

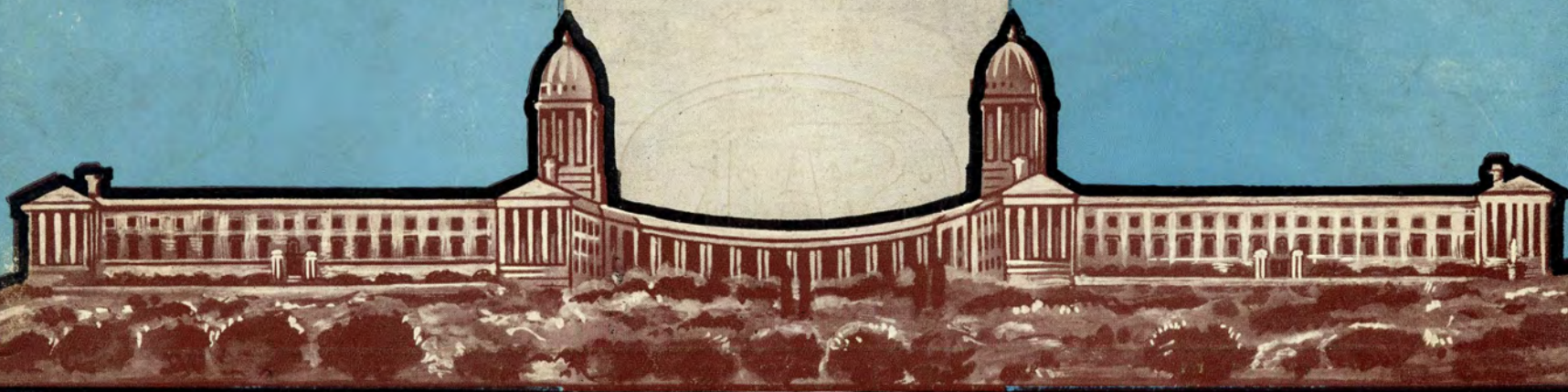
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Tornado**

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AND HELP WAS
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The news of the Roodepoort disaster, broadcast last night by the S.A.B.C. with an appeal for help, originated over the Johannesburg Fire Brigade's two-way radio.

Answering a call for ambulances, the brigade's chief officer, Mr. R. Wolmarans, left in his car followed by four ambulances. "When we approached Roodepoort," he said to-day, "we saw a dark cloud rising thousands of feet in the air and it was obvious that something serious had happened."

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Johannesburg

... first city in South Africa to fit 2-way Mobile Radio to its Fire Brigade Vehicles . . .

The Mayor of Roodepoort, Mr. R. Corlett, had been trying to get a telephone message through to the S.A.B.C., but as many lines were congested and others approached Mr. Wolmarans, whose car is equipped with two-way radio. Mr. Wolmarans then applied to his headquarters broadcast S.A.B.C. immediately and an appeal for help was broadcast soon afterwards. Although this appeal

TRAFFIC CONTROL

The position seriously deteriorated and Mr. Wolmarans again sent a radio message to Johannesburg, this time asking for police and traffic officers to control the flood of traffic. A troop carrier of police then left Johannesburg, as well as members of the Traffic Department. Ambulances from the four were moving the Johannesburg three hours until the ambulances from the

Chief Officer R. Wolmarans' Annual Report to the City Council includes the following: "Two-way radio equipment has been installed on several Fire Brigade vehicles. This equipment, by means of which the control and disposition of our fire fighting facilities are maintained during an alarm, has greatly improved the efficient and economic operation of the Fire Department. It is proposed to extend this service by equipping all the principal fire-fighting units of the brigade similarly."

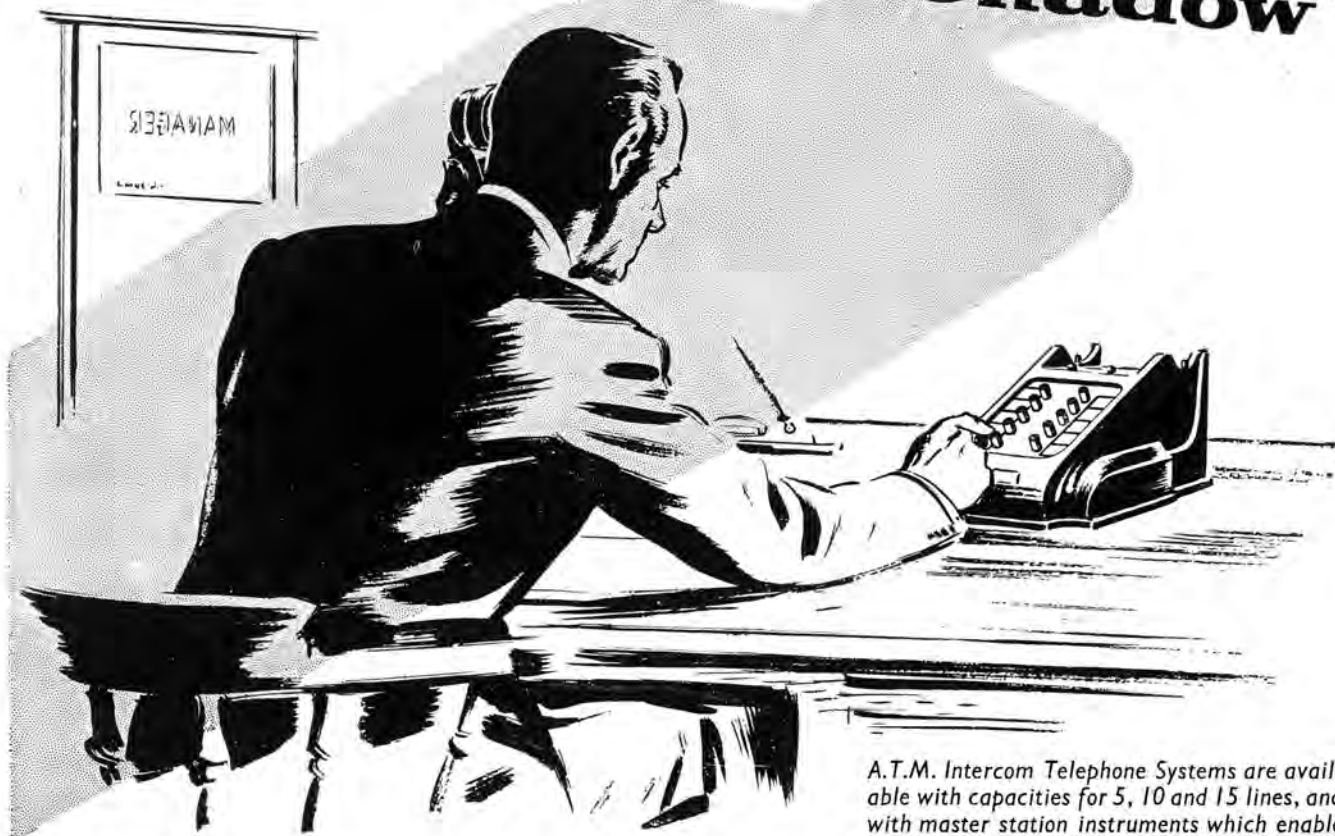
Chief Officer Wolmarans also writes: "... RCA F.M. Radio Equipment has now been in operation in this Brigade for twelve months and has proved invaluable in the elimination of countless miles by fire engines which were hitherto unavoidable. ..."

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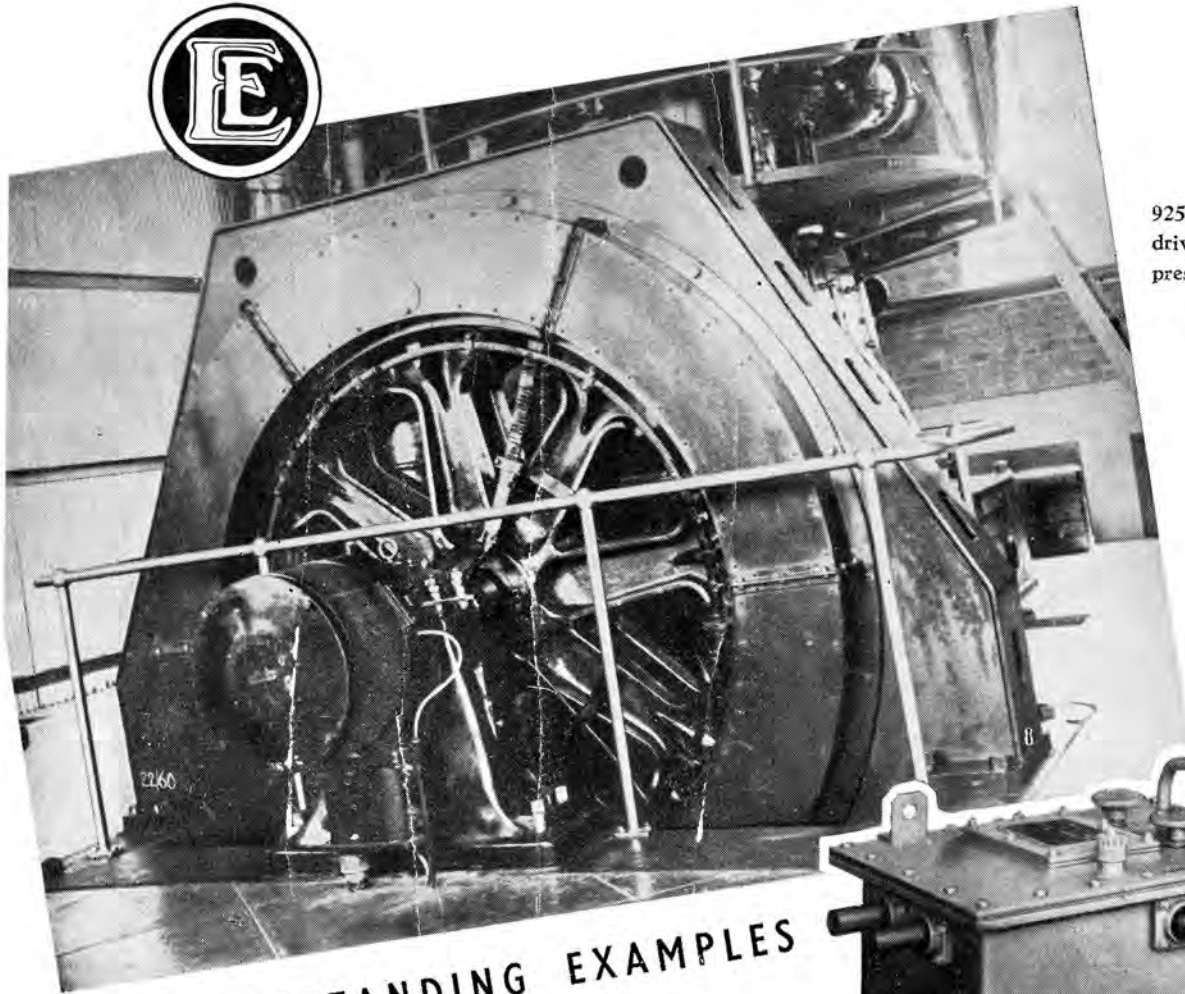
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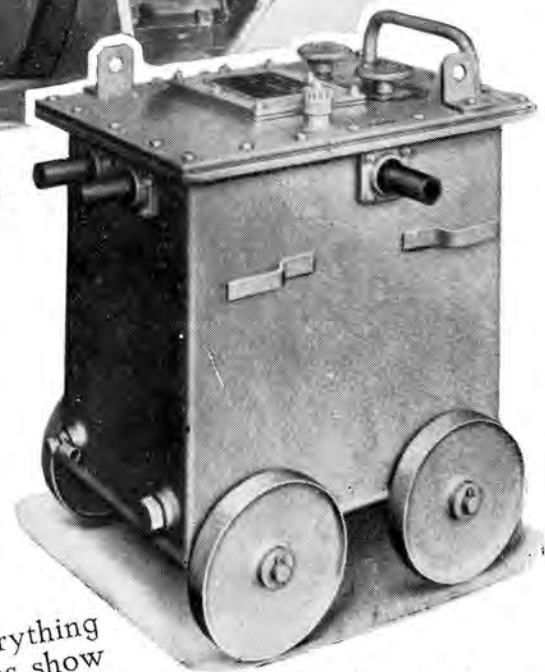


