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DOC. 0197.....



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MONDAY 8th APRIL

HI KEN

THANKS FOR THE NEWSLETTER
CAN YOU PUT IN AN APOLOGY FOR
ME AS WE WILL BE ON HOLIDAYS
I HAVE SENT ALL I HAVE
ABOUT THE WEST BARWON DAM,
SORRY ABOUT THE STANDARD OF
THE NEWSPAPER CLIPINGS (AND NO DATE
ON THEM)
& PHOTOS.

REGARDS

SANDRA

CONSTRUCTORS *Utah* ENGINEERS

UTAH CONSTRUCTION & ENGINEERING PTY. LIMITED

INCORPORATED IN VICTORIA

BOX 1320L - G.P.O. MELBOURNE. C.I. : CABLE ADDRESS: "UTAHCONCO"

REGISTERED OFFICE: 505 ST. KILDA ROAD, MELBOURNE TELEPHONE: 26-3211

IN REPLY, REFER TO:

WEST BARWON DAM

ADDRESS REPLY TO:
P.O. FORREST,
VICTORIA
TEL.: FORREST 23.

17th May, 1963.

TO WHOM IT MAY CONCERN.



Dear Sir,

Miss Sandra Washington has been an Employee of this Company at our West Barwon Dam Project for a period of twelve months, where she is employed as typist-clerk in the Purchasing-Warehouse Department.

Her duties are the typing of Purchase Orders and all correspondence to vendors etc., also Receiving and Shipping documents and stock listings connected with our Warehousing system.

In these duties she has shown ability in speed, correctness and neatness with all work performed by her, also she is very conscientious and punctual in her work.

I can thoroughly recommend her to any person who wishes to employ Miss Washington in the future.

I remain,
Yours faithfully,

A handwritten signature in dark ink, appearing to read "R. E. Olsen".

R. E. Olsen.

Purchasing-Warehouse
Manager



WEST BARWON DAM

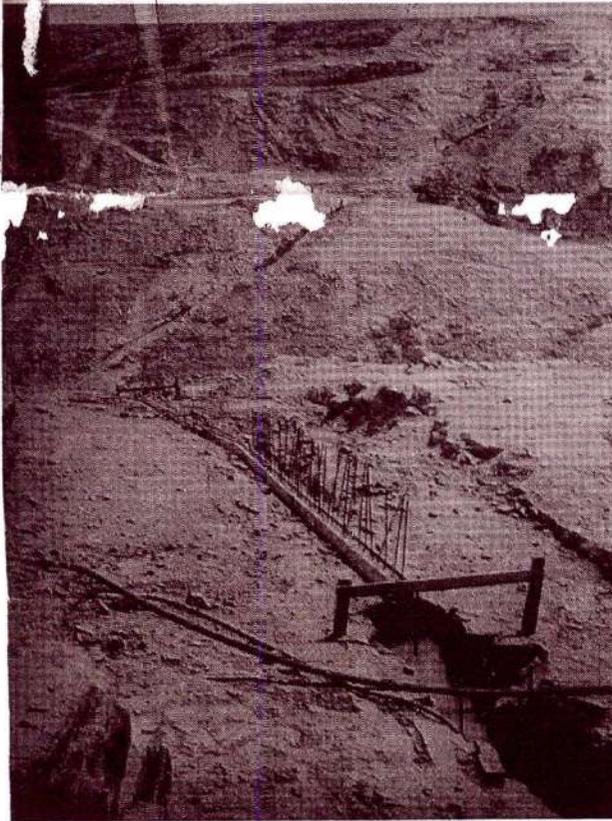
— Another £2,500,000 invested in the future of Geelong



...AND STARTS AT BARWON.

In the latest report from Barwon, it was felt to be of sufficient importance to comment that it had been sunny for two days consecutively!

Although it upsets Construction Superintendent Pete Peterson, to see all his lovely machines being lovingly hugged the affectionate knee deep Forrest mud, the rock fill operation in the dam proceeds apace, and the whole project is starting to really take shape under Project Manager JACK RIDLEY, and offsidiers Joe Kemp and Jack Saunders.



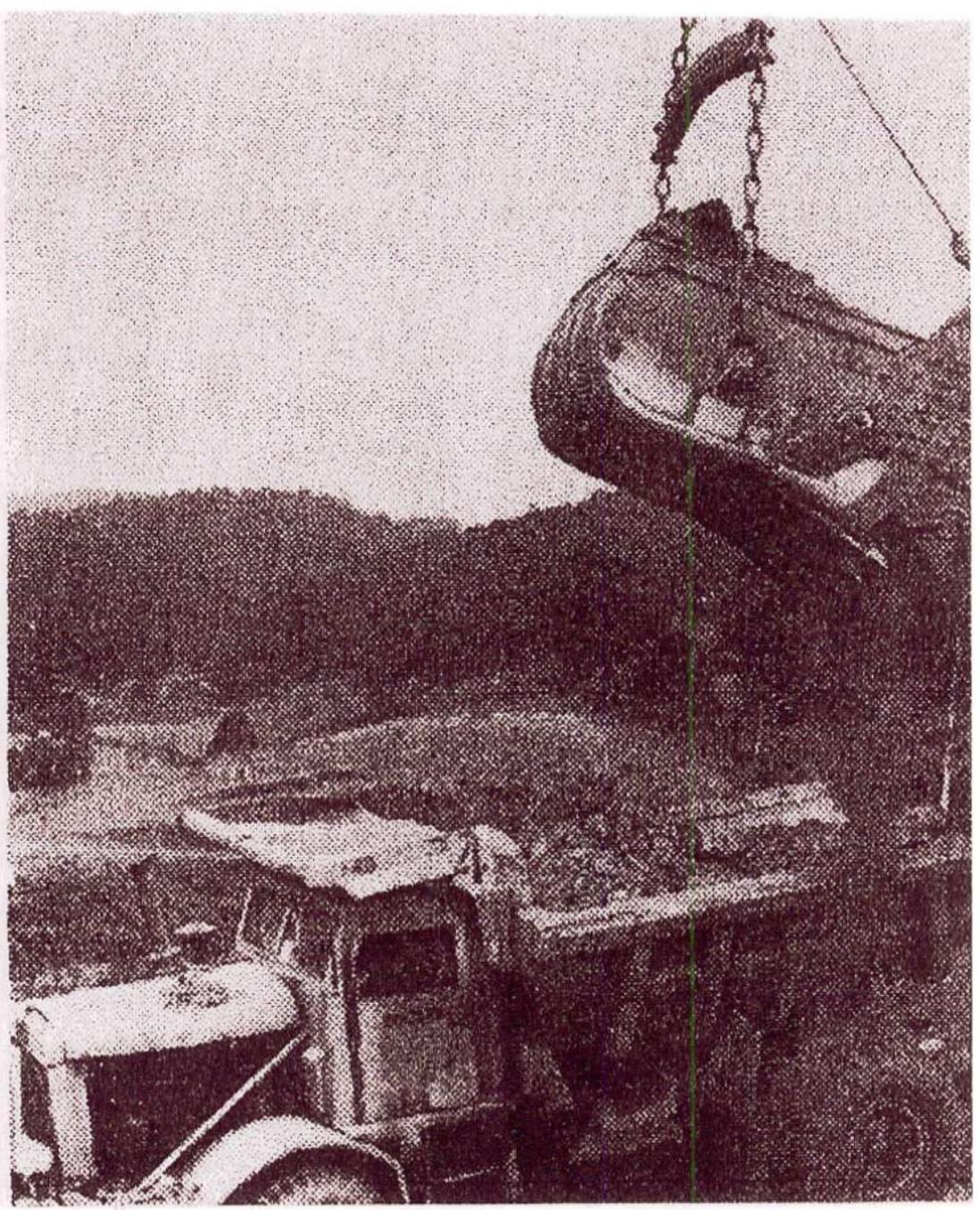
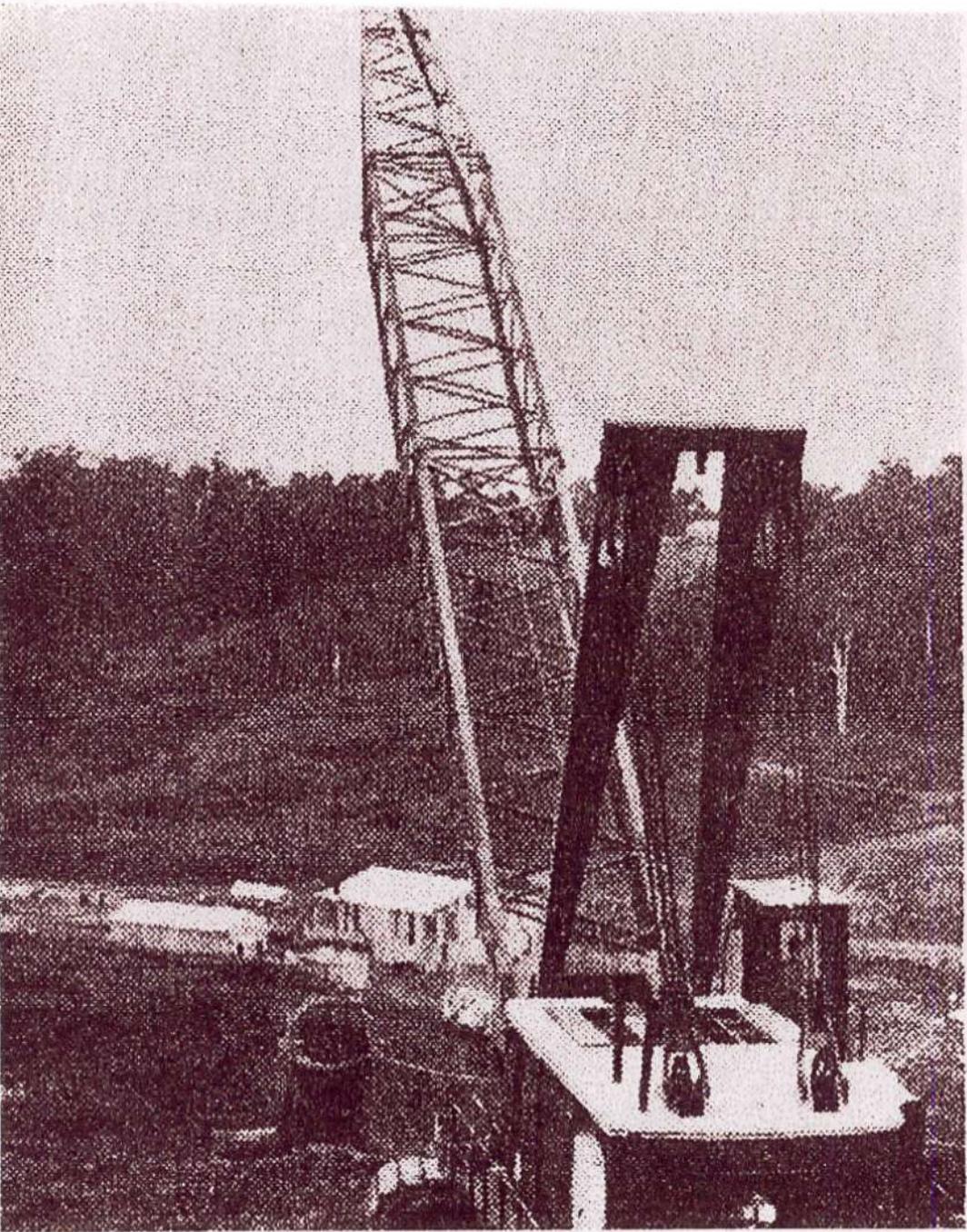
The West Barwon Dam showing construction of the core wall in the foundations.

