

Vol. IX.

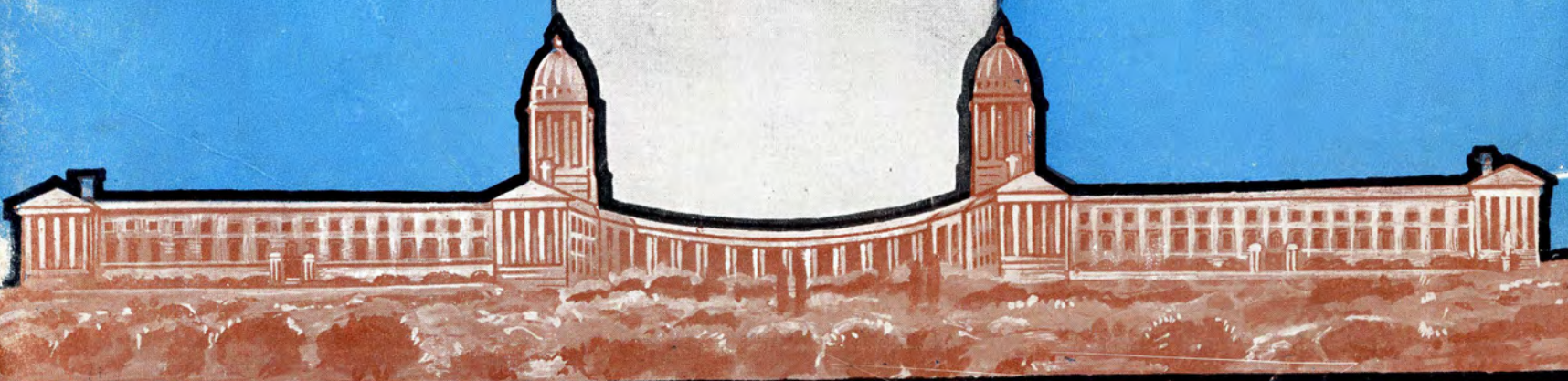
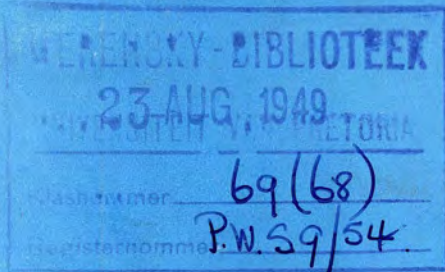
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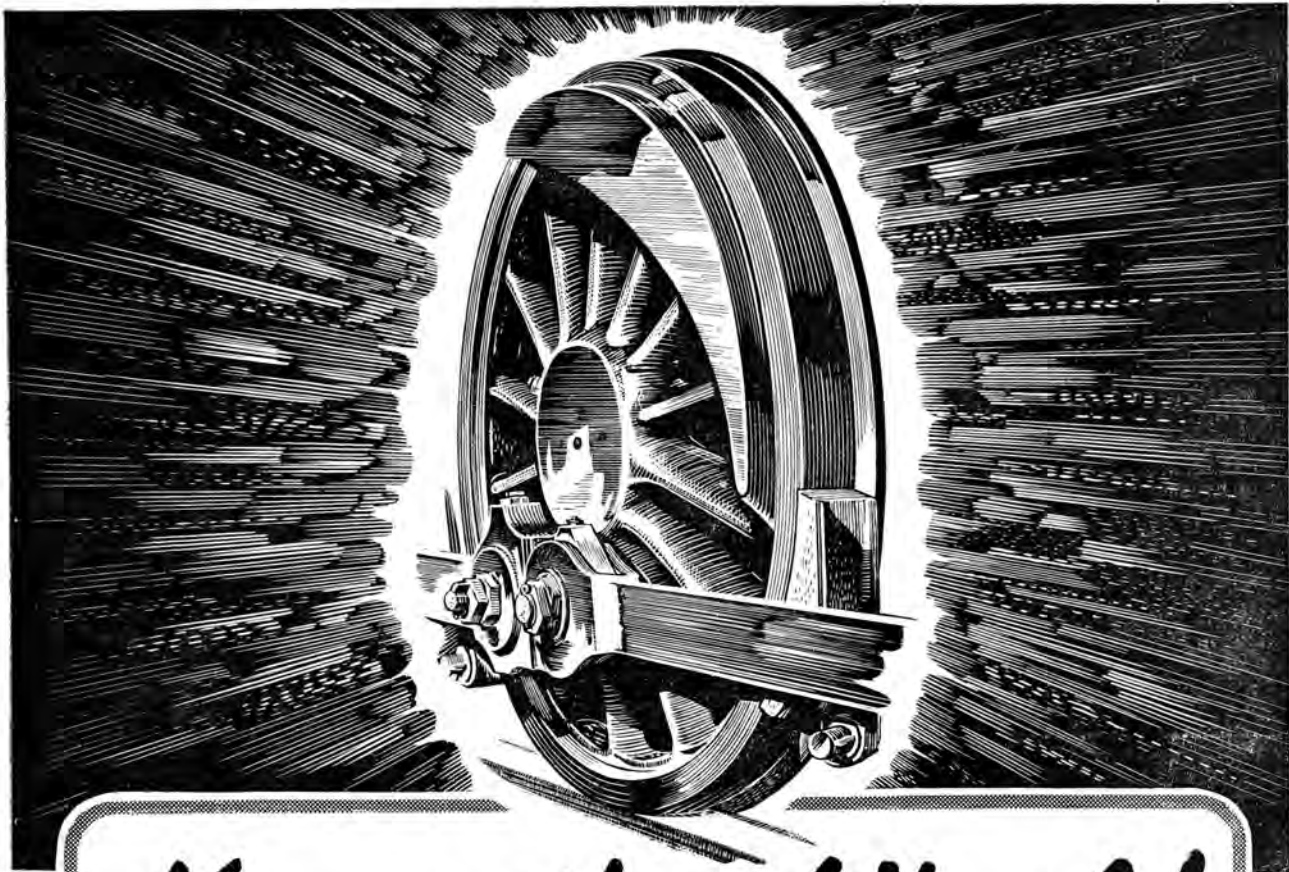
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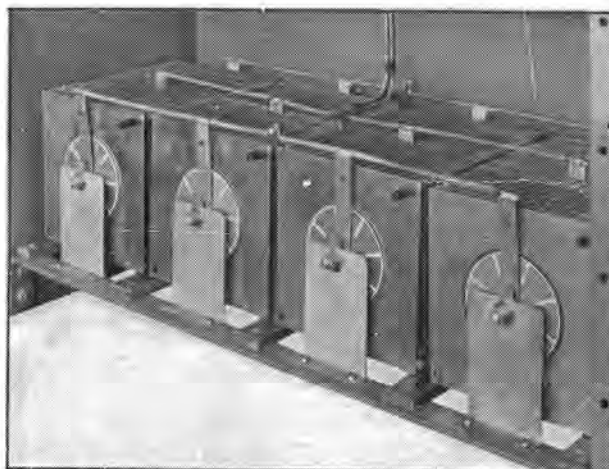
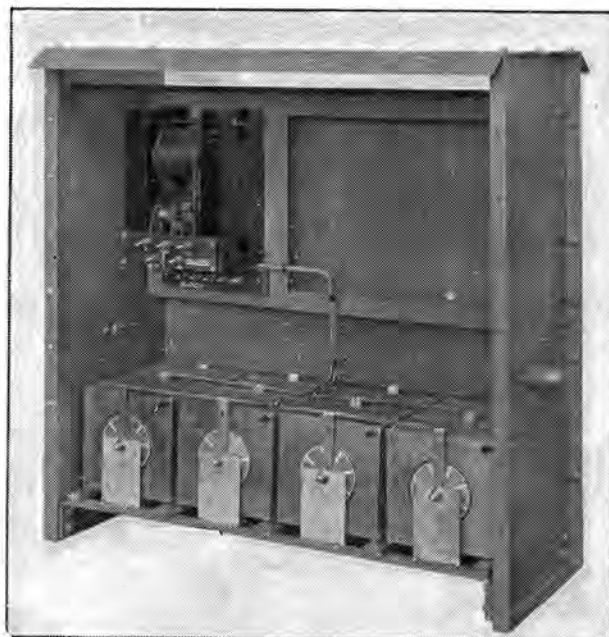
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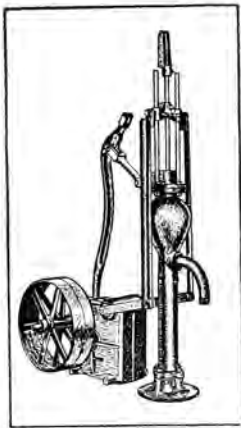
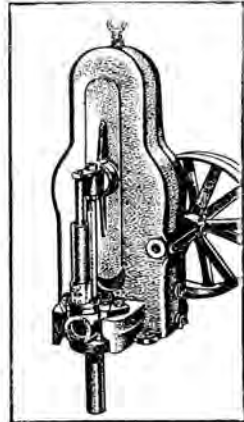
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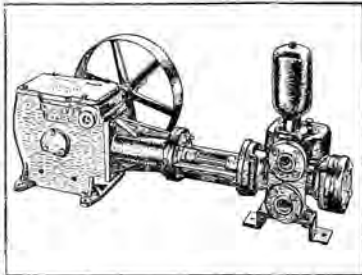


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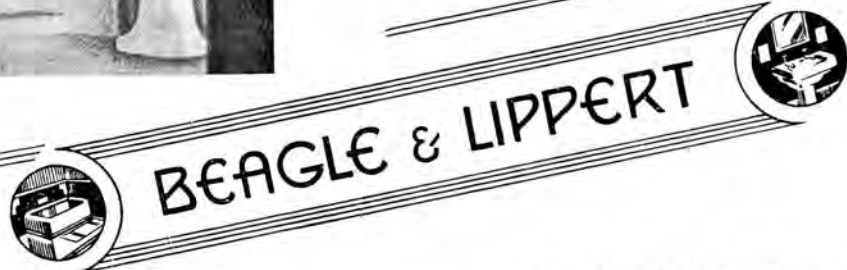
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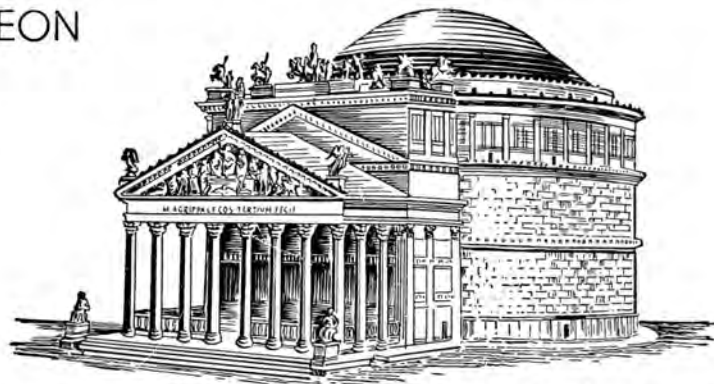
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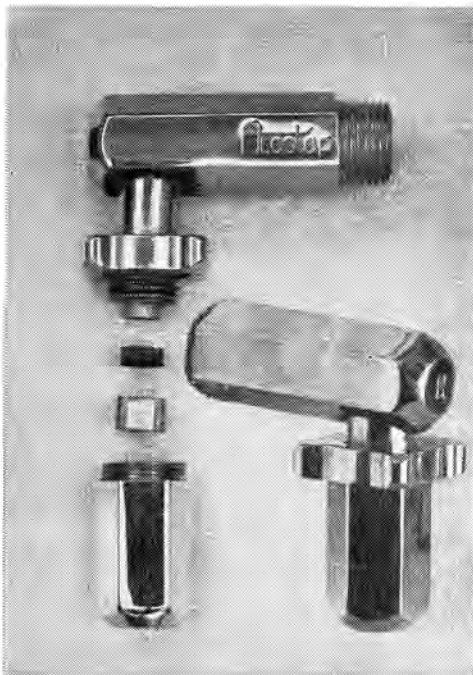
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E D I T O R
E R I K T O D D

PUBLIC WORKS OF SOUTH AFRICA, which is published monthly, is intended to keep the public up-to-date in regard to the engineering and building projects of the Central Government and the Provincial and Municipal Governments of South Africa.

VOLUME IX • NUMBER FIFTY-FOUR • MAY 1948

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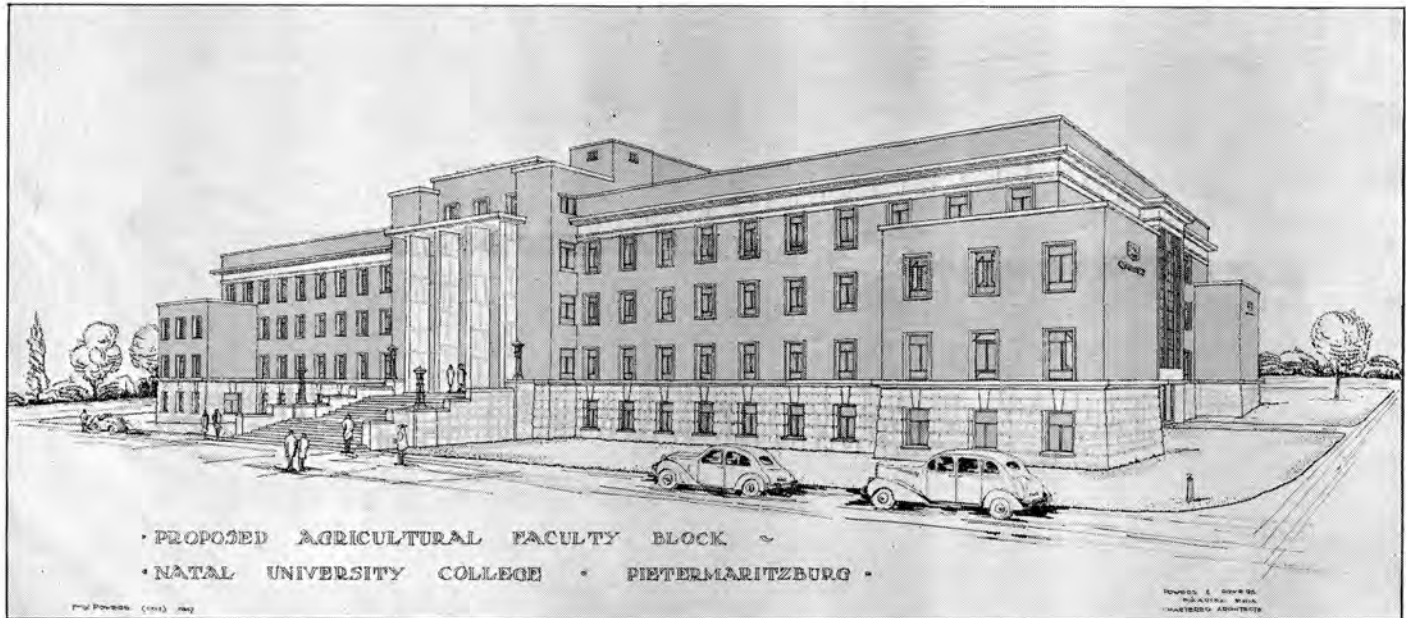
NEW AGRICULTURAL FACULTY BLOCK: NATAL UNIVERSITY,
PIETERMARITZBURG

POTCHEFSTROOM WITRAND INSTITUTION: NEW STEAM
LAUNDRY

PREMIER MINE WATERWORKS

NEW BRIDGE OVER ILLOVO RIVER

TENDERS INVITED



PERSPECTIVE SKETCH BY THE ARCHITECTS.

