart, is set aside as the new industrial area of the Capital." In the Hutt Valley we are inured to that kind of propaganda. But by what stretch of an unfortunate imagination can it be stated that the Hutt is Wellington's industrial area? Lower Hutt accepts no such secondary status. There happens in fact a conspiracy to prevent its being recognized as New Zealand's real capital. Need *Arrowhead* be so wrong-headed as to lend itself to the conspiracy?

FIAT LUX,
Lower Hutt.

WINTER WEIGHT?

Personalia looks like it's in training for the football season. With five inches off its waistline it may be slicker, faster or, from a feminine viewpoint, easier to look at. But the new line is not intentional—fatness is fitness according to the Editors.

Personalia relies on news from every branch and every job and office desk. There are correspondents in five main centres who collect the news and pass it on, but they cannot use private detective methods to find out what newsworthy events are going on in the lives of Fletchers' four thousand employees. They expect people to keep them informed.

Another thing—news from Provincial centres has had no space for lack of correspondents. How about it Rotorua—and Hamilton, Palmerston North, Whangarei, Tauranga, Invercargill and Roxburgh?

We depend on you to feed the column and keep it fat.

HOW THE GOVERNMENT HELPED—contd.

the sub-station at Edgumbe. It is also duplicating the seventy miles of transmission line between Arapuni and Edgumbe which involved over 500 pole structures. Power was made available at Kawerau in May, 1954—the scheduled date.

The Port

Construction of the port at Mt. Maunganui began in June of 1953 and the first ship berthed in November, 1954; the first cargo was unloaded in February, 1955. Progress on the wharf has constantly been ahead of schedule, and the final structure (1,230 feet in length and 30 feet wide) is now about 80 per cent. completed.

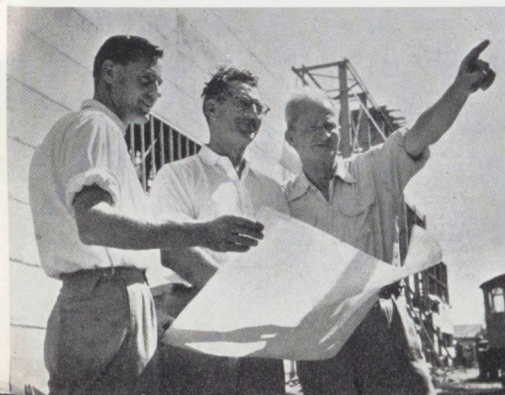
Tractors have pushed 190,000 cubic yards of sand into the area to be reclaimed between the wharf and the shore, and another 165,000 cubic yards of reclamation will be carried out partly by dredging and partly by tractor. Construction of the first of the three cargo sheds is well under way.

Geothermal Steam

At the request of the Tasman Company, specialists from the Ministry of Works have been boring on Tasman's property for almost two years. The deepest bore so far is 1,476 feet, and work is still going on. Although the stage has not yet been reached when this steam can be harnessed for the production of electric power or for process work in the plant, the engineers are completely confident that it will be available.

The Government's part in the Kawerau project is a splendid example of how Government and private enterprise can work together. All the Government works are economic and income earning, and without them the Tasman project could not be a success.

Great credit must be given to E. R. McKillop (the then Commissioner of Works and Director of Construction of the Tasman Company) under whose guidance most of this work has been undertaken. Special mention should also be made of C. E. K. Alecock of the Ministry of Works, A. E. Davenport of the State Hydro-Electric Department, H. C. Lusty, lately General Manager of the New Zealand Railways, and their numerous local representatives who have done such an outstanding job in record time.

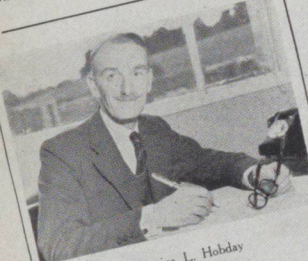




RAU MILLS
ING SHAPE

Party Spends Rainy
Mushroom Town
May 22nd, 1954

Kawerau
to will buy the first New Zea-
newsprint and others whose
no doubt the mills and town
yesterday taking shape
erau, now rapidly taking shape
the shadow of Mt. Edgecumbe.
mushroom town played host to an
party numbering nearly 50. It
six newspaper proprietors and
members of the House of Representa-
tion and of members of members for-
land city and the Parliamentary
size which had set off
ing of eight which had set off
ing on Thursday morning.
the party included the Prime Minister
Holland, five other Cabinet Ministers,
and the Leader of the Opposition, Mr.
ash.



Maurice L. Hobday

TASMAN'S GENERAL
MANAGER

The General Manager of the Tasman Pulp and Paper Company is Maurice L. Hobday, an Englishman who has spent a lifetime in the pulp and paper industry. He has been in New Zealand now for over twelve months, and his wife and son arrived at Christmas time.
Mr. Hobday, who was the General Manager of the Imperial Mills in Gravesend, Kent, will reside at Kawerau. Mr. Hobday served in the navy during the war and rose to the rank of Lieutenant Commander, R.N.V.R.

