

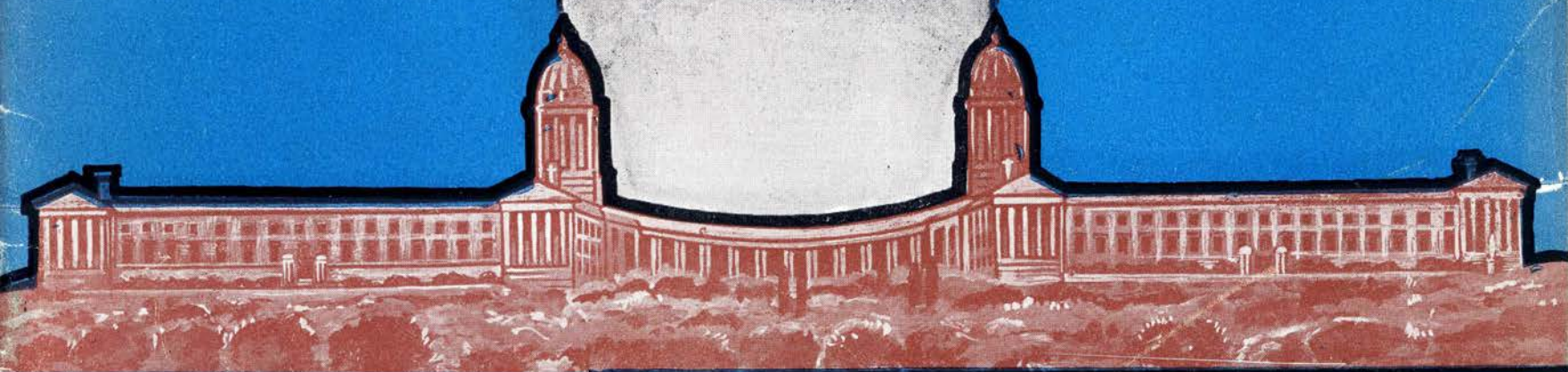
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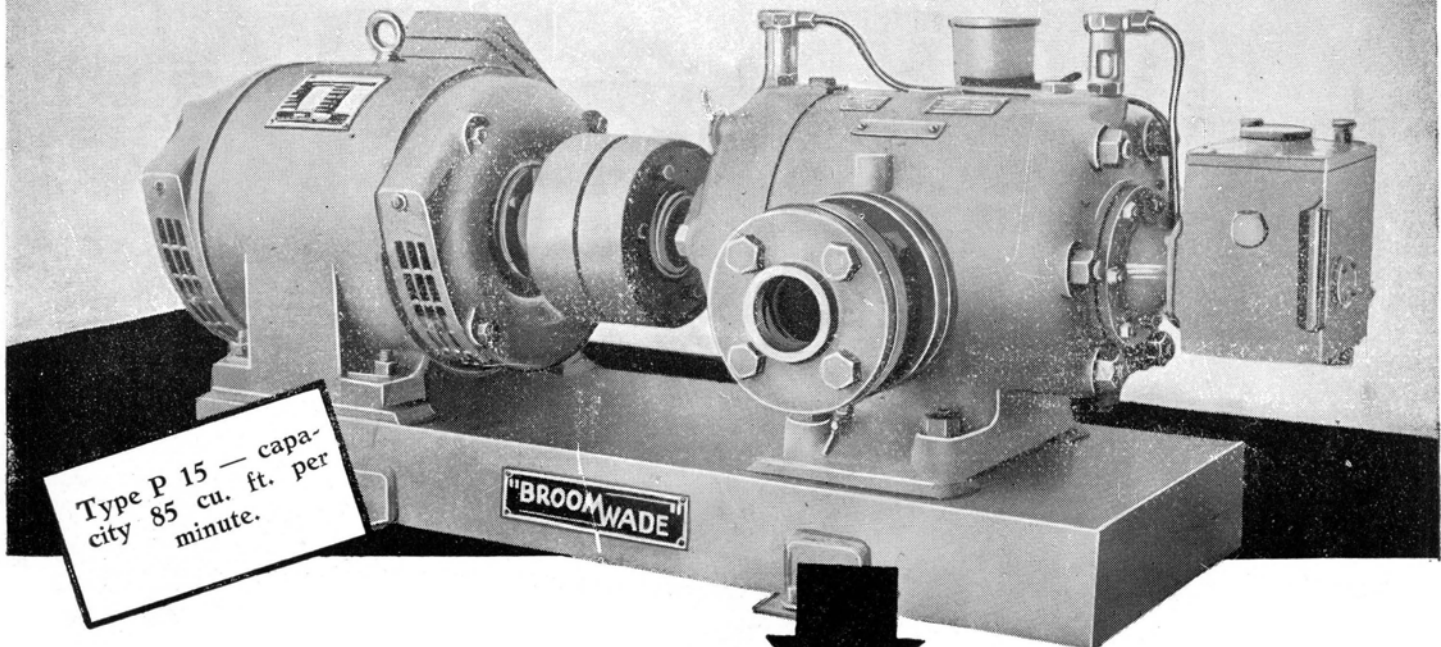
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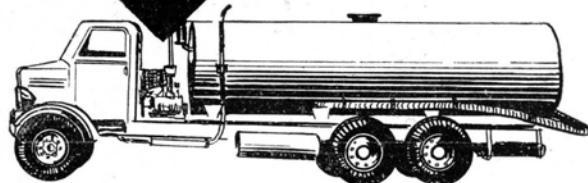
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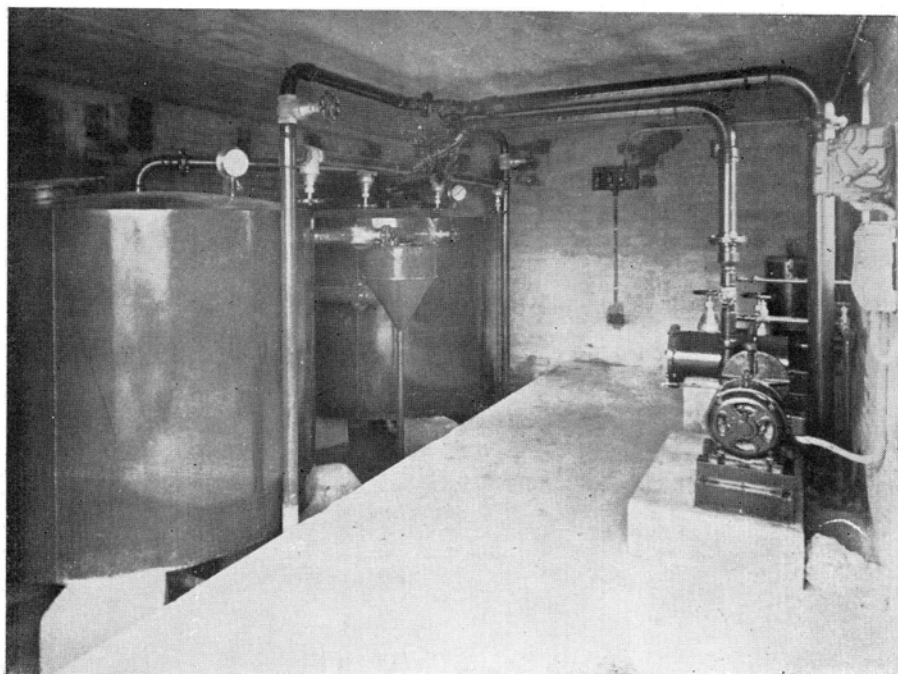


Illustration of plant supplied to 71 Air Training School, Milner Park, Johannesburg.

