

A Short Description of
The Singareni Collieries
The State of Hyderabad,
Deccan, India.

The Singareni Collieries Company Limited

Directors :

SIR GORDON FRASER, *Chairman.*

THE NAWAB SALAR JUNG BAHADUR.

SIR AKBAR HYDARI NAWAB HYDAR
NAWAZ JUNG.

L. C. CROSLEGH.,

W. W. PAUL.

General Manager :

R. L. ANDREWS, M.I.Min.E.

Consulting Engineers :

MESSRS. T. & W. MORGANS.

Agents for the Sale of Coal :

MESSRS. BEST & CO. LTD.

Registered Offices :

SINGARENI COLLIERIES, DECCAN, INDIA.

The Singareni Collieries

SITUATED IN

H.E.H. The Nizam's Dominions,
Deccan, India.

GEOGRAPHICAL

THE Singareni Coalfield is situated in the Yellandu Talak in the South-East of the Hyderabad State, Deccan, India, between $17^{\circ}-30''$ and $17^{\circ}-40''$ North Latitude and $80^{\circ}-18''$ to $80^{\circ}-25''$ East Longitude. It is connected by a branch railway 16 miles long with Dornakal Junction on H.E.H. the Nizam's Guaranteed State Railway. The Collieries are 146 miles from Hyderabad City and 93 miles from Bezwada, the junction of H.E.H. the Nizam's Guaranteed State Railway and the Madras and Southern Mahratta Railway.

GEOLOGICAL

In about the year 1871, Dr. King, of the Geological Survey of India, discovered coal near the village of Yellandu, and the chief coal seam bears his name.

The strata consist of the following (in descending order), namely :

KAMTHIS sub-group : thickness from a few feet to 150 feet.

BARAKARS coal bearing measures : thickness from a few feet to 2000 feet approximately.

TALCHIRS : thickness from a few feet to 200 feet.

VINDYANS.

CRYSTALLINES.

The Kamthis are unconformable to the Barakars and generally conceal and overlap them except over a small marginal area adjoining the eastern boundary of the coalfield.

The boundaries of the field are faulted except at the north end, where the Talchirs attain a greater thickness and rest naturally on the older rocks. Generally, the central portion of the coalfield is not much disturbed by faulting.

The coal bearing area is roughly elliptical, 10 miles long and about 3 miles broad at the widest part, the long axis running approximately North-North-West and South-South-East.

DEVELOPMENT

In the year 1886 the Hyderabad (Deccan) Company, Limited, started mining operations by means of inclines and later by vertical shafts.

The output was increased to meet the growing demand for coal, and in the year 1921 the Singareni Collieries Company, Limited, purchased the Collieries and developed 3 pits, from which the present output is derived.

The only seam worked is the King Seam, with an average thickness of 5 feet 6 inches, from which, since the coalfield was first opened, 17,000,000 tons of coal have been won.

The King Seam coal is a first class steam coal, used extensively by railways and mills.

In order to ensure that only clean coal is despatched special plants have been installed. As the result of tests in 1928 taken in conjunction with one of the Company's largest customers

the average analysis of samples drawn from wagons ready for despatch is as follows, viz. :

Fixed Carbon	...	...	55.85%
Volatile Matters	...	...	24.12%
Ash	...	...	14.17%
Moisture	...	...	5.86%
			<hr/>
			100.00%
			<hr/>
Calories	...	...	6433
B.Th.U.'s	...	...	11580

METHOD OF WORKING

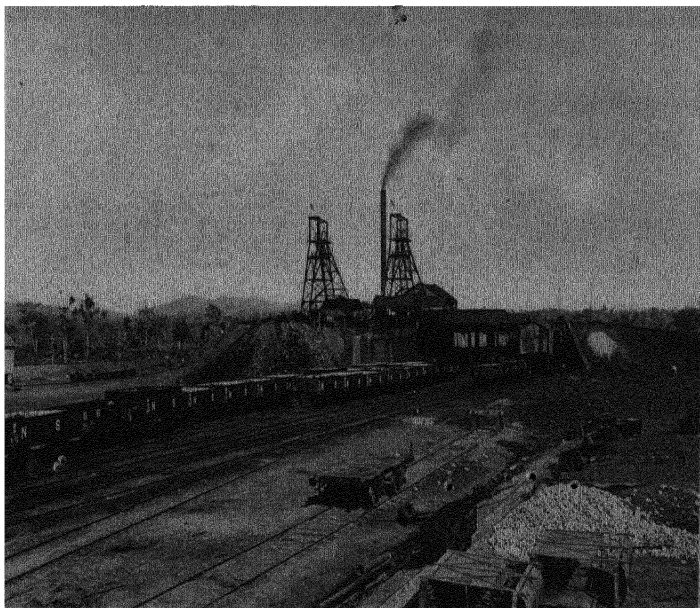
The method of working is Pillar and Stall, the pillars varying in size from 50 feet square, near the surface, to 150 feet square at a depth of 1000 feet. The stalls have an average width of 12 feet.

The pits now working are:—

No. 22 Pit—450 feet deep, equipped for an output of 700 tons per day.

No. 23 Pit—350 feet deep, equipped for an output of 700 tons per day.

Strutt Pit—750 feet deep, equipped for an output of 1500 tons per day (*see* Photograph No. 1, which shows a general view of the pit looking from the south).