NEW AGRICULTURAL FACULTY BLOCK

NATAL UNIVERSITY

PIETERMARITZBURG

THE site is situated on the South West side of the National Road, between Pietermaritzburg and Durban, and at present has one building erected on it, recently completed for the Wattle Research Institute.

The new Agricultural Faculty Building will be sited slightly North and to the West of the Wattle Research Institute and approached by a winding drive-way on the North front from the Durban Road. It is intended to plant various types of trees flanking the drive and in clusters in the open portion of the site.

Further West and to the South of the building a large area is reserved for future hostels.

The geological conditions of the site are typical of those found generally in Pietermaritzburg, with a small over layer of soil on the surface, varying from about 3" — 12" in thickness, with pickable shale below.

The building has been designed as a reinforced concrete framed structure, with a semi-basement, with a flat concrete ceiling over the 2nd floor, covered with a temporary roof of protected corrugated metal of the "lean to" type, masked behind parapet walls.

The concrete ceiling over the 2nd floor provides a floor, if it is found necessary to increase the accommodation in the future by an additional storey.

The central feature over the main entrance, with the lift motor room, and tank room, set back from the main front, completes this portion of the structure.

It is intended to face the lower portion up to ground floor window sill level in stone, with rough rock hammer dressed masonry, set with a battered face finished with a boldly projecting bed, and sill course in coursed ashlar.

The face brick-work above the stone sill course to be "blue-browns" facing with pre-cast stone surrounds to windows and crowning cornice.

The main entrance portal will be similarly treated with free standing massive rectangular piers in pre-cast stone, and the wide approach steps will be in granite flanked by coursed ashlar of stone, the wing walls set off architecturally with four bronze standard lighting fittings.

The entrance vestibule will have a terrazzo floor to a formal design in three colours.

South African marble wall linings and bronze doors and screen, under the bridge connecting the East and West wings, and opening up into the Entrance Hall, which will be similarly treated, only terrazzo is substituted for the marble as a wall lining.

This entrance hall will be used for assemblies on occasions, and an Exhibition Hall. In the basement below this hall, a similar hall will accommodate permanent farming equipment of the heavy type for exhibition and instructive purposes.

A grand staircase giving access to the first floor, forms a terminal feature to the Entrance Hall with approaches on either side to the lecture theatre.

The lecture theatre is to be acoustically treated, and will be equipped with modern upholstered chromium plated tubular tip-up seats, sliding black-board, projector booth and screen.

The library is placed over the lecture theatre, and has a gallery on three sides, off which are placed the study bays; open ones for the general student, and lock-up ones for the advanced and research students. A rubber floor finish is provided in the library and gallery.

All the laboratories have a Southerly aspect with large window areas, whereas the research laboratories are planned round internal courts. The fittings, equipment, etc., will be of a very high standard, and up-to-date design.

The various offices, professors' and lecturers' rooms are planned on the North front, on three floors leading off the encircling corridor.

The treatment generally, internally will be painted, plastered wall surfaces, hardwood doors and joinery, metal windows, and hardwood block floors, with terrazzo dados to the corridors, and the two subsidiary entrance halls and staircases on the East and West fronts.

The building will be ventilated, and heated during the winter months, by the "Plenum" System, the plant being housed in the basement on the South side. The system will be zoned into two main sections, and accordingly the plant will be similarly split into two.

Two large electric passenger lifts will ultimately serve the whole building, although it is intended to only provide one lift in the present contract. The lift at the rear of the building, when installed will also be used for the moving of equipment.

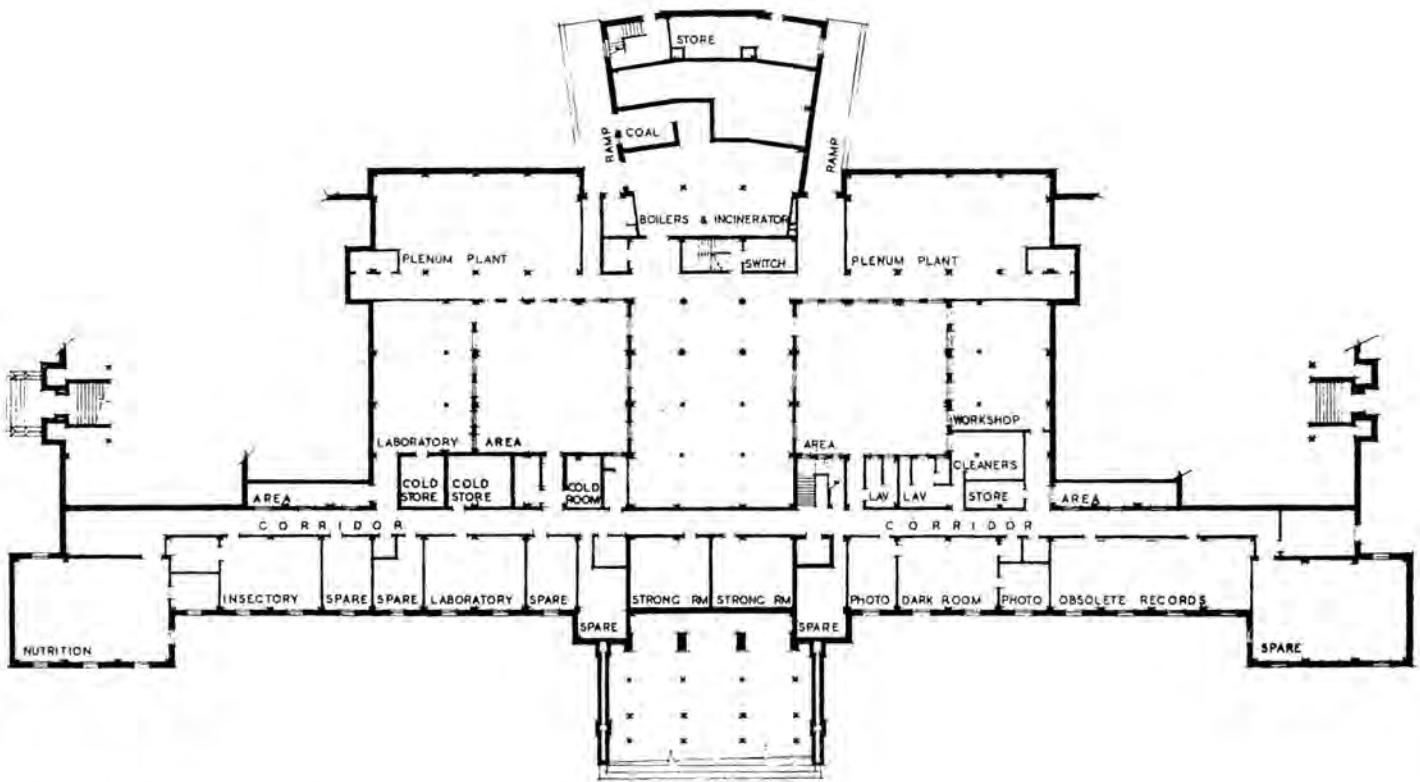
The various departments, and laboratories and rooms attached to those departments are clearly indicated on the drawings.

The building is being designed by Messrs. Power & Power, Architects, in collaboration with the Public Works Department.

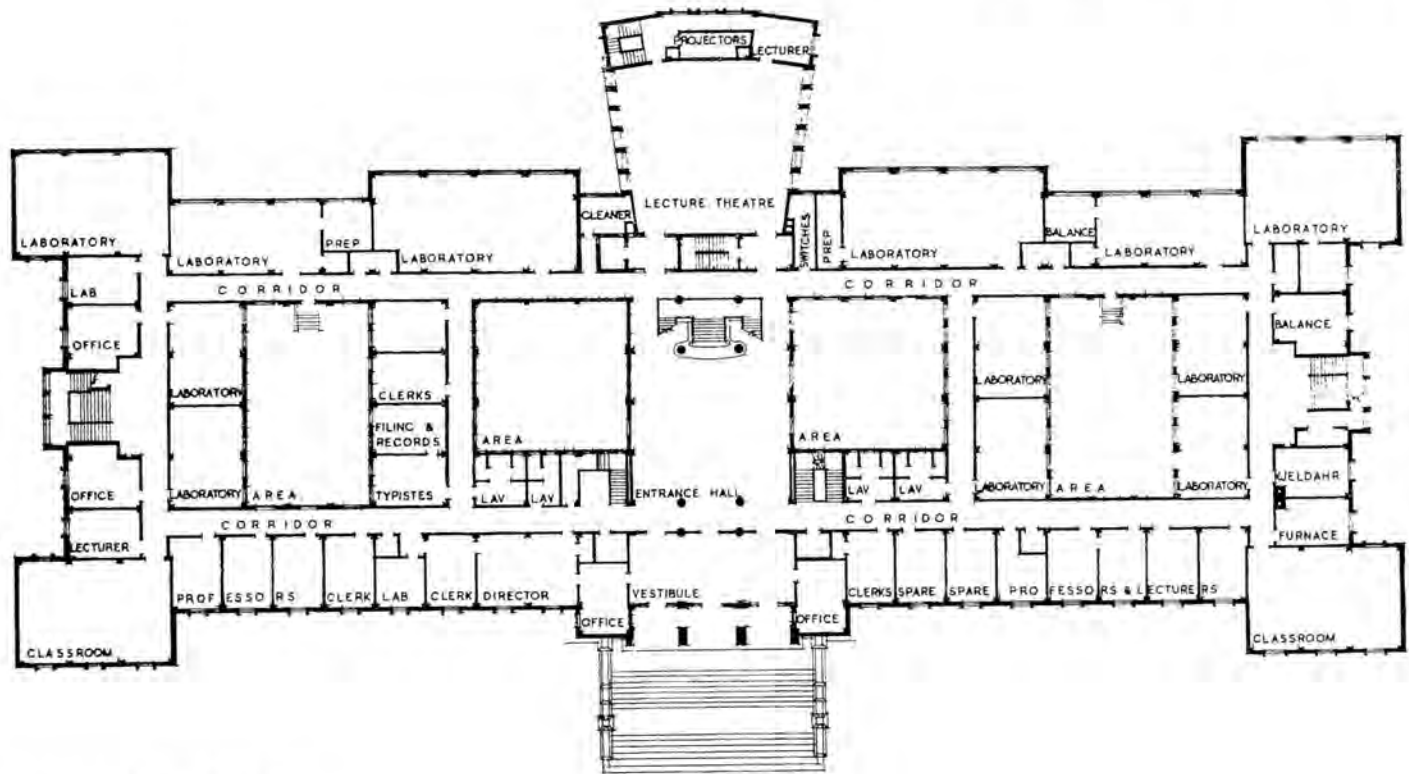
The estimated cost of the project is £250,000.

(Plans are reproduced overleaf.)

NEW AGRICULTURAL FACULTY BLOCK

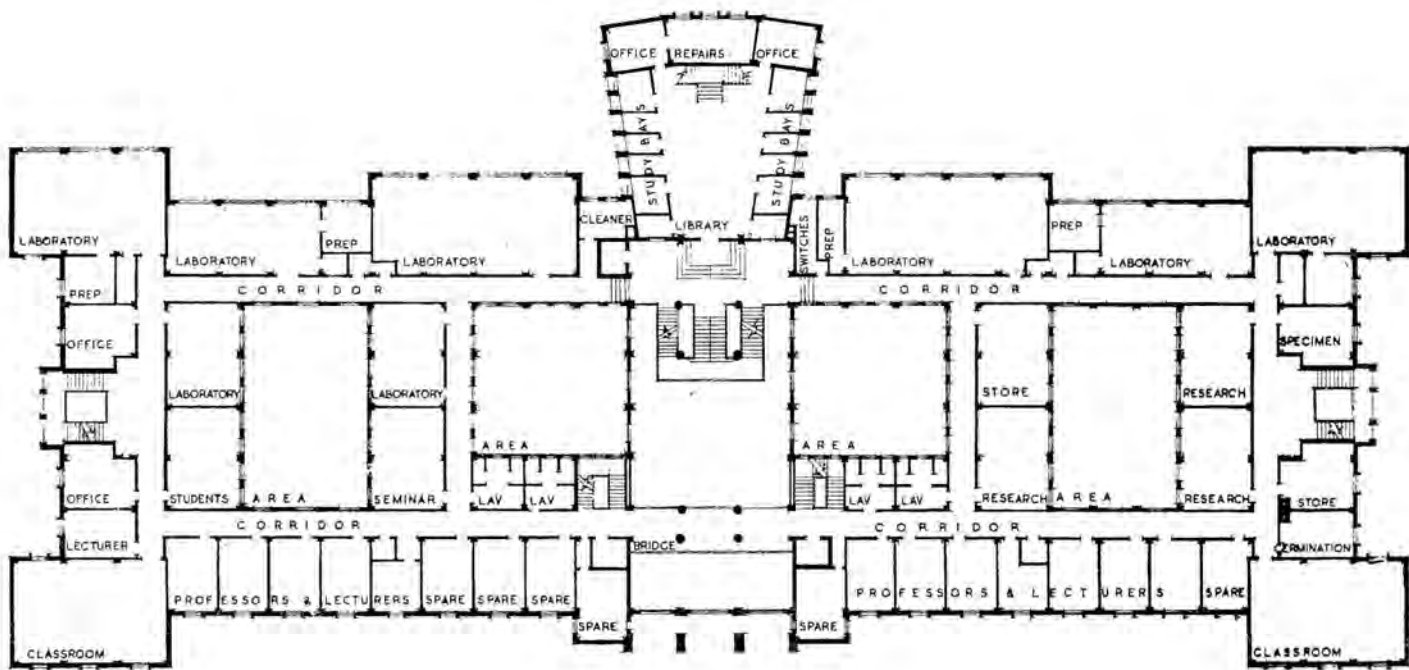


BASEMENT PLAN.