THE Geelong Waterworks and Sewerage Trust supplies water to a population of approximately 100,000 people within a radius of five miles of the Geelong Post Office. It also supplies water in bulk to the State Rivers and Water Supply Commission for distribution to towns in the Bellarine Peninsula.

To cope with growing demands the Trust is at present constructing the West Barwon Dam — at a cost of £2,500,000 — which will increase the storages from 8,600 million gallons to 13,600 million gallons. Present yearly usage Geelong is over 4,000 million gallons.

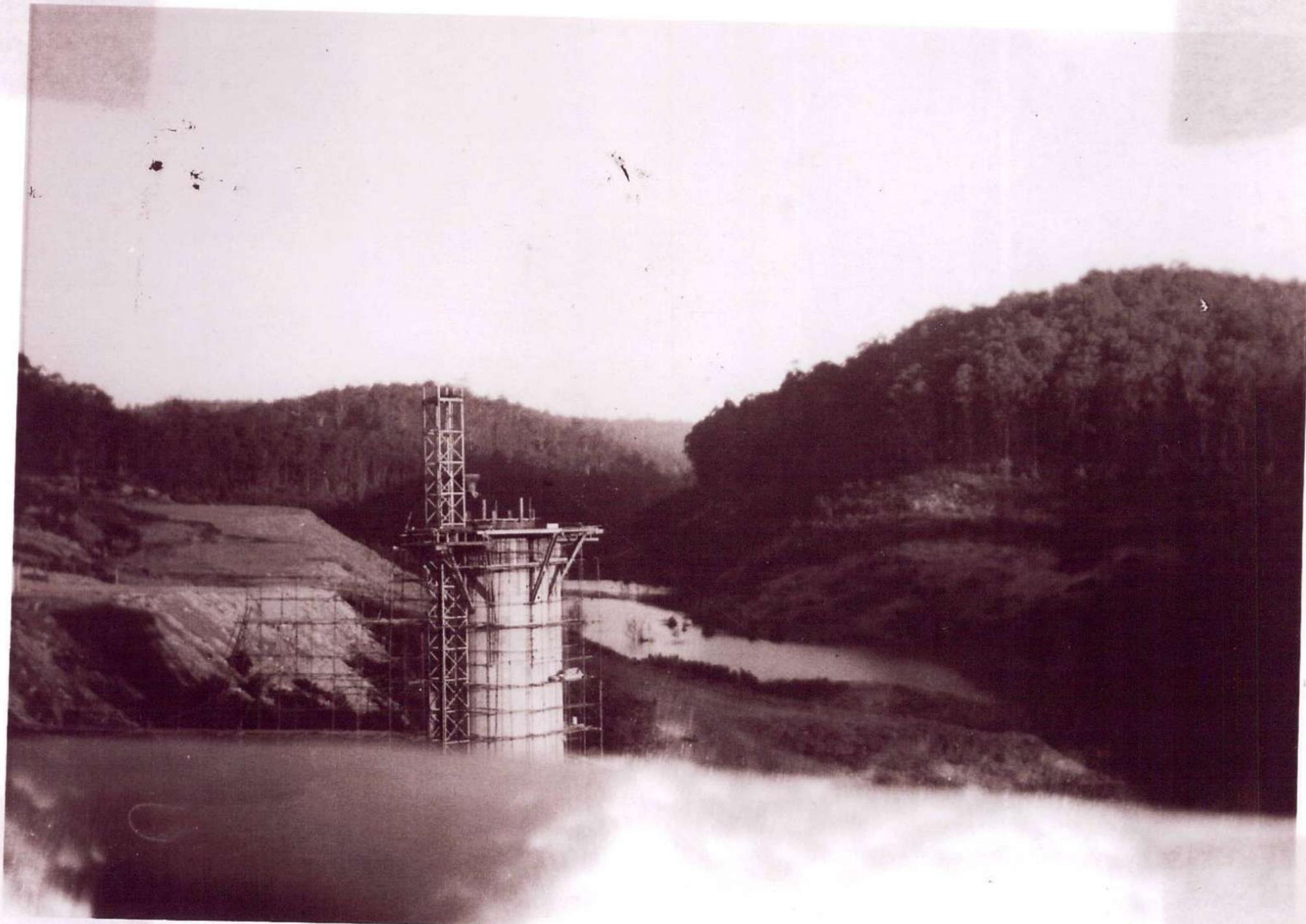
The Trust serves approximately 81,500 persons in the sewered area and has laid 61 miles of sewers in the past four years. Work will shortly begin on a project to enlarge the sewerage system at an estimated cost of £2,700,000.

In 1962/63 the Trust's income will exceed £750,000 and it will borrow £1,650,000 for expenditure on capital works



New Dam Takes Shape









AA Display Book
Retail Pockets

MADE IN CHINA
DOC 0409



**GEELONG WATERWORKS
AND SEWERAGE TRUST**

West Barwon Dam Project

COMMISSIONERS OF THE TRUST

CHAIRMAN AND GOVERNMENT NOMINEE ..	J. W. CARR, J.P.
CITY OF GEELONG	R. H. ROBERTSON AND L. W. SPRAGUE
CITY OF GEELONG WEST	R. W. WHITESIDE
CITY OF NEWTOWN & CHILWELL	L. M. JACOBS
SHIRES OF SOUTH BARWON/BELLARINE	R. E. GORELL
SHIRE OF CORIO	A. S. THOMSON, J.P.

EXECUTIVE OFFICERS

J. M. MACINTYRE, M.B.E., B.Sc., M.I.E. (Aust.),
ENGINEER-IN-CHIEF.

B. C. HENSHAW, A.C.A., F.C.I.S.,
SECRETARY/TREASURER.



The Geelong Municipal Waterworks Trust was constituted under the Geelong Municipal Water Act 1907, and came into being on 25th January, 1908, with five Commissioners. In 1910 it was re-constituted as a Water and Sewerage Authority and further re-constituted in 1950 to provide for seven Commissioners, including a Government Nominee Chairman.

The Trust operates under the Geelong Waterworks and Sewerage Act of 1958 and is charged with the responsibility of providing water and sewerage services to its area and maintaining and developing the Barwon River in its passage through Geelong. The water supply comes from the Barwon and the Moorabool Rivers to a population in Greater Geelong of 108,000 persons through 550 miles of water mains.

The sewered population numbers 95,800 and is served by 13 miles of ocean outfall and 302.7 miles of reticulation sewers.

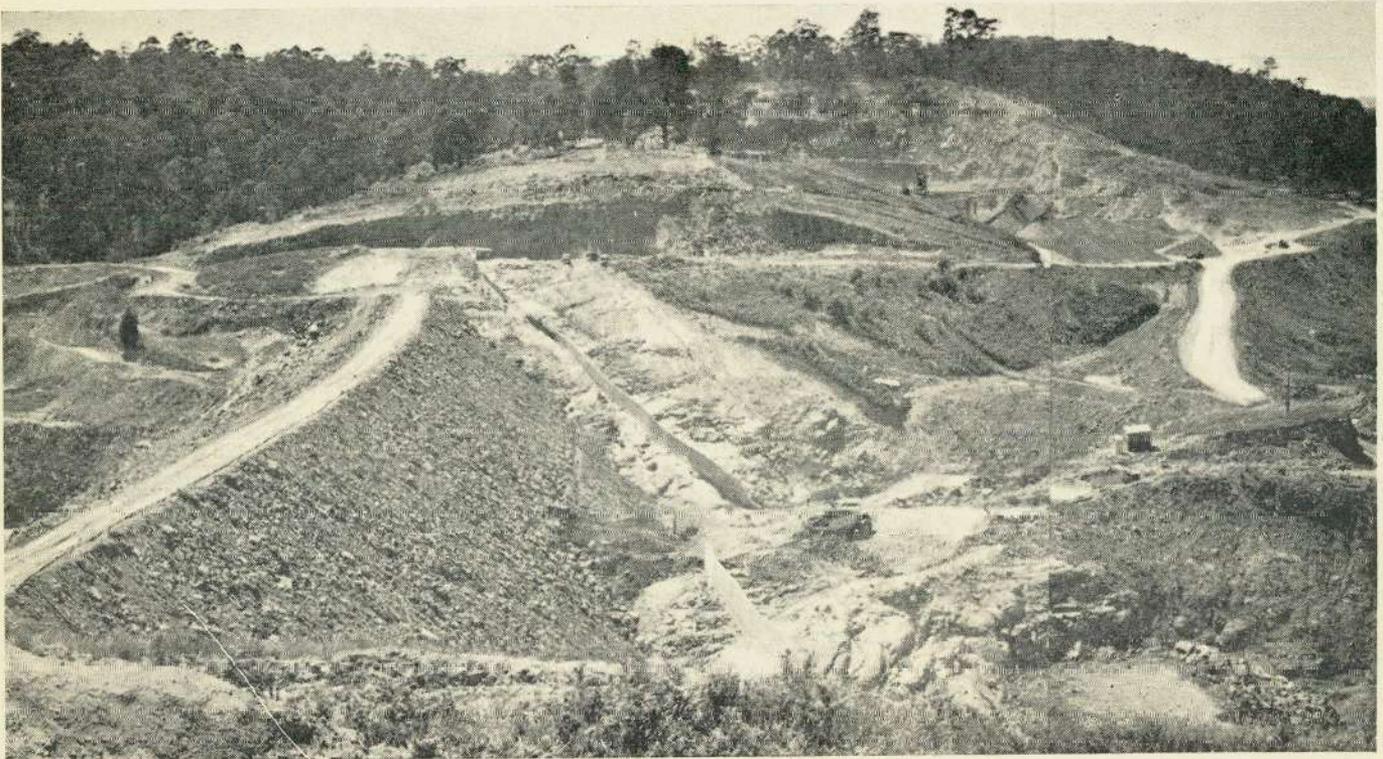
At 30th June, 1965, the Trust's loan liability stood at £11,170,265. Its estimated income for the financial year 1965/66 is just over £1,101,000.

