

# B.S.A. Wind-Gauge Sight Slides.

Patent No. 21296/07.

Suitable for *MARTINI, LEE-ENFIELD* and other *MILITARY* and *MINIATURE RIFLES*.

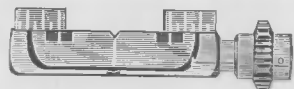
THE various Slides illustrated below form valuable additions to Military Pattern Rifles which are ordinarily fitted with a sighting bar which cannot be traversed laterally to compensate the effect of wind pressure on the bullet. They are used extensively in various parts of the world.



**NO. 1 PATTERN.**

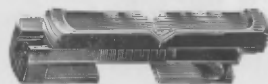
With plain bars or with V's each 5/6

**NO. 4 PATTERN.**



With vertical scale V's or plain bars 6/-  
Tangent Leaf ... extra 2/-

GOVERNMENT "PUSH" SLIDE.  
PATTERN



Plain bars or V's ... 3/6

*Reamers for Countersinking and Enlarging Aperture Sight Holes.*



COMBINATION TOOL. One end for enlarging aperture hole, other end for countersinking back to bring edge of hole up sharp for clear definition ... each 1/3

## Notes on Rifle Cleaning.

56 pages, with 40 illustrations from original photographs and drawings.

All the best authorities are agreed that the key to successful shooting is the proper care of the weapon, whether it be a military, a miniature, or a sporting rifle.

Every rifle user should read this book carefully. It is a complete guide to the preservation of the good shooting qualities of a good rifle. Price 6d., post free 8d.

## The Complete Air Gunner.

By R. B. TOWNSEND, M.A. 88 pages; many illustrations.

A most interesting book dealing fully with air rifles, their development and their miscellaneous uses. Price 1/-, post free 1/3.

*B.S.A. Air Rifle Score Book, 64 pages, price 3d.*

THE BIRMINGHAM SMALL ARMS CO. L<sup>TD</sup>, BIRMINGHAM ENG

Makers of Rifles for H.M. War Department, and of the famous B.S.A. Cycles and Motors

SECTION 2.

# B.S.A.

Back and Front

# SIGHTS

FOR ALL KINDS OF RIFLES.

STOCKED AND SOLD BY



A complete Catalogue of B.S.A. Rifles, Sights, Score Registers, etc., will be supplied free on request.

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# B.S.A. Rifle Sights.

BACK AND FRONT SIGHTS OF ALL KINDS FOR ALL RIFLES.

In this section full particulars and illustrations are given of:—

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Several of the B.S.A. Sights here dealt with have achieved remarkable popularity. The No. 9 Sight for instance, has, since aperture sights were allowed by the National Rifle Association at Bisley, been used by most Service Riflemen. Over 50,000 of these sights are in regular use in every part of the British Empire, and in some foreign States where a rifle other than the British Service rifle is used—notably in Chili on the Spanish Mauser.

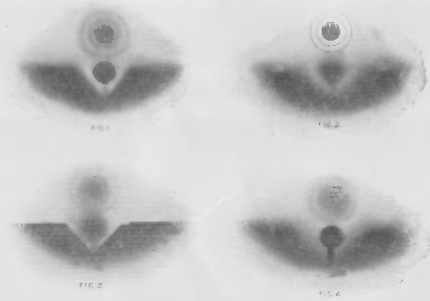
The No. 8 Sight is used by practically every miniature rifleman, as may readily be observed at any open rifle meeting.

Needless perhaps to say, it is merely persistent endeavour in the improvement of design and the continuous exercise of the highest degree of manufacturing skill that is at the back of the success of the B.S.A. Sights.

## Advantages of Aperture or "Peep" Sights.

On the range and in the field aperture sights have, for the past few years, gradually been displacing open or "barrel" sights. The reasons are not obvious, but they may be demonstrated quite simply.