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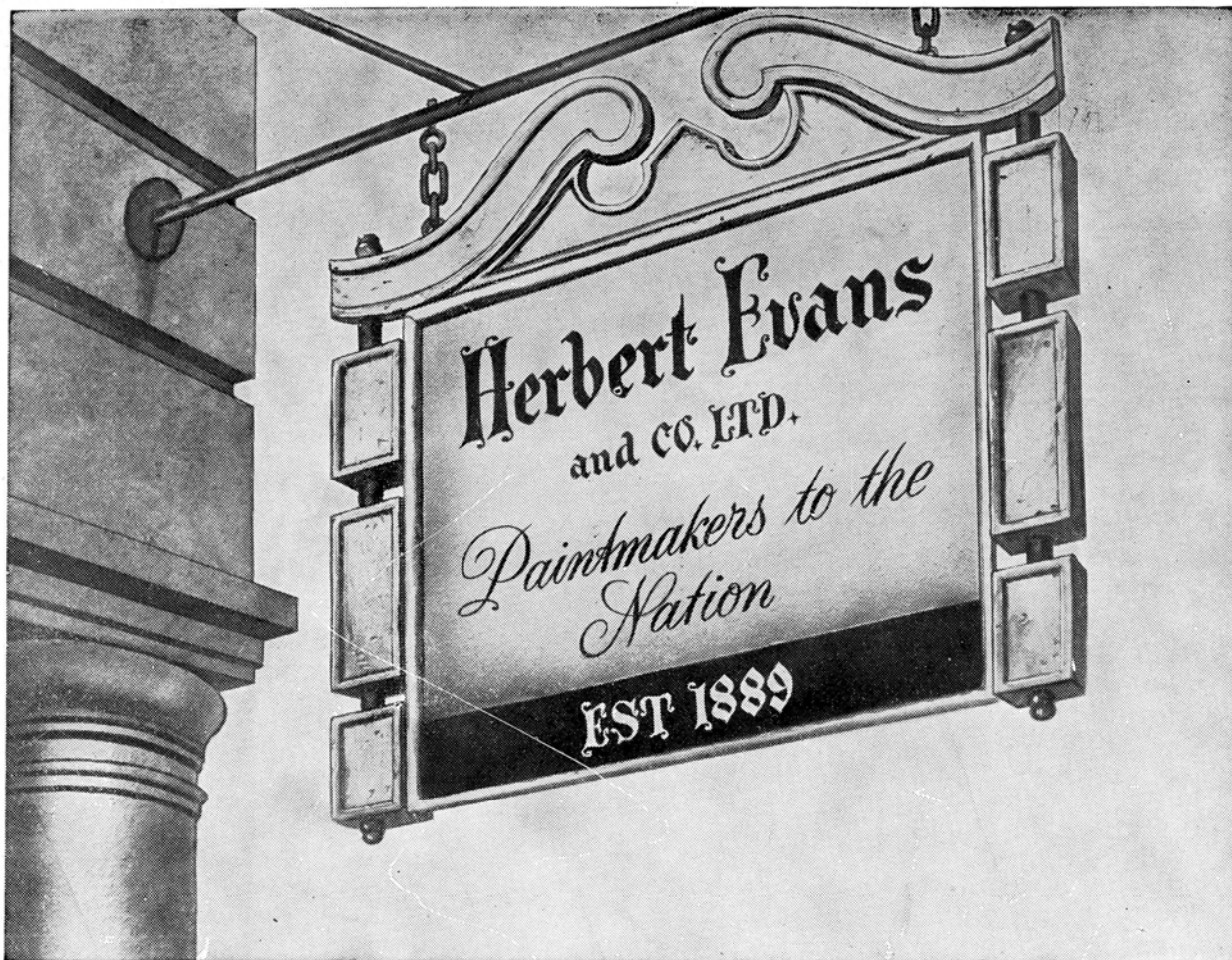
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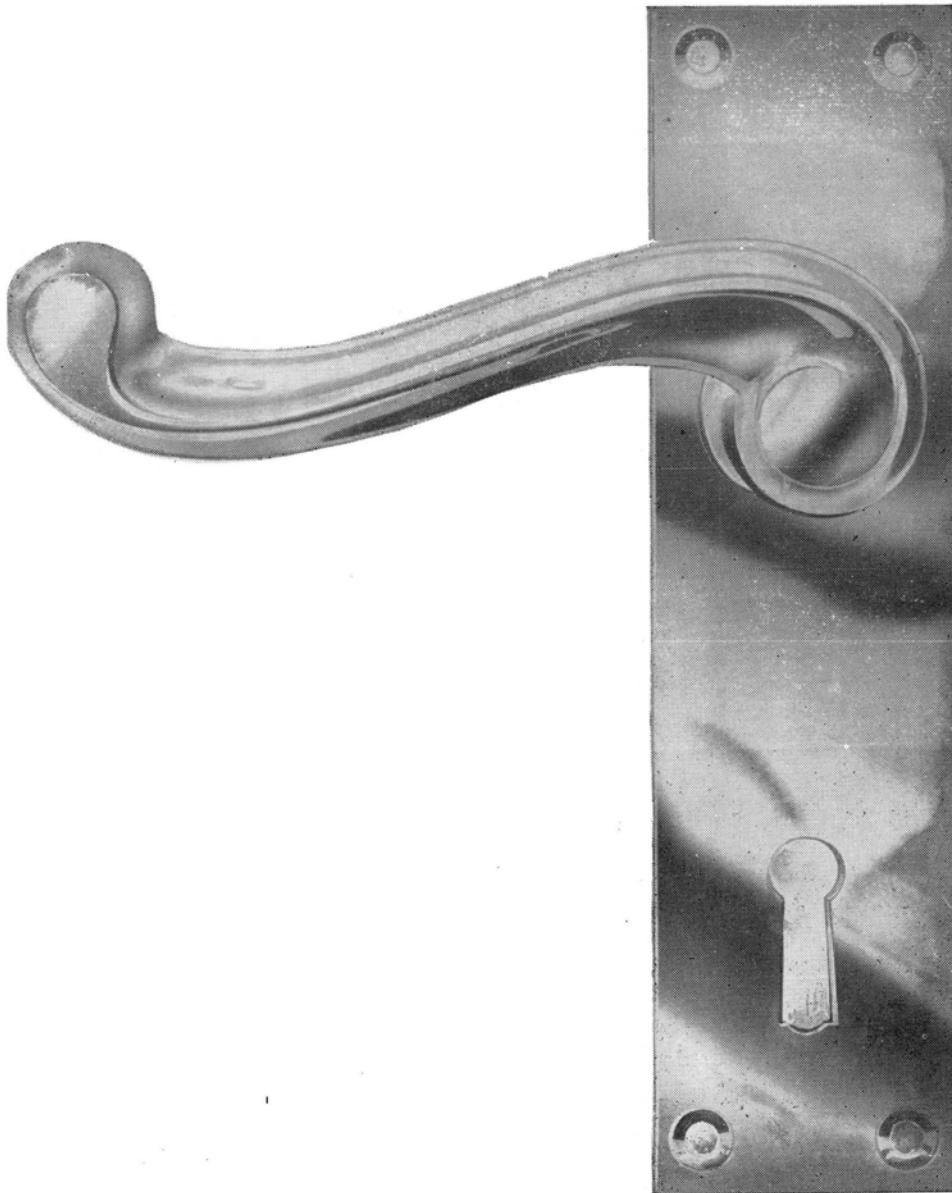
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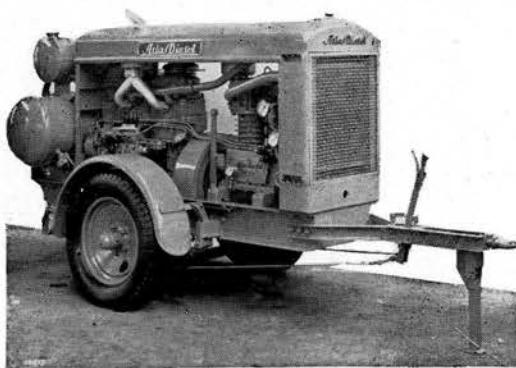
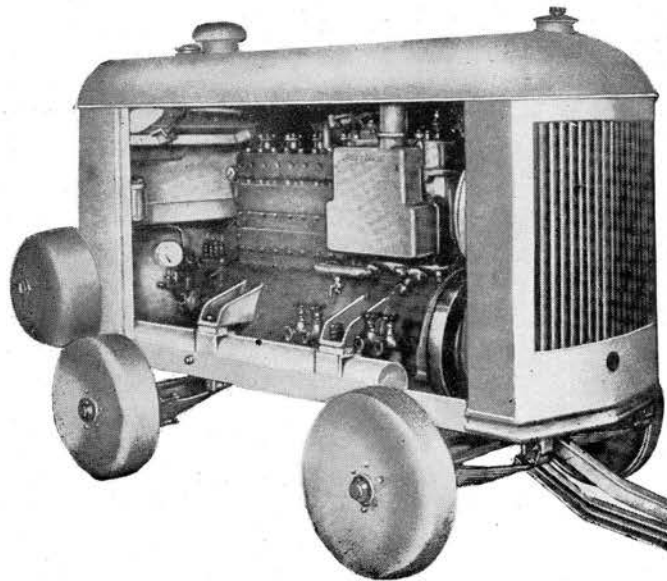
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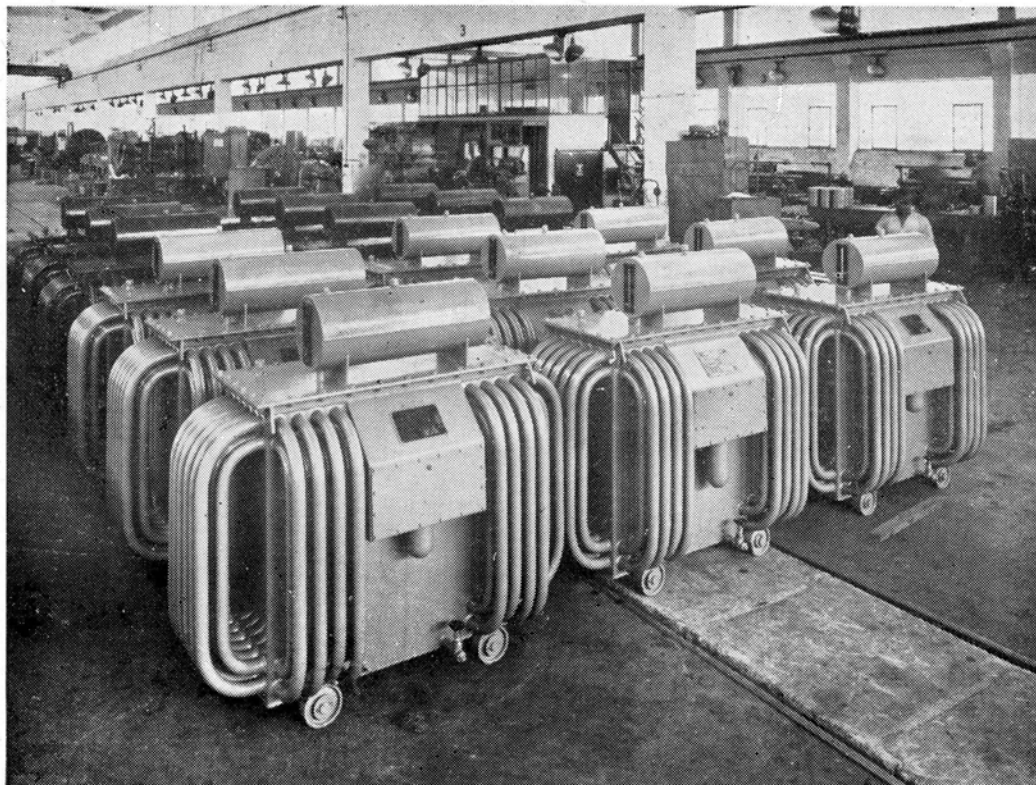
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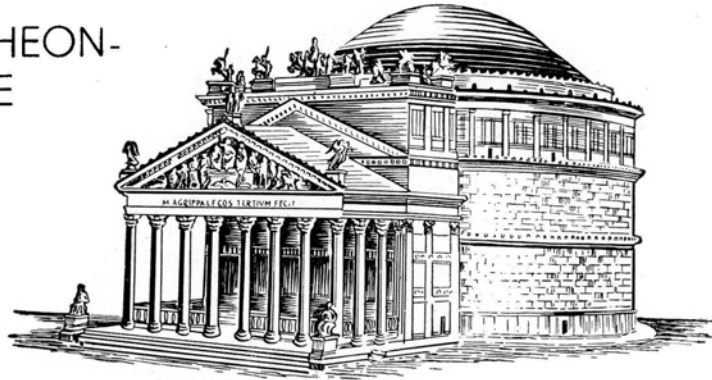
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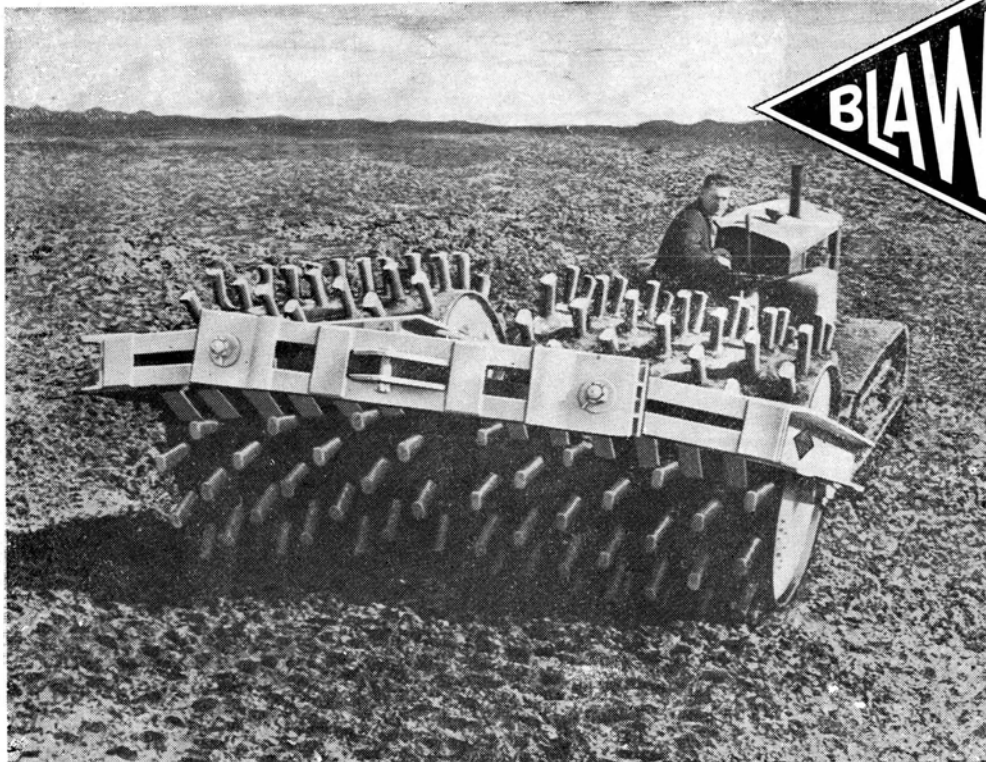
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E D I T O R  
E R I K T O D D

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 VIII • NUMBER FORTY-FIVE • AUGUST 1947

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JOHANNESBURG RAILWAY STATION  
TENDERS INVITED



NEW CUSTOM HOUSE, JOHANNESBURG.  
*Perspective Drawing by Charles F. S. Butt.*

# NEW CUSTOM HOUSE JOHANNESBURG

**A**N addition is to be made shortly to the already numerous state buildings in Johannesburg in the form of a new office block to house the Department of Customs and Excise.

This new building, designed by Architects of the Public Works Department of the Union of South Africa, is to be erected on a site situated at the intersection of Pritchard and Frazer Streets, in the city.

The building will have a West frontage to Frazer Street of 155 feet and South frontage to Pritchard Street of 103 feet and will consist of a basement and six floors.

The basement will contain a large garage for the parking of cars belonging to the staff, and also accommodation for a very up-to-date central heating plant, with thermostatically controlled automatic stokers and circulating pumps to ensure a steady flow of water through the installation. Adequate Record Rooms and Strong Rooms for the storage of the essential Departmental records will also be provided in the basement.

At this stage it is anticipated that the Department of Customs and Excise and its various branches will occupy the building from the ground floor to the third floor. The two upper floors will be occupied by other Government Departments, but will allow for further expansion of the Department of Customs and Excise when this becomes necessary.

The building has been designed with a reinforced concrete frame construction throughout, in conformity with the usual practice for large buildings in Johannesburg.

A highly satisfactory elevational treatment is achieved by a series of windowed panels, with deep hoods and sills to the windows, recessed between deep vertical fin-like piers, contrasted to expansive clean surfaces of brickwork.

The panels are amply recessed on the Western front to provide protection against the strong afternoon sun. The windows on this elevation will also be provided with the latest type of metal Venetian blinds, as a further protection.

Panels of face brickwork occupy the spaces between the windows. These panels and the remaining face-work will be of bricks carefully selected for colour.

The roof to the Western front will be of a lean-to type, with three foot overhanging eaves. At the

South-West angle of the building, set back so as to be invisible from the street, a pent house will contain the lift machinery. The remainder of the roof is to be of flat construction, and quarters for the Caretaker will be provided at this level.

The East and South elevations, away from the street frontages will have a simple plaster treatment.

The main entrance has been located in Pritchard Street and consists of a granite surround and steps, enriched by a bronze grille of interesting design, with bronze doors. The interior of this entrance will be lined with marble, while on each side will be bronze direction boards, surmounted by the Union Coat of Arms in bronze and enamels.

The main staircase to the first floor, the public space and the staff working space will also be lined with marble and the floors will be treated in light buff asbestos tiles, arranged in a rectangular pattern, bordered by strips of dark buff.

The main staircase, providing access to the upper floors, will have marble treads and risers in harmonizing colours with margins and skirting of granolithic. A handrail of hardwood, supported on bronze bearers will be provided.

Two high-speed lifts, each with a carrying capacity of 13 persons will provide a sufficient service to all floors.

The subsidiary entrance in Frazer Street will have a simple granite surround and reveals and a concrete hood finished in plaster. The doors to this entrance will be of hardwood.