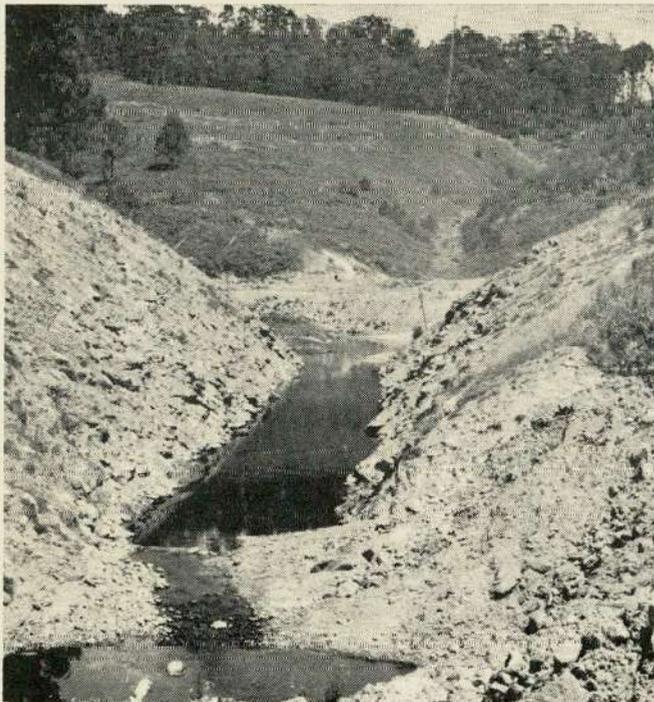
Currently the work force employed by the Trust consists of 104 staff and 214 wage employees, being a total of 318.

The following story of the Dam was originally printed in the magazine "Contracting and Construction Equipment" in 1963 and has been brought up to date with latest photographs and final description of the work. It is followed by a brief description of the working of the "Barwon System" and the part played by this Dam in that system.

'Nantahala' Type Dam to increase Geelong Water Supply

A general view of the site from the west abutment shows left, the downstream rockfill section; centre, the cut-off wall; top, the spillway cut and, top right, the rock quarry.





The diversion cut, subject of a separate contract, which connects the West Barwon River and Monday Creek.

ago by Utah Construction and Engineering Co. Pty. Ltd. Total cost of the project — including the embankment, spillway, outlet tunnel and intake works — is approximately £2½ million.

The completed embankment, containing some 815,000 cu. yds. of rockfill, clay, crushed rock and sand, will have a maximum height above foundations of 140 feet, a crest length of 1,100 feet, a maximum width at foundations of 560 feet and will impound 5000 million gallons of water derived from a catchment of some 20 square miles.

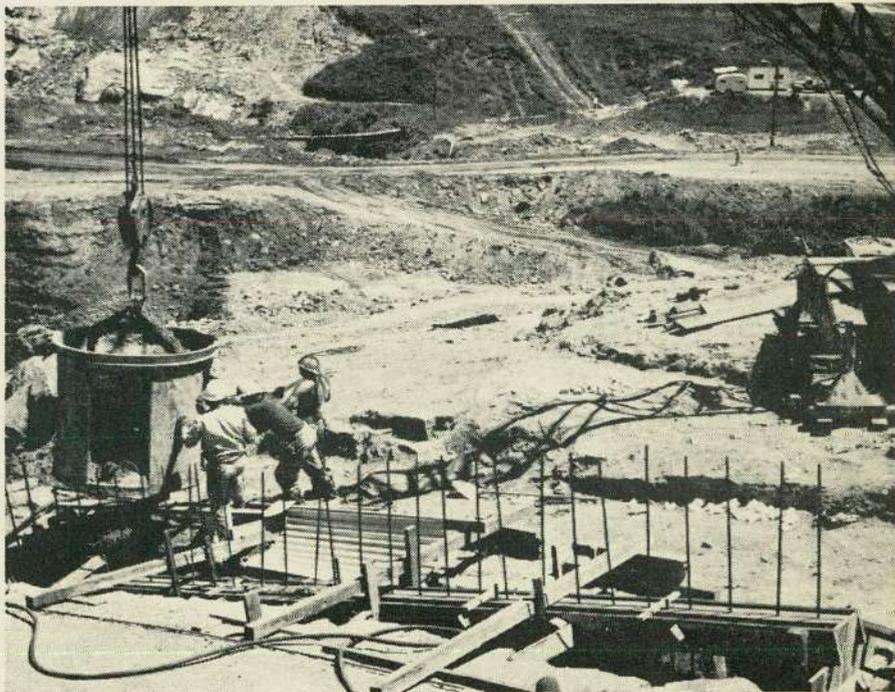
The dam is located at the junction of the West Barwon River and Monday Creek, two miles south of Forrest and fifty miles west of Geelong.

SINCE 1954, when the Geelong Waterworks & Sewerage Trust purchased the Barwon River Water System from the Victorian State Rivers & Water Supply Commission, a steady programme of expansion has been carried out in order to meet the increasing demand for water in the rapidly growing Geelong area of Victoria.

To date major works in the Barwon System have included the enlargement of the Wurdee Boluc Reservoir to a capacity of 4150 million gallons; enlargement of the inlet aqueduct to 54 million gallons per day and enlargement of the outlet aqueduct to 39 million gallons per day. These works have been completed at an approximate cost of £1,288,000 and have increased the annual water yield from the Barwon Scheme to provide for a consumption, in 1961, of 3368 million gallons.

Also included in the Scheme is the West Barwon Dam on which construction was begun two years

Construction of the cut-off wall. The foundation trench was excavated by hand and the concrete placed in timber forms from 1 cu. yd. concrete buckets.



Broken rock is loaded into Euclid 27 ton B2TD rear dump wagons by a Manitowoc excavator for transport direct to the rockfill section or to the crusher as required.

Due to the scarcity of good dam building materials in the area it was decided to employ the "Nantahala" type of embankment design since this design requires only the minimum thickness of impervious core. In the West Barwon Dam this core has a maximum thickness of 35 feet, sandwiched between filter zones of crushed rock and sand, inclined downstream at 1.37:1 and supported on the main rockfill.



By extending the upstream end of the outlet tunnel to the diversion cut, using Armco steel pipe, the contractor was able to obviate the need for one of the temporary coffer dams. This illustration was taken prior to filling being placed over the pipe for temporary access.



Work in progress on the filter zones and impervious core.

tending the upstream end of the outlet tunnel into the diversion cut using Armco steel pipe.

The damseat was stripped to bedrock, a job entailing removal of some 300,000 cu. yds. of material to depths of up to 60 feet using a Manitowoc dragline loading into Euclid rear dump wagons. This material was dumped at selected sites downstream from the embankment. After stripping, the bedrock was thoroughly cleaned by hand before placing the embankment material.

Curtain grouting of the foundations was carried out by Cementation Co. (Aust.) Pty. Ltd. under sub-contract to Utah. This work involved drilling of 179 (total 6,200 feet) 1 3/8 in. dia. diamond

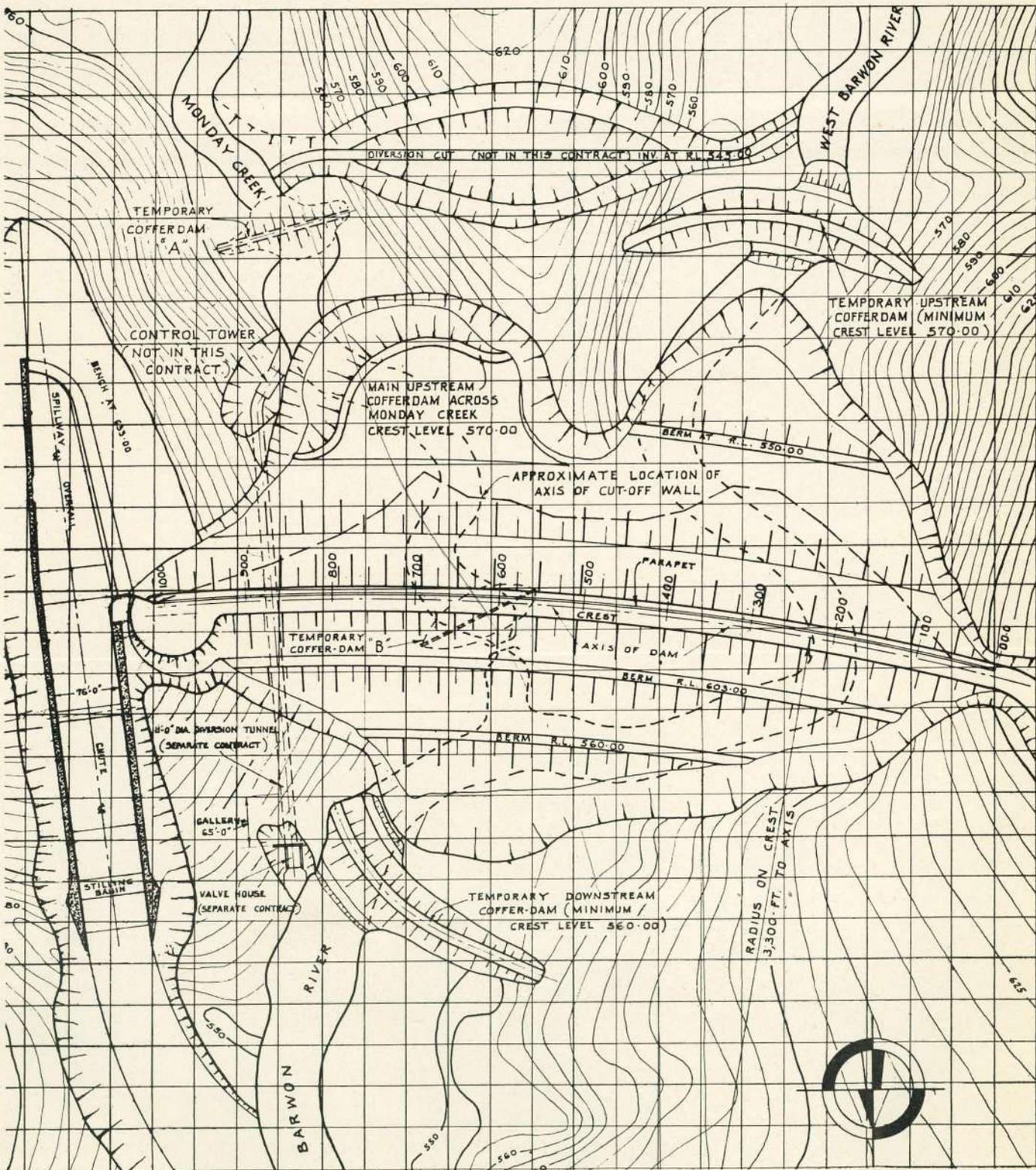
A "C" Tournapull dumping clay for the impervious core. Close to the cut-off wall consolidation is achieved by air rammers.

