

*An article from the October 1936 edition of News Review – The in-house magazine of the South Staffordshire Waterworks Company*

## **WOOD GREEN PUMPING STATION**

### **CENTRAL STORES AND WORKSHOPS**

THE South Staffordshire Waterworks Company obtained its original powers to supply water in the Black Country by the Act of 1853. Under this Act the Company was authorised to impound the waters of certain streams in the Lichfield area in Hanch Reservoir and Stowe and Minster Pools. The impounded waters were to be pumped from Sandfields Pumping Station to Walsall Reservoir and re-pumping stations were to be constructed at Wood Green and Coneygre (Tipton).

Wood Green Pumping Station is, therefore, one of the original works of the Company.

The impounded waters were conveyed to Sandfields through a tunnel cut in the new red sandstone and pumped through a main running alongside the railway from Lichfield to Dudley. A branch on the main at Walsall connected to the reservoir there which provided storage for the Walsall district and also acted as a balancing reservoir for Wood Green Pumping Station which takes its supplies under a constant head of about 25 lbs. and boosts the water up to Shavers End Reservoir under a pressure of 170 lbs. per square inch.

Due to mining subsidence the main alongside the railway between Wood Green and Dudley has long been abandoned. Recently that portion of the main running through Walsall Railway Station has been diverted and the old main removed.

The first beam engine and boilers at Wood Green were supplied by James Watt & Co., and erected in 1871. Beam engines Nos. 2 and 3, together with additional boiler plant were erected in 1877 by Harvey & Co., of Hayle, Cornwall. This plant was in constant use for many years under very arduous conditions and the constant increase in the demand for water made it essential to increase the output and modernise the plant.

In 1911 Mr. H. Ashton Hill built the new engine and boiler houses installing a triple expansion rotative engine with force pumps and two high-pressure Lancashire boilers with superheaters.

This engine and boilers were constructed by Galloways, Ltd., Manchester. The engine has cylinders of the following sizes : H.P. 20 ½" dia., I.P. 32" dia., L.P. 50" dia. The three force pump rams are 17" dia. and the common stroke of the engine and pumps is 4'. The two boilers are each 30' long by 8' dia. and suitable for a working steam pressure of 160 lbs. per square inch. This plant is capable of pumping 4 million gallons per day when running at 25 revolutions per minute. In 1917 Mr. Fred. J. Dixon, M.Inst.C.E., was appointed Engineer-in-Chief to the Company and the following alterations and additions made at Wood Green have been carried out to his designs and specifications. The constant increase in the number of works and also the demands on the Company made it essential that the Company should be able to undertake all repairs to plant independent of outside firms, except large machine work, and also a central store was necessary to deal with the stores and spares required at the various depots and stations. It was decided to dismantle the old beam engines at Wood Green and utilise the existing engine houses and boiler house for these purposes.

The James Watt engine was dismantled in 1918 and the engine house was modified as required to form a workshop, the top floor being used as a pattern store. Mr. H. S. Brownfoot was ap-

pointed workshop foreman in 1919. The machine tools which are all electrically driven were ordered in 1919. They were installed in 1920 and the workshops brought into commission.

The duplication of the vertical rotative steam plant now became a vital necessity. Due to the prohibitive cost of a duplicate steam engine immediately after the conclusion of the Great War, it was decided to install electrically-driven centrifugal pumps taking the power supply from the Midland Corporation for Power Distribution, Ltd. The order was placed with Messrs. Sulzer Bros., Ltd., in 191, the plant being installed and brought into commission in 1920.

This plant consists of three horizontal three-stage pumps each driven by a 200, B.H.P. British Thomson Houston slipring induction motor. The high tension power supply is transformed down to 2-phase, 50 periods, 200 volts. The pump outputs are as follows :

No. 1 Pump. 1,584,000 gallons per 24 hours.

Nos. 2 AND 3 PUMPS. 1,872,000 gallons per 24 hours (each pump).

The pumps run at approximately 1450 revolutions per- minute.

In 1920 the two Harvey beam engines and the five old boilers were dismantled. The engine house was then converted into the Central Stores with administration office and the old pump rooms below were modified to form a garage and repair shop for the Company's cars and lorries. A blacksmith's shop was also constructed on the railway side of the stores. The old boiler house was converted into a meter repairing and fittings testing shop. The men who had been previously employed at Tipton Depot on this work were transferred to Wood Green in 1921. Owing to the high cost of the power supply various designs and specifications were prepared in 1924 for installing a generating plant, and it was finally decided to install a turbo-alternator in a new house to be constructed inside the meter shop. In 1925 the generating plant was ordered from Messrs. C. A. Parsons & Co., Ltd., and it was brought into commission in 1926. The plant consists of a single cylinder high pressure impulse turbine running at 9,000 R.P.M. driving through double helical single reduction gearing a 2-phase 50 period 220 volt alternator and . exciter at 1,500 R.P.M. and having a continuous Output Of 320 KW. and is capable of driving any two of the centrifugal pumps. The plant is complete with condensing plant, auxiliaries and overhead crane. A two-way switchboard is provided so the centrifugal pumps can be driven by the turbo-alternator or from the Midland Electric Power supply as desired.

In 1925 Mr. H. Turner, foreman at the pumping station retired on pension and Mr. Brownfoot then took over the control of the station in addition to his other duties, being designated Superintendent.

Owing to the increase in the number of cars and lorries additional accommodation became necessary for repair works. In 1928 a new garage was constructed with a carpenters' shop above, and the old garages have since been utilised for the storage of steel bars, tubing, pig lead and other materials. There are five cottages for the accommodation of employees.