

The Great Guns of France---and Orchids

The "Schneider Soixante-Quinze" Is the Flower of Le Creusot, the Krupp of France, and Mr. Needham Describes This Wonderful New Gun in Its Delightfully Incongruous Surroundings of Park and Flower Gardens

The Correspondent Is Given a "Private View" of the New Siege Gun, "Le Vainqueur."

The circumstances attending the publication of this article from Mr. Needham are described in *The Tribune's* announcement of Saturday as follows: Needham met his death seeking a story. He was making a fight with Reginald A. J. Warneford, the young Canadian military aviator, who on June 6 destroyed a Zeppelin singlehanded. The aeroplane fell—they were killed. A few days before this fight Needham was invited by the French government to inspect the Schneider Iron Works at Creusot—and this is his story:

By Henry Beach Needham.

STILL fragrant, with much of its beauty remaining, a delicate pink carnation, fifty millimetres in size, blooms in a glass of water before me as I write. With some base-metal bullets, otherwise shrapnel, and "visiting cards" (as the foreman called it) of steel, almost, but not quite, as thin as one of our incomparable safety-razor blades, this magnificent flower is the souvenir of a visit to Le Creusot—the "Krupp of France."

Karl Baedeker, whose handbooks for travelers will soon be out of print as well as out of date, tells me that the flourishing town of Le Creusot, with 33,437 inhabitants, owes its prosperity to the Schneider Iron Works, "the most important of the kind in France," founded by Eugene Schneider, who departed this life in 1873, being then seventy years old. "The works," says Herr Baedeker, "comprise coal mines, furnaces and workshops for the construction of locomotives and other machinery, going occupation in all to about 15,000 people." Not a word about cannon or shells or any of the death-dealing instruments in which Krupp wields a world monopoly. The reason for this strange omission in a German handbook is, if Herr Baedeker would put it into words, "Why advertise our great rival?"

The Schneider Iron Works are competitors of Krupp in the business of man-killing supplies for the civilized world. Already Creusot guns, which figured first in the cable dispatches in the Balkan war, are the deadly rival of Krupp guns. If the Allies win, as the Allies mean to win, Creusot guns will have contributed tremendously to the victory. Creusot guns constitute the main defence of France and the secondary defence of Russia, Italy and Serbia. Creusot guns, indeed, are assisting in many a British advance. So when the war is over and normal trade in war playthings resumed, it is highly probable that Creusot, and not Krupp, will be the name on the gun in South American revolutions, as well as the name on the gun of the government de jure. Certainly when Belgium is restored and her neutrality again fortified as well as guaranteed it will be by Creusot guns and not by the "seconds" supplied as before the invasion of Belgium by corrupt Krupp.

Having other information than Baedeker, I knew when the French Ministry of War invited me to visit Le Creusot, with the government arrival at Bourges as a way station, that I was to be shown artillery and shells in the making—perhaps given a "private view" in an atelier (which serves in French for both studio and workshop) of a new mammoth gun, something Jules Verne would have been proud to imagine. I wasn't going to see locomotives building, or the concoction of things to serve the humdrum of peace, but the art of domesticating high explosives. Nevertheless, I was unprepared for the inaugural of the tour of inspection.

The Schneider Iron Works fronts a mean street, and a wall of stone at least ten feet high encircles the giant plant completely. Entrance, therefore, is through immense iron gates, guarded by a man in uniform. I am told that there has been but one strike, that a flash in the pan, in all the history of the stone-stocked plant. Who would be so foolish, I wonder, as to strike against armed Creusot? Just as well might a few regiments mutiny against a whole army!

