

REPORT ON JULY MEETING.

Speaker: Mr Greg Scott

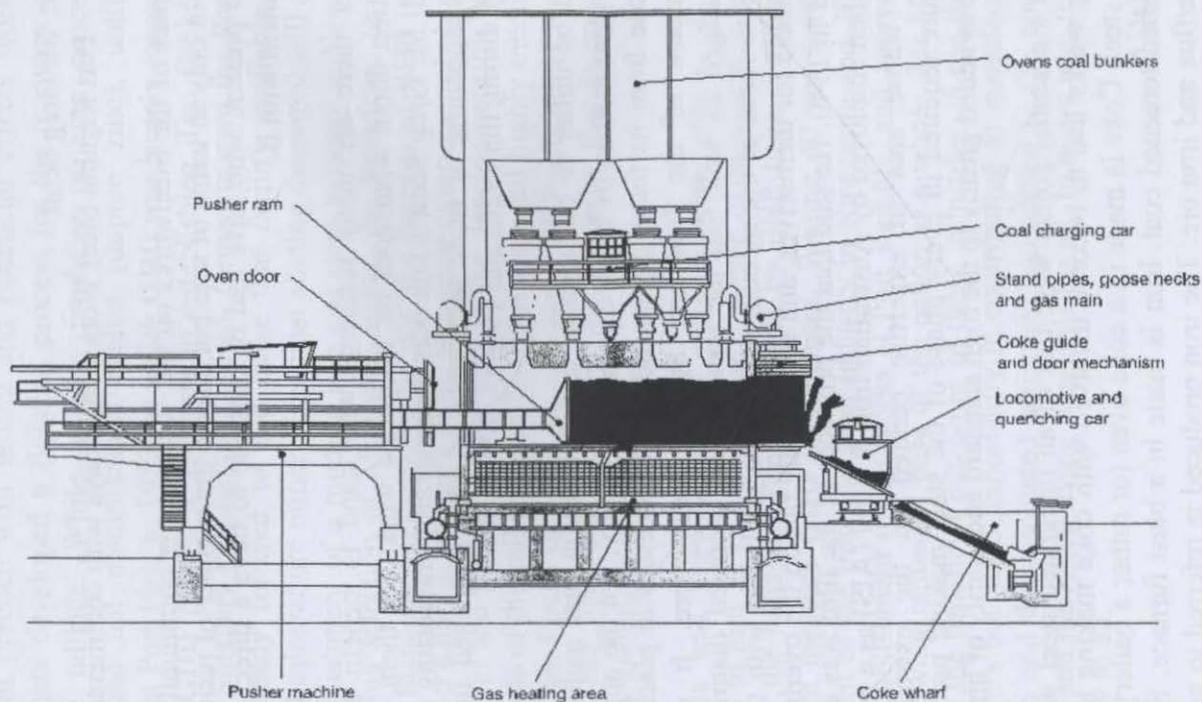
Topic: Port Kembla Steel Works, early days with commentary.

The impact of the Steelworks on the Wollongong community has been huge. Not only in terms of size but also in the number of residents, both past and present, who have had or continue to have a direct or indirect involvement with it.

However there are many residents who stand to benefit from more information about what goes on inside the works for them, the writer included. Mr Greg Scott's talk was a remarkably interesting account of what is happening or more accurately of what happened in the early days, say during the 1920s and 1930s.