Photograph No. 1.

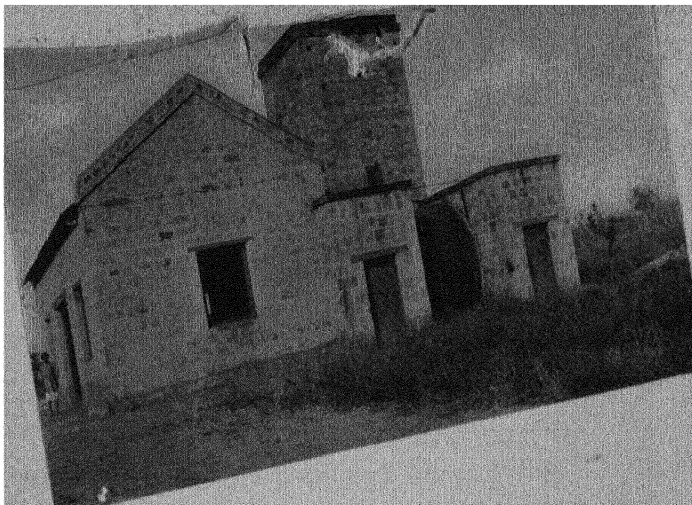
STRUTT COLLIERY. General view.

All three pits are fully equipped with modern machinery, and are laid out on up-to-date lines. Strutt Pit, which is the largest of the group, is connected with Singareni Station by a branch line $1\frac{1}{2}$ miles long. A large screening and picking plant has been erected at this colliery, and to this plant the coal from Nos. 22 and 23 pits is conveyed by means of endless rope haulage on the surface.

At each of the three pits all main level course roads are served by endless rope haulage with direct rope haulage to the dip and self-acting inclines to the rise.

Nos. 22 and 23 pits are connected underground and are ventilated by a double inlet Sirocco fan (Photograph No. 2), capable of passing 250,000 cubic feet of air per minute.

Strutt Pit, of which a plan of the underground workings is shown at the end of this book, is divided into four main districts, each district being isolated from its neighbours by solid coal barriers that start from the shaft pillar, these being formed for the purposes of good ventilation and the isolation of fires or floods. Ventilation is by means of a Sirocco double inlet fan capable of passing 250,000 cubic feet



Photograph No. 2.

TYPICAL VENTILATING PLANT BUILDING.

Containing 105 inch, double inlet Sirocco fan.
250,000 cubic ft./min. at 206 r.p.m., driven by
electric motor through cotton ropes or chain.

of air per minute ; each main district underground is divided into two separate ventilating splits or districts with return airways situated alongside the district barriers, and connected to the upcast shaft by means of cross measure drives passing to the upcast shaft above the shaft pillar. This arrangement not only provides for the circulation of fresh air at the bottom of both shafts, but also on all travelling roads which run into each district parallel with the main haulage road.

In laying out the districts provision has been made for the extraction of pillars after their formation in the first working, beginning at the centre of each ventilating district. Dis-pillaring has not yet commenced.

The coal is first undercut by hand to a depth of about 3 feet and then blasted by means of black powder and fuse.

SCREENING AND PICKING PLANT

No expense has been spared in equipping Strutt Pits with the most up-to-date and efficient screening and picking plant available. This plant deals with the total output of the Collieries. The general arrangement of the

plant, with details of the screens and picking belts, are illustrated in Photographs Nos. 3 to 8, pages 26 to 31. Separate shaker screens and picking belts are provided which enables the coal from each pit to be loaded separately. The loaded tubs are run on to an automatic tippler, the speed of which is set for a fixed number of tubs per minute, so as to allow of only a thin layer of coal being on the belt, thus greatly assisting the picking operations. As soon as the coal leaves the tub it is delivered on to a shaker screen, which serves to convey the coal to the picking belt, removing *en route* the two sizes—nut coal and slack. The speed of the picking belt is fixed to suit the removal of all foreign material by hand picking. The belts are of the plate type, 140 feet long and 4 feet wide, and run above and parallel to the railway tracks, thus the coal is loaded direct into the wagons from the belt.

In addition to the picking belts a dry separator plant is being installed; this will deal with all small coal and take out the small pieces of foreign material which are difficult to hand pick. For the disposal of foreign material small travelling belts two feet wide are provided,

these run parallel with the main belts, and as this waste material is picked from the belt it is dropped on to the small belt and conveyed to a dump.