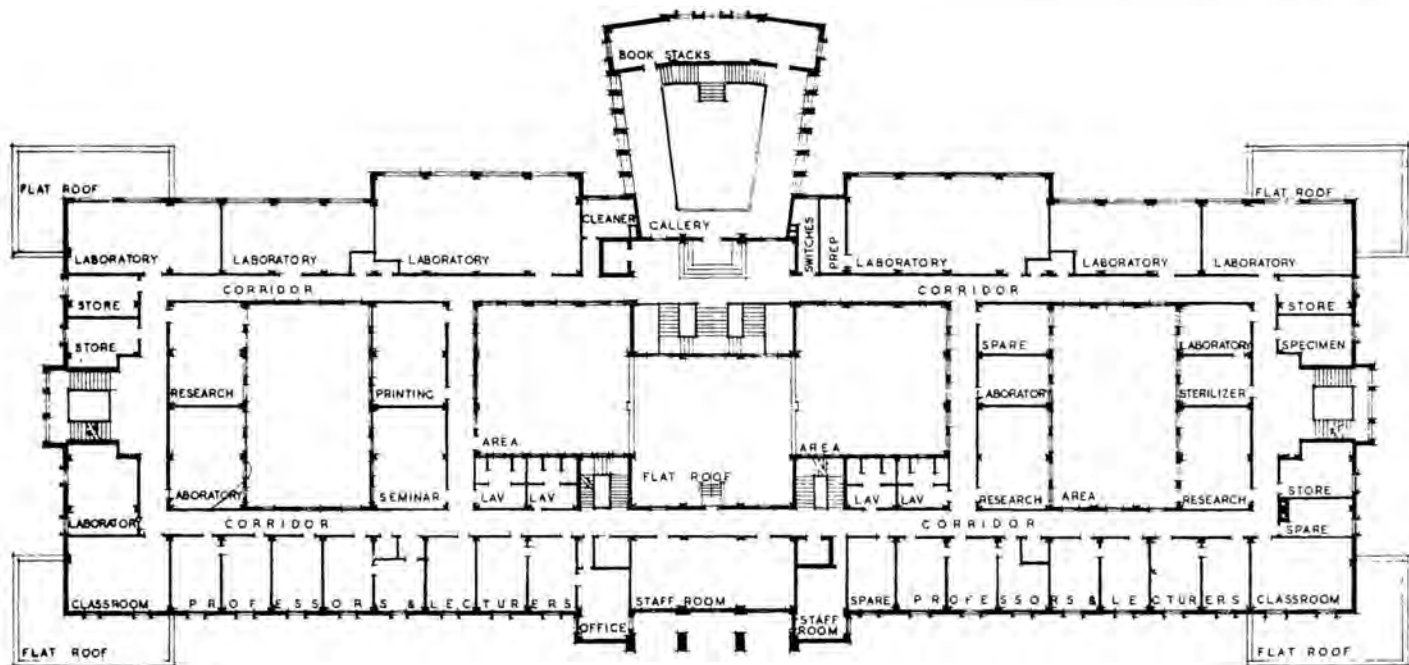


GROUND FLOOR PLAN.

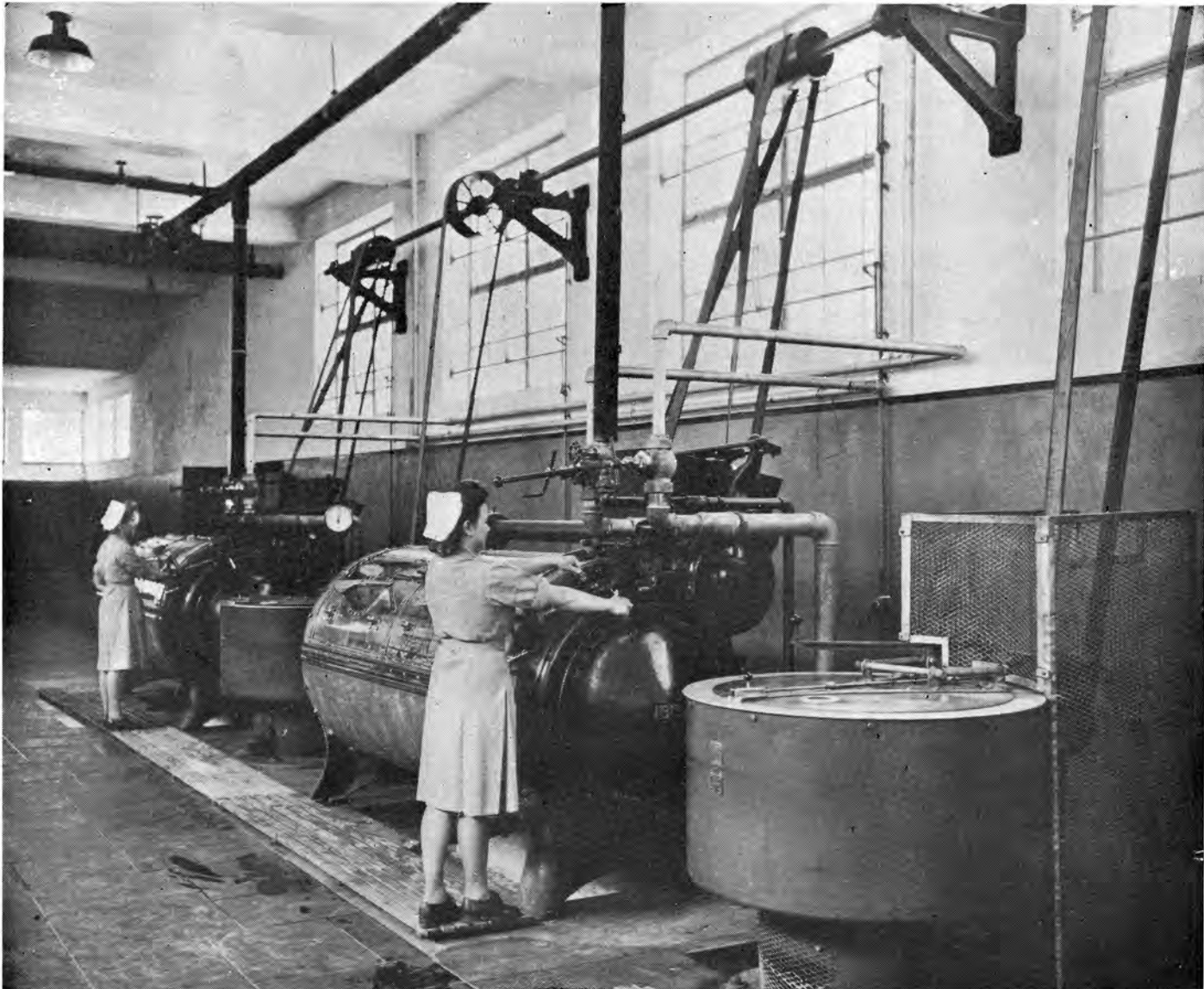
NATAL UNIVERSITY PIETERMARITZBURG



FIRST FLOOR PLAN.



SECOND FLOOR PLAN.



EQUIPMENT OF A MAIN WASH HOUSE.

Photograph: Martin Gibbs.

Typical arrangement showing belt driven machines.

Hydro extractor is on right.

Steam, hot and cold water pipes are provided at each washing machine.

Note sump under washing machine to ensure rapid emptying of machine when draining.

The straight and crossed belt drives on washing machines provide for reversal of drum.

POTCHEFSTROOM WITRAND INSTITUTION: NEW STEAM LAUNDRY

ONE of the functions of the Mechanical Engineering Branch of the Public Works Department is to provide large Government Institutions with steam laundries.

In this article, the equipment of a new laundry to replace the old one destroyed by fire at the Potchefstroom Witrand Institution, is described.

The laundry is designed to cater for 1,600 patients and a staff of 400, and is capable of handling up to 50,000 pieces per week.

The general layout of the laundry machinery is indicated in Fig. 1.

A laundry is nothing more or less than a factory for processing linen, and as such it has to comply in all respects with a modern factory building. Essential requirements are:—

1. A light and airy building with ample space in which to work.
2. A layout which will ensure the quickest possible passage through the laundry from receiving to packing room with a minimum of handling.
3. Correct equipment both in size and type to suit the requirements of the Institution.
4. Adequate power, water, steam, and drainage to permit of the plant being worked to full capacity.

Reference to the accompanying drawings will indicate that the Witrand Institution laundry meets all these requirements.

Disinfecter.

At the receiving end (Fig. 1), there is a 4' diameter x 7' long high pressure, steam disinfecter for disinfecting the linen from persons suffering from infectious diseases. Infected articles are fed in at one end of the disinfecter and after sterilization are removed at the other, or clean end. Should these articles be fouled in addition to being infected, they pass through the foul linen wash house before entry into the main wash house.

Foul Linen Wash House.

In the foul linen wash house is a 34" diameter x 72' long foul linen washer and a 30" hydro extractor. All foul linen is handled in the foul linen washer. This is a washing machine fitted with a special automatic flushing device enabling the water in the machine to be constantly replenished until all foul matter has been removed. After washing, the linen is removed and placed in the hydro extractor where moisture is removed by centrifugal action. The amount of moisture left in the load will be approximately 50 per cent. after a 10-minute run.

Main Wash House.

The main wash house is the first section of the laundry proper. It contains three 42" diameter x 84" long belt driven washing machines and three 30" diameter belt-driven hydro extractors.

After classification in the receiving room, the linen is placed in the washing machines, each of which is capable of taking a load of 300 lbs. dry weight. Hot water at approximately 120° F. and soap and other solutions necessary for washing are then added.

The washing process lasts approximately 40 minutes during which process the drum is reversed every two revolutions by an automatic belt-shifter attached to the machine.

It is interesting to note that the drain outlet of a 42" x 84" washer is 8" diameter. The necessity for adequate gullies and drain channels below the machines can thus readily be seen.

After washing, the linen is placed on wooden laundry waggons and transferred to the hydro extractors. Each machine is capable of taking 80 lbs. dry weight, the time per load being approximately 10 minutes. It will be seen from figs. 1 and 2 that the washing machines and hydros are driven off separate countershafts supported from the walls. The belts are totally enclosed to a height of 8 ft. to prevent persons from coming in contact with them.

The latest practice is to dispense with countershafts and to drive each machine by an independent motor fixed to the machine. As patient labour is employed at this institution belt drives were adopted as being more suited to operation by this class of labour.

Drying Department.

On passing through the hydro extractors the linen is removed in laundry waggons to the drying and finishing departments.

Flat work such as sheets, pillow cases, linen towels and similar articles are transferred direct to the multi-roller flat ironer but other articles such as shirts, woollens, etc., are first passed through the drying room.

This is a box-like structure measuring 8'6" wide x 14'6" long with insulated walls. It has a feed opening at one end and a discharge door at the other end. It is fitted internally with an endless clothes conveyor. A steam heating battery and three propeller type fans are provided. Two of the fans circulate hot air through the machine whilst the third exhausts moist air from the machine. The goods are suspended from

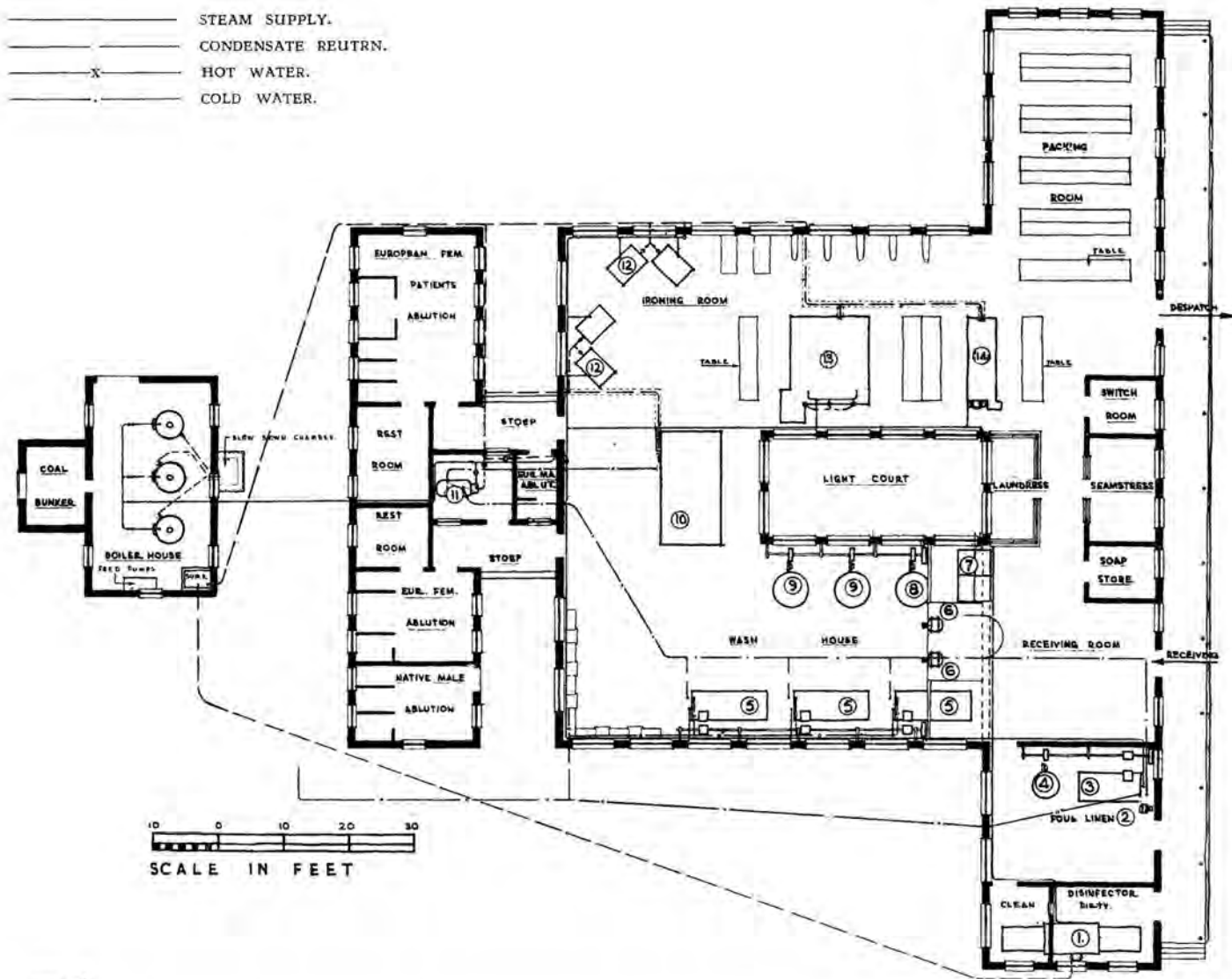


FIG. 1.
LAYOUT OF LAUNDRY MACHINERY AT POTCHEFSTROOM WITRAND INSTITUTION.