Upon entering "the works" I saw nothing but a most beautiful park. In its splendid oaks and aged turf and, to the eye, unendingness, this, the owner's playground, much resembles a great English estate. But it was planned as Paris is planned, with an eye to vistas. One way a forest; another, sloping afar off to distant foliage, a carpet of young green; another a glimpse of a broad river (which turned out to be an artificial pond). Only one vista was designed to remind M. Schneider, if he could forget, what it was to which he owed the possession of such an inordinate share of God's footstool—a steel furnace and an immense machine shop, the whole dominated by a sky-

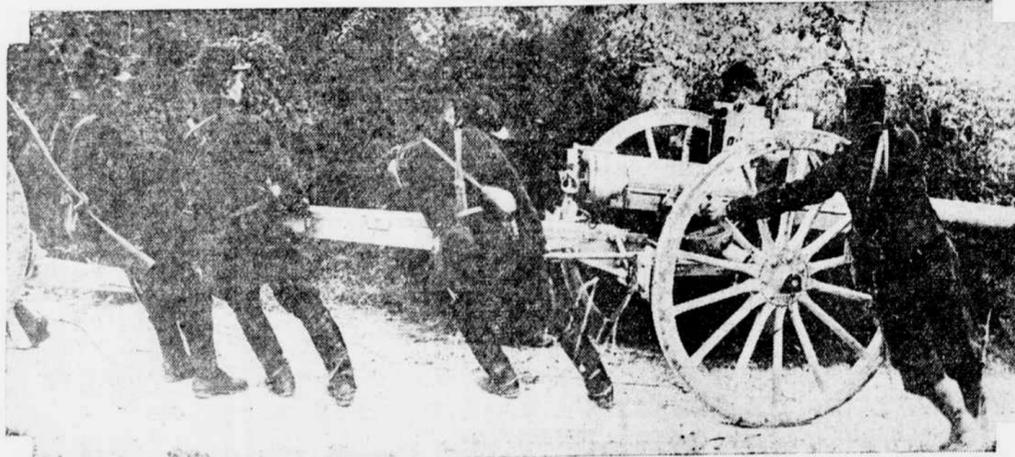
scraping chimney. The chimney is the spire of the Schneider edifice.

At Creusot they do make, in time of peace, locomotives, as Herr Baedeker says, and they do make rails and other useful products. Their pride, however, is the Schneider gun. "Our soixante-quinze is superior to the government seventy-five," they tell you. It is their aspiration at Schneider's to arm all the world, save Germany, Austria and Turkey, and them to disarm.

And on design and workmanship they deserve to, let me say. Take the champion field-piece I have mentioned. Krupp tried to duplicate it in the German seventy-seven, and produced a gun much inferior to the soixante-

quinze (one becomes!). On the dinner table in the guest house of Creusot there was a brilliant centerpiece of the flower called in France La Gloire de Lorraine. All to the glory of the great god Gun.

Mr. Adam, the correspondent of "The London Times," remarked more than once on the three days' seminar in high explosives that only the man who wrote "The Ship That Found Herself" could do justice to the story. Such being the case, I decline to compete. As much as I should like to, I do not intend to start with a dump of iron ore in faroff Africa, or nearby Spain, and give a "movie" of its transformation into, say, the monster howitzer, which shoots a steel projectile about the size of the hot-water boiler in the American kitchen. Certain things stuck in my mind. From a technical standpoint what I have



France's pet "75" in active service.

quinze. At the front, I have seen the seventy-five made in the French arsenal fired. It lacks merely a belt or ribbon for the shells to make it as automatic as a mitrailleuse! But the Schneider seventy-five is a machine-like gun, if not technically a machine gun. The breach-block opens (throwing out the used cartridge case) and closes with a double continuing motion of a single lever, much as this typewriter I am using "clicks up" the paper and shifts the carriage with one lever. I saw the gun fired on the proving ground at Creusot—and heard it. Here is "the constant roar" of artillery.

But one doesn't go first to the proving ground, or to the foundry, or to the atelier for slightly undersized 42-centimetre howitzers, in an excellently organized personally conducted survey of Creusot. There was a trifling incident, as we gathered for the start, that told much.

Our convoy, an officer of Joffre's staff, who played at Schneider's as a small boy, and who married Miss Schneider, therefore knows the place well, started by the nearest way for the park. But no! Organization, represented by one of the officials of the works, led us out into the mean street, along to the main entrance and up the broad highway to the quadrangle which comprises the Schneider homestead. Collected at the entrance was an assortment of ancient cannon, some bearing the crest of Napoleon. Inside the quadrangle the visitor saw, first of all, two pyramids of brick—one-time glass furnaces; for the works started from a purchased glass works. One of these furnaces Mr. Schneider has converted into a chapel, the other into a cozy theatre. This playhouse is really an artistic gem and complete for the most sophisticated performance. There is a royal box, for kings come to Creusot, to order guns to put down revolutions. But there is no peanut gallery.