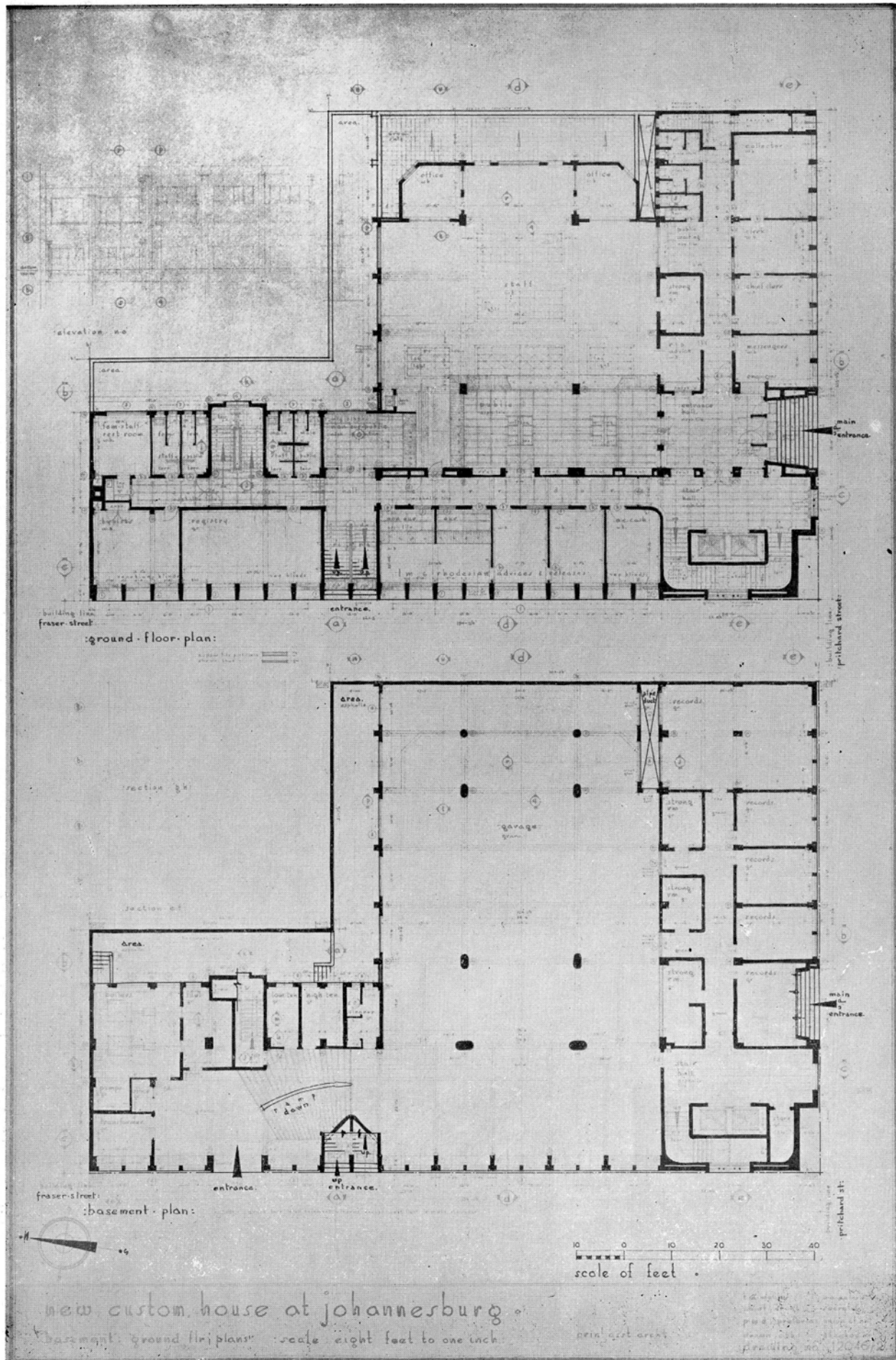
This entrance and staircase will be lined in light buff terrazzo, and the risers and treads will be of the same material with skirting and margins of green granolithic, and a handrail similar to that of the main staircase. The treads will be provided with non-slip insets.

The Eastern staircase, also providing access to all floors, will be similarly treated.

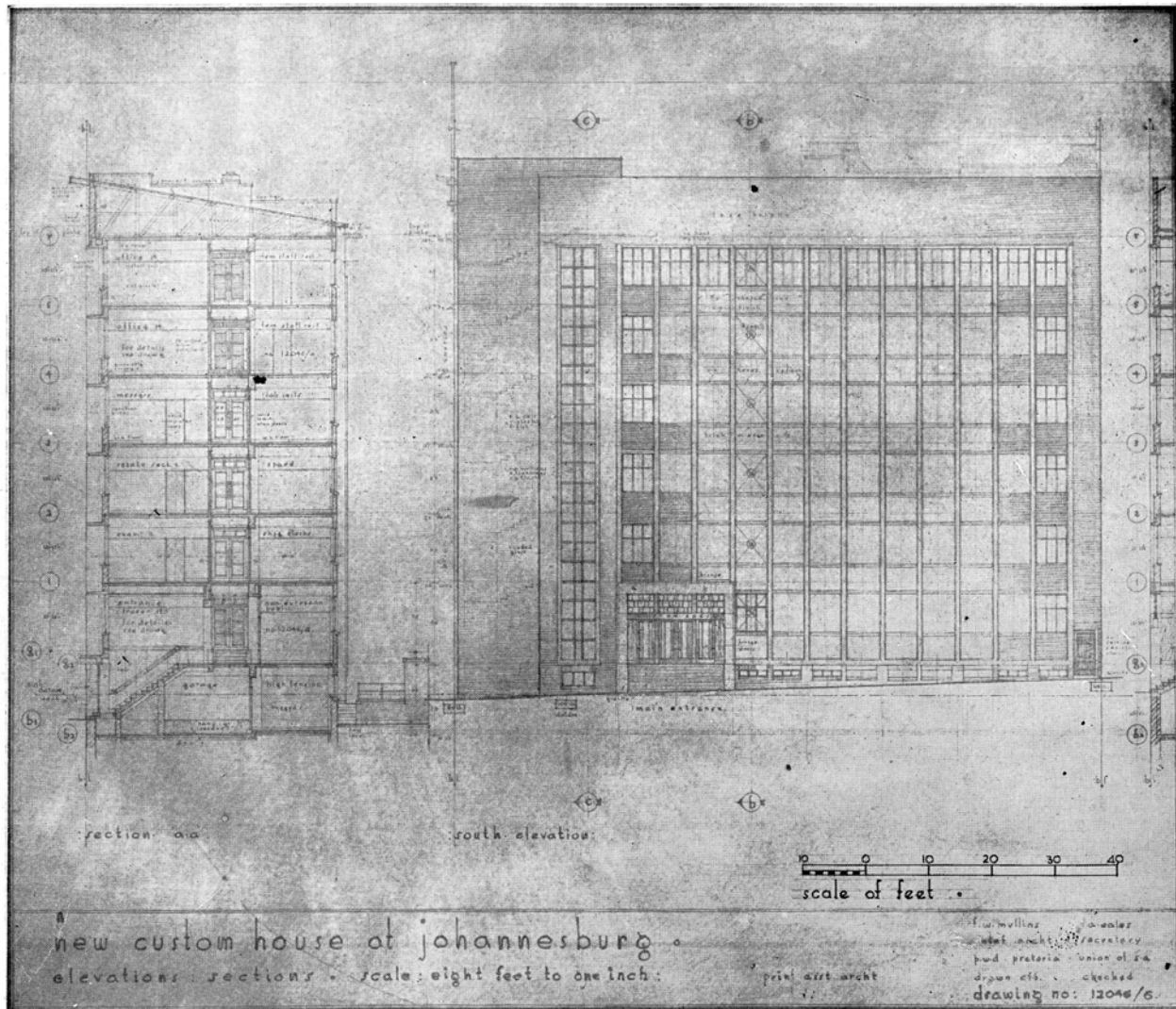
A service and escape staircase, having direct egress into Pritchard Street, will be provided at the South-East end of the building.

All halls and corridors will have suspended ceilings to eliminate the shadow pockets caused by transverse beams when exposed.

Counters to the public space on the ground floor will be of marble, with hardwood counter tops to the staff side, and with screens and grilles of metal and glass.







WORKING ELEVATION AND SECTION.

The staff working space will have lantern lights masked by lay lights in addition to the side lighting on the North. These lantern and lay lights will be glazed in single rectangles of tinted glass to ensure softly diffused lighting for the working staff. Sufficient opening panels will allow of adequate cleaning of the glass of both the lay and lantern lights.

The ceilings of the typists' rooms, public space, and staff working space, will be treated with acoustic plaster to ensure the suppression of noise.

A telephone exchange on the first floor, adjacent to a cable duct, will provide telephonic communication to all branches.

Steel windows will be used throughout. Internal doors will be of the solid laminated type, showing a facing of a pleasantly grained wood, those to the corridors having ventilating fanlights over.

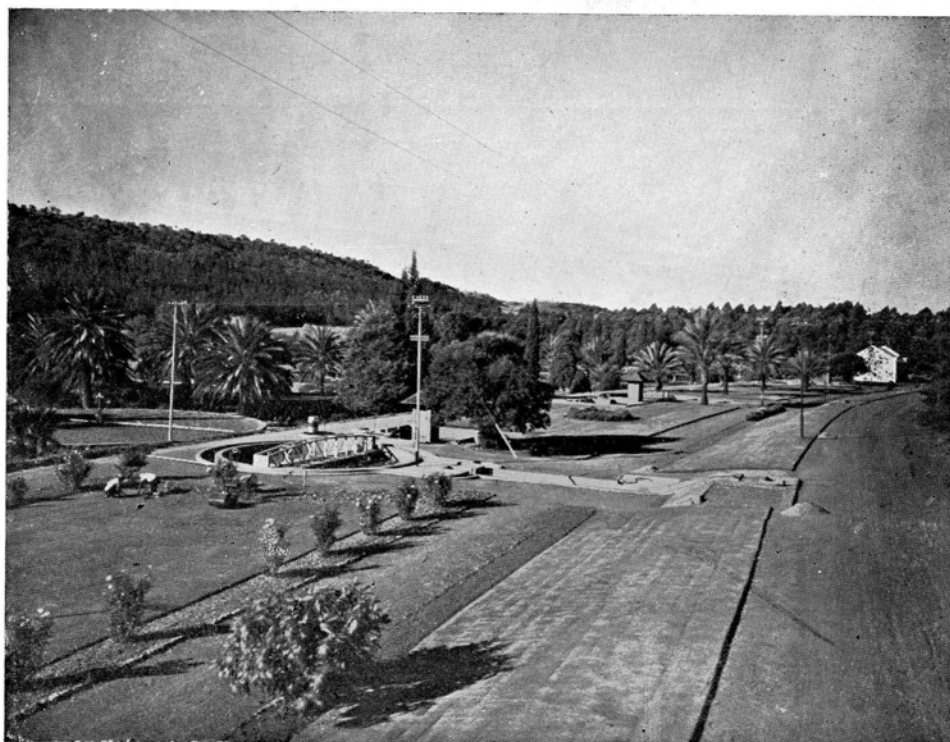
Artificial lighting generally will be of the fluorescent type. Adequate fire protection will be provided — hydrants adjacent to the main stair hall on every floor, whilst the basement garage will be equipped with a Grinnel sprinkler system.

Much care and thought has been put into the planning and finishings of this building, and the designers are to be congratulated on what will undoubtedly be another outstanding building to their credit.



# SEWAGE DISPOSAL WORKS AT PRETORIA

BY THE  
PUBLIC RELATIONS  
OFFICER  
CITY COUNCIL  
OF  
PRETORIA



LAWNS, PALMS AND FLOWERS WITH CHEMICAL LABORATORY ON RIGHT.

*Photograph: City Council of Pretoria.*

**T**HE additions recently made to the Pretoria Municipal sewage purification works at a cost of £150,000 added another feature to the capital's municipal achievements — the principles underlying their design and construction and the method of operation are based on the latest and most scientific methods of sewage treatment. Incidentally, the new digestors which formed part of the additions are the largest such units in the Southern Hemisphere and are equal in size to the largest that have been built.

The extension of the sewage purification works was begun in 1943, a major undertaking when one remembers that war-time shortages of building materials had already made themselves felt. But it was imperative that this work should be done if the Municipality was to be able to continue providing this essential service.

The sewage purification works as they then existed were running to maximum capacity. As a matter of fact, they were strained almost to breaking point. The plant, before the additions were made, was

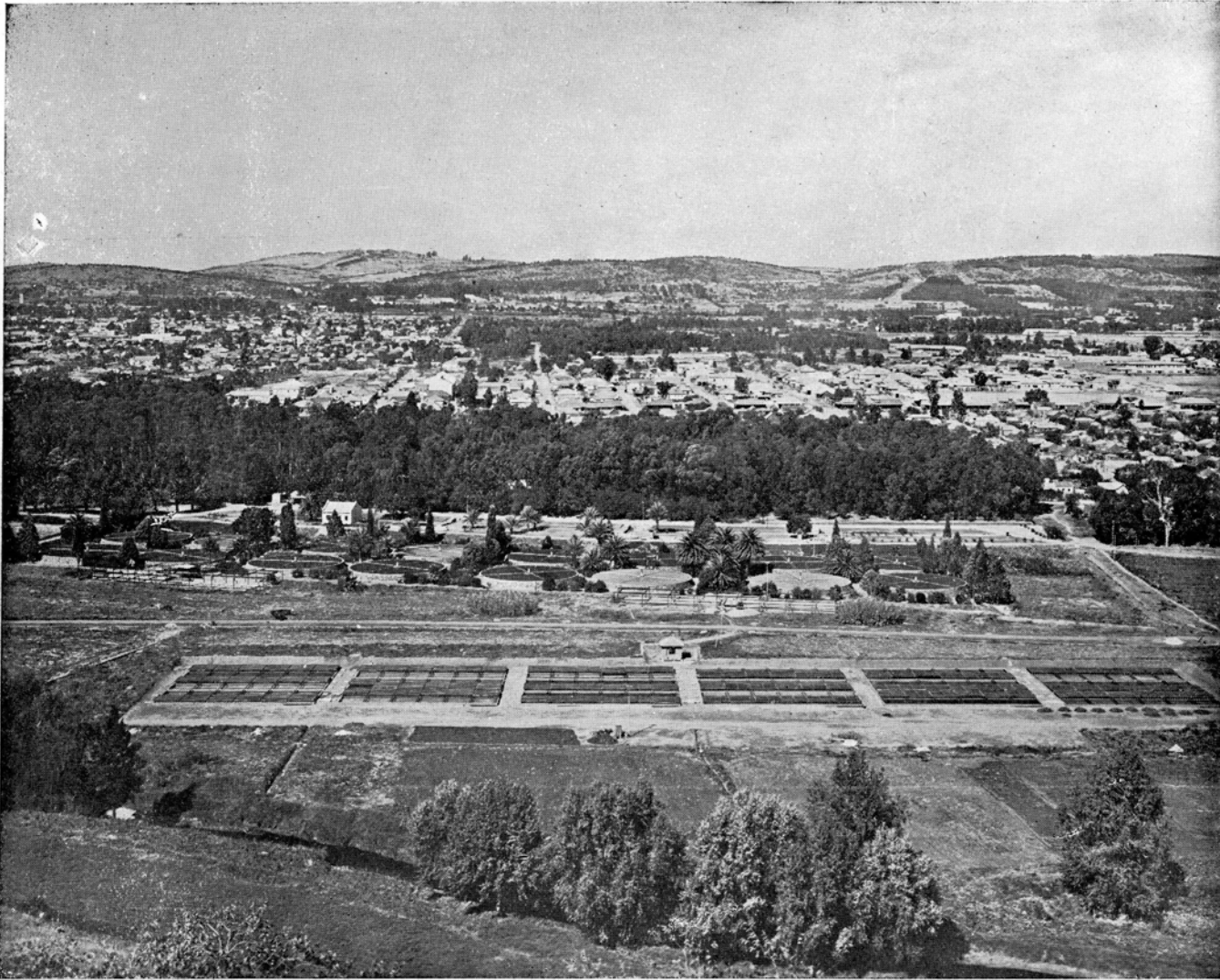
designed to cope with a sewage flow of slightly less than 2,500,000 gallons daily, but prior to the completion of the additions the flow had increased to 5,000,000 gallons daily — more than double the flow for which the then existing plant was designed.