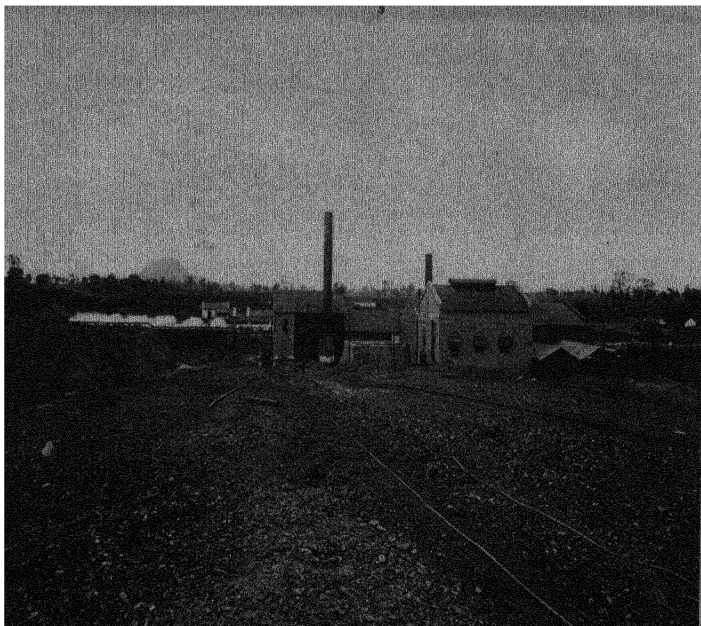
LIGHTING

As coal raising continues during the whole 24 hours, special lighting arrangements have been introduced to ensure efficient picking at night. All picking is done by a trained staff.

A representative of the Mining Engineer to the Railway Board is resident at Singareni and supervises the screening, picking and loading of the coal.

ELECTRIC POWER PLANT

With the exception of the winding engines and surface haulages, practically all other machinery, such as underground haulages, pumps, fans and screening plant, is electrically driven—a large power plant being maintained at the Collieries *see* Photograph No. 9, which shows a general view of the Power House. This is situated at one of the old pits, and 3 phase 25 cycle power is distributed to the three pits by overhead transmission lines (*see*



Photograph No. 9.

ELECTRIC POWER PLANT.
General view of Power House.

Photograph No. 10). The power is generated and distributed at a voltage of 2200 except for motors under 50 h.p., for which transformers provide a 440 volt current. For lighting purposes 220 and 110 volt current is provided. Photographs Nos. 11, 12 and 13, pages 32, 33 and 34 show the power plant and overhead transmission lines.

WORKSHOPS

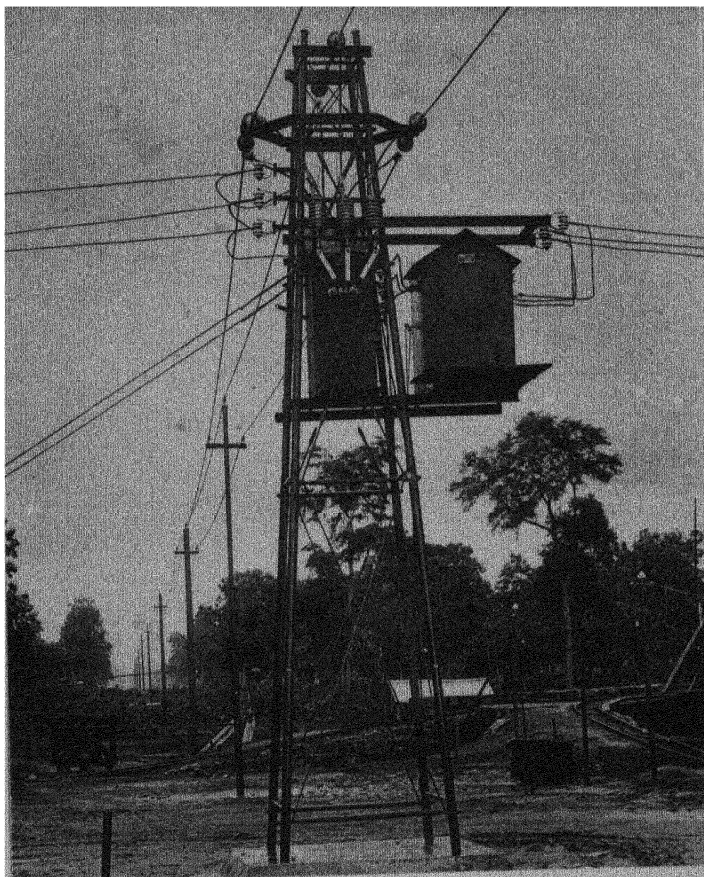
Well equipped mechanical and electrical workshops are centrally situated close to Strutt Pits, where all repair work for the collieries is carried out (*see* Photographs Nos. 14 and 15).

LABOUR

The three shifts per day system has been in force since the collieries were first opened. Careful attention is paid to housing, medical service and water supply for the labour employed. The population of the station is 22,000, half of which is daily employed at the Collieries.

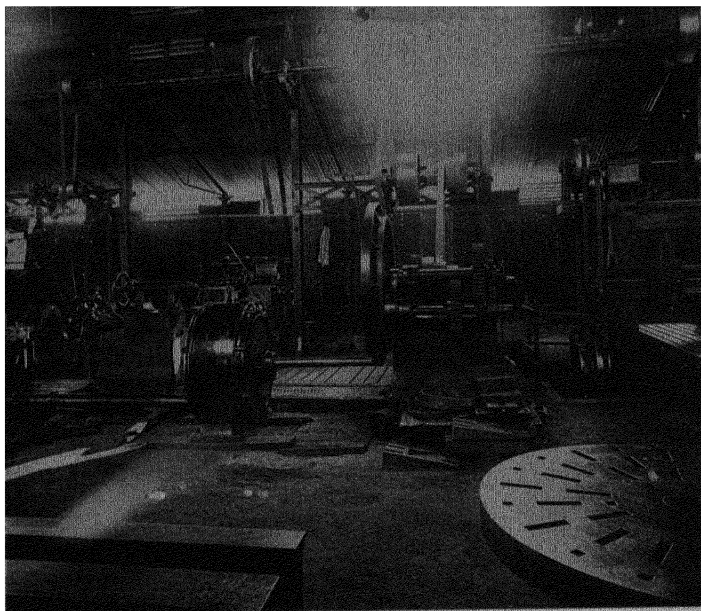
MEDICAL

The Medical and Sanitary work of the Station, is carried out under the supervision



