



Mr. Maxim at eighteen.

THERE is perhaps no more interesting man in London at the present time—not even excluding war heroes—than Mr. Hiram S. Maxim. For the matter of that, Mr. Maxim is a hero of the war, *the* hero of the war. For have not his mechanisms of death oftentimes proved the ruling factor in the many engagements—but all in good time, and, like a good story-teller, I must start at the beginning.

I realised fully that the readers of THE LUDGATE would expect much of me when I bearded this remarkably docile and good-natured lion in his den. Lionised he is indeed, which accounts for almost his first words to me: "From nine o'clock of one morning to one o'clock of the next I am always busy, with never a moment to spare." Nevertheless, Mr. Maxim was able to afford a few minutes to give some details of his inventions, and—none the less important—of himself.

There may not seem much connection between coach-building and gun-making, but it is a fact that Mr. Hiram Maxim began his business life as an ap-

## A DEALER IN DEATH.

BY COLSTON MOORE.

prentice to a coach-builder. This was not a profession of his own choosing as evidences the fact that six months had not elapsed ere he decamped, and engaged himself as a common machine hand to some big works in Fitchburg, U.S.A. With his marvellous brain he soon became an expert in his business, and broadened out his path of usefulness by studying mechanical drawing. Needless to say, in this, as in all the work whereto he has set his hand,

Mr. Maxim was successful, in fact, he became an expert, and even now, in spite of his sixty years of hard toiling, he can still give points to many highly paid men in his employ.

An important



At forty-five.

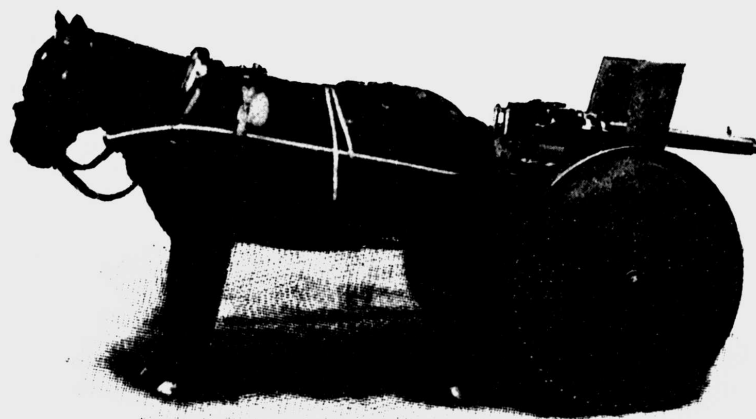


At fifty-eight.



At sixty.

feature in Mr. Maxim's career was his going to Boston, and his subsequent employment in the shops of The Novelty Iron-works Steamship Building Company of New York. It is with wonderful inventions that Mr. Maxim's name is coupled, and shortly after his appearance in Boston specifications of his first invention were filed. What was Mr. Maxim's first invention? I suppose everybody has heard of the mouse trap that claims this honour, so I shall not dilate on its merits, nor on the merits of a certain bicycle that he built when quite a youngster, and which aforesaid cycle was the cause of much trouble in the vicinity of its peregrinations; but really the first important invention was an automatic gas



The first Maxim ever devised. It had quaint shield-like wheels.

machine, a machine widely used in the land of his birth—the Almighty States. Mr. Maxim's work in the regions of electricity has been really stupendous, but wonderful indeed as his investigations were in this quarter they are not what render him the popular personage he now is. The inventions which have achieved undying fame for the name of Hiram S. Maxim were brought to light in 1881 and 1882. The designs of the famous firing and self-loading gun were then first committed to paper, and, if I remember rightly, it was in 1883 that the first "Maxim" was made.

"How did you come to invent this wonderful contrivance?" I ventured.

"Well, you see, it was like this," replied Mr. Maxim. "A long time ago,

when I happened to be playing about with an ordinary military musket, I was very greatly surprised at the strength of the recoil. The energy of this recoil was all wasted, and, to me, it seemed absurd that such should be the case. And so I set to work, and found that this energy could be used to reload the gun with the necessary ammunition. In the South Kensington Museum is the model of the earliest 'Maxim,' and it bears a label to the effect: 'This apparatus loads and fires itself by force of its own recoil, and is the first machine ever made in which energy from the burning powder is employed for loading and firing the arm.'"

"Your invention caused great excitement at the time, did it not?"

"Excitement! Why, yes, everybody almost, from the Prince of Wales downwards, came to see me about it. In fact, I had to use over two hundred thousand rounds of ammunition simply explaining the gun to visitors. At first, as you may well believe, no one would credit my statements. As a matter of real truth, no one quite understood the real significance of my invention.