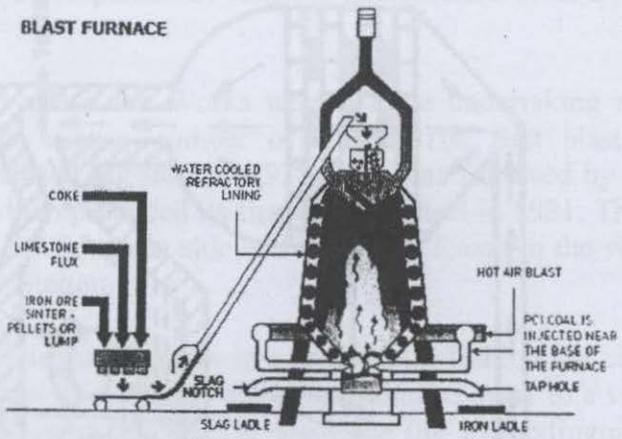
It would be unfair to our speaker not to mention that included in his address were matters of broad commercial history, but the appeal of his topic arose from its focus on the industrial processes in place from the establishment of the Iron and Steel industry here. It should be acknowledged as well that the speaker had prepared diagrams made available to those at the meeting, and to be published with this report, which speaks for themselves, and additionally ran on the overhead a film compiled in 1940. He said that the producer of the film was a Mr Hans Escher, then employed by Australian Iron & Steel (AIS) as a combustion engineer whose area of expertise centred on the extremely high temperature required in every phase of the steel making process. Both these extras added greatly to the high standard and clarity of his remarks.

Mr Scott's essential points were that of an integrated steel works. The emerging works had to become involved with coke making to produce iron and steel. Coke is made in a coke oven (or rather a battery of them) from washed/screened coal. Iron is made in a blast furnace, from coke, limestone/flux and iron ore. The iron produced is referred to as pig iron, which in turn is reprocessed in an open hearth furnace to produce steel. Reference to each of the diagrams will give an overview of what occurs.