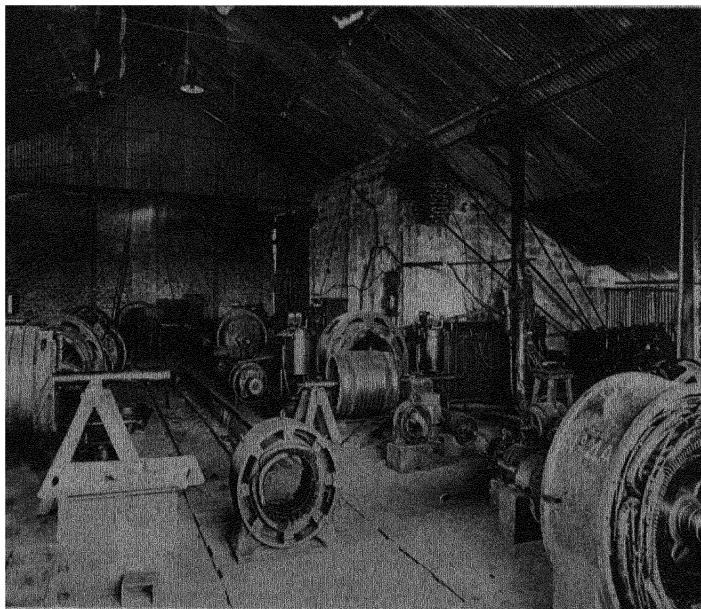
Photograph No. 10.

Over-head bare copper electric power transmission line with branch line and enclosed switchgear mounted on tubular tower.



Photograph No. 14.

VIEW OF MECHANICAL WORKSHOPS.



Photograph No. 15.

A PORTION OF THE ELECTRICAL WORKSHOP.

of a fully qualified •European doctor. He has also under his care a Hospital of 70 beds (Photograph No. 16), capable of extension to 110 beds in emergency. This is maintained by the Company for the treatment of employees and their relatives, also for certain of the Bazaar people and the non-employed population. In addition, there is an Isolation Ward of 20 beds, capable of rapid extension in the event of an epidemic. A fully qualified Indian nurse is also employed by the Company for attendance on employees' wives at their own homes. At Strutt Pit there is a Dispensary for the treatment of minor cases of illness, and for the first treatment of accidents occurring at any of the pits. Each underground district is provided with a well-equipped ambulance box for the early treatment of accidents before their removal to the surface.

Ankylostomiasis (Hook Worm disease) was very common amongst the work people until some years ago, when a campaign against this disease was instituted, with the result that very few cases are now met with. Only 70 cases were treated in 1927, and as these were dealt with in the early stages of the disease the patients recovered quickly.



Photograph No. 16.

VIEW OF THE HOSPITAL.

WATER SUPPLY

The drinking water supply is obtained from a large tank (or lake) formed by a dam constructed by the Company in the most suitable catchment area. The water is distributed in pipes to various parts of the Colliery area by pumps.

Water from other sources is passed through sand filters (*see* Photograph No. 17). These ensure an adequate supply of pure water to the work people in the lines around the pits on the north side of the field. In the workings of Strutt Pit filtered water is fed by means of galvanised iron pipes to each district of the pit as near as possible to the working places, where it is stored in small tanks suitably placed for the use of workers.

SANITARY

A special department deals efficiently with the removal of all refuse above and below ground, and special precautions are taken to prevent the spread of epidemic diseases.

HOUSING

The employees are housed in stone and



Photograph No. 17.

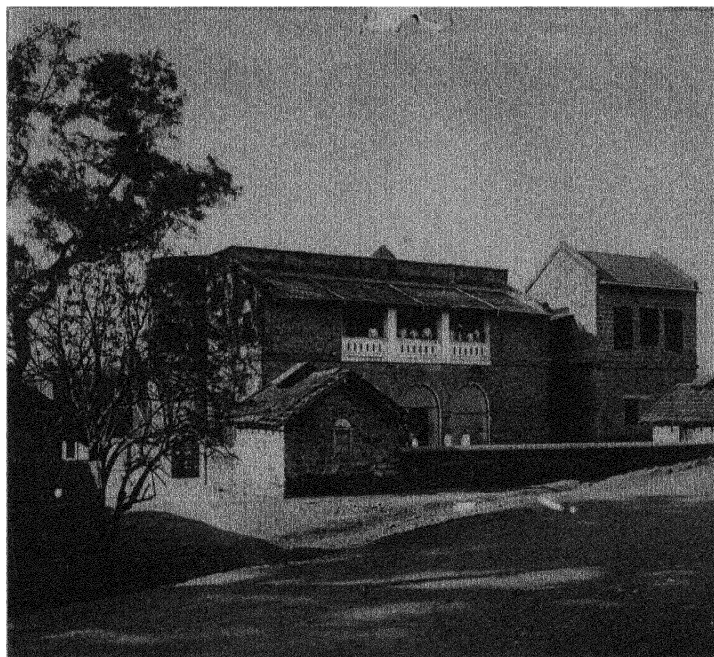
A SAND FILTER FOR DRINKING WATER.

concrete buildings, sometimes in rows, and in the new districts in detached dwellings surrounded by fencing, leaving ample ground inside for the cultivation of garden produce. This provision is much appreciated by the work people, and full advantage is taken of it.