British Group Urged
Delay on Murupara

A six-month delay for a thorough re-survey of the Murupara scheme was urged by the recent talks under

KAWERAU PROJECT

Governor General's Speech

Extract from the Speech of His Excellency the Governor General on the Opening of Parliament, 23rd March, 1955:—

"The launching of the very large pulp and paper scheme at Kawerau for the harvesting of our forest wealth is rapidly nearing completion. It is expected that the Tasman Pulp and Paper Company's mills, which will be amongst the most modern in the world, will be in production this year, thus adding to the productive wealth of our country with consequent saving in dollars and improvement in sterling funds. The speed at which the vast undertaking has been built and the energy and enthusiasm of all those working on this project merit the highest commendation of the people. Records have been broken in many fields. These comments apply equally to the forestry work, the railway construction, and the harbour works at Mount Maunganui."

PLANT CAPACITY

The plant has been built for the Tasman Pulp and Paper Company Limited, Kawerau, Bay of Plenty, New Zealand. Rated production is:—

- 220 tons of newsprint per day.
- 150 tons of Kraft (sulphate) pulp per day.
- 72 million board feet of sawn timber (on a two-shift basis).

The plant was designed by:—
SANDWELL & COMPANY LIMITED
VANCOUVER, CANADA.

Contractors were:—
Fletcher-Merritt-Raymond
—a joint venture
partnership of:
The Fletcher Construction Company Limited
Auckland
Merritt-Chapman & Scott (Overseas) Corporation
New York
Raymond Concrete Pile Company
Delaware, U.S.A.

ASSISTANCE FROM CANADA

In order to help Tasman over the early teething troubles, the Tasman Company have made an arrangement with the Abitibi Power & Paper Company Limited of Toronto, one of the best known North American paper companies, to supply key personnel to assist the start-up and to train Tasman operatives.
The Abitibi team is led by T. C. Anderson who is ably seconded by Herb Temple and have been at Kawerau now for some months.
To help start up the chemical pulp mill, Tasman have borrowed Peter Vakomies of Sandwell & Company, a young Finnish engineer who has been in Canada for three years and who designed the Tasman plant in Sandwell's office in Vancouver.

Prime Minister Visits Newsprint Town

Staff Reporter June 13th, 1955 Rotorua
Impressed with progress on the Tasman Pulp and Paper Company's huge forest utilisation project, the Prime Minister, Mr. Holland, returned to Rotorua yesterday after inspecting the development of the scheme.
He predicted that it would be of the utmost importance to the Dominion, "It is without doubt the largest project ever undertaken in this country and it should be seen by everyone in New Zealand," he said.
Reviewing progress since he visited Kawerau in May last year, Mr. Holland described the development of the newsprint town as "almost unbelievable."
Meticulous planning and close co-operation between State and private enterprise had resulted in "this gigantic new primary industry."
The veil of secrecy surrounding the Kawerau mills was not lifted for the occasion. The gates admitted only the official party. Photographers who wished to photograph the group had to push telescopic lenses through the mesh of the eight-foot high fence.
It was told there would be steam at Kawerau to drive a timber

STEADY GROWTH OF KAWERAU NEWSPRINT MILL

Two Silos Rise In 4 1/2 Days
May 31st, 1954

Staff Reporter
There is a notice behind a Kawerau doorway: "The impossible we do it once—miracles take a little longer." It well applies to the pace at which structures appear on the site of the £2,500,000 newsprint mill.
History was made on Saturday morning when a nonstop cement-pouring operation which began at midnight on Monday was completed. Two teams of 16 men had worked round the clock building two 50-foot high sludge silos. Scaffolding rose at the rate of four inches an hour and the concrete grew in strength without a blemish. The cylindrical tanks are 17 feet in diameter and eight inches thick.

Drying Rollers Arrive

Since January the labour force has almost doubled, and now stands at more than 900. A dozen ancillary buildings now surround the mill. The big administration block is almost ready for occupation and any day a start will be made on the installation of the first of the paper machinery.
Half of the 60-odd drying rollers have arrived from England. They will spin the 22-foot ribbon of paper at 1800 feet a minute. The most heavy gear, 40-ton steel drums for the boiler plant will be hoisted 65 feet up.
Geothermal aid will supplement or even eliminate the need for the fuel-consuming boilers, but it is unlikely that the Tekeko bore will be ready in the initial stages. Sunk to 1000 feet in 1952, the bore is now being deepened.

400-foot Roof Tier

The sawmill foundations are going down and the roof tier—400 feet long and supported by 100 pillars and 1000 feet of the mill itself is going up.
The 28 buildings which make up the enterprise are gradually covering the town site. The latest schedule shows last of the main items set down for structural completion by summer.
When completed the plant will produce some 250 tons of newsprint daily. Work goes on with the site ever in view of the engineer since June, 1955.

Bank Emissaries Impressed By New Man-Made Forest

WELLINGTON, N.Z.
In Wellington for talks on the Government's \$10 million loan guarantee for the New Zealand Emissaries from the New Zealand Emissaries Bank who have preliminary negotiations in progress with the Government.
They are emissaries, D. J. S. Lamb, head of the bank, and his partner, Harry Simpson, who are in New Zealand to see the forest and know the forest.
Mr. Rowlands, who has those who had the forests and those to utilize them.
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