"FLAMING ONIONS" - THE GREAT ENIGMA

By

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Browse through any book on the air-war of 1914/18 and you are almost certain to find some reference to that most spectacular form of anti-aircraft defence, popularly known as "flaming onions". It is, however, a much more difficult task to locate any two such references that are in total agreement regarding the precise nature and appearance of this unique weapon. Many authors choose to describe it in a most dramatic and colourful manner; others take a much more cautious and conservative approach, while the remainder appear to deliberately avoid making any detailed comment - a policy which seems to indicate their own confusion and indecision about the true facts.

Even amongst World War 1 flyers - men who had first-hand experience of this awesome weapon - there often exists a wide difference of opinion concerning its real purpose and effectiveness. I have long been intrigued by this strangely anomalous situation and recently resolved to investigate the whole matter, in the hope of establishing the real truth about "flaming onions".

I did not, at first, foresee any great difficulties in such a project; feeling quite confident that a few phone calls to local military historical organisations or, at most, a couple of letters to overseas war museums would quickly provide authoritative answers to my questions. In this regard, however, I was to be sadly disillusioned for, although many of the organisations contacted were vaguely familiar with the weapon, not one of them was able to supply me with any specific information on the subject. Even that "mecca" of W.W.1 aero historians - the Imperial War Museum, London admitted that, despite long and diligent searches of official records, no detailed technical data could be located!

Having thus failed to achieve any satisfactory results from contact with authoritative sources, the next logical course of action appears to be in making a comparative study of the numerous accounts contained in both contemporary and more recently published aviation literature. As previously stated, such references - although plentiful in number - are often confusing and, in many cases, quite contradictory in their assertions. Before attempting any detailed analysis, therefore, it seems advisable to predetermine the particular questions for which answers must be sought.

These can be briefly outlined as follows :-

(a) What type of gun was used to fire the "flaming onion" projectiles? Was it a single or multi-barrelled weapon?

(b) What was the origin of the gun? Was it designed specifically for A/A defence, or adapted from some other artillery piece?

(c) What was its maximum effective range?

(d) Was the weapon used exclusively for the protection of German observation balloons, or more generally applied?

(e) What was the shape, size and calibre of the projectile?

(f) Was the projectile explosive, incendiary, tracer - or some combination of these three functions?

(g) Did each projectile produce a single fire-ball or a number of them? If so, how many?

(h) Were the fire-balls actually wired together? If so, when did separation of the shot take place (ie. at the gun muzzle or after a preliminary explosion at altitude)?

(i) How did the fire-balls appear to the pilots of the aircraft under attack?

(j) Was the weapon an effective one, either militarily or psychologically?

Let us examine, first of all, the two specific references to "flaming onions" which appear in Volume VIII of the "Official History of Australia in the War of l9l4-l8" (F.M. Cutlack). In the glossary, on page 447, they are defined as -

"*Flaming Onions*" "*A form of incendiary and illuminating shell much used by the Germans. In appearance it was a string of fire-balls. This shell was used both in order to point out the location of a machine to German anti-aircraft batteries and also against the machines themselves as a means of setting them on fire*".

On page 236 of the same volume, the following footnote appears -

"*Flaming Onions*" "*These were fired from a revolver-gun similar to a howitzer; Six or seven white or green balls of fire, apparently chained together, leaving a like number of black smoke-streams. The fire-balls rose to above 5000 feet*".

In these, as in each of the other quoted excerpts, I have underlined certain key words or phrases in order to draw the reader's attention to their importance in relation to this study.

The glossary description suggests that, although "flaming onions" were primarily incendiary projectiles, they also served to illuminate the target aircraft for the benefit of the regular anti-aircraft defences. This explanation seems a logical one as most attacks on observation balloons were made either in the late afternoon or early morning, when visibility was extremely poor. Furthermore, the attacking pilots were usually careful to approach from the darkest side of the balloon so as to avoid being silhouetted against the sun. Notice, however, that Cutlack does not refer to them as "tracers" but rather as "*illuminating*" shells - thus emphasising the point that they did not necessarily serve to correct the aim of the "flaming onion" batteries themselves.