The entrance hall of the Schneider castle, which is of a much larger calibre than the White House, has, I remember, a bronze bust of Grandfather Schneider, the founder, ornamental racks holding workable French rifles and a superb view of the park. As the day was fine everybody wanted to get out into the park and wander along the leafy walks, scented with luxurious lilacs. As we came upon a bank blazing with rhododendrons, a riot of color. Thence through the greenhouses and finally to the collection of orchids.

The orchids to be seen at Creusot are hardly less wonderful than the soixante-quinze gun, or the work of art that goes in it, the projectile. But necessarily more care is devoted to gun and shell, which must not vary from perfection more than one-tenth of a millimetre. How much is that? Approximately a hair's breadth.

As we left the greenhouse the gardener presented each of the party with a carnation fit for social stage operations. It was mounted on a circular platform of green wire, this fastened to the artificial stem by tiny guy wires (odd how techni-

cal one becomes!). But surely a reporter may look at a technical expert!

The Schneider Iron Works is a limited company, with one-man control, which in normal times bears no more relation to the French government than those of our companies making United States dreadnoughts bear to Uncle Sam. At their other plants the Schneiders turn out battleships and submarines; at Creusot naval guns. But until the war broke out neither guns nor ammunition were made for the French army. For foreign patrons only. Now, in common with industrial France, the Schneiders are mobilized. The workmen are selected by the War Office and are changed from time to time, young men being released for the trenches and workers too old to fight, perhaps men thrown out of other plants by the war, sent into the factory. A worker gets what the French soldier gets, a sou a day, or one American cent, paid by the government, with an allowance for his food. If married the workman's wife is paid by France one franc (20 cents) a day, with an allowance of half a franc (10 cents) for each child. The Schneider Iron Works, out of its treasury, has duplicated this allowance to wives and children. For instance, say a worker received six francs a day before the war, on which he supported a wife and two children. If mobilized for the making of munitions he would receive his own food and four francs a day for his family, plus a penny for cigarettes. The same for a foreman.

The War Office determines what men are to fight and what men engage in the making of guns and ammunition. This results in certain distinctions startling to the peace advocate. For example, two men, heads of families, who are friends and cronies, are employed at Creusot. One, let us say, is superintendent of the shop making steel rails—tracks on which to run trains carrying peaceful citizens and the commerce of a country at peace. The other, superintendent of the department in which projectiles are made—steel receptacles for holding melinite till the horrible thing, nicely timed, explodes and kills men of the enemy. Now, the expert in the making of rails shoulders a rifle and marches forth to battle. But the superintendent of the shell-making factory remains at his old job, far from the front. In other words:

If, in a country where conscription obtains, you desire to insure your son against the perils of international warfare, see to it that he is closely identified with the industry of high explosives.

From a furnace of thirty-five tons capacity a lava stream gushed into a great cauldron, sputtering and sending forth a shower of sparks, as if protesting against its new confinement; thence it was drawn off into moulds, forming steel ingots. When this molten steel flowed forth the foreman standing near me exclaimed:

"Here come thirty-five tons of soixante-quinze shells. Wish we could send them this hot upon the Germans!"

He then explained that this was the "finest quality" of steel—the Martin process—much stronger than the Bessemer. Indeed, he called my attention to the fact that the Bessemer fur-

naces were shut down pending the prosecution of the war. "We are not making rails," he said.

"How much more a ton does this steel cost," I asked, "than steel made by the Bessemer process?"

"About 15 per cent," he replied.

A puzzled look came into his face. But I knew he wouldn't understand; so I didn't disclose the absurd thought chasing around in my brain. Literally expressed it was this:

"Why should better quality steel be used for guns and ammunition than for rails?"

Why superior material in instruments for taking human life than in mechanical devices for protecting human life? I was thinking, you see, that in America, with our heavy equipment a distressingly large proportion of railway accidents are due to defective steel rails.

