



# SOCIETY FOR INDUSTRIAL ARCHEOLOGY

## NEWSLETTER

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### 'BAMA IRON FROM TANNEHILL

"Fergit hell!" read a sign on the side of the restored stone stack. Some 111 years after it was rendered *hors de combat* by Capt. Sutherland's 8th Iowa Cavalry (during the "late unpleasantness"), Tannehill Furnace Number 1 was again in blast. Again it was to be a source of iron cannon.

Other charcoal furnaces have been saved, restored, even rebuilt and interpreted. But Tannehill was



Robert L. Johnson [SIA], photographs.

fixed up, charged up, fired up, and tapped. Real fire. Real iron. It was a landmark IA event.

The restored iron works is located in Tannehill State Park SW of Birmingham, Ala. On 16 Sept furnace Number 1—built in 1855—was charged with Brazilian ore, coke, and "lime rock." It was fired and kept in (cold) blast until Sunday 19 Sept. when it was tapped. Molds were on hand for casting shot, souvenir pigs (piglets?) and a mountain howitzer. "Better than two-ton" yield was the estimate of furnacemaster Ray L. Farabee, emeritus professor of metallurgy, Univ. of Alabama. Alas, the iron came too slowly and at too low a temperature for the anticipated on-the-spot casting.

There were some modern touches: a Bobcat front-end loader to scoop the slag. Fluorescent lights in the casting shed. Tuyeres (pr. "tweers") whistling with air furnished by electric Roots-type blower. A hillside swarming not with grimy charcoal handlers but with a cheerful, shirt-sleeved audience.

But the essentials were true and authentic: iron ore being smelted in a century-old cold-blast stone-stack iron furnace, charged from the top and tapped into sand at the bottom.

Restoration of the furnace stack, casting shed, and charging bridge—and their operation on this weekend—was educational, experimental, and expensive. It cost about \$125,000 and there were substantial donations of materials and labor from over 30 interested companies. U.S. Steel provided some 50 tons of high-grade ore, 20 tons of limestone, and 70 tons of coke. Charcoal is too expensive and furnacemaster Farabee noted that there "probably isn't enough charcoal made in Alabama in a year to run the furnace for two days." Molds were produced by Stubbs Foundry and ABEX-Calera (a manufacturer of RR hardware). The work force was mostly from U.S. Steel and ABEX. Dollar support came from

the state, the Dept. of the Interior, the American Revolution Bicentennial Commn., the Ala. Historical Commn., the Birmingham locals of the United Steel Workers of America, and keen individuals.

Putting the old works into working order was fraught with difficulty. Tuyeres had to be fabricated and installed, and a blower to be improvised. The furnace stack still had the old refractory lining with only a three-ft. high hearth added of new firebrick—



which had only 10 hours' instead of two weeks' drying time.

Still, by Sunday morning, Number 1 was putting out some iron. It was a warm day and a sizeable crowd gathered (estimates range from 5,000 to 15,000, exclusive of Boy Scouts and deputies).

The furnace was the main attraction. It didn't roar but it did hiss and flare and smoke. Tons of air were pumped. The stack was charged about every 30 minutes and a tall column of heat-distortion waves emerged from the top. Furnacemaster Farabee recorded a high reading of 3275° F on his optical pyrometer, but the heat wasn't getting to precisely where it would do the most good. Also, there seemed to be some problems of getting the slag and iron to emerge separately, so asbestos-clad workers periodically ventured into the casting arch to insert an oxygen lance. There were satisfying flare-ups of orange flame, with sparks and smoke. Long-handled devices were used to draw off samples, which were given oracular examinations. Glowing, taffy-like slag flowed into channels grooved in the sand, where it cooled until removal via Bobcat. Black-sand molds were painstakingly prepared and held in readiness. But there never was quite enough iron *right there* to resume production of 12-pound Confederate Napoleon cannon.

Iron from Tannehill Number 1 later was re-heated and cast by ABEX, Stubbs, and the Univ. of Alabama.

Furnacemaster Farabee termed it a "glorious success." It was a genuine blast. And yes, they're going to do it again. Most likely July 4. *MR.*

*The undertaking was video-taped by Channel 10 (educational), Montgomery.*

Complementing the furnace in Tannehill State Park is the John Wesley Hall Grist Mill & Cotton Gin, a reconstruction of a structure that operated in the vicinity from 1867 to 1931.