1. By holding the finger between the eye and an object a few yards away, and observing the blur either of finger or object when an endeavour is made to see both clearly, it at once becomes evident that two different objects at different distances from the eye cannot under any circumstances both be focussed sharply at one time. This clearly applies to the aiming of a rifle when open backsight, "point" foresight and object lie in different planes. The diagrams show how the sights and object appear to the eye of the average shooter:



- 1 when an endeavour is made to see backsight, foresight and object equally well and as clearly as possible;
- 2 when the object is focussed at the expense of clearer definition of the sights;
- 3 when the backsight is clearly focussed; and
- 4 when the vision is concentrated chiefly on the foresight.

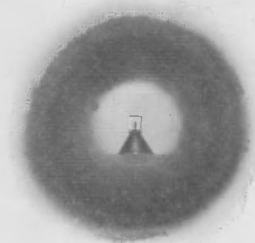
The truth of these illustrations can quite readily be confirmed by anyone who cares to test the matter for himself. The aperture sight takes the place of the open sight, so removing one great source of trouble in aiming.

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# B.S.A. Rifle Sights.

## Advantages of Aperture or "Peep" Sights—continued.



The View through a "Peep" Sight with small hole. A large hole is best for sporting work.

2. The aperture is merely looked through. There is no such thing as a coarse or fine foresight with it. No notice at all need be taken beyond seeing the foresight clearly about its centre.

3. The small size (say .05" average dia.) of an aperture, and the ease with which the true centre is found by the eye, implies a considerable reduction of error compared with open sights. Although the actual size of the hole is so small, it looks comparatively large when the eye is placed close to it, and as will be seen in the illustration, the edge is blurred because it is out of focus. This blur helps to fill the hole, and the utmost distance the foresight can stray from the centre cannot upset accuracy.

4. The aperture, by cutting out interfering rays of light, gives sharp definition to the foresight, whilst the object also can be seen clearly. This "orthoptic" effect, as it is known, may be tested with open sights by aligning them at an object first with the naked eye and then through a small hole pierced in a piece of black paper held closely round the eye. In the first case they are blurred and in the second they stand out comparatively sharply.

5. The aperture backsight is near to the eye, and the length of sight radius—i.e., the distance between the sights—is increased 50%. Errors of aiming are necessarily minimised.

6. The diminution of optical difficulties minimises the time taken in aiming.

## Aperture or Ring Foresights.

These carry the advantages of the aperture sight system a step farther by eliminating another object which the eye has to "take in" besides the object. A ring foresight of the proper dimensions practically converts the object into the foresight.

## Calculating Sighting Adjustments.

The B.S.A. No. 8 Sights do not carry range markings for the simple reason that they are bought to be fitted to many different kinds of rifles with varying sight radii, i.e., distances from back sight to front sight.

On one side the stem of the sight is marked with lines  $\frac{1}{100}$  in. apart. The elevating part carries a vernier scale by means of which each division may, with ease, be split up into fifths or one-hundredths of an inch.

Bearing in mind the fact that the adjustment of the backsight of  $\frac{1}{100}$ th of an inch alters by one inch the position of the shot group on the target at 100 yards provided the sight radius is 36 inches, it is easy by rule of three to get at the correction for any other radius.

To reduce it to the most simple form, let A=range in inches, B=the sight radius in inches, and C=any given adjustment of the backsight as a fraction of an inch, then  $\frac{A C}{B}$ =amount in inches of correction on the target for each adjustment C.

The elevations of the sight for the various ranges are generally quite easily ascertained by actual shooting. A file or knife mark on the sight records the adjustment.

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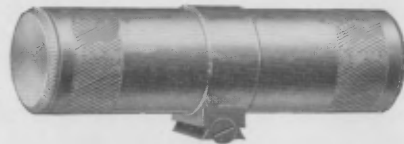
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# B.S.A. Optical Sights.

PATENT No. 8644/12.



The back sight lens attachment.



The magnifying lens foresight.

