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THE BSA PISTOLS

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The conclusion of the Great War in November 1918 heralded an abrupt and lengthy decline in the fortunes of the arms industries of both Britain and Germany with the sudden termination of the massive Government contracts that had created such expansion and prosperity since 1914. The Birmingham Small Arms Co. had expanded to three or four times its pre-war size to produce Lee-Enfield rifles and Lewis Guns at weekly rates of thousands and had spares on hand for hundreds of thousands of weapons at the end of the War.

The public and political attitude at that time to weapons of all types — and particularly anything overtly military — was, understandably, one of total rejection following the years of futile slaughter in France and Belgium. With no prospect of military contracts anywhere, bankruptcy was the imminent prospect for many of the great arms makers. Contraction, redundancies and diversification were the order of the day to survive at all.

Figure 1: (Top to bottom) The .45 ACP, .34 Belted and .32 ACP BSA pistols

Having been the largest non-Government-owned military rifle manufacturers in 1914, BSA had relied mainly on Government contracts, primarily from the British Army and Colonial Governments for British patterns of military rifles — Lee Metfords and Lee Enfields of various marks — for its income before the War. The sporting rifles offered pre-war were adaptations of these actions, miniature (.22") rifles, also of military (Lee or Martini style) patterns and Lincoln Jeffries air-rifles. Previous lean times in the late 19th century and after the Boer War when Government contracts had dried up had led BSA to diversify into bicycle and motor cycle manufacture and this protective stance was adopted in 1919 as well, with divisionalisation of the company.

The newly formed BSA Guns Ltd. division immediately reverted to the non-military sporting rifle and air-gun designs of 1914, but also attempted two steps in the dark by developing a 'machine made' shotgun and by making the last serious effort to produce a new domestic auto pistol design for over 70 years. These new BSA weapons were designed on a basis of no previous shotgun or pistol making experience. Their 'Unique Selling Proposition' for the pistols appears to have been a brand new range of pistol cartridges originating within the Eley organisation with, uniquely among pistol ammunition, belted rimless case construction.

The British ammunition trade fell on similarly hard times in 1918, but planned for this by agreeing to merge the major players — Eley Bros., Kynoch & Co., Nobels Explosives Co. (incorporating Birmingham Metal & Munitions Co. and F. Joyce & Co.), and the Kings Norton Metal Co. — under the name Explosive Trades Ltd. and rationalising their activities, putting metallic ammunition manufacture in the sole hands of the previously Kynoch-owned Witton factory in Birmingham. This merger of interests occurred at the end of 1918 as Government demand was being run down and the new company immediately formed a Rifle Committee to produce innovative, optimised designs of ammunition to stimulate commercial interest in the post-war civilian markets.

The first products of the ETL Committee were novel ranges of rifle and pistol ammunition designed in conjunction with BSA for their re-entry into the sporting rifle and pistol markets. These were all based on the belted rimless style of case, no doubt to appear as the latest technology. As Pollard [1], writing in 1919, notes, in the only contemporary reference to the BSA pistols and cartridges: 'The new belted cartridges are at the moment experimental, but they will soon be on the market and reduce all earlier cartridges to a comparatively obsolete standard.'

The choice of a belted case for these new designs, as for several other proprietary cartridges proposed by ETL in 1920/21, such as the .250", .370" and .380" Cogswell & Harrison as well as the BSA .26", .33" and .40" rifle cartridges may also have been prompted by the expiry of Holland's 1904 patent (BP 27,912/1904) in 1918. Holland's in turn was the third UK patent for the belted case, this having been first covered by Accles (BP 12,704/1889) and then by Roth (BP 5,592/1891).

THE BSA PISTOLS

There is no doubt that these pistols must have been one of the least successful projects undertaken by BSA. The pistols are virtually unknown today and what little is known relates more to their unique ammunition than the guns themselves. Virtually no examples exist, no internal company documentation seems to exist either; neither do any patents, nor were they were ever offered for sale commercially or catalogued by BSA. Wilson [2], writing the most comprehensive text of the time on the subject of automatic pistols only a dozen or so years later, makes no mention of them at all. The only contemporary mention of them, as noted above, is Pollard writing in 1919, who mentions them in passing as the approaching *nouvelle vague* — 'Already the Birmingham Small Arms

Figure 2: .32 ACP BSA pistol, left side. Note the 'COCKED' inscription on the grip safety and conventional finger gripping serrations to slide.

Figure 3: .32 ACP BSA pistol, right side. Note 'ARME' on grip safety.

Figure 4: .34 Belted BSA pistol, left side. Note 'COCKED' on grip safety and gripping cuts in slide.

Figure 5: .34 Belted BSA pistol, right side.

Figure 6: .45 ACP BSA pistol, left side. Note riveting of internal cam apparent on exterior in front of the trigger guard.

Figure 7: .45 ACP BSA pistol, right side. Note Birmingham proof marks on barrel and rear of frame.

Company and the Remington U.M.C. are experimenting with pistols which will embody the latest scientific knowledge and the best modern practice. These will be the pistols of the future, embodying the whole knowledge of the past' and 'A new range of .400 automatics are now being tried for military purposes, and the post-war models are obviously better than existing types, as they embody the latest ideas and practice on the subject.' Whilst Pollard did write up the Remington pistol at length in 1920 in *Arms & Explosives* [3], no further allusion was made to the BSA.

None the less, three examples do survive (Figure 1) and are described here in detail for the first time. Figures 2-7 show overall views of the pistols. Only one — the .34 — is chambered for the special BSA belted ammunition, the other two being in standard .32 ACP and .45 ACP calibres respectively. All three are very evidently hand-made and fitted prototypes, with many modifications and parts riveted on. The hard rubber grips, which bear the sole marking, the BSA stacked rifles trade mark, are hand pantographed and hand chequered, not moulded. Only the .45 carries Birmingham proof marks; the .32 and .34 are completely unmarked.

