



# The SECOND LINE of OFFENCE

BY SHAW NEWTON

MACAULAY, in his essay on Frederic the Great, speaks proudly of the wealth of England; the nation which his generation has seen raise the miraculous sum of £130,000,000 in a single year. That was just seventy-five years ago. To-day the mention of £130,000,000 jingles in the ears of even the most ordinary of mortals, like the ring of so much pocket money. England is spending more every month and has been doing so for many months. War has so accustomed us to think in terms of sheer bigness; in budgets of billions, in armies larger than whole nations of the older days, in battles that make the affrays of Napoleon read like a skirmish or a trench raid; that only the stupendous is apt to count any more. And yet, the part that the small things play counts more than ever before.

If it strikes you as ridiculous to say that victory rests upon 1/1000th of an inch, remain tolerant of the foolish remark until you have had time and the opportunity to consider the fuze.

So big is its job and so important, that the fuze seems a mechanism altogether too delicate, and Swiss-watch-like. Without the fuze the hugest shell would drop into enemy works with no more effect than an equal weight of stone or concrete. Without the fuze there could be no shrapnel, no high explosive shell, no torpedo, no mine; in fact, the warfare that we know now could not go on at all.

And in exactly the proportion that it is important, the fuze is delicate. The first function of the fuze is to explode the charge in the shell. The second (and this is just as important, if not more so than the first) is not to explode it except precisely when, and precisely where, the explosion should occur. The tiny jet of flame must be carried from the detonator to the charge with an accuracy measured in fractions of a second, and with absolute dependability; for the success of the calculation of a whole campaign may rest upon its doing its work. And doing its work means that a tiny ferrule of annealed bronze must resist a pressure of so many pounds—and no more; that a diminutive brass rod must move at the impulse of a calculated centrifugal force and not sooner; that the resistance and flexibility of a delicate coil spring be true to mathematical exactness. Upon such LITTLE things depends the burst of the shell and SUCCESS IN THE GREATEST WAR THAT THE WORLD HAS EVER KNOWN.

As you enter Plant No. 3, which is one of the factories where the RUSSELL MOTOR CAR COMPANY is working twenty-four hours a day at fuze-making, your first impression will be one of utter, bewildering confusion. And your second will be that a huge roomful of snarling, irritable automatics can sing a Hymn of Hate of