The illustrations are three-fifths of the size of the sights.

The new sights illustrated are adapted for sporting and target work and are suitable for all kinds of rifles. The fore-sight is fitted with a lens of  $2\frac{1}{2}$  diameters magnification. The lens in the disc of the backsight is of the concave or negative form and is adapted to give clearness to the magnified object. It also allows of the use of an aperture of sufficient size to let through light enough to give good illumination to the object.

PRICE: 25/- per set.

COMPLETE WITH NO. 8 SIGHT (pages 7 and 8) 32/6.



### The Components of the Front Sight:

- A. Lens with ring definer.
- B. Lens holder or mounting.
- C. Screw rings holding lens in place in holder.
- D. Tubes screwing into either side of lens holder B.
- E. Dust caps screwing into ends of tubes D.
- F. Screws for locking sight in dovetail slot in fore-sight block. They allow of exact adjustment of the sight laterally.

The construction gives ample protection to the lens against light and dust and allows of easy access to the lens for cleaning or renewal.



### The Component Parts of the Back Lens Attachment:

- G. Eyepiece with large aperture.
- H. Lens mount which is screwed into eyepiece G.
- I. Clearing Lens.
- J. Mount for eyepiece and lens holder when assembled together. Eyepiece G. screws into it.

The whole assembled is adapted to be screwed into the elevating block of the B.S.A. No. 8 sight dealt with on pages 7 and 8.

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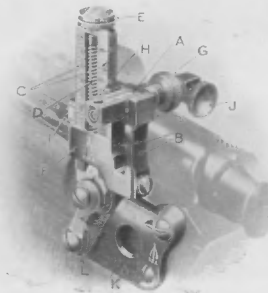
Makers of Rifles for H.M. War Department, and of the famous B.S.A. Cycles and Motors.

# B.S.A. "No. 9" Aperture Sights.

Covered by British Patent Nos. 27332-08, 26943-07, 22619-09, 29844-10 and 30337-10; and Registered Design No. 575536. Protected also in the Colonies.

FOR LEE-ENFIELD RIFLES.

## THE No. 9c (1912) PATTERN.



PRICE	...	...	...	18/6	each
With patent 6-hole eyepiece	...	...	...	22/-	..
Spare 6-hole eyepieces	..	..	..	4/-	each
Extra single hole discs	..	..	..	8d.	..
Extra single hole discs with long necks	..	..	..	1/-	..

Postage extra.

Suitable for { MARK I\* LONG TERRITORIAL SHORT SPORTING } L.-E. Rifles.

IMPORTANT NOTICE.—The rifle the sight is intended for should be specified when ordering.

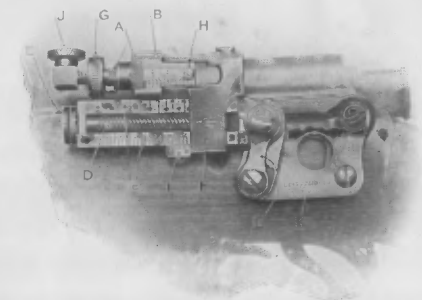
### Description.

The No. 9c (the latest development of the No. 9 pattern), has the simple and strong elevating arrangement C. Rapid or fine adjustments are rendered possible by the elevating screw D, which has a thread of steep pitch. It is turned by the milled head E, which has a spring beneath it so arranged that an audible and palpable click is made for each movement of one-hundredth of an inch (corresponding with a minute of angle and thus an adjustment of the shot group on the target of about one inch at 100 yards).

The sight is also supplied with an elevating screw with a slower pitch. Each click indicates a vertical movement of the eyepiece and its carrier through half a minute of angle, i.e., one two-hundredth part of an inch (corresponding with a half-inch adjustment on the target at 100 yards). The nut G used in making lateral adjustments is also fitted with a clicking device and is adapted to click out either half or whole minute movements as desired.

The sight is as firm as a rock when in position, but as nice in adjustment as any delicate mathematical instrument.