"When it was first rumoured in the English newspapers that an American engineer had successfully made a gun which would actually load and fire itself by energy derived solely from the burning powder, everyone was incredulous. But the gun had really been made, and was on exhibition before any announcement of this kind took place. The little workshop where this new gun was constructed was situated in Hatton Garden, and when it was fully realised that such a weapon had been made all the 'notables' of London flocked to Hatton Garden to see the wonderful arm and fire it. Those who were skilled in the manufacture of guns, and in naval and military tactics, regarded this novel piece of artillery as

a complete departure, and it was said at the time by those best able to judge that it could not fail to open a completely fresh epoch in the manufacture of arms. The simplicity and rapidity of fire, together with the great lightness of the arm, and, more than all, its automatic action, gave it so many advantages that it soon became apparent that it must inevitably take the place of every other form of machine gun. And this has been borne out by subsequent events."

We have long heard of the Maxim Gun in our little wars. We often read how the natives have been mown down like grass before its hailstorm of bullets. In the present war, however, notwithstanding that the small automatic gun has been very much in evidence, it is the "Pom-Pom" which has proved to be the artillery surprise. The so-called "Pom-Pom" is nothing more nor less than a Vickers-Maxim 1-pounder, using cast iron projectiles, each of which is provided with a percussion fuse and an exploding charge. These guns are identical with the original Maxim except as regards size. The ordinary Maxim uses rifle ammunition, and, of course, is too small to use explosive shell. The "Pom-Pom," however, may, as I have already implied, really be considered as a piece of artillery. The advantage of these large projectiles is that they explode upon striking, and produce a cloud of smoke and dust which is easily discernible. This enables the gunner to see exactly where his projectiles are striking, which is not possible with small guns using rifle ammunition.

During the present war in South Africa there have been several cases



At the closing of Wimbledon Range in 1888, H:R.H. fired a "Maxim" under the inventor's auspices and was photographed in the act.

where a battery of artillery has been put out of action by a single one of these "Pom-Poms." And in some cases batteries of six small Maxim guns have been put out of action by one of the large guns. The Boers purchased a few, which were originally intended for the Italian Government, several years ago, and then established a little factory of their own where the "Pom-Poms" were made.

At the beginning of the war, the British were not supplied with "Pom-Poms," but their destructive properties in the hands of the Boers soon made themselves manifest, and the War Office was not long in purchasing all of these guns that were made or could be made in the time, and also vast quantities of ammunition.

Most inventions come up step by step, but the automatic gun seems to have been an exception, for no one had ever

made an automatic gun at the time Mr. Maxim commenced his experiments at Hatton Garden. So that in this case the original inventor was not only the first to produce automatic guns, but was also the first to manufacture them on a commercial scale and introduce them into the Service. It was many years after the Maxim advent before any other gun-making concern even attempted to make an automatic gun. At the present time, now that smokeless powder has become common, several automatic guns have made their appearance, all worked by the gases, it being remembered that the early Maxim guns all worked by the recoil of the barrel. Mr. Maxim was, however, the first to patent a gas-operated gun, and he made hundreds of these guns before anyone else essayed to do so, and, even at the present moment, the gas-operated guns made by Vickers, Sons and Maxim are much superior to any of the imitations which have since made their appearance.

"I believe it stands to our credit as a nation that we were the first to order a 'Maxim' of you?"

"Yes," observed the Father of Guns, "that is the truth. The English Government were the first to give me an order. The order specified a gun that would not weigh over a hundred pounds and

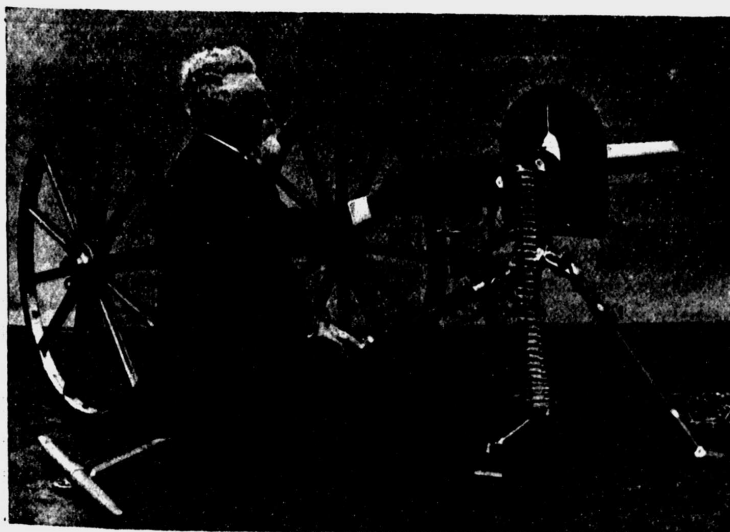
would fire four hundred rounds a minute. I supplied one that weighed forty pounds and fired two thousand rounds in three minutes."