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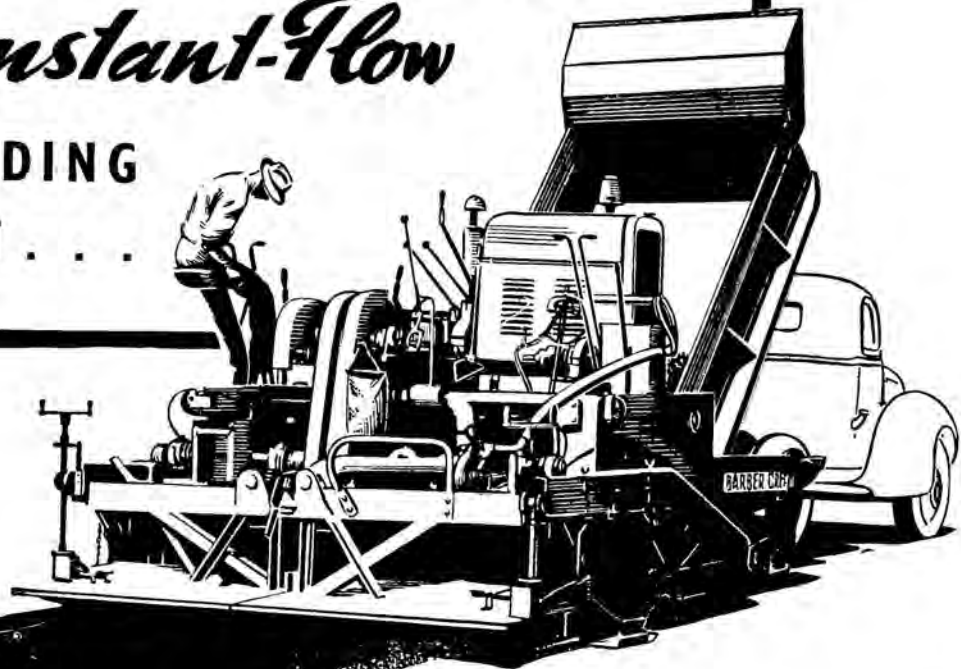
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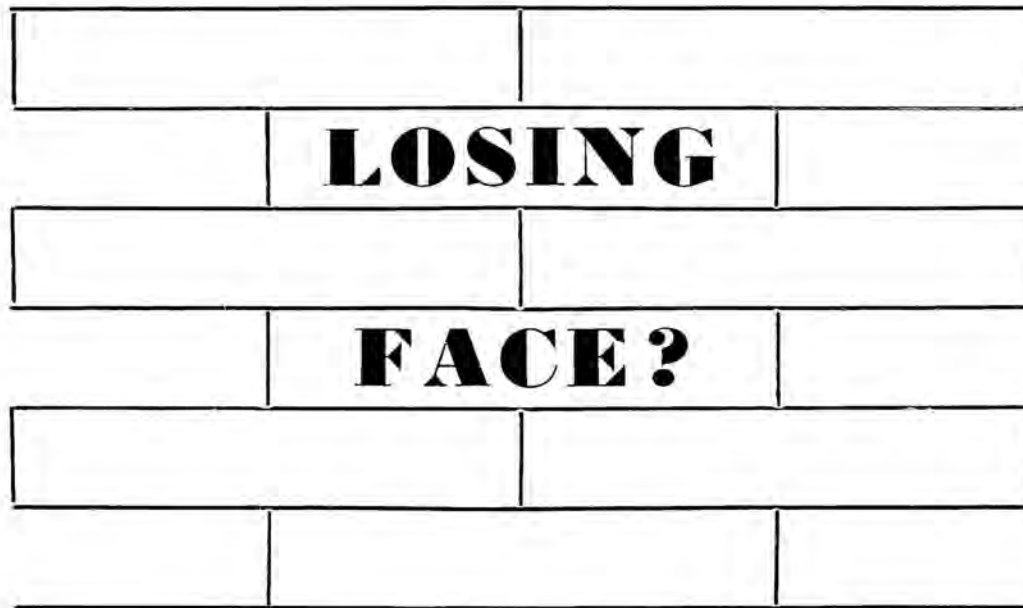


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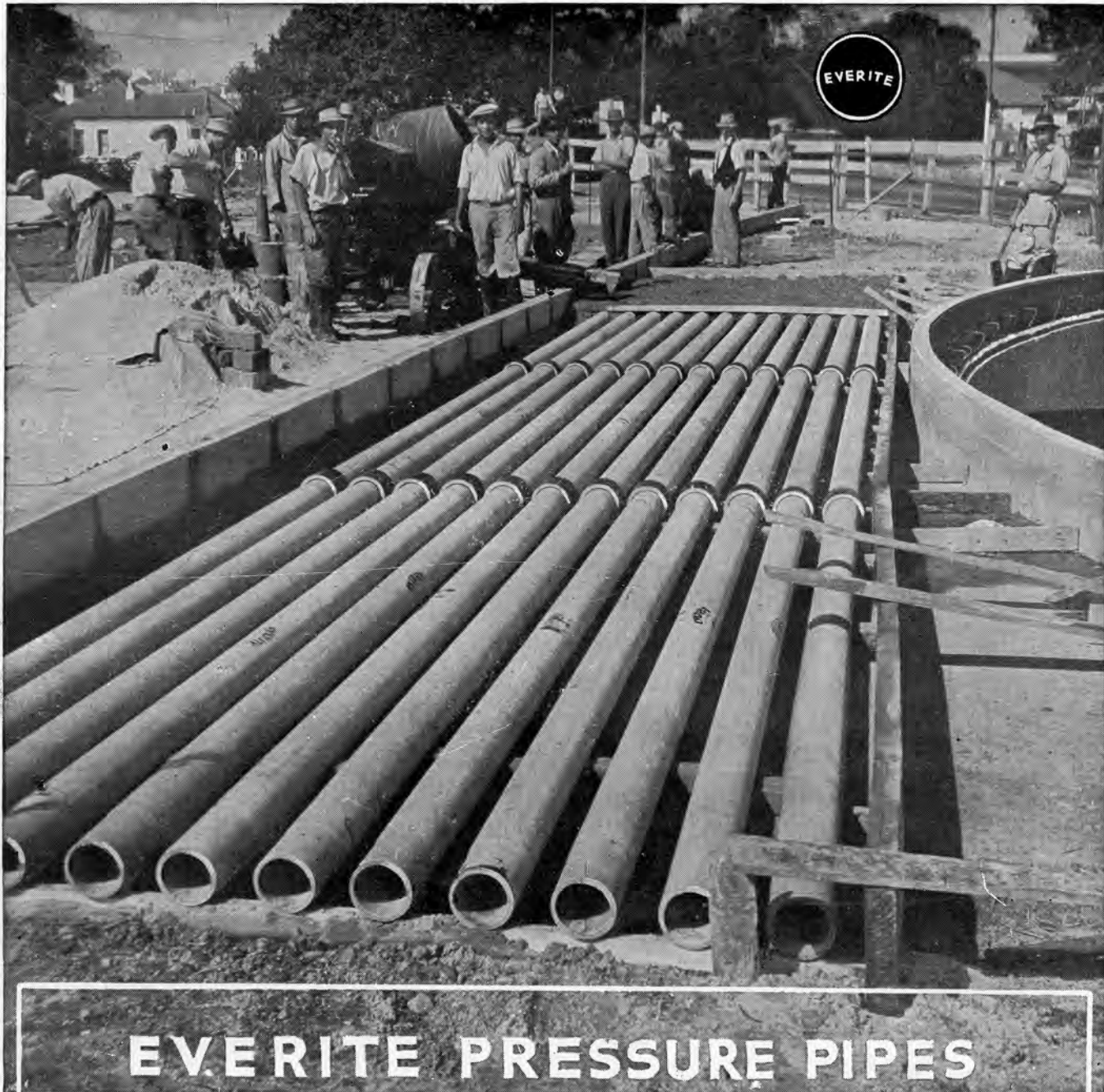
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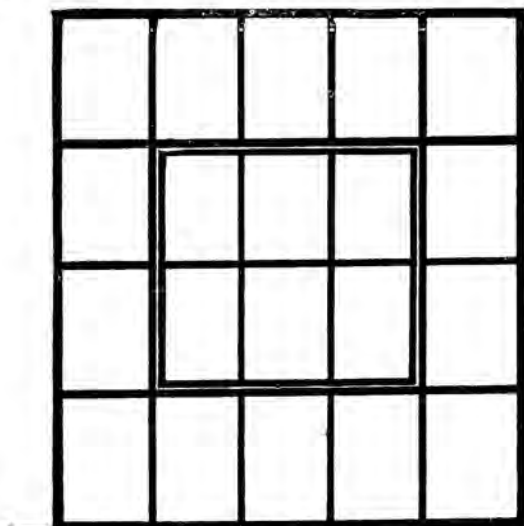
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TENDERS INVITED



HELPMEKAAR HIGH SCHOOL FOR GIRLS MILNER PARK JOHANNESBURG

FOR THE TRANSVAAL
PROVINCIAL ADMINISTRATION

IN answer to the ever increasing demand for educational facilities in the Transvaal, yet another High School has recently been completed for the Provincial Administration. Situated in Milner Park on the North-facing slope overlooking the busy section of Empire Road extension between Clarendon Circle and Jan Smuts Avenue, the Helpmekaar High School for Girls serves not only the surrounding neighbourhood, but admits pupils from all parts of Johannesburg.

The site, while it cannot be described as ideal, as few school sites are in towns where the speed of growth has made systematic town planning well-nigh impossible, is nevertheless extremely pleasing. The total area is approximately three acres and the school is set back some sixty feet from the main road with a Northern aspect and, due to the rise in ground level, has a most pleasant prospect over the extensive grounds of the Parktown Boys' High School.

On one side the site is bounded by Melle Street, on the other side of which is the Helpmekaar High School for Boys, a School has also been built fairly recently, but which has sporting facilities already established which the Girls' School are at present permitted to share until negotiations are completed to provide them with their own. Entry to the site is gained through kjaat gates and up a drive-way which will eventually be bordered by terraced lawns.

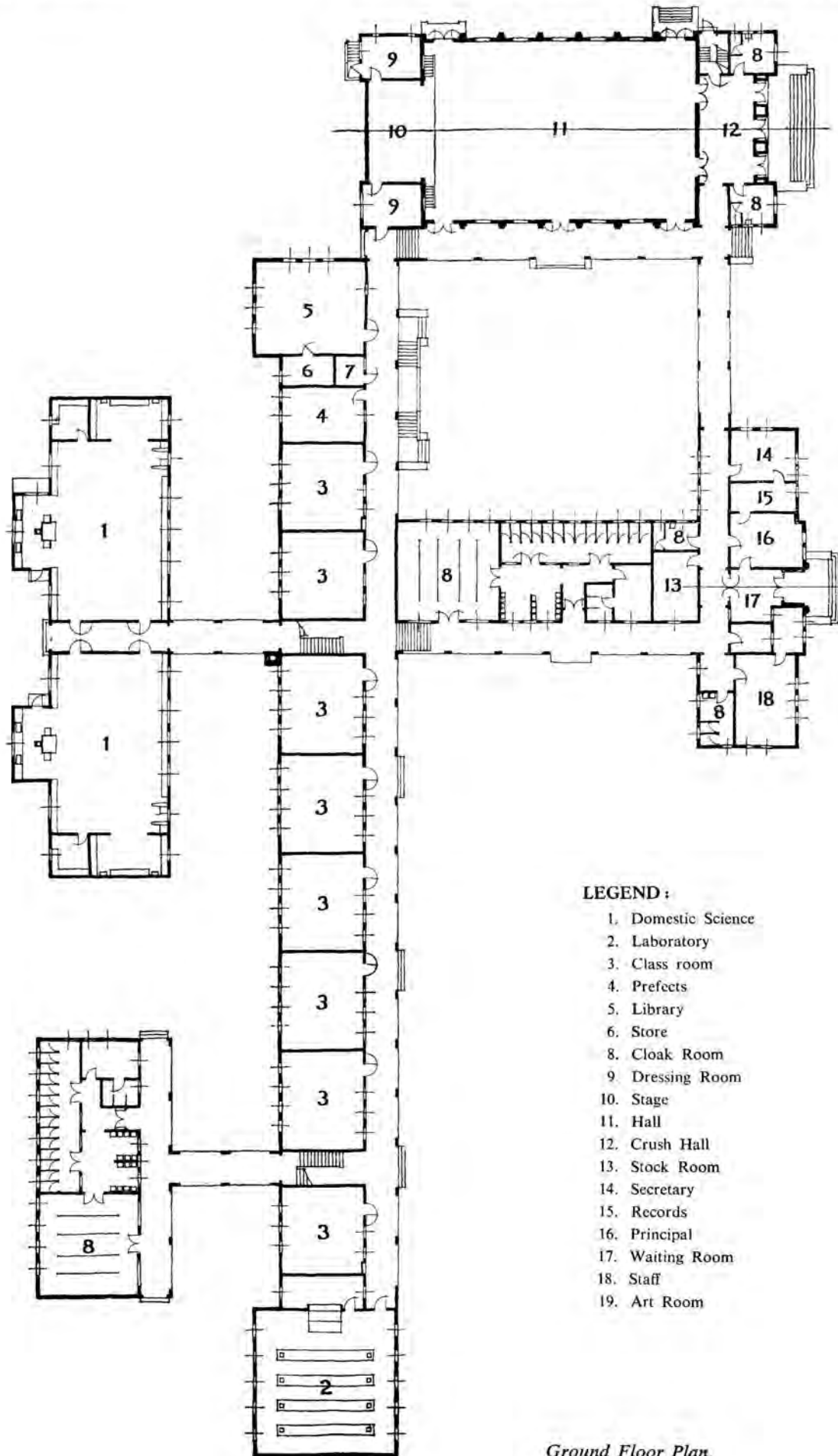
The school is designed on simple lines in keeping with contemporary trends of Architecture and well suited to the surroundings. Externally it is faced with bricks of a mottled brown colour, while the roof is of blue slate. Access from the drive is obtained through two main entrances, one to the Administration Block, the other to the Assembly Hall, while a flight of steps between the two provides direct access to the School precincts.

The Administration Block provides accommodation such as is found in all contemporary schools — viz. Waiting room, Principal's office, Secretary's office, Staff room, Staff lavatories, etc. The Block is so placed that while complete isolation is obtained from the pupils, yet access is available when required.

The Administration Block and adjoining Wing which contains a Stockroom, Washroom, Cloaks, etc., form two sides of a Quadrangle, which is the central core of the School. Here the School will assemble in fine weather and it will also



Assembly Hall — Helpmekaar High School.



Ground Floor Plan.

be utilised for physical culture classes, outdoor classes, etc. A rostrum is provided by the landing of two flights of stairs which lead up to the covered way flanking the Classrooms, the floor level of which is five feet above that of the Quadrangle. The fourth side of the Quadrangle is enclosed by a covered gangway and the Assembly Hall, this gangway providing a direct link between the front and back of the school.