Special mention should be made when ordering as to whether full minute or half-minute clicks are desired.



The No. 9c folded down out of the way.



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# B.S.A. "No. 9" Aperture Sights.

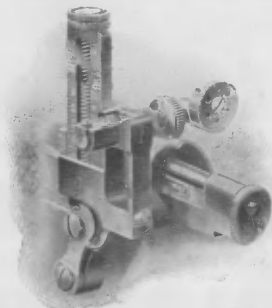
Covered by British Patent Nos. 27332-08, 26943-07, 22619-09, 29844-10, and 30337-10.  
and Registered Design No. 575536. Protected also in the Colonies.

FOR LEE-ENFIELD RIFLES.

## The No. 9c Pattern—contd.



The No. 9c Sight is also supplied mounted on the shorter plate or pad illustrated on the right. The benefit of an extra inch or so of sight radius is conferred by this pattern. Those whose faces very nearly approach the cocking piece when in the firing position, are advised to be careful when using this pattern, since recoil may drive it back against the face.



PRICE: See page 5.

The illustration on the left shows the sight as seen from the rear.

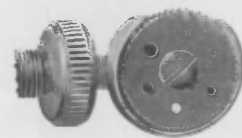
## THE B.S.A. PATENT 6-HOLE EYEPIECE.

Approved by the N.R.A. Council.

Suitable for practically all sights. Price 4/- each.

The revolving disc fitted to the patent 6-hole eyepiece illustrated gives the choice of six holes of diameters varying from .02in. to .07in—actually .02in., .03in., .04in., .05in., .06in., .07in. The disc is revolved by pressing the thumb or finger along the milled periphery where it extends beyond the cup in which it is mounted. The disc is held firmly in its various positions by means of a spring and piston arrangement at its back.

The advantages of the patent eyepiece are apparent. Changes of apertures for different targets or different lights can be made in a second without detaching the eyepiece from the sight. The 6-hole eyepiece is shown on the short pad sight above.



Shown on the arm of the B.S.A. No. 9c Sight.

## THE No. 9a (PUSH) PATTERN.

PRICES: No. 9a ... .. each 14/6

No. 9a, with patent 6-hole eyepiece each 18/-

Postage extra.

The No. 9a is an adaptation of the original No. 9 sight, the screw adjustments having been removed to cheapen its production. When lateral and vertical adjustments have been made, the moving parts are fixed by means of the clamping screws *a* and *b* shown.

A large number of these sights are in use on Service Pattern Rifles fitted with barrels for miniature range work. for which they are specially adapted.

The B.S.A. No. 9c Sight is also supplied for the Canadian Service Rifle—the Ross.

It has been passed by the N.R.A. Council for that arm.

Fully illustrated Sight Booklet  
post free.

Price 19/6

Complete with fixing spring and special screws.

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# B.S.A. No. 8 Aperture Sight

PATENT No. 26943.07.

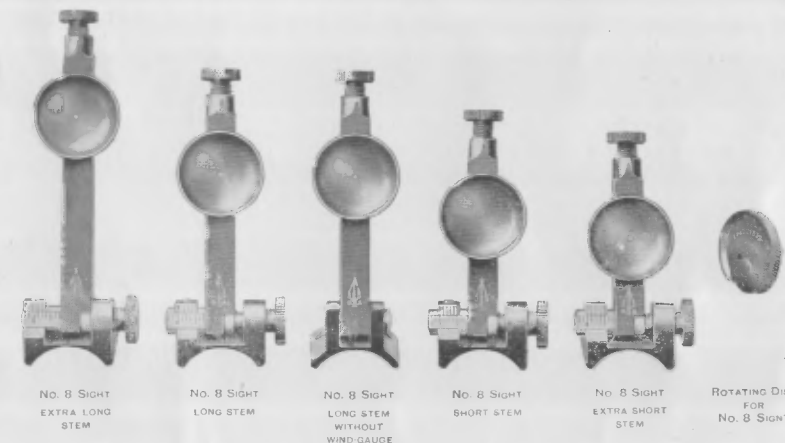
For MINIATURE and MID-RANGE RIFLES.