In addition to the embankment major associated works include a 600 feet long, 11 feet diameter concrete lined outlet tunnel; a 380 feet long concrete lined, free overfall spillway and outlet works at the upstream end of the tunnel. The tunnel was driven and lined under separate contract and the spillway and outlet works contracts have yet to be let.

Prior to construction of the embankment a diversion channel was excavated to link the West Barwon River and Monday Creek — again under separate contract. A main coffer dam across the West Barwon River was built to protect the work against possible flooding. The necessity for a temporary coffer dam across Monday Creek was obviated by the contractor ex-



7300 7200 7100 7000 6900 6800 6700 6600 6500 6400 6300 6200



ARRANGEMENT PLAN



drill holes using a Mindrill E500 drill. Holes were drilled to depths of up to 70 feet and in about half the number of holes drilled rubber packers were used. Grout was injected at pressures up to 50 p.s.i. and a total of 2500 bags of cement were used.

Footings for the cut-off wall were excavated entirely by hand using Ingersoll-Rand and Atlas rock drills. The wall, 10 feet high, 9ins. wide at the crest and with footings 3 feet wide and three feet deep was constructed by the alternate bay method using timber formwork and having the reinforcing steel anchored into the bedrock by grouted rockbolts. Concrete was supplied from a mobile Bin-a-Batch plant and placed from 1 cu. yd. buckets handled by P & H and Lorain mobile cranes. Consolidation was by C.P. air operated immersion vibrators.

Compressed air for all requirements on the embankment construction is supplied from a central station housing three IR 500 stationary compressors.

Rock for the embankment is being obtained from the spillway excavation and from a quarry developed a short distance south-east of the bank. An approximate

A $\frac{3}{8}$ cu. yd. Jaques Lorain dragline cleaning up downstream from the filter zones.

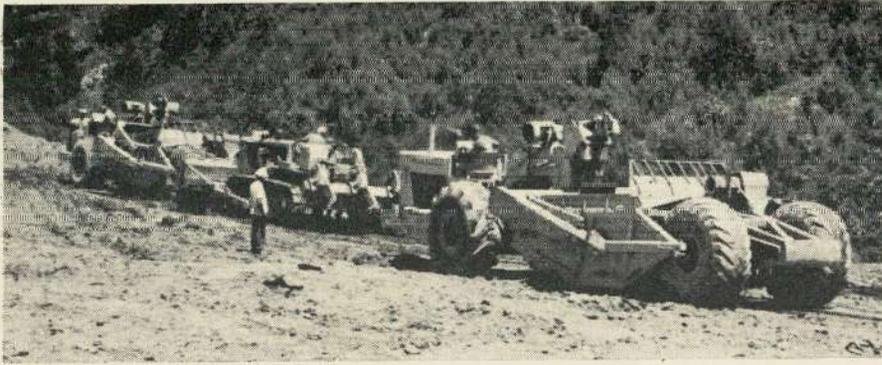


380,000 cu. yds. of rock is required for the rockfill with a further 120,000 cu yds. in the filter zone sections, these latter requiring 3ins., 1½ins. and ¾in. crushed rock.

The rock produced is sandstone of variable quality and is obtained from the quarry by drilling with IR Crawlmaster and Crawl-IR rigs which drill 6ins. and 3½ins. dia.



The Stang Monitor in action. This machine, the first of its type in Australia, was used to sluice rock fill into position. Delivering 2,400 g.p.m. at 80 psi the monitor has a swivel head controlled from the cab mounted on the boom.



Two of Gemell & Hickey's "C" Tournapulls, one being push loaded by a Cat D8 tractor, working in the clay borrow pit.

A general view of the crusher plant and stockpiles.



Extreme care was exercised in hand cleaning the embankment foundations after stripping.

holes respectively to an average depth of 35 feet. The holes are loaded with ammonium nitrate-fuel oil mixture and gelignite primers at approximately 120lb. per hole. This gives an average of 0.35lb. per cu. yd. of rock.

Broken rock is then loaded into four Euclid 27 ton B2TD rear dump wagons and one 27 ton Haulpak by a Manitowoc 5-6 cu. yd. face shovel for transport direct to the rockfill zones in the embankment or to the crusher plant for reduction to filter zone material.

Rock placed in the rockfill sections is sluiced into position with water at 80 p.s.i. from a Stang Monitor — the first of such units used in Australia. This monitor, using water at the rate of 2,400 g.p.m., is supplied through a 10ins. pipeline from pumps installed in the West Barwon River.

The machine basically consists of a 30 feet boom mounted on a Cat. D7 tractor. At the end of the boom is a swivelling nozzle — interchangeable to 2½, 3 or 3½ins. dia. — which is directionally con-



The impervious zone being compacted by a sheepfoot roller drawn by a Cat D8. The filter zones of crushed rock can be seen on either side being consolidated with vibrating rollers. At the rear is seen the top of the main coffer dam.

trolled from a cab on the machine.

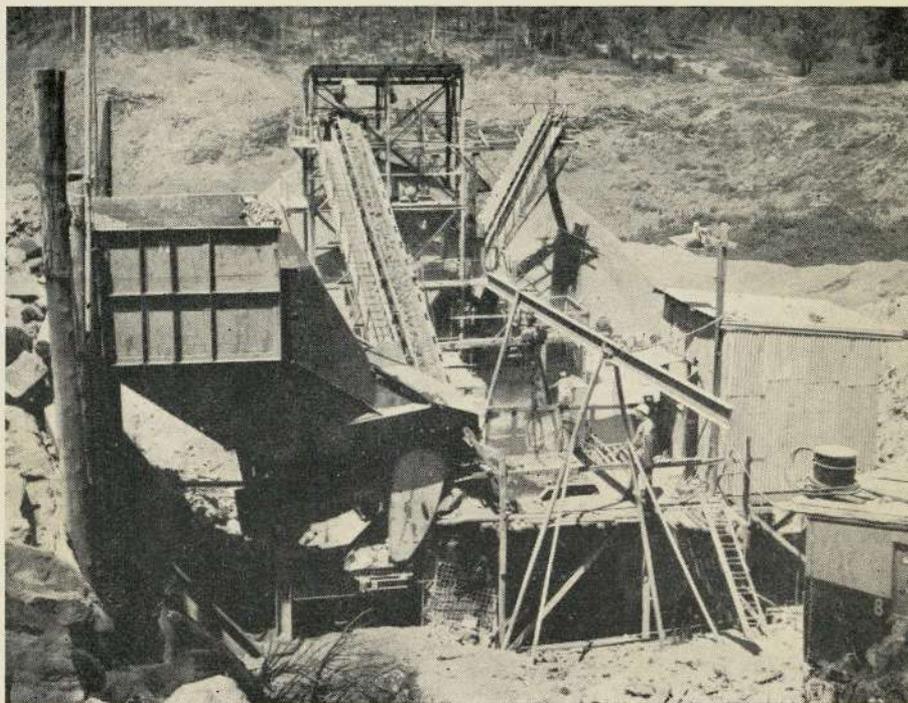
The crusher plant used for the production of filter zone material is equipped with a Hadfield 5-6ins. primary jaw crusher and 36 and 24ins. Gyraspheres in the second-

ary unit. After screening to size the crushed rock is passed to stockpiles from where it is loaded by a Michigan rubber tyred end loader into tip trucks for transport to the filter zone. The loader and



The 5-6 cu. yd. Manitowoc shovel loading into Euclid 27 ton B2TD rear dumps.

A section of the crusher plant used for production of filter zone material. This view shows the chute and feeder left with the Hadfield primary jaw crusher centre foreground. Secondary reduction is achieved by Gyra-spheres.



trucks are operated under contract by Praznovszky Carriers, Melbourne.

Filter zone material is spread in layers 2 to 3 feet deep and compacted with vibrating and rubber

tyred rollers. Sand is trucked in from Colac.

Clay for the impervious core is taken from borrow pits, located downstream from the embankment, using "C" Tournapulls

hired from and operated by Gemell & Hickey Pty. Ltd., N.S.W. These machines are push loaded by a Cat D8 tractor with blade and rear mounted ripper.

