

WOOLWICH IN WAR TIME A TONIC FOR THE PESSIMIST

Visit to Famous Arsenal Disperses Fears Regarding
Purposeful Energy England is Throwing Into
the Work of Forging Material for Her Salvation

By J. M. Tuohy,
(Correspondent of the "New York World.")

The following article, which is an extended form of his appearance in the "New York World," is the first description of Woolwich in war time which has been published.

"Munitions, more munitions, and still more munitions" has been the urgent demand of the British and Allied Armies in the field. To meet that demand, to systematize the munitions industry of these islands, to enlarge it in every possible direction so as to meet all the vast requirements of the military situation of the Allies, the Ministry of Munitions was created two months ago by the British Parliament with Mr. Lloyd George at its head. The work already accomplished in adapting the industrial forces of the country to the vital purposes of this special requirement represents the greatest and most interesting example of improvised industrial organization that has ever been attempted or achieved. To the London Correspondent of the "New York World" has been accorded by the Ministry of Munitions the privilege of being the first newspaper representative to visit and examine the work that has been done throughout the country. The facilities given your Correspondent have been quite unrestricted. The difficulty is to convey an adequate impression of what is being done, for Great Britain's effort is bewildering in its complexity and its immensity. No other impetus but the conviction that the lives, liberties and future of the British Empire are at stake could have rendered such an effort possible. The production of munitions of all kinds at present is stupendous; it is developing almost at the rate of mathematical progression. England has not been supplying her own great wants alone. She is also manufacturing practically all kinds of munitions, from shells to boots, for her Allies, and in largest measure for Russia. She is, in fact, and will continue to be, the arsenal of all the Allies.

A Tonic for the Pessimists.

A plan of the Arsenal unfolded before your Correspondent by the Director, Mr. Vincent L. Raven, in which the new buildings erected since the war began are colored red, showed that in that period its stores and work shops have already been increased by close on 50 per cent. The number of men employed there has also grown by over 400 per cent, and when further extensions now rapidly approaching completion have been finished the personnel of the Arsenal will have been increased by quite 700 per cent. For every new workshop erected consequential provision must be made for all the other departments affected by the additional output—for all the stages of the manufacture, from the stores, magazines, and the handling of the explosives in the "danger section." Formerly the buildings were dotted about with considerable intervening unoccupied sections. Now every possible vacant space is in the hands of builders, so that, together with the actual work of munitions production, cohorts of laborers, bricklayers, carpenters, machine fitters are toiling incessantly. In one great uncompleted workshop the first range of new machines were grinding out shells while another part of the building was being roofed. They realize here that time is not only money, but victory. Hustle, steady, determined, wholehearted, was in sight everywhere. When it is borne in mind that complaint was recently made in the House of Commons, and left practically unanswered, that the resources of Woolwich Arsenal were not being utilized to their full extent, the calculated reticence of the military authorities can be appreciated, even if its policy is debatable. A

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visit to Woolwich indeed should prove an invigorating tonic for the pessimists who have been made apprehensive of the purposeful energy England is throwing into the work of forging the material of her salvation.

Since the adaptation of other factories to the manufacture of munitions began last October, it is to Woolwich the expert engineers from all over the country have come to be trained in the handling of the varied and delicate machinery employed in the manufacture of modern projectiles and their different parts, as well as the chemical processes by which lyddite, cordite and the fearsome T. N. T. are prepared and deposited in the shell chambers of different sizes.

Your Correspondent was shown over this hive of industries by Major Luck, R. A., the Military Assistant of the Director, whose satisfaction at the great work being done by the historic institution with which he is associated was only tempered by the quietly expressed regret that he was not using the shells instead of making them. This is the frame of mind of all the young and vigorous officers I have encountered who are engaged in absolutely essential work away from the front. It is no use telling them in the accepted parlance that they are "doing their bit"—that they are keen about it to share the dangers of the field with their comrades and to assist in killing Germans.

Though I spent an entire busy day at Woolwich Arsenal, and a good part of it a motor-car was used, I left with a regretful feeling of the inadequacy of the time at my disposal. The Arsenal is intersected by a maze of roads, canals, and railway lines; it has a railway passenger service with ten regular stopping places; and bicycle tracks have been laid in many directions to facilitate the workmen in getting about.