KEY

- 1 Disinfector Type L.C.
- 2 Electric Motor.
- 3 Foul Linen Washer.
- 4 Hydro Extractor.
- 5 Washing Machines.
- 6 Electric Motors.
- 7 Boiling Tanks.
- 8 Hydro Extractor.
- 9 Hydro Extractors.
- 10 Drying Room.
- 11 Storage Calorifier
975 Gallons hr. Heating
- 12 Twin Garment Press.
- 13 Six Roller Ironer.
- 14 Decoudun Ironer.



FIG. 2. Arrangement of belt drive in wash house.

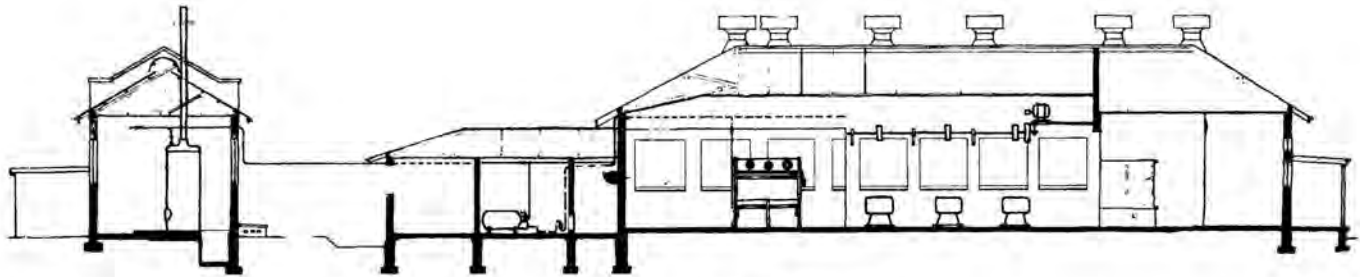


FIG. 3. Section through boiler house, wash house, receiving room, etc.

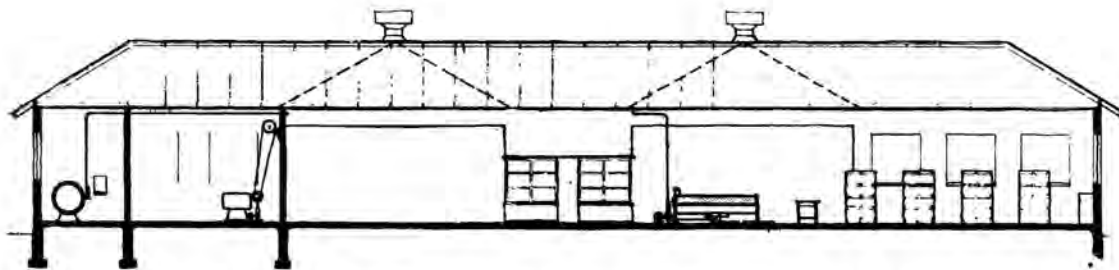


FIG. 4. Section through disinfector, foul linen, receiving room and packing room, looking through into wash house and ironing room.

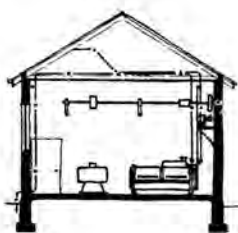


FIG. 5. Section through foul linen showing foul linen washer and hydro extractor.

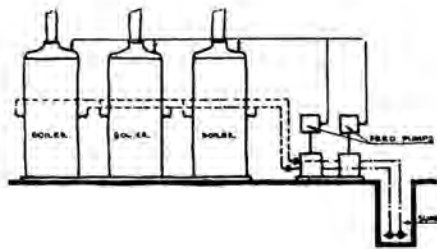


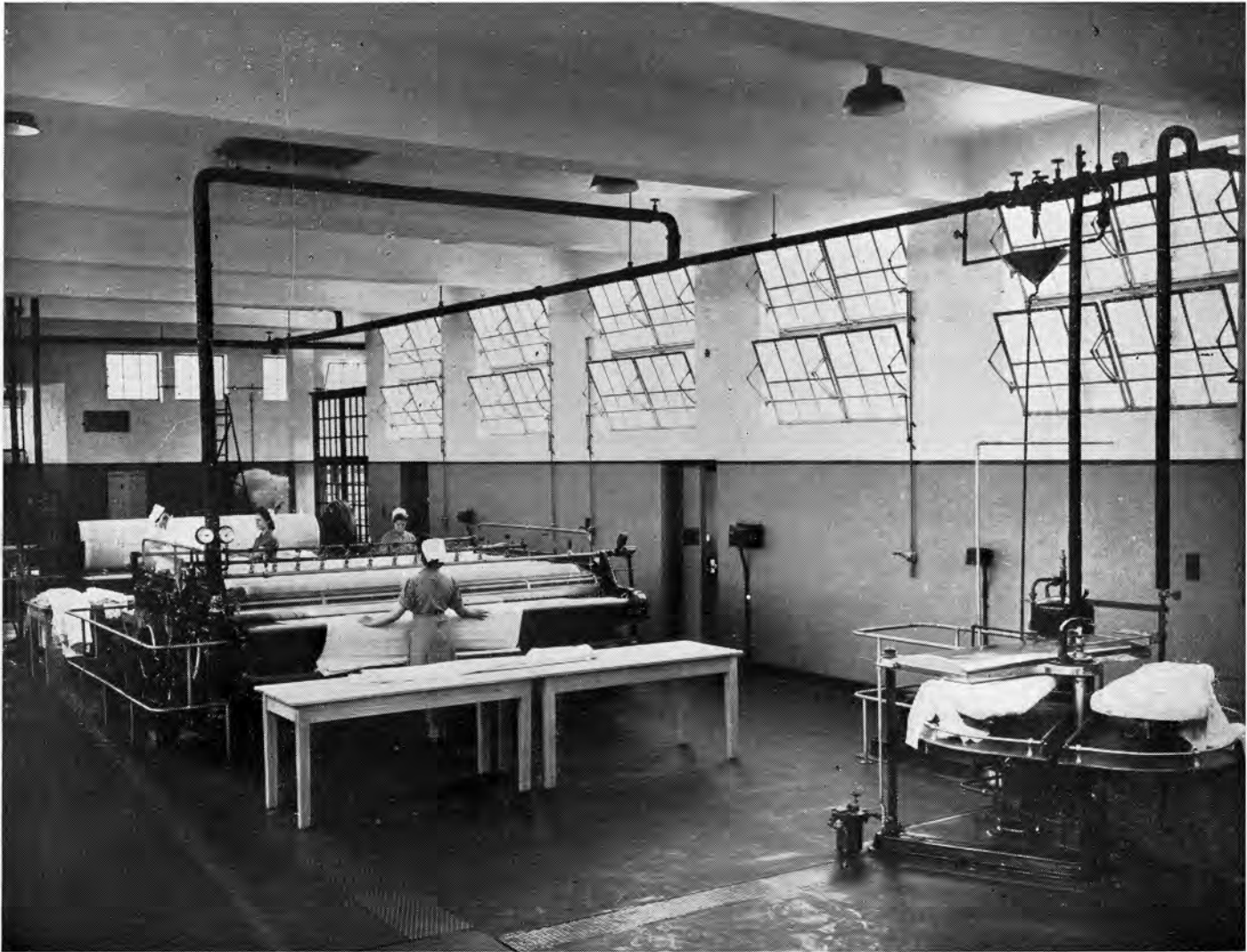
FIG. 6. Diagrammatic arrangement showing steam delivery and suction pipes to pumps in boiler house.



DRYING DEPARTMENT.

Photograph : Martin Gibbs.

*Typical drying room showing clothes conveyor.
Steam connections are visible on right
Circulating fans are mounted in box-like structure on top of machine.*



FINISHING DEPARTMENT.

Twin press in foreground.

Multiroll ironer in centre. Single roll finishing ironer at far end.

Note overhead steam pipes with pressure reducing valve assembly. Condensate lines are run underground in checker-plate covered channels.

Pressure gauges fitted in steam line and on machines indicate the operating steam pressures at these various points.

Note the excellent lighting and ventilation provided by the windows.

the conveyor by clips and are propelled through the machine by operating a large hand-wheel attached to the conveyor. On reaching the delivery end the clips automatically open and the goods fall on to the internal table provided for their reception.

The maximum temperature in the machine is approximately 160° F., the steam pressure on the coil being from 80 to 100 lbs./sq. in. The machine is capable of handling 480 shirts or their equivalent per hour. Its great feature is that it has no mechanical action on the goods and no wear, therefore takes place during the drying process.

Finishing Department.

The next stage in the laundry is the finishing department. This is equipped with two 54" x 19" twin garment presses, one 15" x 120" six-roller flat work ironer and one 24" x 110" single-roller ironer.

Articles of clothing such as shirts, uniforms, coats, etc. are finished on the twin presses. These machines consist of padded steam-heated tables with pivoted, steam-heated, flat polished pressing heads. The machines are operated by compressed air at 80 lbs./sq. in. pressure provided by a small air compressor fitted with an air receiver. The machine is automatically controlled by a pressure switch to maintain a constant air pressure in the receiver.

Each twin press is operated by one operator. While the article on one table is under pressure, during which period it is also being dried, the other table is being loaded by the operator. While the second table is under pressure, the first is being unloaded and re-loaded. Thus a continuous cycle of operations takes place.

The raising and lowering of the pressing heads is achieved by pressing two buttons simultaneously on the front of the machine. The buttons are so spaced as to render pressing both with one hand impossible thus ensuring the safety of the operator.

The six-roller ironing machine as previously mentioned is for flat work such as sheets, pillow slips, etc., which do not require a high degree of finish.

Approximately 50 per cent. of the total output of the laundry passes through this machine.

The 15" diameter rollers are padded and operate at 30 to 40 lbs./sq. in. steam pressure. The rollers revolve in a polished, cast iron, heated bed the pressure of the steam in the bed being 80 to 100 lbs./sq. in. The rollers are driven by totally enclosed gearing off an independent electric motor.

The flat work is first of all laid out on the table and then fed into the machine by three operators. The linen is carried forward by moving canvas bands and a safety finger guard is provided at the feed end to protect the operators. Forward movement of the finger guard automatically stops the machine.

At the delivery end the ironed linen is removed by three operators, folded and placed on a table ready for removal to the packing department.

Goods requiring a high degree of finish such as table cloths, table napkins, etc., are passed through the single roller ironer also known as a decoudun.

In addition to the ironing machines seven ironing boards with heavy duty electric irons are provided for small, delicate articles requiring a high finish.

Packing Department.

After ironing, the goods are removed and stored in the packing department until ready for dispatch.

The packing department is equipped with wooden shelves 2 feet deep and placed back to back with a 4-ft. passage way between tiers.

Boiler Plant.

Whilst a laundry of this size would normally be equipped with horizontal economic type boilers mechanically stoked, it was decided in this instance, in the interests of economy to re-use the existing boilers from the old laundry. These consist of three vertical cross tube boilers each measuring 4'6" diameter x 12'9" high and capable of evaporating 1,100 lbs. per hour each.

Steam at 80 lbs./sq. in. pressure is carried to the machines requiring steam and reduced in pressure where necessary by means of steam reducing valves.

Hot water to the laundry is provided by a storage pattern calorifier capable of heating 975 gallons per hour through 100° F.

Condensate from the drying and finishing machines is returned to the boiler house thus saving fuel and limiting the raw water make up for the boilers to a minimum.

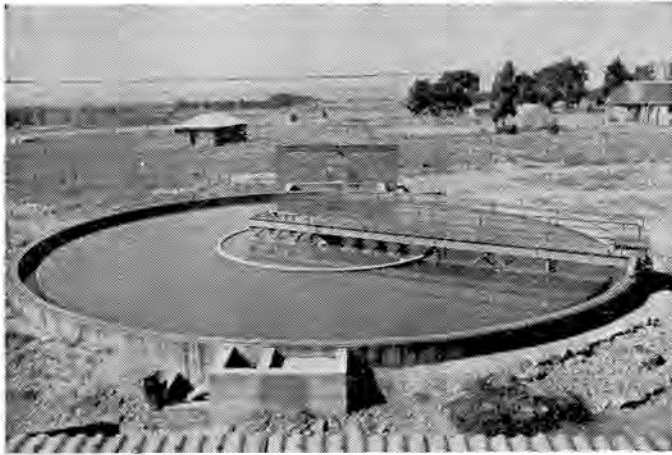
Water at Potchefstroom is extremely hard, and it is intended in the near future to instal a large base exchange softener to provide water of zero hardness to the laundry and domestic hot water installations throughout the institution.