THE B.S.A. No. 8 sight is adapted for practically every type of miniature and mid-range rifle made. Many thousands of the sights are in every-day use. Screw adjustments for vertical and lateral movements are provided as well as vernier scales by means of which movements of  $\frac{1}{100}$ th of an inch (representing a shot group correction of  $\frac{1}{4}$ " at 25 yards when the sights are 36 inches apart), may be made with the utmost ease.

The strong spring-influenced piston at the back of the foot of the stem, holds the sight very rigidly in position. The movements are spring controlled to do away with "backlash" or untransmitted movement, whilst by screwing the disc up tightly with the fingers the vertical adjustment may be locked.

The sight without wind-gauge is recommended for use on the cheaper sporting rifles.

The patent 6-hole eyepiece gives the shooter the advantage of a different size of peep to suit every condition under which the rifle is used.

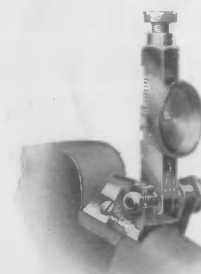


PRICES: No. 8 SIGHT, with wind-gauge ... .. 9/6  
" " without wind-gauge ... .. 6/6  
No. 8a SIGHT, *i.e.*, fitted with 6-hole eyepiece 11/6  
Patent 6-hole eyepiece only ... .. 4/-  
Spare single-hole eyepiece ... .. 2/-

## INSTRUCTIONS FOR ORDERING.

When ordering, the name of the rifle the sight is intended for, and the measurement, taken carefully as follows, should be given.

Depress the ordinary open backsight to its lowest position. Then stretch a piece of cotton from the tip of the foresight to the position above the grip of the rifle at the point where the No. 8 sight is to be fitted. The cotton must pass through the V. of the open sight. The measurement required is the height of the cotton above the top of the grip or part where the sight is to be fitted.



The No. 8 Sight fitted to the B.S.A. Martini Rifle.

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Makers of Rifles for H.M. War Department, and of the famous B.S.A. Cycles and Motors.

# B.S.A. No. 8 Aperture Sight

## MARKING AND FITTING.

THE base of this sight conforms in shape with the top of the grip or "hand" of the rifle stock. Various lengths of stem are provided to adapt the sight for different rifles, and for different positions on the grip.



View of the B.S.A. patent rotating disc, 4", or complete with sight, 116.

**FITTING.**—First set the open sight at its lowest position. Then place the No. 8 Aperture Sight perfectly upright on the grip, seeing that the aperture disc is nearly—but not quite—at its lowest position on the stem. A piece of thread drawn perfectly taut should then pass through the aperture hole, through the V notch of the open sight and should touch the tip of the Foresight.

The correct position having thus been ascertained, mark the stock through the screw holes in the base of the Sight. It is at these points that the fixing screws provided with the sight will have to enter the wood or metal.

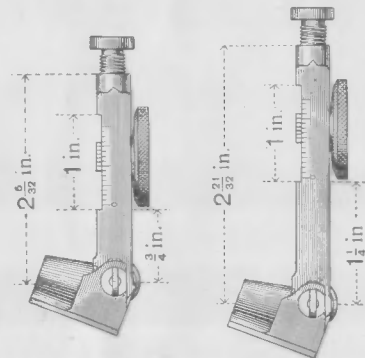
**MARKING.**—Each division on the stem of the Sight may be split up into fifths by means of the vernier scale. The fifth of a division is equal to one hundredth of an inch. The ranges are not marked on the Sights because the latter are adapted to be fitted to different Rifles with different sight radii, *i.e.*, different distances between the Foresight and the Aperture Backsight. When the Sight has been carefully fitted, the elevation can easily be ascertained by trial and error. A small scratch should be made with a file to indicate the position that the aperture should occupy for the ranges at which it is customary to shoot.