The Assembly Hall is designed to seat six hundred pupils and is entered through a liberal Crush Hall which is flanked on either side by Cloakrooms. A reasonably large Stage is provided, served for theatrical performances by two retiring rooms. From the Crush Hall a staircase is provided to a Projection Box over, while a link is also made to the Quadrangle, both from the Crush Hall and the Assembly Hall, thus making it possible for these two to be used in conjunction for social functions.

The Classrooms are situated in a double-storeyed wing which runs from East to West, so providing every room with South lighting, a very necessary feature demanded by the climatic conditions of the Transvaal.

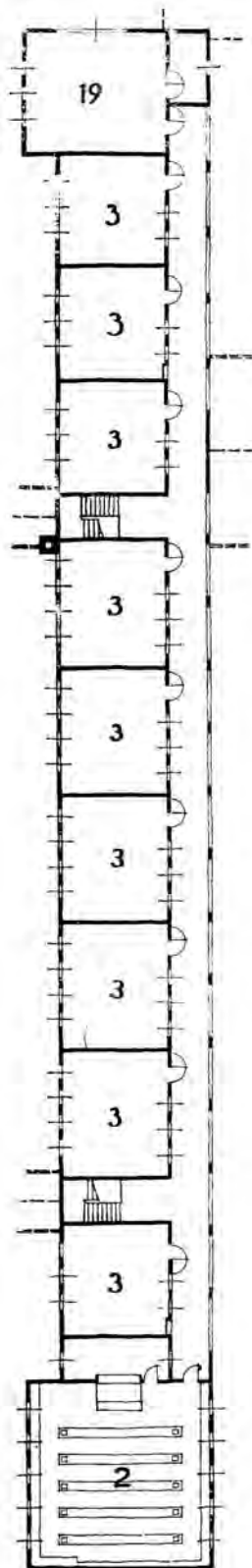
On the Ground Floor are grouped eight Classrooms, a Laboratory, Prefects' room, Library and Stores, divided into three sections by two staircases, under which access is obtained to two large Domestic Science Centres and a second combined Cloakroom-Washroom. These cloakrooms consist of four separate compartments: a section for coats and hats; one equipped with basins as a washroom; a third as a change room, incorporating showers; and the fourth housing fourteen W.C.'s. The fact that these facilities are kept as separate units is a desirable feature, particularly in the case of the Cloakrooms, for it ensures that there shall be little possibility of theft, a consideration which must be kept in mind and which becomes extremely difficult when the Cloakroom forms a passage to the Washrooms, as is so often the case.

The First Floor Plan of the Classroom Wing conforms generally with that of the Ground Floor, providing nine Classrooms, an Art room over the Library and a second Laboratory. A corridor served by the two staircases provides access to all these rooms.

The Domestic Science Centres and Laboratories are of the standard design used in all recent Provincial Schools. Adequate equipment and space is provided and the rooms are well lit and ventilated. Classrooms too are of a standard pattern, each provided with a full length blackboard, built-in cupboards and adequate fenestration.

On the Southern side of the School a Bicycle Shed is provided, built on a higher terrace than that on which the School stands. Levels have been used to their best advantage throughout the design, so combining a measure of interest with reduction in cost.

Internally the building is finished principally with face brick dadoes and distempered plaster above. Floors to Classrooms are of linoleum, quarry tiles have been used to pave covered ways and corridors, while the Assembly Hall floor has been designed suitably for dancing. The surface of the Quadrangle is at present gravel, but will eventually be tarmacadamised, and Cloakrooms, Washrooms, etc., have granolithic floors. The first floor slab of the Classroom wing is concrete, so providing flush plastered ceilings to all Ground floor Classrooms.



First Floor Plan.

The School equipment generally is of modern design and accommodation is of generous proportions, as can be seen in the liberal Ablution and Cloakroom facilities which have been provided.

It is made clear by the design of this, and other contemporary schools in the Transvaal, that "Educational Architecture" has made rapid strides in recent years and is at last on the road towards providing a section, if at present only a small one, of the Youth of South Africa with hygienic and pleasant surroundings in which to grow both physically and mentally.

The Helpmekaar High School for Girls was designed by Stucke, Harrison and Smail of Johannesburg, and was built by Mr. P. J. Erasmus, also of Johannesburg, for a Contract Amount of £63,613, occupation having been taken at the beginning of 1948. The actual cost to the Provincial Administration will, however, total almost £70,000 when extras and incidental items have been taken into consideration.



View of Laboratory — Helpmekaar High School.

AIR SURVEY AND THE DEVELOPMENT OF AFRICA

AFRICA is a Continent of vast areas. Though it can no longer be truthfully described as the "Dark Continent," so beloved of Victorian romances, much of it is still virtually unexplored and the bulk of it is completely unmaped. This mattered little when the white population consisted mainly of missionaries and hunters, who were only interested in their immediate surroundings, which they knew intimately. Those times are long past. Africa has become a continent of world-wide interest. Its enormous mineral and agricultural potentialities are ripe for development. It alone can supply much of the additional foodstuffs and many of the raw materials so urgently needed by the ever-growing populations of the rest of the world.

In the last century it was the happy hunting ground of the European powers, who hoped to increase their power and prestige by appropriating large areas and tinting them on the map with their own particular colour. To their credit most of them treated the indigenous populations with sympathy and did their best to increase their standard of living, albeit with one eye on the market for textiles and other manufactured

goods. But the ravages of two world wars have produced shortages, which can only be alleviated by agriculture and the production of raw materials on the largest scale. Africa is the largest undeveloped portion of the world left, which can satisfy this need. It has therefore become an area of great interest to the governments and large financial houses, who are prepared to invest their capital to further its economic development.

When considering any development project the first requirement is a map of the area concerned. Usually the best map that can be secured is at a scale of maybe 30 miles to the inch and shows a blank space with a few wiggly blue lines and some euphonious place names. The blue lines trace the supposed courses of problematic rivers, which may have water in them for a few days in the year: the place names will refer to a group of native huts, which have probably long since been moved elsewhere. This is scarcely sufficient for those who need to know the topography of the country, the probable water supply, the possible routes for railways and other essential details. The position is a little better in the more settled

parts of Africa. South Africa is probably the best mapped portion of the continent, but few would claim that it is by any means adequately mapped. The whole country is covered by maps at a scale of 1/250,000. Some small portions have been mapped at 1/25,000 with 50 foot contours and it is intended to cover the whole country with this type of map eventually, but progress is very slow. Apart from such maps, which are produced by the Trigonometrical Survey, a few of the bigger towns have produced maps of their own municipal areas at larger scales.

Manifestly, such an amount of mapping is quite inadequate for present needs. Every effort is being made to remedy this situation but it is clear that even South Africa will not be adequately mapped within the next twenty years. The position in the rest of the African Continent is far worse, and the Government mapping programmes cannot be interrupted to satisfy the immediate needs of individuals for larger scale maps of particular areas. Ground survey is at all times slow and very difficult over large portions of Africa. It is also limited by the present shortage of surveyors.

The need for maps is urgent and can brook no delay if development is to go ahead with the speed desired by all. Air Survey is the only answer. The air photograph, coupled with modern photogrammetric instruments, can produce maps to any scale with complete accuracy and within reasonable time.

The United Kingdom have set up a Colonial Survey Organisation whose task it is to compile small scale topographical maps from air photographs covering the whole Colonial empire within a reasonable period. All the other Government survey departments are making increasing use of air photographs in their mapping programmes. But this is not a complete answer to the problem. These maps are comparatively small scale topographical maps intended primarily for strategic purposes. Though adequate for general use, small scale maps are not really suitable for the economic development of particular areas. Their scale and that of the photographs from which they are compiled is too small to reveal the wealth of detail so essential for this purpose.

For geological, forestry, soil classification, soil conservation and ecological work, the most suitable scale for the air photographs has been proved by many years experience to be from 1/20,000 to 1/15,000 from which enlarged photographs can be produced at 1/10,000 and 1/7,500 or even bigger. At such scales individual trees, rock outcrops and similar details are readily visible. At the same time, these photographs are quite economical for the production of maps and mosaics at scales from 1/10,000 to 1/50,000. Line maps at any suitable scale within these limits with contours at intervals of 25 to 100 feet form an excellent basis for geological maps, forest stock maps, soil classification and general reconnaissance maps. Being compiled by simple methods they can be produced quickly and cheaply. Their accuracy is quite adequate for the intended purposes. Where the country is difficult of access on the ground they can, if necessary, be produced without any ground control whatsoever, but their accuracy is greatly increased if co-ordinated points every five miles or so can be provided.

Such maps, coupled with detailed stereoscopic examination of the photographs, provide the cheapest, quickest and most efficient method of selecting routes for roads, railways and power lines. Every possible route can be studied in detail which is not a feasible proposition on the ground. Alternative routes can be selected, and a ground check will quickly reveal

which is the best from a constructional point of view having regard to rock formation, sub-soil, river and swamp crossings. The study of the photographs also establishes the fact that no other routes are feasible. With ground reconnaissance there is always the feeling that there may be a better route which has not been explored. This in the past has too often proved to be true and subsequently has involved enormous expenditure on rebuilding a railway along another and better route.

These kinds of maps are adequate when the practical possibilities of a project are being investigated. But the time comes when actual development work starts. Roads and railways must be constructed. Dams for conservation of water, irrigation and generation of electric power must be built and power lines laid across the country. Reserves of mineral deposit must be assessed. Accommodation for the people working on the project must be provided. To plan all these essentials economically, large scale maps with close interval contours must be available. The scale should be of the order of 100 to 400 feet to the inch and the contours at a vertical interval of 5 to 20 feet, according to the particular requirements. With such maps the railway and road engineer can align his route with precision and make close estimates of the amount of work to be done in cuttings, embankments and bridging. The hydrological engineer can select a dam site, estimate the storage capacity of the dam and the area that will be flooded with the different heights of dam wall, and lay out the routes for irrigation channels. The electrical engineer can route his power lines; for his particular purposes also, a profile map of the selected route can be compiled from the same air photographs which will allow him to estimate the catenary between the pylons. The geologist and mining engineer can plan all their surface workings to the best advantage and estimate his ore reserves in the case of surface workings. The town planner's and town engineer's work is immensely simplified. In addition a study of the photographs enables him to see and make the best use of every natural feature in providing a beautiful as well as a strictly utilitarian town plan.

Maps to suit all these purposes at scales up to 100 feet to the inch with contours at intervals up to 5 feet, can be compiled from air photographs by precision photogrammetric methods. For special purposes, plans at scales up to 40 feet to the inch have been made. The accuracy is of the highest order and there is no generalisation of contours and no interpolation between spot-heights as in ground survey; every smallest feature is shown in the greatest detail.

Every project for development has its own special requirements as to the type and scale of map, and they usually cover relatively small areas. Above all, the maps are required quickly. Such work is outside the scope of Government organisations, but there are several private companies solely devoted to air survey work. Their long experience, skilled staff and complete equipment of the most modern instruments ensures that the work is of the finest quality.

As an example, The Aircraft Operating Company of Africa Limited, located in Johannesburg, South Africa, and its subsidiaries of the same name in Salisbury, Southern Rhodesia, and Nairobi, Kenya, have been doing air survey work in every part of Africa for the last 25 years. During this period it has photographed many hundreds of thousands of square miles of every type of country, compiled mosaics of these photographs and produced maps and plans from them, for many different purposes.

OVERSEAS NEWS AND PRACTICE

BUILDING HOUSES BY SPRAY GUN

AN entirely new building material which can be sprayed up to a thickness of 8 inches on a wire mesh and sets within fifty minutes has been developed by Messrs. C. and T. Painters, Ltd., of London. This material which is known as "Pyroc" is made from lime, cement and vermiculite, which is a mica. It is non-cracking, owing to the resilient action of the vermiculite, will adhere to wood or metal, sets hard, but will take nails or screws, and can be cut with a saw. For use on the outside of buildings it can be made waterproof, but in its normal state it is absorbent so that condensation or "sweating" does not occur in the most muggy weather. Any necessary repair can be made with a spray-gun, and after a period of three hours, the sprayed-on material can be painted. Professor J. D. Bernal, F.R.S., a member of the Advisory Council to the Ministry of Works on Building and Civil Engineering Research and Development in London has said: "this is the most promising step I have seen in building technique. The combination of Pyroc with wire mesh may well mean new shapes for our homes with their main shells completed at a fraction of their present day cost."

One of the most important characteristics of this material, apart from its adaptability to all forms of building, is that it is fireproof. Pyroc has a very small co-efficient of heat conductivity, as demonstrated by the fact that a blow lamp may be played against one side of a section one inch thick, and a man can hold his hand against the other side without experiencing any discomfort. Furthermore, a thickness of three inches of the material sprayed round a steel girder will prevent sagging and bending of the girder in a burning building.



LONDON'S WATER SUPPLY

By

E. S. BONIFACE,

Deputy Supply Engineer of London's Metropolitan Water Board.

DURING the 1,900 odd years London has been in existence it has grown from a small town of 10,000 inhabitants in the days of Rome to to-day's huge metropolis of eight million. Its water supply has grown with it, from the period when natural wells and springs were sufficient for all needs until to-day, when 6,200 people are employed in the business of providing London's water.

In 1902, an Act passed by Britain's Parliament, founded the Metropolitan Water Board. The Board now directs the largest water supply undertaking in the world and has an annual revenue of over £7 millions. Its members are elected from the local government authorities in the area of supply. Since it began many large works supplying water of improved

quality have been constructed or re-modelled to meet an ever-increasing demand. This work has gone on despite World Wars I and II. In World War II considerable damage resulted from air raids.