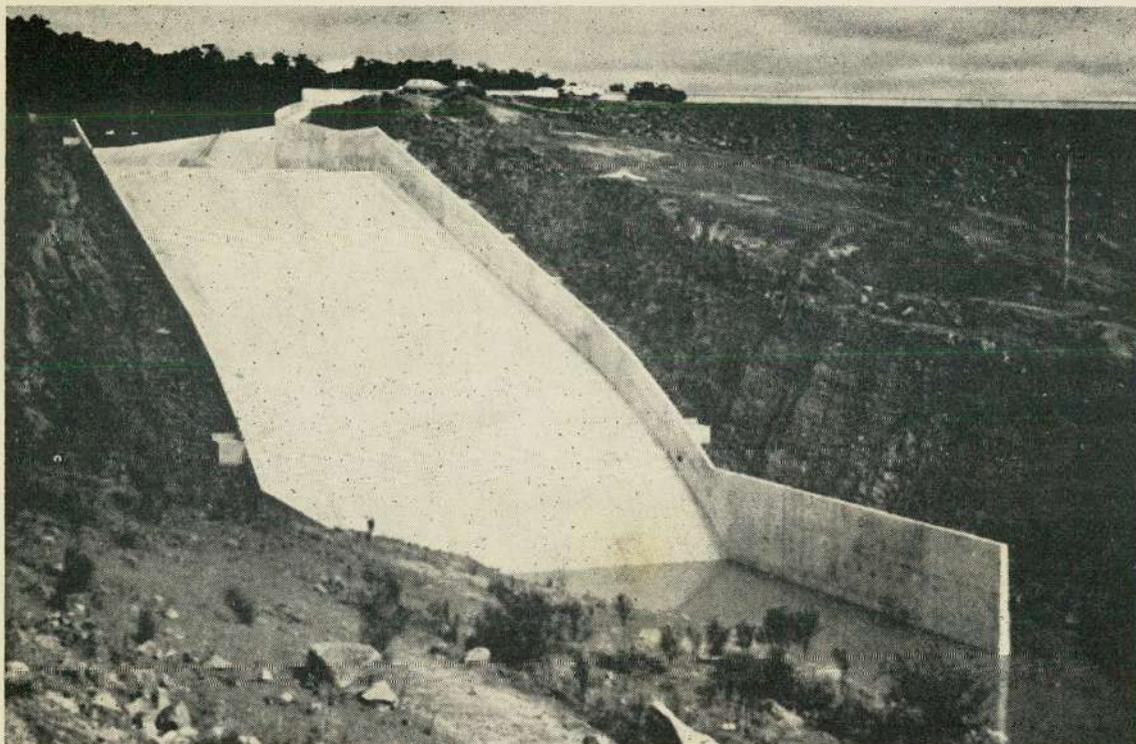
The scrapers transport the clay to the impervious zone where it is spread and compacted to 95 per cent. Proctor with sheepsfoot rollers hauled by a Cat D8. Clean-up work in the area is handled by Caterpillar and International Hough rubber tyred loaders. Where clay is placed hard against the cut-off wall compaction is achieved by air powered C. P. rammers.

When completed the embankment will carry a 15 feet wide, 9ins. thick, bituminous pavement along the crest with a reinforced concrete parapet wall on the upstream side.

Included in the contract is a main embankment access road connecting the Forrest-Apollo Bay road with the western end of the dam crest. This road, approximately $\frac{1}{2}$ mile long, will have a 22 feet wide crushed rock pavement with 4 feet wide shoulders.

A general view from the east abutment above the spillway cut.





This view of the completed spillway shows training walls.

Spillway Construction of West Barwon Dam

SINCE this article was printed, construction of the spillway and outlet works has been completed.

A contract for the spillway work was let to Haunstrup & Co. for the sum of £244,000.

Much of the excavation work in the spillway area had already been carried out by the contractor for the dam wall, Utah Construction & Engineering, who removed about 108,000 cu. yd. of rock, much of which was placed in the dam wall. The rock consists of a fine-grained, soft sandstone.

Haunstrup excavated another 5,000 cu. yd. of rock in trimming the spillway area to level and grade. Trimming was done with pneumatic hand tools only, to give the minimum of overbreak and shattered rock.

The spillway is a side weir type with a steep chute 76 ft. wide, and a grade of up to 30 per cent. At the bottom is an S.A.F. type stilling basin with two rows of dissipator blocks. Design capacity of the spillway is 14,000 cusec, with a 5-ft. overflow over the weir.

The top of the spillway is at

R.L. 637, falling to R.L. 531, or 106 ft.

A grout curtain was put down around the spillway weir and the stilling basin. A grout blanket was placed over the weir area.

Haunstrup used a Bennett $\frac{1}{2}$ cu. yd. pan mixer and a 2 cu. yd. Mixmobile to produce the 5,000 cu. yd. of concrete required for the project.

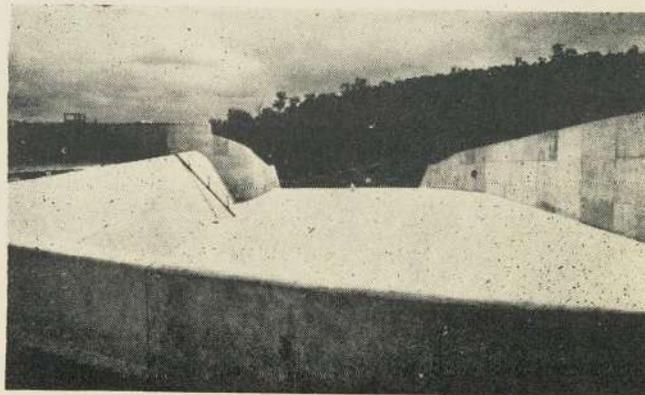
Aggregate and sand were brought by truck from Gherang Gherang.

A 3-in. layer of no-fines concrete was placed over the spillway area before the concrete slabs were laid. This was to provide drainage of the area in conjunction with a series of agricultural drains.

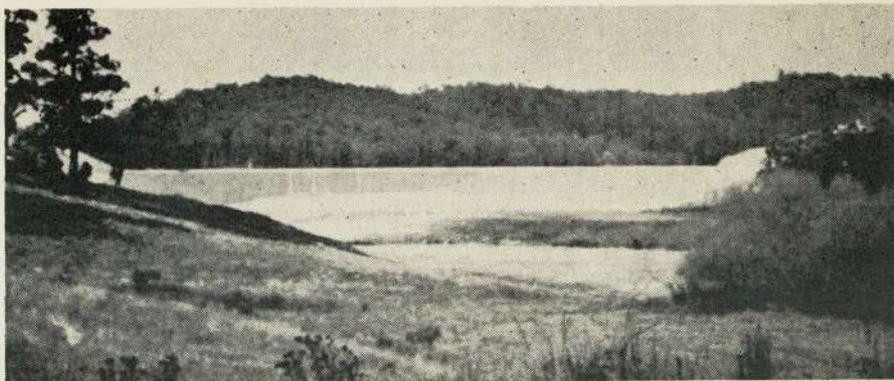
The weir area was gunnited to half an inch thick before slabs were placed.

The concrete slabs of the spillway are 20 ft. x 28 ft. in size, and were concreted alternately and joined by water stops to provide a

The side weir and spillway crest.



(Right) The West Barwon dam seen from downstream.



continuous water barrier.

The slabs vary in thickness from 9 in. to 4 ft. for the main slabs at the bottom of the spillway. A total of 170 tons of deformed bar reinforcing steel was used.

Slabs were laid, using a vibrating screed. On steep slopes, 1½-in. slump concrete was placed.

All slabs are anchored by 1¼-in. deformed bar anchorages grouted into 6-in diameter, 10-ft. deep holes. The 900 anchors were supplied by A.R.C. Engineering.

Anchor holes were drilled by a Gardner-Denver track drill with 2½-in. drill steels, using a 3-in. diameter pilot bit attached to a 6-in. reamer, both pilot and reamer being cross-type tungsten carbide bits.

Concrete for the bottom slabs was carried to the site in buckets placed on flat-top trucks, and emptied by a 25-ton Lorain crane with a 100-ft. jib.

For other parts of the spillway, the concrete was placed from buckets lifted into position by a 6-ton Coles crane, or carried in ½ cu. yd. side-tipping dumpers on a monorail system.

The side walls of the spillway were constructed with re-usable timber formwork, as was the small training wall in the centre of the spillway.

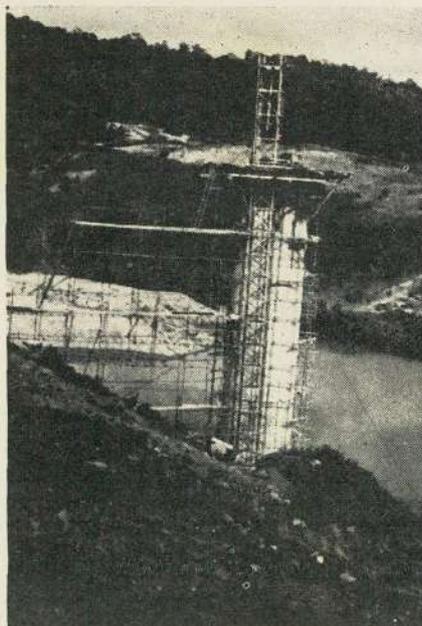
A contract was let to Ellsted Contracting Co. Pty. Ltd. for £57,000 for the construction of the outlet tower.

The base of the tower has already been built by Thiess Bros., who drove the diversion tunnel under a separate contract. This tunnel, with suitable valve equipment, will be used as the outlet tunnel.

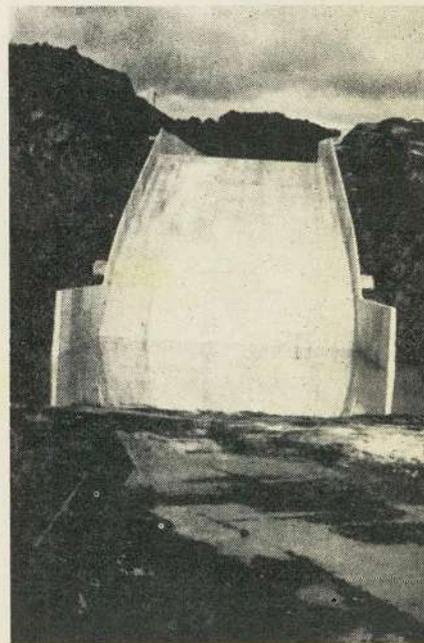
The tower has a 12-ft. inside diameter, 2-ft. thick concrete walls, four 36-in. inlets, and one 8-in. inlet.