In truth, the BSA cartridges are the most exciting thing about the pistols, as the smaller calibre versions are basically very close copies of the simple blowback FN Browning M1910 pistol (Figures 8 and 9), with some minor improvements. The largest combines the same lock work and safety

Figure 8: DWM Model 1923 (copy of FN Model 1910) pistol, left side. Note similarities with .32 BSA pistol

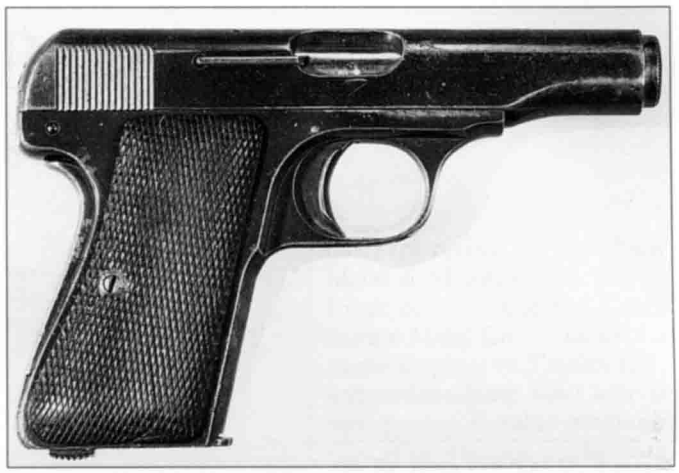

Figure 9: DWM Model 1923 pistol, right side.

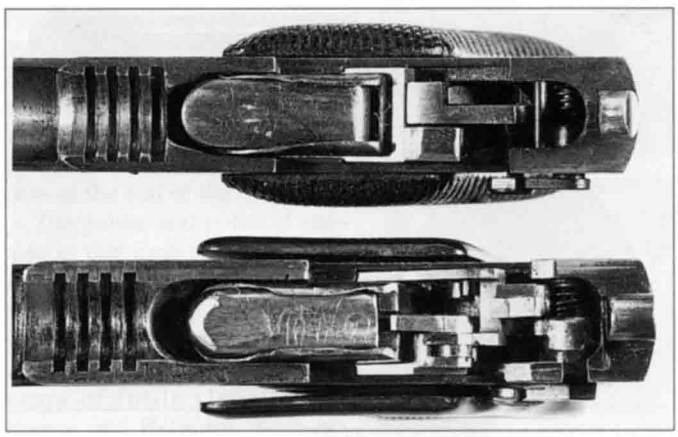

Figure 10: Comparison of lock work of (top) DWM (FN M1910) pistol and (bottom) .32 BSA pistol. Note addition of roller in disconnector pad and central hold-open catch in the BSA, requiring the sear to be offset to the right. The safety lever and barrel retaining grooves are virtually identical in design and function.

systems with a short recoil/rotating barrel locked breech system very similar to the Steyr Hahn M1911 pistol or, more closely, the M1916 Mauser/Nickl pistol; coincidentally the Nickl was undergoing trials for Army adoption as the M1922 in the nascent Czechoslovakia at this time. The lock work of all three pistols is virtually identical in action and very similar in layout to the M1910, as Figure 10 — comparing the lock work of the .32 BSA and the FN M1910 — and Figure 11 — the interior of the slides of all four pistols — show.

The M1910 shown is another (exact) copy of the original FN pistol, made by DWM from 1923 in a parallel attempt by BSA's closest German analogue (as a private sector military rifle and machine gun manufacturer without extensive pre-war commercial sporting sales) to expand into the commercial pocket pistol market, under extremely difficult circumstances of proscription from military weapons manufacture by the Inter-Allied Control Commission.

The BSA pistols all incorporate the *triple sécurité* features of the FN pistol, having a magazine safety, grip safety and applied lever (sear blocking) safety, which also, as on the FN, doubles as a stripping latch on the two smaller pistols. The

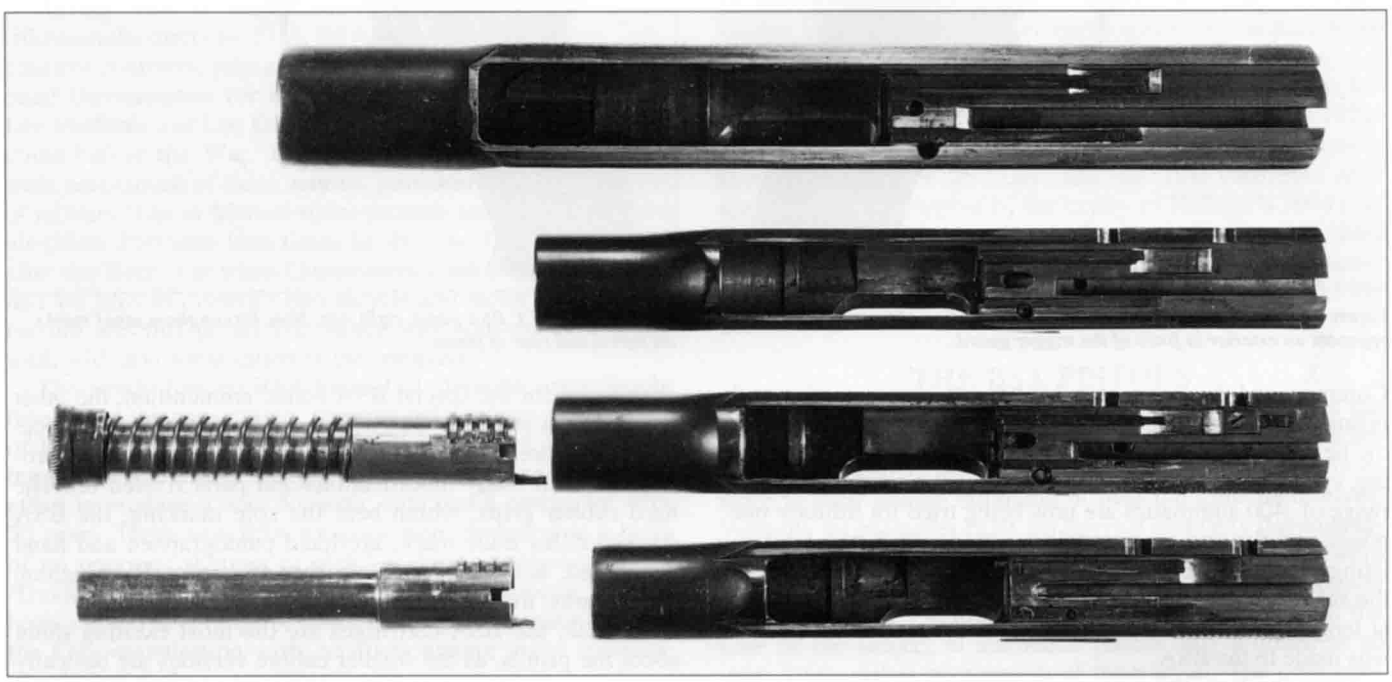

Figure 11: Comparison of (top to bottom) .45, .34 & .32 BSA pistol with the DWM (FN M1910) slides, showing the similarities. Note the addition of the hold open slot just behind the breech face of the BSA pistols and the screw retained cam added to adjust the disconnector timing of the .32 BSA. The .32 BSA barrel is shown assembled with mainspring and muzzle cap, but is otherwise virtually identical to the DWM pistol.