If marking the Sight is objected to, a note may be taken of the rise in divisions and parts of a division from zero for each range.

The longer the sight radius, the greater will have to be the amount of movement on the backsight for a certain correction of the shot group on the target. With a 36in. sight radius, a movement on the backsight of  $\frac{1}{100}$  in. brings about a corresponding correction on the target of 1 in. at 100 yards, 2 in. at 200 yards, and so on. With the 32in. sight radius of the B.S.A. No. 12 Model Martini Rifle, the rises are as follows for ammunition of an average velocity:—

From 25 yards to 50 yards	...	$\frac{1}{100}$ in.
" 50 " " 100 "	...	$\frac{1}{100}$ in.
" 100 " " 200 "	...	$\frac{1}{50}$ in.

The method of calculating the sighting adjustments for other distances between the sights is given at the foot of page 3.



Diagrams showing dimensions of long and short stem patterns of B.S.A. No. 8 Sight. A shorter pattern than the short and a longer pattern for the long are also made for special purposes (See page opposite).

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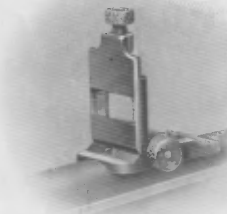
Makers of Rifles for H.M. War Department, and of the famous B.S.A. Cycles and Motors

# B.S.A. Special Backsights.

## The B.S.A. Nos. 21 and 21a.



No. 21 (open) Sight on barrel. Folded down out of line of sight through rear aperture sight.



No. 21 (open) Sight, in firing position.



The No. 21a Aperture Sight. Made for the B.S.A. Air Rifle with pistol-hand stock only.

A very neat sight with no protruding parts to be damaged by chance blows. It has screw movements for vertical and lateral adjustments, and vernier scales.

### Prices :

Nos. 21 or 21a sights only	...	...	...	7/-
No. 21, when supplied on new B.S.A. Air or No. 2 Model Rifles instead of the standard backsights	...	...	extra	5/-
No. 21a, supplied on B.S.A. Air Rifle in addition to standard sights	...	...	...	9/-

## The "Australian Cadet" Pattern Sight.

B.S.A. Patents Nos. 8419 1910, 22681 1905.



The B.S.A. Martini Rifles used by the Australian Cadets (some 70,000) are all fitted with this open sight. It is very neat and strong and has screw adjustment for vertical and lateral movements. It is provided beneath the V notch with a patent light reflector.

### Prices :

Sight only, with bed and protector as illustrated, for fitting to other rifles	...	...	...	11/6
Extra on No. 2 Model Rifle	...	...	...	11/6
Extra on B.S.A. Martini Rifle	...	...	...	11/6

## Various Foresights.

Adapted for all B.S.A. Rifles.

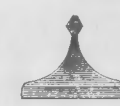
Each 1/6

Simplifies aiming and can be used for approximate range finding.

Various shapes. Supplied for any rifle, 1/- each.



Ring Foresight.



Diamond.



Buckhorn.



Barleycorn.



Blade.

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Makers of Rifles for H.M. War Department, and of the famous B.S.A. Cycles and Motors

# B.S.A. Foresights.

For TARGET and SPORTING RIFLES of all kinds.

## The B.S.A. No. 19 Combination Target Foresight.



The No. 19, which is adapted for the finest of target work, and for every make of rifle, is supplied with sight pieces as follows:—

Alternatives.	Price of Sight.	Price of Angle.
No. 19 Thin Ring and Bead ...	4/-	1/-
No. 19 Thick Ring and Bead ...	4/-	1/-
No. 19a Thin Ring and Blade ...	4/-	1/-
No. 19a Thick Ring and Blade ...	4/-	1/-
No. 19b Bead and Blade ...	5/-	2/-
No. 19c Thin Ring and Barleycorn ...	5/-	2/-
No. 19c Thick Ring and Barleycorn ...	5/-	2/-
No. 19d Bead and Barleycorn ...	5/-	2/-

Special "stool" for raising sight for rifles for high sight line ... extra } 1/-

The above combinations **only** are supplied. The angle piece may easily be taken out by removing the two small screws on which it pivots.