It was mentioned earlier that a laundry is a factory. As such, all power laundries have to comply with the Factories, Machinery and Building Work Act of 1941. In addition to adequate working space, lighting and ventilation, rest rooms, change and ablution rooms, and lavatories have to be provided for European and Non-European workers. It will be seen from Fig. 1 that these facilities are provided at the Witrand Institution Laundry.

PREMIER MINE WATERWORKS

IN the early months of 1940, when the training of troops at Premier Mine area first commenced, the water supplied by the local diamond mining company received little, if any, treatment. Derived from the Wilge River dam some thirty-five miles east of Premier Mine, the water is pumped to a point 12 miles distant from the dam, whence it gravitates to an open type reservoir of 10 million gallons capacity. In 1940, treatment consisted of the addition of chlorine in the form of hypochlorite solution, followed by detention in the reservoir. The chlorination apparatus was supplied by Messrs. Dowson and Dobson, Ltd., of Johannesburg.

As time passed, and the concentration of troops became greater, it became apparent that more complete treatment was required, in order to safeguard the health of all concerned. The construction of a chemical treatment plant was accordingly put in hand by the Department of Public Works. The initial works were intended to treat one million gallons per day, and consisted of a rectangular settlement tank, chemical dosing house, pumphouse, rapid sand filter and a service reservoir of 250,000 gallons capacity. In addition,



64 FOOT DIAMETER CLARIFLOCULATOR.

a building to house the gas chlorination apparatus and filter-washing pump and compressor was erected. The construction work was carried out by Mr. J. P. Lamb, of Pretoria.

It was not long, however, before the demand for treated water far exceeded the plants capabilities, and additions to the works were accordingly put in hand. These additions consisted of a 64 ft. diameter Clarifloculator, an additional pumphouse, two rapid sand filters, and a service reservoir of 750,000 gallons capacity (bringing the total service reservoir capacity to 1,000,000 gallons).

The contractors for these additions were Messrs. A. Stuart, of Germiston (building work), and Messrs. Ed. L. Bateman (Pty.), Ltd., of Johannesburg (mechanical equipment on Dorr Clarifloculator and also chemical feeding equipment.) Two standby chemical feeders were also installed, these being supplied by Messrs. Blane and Co., Ltd., of Johannesburg.

By the end of 1942, the works were handling over 2,000,000 gallons of water per 24 hours. The consuming population included some 110,000 prisoners of war, and, with the influx of more troops, including the 6th S.A. Armoured Division, the plant was once more taxed beyond its powers, the demand at times reaching the three million gallons per day mark. An additional two filters were installed during 1943, the contractor being Messrs. W. Pattison, of Pretoria.

The addition of chlorine in the hypochlorite form to the raw supply was carried out continuously, chiefly owing to the fact that, during periods of heavy demand, and especially during the time prior to the erection of the last two filters, recourse was had to unfiltered water at certain times on some sections of the distribution. At the same time, this prechlorination assisted in keeping down algal growths, for which purpose copper sulphate is widely used. At the Premier Mine Waterworks this chemical was used for brief periods only, when growth of algae was particularly heavy.

The method of operation of the works is as follows :

Raw water from the 10 million gallon storage reservoir gravitates to the chemical dosing house, where aluminium sulphate and lime are added at the rate of ± 2.5 grains and ± 0.3 grains respectively. It may be added here that the water is, at times, received in a very turbid state, owing to heavy rains, and these dosing rates are therefore increased to meet the case. After receiving its chemical dose, the flow is split, a portion being passed to the rectan-

gular sedimentation tank and the remainder to the Clarifloculator. The sedimentation tank is fitted with two sets of horizontally placed paddles at its western end. These paddles, which serve the purpose of floc formation, were supplied by Messrs. Ed. L. Bateman and Co (Pty.), Ltd.

The flow direction is from west to east through this tank, the water passing over a sill at the end of the tank and into a collecting sump whence it is pumped by either or both of two Worthington Simpson centrifugal pumps, each capable of delivering 800 gallons per minute. Sludge is withdrawn from the tank by means of a set of five valves connected to 15 hopper-bottomed compartments.

The Clarifloculator (see illustration) is of an interesting design. This unit is of circular shape, being divided into an outer and inner compartment. The flow passes firstly to the inner compartment, by means of a central tower pipe. A set of paddles is provided here, rotating on a vertical axis, and these assist in bringing about floc formation. The flocculated water then passes through ports in the inner compartment wall to the outer settlement area. Here the flocculated matter settles to the floor from where it is gently scraped to a collecting boot by means of a travelling scraper suspended between the central feed pipe and the outer wall.

The clarified water, which collects in a peripheral channel, emerges at a point on the eastern circumference of the tank. From here it is pumped by either or both of two Harland centrifugal pumps of a capacity of 900 gallons and 1,200 gallons per minute respectively. The sumps serving the rectangular sedimentation tank and the Clarifloculator are interconnected by means of an 8 inch diameter pipe to obviate any trouble due to one set of pumps overtaking the other.

The flow is lifted by way of two pumping mains of 10 inch diameter to the battery of rapid sand filters, which are of a total area of 900 square feet. After filtration, the water gravitates to the chlorinating house, where chlorine is added at the rate of 0.5 p.p.m. by means of a Candy chlorinating apparatus, which was supplied by Messrs Dowson and Dobson, Ltd. From this point, the flow passes to the two service reservoirs (which are also interconnected), and from here it is drawn off, being used not only by the military but also by the mining establishment.



SEDIMENTATION TANKS.

NEW BRIDGE OVER THE ILLOVO RIVER SOUTH COAST NATAL



THE BRIDGE FROM THE LEFT BANK.

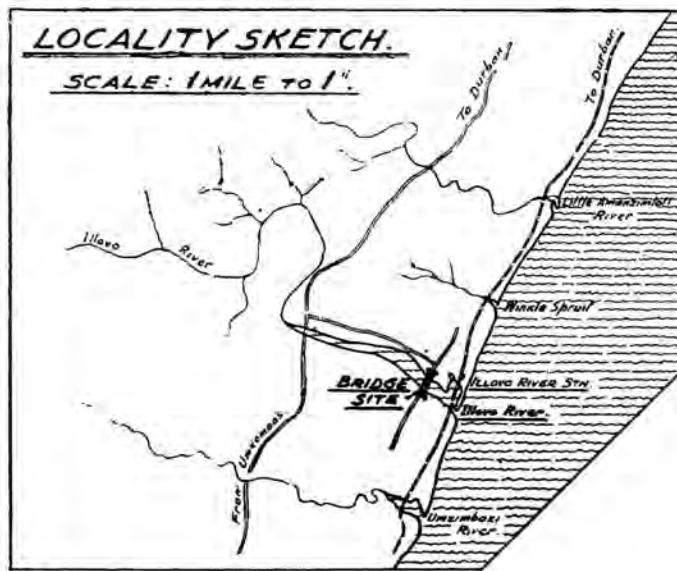
Photograph: Lynn Acutt.

WHEN National Route No. 2 from Durban to Port Shepstone is eventually open to road traffic, the motorist may be conscious of passing over a number of bridges providing all-weather, double-lane crossings over the many rivers which occur along this coast and which add to the scenic beauty of the drive. He will not otherwise be very interested in their occurrence because very few will consist of structures which obtrude his view above the level of the handrails. This aspect of design is deliberately observed and he will therefore not be frequently tempted to call a brief halt in order to ascertain what sort of structure has been provided for his use.

To the technical mind, however, the bridges along this route provide a number of interesting problems in design and construction. Along the coastal belt of Natal, the rivers

seldom provide the ideal foundation condition of solid rock formation at a shallow depth and the apparently harmless-looking stream can, even near the mouth, become a high velocity river of major proportions within a few hours. Owing to the proximity of this route to the foreshore, too, the water level is affected by tides and this can at certain seasons add to the difficulties of construction and the dangers of flooding.

Of particular interest is the reinforced concrete bridge now being erected over the Illovo River between Winkle Spruit and Karridene. Here the width of the river in flood calls for a bridge length of 800 feet and the road location is such that the crossing is made at a point where rock occurs at a favourable depth only on the right bank, the remainder of the river bed being silt and sand. To provide for the safe passage



of debris which is brought down during flood periods and to avoid the heavy cost of a large number of foundations, the use of short spans was considered inadvisable and uneconomical, and extensive investigations were made before the type of structure now being built was finally decided upon.

Twelve bore-holes were sunk to a depth of about 60 feet along the centre-line of the site. From the data thus obtained it was considered that reinforced concrete caissons sunk to a depth of over 30 feet below the river bed and founded on compact sand would be safe from the effects of scour and would provide an unyielding support for the superstructure. As a further precaution against scour, the caissons were provided with cutwaters at an angle of 45 degrees. The design finally adopted for the superstructure and as shown on the drawing reproduced, consists of a semi-continuous type of beam construction. With the exception of the 80 ft. continuous span adjoining each abutment, all the openings are 90 ft. in length having continuous beams over each pier, and with a suspended 50 ft. span in each alternate bay.

By virtue of the continuity of the beams it was possible to reduce their overall depth to 5' 6" at mid-span whilst over the piers the depth is increased to 9' 0". There are four main beams to carry the 22 ft. roadway and two 3' 6" footpaths. The beams are designed for heavy traffic conditions and the footpaths are hollow to allow for the laying of telephone cables. The beams are provided with caststeel rocker bearings at the piers, while the suspended spans rest on sliding plates having a bearing face of sheet lead. In the main

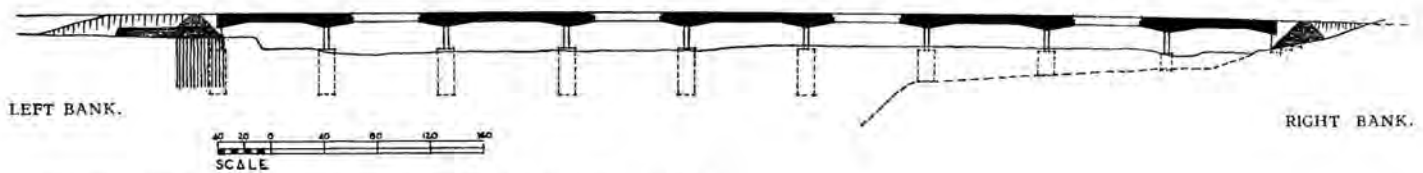
beams the maximum diameter of the reinforcing bars is 1 1/2 inch, and these have been arranged in such a manner that no length greater than 45 feet is required.

With regard to the foundations, the left abutment and piers No. 1 to 7 are erected on reinforced concrete caissons having two compartments and outer walls 18 inches thick. It has been found as a result of experience that the heavy caisson is the easiest to sink. It obviates the employment of kentledge to force it down and it withstands the stresses which can occur in a diversity of directions during the process of sinkings especially if obstructions are encountered. The left abutment and piers No. 1 to 5 are founded on firm, compact sand and are of the "floating" type, i.e. the cutting edge is not sealed. The area of each caisson is such that the load on the foundation material is less than 3 tons per sq. foot, neglecting the effect of friction on the walls. The caissons to piers No. 6 and 7 as well as the foundations to pier No. 8 and the right abutment are on rock.

Work commenced on the site towards the end of November, 1945. The sinking of the caissons was carried out by the open dredging method, artificial islands being formed to provide working areas on which to set the steel cutting edge for each caisson. Two grabs were employed, working in two caissons concurrently. It was found occasionally necessary to open the mouth of the river to lower the water level and to prevent flooding of the islands. The rate of sinking was considerably affected by the presence of small boulders which were not recorded by the bore-hole investigations, and at a greater depth by the compact nature of the sand bed in which the caissons were founded at a depth of approximately 30 feet below river bed level towards the left bank of the main low-water channel.

A little over a year later, all the foundations were complete together with the mass concrete for both abutments and seven of the piers, despite the usual delays caused by floods and the difficulty of procuring satisfactory deliveries of cement and steel.

Throughout this contract, in fact, shortages of cement and reinforcing steel have had their retarding effect on the rate of progress. In spite of this, however, the first portion of the superstructures on the left bank was concreted in May, 1947. Before this stage could be reached, heavy timber piling had to be provided in the river bed to carry the falsework and superstructure. Soon after the first continuous unit had been cast and set, some trouble was experienced as a result of a flood which carried down considerable debris from the sugar mill upstream and piled this up against the falsework. Some scour around the piers was caused, which would not occur when the structure is complete. The timber piles had fortunately been driven to a depth sufficient for them to



PROFILE OF BRIDGE SHOWING FACE AND FIXED SECTIONS.



THE BRIDGE FROM THE RIGHT BANK.

Photograph : Lynn Acutt.

remain secure enough for the work to proceed and the superstructure has now advanced to the extent shown by the accompanying photograph.

Concreting of the spans has been carried out with the use of two mixers, and between 80 and 90 cubic yards are poured in an 8-hour day. Each continuous unit requires four such working days, as one pouring completes the beam and the deck slab carried thereon.

In order to facilitate the working of the concrete in and around the reinforcement, the Contractor employs two internal-type vibrators. Their usefulness is very apparent while the concrete is being poured, and the resultant good finish is noticeable on the exposed surfaces of the work so far completed. The Contractor has also resorted to a certain amount of spot-welding to secure stirrups to main rods and at all intersections where these are normally bound with small-gauge wire. As a result, the reinforcement is laid and maintained in its correct position, during the process of concreting, in a manner which would satisfy the most meticulous of designers.

Laboratory tests on the concrete have been continuous throughout the progress of this contract. Initially, sieve analyses of the sand and crushed stone determined the most workable proportions to be adopted, consistent with the strength desired. Six-inch cube samples of the concrete poured are taken on the site, cured, and despatched to the Public Works Department Laboratory for crushing tests. The figures

obtained from samples representative of each span prove that the 28-day cube strength of the nominal 1:2:4 mix is not below 3,000 lbs. per square inch. These results justify the care taken to produce good concrete and are very satisfactory. If they could be obtained generally throughout the country, on building work as well, they would justify the adoption of higher design stresses than those at present permitted.