Figure 12: .32 BSA pistol stripped. Note the grip plate retaining dovetail lugs and spring.

Figure 13: .34 BSA pistol stripped.

Figure 14: .45 ACP pistol stripped. Note the flat rectangular section main spring and the two-part locking lug around the breech — the helical section mates with the cam in the frame to control barrel rotation while the square section locks by engagement with the slide cutout.

Figure 15: DWM Model 1923 stripped for comparison.

BSA pistols all have the refinement of a roller disconnector cam follower (Figure 10) rather than a plain slider as the FN pistol. They also incorporate the push and turn muzzle cap/main spring retainer of the FN, with the modification that the cap is also retained by bayonet lugs to the barrel, which is stripped (by a quarter turn and pull forward with the slide, as the FN) *en-bloc* with the main spring and cap, which remain as an assembly outside the pistol (Figure 11). The .45 pistol is stripped similarly, but the barrel does not remain assembled with the main-spring and is extracted separately before the slide. Figures 12-15 show the BSA and M1910 pistols stripped to their major components for comparative purposes.

The grip safety also acts as cocking indicator, being pivoted at its top rather than the bottom as the FN pistol's; it is held prominently protruding from the rear of the grip, by interlocking with the sear, only when the firing pin is cocked. The .32 pistol is marked 'COCKED' and in French 'ARME' on opposite sides of the grip safety lever (Figures 2 and 3); the .34 is marked 'COCKED' only on the left side (Figure 4), while the .45 lever is unmarked, as Figures 6 and 7 show. The major improvement of the BSA lock work over the FN pistol is the incorporation of a slide hold-open actuated by the magazine follower of an empty magazine. For this reason, the sear and bent of the firing pin are offset to one side, as Figure 11 shows, there being a short centrally disposed slot in the slide just behind the breech face in which the hold-open lever engages when elevated by the follower. Insertion of a full magazine or removal of the empty one and a short pull back of the slide releases the hold-open.

All three BSA pistols also use the FN pistol's expensive to make flat section firing pin spring to maximise the number of coils in the limited space available within the firing pin body when the slide is fully to the rear. This appears to have been a problematical area, as the striker fall is distinctly weak and most of the known BSA belted cartridges are mis-fires with struck caps. Another feature copied from the FN is the use of the firing pin, which has an elongated point, as an ejector, the point protruding some 2-3mm through the breech face when the slide is at full recoil. Whilst common at this period in cheap blow-back pocket pistols, it is a distinctly unusual practice in a high powered locked breech .45. The .45 also uses a flat rectangular section main spring, but flattened along, rather than perpendicular to, the spring axis to minimise the gap required between barrel and slide as Figure 14.

The magazine retainer is a definite retrograde step from the FN, requiring two hands to actuate and extract the maga-