There is something almost wasteful in the art and craft devoted to the making of the shell—say a seventy-five. This care, of course, is highly essential, from the artillery expert's point of view. The true flight of a projectile depends upon the nicety of the centre of gravity. This is dependent upon the absolute accuracy of every process and detail of shell making. If there be error in any step of the process the projectile, revolving in its flight, will wobble—get off its course—act wildly, like a "spitball" in moist pitching. To avoid such a calamity, the shell is turned to one-tenth of a millimetre, which, as I have computed, is approximately a hair's breadth.

This remarkable accuracy is brought about by the use of American machines—in particular, a chucking machine made in Pawtucket, Rhode Island, which performs three operations without unchecking: (1) shaving down the shell to precisely the right size; (2) cutting the ceinture, or girdle, which holds the copper belt (the guide-belt "taking" the rifling or spiral grooves which produce the rotary motion of the projectile), and (3) finishing the end of the shell, making it ready for the addition of the brass fuse.

In the government arsenal at Bourges there were a small number of these chucking machines from Pawtucket (the censor does not permit me to give the exact number). At Creusot, ten times as many! Our guide emphasized this equipment with great pride as he drew attention to the 100-ton hammer.

At Bourges there were few automatic machines before the war. Now there are many, and by the use of these machines production of fuses has been speeded up forty times what it was. Eight out of ten of these machines are of American manufacture. The same is true of the automatic machines used in shell-making at Creusot. I noted at both places machinery bearing the names of firms at Providence, R. L., Hartford, Conn., and the Ohio cities of Cleveland and Cincinnati.

All industrial France has been divided into districts and mobilized for the manufacture of ammunition. The daily production of shells is enormous, largely due to American automatic machines. France has an immense reserve, and can now fire 100,000 shells a day and continue to pile up the reserve.



Henry Beach Needham.

America, if her industries were mobilized, would astound the world with her production of guns and ammunition due to automatic machines. There is in this certainty a deal of comfort and satisfaction; for in warfare as it now obtains on the Continent shells play a most important part. England is in the throes of a ministerial crisis because of the shell question. France, of all the Allies, is able to regard her situation with a fair degree of satisfaction. This is because her industries are mobilized—and because of American machines. But don't forget, there is a man behind the gun always!

At Creusot I was shown a new siege gun, a monster howitzer, which, if you will keep in mind the linen collar you wear, Mr. Man, is described as a "quarter-size" smaller than the German 42-centimetre gun you have heard so much about. I saw a 42-centimetre shell—one fired by the Germans on the French positions near Verdun, and which did not explode. It had been cautiously rendered harmless by the French, and stood side by side with the projectile of the new howitzer. The nose of the 42-centimetre shell was not so blunt; otherwise it was scarcely larger than the projectile to be fired from the new French howitzer.

This mighty gun, christened "Le Vainqueur," is intended by the French for the bombardment of Metz, Strasburg and the German cities of the Rhine. I wish I might be permitted to disclose its calibre—to set going by house-to-house wireless in America the exact size of this engine of death from which the Germans soon will receive messengers. But I may, perhaps, convey some notion of the sort of projectile fired from this howitzer.

Compare it with the hot water boiler which stands in the average American kitchen. Imagine your hot water boiler, made of heavy steel instead of galvanized iron, and packed with a high explosive. Imagine this "hot water boiler" of steel so loaded with melinite shot miles through space and exploding over buildings occupied by Germans. That's about it.

In the beginning France lacked heavy artillery to support the field-champion soixante-quinze. But Creusot and Bourges have supplied this lack, turning out, in particular, artillery of 155 and 165 calibre. At this time, so well off is France, that Creusot is permitted to make heavy guns for Russia, Serbia and Italy—Italy, for a while, conditionally.

My visit to Creusot occurred a week before Italy's declaration of war to Austria. I was shown some heavy guns, built to be hauled about by tractors, which were "billed" for Italy. These guns were ready for shipment and were about to be shipped, when the Salandra ministry fell. Immediately this happened the French War Office ordered Creusot to hold up the shipment. France was unwilling for these great guns to remain idle. If Italy would use them—use them against the enemies of France—well and good! But if Italy intended to reserve them for military manoeuvres, no! The guns were shipped immediately the Salandra ministry received its new lease of life.