Three hundred cu. yd. of concrete was used in the tower, placed with Rapid Metal steel formwork in 10-ft. lifts.

(Right) A view of the dam wall, with spillway and intake tower in the background.



(Above) The intake structure under construction.



(Above) A view of the spillway, showing stilling basin.



THE WORKING OF THE "BARWON SYSTEM"

In common with nearly all of Victoria's rivers the Barwon River does not run with sufficient volume to allow water to be taken out of it for domestic use throughout the whole of each year. Water usually is available only during the Winter and Spring months, i.e., approximately from the middle of May until the middle of October each year. Water therefore must be collected and stored in these Winter and Spring months for use during the Summer and Autumn months.

The water supply works which have been constructed in the "Barwon System" in order to do this are:--

1. *The West Barwon Dam which collects all the water (except compensation water) from the West Barwon River and the Munday Creek and stores it during the Winter and Spring months.*
2. *A Tunnel located downstream from the West Barwon Dam, which connects the West Barwon River with the East Barwon River.*
3. *A Diversion Weir in the East Barwon River near Barwon Downs which diverts water out of the East Barwon River into the Wurdee Boluc Inlet Channel.*
4. *The Wurdee Boluc Inlet Channel — an aqueduct which runs away from the East Barwon River and across country to Wurdee Boluc. Water flows along this aqueduct and into Wurdee Boluc Storage Reservoir.*
5. *Wurdee Boluc Storage Reservoir — where water is stored for use as and when required by consumers.*

These works are operated in the following manner:—

Both the West Barwon River and the East Barwon River run at the same time. The water in the West Barwon is caught and held by the dam but the water in the East Barwon is allowed to continue to flow downstream until it reaches the obstruction caused by the weir near Barwon Downs. This obstruction raises the water surface level to such an extent that water enters the Wurdee Boluc Inlet Channel and flows along the channel until it reaches Wurdee Boluc Reservoir where it is stored.

In this way it is hoped to fill both the West Barwon Dam and the Wurdee Boluc Storage Reservoir by the end of the Winter rains each year.

Water is only released from the West Barwon Dam after the Winter rains have finished and both rivers have stopped flowing. This released water is transferred from the West Barwon to the East Barwon through the tunnel mentioned above (2).

After entering the East Barwon it follows the same course as previously described until it reaches Wurdee Boluc Storage Reservoir.

The object in operating the works in this way is to keep Wurdee Boluc as full as possible for as long as possible each year.

Water from this Dam being opened today serves consumers in the following areas:—
Forest, Birregurra, Winchelsea, Anglesea, Torquay, Geelong, and all the towns of the Bellarine Peninsula.



Principal Contractors associated with the construction of the Dam were:

THIESS BROS. PTY. LTD., FOOTSCRAY ROAD, FOOTSCRAY.

UTAH CONSTRUCTION & ENGINEERING PTY. LTD., ST. KILDA ROAD, MELBOURNE.

S. HAUNSTRUP & CO. PTY. LTD., CHURCH STREET, HAWTHORN.

ELLSTED CONTRACTING COY. PTY. LTD., ANDERSON ROAD, THORNBURY.

DOC 0408

WEST BARWON RESERVOIR



Catchment reservoir for the Barwon water supply system serving Geelong and surrounding areas.

The Geelong region has two separate water supply systems: the Barwon and the Moorabool. Water is collected in the catchment areas at the top of these systems. It is then transferred via channels and pipelines and treated before reaching customers in and around Geelong and the Bellarine Peninsula.

How it all began

When Geelong was settled by Europeans in the 1830s it did not have a permanent fresh water supply. Settlers had to rely on the Barwon River and any rainwater they were able to catch.

In 1872, Geelong's first reservoir was constructed on Stony Creek, at Durdiwarrah, 20 kilometres north of Anakie in the Brisbane Ranges.

As the population of the Geelong region increased, so did the demand for water. By 1918, there were three reservoirs at Upper Stony Creek, one at Lower Stony Creek, a large catchment reservoir (Korweinguboorra) at the head of the East Moorabool River and a smaller reservoir (Bolwarra Weir) downstream. In 1954, Bostock Reservoir was built to further enlarge the capacity of the system. These reservoirs formed the Moorabool supply system and still provides water for the Geelong region today.

In the late 1920s Geelong's water supplies were supplemented by the purchase of water from the Barwon supply system, constructed by the Victorian Government to serve the Bellarine Peninsula.

However, demand continued to increase as the Geelong region developed. Supply was assured when the Government sold the Barwon supply system to the Geelong Waterworks and Sewerage Trust in 1955.

The Barwon water supply system

The Barwon system provides more than two thirds of the Barwon region's water.

Originally the system consisted of several small diversion weirs on the upper tributaries of the Barwon River, associated supply channels and an off-stream reservoir at Wurdee Boluc, south-west of Winchelsea. A number of service basins were also located near the townships being supplied with water.

With an ever growing demand for water work began on a new reservoir, the West Barwon Reservoir, in 1960.

Today the system incorporates the West Barwon Reservoir, fifty-two kilometres of open channel and approximately five kilometres of piped syphons to Wurdee Boluc Reservoir, a world class treatment plant, extensive transfer pipelines to Geelong and coastal townships and a number of service basins.



West Barwon Reservoir

West Barwon Reservoir is an 'on-stream' catchment reservoir supplying water to Geelong, the Bellarine Peninsula and townships in the region.

It is situated in the Otway Ranges over eighty kilometres to the south-west of Geelong at the junction of the West Barwon River and Monday Creek. The nearest township is Forrest which is one and a half kilometres to the north (Melway map 424 ref. K9).

The average rainfall at West Barwon is nearly twice Geelong's and its altitude (194 metres above sea level) means that water can be transferred by gravity to Geelong.

West Barwon Reservoir's catchment area is predominantly native bushland, some areas are administered by the Department of Natural Resources and Environment and others by Barwon Water.

Reservoir statistics

Surface area	1.76 square kilometres
Maximum depth	21.4 metres
Usable Capacity	20 912 megalitres
Catchment area	5 100 hectares

Building the dam

West Barwon Dam was completed in 1965 by Utah Construction and Engineering Co. Pty Ltd - the total cost of the project including the embankment, spillway, outlet tunnel and intake works was about two and a half million pounds.

The embankment, a "Nantahala" type dam, is constructed of earth and rock which was quarried on site.

Dam statistics

Length	320 metres
Width (at top)	9 metres
Height	33 metres

Spillway

The reinforced concrete spillway was built by Haunstrup and Company. It is a side weir type with a steep chute 23 metres wide and a grade of up to 30 per cent. The spillway has a capacity of 396 cubic metres per second. At the bottom is a stilling basin with two rows of dissipator blocks.

Outlet tower

The outlet tower, constructed by Ellsted Contracting Company, is situated in the reservoir. The 30 metre high reinforced concrete tower is 3.66 metres in diameter and its walls are 600 mm thick.

The tower has four 900mm and one 200mm inlets. Water is drawn from the reservoir through an inlet and travels through the outlet pipeline to the valve house. In the valve house the amount of water leaving the reservoir is regulated.

The pipeline linking the outlet tower to the valve house is located in a concrete lined tunnel. The tunnel is 3.4 metres in diameter and 183 metres long and was constructed by Thiess Bros. Pty Ltd.

Diversion tunnel

Water released from the reservoir is diverted into a tunnel located 400 metres downstream of the valve house. The 600 metre tunnel was completed in 1941. It transfers water through the hills to the East Barwon River.

The Len Sprague Reserve

There is an extensive recreational area at the reservoir. The Len Sprague Reserve, with free gas barbecues, picnic tables and toilets is open to the public.

The reserve gates are open from 8am to 4pm each weekday and from 8am to 5pm weekends and public holidays.

Visitors may fish from the banks of the reservoir, take walks across the dam, view the valve house and wander along the track to the diversion weir and tunnel which carries the water through the hills into East Barwon River.

Walking tracks which follow the West Barwon River have been developed linking the township of Forrest to the reservoir.

FURTHER INFORMATION:

Public Relations,
61-67 Ryrie St, Geelong. 3220.

Telephone: 03 5226 2332
email: postmaster@barwonwater.vic.gov.au



WORK COMMENCES ON WEST BARWON DAM, VIC.

"The first shot of explosives was fired at the construction site of Geelong Water Trust's new £1,260,000 dam on the Upper Barwon at noon yesterday", reported the Geelong Advertiser on 17th March. "Shortly afterwards, heavy earth-moving equipment of Utah, Aust. Ltd. started to remove overburden from the site where, in the next three years, a 1,100 feet long and 100 feet high rock and earth dam will be built."

The dam is situated some 50 miles south west of Geelong on the junction of the West Barwon River and Monday Creek, near the town of Forrest in the Otway Ranges.

When completed, the dam will supply water to the rapidly growing Geelong area.

The work calls for the construction of an earth and rockfill embankment, for a dam of the "Nantahala" type, with an inclined impervious core or blanket (142,000 cubic yards) lying on the main body of downstream rockfill (378,000 cubic yards). The core will be protected by filter layers (124,500 cubic yards), held down by a thin layer of upstream rockfill (135,000 cubic yards). The crest of the dam will be approximately 1,100 feet long and the height at the maximum section is approximately 140 feet above foundation. In all a total of 800,000 cubic yards of material will be needed.

The structure will impound 5,000,000,000 gallons of water which will boost the quantity of water stored in the Trust's reser-

voirs to 13,640,000,000 gallons, enough to supply a population of 250,000.

ARTIFICIAL LAKE

At the opening ceremony, the chairman of commissioners (Mr. J. W. Carr) reviewed the planning of the project and referred to a former commissioner, Dr. F. H. Wallace, who had strongly advocated the creation of a deep reservoir in the heart of the Otway Ranges.

This, Mr. Carr said, had led to the acquisition of the headworks from the State Rivers and Water Supply Commission in 1954, and since then, about £1,500,000 had been spent on their development and improvement.