Space does not allow a full description of the Board's activities to-day, but a brief note will assist in an appreciation of the work and responsibilities involved in providing 6,300,000 persons over an area of 540 square miles with drinking water at an average daily consumption of 52 gallons a head.

Water is abstracted from the rivers Thames and Lee in the proportion of two-thirds and one-sixth of the total supply. The remaining one-sixth is pumped from wells.

Large Storage Reservoirs.

In general the polluted river supplies pass into large storage reservoirs which possess a total capacity of nearly 18,000 million gallons — an impressive figure. They extend over large areas in the two river valleys on the outskirts of London.

After several weeks in one of these reservoirs a vastly improved water flows to a filtration works. Here the water passes by gravity through a bed of coarse sand, termed a rapid filter, at a vertical rate of about 220 inches an hour. During this process larger particles in suspension are removed, but little bacterial improvement takes place. The water next passes on to open slow sand-beds having about two feet six inches of fine sand as the filtering medium. As the water passes through this bed by gravity at a rate of about eight inches an hour the microscopic bacteria are normally retained in the important living layer which rapidly forms on the sand surface and in the sand immediately below. The filtrate from these large beds, each of which is a half to one acre in extent, is of good quality, but as a final important safeguard a very small quantity of chlorine is introduced as a sterilising agent, the dose being usually about 0.8 parts per million by weight of the filtered water, with the addition of ammonia at a quarter of this dose to prevent chlorinous taste.

After this four-fold treatment the water flows to the pumps. In the case of well waters the supply normally only requires chemical treatment.

Variety of Plant.

The pumping machinery includes a great variety of plant, from rotative beam steam units with plunger pumps which have run with great reliability for many years, to the most modern turbine units driving centrifugal pumps operated at low running cost. Increasing use is now being made of power purchased from the electricity undertakings with diesel engine alternators as a standby in the event of power failure.

Completely dependent on pumping for maintenance of the supply, London's water is often passed through two or three pumping stations before it reaches the consumer. The magnitude of these duties can be gauged from the fact that the annual consumption of coal alone is over 150,000 tons.

There are 8,305 miles of cast iron and steel mains, varying in size from two inches to 78 inches in diameter, through which the water passes to supply the public. To assist in the distribution under conditions of fluctuating demand and as an insurance against temporary main or pumping failure, there are many covered reservoirs on high ground which receive filtered water from the pumps and supply the area in the vicinity by gravity.

To ensure the purity of the water, samples are taken daily from many parts of the distribution system, and at the various works before treatment. These samples are subjected to bacteriological, chemical and biological tests at the Board's

laboratory. Upwards of 60,000 samples are examined annually.

The multifarious tasks involved in maintaining such a supply are carried out by a staff of 6,200 officers and employees. As a result of constant vigilance by all concerned, no case of typhoid fever definitely attributable to the water supply has occurred since the Metropolitan Water Board was founded.

DRYROT IN THE HOUSE AND OUTBUILDINGS

By

ERIC HARDY, F.Z.S.

IT is surprising that very few people seem to understand the causes and the reasons for dryrot. Some vaguely think it is a disease: and others venture to suggest that it is the work of insects. One person once boasted to me that an uncle of hers had "invented" dryrot! In point of fact all this confusion probably lies at the root of the prevalence of dryrot in the valuable timberwork of a house, or more often in the less valuable but more susceptible timber of an outbuilding, and the trouble escaping detection for years until there is a costly job of repair urgently required to save the structure.

I have often pointed out the tell-tale signs of dryrot in a roof to the surprised owner. People who would never think of sinking a garden fence without first soaking the timbers in creosote before they fix them into the ground, run some remarkable risks with dryrot indoors.

Yes, dryrot can be likened to a disease of the woodwork, like blight upon the rose tree. Mouldy woodwork would be a better term, for the rot that sets in is not always dry: indeed with the commonest of dryrots — the weeping fungus or lachrymans — it is very moist. Nearly all the dryrots thrive under moisture, under those damp, humid conditions which come from poor ventilation, from dark, stuffy corners of rooms and cocklofts. So that the first protection against dryrot is ample ventilation amongst the rafters of the roof and the floor boards at the ground.

Just as the diseases of your garden plants can be carried from one bad specimen to several sound ones when it is left near enough to infect them, so a little bit of neglected or overlooked dryrot in the woodwork can spread and infect sound timber. It may do this by growing into the sound wood during the moist conditions of winter time, even to producing long grey or black growth threads that stretch for several yards through the brickwork mortar or along metal piping until they reach sound wood. Or in the drier conditions of summer an old growth of dryrot will mature at the surface with mushroom-like fruiting heads liberating millions of dust-like spores, each of which floats through the air and settles upon sound wood and grows into that wood, living upon its tissue and sapping its strength and weight. For the growth of the dryrot is inside the wood, hidden from our view until only in the final stages beyond our control does the outer wood crack.

There are many good patent chemical substances for dealing with dryrot in the house where we have to avoid unpleasant odours, we may want to paint the wood again, and there isn't the risk of rains washing the preservatives away. But for outbuildings like sheds and garages, summer-houses and toolsheds, good, hot creosote soaked into the woodwork, either brushed upon it when erected or, if there is a new shed to be built, boiling the wood in the creosote first,

is still the best preservative we know. And, moreover, the use of a good preservative lengthens the life of the timber, and also fire-proofs it considerably. You should always be suspicious of timber that comes into contact with the ground: it is the most likely prey to dryrot unless it stands upon concrete or brickwork, or the ground has been soaked in tar or bitumen.

The golden advice to all householders is never to ignore or neglect dryrot. Once you have the least suspicion that dryrot has begun to grow in the woodwork somewhere, treat it at once. And if it gets out of control through being too far advanced when discovered, do not hesitate to have the affected timber taken out and burned and replaced with sound wood before it infects the rest of the timber.

These bills for replaced woodwork can be avoided if you are keen enough to watch regularly for these tell-tale signs that dryrot is in. When the wood goes patchy with discoloration, when it loses in weight or strength, when it becomes softer on the surface or musty in odour, when it no longer "rings" but only produces a dull thud when you knock it — these are the warnings, probably the only warnings, the dryrot fungus will give you. Uneven floorboards, wavy roof tiles, cracked panels that are shrinking or joints that are parting may also tell the tale.

Dampness is not always necessary for the dryrot's growth. Several of the two dozen species of dryrot fungus found on woodwork in this country will grow in quite dry wood, manufacturing their own moisture from the atmosphere. Some others infest acid-woods and some — which fortunately are not often found in houses — can resist strong chemical antiseptic treatment.

Never make the mistake of painting over the dryrot patches in your woodwork. You cannot smother the growth that way: it will only grow with added vigour in the wood beneath. Painting is a helpful preservative of sound wood, but it merely creates ideal conditions for infected woodwork. Even if you have to wait to get hold of a chemical antiseptic to treat infected wood, you can start with a temporary home-made remedy of table salt and lime water, or copper sulphate, but the latter is a dangerous poison.

Dryrot has its favourite ways of entrance to woodwork. Maybe through glued joints it will find a way: but these can be preserved against admitting moisture by oil painting them. Damp walls, hot water pipes against the woodwork, closed windows, no fires in the rooms in foggy winters, cheap soft woods, window frames that are exposed to the prevailing direction of the rain and which are not repainted often enough — these are the risks to avoid if you want to save your timber to ripe old age in full strength and condition. The wood to watch is not so much that on view, but that hidden from view in dark out of the way places — the rafters, floor boards, door posts, panellings and such like.

THE HEATING OF HOUSES

The arrangements for these experiments were described in the issue of this Journal for February, 1948.

ON September 18, 1947, the D.S.I.R. gave details of the experiments on heating and cooking equipment for houses being conducted in twenty experimental houses at Abbots Langley, near Watford, Herts, by the Building Research Station.

The first stage of the experiment is now completed and

the houses have been occupied by tenants. The second stage is about to commence.

During the first stage of the experiment the houses were unoccupied. They were fully furnished, however, and were considered to be occupied by an imaginary family of father, mother and two children of school age. The heating and cooking requirements of the families were simulated by assistants who worked to strict routine, drawing off specified amounts of hot water, lighting stoves and fires at the right times, operating the cookers for stated periods, so that in each house the same thing was going on.

Much valuable information was obtained during the winter. Nearly 200 readings were collected from the site every day, including Sundays and holidays, and both by day and night. The readings covered figures for such matters as the amount of fuel used (solid fuel, gas and electricity), temperatures in every room and other parts of the house at half-hourly intervals day and night, hours of sunlight, outside shade temperatures throughout the 24 hours, direction and force of wind, rates of ventilation, and so on. These figures are now being analysed.

For the second stage the tenants, all of whom have children, have been drawn mainly from the Local Authority Housing List. To enable the utmost value to be obtained from the experiment, there were certain special conditions which the tenants had to agree to, but a person offered a tenancy could refuse without losing his place in the housing list; only one did so, as the site was out of the district in which he worked.

The tenants pay a rent similar to that charged by the local authority for its own new houses. They have to undertake to use only fuel supplied by the Building Research Station. Each family is loaned a set of cooking utensils, standard throughout all the houses, so that the amount of fuel used in cooking will not be upset by the use of old and dilapidated utensils, which can be a severe handicap on an electric cooker or a modern solid-fuel cooker with a good hot plate. Ashes have to be put into a special bin and are collected by the Station for subsequent analysis.

The Woman Housing Manager from the Building Research Station calls weekly to collect the rent and the money for the fuel used during the previous week, and at the same time reads the meters. Normally, when one of the scientific staff of the Station wishes to go into any of the houses, he asks the Housing Manager to fix a time that suits the tenant; but if an instrument in a house gets out of order, it is important to get it repaired without delay, and the man in charge of the instruments is permitted to ask if he may enter a house to put the matter right straight away. The Station wishes the tenants to lead their own normal lives without interference; ultimately the tenant and his wife will be asked for their comments on the houses in which they are living.

When the figures for the unoccupied stage are worked out, the behaviour of the various systems of space heating, hot water and cooking under the standardised conditions of this part of the experiment will be known. As each year goes by more and more will be learnt about how these systems work under practical conditions. The results of this experiment, and of the experiment on the insulation of houses, should enable houses to be built in the future in which the heating and cooking arrangements are such as to give greatly improved comfort and convenience combined with maximum efficiency and economy. With acknowledgments to "The Builder."

THE ADMINISTRATION AND ENFORCEMENT OF AN URBAN TOWN PLANNING SCHEME

—By—

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*This paper was presented to the 27th Annual Conference of
the Institution of Municipal Engineers (South
African District).*

Purpose and Objects of Town Planning.

IT may be convenient to refer briefly to the purpose and objects of a town planning scheme, and to trace shortly the history of town planning legislation, governing administrative actions which can be taken to achieve the aims underlying the preparation and execution of such schemes. Town planning may be defined as the planning, in advance, of the use and treatment of public and private land in the interests of the urban community as a whole. The process involves investigation into, and studies of, economic, social, sociological conditions and trends to enable a scheme to be prepared which will improve, in an efficient and economical manner, public welfare and environment, by promoting health, safety, order, convenience, amenity and general welfare.

It is not within the scope of this presentation to consider details of town planning schemes. Knowledge of the broad basis of urban planning is, however, desirable to enable a better appreciation to be obtained of the subject matter of this paper.

In its broadest sense the basis of a town planning scheme is the scientific location, having regard to the topography of the area included in the scheme, to meteorological conditions, etc., of a road and transport system, of industrial, commercial and residential areas, of areas required for civic and other public purposes, of open spaces, etc., in their correct inter-relationship and proportion to form a community unit. Briefly the Town Planner endeavours to achieve the above by:—

- (a) (i) designing a basic major road system having regard to the physical characteristics of the area to be developed and to relevant factors, which will allow of free, safe and swift traffic movement between the various units forming the complete town.
- (ii) so locating areas requiring good accessibility to rail and other transport, that these services can be readily and economically provided.

(b) Use Zoning.

In Town Planning the character of an area under consideration is determined by what is known as zoning.

Zoning decides the use to which each portion of an area to be planned is to be put, and the purpose for which buildings may be erected thereon and used, such as industrial, business, commercial, general and residential purposes.

No use of land is exclusive to other defined uses. For instance, places of instruction, places of worship, social

halls are desirable in residential areas; again shops and business premises may be convenient in industrial areas in accordance with requirements.

Town Planning Schemes thus provide that such other buildings and/or uses *may* be erected and used *with the consent of the Local Authority*.

(c) Height Zoning and Coverage.

Under this category the height of buildings permitted in each of clearly defined portions of the planned area is prescribed with a view to preserving the amenities of light and air and restricting population density. In respect of all uses in all height zones the total proportion of each building site which may be occupied by each user is indicated in a table included in the published details of the scheme.

The object of coverage restrictions coupled with height zoning is to maintain a correct relationship between the bulk of the building and the width of the road on which it abuts, so as to prevent traffic congestion, in addition to preserving adequate light and air and to restricting population density.

(d) Density Zoning.

This consists of laying down, in specific areas, the number of persons or houses per acre, with a view to ensuring adequate and proper living space, light and air for members of the community, to preventing the overcrowding of buildings on land and to preventing creation of slum conditions.

- (e) Provision of adequate open spaces and of areas for civic and other public purposes.

It must not be assumed that any Town Planning Scheme is final and irrevocable. Rather should it be emphasised that, in a like manner that the life of the individual is subject to continual changes so the structure, life and needs of a community must undergo gradual changes in accordance with changing social, sociological and economic conditions and trends of thought in these and ideological spheres. Planning must in the nature of things be based on the changing needs of a living community and be in the vanguard of action, development and re-development.