Cutlack's use of the term "*revolver gun*" is somewhat vague and, at first, confusing. This might be interpreted as describing a weapon with a single barrel and a revolving chamber or, alternatively, one with multiple barrels rotating past a single firing chamber - after the style of the earlier - "Gatling Gun". However, his subsequent statement that it was "*similar to a howitzer*" helps clarify the situation. If we assume the basis of this comparison to be one of general appearance only, the first possibility can be discounted as only a weapon of the multi-barrelled type could be visually compared with the distinctive squat shape of the W.W.1 howitzer.

The author's claims regarding the number, colour and range of the fire-balls are reasonably straightforward and require no further comment at this stage. I must, however, draw the reader's particular attention to Cutlack's careful choice of words in describing these projectiles. Notice how, in the first instance, he states that "*in appearance*" it was a string of fireballs, whilst he also cautiously uses the phrase "*apparently chained together*" in the footnote. His obvious reluctance to make a more authoritative statement on this point is, I believe, indicative that, even with the extensive research facilities available to him as an official war historian, Cutlack was unable to find any definite proof that the fire-balls were actually linked together.

Another report, worthy of careful study, appears in Tyrrel M. Hawker's fine biography "*Hawker VC*". It is also interesting insofar as it offers a possible explanation for some of the confusing and contradictory claims that have been published throughout the years.

"*He also teased a German 37 m/m automatic repeating gun, which fired bursts of tracer shells. Seen from the target aeroplane the distances between these burning shells were foreshortened, so that they appeared strung together, hence the name given to them of "flaming onions". Lanoe discovered that he could foretell the direction these shells would take from the angle of the "string" of onions, and he easily avoided them*."

Here we find a writer who shows sufficient confidence in his own research to categorically nominate the calibre and design of the weapon used, yet immediately follows this with the somewhat questionable claim that "flaming onions" were tracer shells! My own knowledge of ballistics is extremely limited, but I cannot agree that this was the primary function of the projectile. As I understand it, the purpose of early tracer ammunition was simply to show the line of flight being taken by the explosive or incendiary shells with which it was mixed. This function must, therefore, have been of only secondary importance. Perhaps Hawker meant to convey the same idea of "*illuminating shells*" as expressed by Cutlack, but failed to choose his words quite so carefully.

I also feel that this author may have used the term "*automatic repeating gun*" rather loosely, as no further evidence can be found to substantiate a claim that it was a fully automatic weapon. It could, perhaps, have been more accurately defined as "semi-automatic" for some manual operations must surely have been necessary to load and fire a gun of that particular calibre and vintage.

The most important feature of this particular reference is, of course, the author's simple and logical explanation as to why the fire-balls appeared strung together. This theory is further strengthened by the fact that the vast majority of first-hand accounts describe them as "strings" rather than as "bursts" or "clusters" etc.. It is easy to imagine how, during the fever-pitch excitement of a balloon attack, some pilots could have visualised wires linking, the fire-balls into a single chain, whether or not such things did, in fact, exist.

By far the most graphic and colourful of all published accounts is to be found in Arch Whitehouse's autobiography, "*The Fledgling*". His flamboyant literary style - developed over many years of writing both factual and fictional aviation books and articles - is very evident in this

short extract.

"*Next there was a donation of flaming onions, the most awesome projectile that had so far been devised by man. They came twirling up at us, chain-shot of a kind, giving the impression of four greenish fireballs linked together. They approached slowly, end over end, spitting and sputtering, but always seemingly headed directly for our nacelle. I wondered what would happen if one fouled the propeller. It wasn't the fire or the nauseating colour, it was the maddening, determined, leisurely pace of their approach that made me cringe*."