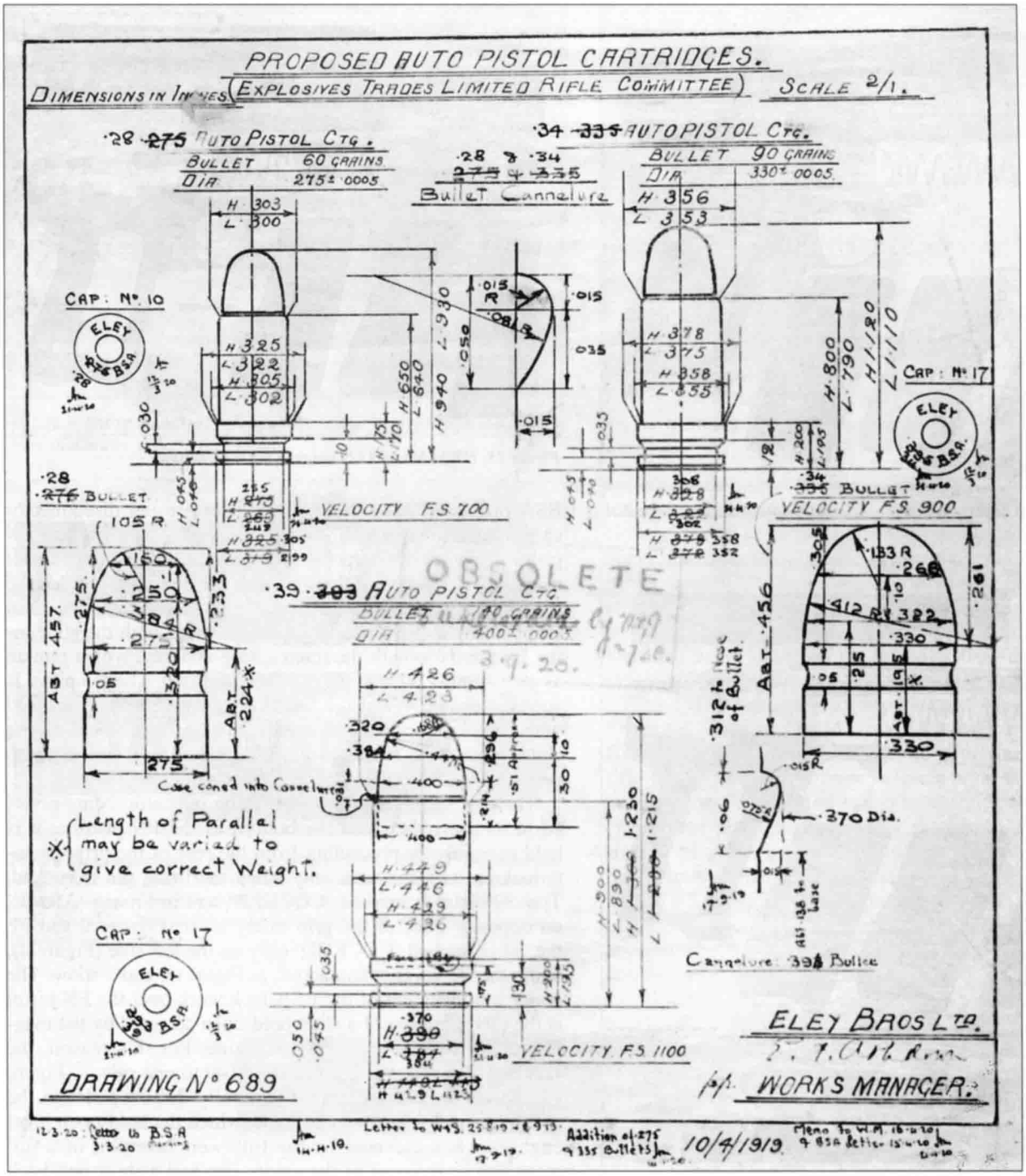

Figure 16: Eley Drawing 689 — the first ETL proposal for the Belted Pistol cartridges, with the amendments requested by BSA in March/April 1920.

zine, as both the retaining catch and magazine base plate must be gripped on both sides to release the catch and pull the magazine from the grip, whereas the FN magazine can easily be extracted using the thumb alone on the catch and the side of the forefinger to pull out the magazine by its floorplate extension. The grip plates are of hard rubber, with segmental dovetail retaining wedges on the inner faces, one segment having a very weak spring intended to retain the grip in its correct vertical position. This arrangement, however, relies in part on the spring retaining screw clamping the spring to the hard rubber, into which it is tapped. Naturally tapping a metal screw into hard rubber is totally ineffective and the grip plates are, in consequence, very loose.

It is impossible to be sure of the development sequence of these pistols in the total absence of any contemporary documentation. However, the .32 pistol is the most improvised in terms of its construction, with evident changes to various parts made by hand filing and with parts or extra metal riveted, screwed and soldered on to effect design changes or where proper tooling had not been prepared. In addition, the characteristic finger grips in the top of the slide, which also act as lightening cuts, are absent and the slide finger serrations are again a close copy of those on the FN pistol. Additionally, the disconnector cam way under the slide is shortened by an added screw retained cam, all of which suggests that this was the earliest of these three pistols, with the most evidence of developmental modification as a prototype. The .45 also shows much similar evidence of additional parts and *in-situ* modifications, especially in the fitting of the barrel to the slide. The slide, however, has fully developed finger gripping cuts and a correctly dimensioned disconnector cam way cut into the solid, so would appear to have gained from some of the experience of the .32's development.

The .34, however, appears the most finished of the three (despite the magazine retainer being missing) with almost all parts being final machined from the solid and little hand mod-

ification. The magazine is also refined, as is the .45's, by having a rear spine channel for a hold-open actuator, rather than the follower floor plate itself operating this feature. The .34 is also some six per cent lighter than the .32 despite its larger calibre, due largely to the large slide gripping cuts.

This progression suggests that the pistol and ammunition were developed in parallel, the common calibres being used as development cartridges for the dynamics of the pistol's mechanism in anticipation of the new belted ammunition's availability. It is possible, however, that BSA had the original intention of using only the common calibres and were seduced by the novelty of the ETL designs into adopting them part way through a quite independent development process. The physical parameters of these BSA pistols are given below.

Parameter	.32 ACP BSA	.34 BSA	.45 ACP BSA
Overall length (mm)	161	163	215
Overall height (mm)	104	105	135
Overall width (mm)	22.8	22.8	25.8
Weight (grams)	660	620	1070
Barrel length (mm)	95	95	129.5
Rifling grooves (no/hand)	6/RH	5/LH	5/LH
Rifling twist (mm/rev)	220	280	350
Magazine capacity	8	7	8

BSA PISTOL AMMUNITION

As noted above, the belted cartridge had protection under various patents in the U.K. from 1889. Accles' original patent had, as its principal claim, elimination of the extractor cut as a weakness at the rear of the chamber by placing the extractor groove behind the 'abutment flange'. Roth in 1891 received protection for a 'collar' which accurately determined the depth to which the cartridge was introduced into the chamber; although identical to Accles' cartridge, it had a different purpose as its claim to protection. Holland, in his 1904 patent, mentions the problem of packing flanged cartridges in a magazine for a repeating weapon, and the concomitant problem of preventing rimless cartridges, which solve the magazine problem, from entering too far into the chamber, causing misfires. Despite Holland's cartridge appearing identical to Roth's and Accles', and his claims being virtually indistinguishable from Roth's, his patent was granted and was exploited before WWI, in the first commercial belted sporting cartridges, such as the .400/.375 Belted Nitro express from 1905, the .275 H & H Magnum from 1910 and the perennially popular .375 H & H Magnum from 1912.

Holland's patent expired at the end of January 1919 and it must be far from coincidental that the original ETL drawing of the BSA pistol cartridges is dated 10 April 1919 and that the BSA rifle cartridge drawings date from shortly thereafter, as do ETL's designs for other proposed proprietary cartridges, all of which are of belted design. Indeed, *Arms & Explosives* [4], the trade magazine of the day, was prompted to remark on 'the growing prominence of belted rifle cartridges' in January 1920 and to offer a historical review of their development. The first pistol cartridge Drawing, No. 689 (Figure 16), is in the Eley series and the design work was evidently done at their Edmonton works as the ETL merger (the new merged company being formally incorporated on 29 November 1918) was being implemented. The original proposal was for an equi-flanged (belt and extractor rim of the same diameter) series of cartridges, originally designated to be of .275, .335 and .393 calibres. Footnotes to the drawing reveal letters to W & S on 25 August 1919 and 8 September 1919, which presumably indicate that the designs were made known to Webley & Scott, who were the premier pistol makers in the U.K., but as no reply or modification is noted, they must have proved of no interest to Webley's.