This bridge is one of many to be provided from National Road Board funds in the development of its plan to complete all-weather routes along the Union's main highways. As in many other instances the design of the structure was carried out by the staff of the Public Works Department, Pretoria, who also arranged the contract and the supervision of the work until completion is reached and the service handed over to the Provincial Administration. The Contractors are Messrs. Colin Ingram (Pty.), Ltd, Durban, and they now have only about one-third of the superstructure to construct for the completion of a bridge which is costing about £40,000.

To return, finally, to the motorist. He will be quite unconscious of the fact that much thought, ingenuity, and experience, not to mention some 300 tons of steel and 5,000 cubic yards of concrete, have been combined to provide this crossing of the Illovo River, — which is a further illustration of how many of the useful things in life are just taken for granted.

TENDERS INVITED

THE following are particulars of the more important tenders which have been invited up to the time of going to press for public works by the Government Departments, Provincial Administrations and Municipalities. In each case the date by which the tender must be submitted is given. While every endeavour will be made to maintain accuracy in these columns it is pointed out that readers using this information do so entirely at their own risk.

Note : S.A.R. & H. Tender Board address is: 715, P.F.A.C. Building, 15, de Villiers Street, Johannesburg.

BUILDINGS, ETC.:

Public Works Department, Pretoria : Tweeling, O.F.S.— school additions, new class rooms and woodwork room. P.W.D. 36. Due, 8/6/48.

Public Works Department, Pretoria : Steynsrust, O.F.S.— new kindergarten, additional class rooms and woodwork store room to school. P.W.D. 34. Due, 1/6/48.

Public Works Department, Pretoria : Jubilee Home, Boksburg — additions and alterations. P.W.D. 35. Due, 3/6/48.

Public Works Department, Pretoria : Grootfontein, C.P. Three Staff houses at College of Agriculture. P.W.D. 32. Due, 3/6/48.

S.A.R. & H. Tender Board : General Manager, 206, Helpmekaar Buildings, Loveday Street, Johannesburg. Separate tenders (labour and material) for the erection and completion of 5 (five) P.95/B/2 type houses as follows: 1. Two type P.95/B/2 at Cavendish; 2. One type P.95/B/2 at Groutville; 3. One type 95/B/2 at Illovo Beach; 4. One type P.95/B/2 at Newark. (Deposit of £1-1-0). Due, 3/6/48.

S.A. Railways Tender Board : Chief Civil Engineer, 102, Helpmekaar Buildings, Loveday Street, Johannesburg. Erection and completion of 10 houses at Elandsfontein. (Deposit of £2-2-0). Contract C.C.E. 117. Due 3/6/48.

S.A.R. & H. Tender Board : Chief Civil Engineer, 27, Railway Headquarters, Johannesburg. Erection of new station buildings and non-European waiting rooms at De Wildt, Transvaal. (Deposit of £2-2-0). Due, 10/6/48.

Cape Provincial Tender Board, Cape Town : Architects, Louw & Louw, 600, Sanlam Buildings, Cape Town. Erection of additional accommodation in connection with the Loeriesfontein Secondary School in the Calvinia Division. Due, 8/6/48.

Odendaalsrus Municipality : Architects : P. Visser & P. Friel, 2, Hulshof Buildings, Orange Street, Kroonstad. Erection of 10 houses and out-buildings for the Town Council. (Deposit of £3-3-0). Due, 1/6/48.

AIR CONDITIONING PLANT :

Durban Municipality : Electricity Department, Durban. Air conditioning units, Foreman of Works Offices, Alice Street. E.2166. Due, 11/6/48.

ELECTRICAL EQUIPMENT, ETC. :

S.A.R. & H. Tender Board : Electric shunting locomotives. No. 6374. Due, 10/6/48.

S.A.R. & H. Tender Board : Electric motor coaches and electric plain trailers. No. 6116. Extended to 1/7/48.

S.A.R. & H. Tender Board : Batteries for electric locomotives. No. 8056. Due, 3/6/48.

S.A.R. & H. Tender Board : Oil circuit breaker switch board. No. 8151. Due 8/7/48.

S.A.R. & H. Tender Board : Lead acid batteries. No. 8141. Due, 8/7/48.

S.A.R. & H. Tender Board : Electric lamps. No. 7992. Due, 17/6/48.

S.A.R. & H. Tender Board : Switchgear. No. 8035. Due, 29/7/48.

S.A.R. & H. Tender Board : Material for armature re-winding. No. 8158. Due, 10/6/48.

S.A.R. & H. Tender Board : Electric motor coaches. No. 7633. Due, 2/9/48.

Department of Posts and Telegraphs, Pretoria : Radio receiver for radio telegraph services. P.O. 917. Due, 24/6/48.

Department of Posts and Telegraphs : Secondary cell batteries. P.O. 915. Due, 1/7/48.

Public Works Department, Pretoria : Supply, delivery and erection of two electrical dual purpose passenger or bed lifts to the National Hospital, Bloemfontein. P.W.D. 29. 6/7/48.

Public Works Department, Pretoria : Fluorescent bracket lighting fittings for new post office, George. P.W.D. S.210. Due, 3/6/48.

Public Works Department, Pretoria : Hotwater cylinders, electric stores and parts. P.W.D. S.181. Due, 10/6/48.

Public Works Department, Pretoria : Single and 3-phase electric motors and starters. P.W.D. S.162. Due, 17/6/48.

Public Works Department, Pretoria : Incandescent lamp fittings. P.W.D. S.166. Due, 17/6/48.

Public Works Department, Pretoria. High and low tension switch gear for Damant Street automatic telephone exchange, Port Elizabeth. P.W.D. S.204. Due, 3/6/48.

Public Works Department, Pretoria. Supply, delivery and erection of an overhead electric travelling crane for postal stores, Driftsand, Port Elizabeth. P.W.D. 33. Due, 3/6/48.

Rand Water Board, P.O. Box 1127, Johannesburg : Chief Engineer, 3, Fraser Street, Johannesburg. Additional water supply (1946) scheme: Supply, delivery, erection and commissioning of 2 three-phase 3,750 k.v.a. 11/2.2 k.v. transformers at Vereeniging main pumping station. (Deposit of £3-0-0 — additional copies of documents at £1-0-0 each). Contract 708. Due, 8/6/48.

Electricity Supply Commission, P.O. Box 377, Salisbury. Revised : Secretary. Umtali No. 2 Power Station: Coal handling plant consisting of inclined and horizontal gravity bucket conveyor with control gear complete. (Deposit of £5-0-0 — extra copies of documents at 5/- each). Contract 54/1947. Due, 1/7/48.

Southern Rhodesia Government Tender Board, Salisbury : Public Works Department, Salisbury. Electric lifts. No. 1828. Due, 1/7/48.

Bloemfontein Municipality : E.H.T., H.R.C. power station switchgear. Enquiry No. 5/1948. Due, 2/6/48.

Bloemfontein Municipality : Enquiry: City Elec. Engineer, Bloemfontein. Overhead line material: Steel poles, cross-arms, E.H.T. insulators, lightning arrestors, copper conductor and steel stay wire. 7/1948. Due, 1/7/48.

Barberton Municipality : Town Clerk, Barberton. Electric generating plant. Contract 3/1948. Extended to 28/6/48.

Bulawayo Municipality : City Electrical Engineer, Bulawayo. Electricity supplies. E.30/1948. Due, 5/7/48.

Cape Town Municipality : Metal-clad service cutouts. Specification No. 1484/48. Due, 2/6/48.

Durban Municipality : Current transformers and time switches. E.2168. Due, 6/8/48.

Johannesburg Municipality : Stores Department, Johannesburg. Traffic signals. Contract 457. Due, 21/6/48.

Johannesburg Municipality : Electricity Department, Johannesburg. 20.5 k.v. 750 m.v.a. switch gear. Contract D.9/48. Extended 14/6/48.

Johannesburg Municipality : Insulating sheets for switch board panels. Contract 483. Due, 18/6/48.

Johannesburg Municipality : Traffic signals. No. 479. Due, 18/6/48.

Johannesburg Municipality : Lightning arrestors. No. 484. Due, 18/6/48.

Kokstad Municipality : Town Clerk, Kokstad. Underground cables and other electrical distribution material. Due, 9/6/48.

Klerksdorp Municipality : Electrical Engineer, Klerksdorp. (a) Overhead line material; (b) Street light lanterns; (c) Underground cables; (d) Transformer kiosk and transformer; (e) Electricity meters. Due, 2/6/48.

Kroonstad Municipality : Consulting Engineer: J. S. Clinton, Preston House, Simmonds Street South, Johannesburg. Supply, delivery, off-loading, erection, etc. of the following items: One 6.6 k.v. neutral earthing compensator with one earth current limiting resistance and controlling switch gear. (Deposit of £3-3-0 — extra

copies of documents at £1-0-0 each). Specification K.R.6/1948. Due, 28/6/48.

Middelburg, Cape. Municipality : Consulting Engineer: J. S. Clinton, P.O. Box 4548, Johannesburg. Electricity undertaking: Supply, and in some cases, erection of the following plant and equipment: Section 1: Boiler, draft plant and stack; Section 2: Feed pump; Section 3: Boiler feed piping; Section 4: Coal hoist and sundries. Specification M.C. 1/1948. One 625 KW. turbo alternator and condensing plant. MC. 2/48. Circulating water pump and motor pipe work and spray gear. M.C. 3/48. One 10-ton hand-operated crane, runway and bridge rails. MC. 5/48. (One set of documents for each contract on deposit of £3-3-0 — additional copies at £1-0-0 per copy). Due, 19/7/48.

Oudtshoorn Municipality : Copper tube and fittings. One syren. (Deposit of £1-1-0 — extra copies of documents at 10/6). Due, 7/6/48.

Oudtshoorn Municipality : Town Clerk, Oudtshoorn. Supply, delivery and erection of certain power plant forming additions to the Electricity Department comprising: One 12,000 lb. per hour water tube boiler plant; One 1,500 k.w. turbo alternator. (Deposit of £3-3-0 — extra copies at £1-1-0 each). Due, 30/6/48.

Municipality of Potchefstroom : Town Clerk, Potchefstroom. 10 tons (20,000 lbs.) 19/16 stranded hard drawn bare copper wire on free non-returnable drums. Due, 2/6/48.

Pretoria Municipality : City Elec. Engineer, Pretoria. Electricity Department: Power Station "D" first stage: Supply, delivery and erection of belt conveyor coal handling plant. (Deposit of £2-2-0). Form of Tender No. N.720. Due, 30/6/48.

Pretoria Municipality : Controller of Stores, Pretoria West. 50 only 11,500 volt ring main switch gear units. Specification 318. Due, 14/6/48.

Postmasburg, C.P., Municipality : Town Clerk, Postmasburg, C.P. Electricity supply undertaking: Supply, delivery and erection complete of the following: Section A (power station equipment); Supply, delivery and erection of Diesel engine generating sets capable of generating in the aggregate 375 k.v.a., 3-phase, 4-wire, 50-cycle, 400/231 volt alternating current — complete with 11-panel switchboard, semi-automatic control, station auxiliaries and all necessary sundry equipment. Section B (transmission, distribution and street lighting net work). Supply, delivery and erection of the necessary materials and equipment for the reticulation of the town on the 3-phase, 4-wire system together with an E.H.T. transmission line together with pole-type transformers, switch kiosk, house service connections, meter and all necessary sundry equipment for town supply at 380/220 volts A.C. Section C (house wiring for private consumers). Supply, delivery and erection, through the Municipality, of the necessary materials and equipment for the wiring of approximately 125 houses and other buildings for electricity supply. All the above work to comply with the specifications and drawings framed by the Council's consulting Engineer. (One set of documents on deposit of £2-2-0 — additional copies at £1-1-0 each). Due, 5/6/48.

Robertson Municipality : Consulting Engineer: J. S. Clinton, P.O. Box 4648, Johannesburg. Electricity distribution extensions: 11 k.v. and L.T. cable including

laying, jointing, excavation of trenches and filling. (Deposit of £3-3-0 — additional copies of documents at £1-0-0 each). Contract R1A/48. Due, 24/6/48.

Robertson Municipality : Consulting Engineer, J. S. Clinton, P.O. Box 4648, Johannesburg. Electricity distribution extensions. R1/47. Extended to 24/6/48.

Trompsburg Municipality : Town Clerk, Trompsburg. Electrical plant : 1 — 27.5 k.v.a. (22 k.w.) Diesel alternator set complete with control panel. (Two sets of specifications on deposit of £1-1-0—extra copies at 10/6 each). Due, 30/6/48.

ENGINEERING CONSTRUCTION, ETC. :

Cape Town Municipality : Development Engineer, City Engineer's Department, Cape Town. N'dabeni and Epping industrial townships : Supply and laying of railway track and equipment : Alternate tenders for the following : (a) The supply of all materials and accessories required including plate-laying and ballasting and undertaking the complete work of laying the track (b) The supply, off-loading and stacking of track materials and equipment only, but excluding ballast ; (c) The supply of ballast and laying of track in accordance with the specification set forth. Due, 7/6/48.

ROADMAKING, ETC. :

Natal Provincial Tender Board, Colonial Buildings, Pietermaritzburg : Provincial Roads Engineer, P.O. Box 417, Pietermaritzburg. Construction of approximately 25½ miles of national road between Umkomaas and the Umfazana River towards Port Shepstone. The work involves the construction of the base course of crushed rock or gravel and the construction of a pre-mixed asphalt wearing surface 1½" thick.

The Administration will arrange for a representative of the Provincial Roads Engineer to meet prospective contractors at the Umkomaas railway station at 11 a.m. on the 12th May, 1948, to show them the site of the proposed works. (This tenders closes on the 16/6/48). Contract No. 7/NR.

SEWERAGE SCHEMES, ETC. :

Worcester Municipality : Consulting Engineer, Ninham Shand, 806, Groote Kerk Buildings, Cape Town. Industrial area sewerage scheme : Construction of reinforced concrete settling tanks with mechanical collectors (Deposit of £15). Contract 7/1948. Due, 1/6/48.

Upington Municipality : Consulting Engineers : Reitz & Partners, P.O. Box 165, Stellenbosch. Sewer pipes and specials for the whole of the town of Upington. (Deposit of £5-5-0). Due, 30/6/48.

