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# PILE DRIVING

By RICHARD SMITH, E. 2

It was about the middle of summer, I had been working at my job as rodman for a month, when the idea of changing jobs was suggested by my father.

"How would you like to work nights, Dick?" he asked one evening as the family was gathered on the front porch enjoying the cool lake breeze.

"Who, me? How come?" I asked, surprised.

"Well, I was talking with Frank Dignam today, and he asked me if Mom or I had any objections. They're putting in a new ore field in Plant Two, and they need a few piledriver inspectors."

"That'd be hot!" I exclaimed. "What'd I have to do?"

"Oh, there isn't anything hard about it," he replied. "You just have to tell them where to drive the pile and when to stop. Most of the work would be more or less clerical."

I had several ideas upon the subject of working nights. The main, and perhaps the most illogical one was that if I worked all night and slept in the morning, I would have all afternoon and evening in which to have a general good time. Naturally, I jumped at the chance.

It was several days afterward, however, that I received my orders to report at the ore field. We, the industrious engineers, were lying around on the tables, napping after a hearty lunch. The telephone rang, and the foreman talked for several minutes before hanging up and then, turning to me, said, "Smitty, you report to Hayslette over at the ore field right away. He'll tell you what to do."

I had been contemplating an easy afternoon doing nothing, so this message was none too welcome. However, I had gotten myself into it, so there was nothing to do but make the best of it.

My first job had been only about two blocks from the gate, but now I found that I would henceforth have a good half-mile to walk after entering the office. This, of course, meant at least fifteen minutes more time needed to traverse the distance. In fact, by the time I had reached my destination, a small construction shack crouched in the shelter of a gigantic pile of flue dust which, in turn, was dwarfed in comparison with the huge mass of iron ore forming a veritable mountain in the near background, I had about decided that the disadvantages were almost equal to the advantage of working nights. If I had known at that instant what I afterwards found out of the "advantages" accruing from working nights, I believe I would have been sorely tempted to see my father about getting my old job back.

I reached the shack just as the engineers were preparing to sally forth, and upon telling of my mission, one of the younger fellows volunteered to guide me to the scene of operations.

Before going further, perhaps I had better describe a little of what they were doing. The Inland Steel Company had been dumping all of their flue dust, slag, cinders, and everything else for which there was no better use, into the lake, in order to build up more ground upon which they

could expand. They had done this for years, so that Plant Two had been built nearly a quarter of a mile out into Lake Michigan. This mixture had "set" until it was almost as hard as rock. In order to break this up, therefore, they had to use dynamite in blasting the whole site. Every three or four hours for the first three weeks, they would set off a shot. I was initiated into the way to act on these occasions almost before I arrived at the scene of activities.

My escort and I had threaded our way through the piles of flue dust and down along the retaining wall of the old ore field and were just about to round the corner into the new field when I heard my first blast.

I had heard the sound of the hammer ever since I approached the shack, at first faintly, and then with increasing loudness as we approached the field. Suddenly, however, as we neared the turn, the steady thump, thump, thump was drowned out by a shrill, piercing scream which sounded at short, sharp intervals for several minutes.

"That means they're getting ready to blast—we'd better get behind something," said my companion.

We both jumped behind the wall and looked around. The new field stretched before us each way for approximately an eighth of a mile. We were situated at the extreme southern corner of the field. To the north and east stretched Lake Michigan; to the northwest lay the Youngstown Sheet and Tube Company, separated from the field by the canal. On the two adjacent sides it was bordered by the old ore field, of which it was an extension, and by a long strip of land along the lake used mostly as a switch yard. Down the center of the field ran a great heap of loose rock which had been scraped off the top in order to give the piling a better start on their one-way trip down into the bowels of the earth.

On the far side of the field next to the canal stood the pile driving rig, a clumsy, seemingly top-heavy affair, composed of what looked like, from the distance, a long, slender, bean-pole attached to a short, squat, square box from which black smoke belched incessantly.

Suddenly the ground shook beneath our feet, a tremendous geyser of rocks and dirt rose abruptly from a spot not a hundred yards from where we were standing, the shrill scream of the whistle was reduced to a faint whisper by a wave of sound which literally seemed to hurl us back behind the sheltering wall. Rocks of all sizes rained down about us. By hugging the wall, however, we were in very little danger, although I'll confess my hair did seem to raise my cap an inch or two.