However, correspondence with BSA at the beginning of 1920 evidently proved more fruitful and the adoption of the designs by BSA must date from around February/March 1920. A letter of 3 March 1920 concerns marking and the BSA headstamp drawings were added, with the original calibre designations in full, on 12 March 1920. Further correspondence with BSA resulted in the 'definitive' designs on 21 April 1920, when the calibre designations and headstamps were abbreviated to the .28, .34 and .39 calibres by which these cartridges are now known, and the extractor rims were reduced slightly in diameter to match the case body diameter immediately in front of the belt.

The highly amended original drawing, by now very crowded, was made obsolete on 3 September 1920 and replaced with Tracings (from the original Drawing) 728 (.28 BSA), 729 (.34 BSA) and 730 (.39 BSA) (Figures 17, 18 and 19), which are still in the Eley series and were signed off by the Eley Works Manager while the design project was still located at the Edmonton plant. These were then re-drawn by Kynoch when all ETL metallic cartridge manufacture passed to their Witton factory as Kynoch Drawings B.J.17/57.1, B.J.17/57A and B.J.17/58, all dated 15 February 1921. The headstamps were re-drawn with the Kynoch 'K' instead of 'ELEY' and details of case mouth 'plugging' (internal sizing) and cap pocket radiusing added. (Figure 20 shows Kynoch Drawing B.J. 17/57 of the .28 BSA as an example.)

The actual production of these cartridges was minuscule and almost certainly only for BSA's trial purposes. Little more than a handful of examples are known to collectors worldwide today; Figure 21 shows the known variants. All .28 and .34 examples known were made at the Eley works and so headstamped prior to the transfer of metallic ammunition manufacture to Witton. There are no known examples of loaded Kynoch headstamped cartridges, the only example of this headstamp being an incomplete .28 case, stopped at the mid-point of manufacture prior to trimming and extractor

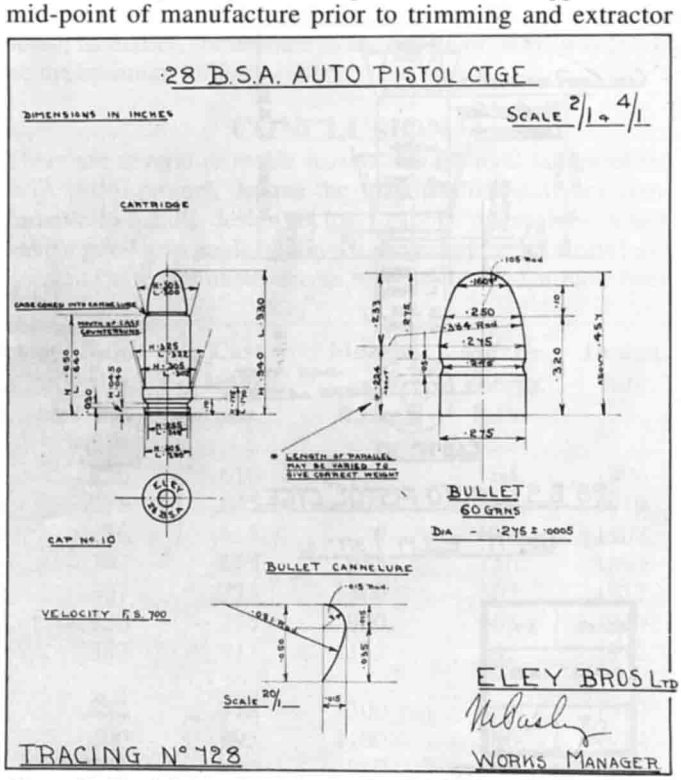

Figure 17: The definitive ETL/Eley Tracing 728 for manufacture of the .28 BSA cartridge.

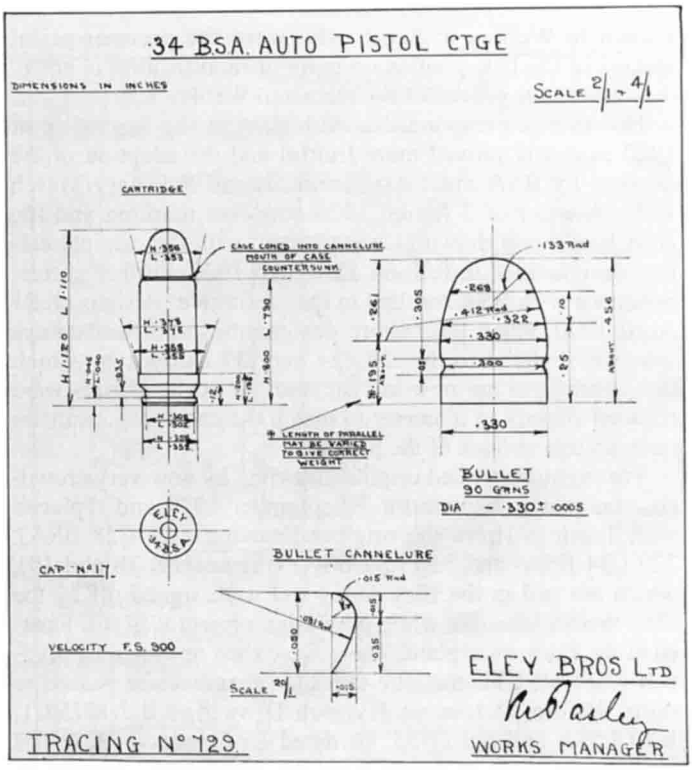

Figure 18: ETL/Eley Tracing 729 — the .34 BSA cartridge.