The technical side of the project was explained by the engineer-in-chief (Mr. J. M. Macintyre) who said that the dam would be erected at the point where the West Barwon and Monday Creek joined and an artificial lake would be created which would extend for many miles upstream.

DIVERSION TUNNEL

While the dam is being constructed, the waters of the West Barwon and Monday Creek will flow through a recently completed diversion tunnel, and follow the old course of the West Barwon River.

In order to get the water from the West Barwon to the tunnel, a cut had to be made through a hill and one of the next jobs will be the construction of two coffer dams which will force the waters of both rivers to flow in the desired direction.

At the top end of the diversion tunnel through which water intended for Geelong will ultimately flow, an intake tower will be erected. This will be completely submerged when the reservoir is full, and will house three pipes to draw off water at different levels for release into the old bed of the West Barwon.

OVERBURDEN

First stage of work will be the removal of a vast quantity of overburden to solid rock.

PROSPERITY

While it will be some time before Geelong gets its first water from the West Barwon Reservoir, the people of nearby Forrest will be the first to benefit, as the project will provide steady work for 40 people this year, and 80 during the following two years, much to the advantage of this small and somewhat isolated community.

IT'S WET, BUT ALL'S WELL, AT BARWON DAM

One of the most gratifying aspects of construction work is the intense interest aroused by the job on hand in all sections of the community. On this page we have the pleasure of reprinting an article from the "Herald" newspaper, Colac, in which we read all about West Barwon Dam Project, as seen through the eyes of the newspaper reporter.

"More than one million tons of earth and rock will have to be moved during the next 22 months to form the new giant Forrest Dam on the West Barwon River," writes the Colac "Herald".

"Operations on the site were begun two months ago by the contractors, Utah Construction & Engineering Pty. Ltd.

"Under the terms of the contract the dam has to be completed by March, 1963.

"There is a persistent roar of engines in the valley below the Forrest-Apollo Bay Road as huge machines prepare the dam site.

"Thousands of tons of earth are being excavated right across the valley to get down to bare rock and road terraces are being made for the eventual transfer of earth and rock to the dam bank.

"A drag-line excavator weighing 160 tons on the side of the valley, loads Euclid transporters at

the rate of six cubic yards a minute.

GIANT TRUCKS

"Giant transporters can take a load of 17 tons over rough roads. Each of their six tyres costs £330 to replace. If one shows any tendency to skid and bog the machine behind gives it a push.

"Four Euclid transporters synchronise in their transport operations to keep the drag-line excavator working continuously and carting the earth more than a mile.

"The thickness of the dam at its base will be between 450 and 500 feet depending upon the level at which bedrock will be struck below the old river course.

"The dam will consist of a concrete core supported by earth and rock. It will rise 200 feet across the valley and will be capable of impounding 5000 million gallons of water.

"The dam is situated just below the confluence of the West Barwon River and Mundy Creek, and the reservoir formed will stretch miles up these two wide valleys.

"Travellers on the Apollo Bay Road will obtain a splendid vista of the great reservoir.

"Mr. K. W. Andrews, Project Superintendent, said that work would proceed right through the winter months — the company had the machines to do this, he added.

"At present 35 men are employed and this number will increase to 70 men once the site had been prepared and the work of dam construction proper could be started, he said.

MORE TO COME

"Although the valley already appeared to be full of bull dozers, graders, carry-all scrapers and a host of other machines, Mr. Andrews said that more were to come.

"The diversion tunnel for the water of the river has already been constructed under another contract.

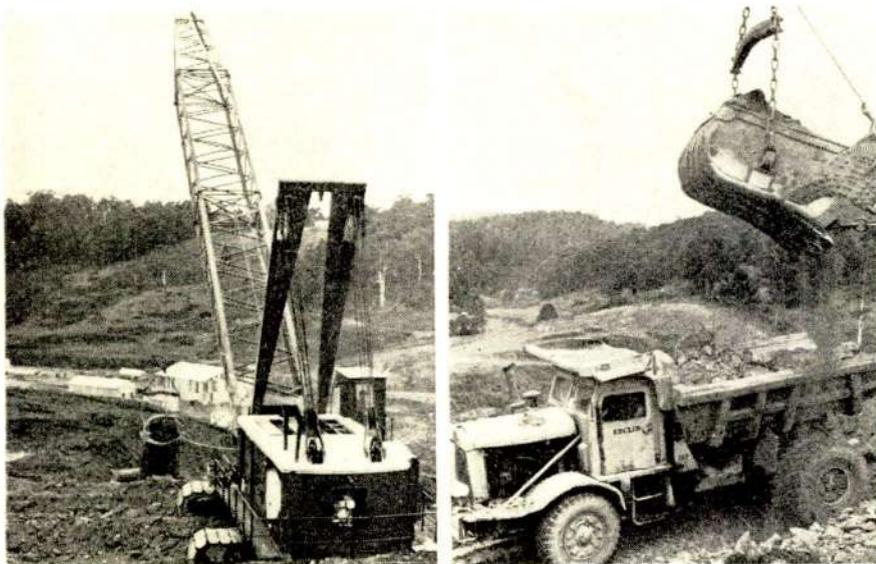
"The dam is being constructed for the Geelong Waterworks and Sewerage Trust, and will cost in excess of £3 million. Under normal rainfall conditions it should take two years to fill to capacity.

"Reservoir offices for the Trust are being erected by a Colac firm high up on the side of the valley. When the dam is completed these offices will be just above the level of the water in the dam."

Preparation of the dam site on the West Barwon River near Forrest is proceeding at a fast rate and thousands of tons of overburden are being removed to get down to bedrock.

PHOTOS TELL THE STORY.

AT LEFT, two photographs of work in progress at West Barwon. At extreme left, this 160 ton drag-line excavator shifts seven tons of earth every minute. At near left, the giant dragline swings to load six cu. yds. of earth into a 17 ton capacity Euclid transporter.



"Forrest Sets Records for All-Time Wetness", claims Barwon Dam Crew

BUT MT. LYELL TEAM JUST LAUGHS & LAUGHS

FOR the following lucid comparisons of rainfalls and what-have-you, we are indebted to our pet statistician who we know to be an undisputed authority:—

● CHERRAPUNJI, in the Assam Valley, is the holder of the "honour" for the world's wettest-known place, with an average rainfall of about 470 inches, and a record of 905 inches in the year 1861 (during which year 366 inches fell during the month of July).

● BAGNIO, in the Phillipines, had 46 inches of rain within 24 hours on July 14th, 1911, another record.

● AT VERKHOYANSK, in Siberia, the temperature fell to minus 93.6 deg. F. on January 3rd, 1885.

But is generally felt on the West Barwon Dam Project that, if statistics for the location were available, the dam site would romp home as the holder of ALL records simultaneously!

OTHERS PALE BY COMPARISON.

There was mud at Eildon, mud at St. Mary's, Frenchman's Creek and Tantangara, mud at Menindee and Cann River, Wayatinah and Humpty Doo.

It was inches deep at Muswellbrook and King Street. It was feet deep at Bayswater. At Springvale it lay around in pools, squelching and slushing hither and thither . . . But it was always decent, honest, clean mud.

But not so at Barwon! It's an aggressive, spiteful, dirty mud, not content to lie around the place in nice, orderly pools and puddles. It crawls up your legs, into your gum boots . . . all over you — all over the equipment, all over everything.

In fact, they tell us that Barwon is probably the only place in the world where the earthworms climb trees to avoid footrot!



"POKE MUCK AT OTWAY WEATHER, BUT AT LEAST IT'S CONSISTENT!"

ADDED JOYS.

To add to our joys, winter is moving into the Otways, with fog and rain, rain and mud, and slowing down construction work on our dam — most embarrassing really, for with a contract time of two years, and over 800,000 cu. yards of material to be placed in the dam, there is very little spare time in the schedule. Instead, a dry winter would be welcomed by all, except the local farmers.

To date, the abutments have been stripped to bedrock, and excavation for the spillway and quarry area have commenced.

Rock clean-up is in progress on the east abutment, and excavation for the cut-off trench will commence shortly.

The office, carpenter shop, warehouse and workshop buildings have been completed, and most of the services have been installed.

OLD FACES AT BARWON

Familiar Utah faces on the site include Lofty Sinclair (Equipment Foreman), Charlie Dennis (Labour Foreman), John Hitches (Accounting), Mike Monchgesang (Warehouse), Gerry O'Neill (Manitowoc), Billy Stevens (Workshops), R. Rutherford, R. Nomiss, K. Greenway, D. Buchanan, E. Noriss, Bluey Hogan, and J. Howarth. Bill Andrews is Project Superintendent; Jim Creagh, Office Manager; Jim Slattery, Project Engineer, and Mike Hayes, Construction Superintendent.



"PETE" PETERSON HITS RADAR JACKPOT!

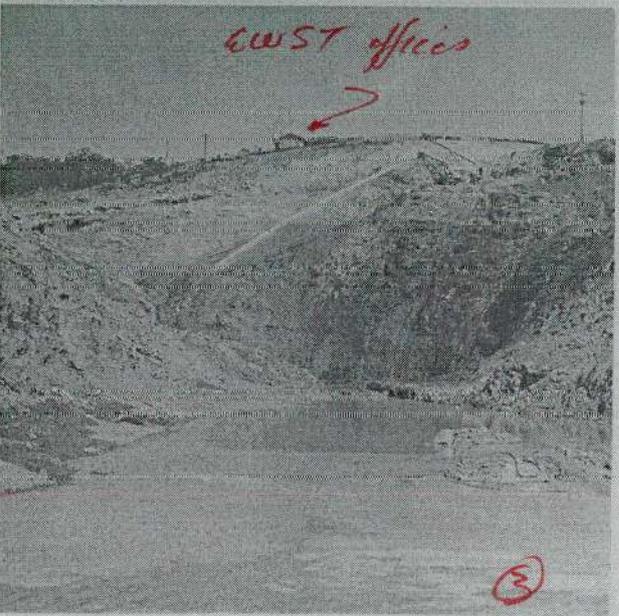
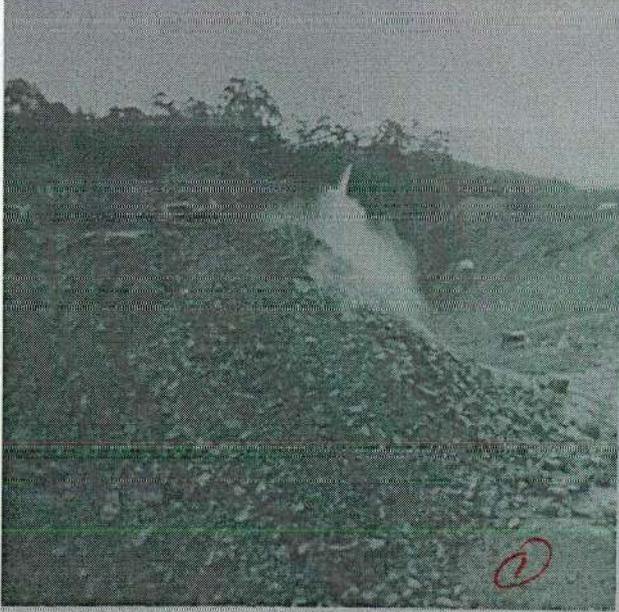
You all know as how Pete Peterson was back "State-side" early this year?