If we are to accept this as being an accurate and unadorned account of how "flaming onions" appeared, we must discount the previous theory, for it is obvious that the fire-balls could only have been described as "*twirling..... end over end*" if each cluster was wired together and, therefore, produced by a single shell. Notice however, how Whitehouse makes one authoritative statement (that it was "*chain-shot of a kind*") and then subsequently sows the seed of doubt with his cautious remark that they gave "*the impression*" of being linked together. His own unwillingness to support the claim with a positive assertion must leave most readers with some misgivings as to it's reliability.

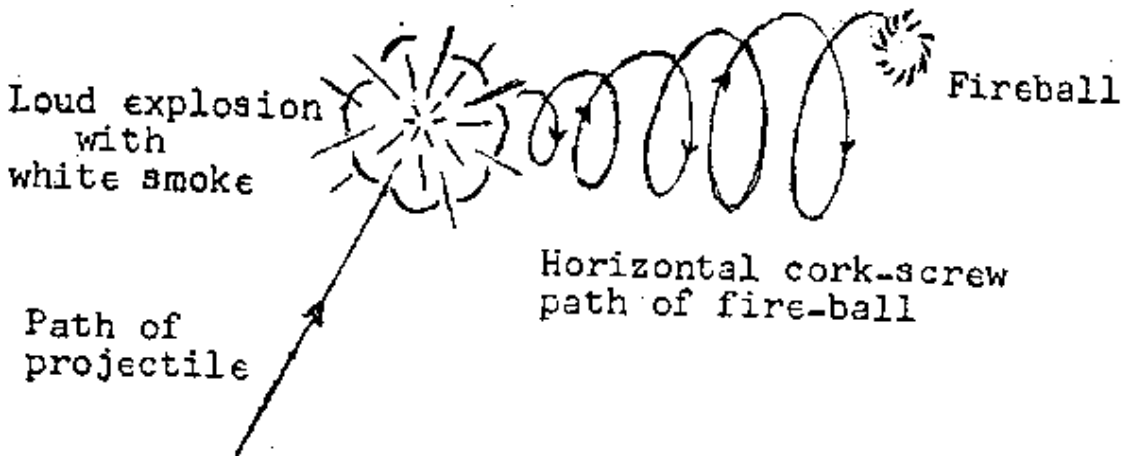
Could it be that, in preparing this account, he has unconsciously allowed his original mental concept of "flaming onions" to become embellished and distorted by a natural tendency towards imaginative journalism? I should, perhaps, point out that this description was written almost fifty years after the author's last encounter with "flaming onions"; during which time he wrote a prodigious number of colourful and dramatic aviation stories. In such circumstances it would have been most difficult for him to avoid confusing earlier fictional interpretations with his own factual recollections.

A most puzzling description of "flaming onions" was published in the "*Cross & Cockade*" Journal (Vol.1 No.2) back in 1960. It appeared in an article entitled "*A Brief History of the 27th Aero Squadron, A.E.F.*", written by H. Hugh Wynne.

"*This was the first time any of the pilots had come in contact with the "Flaming Onion". According to descriptions it burst with a crack much like the high explosive "Archie" but was of white smoke. Coincident with the explosion a ball of fire cork-screwed through the air in a horizontal direction along an ever widening circular path.*"

A glance at the accompanying sketch, based on this report, will clearly indicate that it is totally unlike any other known description of "flaming

onions".



No supporting evidence can be found for this quite unique theory of a combined explosive/incendiary projectile, ejecting a single fire-ball out along a horizontal spiralling path. It is, in fact, impossible to reconcile this concept of "flaming onions" with any other account ever published. I have the greatest respect for Hugh Wynne as a most capable and responsible aviation historian, yet I cannot help wondering if the "old~timers" who supplied him with this information were, perhaps, indulging in a little good-natured leg pulling"!