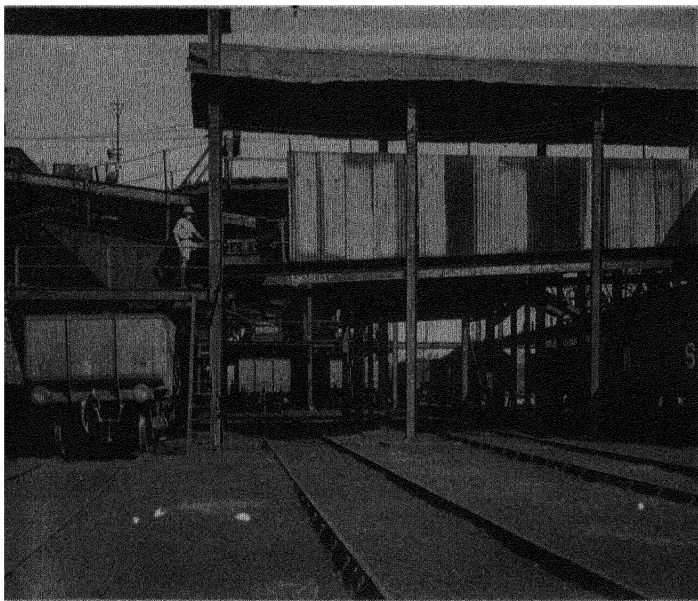
SPORT

The staff takes a keen interest in providing recreation for the work people, and two football tournaments are contested annually between teams from each pit and department. The Indian officials and subordinates have a well-equipped Recreation Club supplied with current newspapers, and there are courts for tennis and badminton.

The photographs published herewith were taken by Dr. E. H. Hunt, M.A., M.C.H., M.B., F.R.C.S., L.R.C.P., the consulting medical officer to the Collieries.



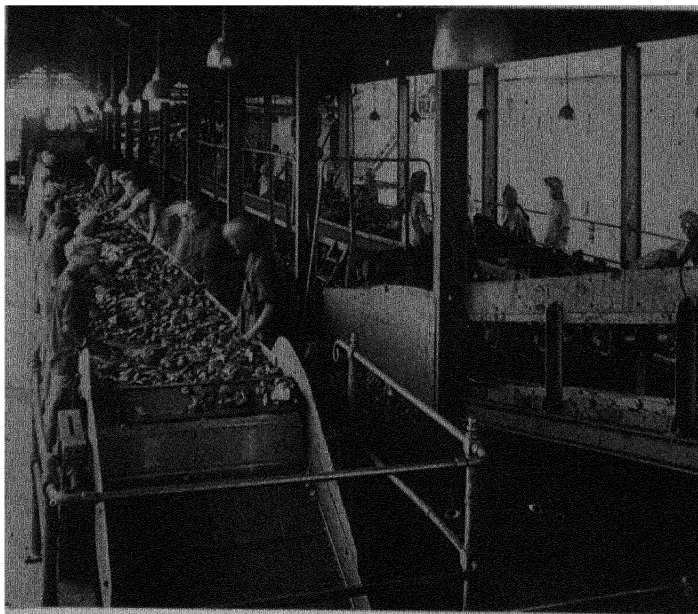
HEAD OFFICE: Singareni Collieries.



Photograph No. 3.

CENTRAL COAL HANDLING PLANT—STRUTT COLLIERY.

An end view of the Central Screening Plant, also part of the siding accommodation. The building in front contains the shaker gear and part of one picking belt—this belt being carried for a further distance of 100 feet parallel with the railway line on right of photograph.



Photograph No. 4.

PICKING BELTS AT CENTRAL COAL HANDLING PLANT.

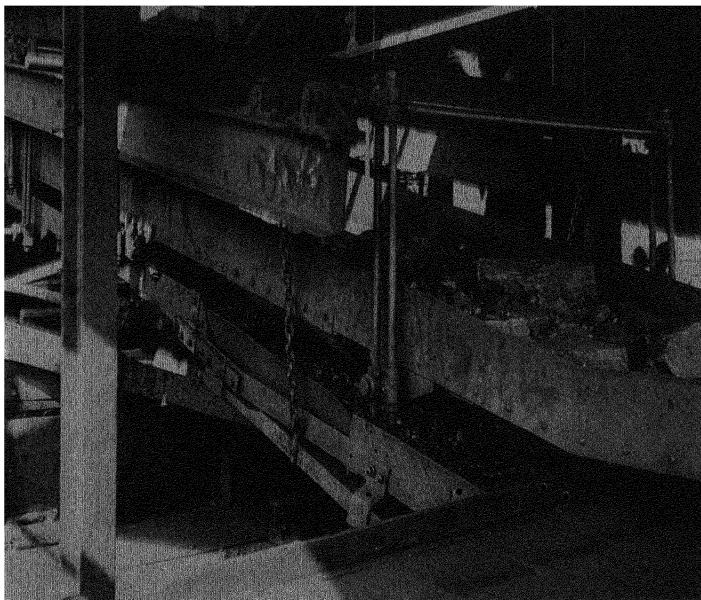
An inside view of two picking belts in full working condition. It should be noted that the belt shown on the left is in two units, the second unit in foreground travels slightly faster than the first. This has been done with the object of turning the coal over, after a rough picking has been carried out, and to have a thinner layer of coal on the second unit. This arrangement has proved to be very satisfactory.