In a Forest of Machinery.

Our first visit was to an immense workshop where 18-pounder shells are being punched, turned and finished for the fitting of the fuses. I could not say, even if I were permitted, how many machines were furiously engaged in this work. There was a perfect forest of them—and this shop was erected, the machines made and fitted since the war began—and it has now been in full working order for months. It was only one of numerous workshops in which the same description applies, though many, of course, are of more recent date. In the less skilled portions of the work of shell-making one man can run as many as five or six machines at the same time. In the complicated and delicate work one man is needed for each machine, sometimes with an assistant. In this shop the Earl of Charlemont—tall, slight, fair-haired—an Irish Peer whose patent dates from somewhere about the foundation of the Arsenal, was "doing his bit" in charge of a lathe for 18-pounders. He was in no way distinguishable to look at from his fellows, being in ordinary workmen's greasy breeches and shirt, his sleeves rolled up, and so intent upon his job that he never notices us passing by. I was not permitted to speak to any of the workmen, gentle or simple, but Lord Charlemont has written a letter in which he describes his experiences as an Arsenal hand with simple effectiveness.

In the same shop I recognised a noted middle-weight boxing champion, who, as Pedlar Palmer, was known as a doughty man of his hands. In his day on both sides of the Atlantic. Doubtless an investigation of the identity of the careers of many of these toiling shellmakers would produce a human document and many an example of unselfish patriotism.

The whole vast factory in all its branches conveys a vivid impression of being worked under forced draught. Its forges, its machines, and its explosive houses are going night and day. Everyone is actively employed in his job. Great hordes of boys employed in the purely mechanical work of feeding the machines that make rifle ammunition were busily working under adult overseers. The human boy is always a problem when it comes to making him work, but I was informed that under the discipline of the Arsenal he is doing very well, and that hostels are now being provided where in his out-of-work hours he can find amusement and, if he has a taste that way, the means of improvement as well. Volunteer workers, men of all classes from the City and the West-end, replace the boys on Saturday afternoons and Sundays, enabling them to have a day off, without which they could not bear the incessant strain without injury. There are no women employed yet at the Arsenal, but they are to be utilised in some of the new big shops that are being prepared. But patriotic ladies already play their part within its walls. Several neatly-arranged tea and coffee sheds have been erected in different parts of the works, and here in the afternoon, between 5.30 and 6, and again in the middle of the night, these ladies serve out tea and coffee to the workmen, at a price that barely covers the cost of the materials. Handicrafts are also trundled by them through the workshops, so that the men can have a hot drink and a bun without leaving their benches.

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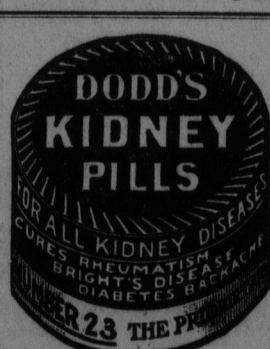
Highly Skilled Artificers.

We passed through extensive shops where fuses are constructed with a fineness and a care as great as are devoted to the best class of watches. Here are engaged the most highly skilled artificers, correcting by hand the parts which even the most delicate machinery cannot always turn out in perfect shape. When the parts of the fuse—some are nearly 200 in number—have been assembled they are subjected to the most rigorous tests, revealing the slightest flaw, with the result that they are returned to the proper quarter for adjustment. All the time large boxes full of these exquisite pieces of mechanism were being rolled away to be fitted to their respective shells—ultimately to be destroyed in an instant when they have done their work against the enemy.

Major Luck displayed a particular interest in the 18-pounder shell, fondling one here and there in his hands with almost paternal affection. These are the shells most freely and effectively used by the British Artillery, and are consequently turned out in the largest number at the Arsenal. Shells of all sizes and varieties are being manufactured, and we saw them in every stage from the steel ingot to the finished shell, from the rough casting, the bore being made in the red-hot mass by hydraulic punches, its rough circumference being polished under the lathe, the indispensable copper per head that grips the rifling of the gun being pressed on, the ends tapered, and, after various other operations, the body filled with shrapnel and appropriate explosive, the fuse fitted, the completed shell sent off for inspection, and finally being tenderly packed in boxes for immediate transport to its destination—whether in Flanders, Gallipoli, the Persian Gulf, the Balkans, or some other region in the ever-expanding theatre of the World War.