Several modern-day writers have contributed to the general confusion associated with "flaming onions" by failing to undertake sufficient research or - far worse - by making the most outlandish claims, based entirely upon their own personal interpretations of previously published accounts. Typical of these is the author Alan Morris who, in his recent book "*First of the Many*", describes them as "*a sinister but ineffective device of threaded explosives scattered by rocket tubes*."

There are, of course, many other literary references which, for the sake of brevity, cannot be discussed here at any length. Usually they have little to add to the knowledge already gained. Most are quite similar in detail (or lack of it.') and vary only in the degree of imagination with which their authors describe the appearance of "flaming onions". For example - "*a phosphorus ball, like a Roman Candle ball, only bigger*" (Charles R. D'Olive in C.& C. Journal, Vol.1 No.1) or - "*like those flower-pots we used to have on the Fourth of July*" (Norman S. Hall, quoting Frank Luke, in "*The Balloon Buster*").

I recently asked Mr. Eric Dibbs (an Honorary Member of this Society and a former pilot with No.2 Squadron, A.F.C.) to give me his impressions of the "dreaded flaming onions". Here, briefly, are his comments "*We encountered "flaming onions" quite frequently, but had no fear of them whatever. They came up relatively slowly and thus gave us plenty of time to take evasive action. They seemed to have a limited range of perhaps five or six thousand feet. In appearance, "flaming onions" consisted of a string of white circular fire-balls, very close together and in a straight line. I don't recall ever seeing any green ones. When they reached their maximum height they simply died out and disappeared. There was no sign of any preliminary or terminal explosion.*"

I consider this to be a most accurate and reliable first-hand account, for I have absolute faith in Mr. Dibbs' integrity as well as his phenomenal memory concerning details of his W.W.1 flying experiences. The suggested maximum range of the weapon could, perhaps, be subject to some error, as it is based upon visual observations made from the higher altitudes at which the S.E.5a machines of No.2 Squadron usually flew. Under such conditions, it would have been most difficult to gauge this with any degree of accuracy.

The astute reader may have noticed that, up to this point, we have only considered reports emanating from British Sources. From the outset it was obvious that, because the weapon in question was (presumably) of German origin, the most logical place to look for authoritative information would be Germany itself. My complete ignorance of that language precluded any personal research and, although an overseas colleague has been undertaking this task on my behalf, no positive results have yet been achieved.

Just when things began to look quite hopeless, I came across a most informative and surprising account of "flaming onions" given by a former Captain in the Imperial German Balloon Corps. This was incorporated in an interview with Mr. Karl Kuster, published in the "*Cross & Cockade*" Journal (Vol.5 No.3).

"*We had what we considered good protection around the balloons. Usually, the defenses consisted of about six machine guns, and out of the old fortress we had a gun with a magazine similar to a revolver. It didn't shoot an exploding shell. It had a diameter of 1½" and although they seldom hit anything, when the enemy pilots saw them they were scared stiff. In those days airplanes flamed pretty easily and this ball of fire was nothing to fool around with. I have never heard of that expression of yours, "flaming onions", but every balloon had one of these guns and it may be*