One of the most important functions of Councillors and Officials charged with the administration of a Town Planning Scheme is to keep abreast of the needs of the community as represented by, amongst others, the commercial, industrial,

residential, social and recreational needs of an ever changing community, and to plan accordingly.

Town Planning Legislation in England.

Town Planning legislation in the various Provinces of the Union of South Africa appears to be based on similar legislation in England. It might be well for the better understanding of the principles underlying, and possibly the intention of Town Planning legislation in South Africa, to consider the history of similar legislation in the former country.

The Industrial Revolution in England brought about a general exodus of population from the country into towns. In the absence of control by local authorities and of legislation relating to health, development of a nature inimical to the health of the community occurred. The Public Health Act, 1840, was the first of a series of general Acts dealing with the subject of public health, and the Housing of Working Classes Act, 1890, marked the first important step of legislation aimed at remedying deficiencies of the public health law regarding the housing of the working classes.

Although in 1875 the monumental Public Health Act was passed, it was only in 1909 that the Housing, Town Planning, etc., Act was introduced. This was the first enactment in Great Britain to deal with the subject of planning, and empowered local authorities to make town planning schemes for land either in the course of development or likely to be used for building purposes.

The Housing, Town Planning, etc., Act of 1919 was passed with a view to hastening the procedure of preparing Town Planning Schemes.

By the Housing, Town Planning, etc., Act 1923, further amendments were made in Part II — Town Planning. The most important was the power given to an authority responsible for the administration of a town planning scheme to withdraw or modify any provisions in the Scheme which had given rise to an award of compensation in respect of injurious affection being made against the authority.

Each of the subjects dealt with under the 1909, 1919, 1923 Housing and Town Planning Acts assumed such proportions and importance that in 1925, when the law on the two matters was consolidated, the former was dealt with under the Housing Act 1925, and the latter under the Town Planning Act 1925, which consolidated the former planning enactments without introducing any remarkable new features.

The Town and Country Planning Act 1932 repeals all previous enactment dealing with town planning and with many important changes consolidates previous legislation. The most revolutionary feature of this Act is that it permits the planning of built up areas and also of land not likely to be developed at all, whereas generally only unbuilt land actually being, or likely to be developed, formerly fell within the scope of Town Planning Acts.

As regards the planning of land already built upon, the Minister may not approve a resolution for that purpose unless unless he is satisfied that, *inter alia*,

- (i) "public improvements are likely to be made or other development is likely to take place within such a period of time, and on such a scale as to make the inclusion of the land in a scheme expedient."
- (ii) The land is so situate that the general object of the scheme would be better secured by its inclusion.

The above then is a brief historical outline of town planning legislation in Great Britain up to 1932 which, as far

as the author is aware, forms the background of similar legislation and amendments to original Acts in the various Provinces of the Union of South Africa.

Town Planning Legislation in South Africa.

The first Town Planning Legislation in South Africa was the Cape Town Planning Ordinance of 1927, which primarily provided for the control of sub-divisions of estates, but also invited local authorities to prepare Town Planning Schemes, if they so desired. Thereafter followed the Transvaal Townships and Town Planning Ordinance No. 11 of 1931 as amended by Ordinance No. 10 of 1943, the Cape Ordinance No. 33 of 1934 as amended by No. 6 of 1941, the Natal Private Townships and Town Planning Ordinance No. 10 of 1934, and the Orange Free State Township and Hamlet Ordinance No. 6 of 1928.

Under the South Africa Act certain powers are granted by the Central Government to the Provincial Councils; these in turn have power to create new local authorities, to legislate for municipal institutions, and to delegate power.

The delegation of power from the Central Government to the Provincial Councils and to the Local Authorities falls under the legal doctrine of *ultra vires* (beyond the powers of). Thus, if Provincial Ordinance gives powers to a municipality, which the Courts hold are not in accordance with the enabling powers of the Provincial Council, or which are unnecessary for municipal government, these may be declared null and void.

Financial Aspects.

At this stage a few remarks on the financial aspect of the administration of Town Planning Schemes may not be out of place. It has been the experience in Great Britain that existing powers available to local authorities are expensive and cumbersome, and it is maintained that to render planning schemes effective, widely increased and simpler powers of acquisition of land and property are essential.

Interference with property and rights of private individuals is fundamental to the success or failure of a town planning scheme.

The subjects of compensation for injury sustained by individual owners, either by the actual coming into operation of a scheme or by something occurring during the interim period of the preparation of a scheme, and of the betterment enjoyed in the case of particular individuals by reason of the increase in value to their properties which will have accrued as the result of improvements carried out by a local authority, are of great importance in the execution of Town planning schemes. This is clearly demonstrated by the appointment in England in 1941, of the Uthwatt Committee with *inter alia* the following terms of reference — "To make an objective analysis of the subject of the payment of compensation and recovery of betterment in respect of public control of the use of land."

The recommendations of the Committee, which worked on the assumption that a Central Planning Authority would be established, may be summarised as under:—

- (i) The immediate vesting in the State of the rights of development in all land lying outside built up areas on payment of fair compensation.
- (ii) Conferment upon public authorities of much wider and simpler powers of purchase of land for planning and re-development purposes.

- (iii) The imposition of a periodic levy on increases in annual site value with the object of securing betterment for the community.

In 1943, under Act of Parliament, the Ministry of Town and Country Planning was set up in England; and during that year, during 1944, and 1946 planning powers in Great Britain have been considerably amended and strengthened by various Acts of Parliament. The Town and Country Planning Act of 1947 reforms the whole planning system. This is indicated in the preamble which reads:—

An Act to make fresh provision for planning the development and use of land, for the grant of permission to develop land and other powers of control over use of land, to confer on public authorities additional powers in respect of the acquisition and development of land for planning and other purposes and to amend the law relating to compensation in respect of the compulsory acquisition of land; to provide for payments out of central funds in respect of depreciation occasioned by planning restrictions; to secure the recovery for the benefit of the community of development charges in respect of certain new development; to provide for the payment of grants out of central funds in respect of expenses of local authorities in connection with the matters aforesaid; and for purposes connected with the matters aforesaid.

This is a tremendous step forward and the results will be watched with great interest.

South African Constitution in Relation to Town Planning.

The administration and enforcement of a Town Planning scheme can be successfully achieved only if founded on and backed by Statutory Authority. In so far as South Africa is concerned, the ultimate authority for the Townships and Town Planning Ordinances is derived from Items 10 and 15 of the Second Schedule to the Financial Relations Act 1913, as amended by Section 17 of Act 46 of 1925, in which Item 15 was inserted. In the case of the Transvaal, the matters specified in Items 10 and 15 were duly entrusted by the Governor-General under Section 12(1)a of the 1913 Act to the Transvaal Province, which accordingly has powers to legislate in respect thereof.

Both the above Acts have since been repealed and the same powers to deal with the subjects mentioned have been conferred in the same terms on Provincial Councils by Act 38 of 1945.

Item 10 of Act 10 of 1913 reads —

“The establishment and administration of Townships.”

The terms “establishment” and “administration” as used in the Act are not defined.

Item 14 of the Second Schedule to Act 38 of 1945 replaced in the same terms Item 15 of Act 10 of 1913, as amended, reads as follows:—

“Town planning, including —

- (a) the subdivision and layout of areas or groups of areas for building purposes or urban settlement, or deemed by the Executive Committee of the Province concerned to be destined for such purposes or settlement;
- (b) The regulation and limitation of building upon sites;
- (c) The variation, subject to compensation in cases of prejudice, of any existing sub-division or layout of land used for building purposes or urban settlement, or deemed by the Executive Committee of the Province

concerned to be destined for such purpose or settlement, and the authorisation of the consequential amendment of any general plan or any diagram of any sub-division or layout so varied and of the consequential alteration or endorsement of any document of title or any entry into a deeds registry;

- (d) The reservation of land for local government or other public purposes in any approved or varied scheme of town planning; and
- (e) The prohibition of the transfer of land included in any approved or varied scheme of town planning where any lawful requirement has not been fulfilled.”

If there is any doubt of, or dispute in the correct intention underlying powers delegated under enabling legislation it is left to the Courts of the Land to interpret the intention of Legislature. In so doing, Common Law rights of the individual who may be detrimentally affected play an important part.

The author has dealt fairly exhaustively with portion of the Financial Relations Act No. 10 of 1913 which enables Provincial Councils to frame legislation to implement Town Planning within the respective territories under their control. This he considers most desirable for the better understanding of the problems that have arisen in the endeavour by local authorities to enforce legally provisions of the Town Planning Ordinance, and of Town Planning Schemes approved in terms thereof.

Provincial Legislation.

The following are some of the most important provisions of the Transvaal Townships and Town Planning Ordinance No. 11 of 1931 as amended:—

Under Chapter IV : Town Planning.

Section 32 : The general purpose of every Town Planning Scheme is defined as follows:—

Every Town Planning Scheme shall have for its general purpose a co-ordinated and harmonious development of the municipality to which it relates (including, where necessary, the reconstruction of any area therein which has already been sub-divided and built upon) in such a way as will most effectively tend to promote health, safety, order, amenity, convenience and general welfare as well as efficiency and economy in the process of such development.

Section 33 : Schemes may be prepared by local authorities in respect of all land situated within the Municipality, and, with the consent of the Administrator, of specified land outside the boundaries of such Municipality.

Section 38 : A Scheme may provide that the local authorities may, in its discretion, grant exemptions from, or relax such of the provisions of the scheme as are specified in the scheme.

Section 44 : When a Scheme has been approved and proclaimed the local authority shall enforce the observance of the requirements of the scheme. An owner of land or building may continue to use his land or building for the purpose for which he was using them when the scheme was approved, even if that use is contrary to the scheme.

Section 49 : Any person who considers that his interests are injuriously affected by the operation of a scheme shall be entitled to claim compensation. Such claim must be lodged within six months from the date on which the scheme is approved in the Gazette.

Compensation is not payable in the following cases:—

- (i) where any provisions in a scheme could have been

made and enforced without liability to pay compensation under any other act — such as Slums and Public Health Acts ;

- (ii) in respect of provisions of the scheme containing regulations in regard to *inter alia* open spaces in and about buildings ; position of building on an erf ; number of buildings on erf ; coverage ; size, height, design, character of buildings ;
- (iii) in respect of any building or structure of any nature, the demolition of which may be necessary in terms of the scheme when approved, after written notice has been served on the owner by the local authority stating that the building or structure is not in terms of the provisions of the scheme in the course of preparation.

Section 50 : Any question as to whether any person is entitled to compensation shall be settled in the absence of mutual agreement by a Compensation Court. If only a portion of a private owner's land is taken for the purpose of a scheme and the remaining portion is in the opinion of the Court increased in value by the operation of the scheme this increased value shall be set off against the value of the land taken. A local authority may withdraw or modify provisions of the scheme after an award for compensation has been made.

Section 52 : Whenever it appears to a local authority that after the commencement of the above Ordinance and pending the preparation, completion and approval of a Town Planning Scheme, the amenities of the neighbourhood would be interfered with or during the course of preparation of a scheme or in the case of a scheme the preparation of which has been completed but which has not yet been approved that the provisions of its schemes would be contravened by one or other of the following, if proceeded with:—

- (i) any proposed erection of or alteration or addition to any building ;
- (ii) any proposed sub-division of land ;
- (iii) any other work ;
- (iv) any particular use of land or any building or structure,

the local authority may prohibit such action, or may authorise the same on specified conditions ; it shall, however, not grant any authority which would operate in conflict with any of the provisions of its scheme.

Under Chapter III : Establishment of Townships, of the Transvaal Ordinance No. 11 of 1931, provision is made for the Administrator, on application, and after observing procedure prescribed, to alter, suspend or remove—any restrictive covenant registered against the title

or

any conditions imposed under the provisions of this Ordinance or any prior law restricting or in any way affecting the use or occupation of any erf situated in a Township established or proclaimed before or after the coming into operation of the Ordinance.

Moreover, under Chapter V : Miscellaneous, it is laid down, *inter alia*, that no sub-division of any erf in a township established before or after the coming into operation of the Ordinance shall be made unless the Administrator's consent has been obtained — Section 57.

Provisions of Town Planning Schemes.

For the purpose of indicating matters falling within the orbit of an urban town planning scheme, the author will take the Johannesburg Town Planning Scheme as an example. The

above scheme is divided into parts relating to the following matters:—

- Part I — General.
- Part II — Reservation of Lands.
- Part III — Streets and Building Lines.
- Part IV — Building Restrictions and Use of Land.
- Part V — General Amenity and Convenience.
- Part VI — Miscellaneous.

With the above headings as a basis it is proposed to indicate in each case the main provisions of each part.

Part I : General.

In this are set out definitions, the area to which the scheme applies, a clause stating that the Council, as defined, shall be the authority responsible for enforcing and carrying into effect the provisions of the scheme.

Part II : Reservation of Lands.

This details areas of land reserved under the scheme for new streets, widenings of existing streets, public open spaces, private open spaces, occupation for Non-Europeans.

It stipulates the use to which land reserved may be put, the time when proposed new streets shall be deemed to be established as such and the percentage of open space, in relation to the total township area, to be provided by the owner of a proposed new township.

Part III : Streets and Building Lines.

The extent of the splay at intersections of road boundaries is fixed and provisions made for closing and diversion of certain public roads.

Building lines are laid down in respect of townships established after the coming into operation of the Act, and are set out for existing townships. Erection of a building in front of a building line may be permitted by the Council on account of levels of the site, the propinquity of buildings already in front of the building line or if compliance with the building line would interfere with the development of the site. Special provision is made for setbacks in general business zones, industrial buildings, etc.