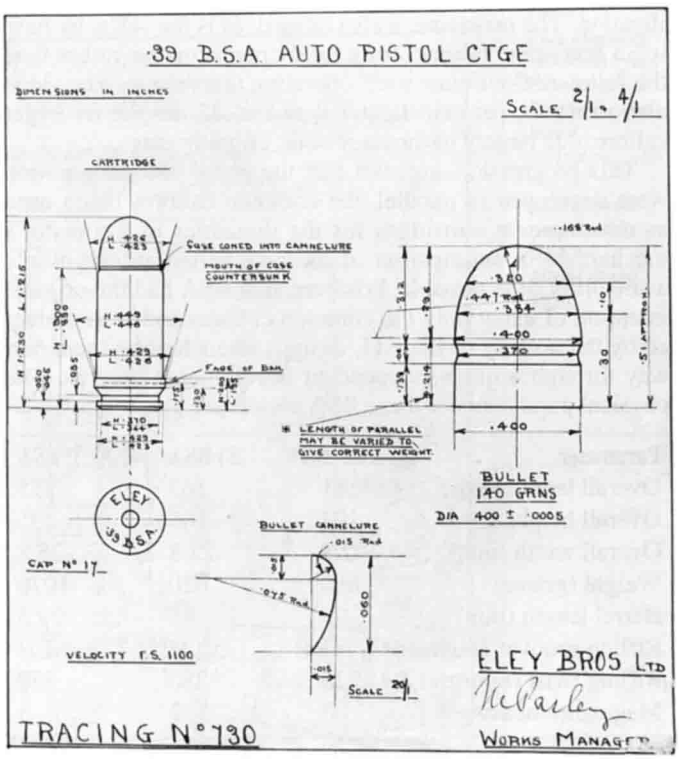

Figure 19: ETL/Eley Tracing 730 — the .39 BSA cartridge.

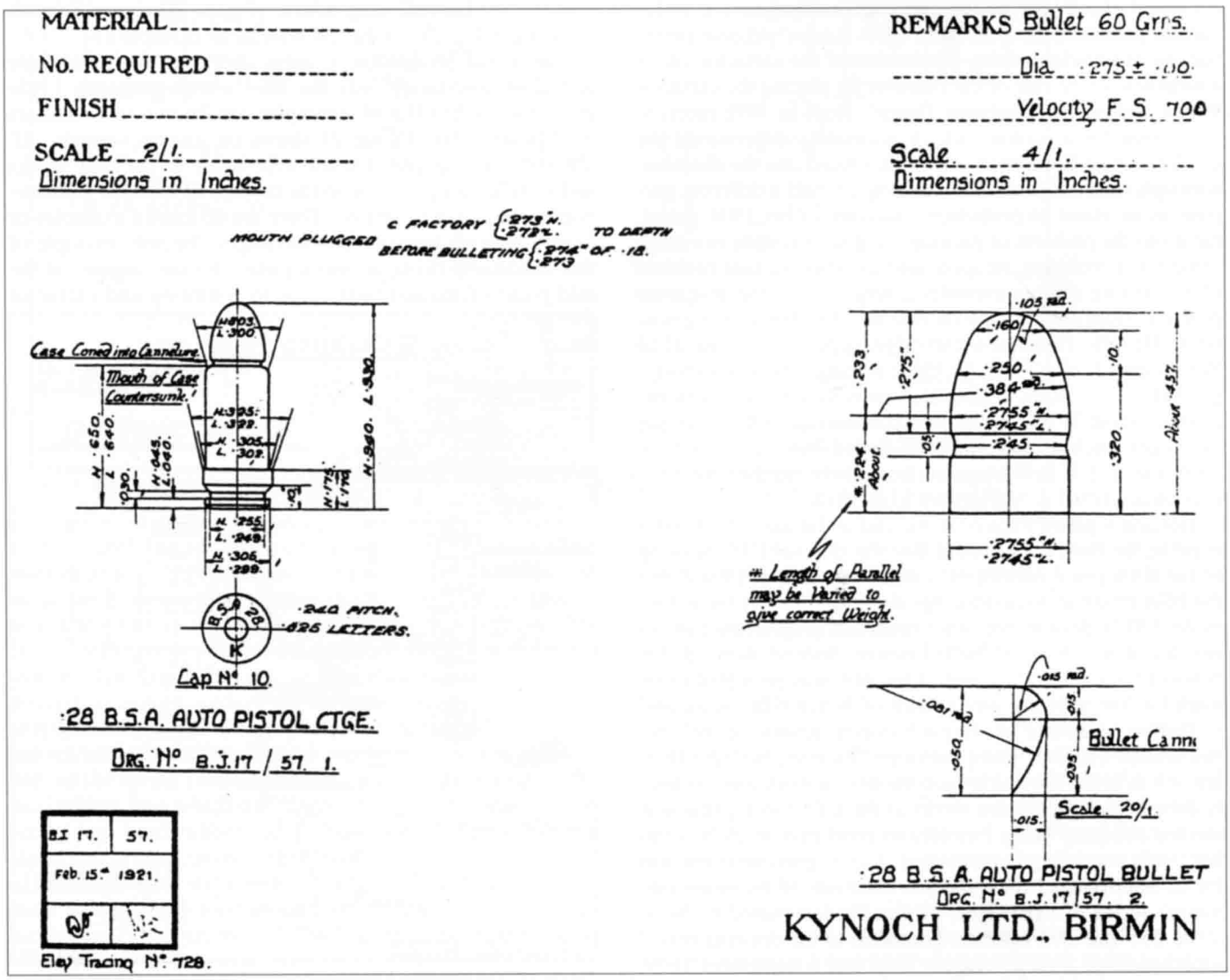

Figure 20: Kynoch Drawing B.J. 17/57 of the .28 BSA cartridge (the drawings of the .34 and .39 are similarly amended from the Eley originals).

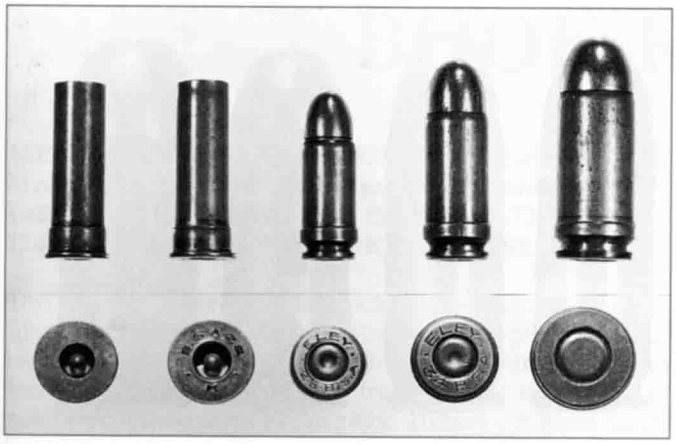

Figure 21: Known variants of the BSA Belted Pistol cartidges. Left to right: Unfinished .28 BSA case, prior to headstamping; unfinished .28 BSA case with Kynoch (ETL Witton manufacture) headstamp; ELEY headstamped .28 BSA cartridge; ELEY headstamped .34 BSA cartridge; unheadstamped .39 BSA cartridge.

groove cutting, which is also shown in Figure 21 together with another incomplete case stopped in manufacture even earlier, prior to both headstamping and flash hole piercing.