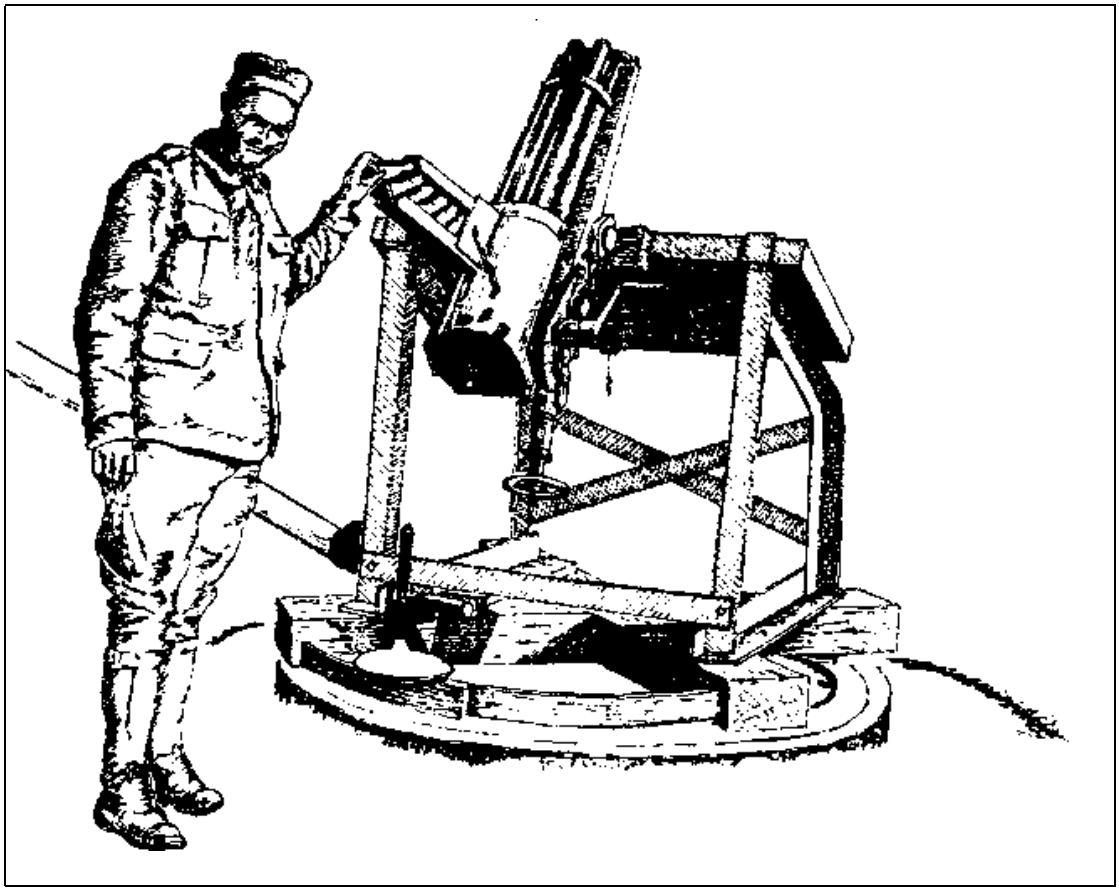
what the Allied pilots were referring to. Occasionally, of course, they would hit an attacking plane, but they were not considered to be too accurate…. Later in the war they pulled more of these old guns out of the various fortresses, such as Verdun and Ulm, and others, and placed them around the balloons. But I always felt they were more of a morale-builder than anything. Most of the planes shot down while attacking balloons were shot down by the machine gun defenses."

It is not at all surprising to find that this man was unfamiliar with the term "flaming onions" as it was simply a colloquialism, coined by the British pilots who first encountered the fiery spectacle. His comments about the origin of the guns are, however, both interesting and enlightening. If these were originally installed in military fortresses, they are more likely to have been designed as anti-siege weapons, rather than for anti-aircraft use. The fact that they were considered "old" at the time also suggests that they were manufactured in pre-war days - long before the need for an anti-aircraft weapon of this nature could have been envisaged. Converting them for anti-aircraft defence would have been a relatively simple matter of fitting high angle mountings and changing over from the conventional type of ammunition.

By describing the gun as having a "*revolving magazine*" (rather than revolving barrels), Mr. Kuster raises fresh doubts about the construction of the weapon. His account does, however, completely dismiss the theory of an explosive projectile and it also confirms Hawker's claim that the gun was of 37 m/m calibre.