Part IV : Building Restrictions and Use of Land.

Under this part a table sets out the purposes

- (i) for which buildings may be erected and used ;
- (ii) for which buildings may be erected and used only with the consent of the Council ;
- (iii) for which buildings may not be erected or used in twelve Use Zones.

There is an important qualification, however, which states : (1)

“an existing building, or an existing work which is not in conformity with the provisions of this scheme relating to the erection and use of buildings and use of land, may be maintained and may be used for its existing use, and that subject to the provisions of this scheme, other than those relating to the erection and use of buildings, it may be altered, extended, or rebuilt upon the same site for the particular trade, business, industry or purpose for which it is then being used.

Generally “existing building” and “existing work” mean respectively a building or work erected, completed and carried out before the date of the approval of the scheme; and existing use in relation to any building or land a continuous use thereof for the purpose of the same or similar character to that for which it was being used before the 3rd September, 1941. Discontinuance of the existing use of a building at any

time after approval of the scheme for a period exceeding fifteen months is deemed to interrupt the continuous use.

Under the heading of Density a table is included specifying in defined areas within the Municipality the number of houses allowed per existing erf, the minimum area of site in Cape square feet required per dwelling house, and the number of dwelling houses allowed in one continuous block.

Limitations of height of buildings in various height zones are provided in a table. The number of storeys allowed may, however, be exceeded provided, *inter alia*, that the total floor area of the building calculated in accordance with the table is not exceeded and that no part of the building projects above a line drawn from a point at the street level on the opposite boundary of the street at an angle of 59° to the horizontal.

A table indicates, in the various height zones, the proportion of sites in each zone which may be occupied by buildings. The proportion is expressed as a percentage of the total area of each site.

If the Council considers that, having regard to the character of the locality or of the buildings erected or proposed to erect thereon, a building in respect of which plans have been submitted would disfigure the locality by reason of its external appearance, it may disapprove the particulars, giving reasons for its decision.

Part V : General Amenity and Convenience.

For the purposes of preventing obstruction of traffic on any street the Council may require a person proposing to erect a building intended to be used for purposes of business or intended to provide suitable and sufficient accommodation within the site for loading, unloading or fuelling of vehicles likely to be habitually involved in connection with the use of the building.

Part VI : Miscellaneous.

In this part provision is made, *inter alia*, for entry and inspection of premises by authorised officials of the Council where this is deemed necessary and desirable; for the appropriation of land belonging to the Council for any other purpose approved by the Administrator, for inspection of the scheme and maps by any person so desiring, etc.

Administration of an Urban Town Planning Scheme.

The relevant Provincial Townships and Town Planning Ordinance and the provisions of an approved Town Planning Scheme form the legal and administrative machinery available for the enforcement and administration of an urban town planning scheme. Such administration involves the following major functions :—

Before the scheme is approved, to ensure that the proposed land use, buildings, works, etc.: (a) do not interfere with the amenities of a particular neighbourhood; (b) would not contravene the proposed provisions of the scheme. After approval of the scheme, to ensure the carrying into effect the provisions of the scheme. This entails close scrutiny by the town planning administrative branch of all proposals regarding the use of land, proposed buildings and their use, works, etc. within the area included in the planning scheme; investigations, study, consideration and recommendations in regard to such matters as deviation from building lines, use to which buildings are being put, applications for rezoning, extensions of buildings, which are non-conforming to the scheme, but are protected by the existing use clause, and claims for compensation by persons who feel that they are detrimentally affected by the operation of the scheme.

Below are some of the activities of a town planning branch :—

- (1) Keeping records of all correspondence received and replies thereto; of all reports on numerous matters requiring detailed investigation; of all reports to Standing Committees of the Council.
- (2) Attending to verbal and telephone enquiries by members of the public, architects, estate agents, etc., regarding provisions of the scheme.
- (3) Examination of all building plans submitted to the Council to ensure, amongst other things, compliance with :—
 - (i) minimum building line;
 - (ii) use zoning;
 - (iii) density;
 - (iv) height;
 - (v) coverage;
 - (vi) external appearance.

It will be appreciated that, especially in the case of very large buildings, a great number of calculations are necessary to check whether the provisions relating to height and coverage are complied with.

- (4) Inspection of building sites and neighbourhood from point of view, *inter alia*, possibility of proposed building interfering with amenities thereof.
- (5) Report on applications for non-compliance regarding minimum building line, coverage, etc.
- (6) Investigations and Reports on applications :—
 - (a) for rezoning individual stands;
 - (b) for rezoning an area;
 - (c) under the special consent use.
- (7) Investigating "existing use"; particularly in connection with applications to extend non-conforming use of land and buildings; and also to ensure that such land and premises are put to the use allowed in the zoning.
- (8) Consideration of, and reports on, claims for compensation by reason of rezoning, etc.
- (9) Consideration of proposed new township layouts to ensure compliance with major road and other proposals included in the scheme and the Townships and Town Planning Ordinance.
- (10) Acting, in a liaison capacity to the Licensing Department, and attending meetings of Licensing Committee of the Council to ensure that no premises are licensed in contravention of the provisions of the town planning scheme.
- (11) Acting in close liaison with the Electricity Department in connection with the issue of licences to wiremen and to the grant of electric power for industrial purposes. By these means it is ensured that premises are not used for unauthorised purposes.

Let us now consider a few of the problems that arise in the administration of an urban town planning scheme and how they may be dealt with.

Buildings in Contravention of Town Planning Scheme.

During the course of preparation of a scheme a building plan for the erection of proposed shops on two stands in an area provisionally zoned "Business," permitting business premises on a coverage of 70 per cent. of the area of available ground is submitted for approval. The plan shows that the coverage is 75 per cent., thus exceeding that allowed by 5 per cent.

Action in this case would be that the Council would advise the owner in terms of the relevant section of the relevant Provincial Ordinance—Clause 49 of the Transvaal Ordinance, that the projected buildings, i.e. shops, would, if proceeded with, be in contravention of the Town Planning Scheme then in the course of preparation in that the allowable coverage of 70 per cent. would be exceeded.

In terms of the provision of clause 49 of the Transvaal Townships and Town Planning Ordinance, compensation would not be payable should the demolition of the shops be necessary in terms of the scheme approved.

Applications for Rezoning.

It seems inevitable that in every Town Planning Scheme numerous applications will be received from private persons either acting independently or jointly for the rezoning of their property. Such applications may be for the extension of business zones, or for the creation of industrial areas in residential areas, or for the rezoning from Special Residential to General Residential use, etc. Each case must be considered on its merits, but experience points to the conclusion that the majority of such applications are practically of no interest to the public, but are actuated by the desire of the applicant to obtain added value to his property. The author is of the opinion that rezoning should be considered only when there is a definite public need in any particular area for the establishment or extension of business and other use areas, after land zoned for such purposes have been fully taken up. This is in full accord with the thought expressed previously that no town planning scheme is static, but must change in accordance with changing conditions. Normally, however, there should be no need to rezone within a period of many years.

"Special Consent of Council" Use.

A Township and Town Planning Ordinance allows the Local Authority to grant exceptions from or relax such of the provisions of a scheme as are specified in the scheme. The "Special Consent of the Council" column of the table controlling use of land and buildings provides such relaxation and variation and introduces a measure of flexibility to the permissive uses allowed in specific use zones. Whereas, however, in the case of most specified use zones a guide is given in the special consent column as to the purposes other than those laid down in the use zone, to which land and buildings may be put, in other cases this is left entirely to the discretion of the Council.

Every application, in terms of the special consent provision, must be considered and dealt with on its merits. Several types of applications for "consent use," which may be taken as typical of those which have to be dealt with, and the decisions thereon are illustrated below. Attention is drawn to the fact that whereas in some cases "consent use" is unqualified, whereas in other instances it is conditional:—

- (1) In an area zoned "Agricultural" no objection was raised to an application to erect a vegetable store for the sale of vegetables grown on the site, subject to the conditions that only vegetables grown on the site are sold therein and the applicant obtains a market gardener's licence.
- (2) Consent to the erection of a building workshop on a stand in an area zoned "General Business" was withheld because of objections received following advertisement of the proposal in the public press and because it was considered that the workshop, if erected on that particular stand, would be detrimental to the neighbourhood.

- (3) In a "General Business" area no objection was raised to the approval of a plan for a motor workshop in which nine mechanics and their helpers are to be employed. The proposal had been advertised and no objections had been received. The traffic department offered no objection, but approval of the special use was made subject to the condition that no panel-beating or spray painting be carried out on the site.
- (4) In a "General Residential" zone plans were submitted for a block of flats with quarters for natives on the roof. Parking space is provided in the basement. Flats are permitted, but native quarters require the consent of the Council.

No objection was raised to the approval of the plans, subject to the sill height of the windows in the native quarters being not less than 6 ft. from floor level; to applicants being warned that these quarters may not be used for any other purpose; that the parking space may not be used for commercial purposes without first obtaining the consent of the Council.

Other typical consent uses agreed to, which provide facilities of convenience to a neighbourhood, are doctors' suites in residential areas and cinemas in business zones.

Existing Use.

The administration of the Clauses in the Ordinance and the Scheme dealing with the protection to existing buildings or existing work, which are not in conformity with the provisions thereof relating to the erection and use of buildings and land, requires much investigation and work and presents many problems.

Every application to continue and/or extend existing uses which are, or are not of the same or similar nature to the original, must be dealt with on its merits. In arriving at a decision, or recommendation to be made to the Standing Committee of the Council, some, if not all of the following are applied: Interpretation of the terms "same or similar character" appearing in the definition of "existing use."

Implication of the clause permitting a building being altered, extended or rebuilt upon the same site for a particular trade, business, industry or purpose for which it is being used.

Question of whether protection to "existing rights" pass to successors in title.

Intention of the objects the scheme desires to achieve in respect of "existing use."

In Johannesburg, after consultation with its Town Planning Consultant, the following interpretation of the words "same or similar" has been accepted.

Same: The word 'same' means the use shall be exactly the same, that is a grocers shop may continue to be used as a grocers shop, a clothing factory may continue to be used as a clothing factory.

Similar: The word 'similar' permits the use of a building for the same class of use, i.e. a retail shop to be used as a retail shop, but it could not be converted into another type of occupation, such as a dye-cleaning works, garage, etc. A factory could continue to be used as a factory, but if the existing use was non-noxious, a change to noxious use would not be permitted.

Regarding any proposed change in non-conforming use — i.e. existing use protected by the scheme — such altered use is permitted, provided the class of use is not affected and that the proposed new use is no worse than the old.

An example of "existing use" and subsequent change of use is subjoined.

In 1946 an application was made for the use of a site comprising 4 stands each 50' x 100' in a "General Residential" area for the storage of furniture, bales, boxes and the like. At the time of the application there were two structures used as factories on one of the stands and a dwelling house on another stand used partly as an office. Under the Town Planning Scheme the "existing use," i.e. factory was protected; the scheme permitted the use of the existing non-conforming building for any purpose of a "same or similar" character. Strictly speaking, the proposed new use was not the "same or similar" to that existing, but the indications were that the change would be for the better.

The application was agreed to, subject to the then existing use being discontinued.

In 1948 advice was received that the premises had never been used for storage purposes, but are still being used as a factory; at the same time an application was made to convert the premises into a mineral water works. As under the scheme a change of use of the "same or similar" character is permitted, the application was agreed to, subject to certain conditions.

The experience in Johannesburg has been that it has been possible to terminate many "existing non-conforming uses" which are not of a "same or similar" nature to the original; also that a number of protected uses have become extinguished by reason of cessation of business due to force of circumstances.

Compensation.

In terms of the provisions of the Provincial Ordinance any person injuriously affected by the operation of any of the provisions of a scheme approved by the Administrator, is entitled to claim compensation, provided such claim is lodged within a specified period. In the absence of mutual agreement on whether he is entitled to compensation and the amount and manner of payment thereof, the matter shall be determined by a Compensation Court.

The work involved in dealing with claims submitted, in accordance with regulations promulgated by the Administrator to govern procedure in the Compensation Court is very considerable and throws a very heavy burden on the town planning staff. In view of the number of claims submitted, it has not yet been possible to consider the matters and draw up the statements required by the Court, and the author regrets that he is unable to submit information on the outcome of at least some of the claims lodged.

He would, however, refer to a recent case in which a large claim lodged for compensation was withdrawn following favourable consideration on the part of the Council to rezone the ground involved.

The ground in question is a large area measuring approximately 20 acres with a frontage on a public road and abutting ground owned by the Council used as a tipping site. Under the approved Town Planning Scheme it is zoned "Public Open Space." The owners of the ground formally objected to the present zoning and applied to have the property rezoned for industrial purposes. Simultaneously they filed a formal claim for £50,000 compensation in the event of the Council not agreeing to rezone. Briefly, the facts are that of the 20 acres comprising the ground in question, 6 acres have been excavated for brickmaking purposes; that the ground involved is not required for park purposes by the Council; and that it was considered that it is more desirable to establish light industries on the site rather than have further excavations

made for brickmaking. Having regard to all the circumstances detailed, the Council agreed to the area of ground involved being rezoned from "Public Open Space" to "General Industrial" in Town Planning Scheme No. 1, subject to the submission of an undertaking to the satisfaction of the Town Clerk that the brickfields situated on the site be closed within a period of ten years and provided that the claim lodged in respect of compensation is withdrawn. It further resolved that the necessary application be made to the Hon. the Administrator in terms of the Townships and Town Planning Ordinance.