The consumption of rifle ammunition in the war has, of course, been fabulous. The reserves have not only to be kept up, but at the present rate of production increased to almost incalculable dimensions. Woolwich is contributing a gigantic and weekly growing quota to this output. Fortunately, small arm ammunition can be fashioned entirely by machinery.

We passed through a vista of buildings where mammoth naval guns were being forged, miles upon miles of hardened steel ribbon or wire wound at high tension round and round their inner tubes to give them the required resisting power; where dread-looking stunted howitzers of all sizes, a vastly useful destructive weapon, lay in long rows in all stages of completion; through masses of yellow painted shell-cases of all bore up to the towering 15 in. monsters such as are eaten up by the up-to-date Gunne Elizabeth; we encountered trains of completed field artillery pieces ready for the fray, with their attendant ammunition wagons; long rows of the newest type of field kitchens; occasionally a batch of powerful motor-wagons passed on the way to the guns mounted; then, again, we were held up while trainloads of shells crossed our route, or other trainloads of picric acid and suchlike agreeable compounds arrived; then, again, we watched great guns, on their massive "sleds" going to or coming from the proving "bays"; we glanced into the Royal Carriage Works where gun carriages were being made



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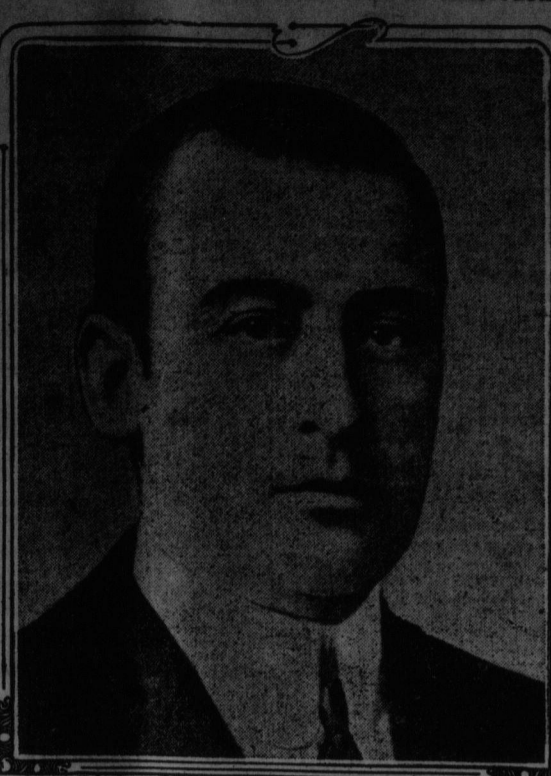
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GEORGE H. MARCHAND

Mr. George H. Marchand, of Lowell, Mass., who takes his seat in the upper branch of the Massachusetts State Legislature in January, is still at work as a chauffeur. In eight years that he has been in political life he has maintained all of his friendships in two particular phases of life, the one as a chauffeur and the other as a legislator. State dinners have been given in his honor, and the chauffeur has appeared as one of the principal speakers after having brought some of his friends to the gathering in his automobile.

side by side with others that had come back from the front to be repaired.

The Danger Section.
But the most eerie sensation that Woolwich affords is a visit to the "Danger Section," where the explosives are prepared and the shells are being hissing and sparkling from the modern precautions accidents are extremely rare, but the feeling that a negligent workman may at any moment have you blown to atoms gives such a visit a certain spice of the adventurous. Until the war began all the shell-filling of the country was done at Woolwich, but now there are shell filling plants in many other munitions centres, while at the Arsenal itself the filling facilities are being multiplied to keep pace with the shell output.

With the Danger Section our tour of Woolwich Arsenal ended. I had been most courteously and patiently shown everything that was to be seen. My technical ignorance had been enlightened by the lucid and ever-ready explanations of the Military Assistant. What is to be seen there of the realised effort, the steadily completed expansion of production, and the rapid growth of further expansion, is a startling revelation. If munitions can win the war—and it certainly cannot be won without them—Woolwich Arsenal will certainly have made a tremendous contribution to that result. Mr. Lloyd George has appointed Mr. Vincent L. Raven, General Manager of the North-Eastern Railway Company, Director of the Arsenal.

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