It is obvious, from his remarks, that the weapon's "bark" was far worse than it's "bite" and was consequently of more value as a psychological deterrent than as an effective military armament. As we have already seen, some Allied pilots adopted a casual - if not entirely contemptuous attitude towards "flaming onions". On the other hand, there are numerous accounts which tend to confirm the weapon's effectiveness as a psychological deterrent. For instance, Cutlack states that they were "*heartily detested by the airmen at all times, and to cripple an "onion" battery was sweet revenge*". In his book "*Tiger Squadron*" Ira Jones describes "flaming onions" as "*a maze of hate*" and denounces balloon-strafing as "*a hell of a game*" - "*easily the most dangerous of the war airman's duties*".

The most important break through of the entire research programme came with the discovery of a photograph which purports to show the actual weapon and describes it, in the caption, as a "5 barrelled, 1-pounder". The accompanying illustration has been prepared from this photograph, which was originally published in the "Cross & Cockade" Journal (Vol.6 No.1). It is certainly worthy of close inspection and analysis.



Notice, first of all, the gun mounting, which appears to have been rather crudely constructed from angle iron and supported on two massive wooden cross-beams, partly braced with hoop iron. The whole structure revolved about a circular concrete base, set into a mound of earth. It is at once obvious that this was a reasonably permanent installation, rather than a temporary or portable one. A stout pole was apparently used to turn the mounting on the circular track. This would, no doubt, have been the duty of at least one crew-member, while the gun operator rode on a small steel platform and was able to lock the mounting at any desired position by means of foot pedals or levers. A third crew member would have been required to feed the ammunition and assist in aiming the weapon.

Assuming that the soldier, in this illustration, was a man of average height) we can reasonably assess the dimensions of both the gun and it's ammunition. The gun itself appears to have been about 4 feet in length, with a diameter of about 12 inches. It was fitted with multiple barrels (probably five, as claimed) which would almost certainly have revolved past a single firing chamber. Elevation control was by means of a quick-action wheel mounted on a geared shaft beneath the gun and the front-sloping platform on the mounting suggests that the weapon could, if necessary, be depressed below the horizontal position.

The large crank-handle, situated on the right-hand side of the chamber

was obviously used to rotate the barrels and fire the weapon in a semi-automatic fashion. The shells, which appear to be about 6 inches long and l½ inches in diameter, were individually loaded into a chute located on the upper left-hand side of the chamber. This chute, no doubt, fed them directly into the firing chamber. Unfortunately the photograph does not offer any evidence as to the method of cartridge ejection. Notice that there are no less than 6 shells in the chute itself - and there is probably another one in the firing chamber, although this is not, of course, discernible in the photograph.

Here we have a most valuable clue concerning the nature of the projectile, as it indicates that the number of shots in a "burst" of "flaming onions" would depend upon (a) how many shells were in the chute at the time, and (b) how long the crank-handle was turned. This weapon was obviously cumbersome to manipulate and could not, therefore, have been brought; to bear on a fast-moving target for more than a few seconds - probably only long enough to fire off a burst of six or seven shells at the most. Of all the many reports that I have examined thus far, only one (Whitehouse's) contradicts the theory of a varying number of fire-balls present in each burst of "flaming onions". This is, I believe, evidence enough to convince even the most sceptical reader that they could <u>not</u> have been wired together. To be so joined, they would have had to be loaded into a single shell -each of which would produce a <u>uniform number</u> of fire-balls.

Before finishing, let us briefly review the list of questions and see what answers we have been able to find. It seems reasonable to assume that we now know what the weapon looked like, how it was operated, and something of its origin. If we are willing to accept the theories put forward, we may also claim some knowledge of the size, shape and function of the projectiles. The question of their construction appears to have been resolved, while we also have a clearer understanding of the military effectiveness of the weapon.

Yet there are still some questions left unanswered. Even some of the conclusions that have been reached are based largely on supposition and must, therefore, remain open to question and possible argument. Until these have all been satisfactorily answered and proven, I will continue to search for the truth. Perhaps one of my readers, inspired to further research by this report, will someday discover the vital clue which solves, for all time, the fascinating mystery of the "flaming onions".