There will, no doubt, be many instances in which settlement of claims for compensation may be arrived at in a manner similar to the above.

Enforcement of an Urban Town Planning Scheme.

To enforce provisions of the Town Planning Ordinance and a Town Planning Scheme, legal action may be instituted by a local authority if owners of ground or buildings proceed with the construction of buildings, erections, alterations, etc., after having been advised that such action is likely to interfere with the amenities of the neighbourhood; or is likely to be in conflict with the provisions of the Town Planning Scheme in the course of preparation; or after having been notified that the action is a contravention of an approved scheme. On the other hand, an owner of ground or building may resort to the Courts of Law to establish his rights when he considers the local authority is acting beyond its powers in refusing to allow his proposal to be carried into effect.

Before a local authority takes action or defends a case in the Courts, it should be reasonably sure of success, having regard to all the known facts. The significance of taking into account all the circumstances is demonstrated in the following decided cases:—

Steyn v. City Council of Johannesburg.

The applicant submitted plans to the respondent Council for the erection of some shops on a stand in the township of Oaklands within the municipal area of Johannesburg. The respondent Council notified him that it was of the opinion that the erection of the shops would interfere with the amenities of the neighbourhood, and that it, therefore, refused its consent to the erection of the shops under the powers conferred upon it by Section 52(1) of the Townships and Town Planning Ordinance, 1931.

The applicant made application for a review of the decision of the Council under Section 52 of the Ordinance.

The neighbourhood area in which the applicant intended to erect the shops is a high class residential one. Under the circumstances the Council came to the conclusion that the proposed shops would interfere with the amenities of the area. In connection with the contention advanced that no reasonable man could come to this conclusion, the Court referred to the definition by Lord Justice Scrutton of amenity as follows:—

"I think the word amenity appears to mean 'pleasant circumstances or features, advantages.'" Applying that definition, it appeared to the Court that the question whether a shop is to be erected in a residential area is a matter of amenity.

The Court came to the conclusion that the application must be dismissed. The decision was upheld on appeal.

Fotes Scottes and Eustace Callinicos v. City Council of Johannesburg.

Applicants, owners of certain stands in Beit Street, New Doornfontein, submitted a plan to respondent Council for the erection of a garage and filling station on these stands. The

respondent Council refused its consent to the erection of such buildings under Section 52(1) of the Townships and Town Planning Ordinance, 1931, as it appears that the projected buildings would interfere with the amenities of the neighbourhood.

The facts of the case are, briefly, that plans for a building on the stands concerned, which has been used as a public garage, were passed in 1923. In 1934 the applicants decided to demolish this building and have done so and wish to erect on the same site an up-to-date and modern building to be used for the same purpose. The stands are at the corner of Beit and Erin Streets; the other stand in Beit Street in the block containing these stands is occupied by shops, but the stands in Erin Street in this block are occupied by dwelling houses, except the stand immediately adjoining applicants stands which is occupied by premises on which the business of a garage is carried on.

The Court was unable to see in what respect it can reasonably be contended that the building would interfere with the amenities and ordered that the respondent Council approve of the plan and permit applicants to proceed with the erection of the building.

Lademic Investment and Trading Co. (Pty.), Ltd. v. City Council of Johannesburg.

The applicants submitted plans to respondent Council for the erection of a nine-storeyed building on Stands 562 and 563, corner President and Smal Streets, Johannesburg. Respondent Council's Town Planning Committee recommended that the applicant be informed that no objection would be raised from a town planning point of view to the erection of a seven-storeyed building. The Council refused to approve the plans for a nine-storeyed building, basing its refusal on Section 52(1) of Ordinance 11 of 1931. The applicants asked for an order directing respondents to approve of the plans.

The Court held that the considerations of light and air are amenities and that in its opinion it cannot be said that no reasonable person could have come to the conclusion that the projected building would interfere with these amenities.

The Court refused the application.

It will be noted that the Johannesburg City Council's refusal to pass plans in the above cases under the powers conferred by Section 52 of Ordinance No. 11 of 1931 for the reason that this section gives local authorities powers to prohibit works before a town planning scheme has been proclaimed.

Up to a few years ago the validity of Section 52 had not been questioned. In the case quoted below, however, certain sub-sections of that clause were declared *ultra vires*.

Isaac Davis v. Rex.

Isaac Davis, a coloured person, the appellant, the registered owner of portion A of Lot No. 128, Claremont, in the Municipality of Hercules in August, 1945, received notice to leave the municipality and in November, 1945, was charged with residing in an area which, under the Town Planning Scheme in the course of preparation, has been provisionally zoned for European occupation only. Under Section 52 of Ordinance 11 of 1931, the Council applied for an order ejecting him from his house.

The Court, after reviewing the powers of the Provincial Council to legislate in connection with Town Planning and the Establishment and Administration of Townships, held that even if the Provincial Council is empowered to prohibit a lot holder in the township of Claremont from exercising his users rights, the provisions of Section 52 prohibiting particular use are *ultra vires* in the absence of compensation.

The Court upheld the appeal.

While on this subject, it might be well to refer to one of the first instances where doubts were thrown on the validity of certain sections of town planning legislation; namely the Rossmaur Mansions (Pty.), Ltd. v. Briley Court case, which is concerned with alteration, suspension and removal of conditions of title. The Court came to the conclusion that even if, as the result of powers entrusted to the Province under the Financial Relations Act 1913, as amended, the Transvaal Provincial Council is empowered to pass legislation providing for the alteration, suspension or removal of restrictive conditions in titles to erven situate in a township, the enactment of Section 29 of the Ordinance 11 of 1931, as amended, was, by reason of the omission therefrom of any provision requiring compensation to be paid in cases of prejudice resulting from such alteration, suspension or removal not within the powers of the Council.

The principles of this decision were applied in the Davis case to a Town Planning Scheme.

As the result of the Davis case, certain sub-sections of Section 52 of the Ordinance were declared *ultra vires* the powers of the Provincial Council. Legal opinion is divided in this matter in that it is thought by some that the case was rightly decided on the facts but for the wrong reason, i.e. the same decision could have been arrived at without declaring portions of the section *ultra vires*.

Recent decisions and *obiter dicta* of the Courts have thrown doubts on the validity of other provisions of the Ordinance relating to the right to plan and right to control use of land and of buildings. Steps are being taken to make representations to the Government to introduce amending legislation to clarify and rectify the position. In this connection attention is drawn to Act 48, 1946: Removal of Restrictions in Townships Act 1946 which sets out procedure relating to powers conferred on the Administrator of a province to alter, suspend or remove certain restrictive conditions in respect of land in a township within the province.

Conclusion.

The work involved in the administration and enforcement of an urban Town Planning Scheme is exacting and often thankless. The author has, in this paper, not dealt with execution of development schemes determined under a scheme such as arterial and ring roads, elimination of dangerous intersections, provision of parks, etc. He has confined himself to the more administrative and what may be termed restrictive aspect of the problem. Although not as spectacular as the creative side, the actions taken to ensure that the provisions of the Town Planning Scheme are carried out, have definitely resulted in real and lasting benefits to the community as a whole by checking uncontrolled and indiscriminate development; by guiding new development; by halting unco-ordinate use of land, i.e. forestalling haphazard mixing of industry, factories and housing in the same neighbourhood; by safeguarding residential areas against undesirable intrusion of buildings used for other purposes which may affect the amenities of the neighbourhood; by ensuring amenities of light, air and space. The result of administrative action, based on legal authority, is even now apparent and will become increasingly more so as the pattern of what the planners had in mind emerges from the existing picture.

The information collected in the process of administering a scheme, the knowledge gained, the disappointments encountered will prove invaluable in the future if and when amendments to the present scheme are indicated and necessary by reason of changing conditions.

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.

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

BUILDING, ETC.:

Cape Provincial Tender Board, Cape Town: The erection of the proposed North End Coloured High School in the Port Elizabeth Division. Names by the 10/1/49 to the Architects, Owen Eaton & Merrifield, United Buildings, Port Elizabeth. Due, 8/2/49.

Cape Provincial Tender Board, Cape Town: Erection of additions in connection with the Barkly Road Native High School in the Kimberley Division. Architects: Greatbatch & Timlin, Kimberley. Due, 8/2/49.

Public Works Department, Pretoria: Pretoria University: extensions to Locust Research Laboratory. P.W.D. 150. Due, 27/2/49. Flagstaff, Police Post, East Pondoland: new stable block. P.W.D. 151. Due, 10/2/49. Ingwavuma: alterations, additions and soil drainage at Resident Commissioner's residence. P.W.D. 152. Due, 10/2/49.

South African Railways Tender Board: The erection and completion of 6 new houses at Hercules Square, Kimberley. (Deposit of £2-2-0). Chief Civil Engineer, Room 400, Railway Headquarters, Johannesburg. Due, 17/2/49.

ELECTRICAL EQUIPMENT, ETC.:

Cape Town Municipality: Electrically-operated pedestrian cross walk traffic sign controllers. Specification 1528/1948. Electrically-operated vehicle actuated traffic control equipment. Specification 1529/1948. City Elec. Engineer, Cape Town. Due, 23/2/49.

Durban Municipality: Private automatic exchange, 25-line — 50-line for City Treasurer's Department. P. 304. Telephone Exchange, Durban. Due, 11/2/49.

Durban Municipality: Electrical material — wire cross arms, insulators, fuses, steel poles, etc. E. 2198. Electricity Department, Durban. Due, 18/3/49.

Durban Municipality: Steel light fittings. E. 2199. Electricity Department, Durban. Due, 18/3/49.

Durban Municipality: Electrical material: 33 k.v. and 11 k.v. out-door type, three-phase hand-operated switches. E.2195. Metering equipment. E.2194. Electricity Department, Durban. Due, 4/3/49.

Electricity Supply Commission, P.O. Box 377, Salisbury: E.H.V. switch gear. Contract 58/1948. (Deposit of £5-0-0 — extra copies of documents at 5/- each). Secretary. Due, 8/3/49.

Hermanus Municipality: Materials for the construction of extensions to the electricity undertaking: Section A: Municipal sub-station, 11 k.v. switch gear; Section B: Distribution sub-station low tension switch gear, 11 k.v. high tension switch gear; Section C: 11 k.v. transformers; Section D: 11 k.v. high tension transmission lines; Section E: Cables and jointing, high tension and low tension. Contract 9/1948. (One set of specifications on deposit of £2-2-0). Town Clerk, Hermanus. Due, 28/2/49.

Pretoria Municipality: 3-phase transformers. Specification 331. Controller of Stores & Buyer, Pretoria West. Due, 21/2/49.

Pretoria Municipality: E.H.V. and L.V. underground cable. Specification 329. Controller of Stores & Buyer, Pretoria West. Due, 7/3/49.

Central Tender Board, Northern Rhodesia Government, Lusaka: Research Station, Mazabuka, Northern Rhodesia; Supply, delivery, erection, installation and commissioning of a power plant, distribution net work and the wiring installation of premises as detailed in the specification for the offices, out-buildings and residences comprising the Research Station of the Veterinary Department at Mazabuka. Specification MZ. 1/1949. (Deposit of £3-3-0 — extra copies of documents at £1-0-0 each). Consulting Engineer: J. S. Clinton, Preston House, Simmonds Street, Johannesburg. Due, 31/3/49.

Cape Town Municipality: Overhead line material. Specification 1537/1948. Due, 24/3/49. Bare copper conductors, insulated copper conductors and tinned copper binding wire. Specification 1538/1948. Due, 25/3/49. Steel transmission poles. Specification 1539/1948. City Electrical Engineer, Cape Town. Due, 25/3/49.

Petrusburg Municipality: Supply, delivery and erection complete of the following: Section A: crude oil generating plant; Section B: switch board; Section C: instruments and tools; Section D: overhead net work; Section E: House service connections. (Deposit of £2-2-0—spare complete copies of documents at £1-1-0). Town Clerk, Petrusburg. Due, 24/2/49.

Pretoria Municipality: Supply and delivery, installation and maintenance for a period of 12 months of supervisory remote control equipment. Specification 328. Controller and Buyer, Pretoria West. Due, 21/2/49.

Port Elizabeth Municipality : Transformers and steel poles. Specification 33L. City Electrical Engineer, Port Elizabeth. Due, 3/2/49.

South African Railways Tender Board : Switch gear. No. 8423. Due, 17/2/49.

EARTHWORKS, ETC. :

Southern Rhodesian Government : Hunyani (Salisbury) earth dam : Investigations into the construction of an earth dam are being carried out and it is desired to know what possibilities there are of firms, with the requisite equipment, being available. The proposal is to build a dam 120 feet high containing, approximately, 500,000 cubic yards of earth fill from borrow pits and 200,000 cubic yards of rock fill from spillway excavations, plus various ancillary works containing about 30,000 cubic yards of concrete. It is desired to ascertain the names of firms who would be prepared to tender for this work which will probably be required to be commenced about July or August, 1949, and completed by the end of 1951. Any firms interested at this stage may obtain further information from the Director of Irrigation, P.O. Box 1383, Salisbury, Southern Rhodesia, or from Stewart, Sviridov and Oliver, Balgownie House, 66, Commissioner Street, Johannesburg.

MISCELLANEOUS.

Boiler plant and boiler house : S.A.R. Tender Board. No. 7999. Due, 31/3/49.

Borehole testing equipment : No. 8298. S.A.R. Tender Board, Johannesburg. Due, 10/2/49.

Canvas fire hose : S.2919. Stores Department, Durban. 18/2/49.

Canvas : S.A.R. Tender Board. 8592. Due, 24/2/49.

Chain : S.A.R. Tender Board. No. 8573. Due, 10/2/49.