What you don't know, is that Pete got himself a Cadillac to cover the countryside with his family.

"So what?" you say. "It takes all of a Cadillac to keep up with Pete's style of driving."

But another thing you don't know is that Pete's style of driving caused him a little spot of bother with the constabulary, who caught him in a radar trap for 21 dollars. Pete can talk his way out of most things, but RADAR — brother! That really had him bluffed.

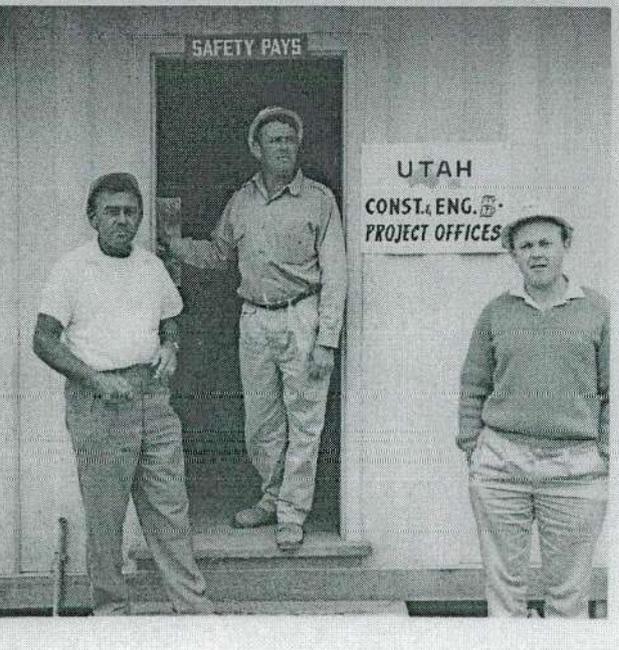
Seen above — Pete and family, and Cadillac, on State Highway 29, en route to Las Vegas. Cadillac now features as Perry Mason's exhibit "A".



Bill
Andrews
Project
Supt

Vic
Seitz
GWST Rep.

Bob
Armstrong



1,2,3,4, Abutment Cleaning using Slag Monitor on boom attached to old DB(-)
(Designed by Bob Armstrong)

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PRICE 4d.

COLAC, WEDNESDAY, MAY 24, 1961.

£160,000 Housing Society Formed

THE THIRD Co-operative Housing Society, with a capital of £160,000, will be formed in Colac on Friday at the CWA Rooms.

The money has been made available to the directors of the Otway Co-operative Housing Society Ltd., sponsors of the new society, under Commonwealth-State Housing Agreement.

The secretary of the group, Mr. D. K. Cowan, recently received this advice from the registrar.

The Co-operative Housing Society movement is a means whereby home builders can obtain finance on low deposits, with a low interest rate and long term repayments.

In this instance, the money has been made available for lending to members on a rate of 4½ per cent. for a term of repayment of 30 years. Repayments are made monthly, and for a maximum advance of £3000, would be approximately £4 per week.

The Society will also lend up to 80 per cent. of the value of the land, and the completed

but also the interest thereon. This means that a member who does not want an advance at once, or for a year or two, should still join immediately in order to ensure that he will be able to obtain an advance when required. Strict priority in order of making advances will be based on application order.

REMOVE DANGEROUS PIER PILES — C.C.A.

... pier which once extended
... be removed, members
... Association maintained at
... night.

The Association decided that the Foreshore Committee be asked to contact the appropriate authority to arrange for the removal of the piles.

However, it was considered that little could be done about the fence posts in the lake if they were on freehold property.

SCOUTS SEE GANG SHOW



★ A PARTY of Colac Scouts and Cubs visited Melbourne to see the Gang Show last weekend. Pictured above waiting for the bus are (back, from left): Ian Colless, Ray McDougall, Bill Jeffers; (front): Gavin Milich, Barry Hawkins, Brian Virtue.

ted for Trial on

FIRM TO MOVE MILLION TONS OF ROCK FOR FORREST DAM

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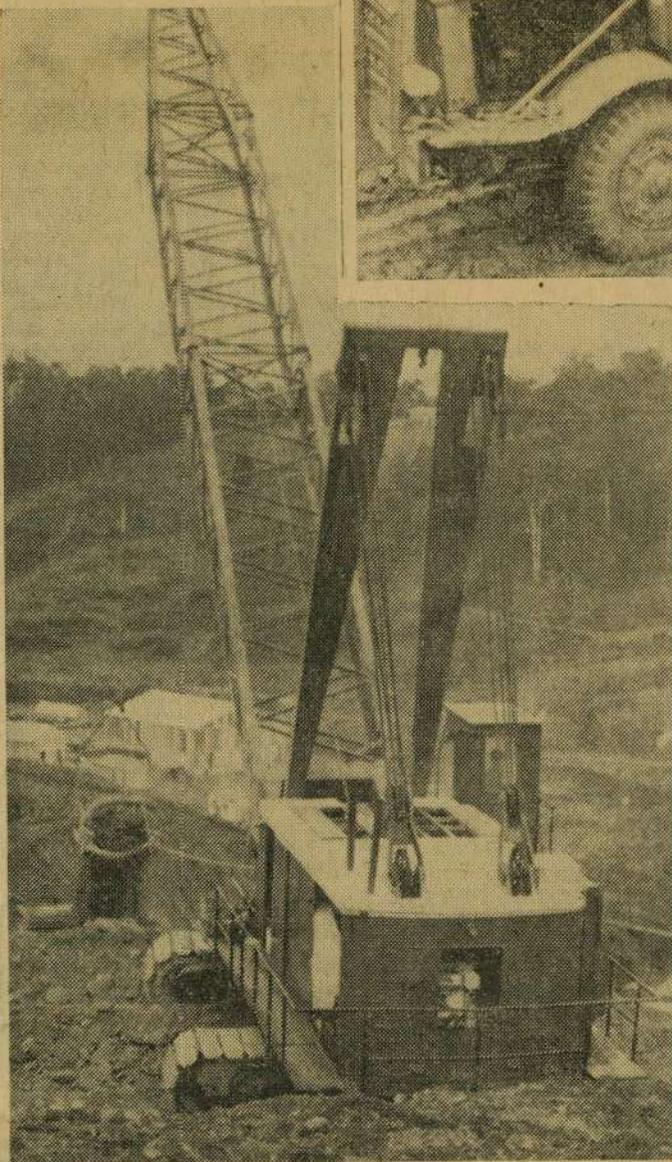
DAM SCOOP AT WORK



★ PREPARATION of the dam site on the West Barwon River near Forrest is proceeding at a fast rate and thousands of tons of overburden are being removed to get down to bedrock.

Picture above: Giant dragline shovel is shown loading six cubic yards of earth into a 17-ton capacity Euclid transporter.

At side: A view of the dragline excavator weighing 160 tons which shifts seven tons of earth every minute.



CHRYSANTHEMUM

WHAT'S GOING ON AT BELL BAY



YES, SIR, they are doing quite a job down at Bell Bay, even if this issue's news is mostly to do with personalities.

The big event, of course, was the Richards wedding, which was very largely attended and very thoroughly enjoyed. And Utah was handsomely represented, as we can see from the photograph reproduced above, in which we see Ron and Beverley Ferguson, the bride Pam, the shy and self-effacing groom, Master John Bonwick and spouse Yvonne, and Elva and Jack Saunders.

Good upon you, Maurice and Pam. All the best wishes for a happy and prosperous future.

Shocked mother: "You mustn't draw a picture of a cowboy going into a saloon dear".

TV inspired youngster: "But he ain't going in to drink anything, Ma. He just wants to shoot a man".



MEET PAULINE AND PAT

The only trouble about these two decorative members of our Bell Bay team is that both are engaged to a couple of Bell Bay boys.

Cruel, we call it, because we would like to tell Pauline Sutton (left) and Pat Burton much more about our plans for their future.

VERSATILE!

We don't know whether any of our Bell Bay boys came from the "Old Dart", but successfully they cleaned up all corners at George Town's Dart Competition.

Good upon you, fellows! We're just as proud of your grand new trophy as you are. Hope you win many more.

IT'S BETTER AT BARWON

Since the Rains Went Away

IF there is one team which refuses to express an opinion on Victoria's dry spell, it is Bill Andrews & Co. of the West Barwon Dam site.

Drier conditions have made working conditions as pleasant as working conditions can ever be, and the job is proceeding quite according to Hoyle. The river diversion is now completed, and the team is rapidly moving into the fruitful stages of the project.

People on the job now include our old identities Bill Miller and Keith Jermyn, ex of Altona, and Ron Kirby who had been with a rival company for some time since he decided to have a change of scene. Nice to have you back with us, Ron.

TO Mr. & Mrs. ANDREWS

As befits a good Project Superintendent, Bill Andrews again leads the way with another fine little daughter, Lyn Marie, an October Baby of the first order. Congratulations, Bill and Mrs. Andrews. We envy you your luck.

BARWON GROUP

To show how well we get along with our clients, we publish this picture of Geelong Waterworks and Sewerage Trust Resident Engineer, Mr. Vic Seitz (right) looking quite unconcerned as he lights up, surrounded by Doug Cox, Jim Creagh, Bill Andrews, Norm Rourke.