Photograph No. 5.

**SHAKER SCREEN-CHUTE AT CENTRAL COAL HANDLING
PLANT. (*See also Photograph 3.*)**

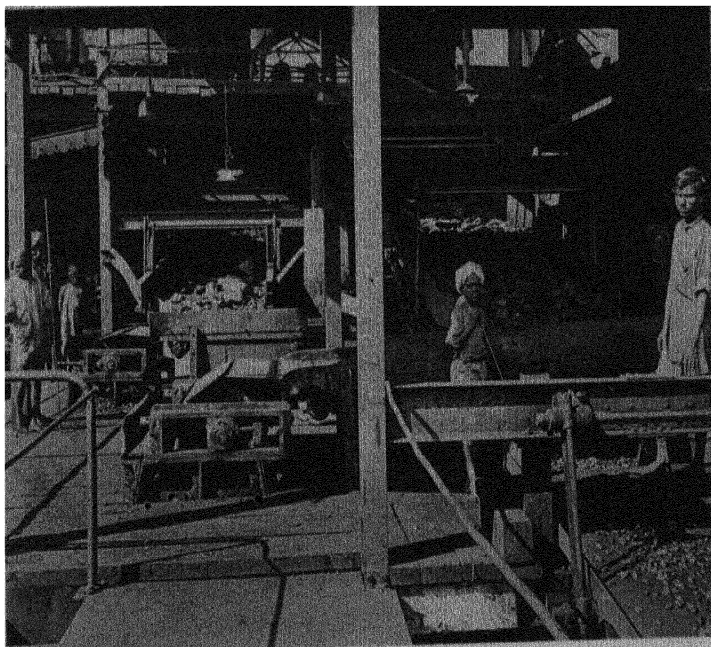
Coal from the belt shown is delivered to a second
belt running at right angles to it and at a faster
speed.



Photograph No. 6.

CENTRAL COAL HANDLING PLANT.

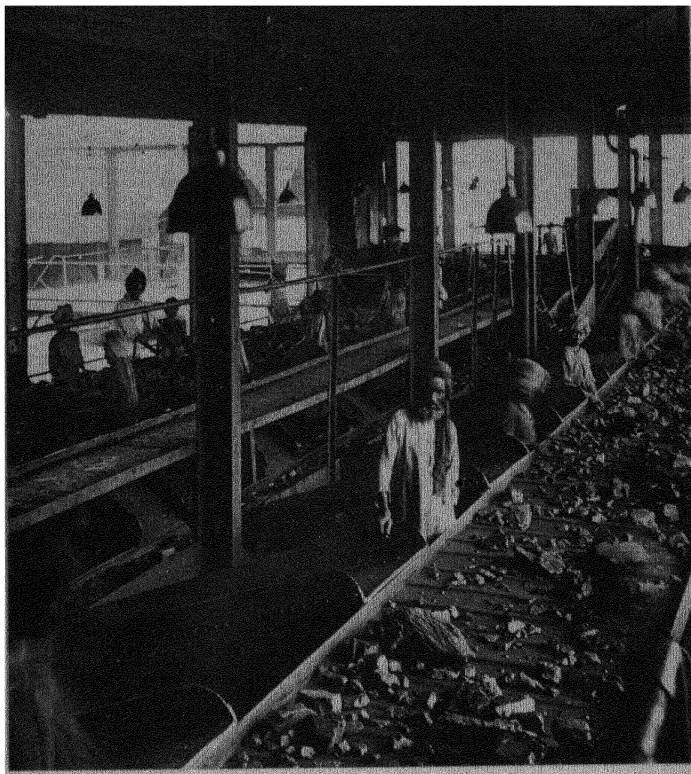
Near view of shaker screen-chute on which nut coal and slack are separated.



Photograph No. 7.

CENTRAL COAL HANDLING PLANT. TWO
SHAKER SCREEN-CHUTES.

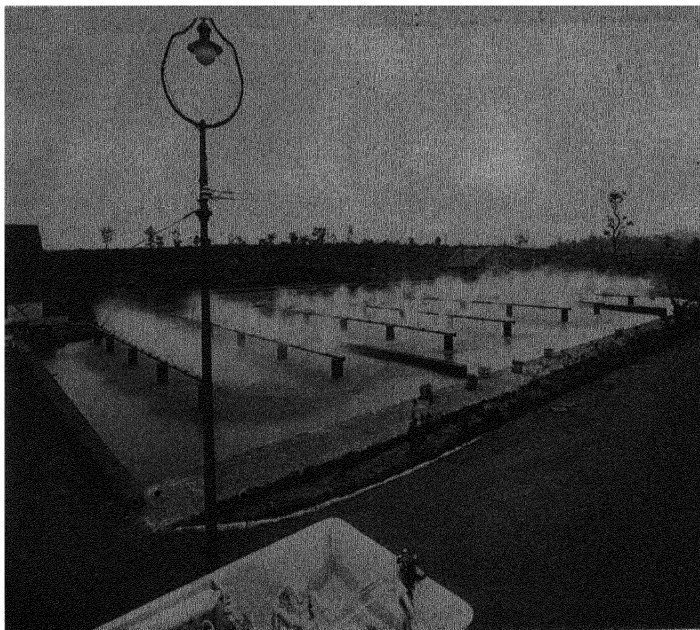
A general view of two shakers delivering coal on to the picking belts. The separate delivery for nut coal can be noted on the shaker at the right.