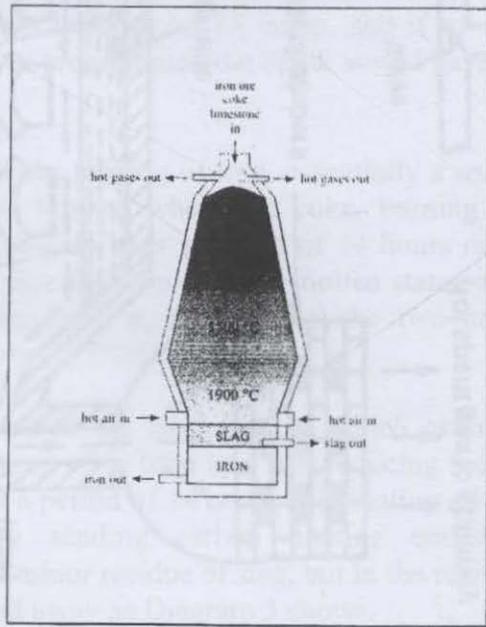


General layout of a typical coke oven

Diagram 1

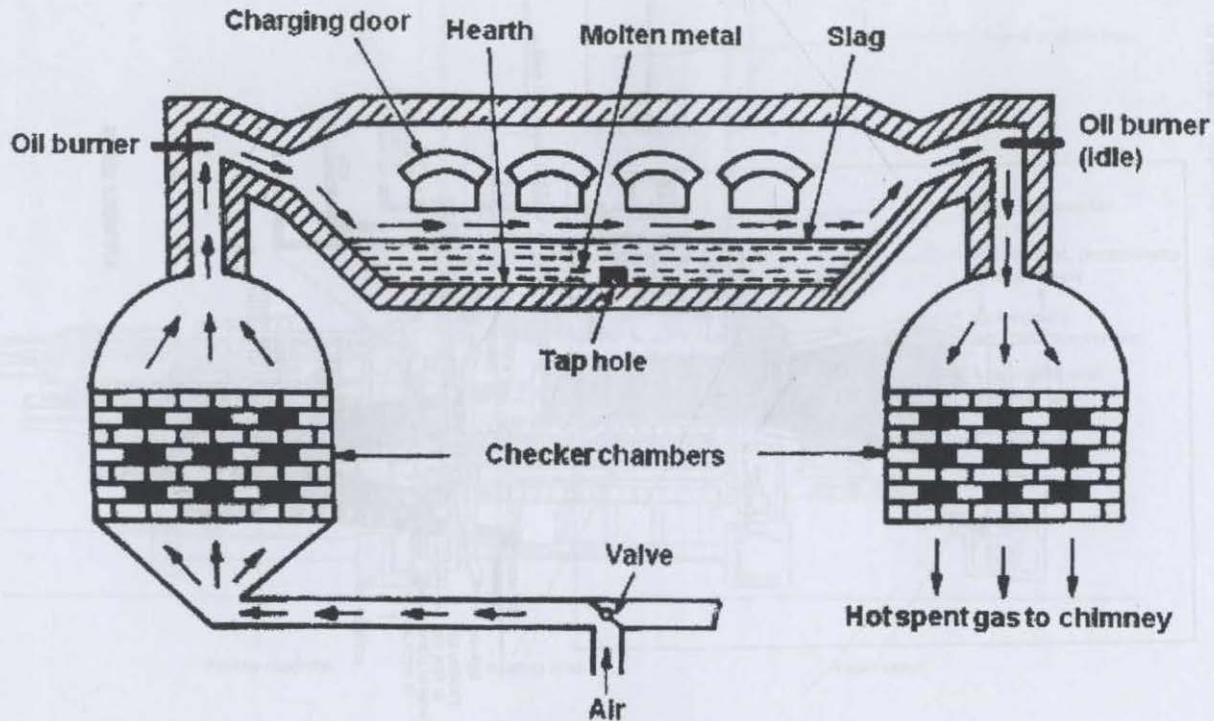


it gets pretty hot in there, as shown in this diagram:



At the bottom, carbon reacts with the oxygen in the hot air:

Diagram 2



Open Hearth Furnace

Diagram 3

In all three processes a number of by-products are produced including gas and slag. These are a valuable resource, both for internal use and sale on the open market. Gas is a fuel used in heating within the works and slag is marketable as a component in concrete manufacture or as a road base material.

Even in the early days the Works were a large undertaking and were brought into use over a number of stages. The first blast furnace completed it produced pig iron by 1928. This was followed by the open hearth furnace which produced its first batch of steel in 1931. The Works were located on the Southern side of Five Island Road, in the vicinity of Cringila Railway Station.

As the film and Diagram 1 show in a spectacular fashion the coke in its unfinished state and in a burning block was rammed away to a vehicle on route to a quenching/cooling station where the fire was extinguished and the coke solidified for immediate use in the blast furnace or for stockpiling. It had been burning for 18 hours, and if by chance the fire had not extinguished as programmed the block would have turned to dust or ash.

The next process as is the making of iron, essentially a smelting process. It occurs in the blast furnace where the coke, burning and fired and refired with blasts of hot air over a period of 14 hours reduces with the aid of limestone and flux the iron ore to a molten state separating in the process the impurities from it, after which the two are extracted at different levels as shown in Diagram 2.

The pig iron is moved to the final process which occurs in the open hearth furnace. This time oil is used as a fuel reducing the pig iron again to a molten form over a period of 14 hours, eliminating all carbon content by burning it away sending carbon dioxide emissions into the atmosphere, leaving a minor residue of slag, but in the main what remains is steel which is tapped away as Diagram 3 shows.

The steel is then processed through a finishing phase to meet customer orders. The film again demonstrated the movement away from the open hearth furnaces of molten steel in ladles, the pouring of molten steel into ingot moulds and the rolling of molten ingots into shapes.

As stated above things have changed dramatically since those days. The significant changes that have taken place were the development of a sintering process for recovery of more usable iron ore from any given shipment and the Basic Oxygen System to replace the Open Hearth Furnace. The Flat Products and its rolling mills were put in place. From one blast furnace the Steelworks had constructed 5 of them and from 700 tonne of steel produced per day, the output reached 11,000 to 12,000 tonne per day.

Given the state of our industry, it was very rewarding for those in doubt to have had Mr Scott bring all the industrial processes to our notice. A sincere thank you.

Peter Daly