The latest additions were designed to deal with a daily flow of 3,000,000 gallons and increased the capacity of the works by over 100 per cent.

The construction of the old sewage works was begun in about 1912, with a designed capacity of 1,333,000 gallons of sewage per day. The first four units were completed in 1916, and they served Pretoria up to 1933 when the sewage flow was 2,000,000 gallons per day.

With the industrial development in Pretoria, mainly due to the establishment of Iscor, extensions to cope with an additional 1,000,000 gallons of sewage per day, were added in 1933, bringing the total designed capacity of the plant to 2,500,000 gallons daily.

In 1940, however, the total flow was already



GENERAL VIEW OF THE OLD PRETORIA SEWAGE DISPOSAL WORKS SHOWING BIOLOGICAL FILTERS IN CENTRE AND SLUDGE DRYING BEDS IN FOREGROUNDS.

*Photograph : City Council of Pretoria.*

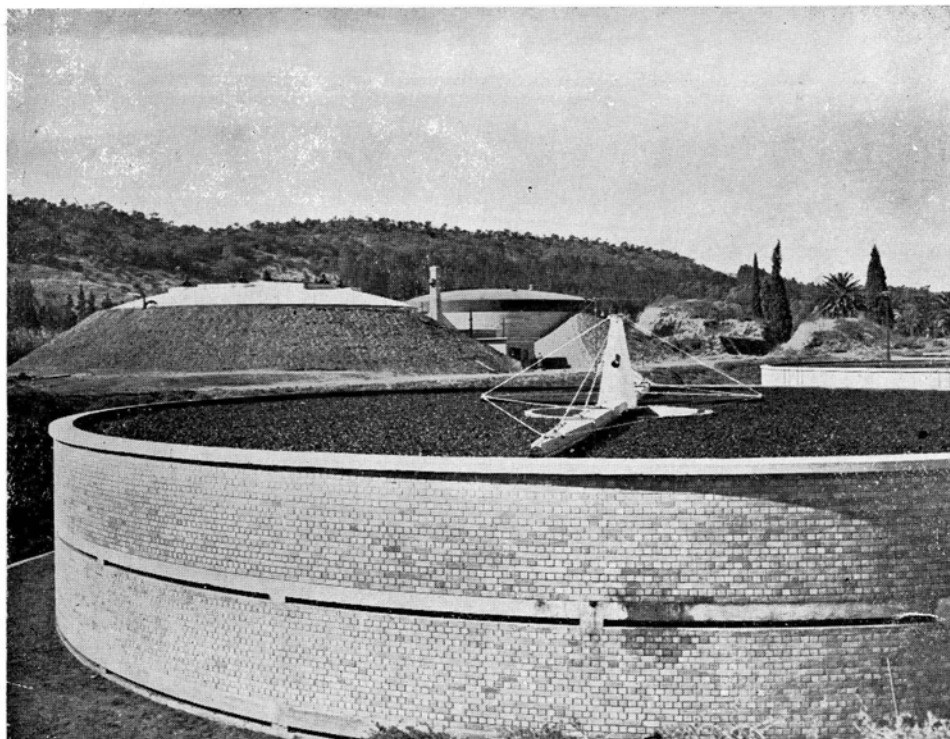
3,300,000 gallons daily, and by 1946 this figure had increased to 5,000,000 gallons daily. The total population of Pretoria contributing to the Sewage Works is 170,000 of which 110,000 are Europeans and 60,000 non-Europeans. Approximately 80 per cent. of the total population is served by water-borne sewerage, the remainder being served by bucket system.

The disposal of night soil is done at the Works as well. The night soil is dumped into a special tank, diluted with purified filter bed effluent, and discharged into the main sewer during the night when the normal sewage flow is low.

The present dry weather flow of sewage is approximately 6 million gallons per day.

The latest extensions, work on which was begun in 1943, consisted of the following :—

- (a) Mechanical screening, grit removal and distribution by flumes.
- (b) Sewage purification by double filtration through four 12 foot deep filters, each 85 feet in diameter, the cost being £63,000.
- (c) Sewage purification through a shallow filter (Jenks biofilter) with recirculation of the purified effluent, £37,000 being spent on this part of the contract. The filter diameter is 148 feet and the depth four feet.
- (d) Sludge digestion in two-stage Dorr digestors, with mechanical mixing and heating, at a cost of £37,000.
- (e) Humus removal from the filter effluent from the old units in mechanically scraped sedimen-



NEW 12FT. DEEP FILTER WITH VENTILATING ZONE  
HALF-WAY DOWN — NEW DORR DIGESTORS  
(PRIMARY AND SECONDARY) IN BACKGROUND.

*Photograph: City Council of Pretoria.*

tation tanks (Door Clarifier and Dorr Clariflocculator), the cost being £13,000.

The oxidation of settled sewage by double filtration and by means of the Jenks biofilter consist of two new processes which are being tested against standard six feet deep filters with a view to increased filter efficiency. If these full-scale experiments are successful they will result in savings in both capital expenditure and maintenance costs when future extensions are made.

Sludge gas, a product of the digestion process, is used for heating the new digestors. Enormous volumes (in excess of 100,000 cubic feet daily) of this gas, which consists of approximately 65 per cent. methane, is given off in the digestors and is collected. A portion of this gas is burnt in a boiler to heat water which is circulated through heating coils in the primary digester. The remaining gas will be used for other purposes, probably to heat road tar and bitumen. Meanwhile, however, the excess gas has to be disposed of, as a concentration of it might cause fatal accidents. The gas is, therefore, burnt at the disposal works and the flame, clearly visible at nights, is sometimes as high as 12 feet.

It is amazing, however, to see the unusual articles that sometimes find their way into the city's sewage system. Tins of all shapes and sizes, bottles, knives,

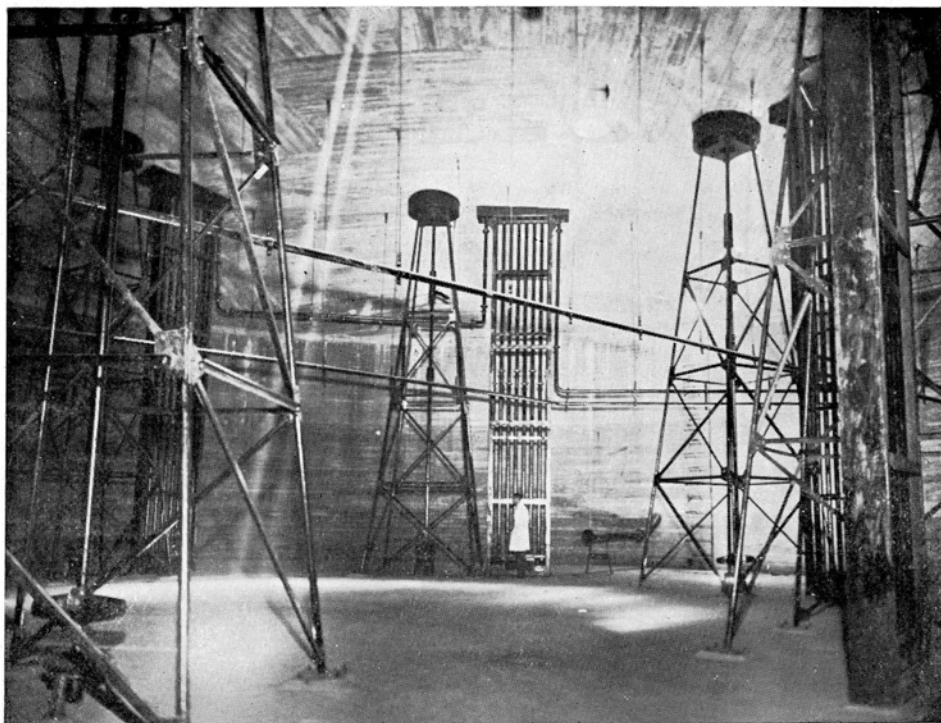
forks, spoons, fountain pens, combs, dentures, are all carried down to the Works over a period of time. Soil and grit, most of which comes off vegetables which are washed in the thousands of kitchens throughout the capital, is separated from the sewage at the rate of 30 cubic feet per day.

Contrary to common belief, there is remarkably little smell at the purification works. It is only on rare occasions and due to natural factors that an odour is perceptible.

The whole works, situated south-west of the Daspoort cutting and east of the road to the Hartebeestpoort Dam, are well planned. The general lay-out is an harmonious one, and lawns, flowers and succulents have been used to great advantage.

The chemical laboratory, situated at the Works, renders an indispensable service in controlling the efficiency of the different purification processes. A staff of five qualified analytical chemists is employed to carry out the sewage analysis, as well as analytical work for the Health Department, Waterworks, Power Station, Abattoir and Mechanical Workshops. Expansion in this laboratory service is also under way.

The contractors for the construction of the extensions were Messrs. O. Grinaker (Pty.), Ltd., and the mechanical equipment was installed by Messrs. Edward L. Bateman (Pty.), Ltd.



INSIDE THE NEW DORR DIGESTOR SHOWING  
VERTICALLY DRIVEN TURBO-MIXERS SUPPORTED  
FROM THE FLOOR, AND HEATING COILS.

*Photograph : City Council of Pretoria.*

The work was carried out under the supervision of the City Engineer and members of his department, who also prepared the plans.

The flow chart opposite and the description thereof have been prepared by Mr. H. M. de Vaal, Municipal Chemist in the City Engineer's Department, who is in charge of the works :—

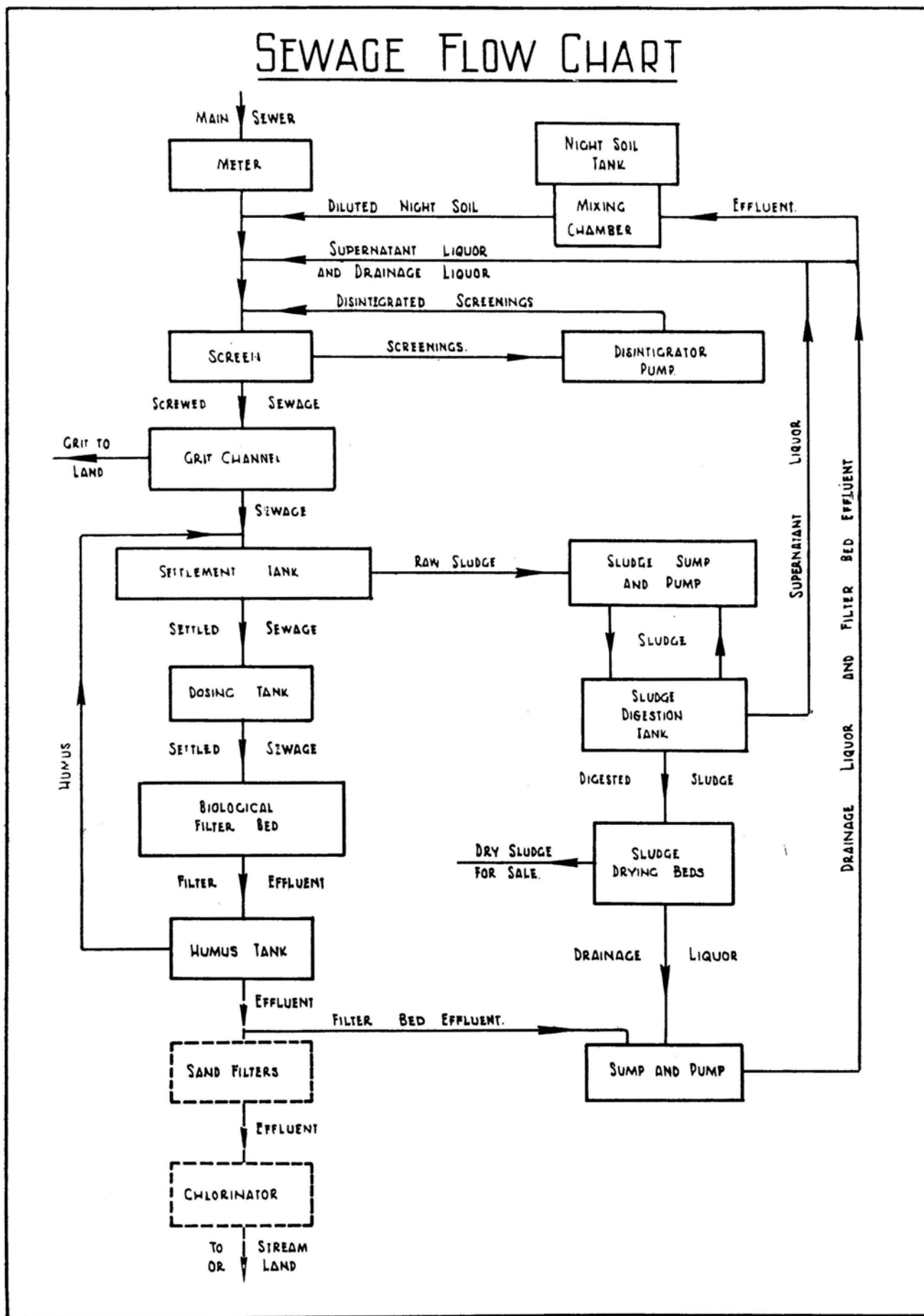
Raw sewage (containing 0.2% solids) is conveyed to the Sewage Works by means of the main outfall sewer. The volume of sewage is measured and recorded by the meter, after which the sewage passes through a mechanically raked screen with 1" openings, where coarse suspended solids are removed. These solids are cut up into fine state by a special disintegrator pump and returned to the sewage flow. The screened sewage next flows through grit channels, in which the velocity of flow is reduced to approximately 1 ft. per second so as to allow only heavy sand and grit to settle. The lighter organic solids pass into the settlement tanks where they settle out as raw sludge (1% of total volume of sewage).