Photograph No. 8.

CENTRAL COAL HANDLING PLANT.

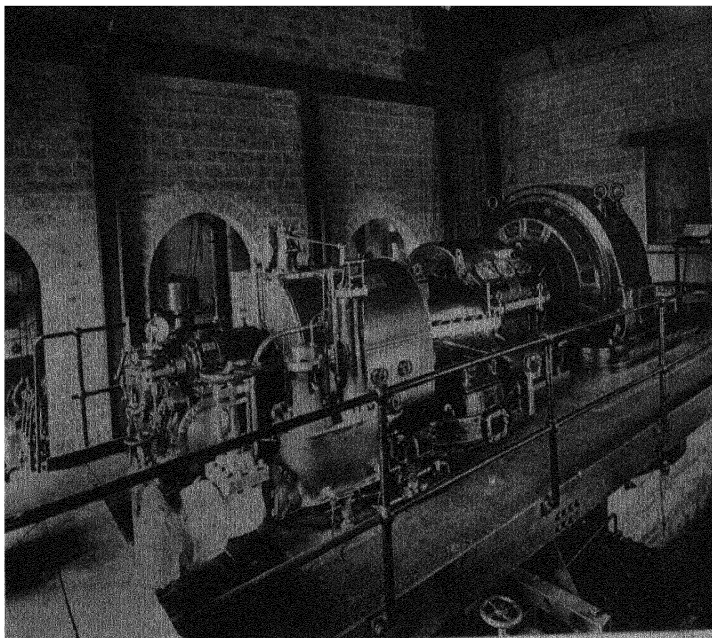
An inside view of two main belts taken from centre of building and looking towards wagon loading end. The arrangement of small belt and chutes for the disposal of foreign material can be seen.



Photograph No. 11.

ELECTRIC POWER PLANT.

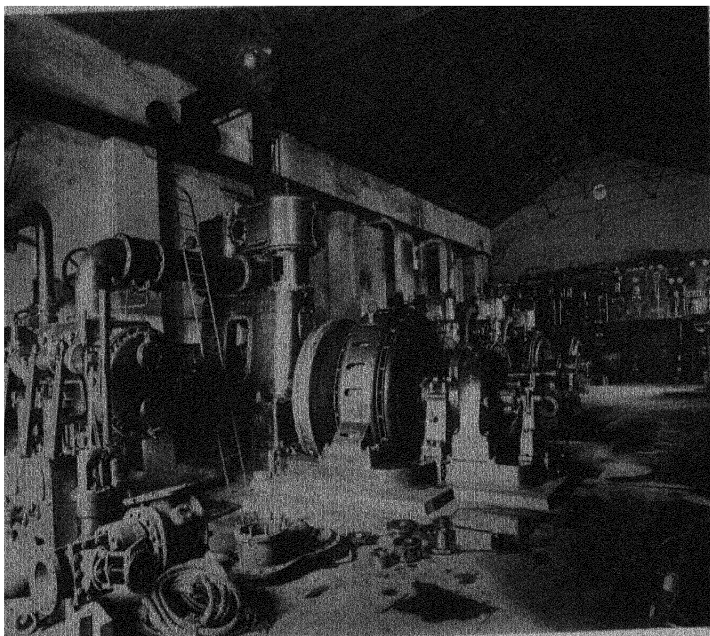
Circulating water pond with cooling sprays.



Photograph No. 12.

1000 K.W. (1430 K.V.A.) GENERATOR UNIT.

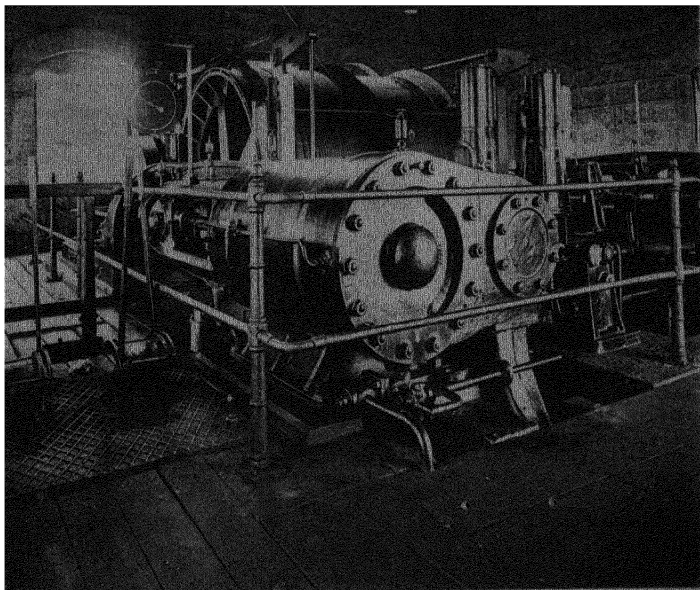
Parsons's steam turbine 150 lb./sq. in. at 500° F. with tubular condenser; Mather and Platt alternator for 3 phase 2200 volt, 25 cycle current. Turbine 6000 r.p.m. geared to alternator at 750 r.p.m.