A moment's silence followed, broken almost immediately by a single, prolonged toot which seemed to say, in a more composed way, "Ail right, you've had your excitement and fun—now get back to work!" It was the signal for the men to come out of their hiding places and get on the job. The dynamiting crew started down the hill

(Continued on Page 22)

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## PILE DRIVING

(Continued from Page 5)

from their refuge under a nearby flat car. The hammer, which had never stopped, could be heard plainly again, pounding stubbornly away at the seventy-five foot long pile held firmly in its grasp and being forced steadily, an inch at a time, into the intractable earth.

We approached the rig and I began to get a better idea of how it was built. An ordinary steam excavator with a caterpillar tread was used as a power unit and base of operations. To this were attached the leads, two long, heavy timbers reaching fully ninety-five feet into the air. The hammer, capable of delivering a blow equivalent to five tons, ran up and down between these timbers. The hammer was connected to the boiler by a steam hose. (And what a noise that hammer could make! !)—the kind which was used on the job is composed of three principle parts: the shell, the cap, and the piston. The cap fits over the top of the pile and prevents it from jumping to one side. This is attached to the shell, which incloses the piston. The hammer is let down upon the pile, and the steam turned on; the piston strikes the pile a tremendous blow, driving it several inches into the ground. On the rebound, the great weight of the shell causes it to fall down to the top of the pile again, set for another blow. The hammer must be of gigantic weight so that it will not be knocked up instead of the pile being knocked down. The constant clashing of the cap and the shell is what makes most of the noise. I thought I would go crazy listening to that perpetual crash! Crash!! CRASH!!!—each followed by a catarrhal wheeze of escaping steam. For the first week or so, I thought my ears were bursting; I had a constant, dull headache, I could think of nothing except Bang! Bang! Bang!

However, in a week or so, this discomfort passed, and I began to take an interest in the art of driving piling. As I have said before, the ground was extra-ordinarily hard. In fact, even after it had been blasted, we were unable to get the piling down far enough to suit the bosses. Therefore, a spud, a solid rod of cold-rolled steel, was brought on the job. If this was driven down straight, first, and the jet injected in the hole immediately, we were able, most of the time, to break through the hardest crust and get the pile down most of the way. The jet was a long, three-inch pipe attached to a hose through which water was forced at a great pressure. Using this hydraulic pressure, it was sometimes possible to wash out a hole into which the pile would drop thirty or forty feet before the hammer was used. After the piling had been driven over a sufficient area, they were cut off at a uniform height and used as a foundation for a concrete floor which has to bear the truly tremendous load of a huge pile of raw ore.

Since my knowledge of the business of pile driving is necessarily limited to what I could pick up by personal observation, it must be evident that the foregoing description cannot be taken as authoritative. However, I feel that even if I have learned nothing of the business, the experience was well worth the spending of my whole vacation to get.

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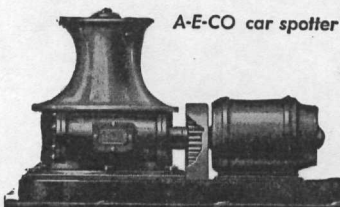
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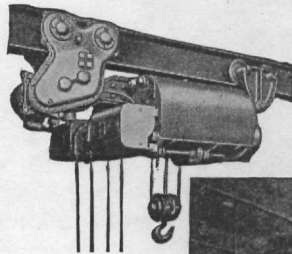
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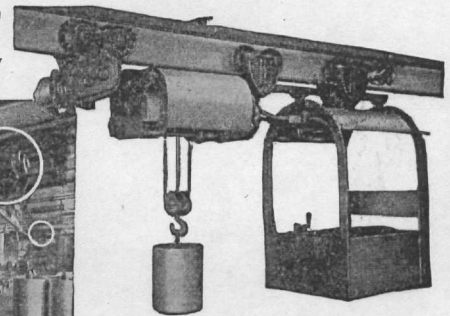


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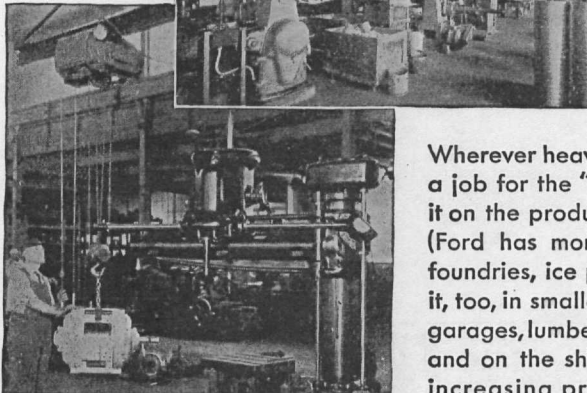


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Below—Lo-Hed Hoist  
in machine shop



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