The clear or settled sewage flows into dosing tanks which distribute it intermittently onto the biological

filters, where aerobic organisms purify the sewage into a well-oxidised and stable effluent. This filter effluent undergoes further settlement in humus tanks, after which the clear effluent is discharged into the stream or on to land. The settled solids, or humus, is pumped back to just above the settlement tanks.

The raw sludge settling in the settlement tanks, containing 5 per cent. solids, is drawn off under hydraulic head to the sump and pumps, from which the sludge is pumped into the sludge digestion tanks. In these tanks anaerobic agencies are hard at work converting the highly offensive raw sludge into inoffensive and useful digested sludge. When the digestion process is complete (after 6-7 weeks) the digested sludge is drawn off onto draining and drying beds. The drainage liquor runs into sump and pumps, which lift the liquor back into the incoming sewage for purification through the Works. The dried digested sludge is sold as fertiliser.

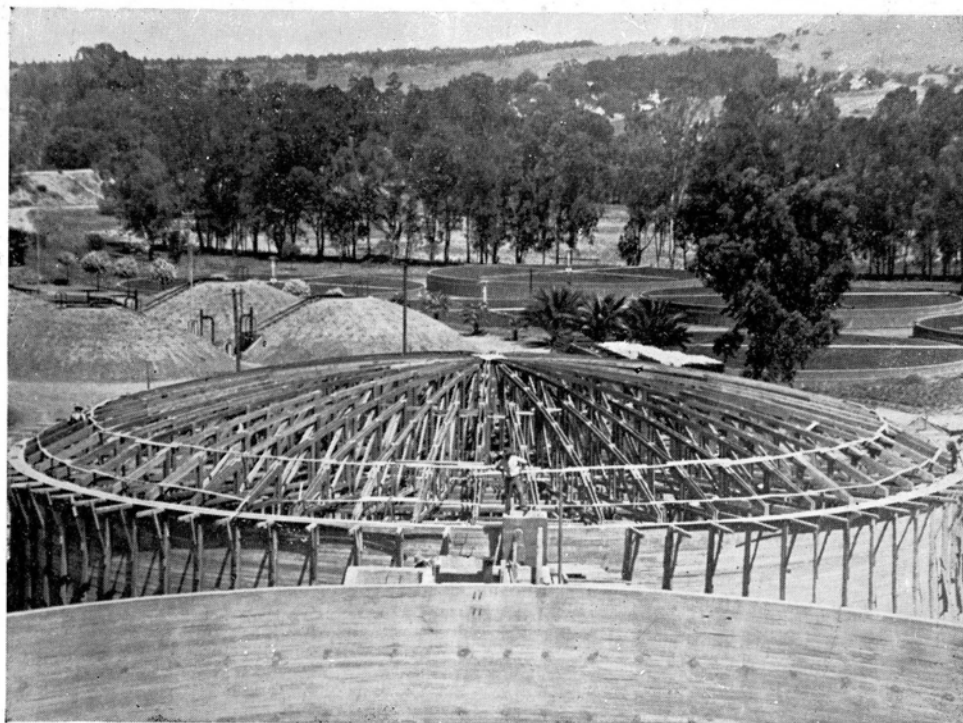
Night soil is dumped into the night soil tank, diluted with filter bed effluent, and discharged into the main sewer during the night when the normal sewage flow is low.





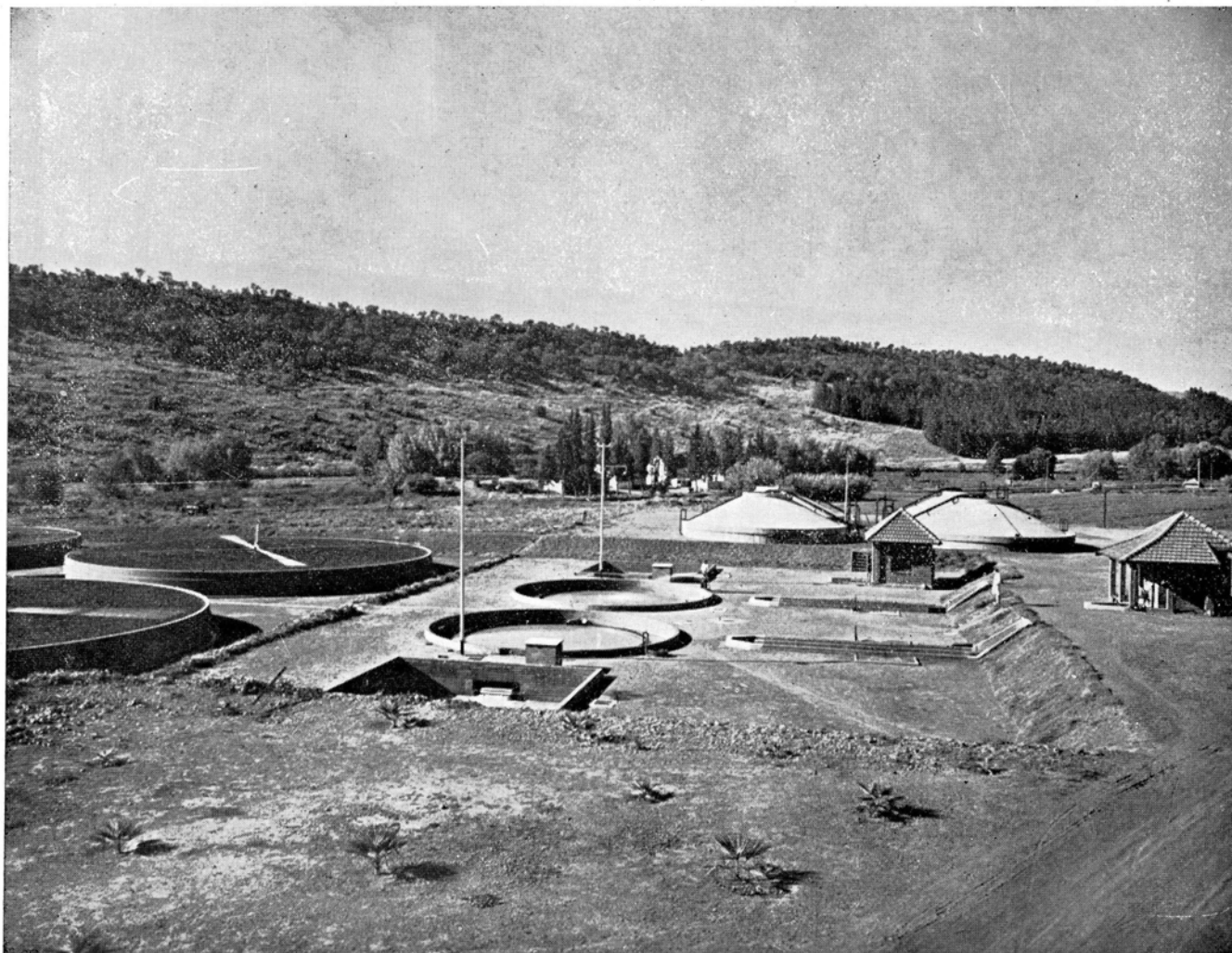
STEEL GASOMETER ROOF OVER SECONDARY DIGESTOR UNDER CONSTRUCTION.

*Photograph : City Council of Pretoria.*



90FT. DIAMETER DOMICAL ROOF OVER PRIMARY DORR DIGESTOR UNDER CONSTRUCTION SHOWING CENTERING FOR DOME.

*Photograph : City Council of Pretoria.*



GENERAL VIEW SHOWING SCREEN HOUSE, GRIT CHANNELS, DOSING TANKS AND BIOLOGICAL FILTER BEDS AND CONICAL ROOFED SLUDGE DIGESTORS AT BACK.

*Photograph: City Council of Pretoria.*

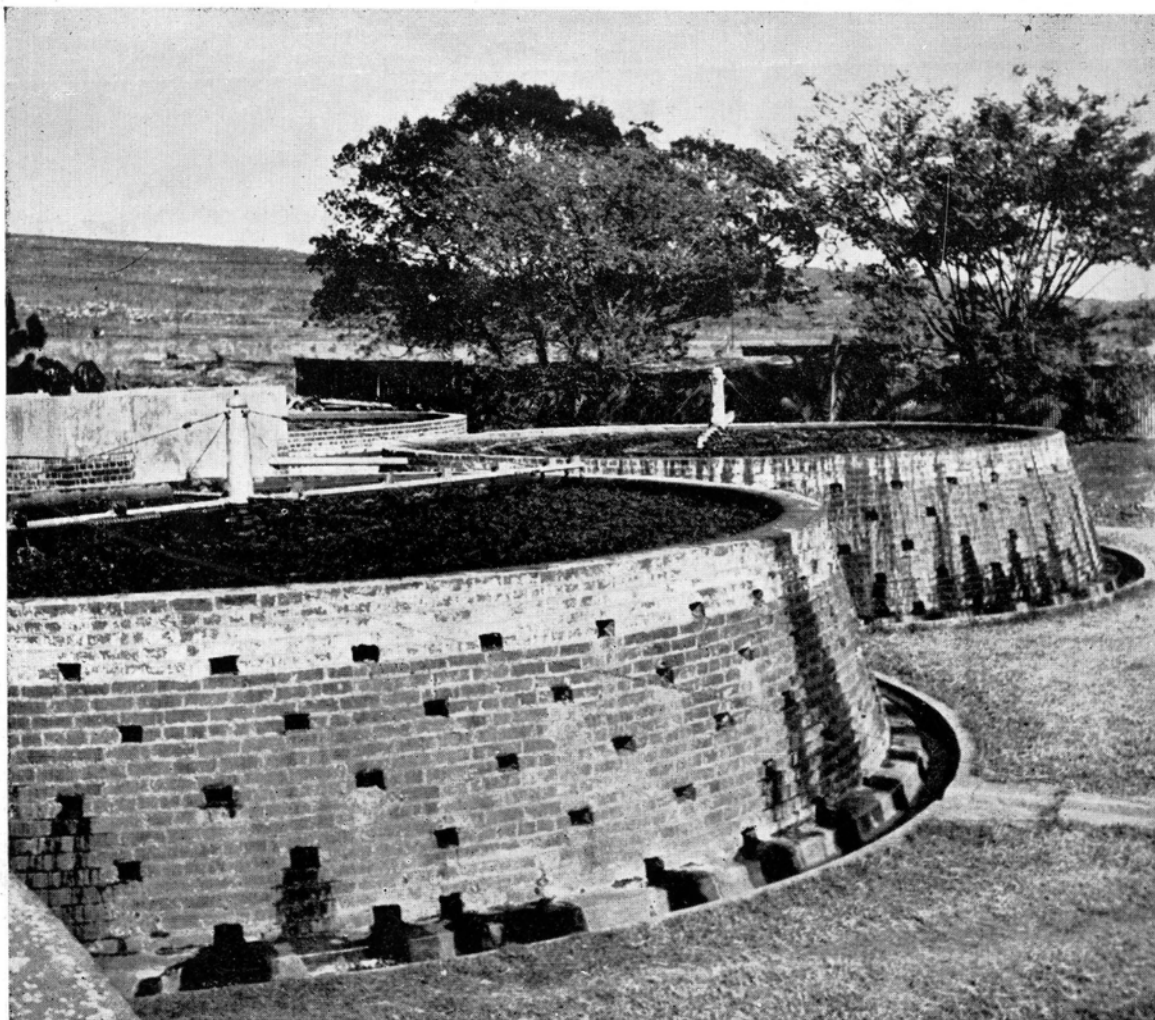
#### ADDITIONAL PURIFICATION PROCESSES.

Additional processes which can be employed to produce a purer effluent are sand filters, which remove the light suspended particles from the humus tank effluent. Chlorination may be employed to sterilise the final effluent, which will then be of the highest standard of purity.

#### CLASSIFICATION OF SEWAGE TREATMENT PROCESSES.

In the complete treatment of sewage as outlined above, three types of processes are utilised:—

- (a) Physical processes — Removal of suspended solids by means of screens, grit channels and settlement tanks. Removal of humus from the filter bed effluent by humus tanks and sand filters.
- (b) Biological processes — Purification of settled sewage by aerobic bacteria in biological filters, and the conversion of raw sludge into digested sludge by anaerobic organisms in sludge digestion tanks.
- (c) Chemical processes — Sterilisation of the final effluent by means of liquid chlorine.



VOORTREKKERHOOGTE — ORIGINAL  
FILTERS CONSTRUCTED 1907.