If it had not been for Mr. Maxim's imaginativeness (genius I venture to call it) his brilliant invention might have failed, as Lord Wolseley suggested, on account of the clouds of smoke emitted, or rather generated, on the firing of the gun. This had to be remedied, and so very soon after, that wonder of wonders, almost vying with the gun itself for honours, smokeless powder, was produced. This powder was made by a special combination of nitro-glycerine and gun cotton, and it speaks well for Mr. Maxim that although men more learned in the chemical nature of the affairs concerned were competing, striving hard to be the first to file particulars for letters patent, he brought the fruit of his labours to the Patent Office fourteen days before anybody else.

Whilst on the subject of smokeless powder, I must call attention to a very serious point in Mr. Maxim's life. Such an important invention could not help but arouse the ire of many a man who had been working in the same direction, and it is not to be wondered at that his patent was challenged as to its validity. Many people claimed priority in

patent rights, and one man went so far as to absolutely assert that Mr. Maxim's smokeless powder invention was not his own but the claimant's. Litigation of a very serious and very expensive nature set in, but it stands to the credit of the subject of this article that he has always been able to uphold the validity of his patents.

"Ever since my invention was accepted for patent rights, I have been persecuted and blackmailed times without number," said Mr. Maxim. "Even now I am not at the end of it."



This is a "Maxim" inlaid with gold. It was made for the Sultan of Turkey. It has detachable wheels.

Our talk then drifted away on to flying machines.

"I believe you are busily engaged on the completion of a machine for aerial navigation?" I suggested.

"Well, not just at present. I am so busy with other things, especially with my electrical works, that I cannot find time to complete the flying device I have begun."

"But do you think traffic through the air will soon become an accomplished fact?"

"Without the slightest hesitation I can say that flying machines in the immediate future will be an accomplished fact."

"The importance of such a machine cannot be too highly gauged," continued my informant. "In war, for instance, I think there is nothing so valuable, except guns. The air-ship can be used as a gun. Take, for instance, this case: an air-ship hovering over an enemy's city can drop—unseen, a very important point—bombs into the heart of that same city causing endless destruction. Illuminated shells could also be dropped enabling an officer in the unseen ship to make a hasty sketch of the citadel."

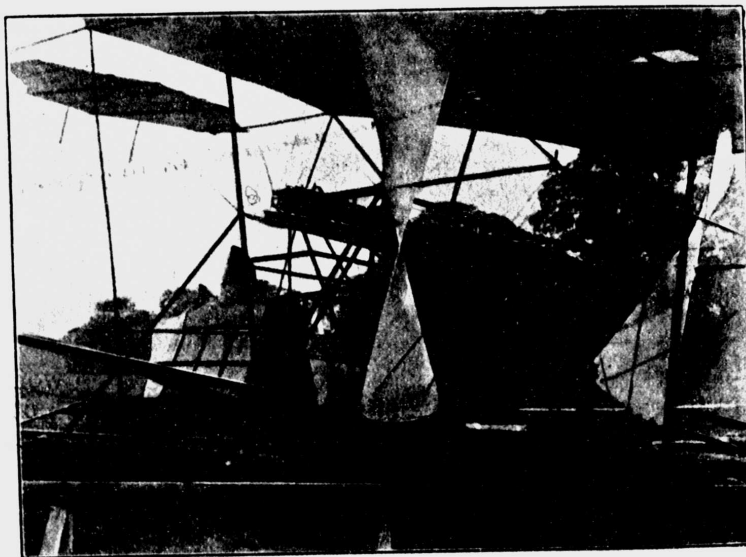
"The experiments in this direction must be very expensive?"

"Yes, like in everything else, you pay dearly for your experiences with flying machines. Accidents are frequent, and tools and machinery, which nearly all must be of especial kinds, run away with lots of money. But, as I said before, transportation through the air is a certainty of the immediate future."

The first experiments carried out in England were made in Kent in Baldwin's Park, with a view of ascertaining accurately how much power was required to perform artificial flight on a large scale. Professor Langley and various others had experimented on a small

scale with an apparatus only weighing a few ounces, but Mr. Maxim started out with the object of learning what the lifting effect would be when much larger apparatus was employed.

However, in the first experiments at Baldwin's Park, the apparatus, although much larger than anything which had ever been employed before, was not large enough to be considered a practical flying machine. In these first experiments, it was found that on an aerial plane set at a slight angle above the horizontal, and driven with a screw propeller at a speed of forty miles an hour, as much as 133 pounds could be carried with the



Mr. Maxim's flying machine after being thrown off the track.

expenditure of one horse power. In Professor Langley's experiments, which were on a smaller scale, as much as 250 pounds were carried with the expenditure of the same force.