Chain : S.A.R. Tender Board. No. 8651. Due, 17/2/49.

Carbide of calcium : S.A.R. Tender Board. No. 8677. Due, 10/2/49.

Compressed air piping and fittings : S.A.R. Tender Board. No. 8664. Due, 10/2/49.

Copper wire, etc. : S.A.R. Tender Board. No. 8609. Due, 17/2/49.

Copper wire : S.A.R. Tender Board. No. 8635. Due 17/2/49.

Concentrating reflectors : 7/1949. Controller of Provincial Stores, P.O. Box 857, Pretoria. Due, 9/2/43.

Cranes and match wagons : S.A.R. Tender Board. No. 8426. Due, 24/2/49.

Diesel electric shunting engine : S.A.R. Tender Board. No. 7253. Extended, 10/2/49.

Drills : S.A.R. Tender Board. No. 8603. Due, 10/2/49.

Electric cable : S.A.R. Tender Board. No. 8658. Due, 17/2/49.

Ferro manganese and ferro silicon : S.A.R. Tender Board. No. 8668. Due, 10/2/49.

Glass fuses, 5 amp : Dept. of Posts and Telegraphs, Pretoria. P.O. 1017. Due, 10/2/49.

Grinding machine : S.A.R. Tender Board. No. 8627. Due, 10/2/49.

Grinding machines : S.A.R. Tender Board. No. 8178. Due, 3/3/49.

Hardwood timber : S.A.R. Tender Board. No. 8618. Due, 24/2/49.

10,000 ft. 4-core, 0.003 sq. in. per core low voltage rubber insulated cable : Controller of Stores, Pretoria West. Specification 333. Due, 7/3/49.

I.R. hose pipes : S.A.R. Tender Board. No. 8594. Due, 24/2/49.

Solid drawn tubing : S.A.R. Tender Board. No. 8610. Due, 31/3/49.

Steel windows : S.A.R. Tender Board. No. 8626. Due, 10/2/49.

Uniform clothing : S.A.R. Tender Board. No. 8427. Due, 10/2/49.

Sensitized photographic paper and developer for plan production : Supply during period 1/4/49-31/3/50. Government Printer, Pretoria, the Officer-in-Charge, Government Printing and Stationery Office, Cape Town. G.P.-S. 61. Due, 10/2/49.

Platform-type transport trucks : S.A.R. Tender Board. No. 8468. Due, 27/2/49.

Proofing of canvas : S.A.R. Tender Board. No. 8576. Due, 24/2/49.

Waterproof drawing ink : Government Printer, Pretoria. G.P.-S. 69. Due, 10/2/49.

WATER SUPPLIES.

Knysna Municipality : Supply and installation of chlorination plant. (Deposit of £2-2-0). Contract 25/1948. Consulting Engineer: Ninham Shand, 806, Groote Kerk Buildings, Cape Town. Due, 15/2/49.

Worcester Municipality : The construction of reinforced concrete settling tanks with mechanical clarifying equipment. Contract 23/1948. Town Clerk, Worcester. Extended, 12/2/49.

VEHICLES :

Johannesburg Municipality : Diesel-engined omnibus chassis. Contract 762. Due, 14/2/49. Double-decked omnibus bodies. Contract 763. City Treasurer, Johannesburg. Due, 14/2/49.

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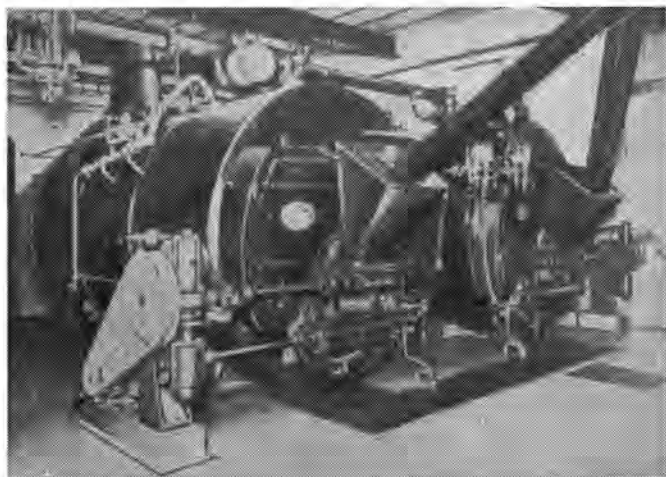
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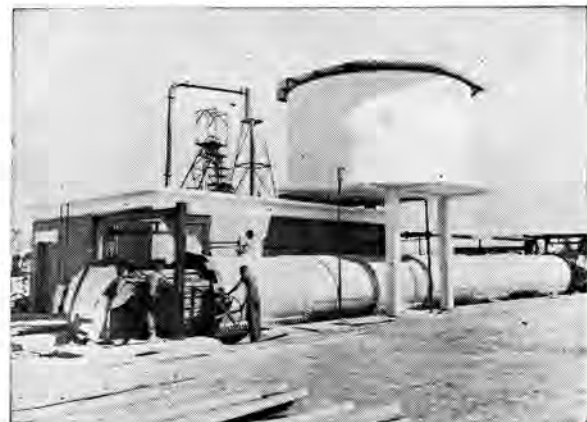
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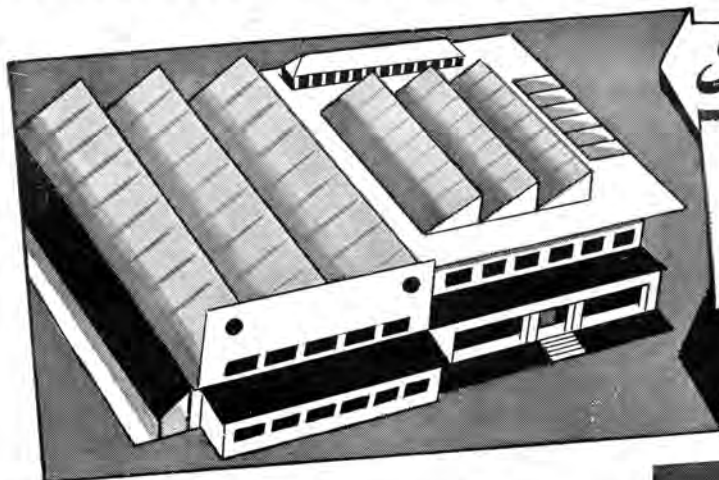
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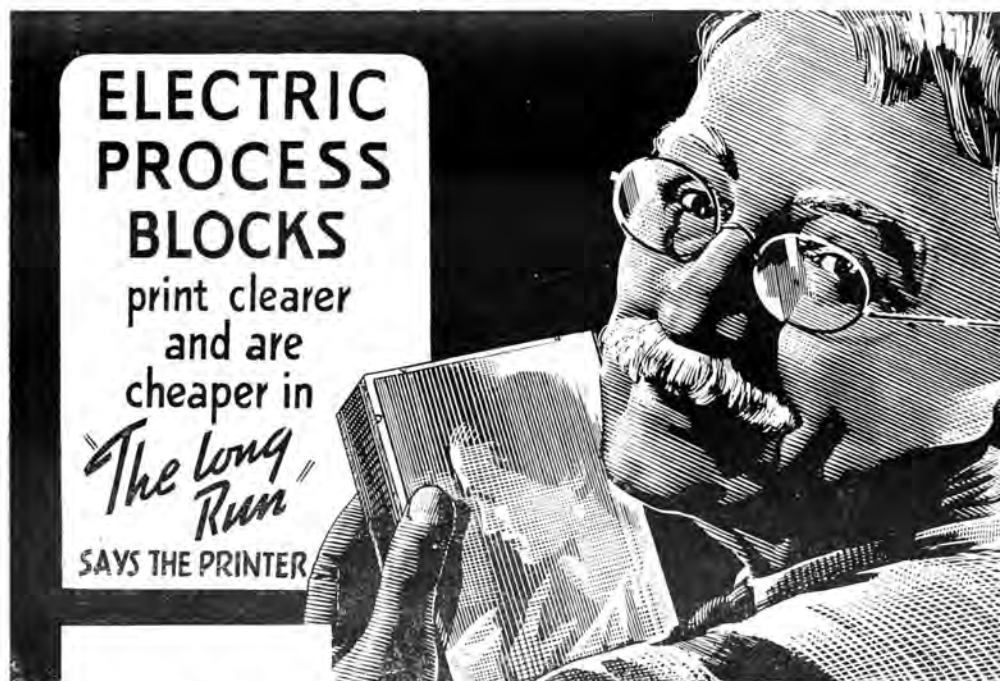
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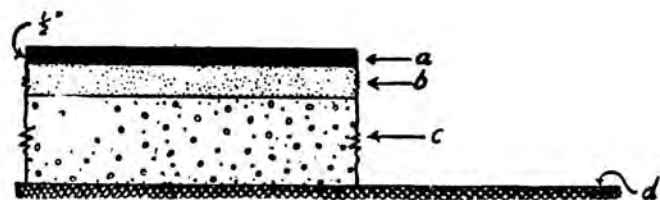
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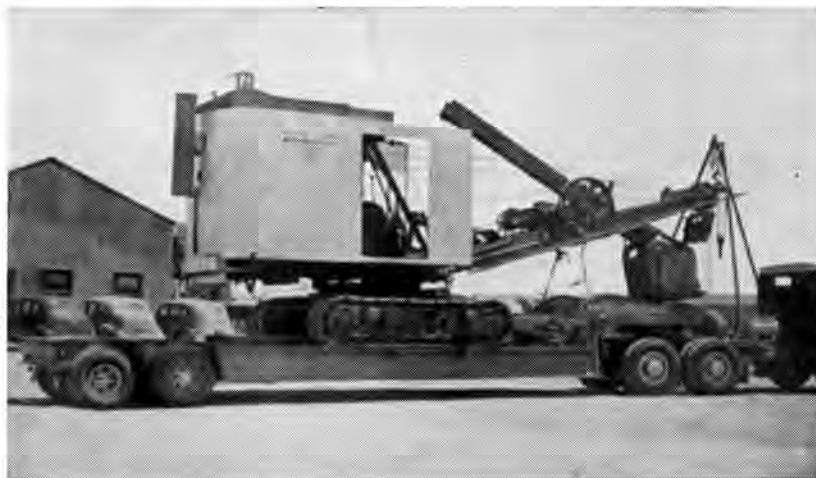
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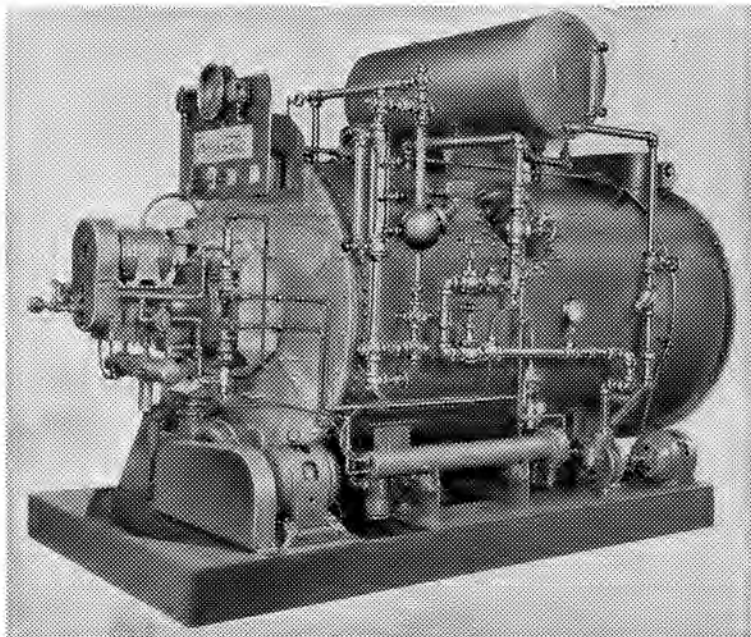
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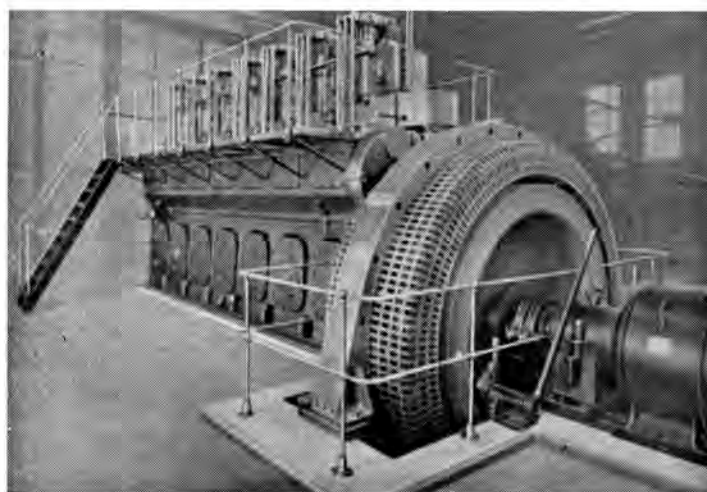
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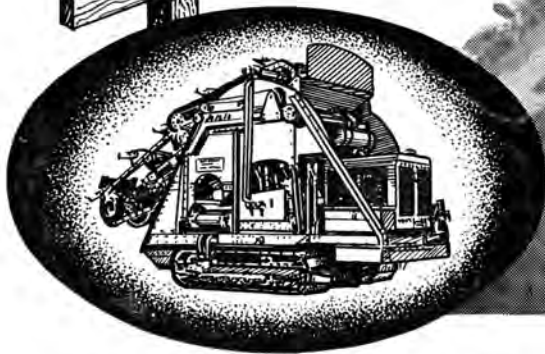
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