# VOORTREKKERHOOGTE SEWAGE DISPOSAL WORKS

## A BRIEF HISTORY

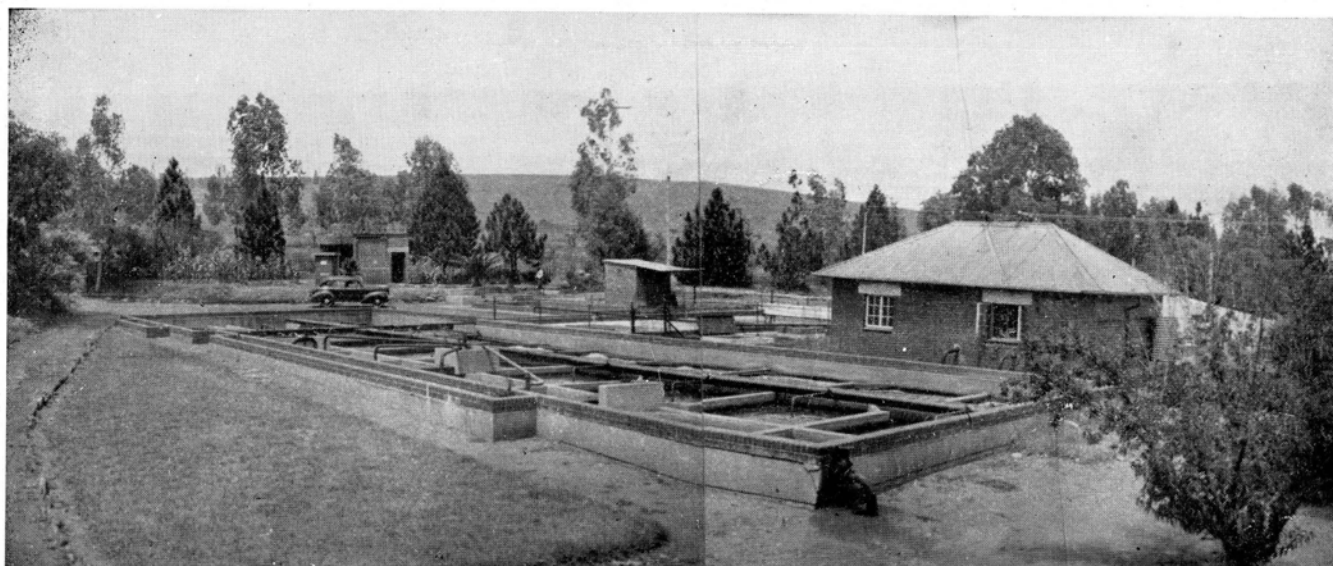
●  
CONTRIBUTED

THE Department of Public Works of the Union of South Africa has been responsible for the design and construction and development of a large number of sewage disposal and treatment works in South Africa. The designs produced by the technical and professional officers of that department cover a very wide field indeed. They range from designs for the smallest domestic septic tank units to designs for large disposal units for towns.

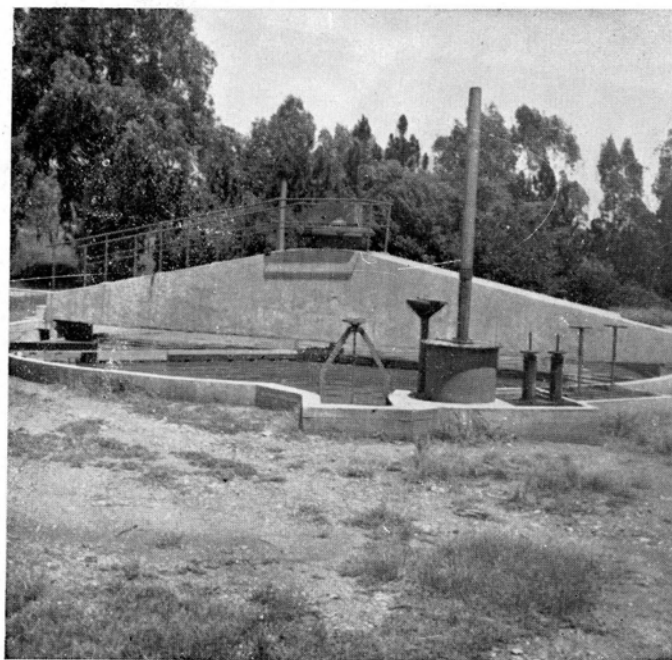
The disposal works at Voortrekkerhoogte, which was developed by the Department and its preceding authorities over a period of nearly 50 years, is of particular interest.

The original sewage disposal works consisted of a septic tank and eight contact beds and was amongst the earliest installations constructed in South Africa.

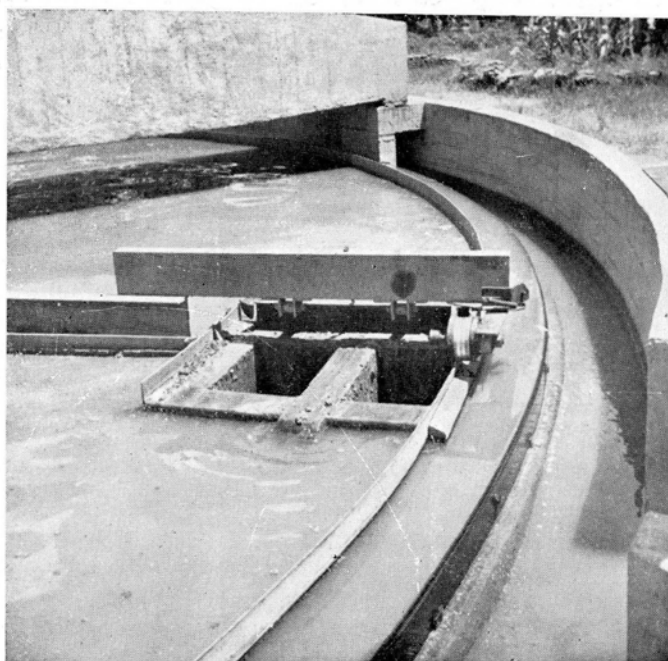
During and just after the Anglo-Boer War, sewage treatment plants and sewerage systems were installed



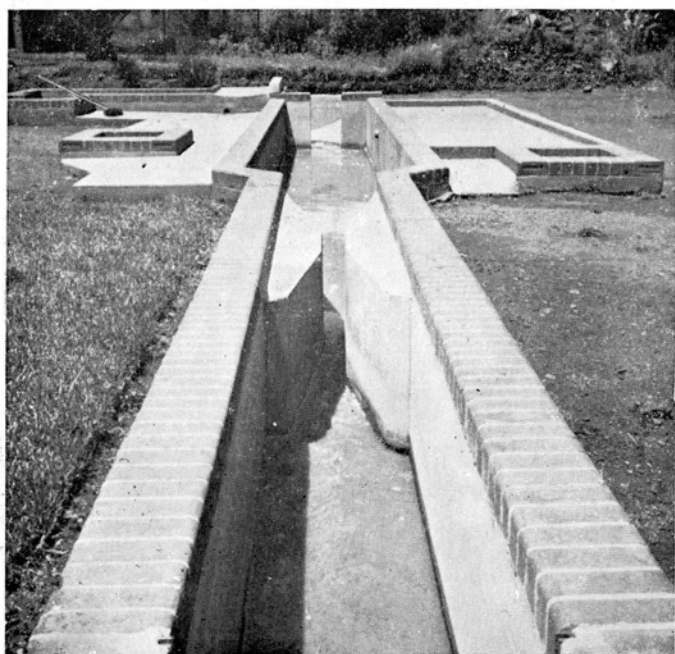
GENERAL VIEW OF WORKS SHOWING  
AERATION PLANT AND COMPRESSOR HOUSE.



CLARIGESTOR.



SKIMMER DISCHARGING  
ITS LOAD INTO SUMP.



NEW DETRITUS CHANNEL WITH  
CONSTANT VELOCITY CONTROL.



OVERFLOW WEIR  
IN REAERATION TANK.

at various military camps throughout the country. The works at Roberts Heights, as Voortrekkerhoogte was then known, was included amongst them.

The design was prepared by a certain Mr. Prentice, and the first works were constructed by the Royal Engineers.

Subsequently (in about 1907) the nucleus of the existing works was laid down on ground situated at a higher level, also by the Royal Engineers. The new work consisted of septic tank and two percolating filters. The latter were constructed of brick with battered walls and aeration holes at intervals throughout the walls. Incidentally, these two filters are still in operation and giving very satisfactory service.

In 1914, the works were taken over from the Imperial Government. In 1920 portion of the septic tank was converted into two square hopper-bottomed sedimentation tanks. The remainder of the tank was subsequently converted for use as a flow balancing tank.

Four 50 feet diameter biological filters were added to the works in 1933.

The erection of a 25 feet diameter sludge digester and four drying beds was completed in 1935.

.During 1934/1935 a pilot plant embodying the principle of sewage treatment by aeration in contact with aerobic sludge was constructed.

This was followed in 1937 with a 40 foot diameter sludge digester and supernatant liquor settlement tank.

Increase of sewage flow led to the plant being enlarged in size during 1938 so as to deal with a daily flow of half a million gallons.

The large influx of troops during the early years of the recent world war necessitated the addition of three extra 60 feet diameter filters. These were put into use in 1941.

The square sedimentation tanks were by this time being taxed to their limit and it was, therefore, decided to proceed with the installation of a 45 feet diameter Dorrco Clarigester. This was put into service by 1943, being, at the time, one of the largest in the Union.

The aeration unit is operated in parallel with the biological filters and an effluent of excellent quality is being delivered by the process.

During the war years the whole works were working to fullest capacity. A Lea flow recorder which had been installed during 1938 subsequently proved to be too small, flows of 60,000 gallons per hour being the limit which the instrument could accurately handle.

A large portion of the flow is delivered by some seven pumping stations of varying capacities, which are situated at sundry points in the military area.

This results in the flow being received at the works in surges and at irregular periods during the day. No adverse effect results from this fact, however.



YORK'S HOUSING.

# YORK'S COMBINED OPERATION TO BUILD HOUSES

U.K. INFORMATION OFFICE

**A**S in all other parts of the world, the City of York is faced with a serious housing shortage.

Even before the 1939/1945 war, overcrowding was serious among the city's population of 100,000, and the slums were crying out for rebuilding.

Bomb damage, though less extensive than in some towns and cities in Great Britain, has torn gaps in York City's structure.

These factors have contributed to make it necessary to build approximately 5,000 houses in York in the next five years.

But York, even during the war had made its plans for reconstruction. It brought its housing schemes up to date, and tackled the whole problem on the basis of a military operation.

By the end of April, 1947, the Local Authority had built 175 houses, private builders 145, and many more are under construction.

Before the permanent houses were started, however, and to break the back of the problem, every available space was filled with temporary "pre-fabs." Even the disastrous winter couldn't stop the campaign, and the authorities, showing initiative rare among local authorities, are well on the way to attaining their target.

The urgent need caused York's housing authority to plan for every available type of house to be erected on every available space. The photograph reproduced here shows some of the houses that have gone up, and gives a glimpse of the Carr Estate in the background, where seven hundred houses are being built. In the foreground are the "stop-gap pre-fabs," and it will be noted how these are grouped on the sites so that they can give way to the permanent structures.

# D.D.T. SPECIFICATION

(Issued by the South African Bureau of Standards.)

The South African Bureau of Standards announces the issue of a Tentative Specification for DDT Insecticides.

The Specification covers five different types of insecticide in which DDT plays an important part, namely:—

- (a) DDT technical grade;
- (b) DDT dusts;
- (c) DDT solutions (not for use in emulsions);
- (d) DDT concentrates for use in emulsions; and
- (e) DDT pastes and powders.

The specification is divided into five sections covering the scope, the specification for each insecticide, the marking of containers, and methods of chemical analysis and of biological assay.

Being a tentative specification it will be in operation until 1st June, 1948, during which period the Bureau will welcome comment and criticism. Meanwhile manufacturers whose products conform to this specification may apply for permission to use the Bureau's mark on their products.

Copies, 5/- post free, are obtainable from the South African Bureau of Standards, Private Bag 191, Pretoria.

## JOHANNESBURG NEW RAILWAY STATION

The Editor,  
Public Works of South Africa,  
45, Prudential House,  
Pretorius Street,  
Pretoria.

11th August, 1947.

Dear Sir,

With reference to the article on the New Railway Station, Johannesburg, which appeared in the July Edition of your publication — Public Works of South Africa — we wish to draw your attention to the fact that the Architects for this scheme are as under, and not as indicated in your article.

Yours faithfully,

**Kennedy, Furner, Irvine-Smith & Joubert.**

The Editor very much regrets this error and offers his apologies to those concerned.

# 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 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.

## BUILDINGS :

**Bloemfontein** — to P.W.D., Pretoria. Additional accommodation for Secondary School at Model School. P.W.D. 880. Due, 2/9/47.

**Hermanus** — to P.W.D., Pretoria. Police Station and quarters. P.W.D. 881. Due, 4/9/47.

**Coligny, Transvaal** — to S.A.R. & H., 715 Van Riebeeck Building, Johannesburg. New rest room block, 8 rooms including sewerage and septic tank — Deposit £2-2-0. Due, 4/9/47.

## SEWERAGE AND SEWAGE DISPOSAL :

**Wellington Municipality** : Supply and installation of 3 vertical centrifugal sewage pumps automatically controlled and coupled to electric motors. Consulting Engineer, H. Conyers Kirby, Barclays Bank Building, St. George's Street, Cape Town. Contract No. 4. Deposit £2-2-0. Due, 9/9/47.

**Wellington Municipality** : Sewage disposal works plant for the treatment of approximately 300,000 gallons of sewage per day. Consulting Engineer, H. Conyers Kirby. Contract No. 5. Deposit £2-2-0, extra copies 5/- each. Due, 9/9/47.