Mr. Horatio Philips, who appears to be one of the cleverest engineers in existence, also made experiments on a small scale, and also succeeded in lifting, with the same amount of force, somewhere in the vicinity of 200 pounds.

When, however, Mr. Maxim attempted to make a large machine it was found that size was a most important factor. Professor Langley was of the opinion before this large machine was built that



These men built the flying machine under Mr. Maxim and were sworn to secrecy.

it could not be so economical as a small one, and Mr. Maxim himself expected that he would not be able to carry more than 100 pounds to the horse power on a large machine. When, however, the machine was made, it needed such a multitude of wires and stays to give it the necessary rigidity, that it also required a great deal of power—more than was expected—to drive it through the air at a suitable speed, so that the lifting effect for the power employed fell off. Hence it became necessary to employ more than twice as much power as was first intended, the greater part of this being wasted. The machine, however, had a lifting effect of about 10,000 pounds, or, say, 2,500 pounds more than its own weight.

In these experiments it was intended to run the machine along a railway track, and with very delicate apparatus to find what the lifting effect was both fore and aft, so as to get the centre of gravity directly under the centre of the lifting effect. But it was found impossible to run the machine at any considerable speed without one side leaving the track before the other, as shown in our illustration. Suppose, for instance, that it required a speed of forty miles an hour to lift all four wheels off the track, it was found quite impossible to run the

machine at anything like that speed without one side lifting off. It therefore became necessary to provide an upper track, so that the wheels could only lift about an inch off the supporting track.

The experiments demonstrated that when the wind was blowing across the track, the lifting effect was a great deal more on the windward side than on the lee side. In the last experiments which took place, the speed attained was forty-two miles an hour, and the lifting effect became so great

that the upper track, which had been arranged for holding the machine down, was broken, and the machine rose above the track. When the engines were stopped, the wheels settled down into the turf.

However, as a considerable quantity of the broken track became entangled in the screws and machinery, the machine was very badly damaged, in fact, although Baldwyn's Park was rather a large place, there was no room obtainable for a track greater than 1,800 feet in length, and this was found too short to conduct the experiments in a satisfactory manner.

However, the experiments demonstrated that both lifting and propelling effects could be produced by an aerial plane, and by screws running in the atmosphere. Before these experiments all the military powers of the great nations had been experimenting with balloons. Since they were made both the Americans and the French have been experimenting with machines on the same lines, and Lord Rayleigh, in a late lecture before the Royal Institution, spoke in very flattering terms of Mr. Maxim's efforts. They cost about £20,000, and they will not be renewed, as before stated, until Mr. Maxim again finds time to attend to them personally.

Lord Wolseley, about eighteen months ago, presided at the dinner of the North London Rifle Association, and in an after-dinner speech he lectured the Volunteers on the great advantages of being able to shoot straight. He had much to say on the value of accurate fire, and remarked: "Two things are necessary to the British Empire—accuracy of fire, and Mr. Hiram Stevens Maxim."

I have discoursed at length—by Mr. Maxim's aid—on this gentleman's wonderful inventions, and now about himself. There are few more entertaining men in London, and few who can more quickly see the humorous side of things. The following story will serve as a proof of his pleasantly humorous character. At a recent "celebrity" tea Mr. Maxim entered with two pictures of whales cut from an encyclopædia pinned on to his breast. Many guesses were made as to whom he was supposed to represent, and it turned out to be "The Prince (prints) of Wales."

Mr. Hiram S. Maxim has a strong opinion of his own on the Chinese question, which will be found to differ from the view generally held. The following story will explain.

After one of the "fearful massacres" of missionaries occurred, a meeting was called to pass a vote of condolence with the relatives of the deceased and to condemn the Chinese. Mr. Maxim was invited. He promised to attend if

allowed to speak for twenty minutes. This was agreed to. The meeting assembled, and the time came for him to speak. He arose and argued so forcibly against the motion that before he sat down an amendment was passed condoling with the Chinese, and condemning the English and other missionaries for interfering with Chinese rights.

The speech Mr. Maxim made was taken down in shorthand, and then transcribed and sent to the Chinese Ambassador in America. Li Hung Chang was the next to receive the speech, and he in turn had it beautifully inscribed in Chinese characters and sent to the Emperor. Very shortly after, Mr. Maxim was decorated for his courageous act. He has many other decorations, besides those our portraits show, but the others have been gained purely from his work as an inventor.

And now a word for Mrs. Maxim, a portrait of whom I am able to give here. One can assert without fear of contradiction that there are few more cultivated women in London. A more charming hostess cannot be imagined, such a gracious manner pervades every action that

one is made quite at ease at the outset. If all American women are like Mrs. Maxim, no wonder Englishmen, and Europeans in general, quickly fall victims to their charms. Mr. and Mrs. Maxim are both to be congratulated on their choice of a mate.



An early portrait of Mrs. Maxim.