Nos. 19b, 19c and 19d, have at present to be made partly by hand. The higher price is thus accounted for.



## B.S.A. No. 20 Sporting and Target Foresights.

Adapted for every kind of Rifle.

	PRICE
No. 20 Bead and Barleycorn ...	2/6
No. 20a Ring and Barleycorn ...	2/6
No. 20b Bead and Blade ...	2/6
No. 20c Ring and Blade ...	2/6
Ivory facing Blade or Barleycorn extra ...	6d.

The No. 20 is illustrated with base for B.S.A. No. 2 Miniature Rifle and B.S.A. Air Rifle.

The No. 20a is illustrated with base for W.O.M. Rifle.

The Nos. 20b and 20c are illustrated with base for B.S.A. Martini and similar rifles.

The Rifle a sight is intended for should be carefully specified when ordering.

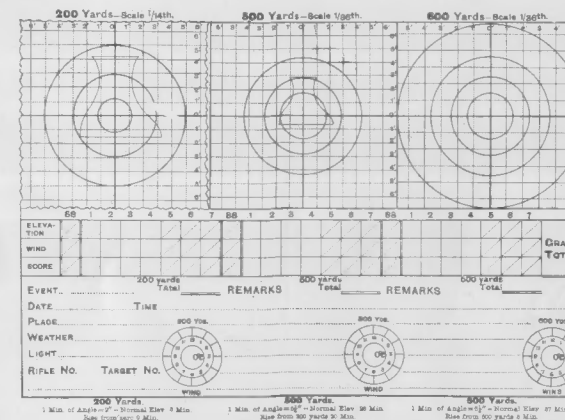
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Makers of Rifles for H.M. War Department, and of the famous B.S.A. Cycles and Motors.

# B.S.A. Score Register. ALL DISTANCE

Specially designed for use with the B.S.A. No. 9c Sight (see pages 5 and 6).

THE B.S.A. All-Distance Score Register has been designed to simplify the use of scientifically constructed sights having vernier scales divided to read in minutes of angle, such as the B.S.A. No. 9 (see Sight Section). The target representations, one for each distance, are accurately drawn to scale and are divided by vertical and horizontal lines each numbered from a central zero line and representing the amount of correction given by one minute on the sight scale. When a hit is marked the amount of any correction which may be necessary is shown by the figures on the right of the diagram for elevation, and on the top of the diagram for lateral deviation. Calculation is therefore unnecessary. Space is also provided for recording score, elevation and wind.



Specimen page—exactly half-size.

The 200 and 500 yards figure targets are printed in the proper colours, viz.:—Top half grey, bottom half green. The 300 and 600 yards targets are also shown correctly, viz., circular.

### Prices:

In "Pluviusin"—waterproof art leather cloth binding, khaki colour ... 2/-  
Inclusive of—Zero Target and Card of Wind Tables.

Re-fill System.—The Register is built on the re-fill system. New interiors are supplied at 1/- each.

### Gratis with each Register.

1. A Wind Chart, on which are printed Captain Hardcastle's wind tables and the simplified wind tables recently introduced by the "Field."
2. A Zero Target, by means of which any novice may correctly zero his own rifle.

### CONTENTS OF THE INTRODUCTION TO REGISTER.

How to use the B.S.A. Aperture Backsight.  
Elevation Angle Tables:  
303 Service Cartridge, Mark VI.  
303 Service Cartridge, Mark VII.  
303 Match Cartridge for Service Rifle.  
375 303 Match Cartridge.  
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