**Colenso Municipality** : Proposed new sewerage works :

- (a) Supply, delivery and erection of dosing syphon and distributors for circular trickling filter.
- (b) Supply, delivery and erection of sludge pump.
- (c) Supply, delivery and erection of complete sewage pumping units.

Tenders are invited for portions or the whole of the above. Contract C. 2/47. Deposit of £2-2-0, extra copies of documents at £1-1-0 each.

## STRUCTURAL STEELWORK :

**S.A.R. & H., 715 Van Riebeeck Building, Johannesburg** : Structural steelwork. No. 7077. Due, 4/9/47.

## BRIDGES :

**S.A.R. & H., Park Chambers, Johannesburg** : Construction (labour only) of a concrete arch bridge and deviation over the Umzimai (No. 1) River from 42 miles 04 chains to 42 miles 69 chains between Park Rynie and Kelso Stations. System Manager (Room 35, Durban). Due, 28/8/47.

## SHIPPING, ETC. :

**S.A.R. & H., 715 Van Riebeeck Building, Johannesburg** : Two oil-burning tugs. No. 7098. Due, 6/11/47.

## ROAD AND EARTH MOVING PLANT, ETC. :

**Irrigation Department, P.O. Box 277, Pretoria, Controller of Stores**. Six pipe laying attachments for D.4. model Caterpillar tractors. IRR. 66. Due, 4/9/47.

**Cape Provincial Tender Board** : for Cape Provincial Roads Engineer. One portable single toggle jaw type crusher complying with the following : Jaw opening, approx. 8" x 12". Engine mounted on the same chassis with V-belt drive. Petrol or diesel engine of about 12 h.p. equipped with extra large oil bath air cleaner, of which full specifications and detailed illustrations are required. The above crusher is to be moved frequently from place to place and therefore must be suitably constructed so that the outfit can be lifted as a whole on and off a truck or trailer. Alternative quote for a double toggle machine.

C.T.B. 9 Form. No. F 41/1947. Due, 3/10/47.

**S.A.R. & H., 715 Van Riebeeck Building, Johannesburg** : Six excavators. No. 7142. Due, 4/9/47.

**S.A.R. & H., 715 Van Riebeeck Building, Johannesburg** : Rooters. No. 7144. Due, 4/9/47.

**S.A.R. & H., 715 Van Riebeeck Building, Johannesburg** : Cranes. No. 6917. Due, 4/9/47.

**S.A.R. & H., 715 Van Riebeeck Building, Johannesburg** : Stone crushers. No. 7072. Due, 4/9/47.

## ELECTRICAL :

**Bulawayo Municipality** : Town Clerk : Switch gear, transformers, insulators, variable speed couplings, lightning arrestors, tubular steel poles, metres, underground cables and auxiliary equipment and overhead line equipment. Contract E. 35/1947. Offers ex-export and ex-Rhodesian or Union stocks are required, the last-named in preference. Deposit on documents £1-1-0, additional copies of documents 10/6 each. Due, 15/9/47.

**Public Works Dept., Pretoria** : Supply, delivery and erection of one electrical passenger lift, Old Govt. Buildings (Raadzaal), Pretoria. P.W.D. 825. Due, 28/8/47.

**S.A.R. & H., Park Chambers, Johannesburg** : Train lighting cells. No. 6981. Due, 11/9/47.

**Public Works Dept., Pretoria** : Single operator transformer type electric welding sets. P.W.D./S.100. Due, 11/9/47.

**Pietersburg Municipality** : Electrical extensions. Supply, delivery and erection of :—

- A. Steam raising plant, coal and ash-handling plant, valves, piping, water tanks, water softener and alterations to existing boilers.
- B. Two 2,000 k.w. steam turbine-driven generating sets, main and auxiliary switch gear, station transformers, main and auxiliary cables and power station wiring, circulating water piping, pumps and cooling pond equipment.

Deposit £3-3-0 each section, extra copies 10/6 each. Consulting Engineer, George Drewett, Manlin House, 17 Harrison Street, Johannesburg. Due, 22/9/47.

**Johannesburg Municipality:** Stores Dept. Armature and Field coils. Contract 159. Due, 16/9/47.

**S.A.R. & H., Park Chambers, Johannesburg:** Telegraph line material. No. 6883. Due, 2/10/47.

**S.A.R. & H., Park Chambers, Johannesburg:** Switch boards for Table Bay Harbour. No. 7079. Due, 25/9/47.

**Keetmanshoop Municipality:** Electricity undertaking. Supply, delivery and in certain sections the erection of the following plant and equipment:

- A. 6.6 k.v. and L.T. power station switch gear and sundries.
- B. 6.6 k.v. and L.T. cables, laying and jointing.
- C. 6.6 k.v. overhead line materials and construction.
- D. 6.6 k.v. and L.T. sub-station equipment.
- E. Transformers.
- F. Indoor and outdoor house services.
- G. Motors and starters.
- H. Replacement of D.C. equipment, radios, refrigerator motors, fans and sundries.

Specification K.H. 1/1947. Deposit £3-3-0, extra copies £1-0-0 each. Consulting Engineer, J. S. Clinton, P.O. Box 4648, Johannesburg. Extended, now due, 15/9/47.

**Public Works Dept., Pretoria:** Supply, delivery and erection of two electric passenger lifts, Central Govt. offices, Pretoria. P.W.D./859. Due, 2/10/47.

**Public Works Dept., Pretoria:** Two Diesel alternator sets, Fort Cox Agricultural School, Middledrift, Cape Province. P.W.D. No. 861. Due, 2/10/47.

**Rustenburg Municipality:** Electrical Engineer, supply and erection of 11 k.v. switch gear and summation metering panel. Contract E. 5/47. Due, 25/9/47.

**S.A.R. & H., 715 Van Riebeeck Building, Johannesburg:** Cable boxes. No. 7070. Due, 2/10/47.

**Bloemfontein Municipality:** City Electrical Engineer. Cable, joint boxes and compound. Enquiry 18/1947. Due, 4/9/47.

**Bloemfontein Municipality:** City Electrical Engineer. E.H.T. — H.R.C. electrical switch gear. Enquiry 21/1947. Due, 8/9/47.

**Bloemfontein Municipality:** City Electrical Engineer. Steel poles, cross arms and street light brackets. Enquiry 22/1947. Due, 2/9/47.

**Port Elizabeth Municipality:** City Electrical Engineer. Supply, delivery, erection and setting to work, at the Power Station, North End, Port Elizabeth, of the following equipment:

- De-aerating plant. Spec. 294
- One double-effect evaporator. Spec. 296.

One steam-turbine driven boiler feed pump. Spec. 297.

Duplicate copies of documents on deposit of 10/6, extra copies 10/6 each.

**S.A.R. & H., 715 Van Riebeeck Building, Johannesburg:** Switchboard and Transformers. No. 7113. Due, 9/10/47.

**Department of Posts and Telegraphs, Pretoria:** Radio telephone equipment. P.O. 799. Extended now due, 11/9/47.

**Durban Municipality:** Electric cable and wire. No. E. 213. Due, 5/9/47.

**Department of Public Works, Pretoria:** Supply, delivery and erection of one electric passenger lift to New Automatic Telephone Exchange at Pietermaritzburg. P.W.D. 866. Due, 9/10/47.

**S.A.R. & H., 715 Van Riebeeck Building, Johannesburg:** Switchboards. No. 7005. Due, 23/10/47.

**Electricity Supply Commission (Cape Town undertaking):** Electricity House, Cape Town. Distribution transformers. Specification 223/1947. Due, 7/10/47.

**Rustenburg Municipality:** Electrical Engineer. 11 K.V. Ring Main Switch Gear. Contract E/6/47. Due 17/9/47.

**S.A.R. & H., 715 Van Riebeeck Building, Johannesburg:** Electric goods lift. No. 7028. Due 23/10/47.

**Johannesburg Municipality (Stores Dept.):** Lighting poles. Contract 182. Due 12/9/47.

**Rustenburg Municipality:** Electrical Engineer: Stranded copper conductor. Contract E.8/47. Due 24/9/47.

**Ladysmith Municipality:** Town Clerk. Extensions to generating plant and overhead reticulation:—

- Section 1. Alterations and additions to existing power station building.
- Section 2. Diesel-driven alternators.
- Section 3. Water circulating pumps, sprays, piping, etc.
- Section 4. Additions to switch board and provision of voltage regulators.
- Section 5. Alterations and extensions to overhead reticulation.

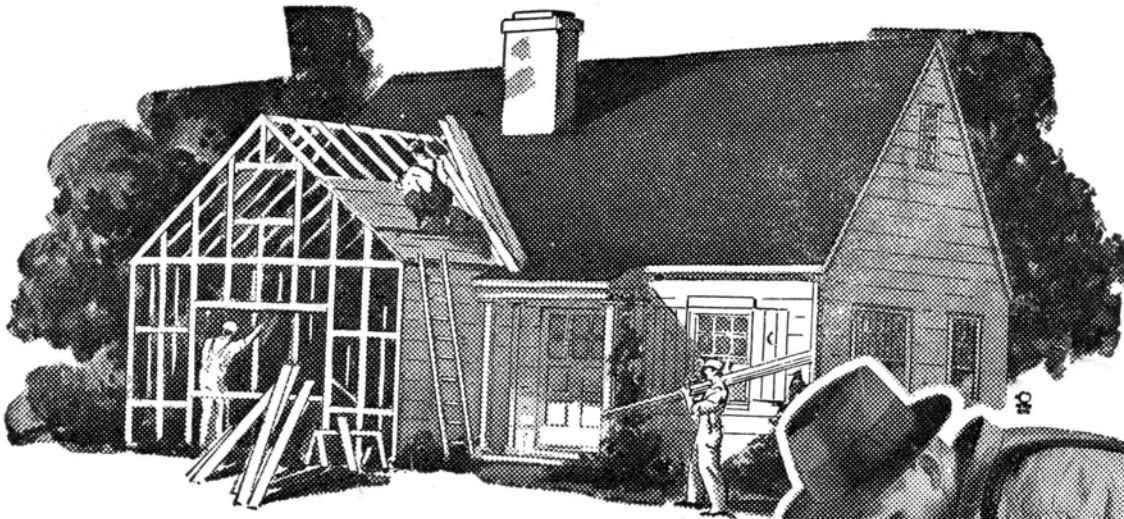
Deposit £2-2-0. Extra copies of documents at 10/6 each. Due 27/9/47.

**Boksburg Municipality:** Electrical Engineer. Transformers. Contract E.5/47. Electrical testing equipment. Contract E.6/47. Due 8/9/47.

**Kimberley Municipality:** Specification; Merz & McLellan, Escom House, Johannesburg. 33 11 K.V. 150 m.v.a. distribution switch panels and ring main isolator units. Deposit £2-0-0 for two copies of documents, extra copies £1-0-0 each. Due 23/9/47.

**Department of Posts and Telegraphs, Pretoria.** Transformers, buzzers and condensers. P.O. 818. Due 2/10/47.

**Department of Posts and Telegraphs, Pretoria.** Universal meters. P.O. 812. Due 30/10/47.



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**Department of Public Works, Pretoria:** For New Public Offices, Springs. Fluorescent lighting strips. New Public Offices, Springs. P.W.D. 876. Due 18/9/47.

**S.A.R. & H., 715 Van Riebeeck Building, Johannesburg:** Train lighting cells. No. 7205. Due 30/10/47.

#### REFRIGERATION:

**Department of Public Works, Pretoria:** For Grootfontein College of Agriculture Dairy, Middelburg, C.P. P.W.D. 877. Due 11/9/47.

#### WATER SUPPLIES, ETC.

**Pietermaritzburg Municipality:** City Engineer. Henley Pipe Line. Main Aqueduct.

1. Sluice and air valves. Contract 8/1947.
  2. Steel pipes and specials. Contract 9/1947.
- Both due 1/9/47.

**Rand Water Board, P.O. Box 1127, Johannesburg:** Additional water supply (1946) scheme. Supply, delivery and erection of two steam turbine-driven centrifugal pumps, each complete with all auxiliaries, at No. 2 engine room, Zwartkoppies Pumping Station. Contract 691. Extended, now due 1/10/47.

**S.A.R. & H., 715 Van Riebeeck Building, Johannesburg:** Water meters. No. 7073. Due 23/10/47.

**Rand Water Board, P.O. Box 1127, Johannesburg:** Additional water supply (1946) scheme. Supply, delivery and erection at the Board's No. 2 River Intake Station, Vereeniging, of two electric motor-driven vertical spindle centrifugal pumps (30 m.g.d.). Contract 689. Extended, now due 1/9/47.

**Gwelo Municipality:** Water supply scheme:—

- Section 1. Chemical plant and rapid gravity filtration plant.
- Section 2. Flash mixing plant, flocculating plant and sludge removal equipment for settling tank.
- Section 3. Pumping plant.
- Section 4. Transformers, H.T. and L.T. Switch-gear and cable connections.

Deposit £3-3-0, extra copies of documents at £2-2-0 each. Consulting Engineers, Stewart, Sviridor & Oliver, Balgownie House, 66, Commissioner Street, Johannesburg. Contract 6/1947. Due 11/9/47.

**Cape Town Municipality:** City Engineer. Galvanised and Spun Iron or Asbestos piping. Form of tender A.68/47. Due 29/9/47.

**East London Municipality:** City and Water Engineer. Fort Murray water scheme. Construction of a mass concrete impounding dam and appurtenances thereto. Conditions of tender with copies of documents and drawings will be exhibited on the tender table at the office of the City and Water Engineer during normal office hours. Due 30/9/47.