Scottburgh Municipality : Consulting Engineers : Campbell & Bernstein, 29, Jesmond Grove, Durban. Sewerage Scheme : Laying of sewers and construction of outfall works. (Deposit of £5-5-0—extra copies of documents at £2-2-0 each). Contract S. 2/48. Due, 15/6/48.

Pietermaritzburg Municipality : City Engineer, Pietermaritzburg. Reconstruction of foul water main sewer in Victoria Road — Grey Street, etc. C.E. 10/1948. Extended to, 11/6/48.

Johannesburg Municipality : Sewer pipes and fittings. No. 481. Due, 18/6/48.

STRUCTURAL STEEL, ETC. :

S.A.R. & H. Tender Board : Structural steel work. No. 8012. Due, 29/7/48.

S.A.R. & H. Tender Board : Steel bridge work. No. 7730. Due, 10/6/48.

S.A.R. & H. Tender Board : Steel bridge work. No. 8031. Due, 29/7/48.

SURVEY EQUIPMENT :

Southern Rhodesia Government Tender Board, Salisbury : Director of Irrigation, Salisbury. Survey equipment — levels, level staves, ranging rods, binoculars, etc., etc. No. 1831. Due, 28/6/48.

TRACTORS AND ROADMAKING PLANT, ETC.

Southern Rhodesia Government Tender Board, Salisbury : Earth-moving plant. No. 1779. Due, 14/6/48 ; 18 — ¾ cubic yard mechanical shovel. No. 1780. Due, 14/6/48.

Transvaal Provincial Tender Board, P.O. Box 1040, Pretoria. Controller of Provincial Stores, Box 857, Pretoria. Grader blades. No. 170/1948. Due, 2/6/48.

Grahamstown Municipality : Town Clerk, Grahamstown. Quarry plant. No. 2/48. Extended to 14/6/48.

Nigel Municipality : Town Engineer, Nigel. One bulldozer and power take-off suitable for operation with a R.D.6 Diesel tractor. Contract 234. Due, 1/6/48.

VEHICLES, ETC.

S.A.R. & H. Tender Board : Inter-urban coaches manufactured in South Africa. No. 7471. Extended to 29/7/48.

S.A.R. & H. Tender Board : Electric motor coaches and plain trailer coaches. No. 6116. Due, 1/7/48.

Durban Municipality : 12 luxury touring coaches. S.2843. Due, 4/6/48.

Cape Town Municipality : Form of tender from the General Office, New Administrative Block, Longmarket Street, Cape Town. One 7-seater motor car (limousine type) for use by the Mayor. Due, 1/6/48.

Offers for the purchase of the following motor cars at present in use by the Mayor : (1) 1941 model Buick 5-seater Sedan, 30.6 h.p. ; (2) 1940 model Daimler 7-seater Sedan, 24 h.p. (These cars can be inspected). (Form of Tender as above). Due, 1/6/48.

Cape Town Municipality : City Engineer, Cape Town. Motor vehicles. Form of Tender A.22/48. Due, 4/6/48.

WATER SUPPLIES, ETC.

Irrigation Department, P.O. Box 277, Pretoria : 21 electrically-driven centrifugal pumps. Irr. 440. Due, 1/7/48.

Irrigation Department, P.O. Box 277, Pretoria : Pipes and flanges for Odendaalsrus water supply. Irr. 464. Due, 17/6/48.

Irrigation Department, P.O. Box 277, Pretoria : 125,000 feet of 27½ inch diameter steel piping. Irr. 442. Due, 1/7/48.

Johannesburg Municipality : Pumping plant. No. 480. Due, 18/6/48.

Johannesburg Municipality : Galvanised pipe fittings. Contract 473. Due, 21/6/48.

Hercules Municipality : Consulting Engineers : Stewart, Sviridov & Oliver, Balgownie House, 66, Commissioner

Street, Johannesburg. Water Scheme : Pipes (steel and/or asbestos cement), valves, specials and accessories for water main of 15, 12, 10, 9, 6, 5, 4, 3, 2, 1, and $\frac{3}{4}$ " bore. (Deposit of £3-3-0 — extra copies of documents at £1-1-0 per copy). Contract A/1948. Due 3/6/48.

Lower South Coast Regional Water Supply Corporation, Natal : Consulting Engineers : Campbell & Bernstein, P.O. Box 2, Overpoort. Waterworks plant and pipes comprising : (a) Supply, delivery and erection of filtration plant ; (b) Supply, delivery and erection of chemical feeding equipment ; (c) Supply, delivery and erection of chloramine plant ; (d) Supply, delivery and erection of complete metering equipment ; (e) Supply and delivery only of cast iron piping together with valves and fittings ; (f) Supply and delivery of miscellaneous waterworks equipment. Tenders invited for portions or the whole of the above. (Deposit of £10-10-0 — extra copies of documents at £3-3-0 per set). Contract L.1/48. Due, 2/7/48.

Pietermaritzburg Municipality : City Engineer, Pietermaritzburg. One pressure and flow control valve and flanged sockets. Contract C.E. 3/1948. Due, 1/6/48.

Pietermaritzburg Municipality : City Engineer, Pietermaritzburg. Sluice valves, pipes, specials, etc., for stock. Contract C.E.9/1948. Due, 28/6/48.

Umkomaas Township : Consulting Engineers : Campbell & Bernstein, 29 Jesmond Grove, Durban. Water Works extensions. One electrically-driven pump, pipes, specials and valves. (Deposit of £1-1-0 — extra copies of documents at 10/6 each). Contract U1/48. Due, 4/6/48.

Witbank Town Council : Consulting Engineers : Stewart, Sviridov & Oliver, Balgownie House, 66, Commissioner Street, Johannesburg. Water scheme — construction of concrete dam across the Great Olifants River. Supply of materials and execution of work. (Deposit of £5-5-0 — extra copies of documents at £2-2-0 each). Contract W8/1948. Due, 3/6/48.

MISCELLANEOUS :

Asbestos fibre : S.A.R. & H. Tender Board. No. 8052. Due, 1/7/48.

Annual Contracts for : Boksburg Municipality, Store-keeper, Boksburg. Cement, Contract 15/48 ; Coal and wood, Contract, 16/48 ; Electric lamps, Contract 17/48 ; Petrol, fuel, oil and paraffin, Contract 19/48 ; Sanitary pails, Contract 20/48 ; Road-marking paint, Contract 21/48. Due, 7/6/48.

Aluminium paint : Johannesburg Municipality. Contract 482. Due, 18/6/48.

Annual Contracts : Springs Municipality. Buyer and Controller of Stores, Springs. (a) Petrol, fuel oil and illuminating paraffin ; (b) Oils and greases ; (c) Coal. Due, 4/6/48.

Air Compressor : Johannesburg Municipality. Contract 477. Due, 23/6/48.

Aircraft Lubricating Oil : S.A.R. & H. Tender Board. No. 8144. Due, 17/6/48.

Bedpans and Hospital Ward requisites in Stainless Steel : Natal Provincial Tender Board. P.O. Box 358. Due 30/6/48.

Belt Conveyors : S.A.R. & H. Tender Board. No. 8106. Due, 29/7/48.

Bookbinders' White Cloth, etc. (approx. size 30" x 40") : Government Printer, Pretoria. G.P.W. 94. Due, 3/6/48.

Corrugated Steel Sheets : S.A.R. & H. Tender Board. No. 8142. Due, 17/6/48.

Compressed air piping and fittings : S.A.R. & H. Tender Board. No. 7842. Due, 3/6/48.

Chairs (operators) : Department of Posts and Telegraphs, Pretoria. P.O. 921. Due, 3/6/48.

Carbon-backed books : S.A.R. & H. Tender Board. No. 8189. Due, 17/6/48.

Corrugated paper : Government Printer, Pretoria. G.P.-S.55. Due, 10/6/48.

Concrete mixers : S.A.R. & H. Tender Board. No. 8100. Due, 15/7/48.

Copper sheets : S.A.R. & H. Tender Board. No. 8111. Due, 17/6/48.

Carriage trimmings : S.A.R. & H. Tender Board. No. 7760. Due, 3/6/48.

Carpeting and compartment rugs : S.A.R. & H. Tender Board. No. 7961. Due, 3/6/48.

Carriage fittings : S.A.R. & H. Tender Board. No. 7875. Due, 1/7/48.

Corrugated aluminium sheet : S.A.R. & H. Tender Board. No. 8002. Due, 3/6/48.

Dispensers and paper-drinking cups : S.A.R. & H. Tender Board. 8139. Due, 24/6/48.

Deodorant blocks for 1948 : S.A.R. & H. Tender Board. No. 8147. Due, 3/8/48.

Duplicators : Government Printer, Pretoria. G.P.D. 3. Due, 3/6/48.

Engine weighing machines : S.A.R. & H. Tender Board. No. 8187. Due, 17/6/48.

Floor flannel : Cape Provincial Tender Board, No. F. 66/48. Due, 4/6/48.

Furnaces : S.A.R. & H. Tender Board. No. 7702. Extended to 24/6/48.

First-aid cabinets : Department of Posts and Telegraphs, Pretoria P.O. 922. Due, 3/6/48.

Furnace : S.A.R. & H. Tender Board. No. 8048. Due, 29/7/48.

Green and gold funnel paint : S.A.R. & H. Tender Board. No. 8096. Due, 10/6/48.

Grain milling plant : Johannesburg Municipality. Contract 475. Due, 21/6/48.

Hotwater radiators : Natal Provincial Tender Board, P.O. Box 358, Pietermaritzburg. Due, 2/6/48.

Iron piping and fittings : S.A.R. & H. Tender Board. No. 7870. Due, 3/6/48.

Iron bag holders and brackets : Department of Posts and Telegraphs, Pretoria. P.O. 723. Due, 3/6/48.

Insulation testers : S.A.R. & H. Tender Board. No. 8062. Due, 10/6/48.

Kiln-drying timber : S.A.R. & H. Tender Board. No. 8136. Due, 10/6/48.

Lathe : S.A.R. & H. Tender Board. No. 7997. Due, 3/6/48.

Lawn mowers, engine-driven, for P.W.D. : Public Works Department, Pretoria. P.W.D. S.201. Due, 3/6/48.

Machine tools : S.A.R. & H. Tender Board. No. 8082. Due, 15/7/48.

Millboard sheets : S.A.R. & H. Tender Board. No. 7976. Due, 17/6/48.

Milling machine : S.A.R. & H. Tender Board. No. 8101. Due, 3/6/48.

Mercury arc traction sub-station plant: S.A.R. & H. Tender Board. No. 7969. Extended to 24/6/48.

Metal-cutting band saw: Johannesburg Municipality. Contract 478. Due, 18/6/48.

Messanda timber: S.A.R. & H. Tender Board. No. 8135. Due, 17/6/48.

Miscellaneous plant required for P.W.D.: Public Works Department, Pretoria. P.W.D. S.176. Due, 10/6/48.

Nails: Cape Provincial Tender Board, Cape Town. F. 67/48. Due, 4/6/48.

Overhead equipment fittings: S.A.R. & H. Tender Board. No. 8005. Extended to 17/6/48.

Punching and shearing machine: S.A.R. & H. Tender Board. No. 8167. Due, 29/7/48.

Pneumatic tyres and tubes: S.A.R. & H. Tender Board. No. 8043. Due, 3/6/48.

Pinus Stribus timber: S.A.R. & H. Tender Board. No. 8137. Due, 24/6/48.

Pantograph copper strips: S.A.R. & H. Tender Board. No. 8160. Due, 8/7/48.

Photomicrographic research microscope to Westfort Institution: Union Tender and Supplies Board, Box 371, Pretoria. S.O. 2586. Due, 10/6/48.

Rollers for handling cable drums: Department of Posts and Telegraphs, Pretoria. P.O. 914. Due, 24/6/48.

Reinforced concrete posting boxes: Department of Posts and Telegraphs. P.O. 920. Due, 3/6/48.

Roofing felt: S.A.R. & H. Tender Board. 8129. Due, 1/7/48.

Steel plan cabinets: No. 5 required. Town Clerk, Germiston. Contract 14/1948. Due, 2/6/48.

Sawn hardwood: S.A.R. & H. Tender Board. No. 8080. Due, 10/6/48.

Steel furniture, special construction: Department of Posts and Telegraphs, Pretoria. P.O. 924. Due, 3/6/48.

Surface grinder: S.A.R. & H. Tender Board. No. 8152. Due, 29/7/48.

Sanitary pails in the following dimensions: top 15", bottom 10½", depth 15". No. 400. Required: Town Clerk Oudtshoorn. Due, 7/6/48.

Semi-porcelain cutlery, enamelware, kitchen hardware and woodenware: Natal Provincial Tender Board, P.O. Box 358, Pietermaritzburg. Due, 30/6/48.

Sanitary and hospital fittings for new hospital at School of Industries, Kingwilliamstown. Public Works Department, Pretoria. P.W.D. S.193. Due, 17/6/48.

Steam round coal: Johannesburg Municipality. Contract 476. Due, 23/6/48.

Twist drills: S.A.R. & H. Tender Board. No. 8124. Due, 10/6/48.

Travelling crane: S.A.R. & H. Tender Board. No. 7676. Extended to 24/6/48.

Upholsterers curled hair: S.A.R. & H. Tender Board. No. 7963. Due, 17/6/48.

Universal pulleys: S.A.R. & H. Tender Board. No. 8149. Due, 10/6/48.

Workshop machinery: Department of Posts and Telegraphs. P.O. 916. Due, 24/6/48.

Welding rods: S.A.R. & H. Tender Board. 8074. Due, 10/6/48.

Workshop machines: One 5-cwt. pneumatic power hammer: One tool and cutter grinder. Durban Municipality. E.2167. Due, 6/8/48.