Photograph No. 13.

ELECTRIC POWER HOUSE.

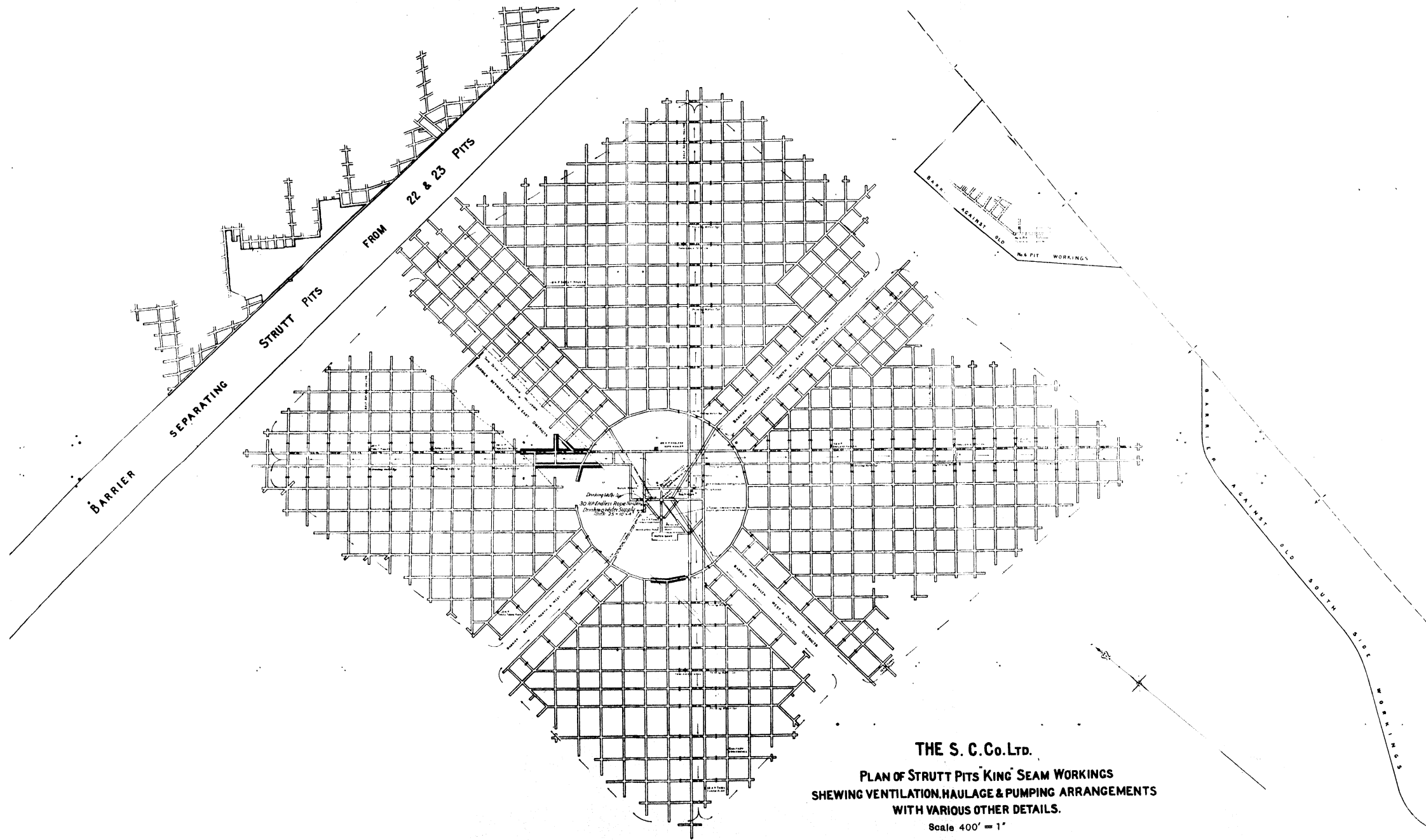
Four Belliss and Morcom vertical enclosed steam engines for 150 lb./sq. in. at 500° F. temperature, coupled direct to alternators. The main switch-board can be seen at the far end of the house.



Photograph No. 18.

WINDING ENGINE AT NO. 1 SHAFT, STRUTT COLLIERY.

Two cylinders for 150 lb./sq. in 24 in. bore \times 48 in.
stroke. Drum 10 ft. diam. Rope 1-1/4 in. diam.
Steam reverser ; overwind and overspeed preventer.
Makers : Robey & Co., Ltd.



THE S. C. Co. LTD.

**PLAN OF STRUTT PIT'S "KING" SEAM WORKINGS
SHEWING VENTILATION,HAULAGE & PUMPING ARRANGEMENTS
WITH VARIOUS OTHER DETAILS.**

Scale 400' = 1"