#### MISCELLANEOUS:

**Omnibuses:** Stores Department, Durban. 25 double-decker motor. S. 2694. Due, 5/9/47.

**Omnibuses:** Stores Department, Durban. 50 double-decker motor. S. 2695. Due, 5/9/47.

**Spanners and Wrenches:** S.A.R. & H., Park Chambers, Johannesburg. No. 6948. Due, 28/8/47.

**Sodium Aluminate:** S.A.R. & H., Park Chambers, Johannesburg. No. 6989. Due, 4/9/47.

**Leadless White Paint Paste:** S.A.R. & H., Park Chambers, Johannesburg. No. 6992. Due, 4/9/47.

**Fire Protection Equipment, automatic:** Stores Department, Johannesburg Municipality. Contract No. 156. Due, 12/9/47.

**Cotter and Taper Pins:** S.A.R. & H., Park Chambers, Johannesburg. No. 6914. Due, 18/9/47.

**Steel Rivets:** S.A.R. & H., Park Chambers, Johannesburg. No. 6900. Due, 25/9/47.

**Buffer Nuts:** S.A.R. & H., Park Chambers, Johannesburg. No. 6988. Due, 11/9/47.

**Tippling and Platform Type Trucks:** S.A.R. & H., Park Chambers, Johannesburg. No. 6898. Due, 18/9/47.

**Wood-working Cutters:** S.A.R. & H., Park Chambers, Johannesburg. No. 6986. Due, 18/9/47.

**Glass, Rolled Ribbed Wire-woven:** S.A.R. & H., Park Chambers, Johannesburg. No. 7040. Due, 18/9/47.

**Wheels and Axles:** S.A.R. & H., Park Chambers, Johannesburg. No. 6903. Due, 25/9/47.

**Marine Paints:** S.A.R. & H., Park Chambers, Johannesburg. No. 7059. Due, 18/9/47.

**Wheels and Axles:** S.A.R. & H., 715 Van Riebeeck Building, Johannesburg. No. 7043. Due, 4/9/47.

**Varnishes and Enamels:** S.A.R. & H., 715 Van Riebeeck Building, Johannesburg. No. 6858. Extended. Now due, 18/9/47.

**Nickel Chrome Steel:** S.A.R. & H., 715 Van Riebeeck Building, Johannesburg. No. 7035. Due, 9/10/47.

**Brass Banr and Sheets:** S.A.R. & H., 715 Van Riebeeck Building, Johannesburg. No. 6963. Due, 9/10/47.

**Circular Cold Sawing Machine:** S.A.R. & H., 715 Van Riebeeck Building, Johannesburg. No. 6969. Due, 11/9/47.

**Hair Shaking and Teasing Machine:** S.A.R. & H., 715 Van Riebeeck Building, Johannesburg. No. 6974. Due, 11/9/47.

**Spring Steel:** S.A.R. & H., 715 Van Riebeeck Building, Johannesburg. No. 6380. Due, 9/10/47.

**Telegraph Line Material:** S.A.R. & H., 715 Van Riebeeck Building, Johannesburg. No. 6951. Due, 16/10/47.

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SUPPLIES EX STOCK OF LOCAL AND IMPORTED MARBLE AND GRANITE FOR SHOPFRONTS, FACINGS, FLOORING, ETC. PARTICULARLY SOUTH AFRICAN GRANITES IN RED, BROWN, GREEN, BLUE AND GRAY FROM OUR OWN QUARRIES

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GERMISTON.

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51-1179

**Grinding Wheels:** S.A.R. & H., 715 Van Riebeeck Building, Johannesburg. No. 7101. Due, 11/9/47.

**Compressed Air Piping and Fittings:** S.A.R. & H., 715 Van Riebeeck Building, Johannesburg. No. 6830. Due, 9/10/47.

**Boring Tools (bits and reamers):** Controller of Stores, Irrigation Department, Pretoria. No. IRR. 67. Due, 4/9/47.

**Lathes:** Four 26" swing selective head. Controller of Stores, Irrigation Department, Pretoria. No. IRR. 75. Due, 4/9/47.

**Lathe:** S.A.R. & H., 715 Van Riebeeck Building, Johannesburg. No. 6973. Due, 18/9/47.

**Concrete Vibrators:** S.A.R. & H., 715 Van Riebeeck Building, Johannesburg. No. 7143. Due, 4/9/47.

**Hardwood Timber:** S.A.R. & H., 715 Van Riebeeck Building, Johannesburg. No. 7026. Due, 4/9/47.

**Hardwood Crossing Timber:** S.A.R. & H., 715 Van Riebeeck Building, Johannesburg. No. 6780. Due, 11/9/47.

**Shaping Machines:** S.A.R. & H., 715 Van Riebeeck Building, Johannesburg. No. 6885. Due, 25/9/47.

**Double-end Tenoning Machine:** S.A.R. & H., 715 Van Riebeeck Building, Johannesburg. No. 7012. Due, 25/9/47.

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**Lifting Jacks:** Department of Posts and Telegraphs, Pretoria. No. P.O. 813. Due, 25/9/47.

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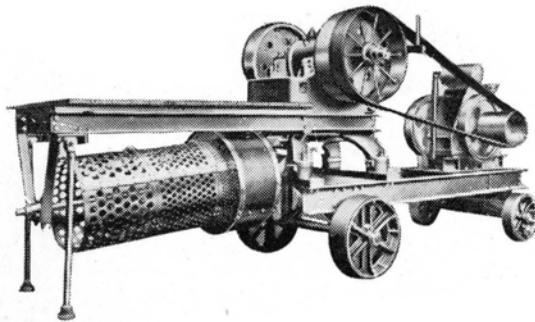
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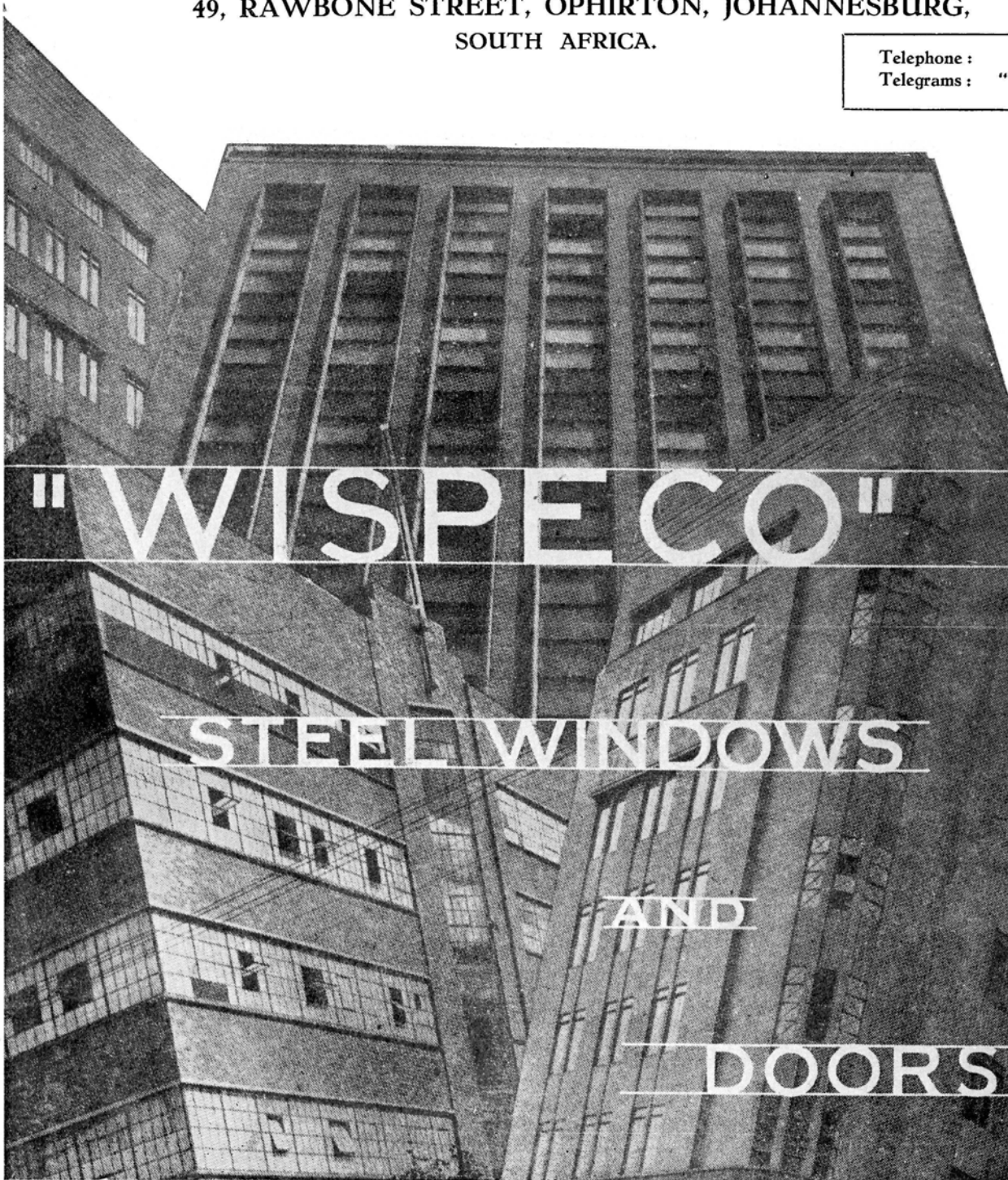
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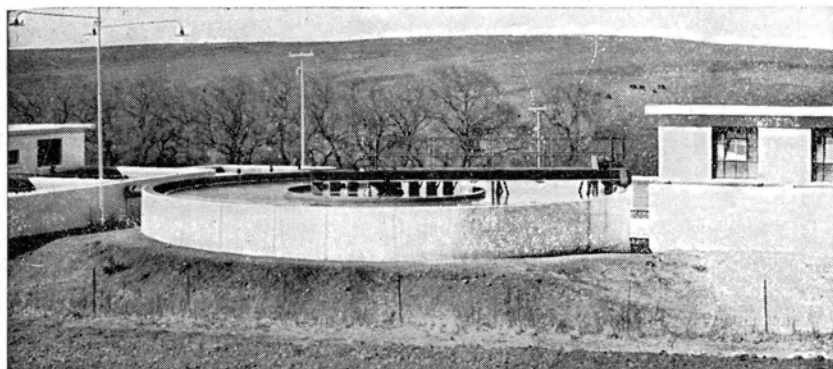
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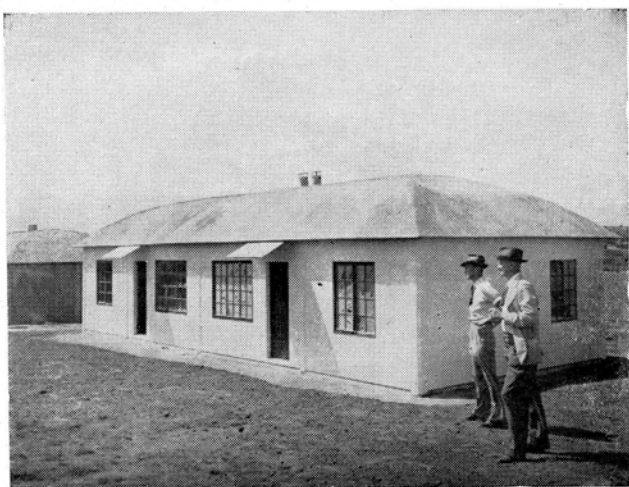
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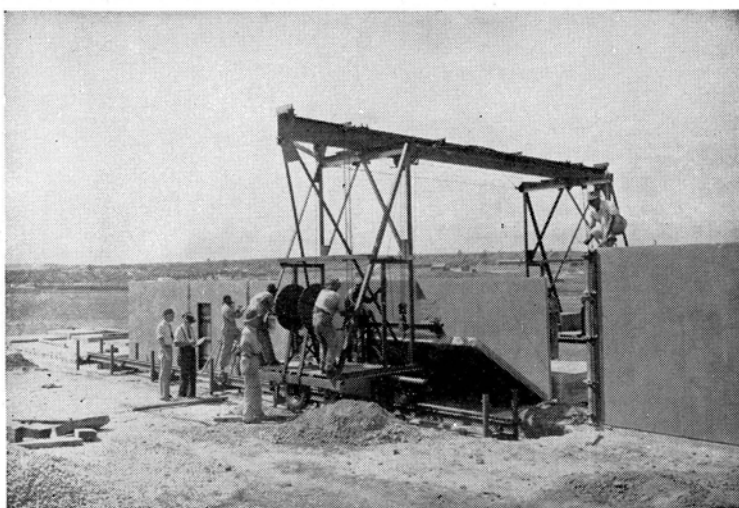
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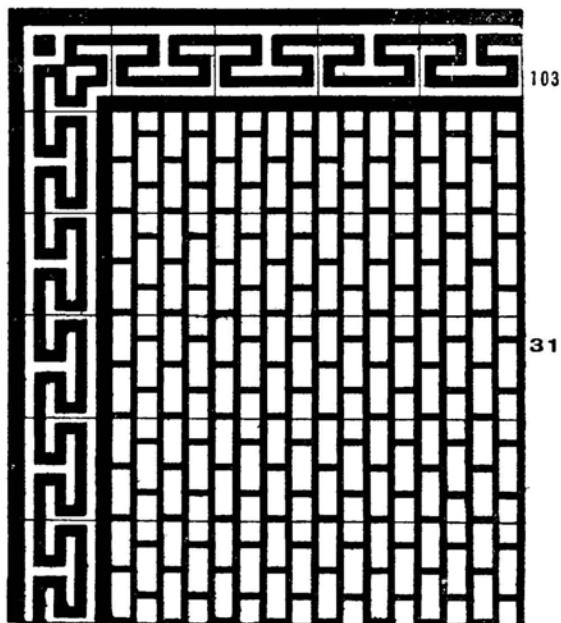
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