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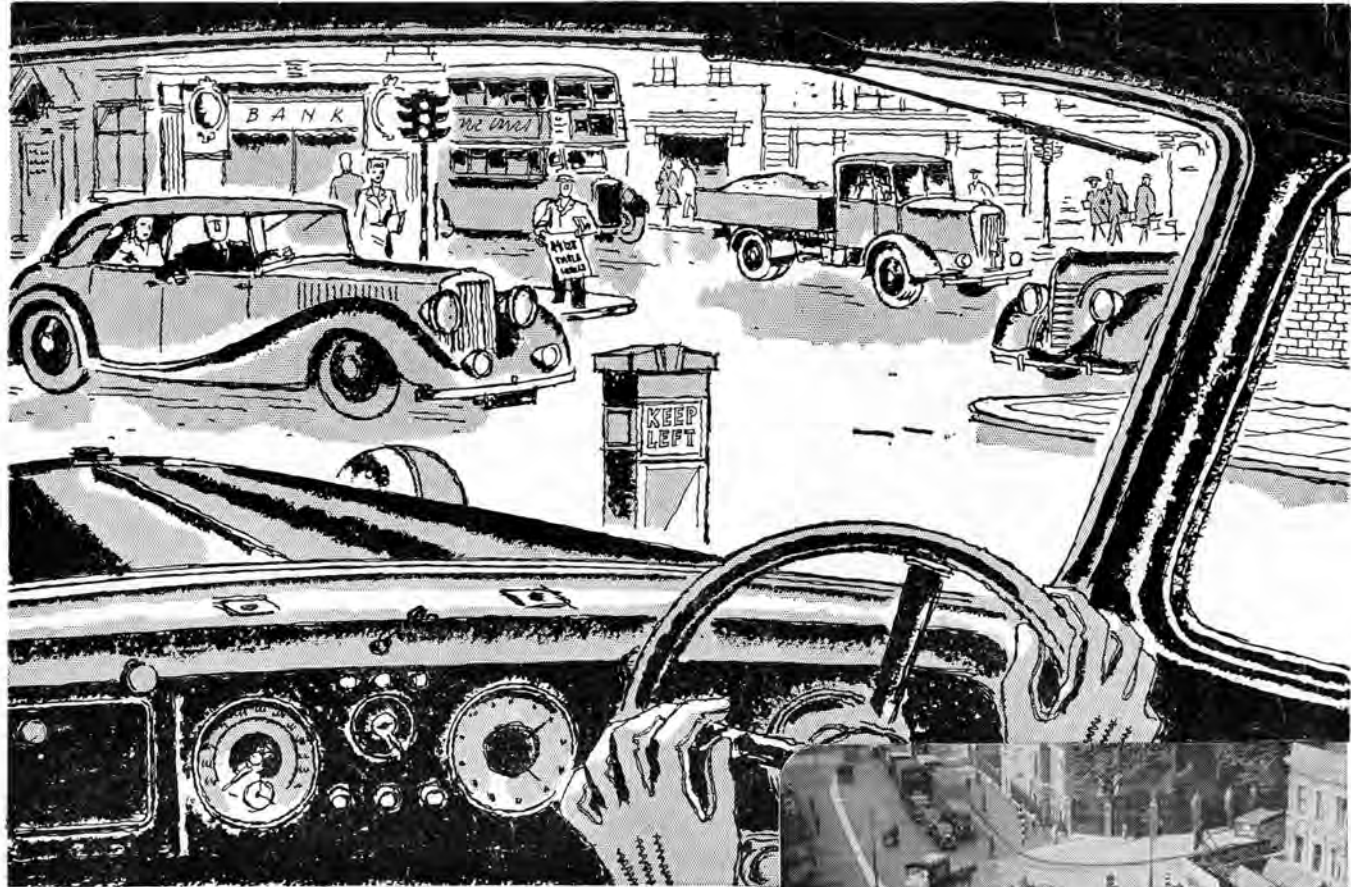
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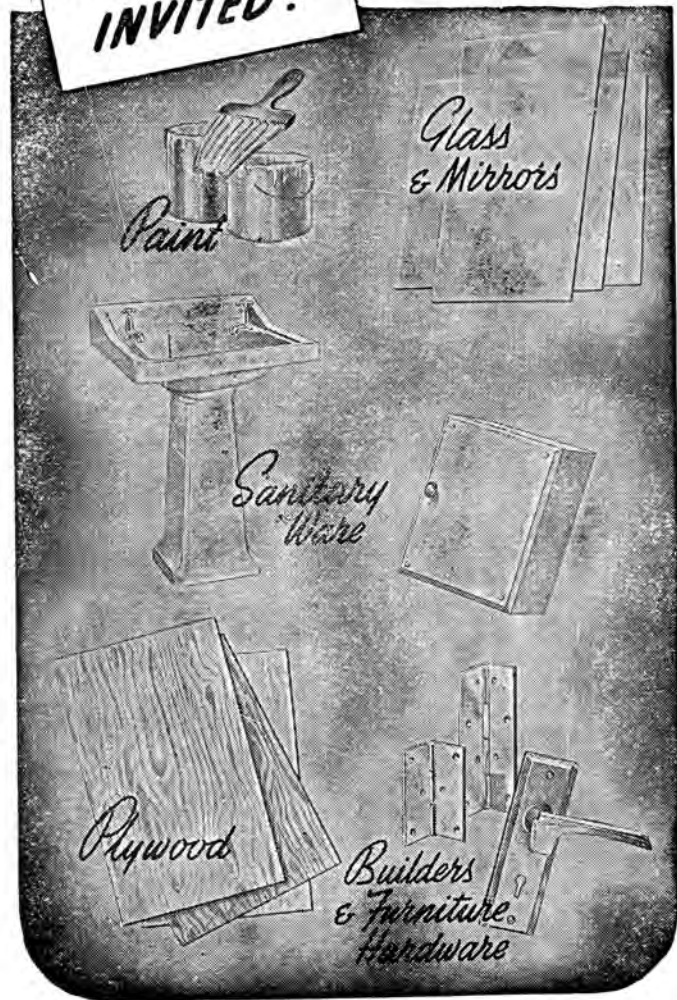
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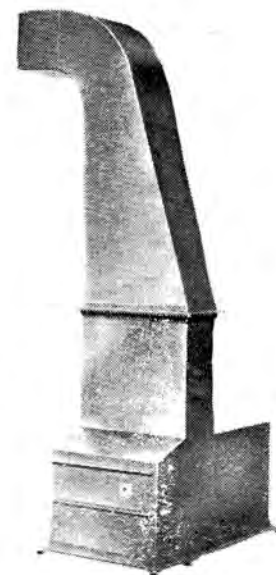
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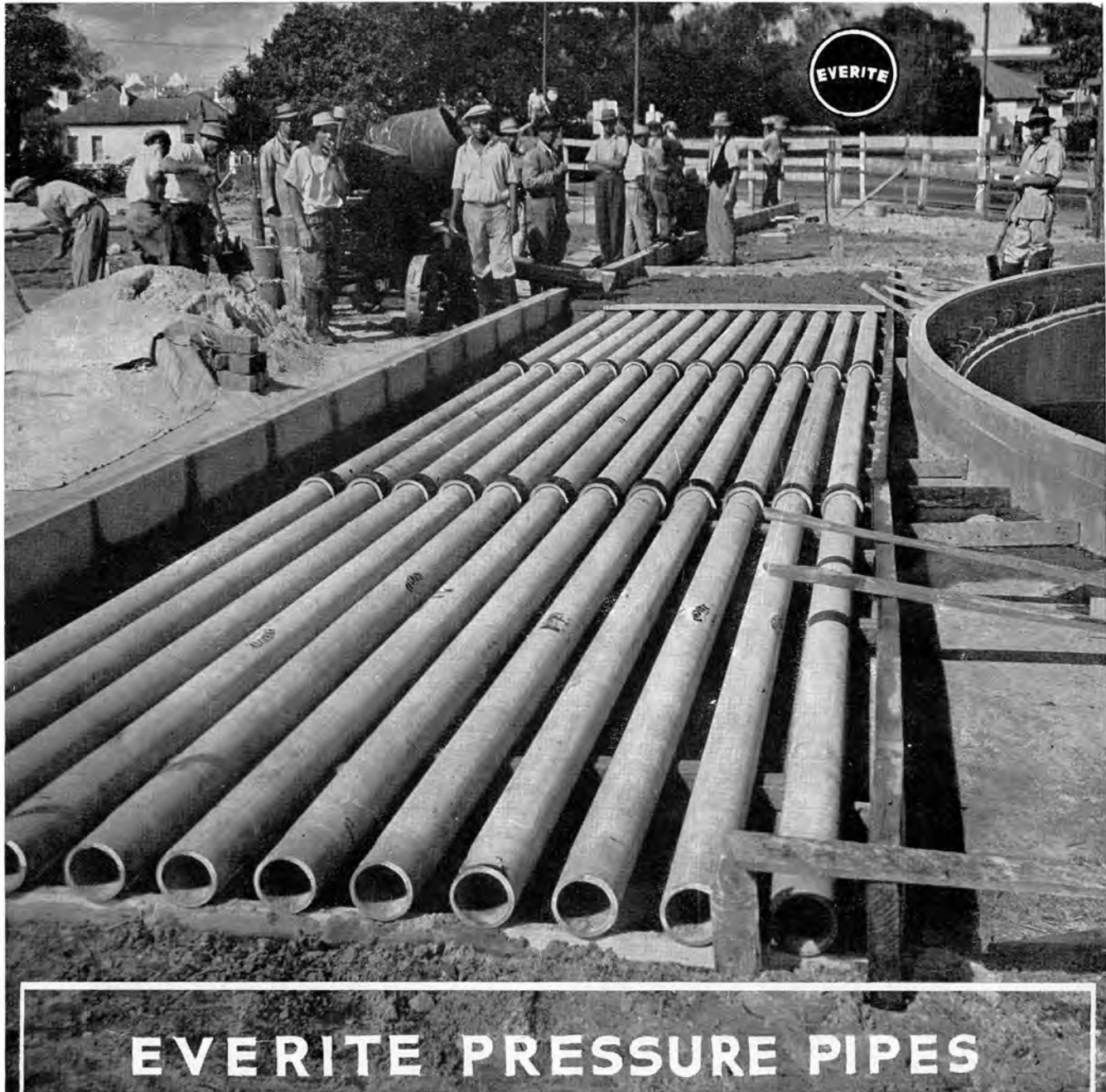
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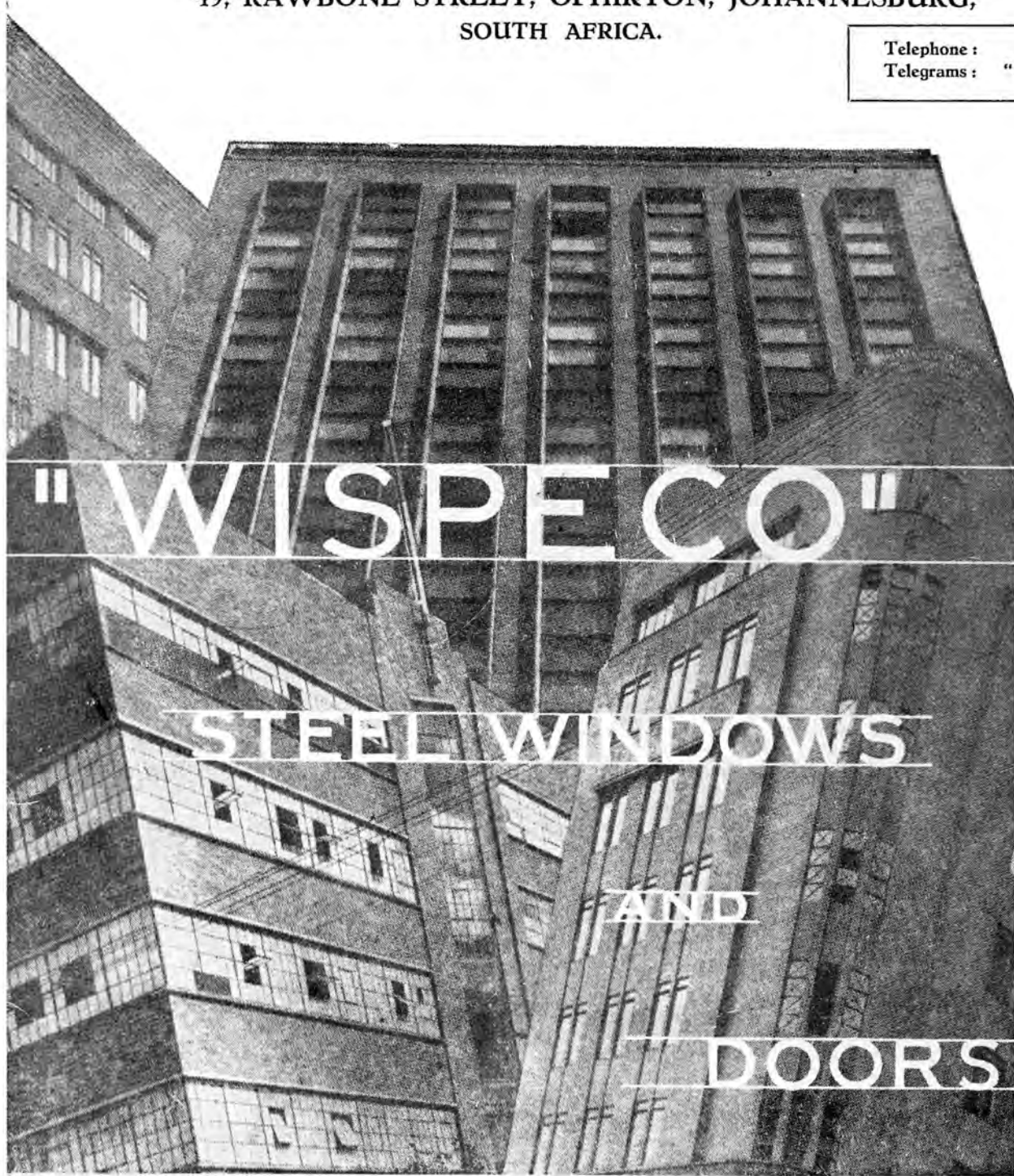
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LIME
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★ Portion of one of our Buxton quarries. The contoured area is the "island" left at the discovery site of the "Taungs Skull."

★ Inset: The Taungs Skull, discovered in 1925.

*Aerial view: Aircraft Operating Co.
Inset: Courtesy The Star.*

THE NORTHERN LIME COMPANY is well aware that several of the more important and fast-growing Union industries depend upon adequate supplies of high-calcium Lime materials.

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