

*This description of the steel making process expresses the deep fascination I have for iron and steel production. Whenever I stand at the site of an iron furnace, I can close my eyes and imagine the furnace at work – the heat, the smell, and the noise – the many men pitting flesh, blood, and muscle to create the metal that built this nation. To stand in awe is to stand in both wonder and fear. I have seen the production of steel – and the vision filled me with awe. Stewart Holbrook captures in words the very essence of that awe.*

## **A Bessemer Blows at Aliquippa**

It was dusk, and we stood looking down into a valley that often knew the night but never day. Smoke poured from a few of the scores of stacks below us, and when the wind rose a bit a mild warm shower of cinders fell where we stood. They were light cinders, falling silently like so much tarnished snow.

One was conscious of more smoke than could be seen coming from the stacks. I actually felt that smoke was everywhere in the valley, and on the hills, too – an all-prevailing smoke, not black, not white, simply a haze that clouded everything from a fly to a building and left nothing in true perspective.

There it was below us, Aliquippa in western Pennsylvania, at work under a smoky moon.

Aliquippa is a mighty enough steel town in a region that knows Steel and little else. I looked down at it through the enveloping haze and knew that the place held secrets that neither the sun nor the moon ever discovered. Even its vast noises seem muted, here in the hill. Only a dull rumbling, rising and falling on the breeze, remained of the accumulated sound of ten thousand men working and sweating in a madhouse that thundered until it shook the walls around them.

But the eye told better of doings in the valley. Now the haze was streaked with bursts of flame, with billows of smoke, and again with small volcanoes of orange and yellow sparks. I thought of Aliquippa as an old man sitting there in the gloom of the valley, sullenly smoking his pipe in the evening: a moody old man, given to expressing visibly his fits of silent temper. When he thought of something long past that made him seethe, he puffed furiously, and the sparks came.

Suddenly, as if the smoke and sparks and streaks of fire had been but a mere kindling of it, the whole valley blazed with a lurid glow – not lightening, not heavy artillery, nor yet a flame thrower, but all three together. One saw the stacks plainly now, stark black silhouettes against a background of red and yellow ... The old man and his pipe had gone wholly mad.

That, said my friend, is a Bessemer in blow.

We went down into the murky lowland and into the steel plant, a place that took in more acres within its high fence than do most farms. Cinders were thicker here, and heavier. Men spoke with their fingers, their hands, their arms.

On and on we walked, past the glittering coke ovens that winked with eight hundred eyes, past the furnaces muttering over their nightly fare of Mesabi ore, and on to the hulking Bessemer shed. Its outside was lost in gloom. Inside was a scene to stop the late Dante Alighieri dead in his tracks.

Here were three tall Bessemer converters in a row. How a Bessemer looks to a veteran steelworker's eye I don't know. To a layman it looks like the egg of a roc, that fabulous bird which was said to have borne off the biggest elephant in its flight. A roc's egg with one end cut off and gaping. It is a container of brick and riveted steel, twice as tall as the tallest man and supported near its middle on axles. It is set high up on a groundwork of brick. Into this caldron goes molten ore, fifty thousand pounds at a time. Through the iron is blown cold air – oxygen forced through the hot metal with the power of a giant's breath. Out of the egg, in good time, comes steel. It is little short of pure magic.

One of the converters was in blow as we entered the shed. Tilted almost but not quite straight up, the mouth of it belched flame like a cannon built for the gods. It was a terrifying site, and hypnotic. I didn't want to look elsewhere, to turn my eyes from that leaping flame which towered thirty, perhaps forty, feet above the converter.

The roar was literally deafening; and little wonder, for here was a cyclone attacking a furnace in a brief but titanic struggle, a meeting in battle of carbon and oxygen, cleverly arranged by the sweating gnomes whose red faces appeared white in the Bessemer's glow. Both carbon and oxygen would lose, each consuming the other, and men would be the winners by twenty-five tons of bright new steel.

The roaring continued. The red fire changed to violet, indescribably beautiful, then to orange, to yellow, and finally to white, when it soon faded. "Drop," the boys call it. I saw the great vessel rock uneasily on its rack, moved with unseen levers by an unseen workman. A locomotive pushed a car close under. On the car was a big ladle. The hellish brew was done.

Slowly the converter tilted over, and from its maw came a flow of seething liquid metal – Bessemer steel. A Niagara of fire spilled out, pouring into the waiting ladle, and sixty feet away the heat was too much for comfort. A cascade of sparks rolled out and over, a sort of spray for this cataract, and it seemed everything in the shed danced with light.

Steel was being born in a light so blinding that one must wear dark glasses to look on it long. It was a dreadful birth. The pygmy men who ran about on the floor seemed entirely too puny to cope with such a thing. One preferred subconsciously to trust in the tall shadows on the walls, for the weird towering shapes looked more in character for this business.

In perhaps five minutes the ladle was filled with the running fire. The bell on the locomotive rang. The ladle was pulled away, out into the darkness of the yard, and a sudden deep gloom settled down in the Bessemer shed. The devil's pouring was over.

It is the most gorgeous, the most startling show that industry can muster, a spectacle to make old Vulcan's heart beat faster, enough to awe a mortal. No camera has ever caught a Bessemer's full grim majesty, and no poet has yet sung its splendor.

What was behind those ten minutes of hell-blowing and pouring of fire? What was back of it? What and who made them possible, these great moments of Steel?

*The text is from the first chapter of the book "Iron Brew – A Century of American Ore and Steel", by Stewart H. Holbrook © 1939 The Macmillan Company.*