Armored cars, drawn by armored engines, were leaving Creusot for the front. The guns, craning their muzzles from the turrets like telescopes from an observatory, were larger in bore than any guns ever mounted to be fired from railroad trucks. Not content with this achievement, the Schneiders were preparing to mount a much greater cannon, towering, as it were, above two trucks. Returning to the figure above—when peace comes again, perhaps astronomers, taking their cue from the war-makers, will mount giant telescopes on steel trains and move them countless miles, better to make their observations. Even the stargazers may learn from war.

And the women too! I wondered what would

have happened if a delegation of the International Women Peacemakers had accompanied me to Bourges and Creusot. They would have seen, at the former, one third of the employes in skirts. These girls and women in the government arsenal work eight and a half hours a day for six and a half days a week—that is, they are supposed to work only fifty-five and a quarter hours a week. But because of the cry for ammunition, they are working, on an average, ten and a half hours a day. Yes, they are paid overtime.

I inquired of our guide, a colonel of artillery, what these girls and women receive, on an average, per day. The colonel came back, Yankee-fashion, with a question: "You are American, are you not?"

I told him yes. He shook his head, then said: "You would not think it much in America—your standards are different—your cost of living much higher," he emphasized.

One had to agree, of course, to obtain the desired information.

"How much per diem?" I repeated.

"Five or six francs a day," he replied.

At the rate of peace-time exchange, one dollar or a dollar twenty a day—a day of ten and a half hours.

But it is only fair to add that they are doing this for France—for the sons of France; their sons, brothers and sweethearts. Said the colonel to me:

"They haven't grumbled once since the war began, these women!"

It surely was odd to see the work they were doing. A long table, for instance, reminded me of the time of year when the American housewife puts up fruit. But instead of rows of glass fruit jars, there were rows of brass seventy-five cartridge cases. Into these girls were incautiously stuffing two bundles of sticks, one on top of the other. These bundles looked like nothing so much as sticks of pink chewing gum. They were the charge—smokeless powder.

And there were many sweet-faced old ladies, all wearing snowy Berichonne caps—peasant caps of the women of Bourges. One old grandma I shall never forget. Her steel specs had slipped down her nose, and over them she peered at me, most friendly-like, with lovely blue eyes—eyes in which any degree of anger would seem out of place. In front of her on the table was a little vase of flowers, not orchids, of course, but a white rose and some of the bright "glory-of-Lorraine."

Notwithstanding the white cap, the mild blue eyes, and the lovely flowers, the nice old lady was busily engaged in loading fuses with gunpowder! The powder that the nice old lady dropped into the fuse, when the proper time comes, will ignite the high explosive of the shell, causing death by wholesale. And to look at her one would have said that this sweet grandma should be seated in a rocking chair, industriously tating. War works many economic changes!

In the Schneider Iron Works boys are employed to a certain extent. Whether this be war-time expediency, or whether these helpers were in reality young men with boyish bodies, I do not know. But already their lives are pledged to the great god Gun.

There is within the high stone wall surrounding the plant, a sunny house, spick and span, nicely furnished, with "all the comforts of home," in which live a hundred orphans. These are children whose parents are dead—whose fathers sometime made cannon and ammunition, or perhaps it was rails and locomotives. They are cared for by Madame Schneider, and most excellently cared for. Never have I seen a group of healthier children, nor happier, from the little tots who formed a circle and sang in their flat voices a patriotic song, to the two oldest boys working in the school-room—working on some problem relating to gunnery. But one could not help observing that each child wore a belt and that the belt had a buckle or clasp, and that the clasp bore a coat of arms. This coat of arms might be described as follows:

Two crossed cannon rampant, intersected by a dominating and commanding letter "S." The Schneider gun!

At Creusot there is unsurpassed organization, patterned, it may be, from the German, but adapted to French uses; there is high class efficiency, superinduced by the introduction and operation of American automatic machines; there is admirable industry of both men and women, inspired by the splendid French spirit in this hour of greatest need. There is here what could be, in its entirety, a wonderful plant devoted to the arts of peace and the demands of commerce. But now everything, everybody is mobilized.

When peace reigns, the pride of Creusot will still remain the Schneider gun. One sees, one feels this pride, even in the park, in the greenhouses, in the orphanage. The carnations, if not the orchids themselves, are dedicated to the exploitation of war, the orphan boys already consecrated to the great god Gun.