The only version known of the .39 is unheadstamped and has a .215" diameter copper primer, corresponding to the Eley No. 29 cap, rather than the .175" dia. No. 17 shown on the Eley drawings. This does not correspond with the Kynoch drawing specification of a (Kynoch) No. 18 cap either, so the exact provenance of these cartridges is uncertain, but, in view of the design origin, it is more likely that they are of Eley (Edmonton) than Kynoch (Witton) manufacture. The probability that the Kynoch drawings of February 1921 were made only as drawings of record — and that no series manufacture (as opposed to the headstamp trial shown in Figure 21) was ever undertaken at Witton — places a maximum time span of some 10 months only on the belted case project in its final form, from the incorporation of BSA's modifications in the Eley drawings on 21 April 1920 to the Kynoch drawings being completed on 15 February 1921. Since the transfer of production from Edmonton also took place during this time frame, it seems fairly certain that Eley produced no more than a single, small batch of each calibre shortly before the closure of the Edmonton works for metallic cartridge manufacture. The project must be presumed to have died between then and Kynoch taking it over, with no BSA orders being forthcoming to Kynoch, or a possible order for the .28 being cancelled before completion.

The table summarises the known ballistic data on the BSA cartridges from the drawings, in comparison with some closely similar experimental and commercially available contemporaries.

The choice of calibres seems somewhat eccentric — and possibly more motivated by marketing needs of novelty than other considerations: they are essentially Anglicised metric calibres, 7mm, 8.5mm and 10mm, none of which was ever seriously marketed as a pistol calibre then (or until the recent 10mm) or now. The bottlenecked 7mm Nambu, 7mm Charola y Anitua and 7.25 Adler were other attempts to use the 7mm calibre in an auto pistol which achieved limited success for the militarily adopted Nambu, but none commercially for the Charola or Adler, which are both rare today.

Some of these approximately equivalent contemporary cartridges are shown comparatively with the BSA range in Figure 22. The only other straight sided 7mm auto pistol cartridge is the experimental .28 Browning, a slightly up-specification .25 ACP; the .34 has no real equivalents, the only other 8.5mm auto pistol cartidge being the vastly more powerful Gabbett-Fairfax 'Mars' cartridge of 1901. The .30 Pedersen device cartridge of WWI is comparable in size but very superior in ballistics (due to the long Springfield rifle barrel through which it was fired), but may not have been known to the Eley designers due to the secrecy of the Pedersen project during the War. The M1935 French 7.65mm Long Pistol cartridge derived later from the Pedersen fires an 86grn. bullet at 1170fps. to give an ME of 265 footpounds, which is greatly superior to the .34 BSA, which ballistically is most comparable to the humble .32 ACP.

The .39 BSA has a muzzle energy comparable to the .45 ACP, though inferior to the 9.8mm Colt, which was exceptionally powerful for its day (the ballistic information for the 9.8mm, not generally published, was taken from an original Winchester carton stamped with the MV). The size and ballistic comparison of the .39 BSA with the 9.8mm Colt or its FN equivalent, the 9.65mm Grande Browning, however, is very close. The Colt and FN were developed to meet the perceived European military need between 1910 and 1914 for a large calibre auto pistol, but adoption of the M1911 in .45 calibre by the U.S. Army diverted Colt's attention after offering this calibre to Romania and it was never placed in production. FN's interest was curtailed by the invasion of Belgium in 1914 and, although briefly revived for the French pistol trials of 1922, rejection by the French led to total cancellation of the 9.65mm project. .400" was, however, the British Army's minimum calibre specification for an auto pistol during trials in the early years of the century, and some contemporary comment immediately after WWI indicates that .455" was felt to have been somewhat too large a calibre during that conflict, whilst .30" (the Mauser C96, etc.) was too small; as earlier, somewhere in the region of .400" was felt to be the optimum military calibre at the time.

CONCLUSION

There are several probable reasons for the total failure of the BSA pistol project, despite the workmanlike and very comfortable-to-handle design of the weapons themselves, which have a good grip angle and in which conspicuous efforts have been made to eliminate excess weight. There can have been

Calibre	Bullet wt. gns.	Bullet dia. ins.	Case length ins.	Muzzle vel. ft./sec.	Muzzle energy ft.lbs.	Design date
.25 ACP	50	.250	.610	755	64	1906
.28 BSA	60	.275	.645	700	66	1919
.28 Browning	?	.276	.615	?	?	1908
.32 ACP	75	.307	.675	985	156	1897
.30 Pedersen	80	.307	.775	1300	303	1917
.34 BSA	90	.330	.795	900	163	1919
9.65mm Browning	114	.382	.911	1165	347	1912
9.8mm Colt	130	.382	.912	1300	420	1910
.39 BSA	140	.400	.895	1100	380	1919
.45 ACP	200	.450	.890	910	368	1905
.455 W+S Auto	224	.452	.917	700	245	1904/12

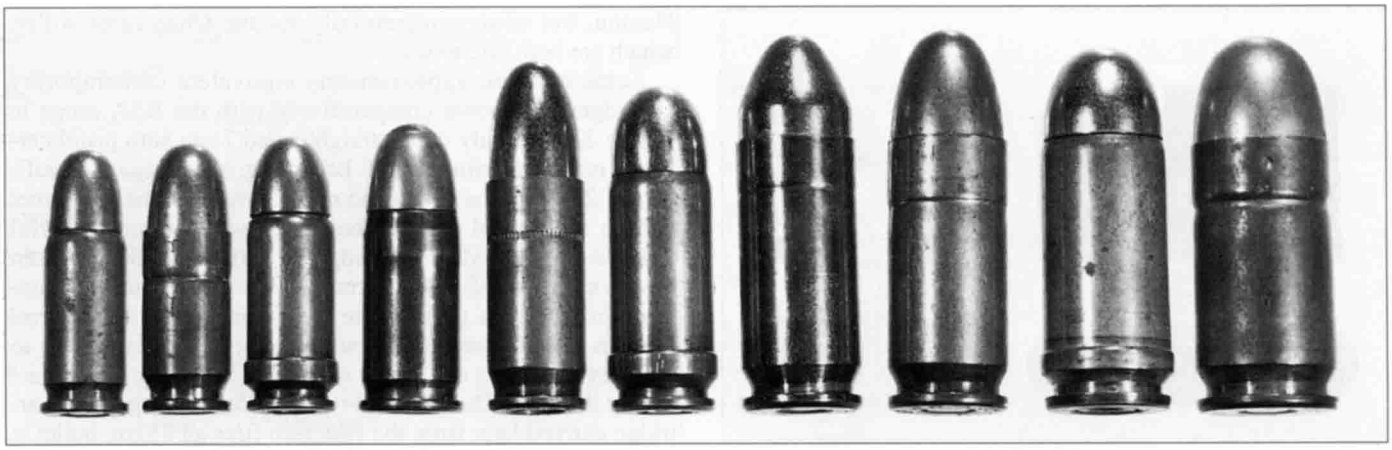

Figure 22: Size comparison of the BSA cartridges with approximate contemporaries. Left to right: .25 ACP; .28 Browning Experimental; .28 BSA; .32 ACP; 7.65mm French M1935 (same case as .30 Pedersen); .34 BSA; 9.65mm FN Grande Browning; 9.8mm Colt; .39 BSA; .45 ACP (200grn.).

little expectation of military adoption of new calibres in 1919-20. The British Army had expressed slight interest in .32 calibre pistols as shown in Small Arms Committee minutes in 1921, occasioned by the requirements of the RUC and the Black and Tans in Ireland, but considered also in light of the applicability of this calibre to regular service officers and Lewis gunners. The lack of a suitable British Trade pistol was noted and Webley & Scott were induced to modify their .32 pistol with a firing pin blocking safety for a limited trial. The Colt M1903, however, was preferred and small quantities were acquired then and later during WWII. It is possible, although the SAC minutes make no mention of them, that BSA may have learned of this requirement, which may be an alternative explanation of the existence of the .32 ACP chambered BSA pistol. British Army preference was still for the revolver, however, and design of the .380 service revolver and its ammunition dominated the Committee's consideration of pistols for the latter part of the 1920s.

Foreign military sales prospects were no brighter; the French, as referred to above, were seeking a 9mm Parabellum pistol to replace their 8mm Lebel revolvers in the early '20s, but this dragged on until the eventual adoption of the M1935 in 7.65mm Long and no other countries were considering rearmament at that time. The domestic pistol market was also dealt a heavy blow with the passage of the 1920 Firearms Act, coming into force in November of that year and introducing the restrictions on legal ownership of firearms that continue to saddle the law-abiding to this day.

The design of the BSA pistols is highly derivative, as noted above, and, while FN held no patents in this country covering the design of the M1910 pistol, the BSA would almost certainly have infringed FN's copyright in export markets due to their similarity. Colt, however, did hold a valid U.K. patent (BP 20,313/1909) for the sear locking lever safety of their M1903 pistol, covering also its method of retention and removal via an 'inverted keyhole' slot in the frame, which would have been licensed to FN under their mutual agreement over Browning's patents, but which the safety lever design of the BSA pistols certainly infringed.

The conservatism of the British public in buying pistols and their choice of ammunition cannot be underestimated either as a negative influence against BSA's possibly rather rash decision to develop a new range of pistols with totally new cartridges. This gave an additional problem of market acceptance when the BSA cartridges offered no serious ballistic advantage over the common established calibres, .25 .32 and .45 ACP, which were already in worldwide distribution. It is noteworthy that the only auto pistol cartridge innovations in the catalogue listings of Eley & Kynoch and as successors ETL/ICI (ie., cartridges that gained market acceptance) from 1910 to the cessation of commercial metallic ammunition manufacture by IMI in the 1970s were the 9mm Browning Long and .455 Webley SL for Webley's auto pistols in 1912, and the 230grn. U.S. Government loading of the .45 ACP in 1914. The British military mind remained wedded firmly to the revolver for another 25 years also, as further evidence of our conservatism in this field. Additionally, of course, BSA had no reputation for pistol manufacture and were, at this time, experiencing considerable problems both in getting their mass produced shotgun into production and in obtaining a market *entrée* where they also had no history or reputation.

Pollard's statement [1] — 'An entirely new set of automatic pistol cartridges are now in preparation. These will have a belt round the case designed to prevent any possibilities of jambs caused by interlocking of the rim flanges. The calibres will be seven, nine and probably eleven millimeters, but for these sizes no great increase of muzzle velocities over existing cartridges need be anticipated' — contains the essence of the failure. The last thing an auto pistol needed was a belted cartridge, when rimless designs — and Browning's semi-rimmed blow-back cartridges — had been doing a perfectly adequate job for over 20 years and jamming as a result of 'interlocking of the rim flanges' was virtually unknown (due to the total absence of 'rim flanges' in auto pistol ammunition!). The lack of ballistic advantage over existing designs also spelt the end for these cartridges, before they were even launched, since novelty alone could not compensate for complexity and may have been expected to be perceived as a disadvantage to customers with an orthodox outlook.

Thus was the last effort at domestic British auto pistol design still-born, never to be advertised, but buried away as a dead-end in a field of weapons design with which we have never felt truly at home. It was to be left mainly to Continental and American designers to make the innovations in pistol design thereafter and to produce the design that we would eventually adopt as our Service pistol, when memory of BSA's effort had been totally lost and forgotten.

REFERENCES

[1] *Automatic Pistols*, Captain H.B.C. Pollard, Pitman, London, 1920

[2] *Textbook of Automatic Pistols*, Lt. Col. R.K. Wilson, Small-Arms Technical Publishing Co, Plantersville, S. Carolina, 1943

[3] *Arms & Explosives*, July 1920, p.88

[4] *ibid*, January 1920, p.5