

HINTS ON THE EXAMINATION OF AMMUNITION.

The method of examining powder and its classification will be found in the regulations for gunpowder magazines. The "flashing" test is a ready way to ascertain whether powder is of good quality and in good condition. About eight drams of powder are poured on a glass plate so as to form a conical heap and "flashed" by applying a hot iron; no residue should be left, only a few smoke marks should be seen on the plate.

If powder has been damaged by damp it will be "caked," and a close inspection will generally detect a white appearance, due to the saltpetre having been dissolved and deposited in crystals on the surface.

Examination of Cartridges.

The condition of the powder must be examined as above given. Owing to pressure, cartridges which have been tightly packed sometimes feel hard as if the powder was caked, in this case the powder will crumble into its proper condition when handled, and so cannot be confounded with powder which is "caked" from damp.

The condition of the serge should be closely looked to, and any cartridges having holes or traces of being moth-eaten should be put aside for repair or condemnation, according to the amount of damage sustained. Silk cartridges should be examined in a similar manner; they are said to be much less liable to the attack of insects than serge.

The cartridges should be gauged, the choking and hooping should be looked to; the directions as to these operations have been given in the notes. Specially see that the silk cartridges are choked and hooped with silk, and that blank cartridges for B.L. guns are choked with worsted, and service cartridges for B.L. guns with twine. The knots of cartridges for rifled guns require careful examination, as often a slip knot is made instead of a fast one.

Proof of Friction Tubes, &c.

See instructions for proof of tubes, &c., given in the Appendix, p. 303.

Care should be taken to keep the vents clear, and to ensure their being free from damp a tube should be fired before commencing to test.

The proof of primers for vent-pieces and of fuzes, both time and percussion, will be found in the instructions. It is well to gauge the time fuzes, as the wood sometimes alters its form; in the case of fuzes of the common gauge having powder channels this is important, as sometimes they are so much enlarged as to bring the side holes above the fuze-hole. This can hardly happen with the fuzes of G.S. gauge.

Lights, portfires, &c., can be readily examined by burning, and ascertaining that they burn about the time laid down; if they burn well there is no harm in their burning long.

The primers for lights can be tested at the same time.

Examination of Projectiles.

All projectiles are examined by gauging. S.B. projectiles are so simple, and are so well known in the service, that it is not necessary to give any rules.

Lead coated projectiles should be carefully examined as to the attachment of the lead coatings; in very bad cases the eye will detect a loose coat; and in doubtful cases, tapping the shell with a hammer will detect a loose place, as a peculiar dull sound is given out. The high ring gauge should be passed over the shells, and the lead, if set up, can be filed down.

If blisters appear on the surface they should be pricked, and the lead hammered down.

The fuze-hole of shells of garrison calibres should be examined, and any having the Moorsom gauge must be converted by using a G.S. adapter, if the shell are likely to be required for use.

The Moorsom gauge is readily known by the large plug with a shoulder and cylindrical body.

The adapter is screwed into its place by the "key, fuze, and plug, G.S.," when screwed home, it fits well down in the socket, about .2" below the top of the fuze-hole. The space between the side of the adapter and the iron of the shell is filled by a composition of rosin, 12 lbs., Spanish brown, 2 lbs., plaster of Paris, 1 lb., turpentine, half a pint. The composition is poured in hot, the adapter being closed with a wooden plug. § 1583.

In examining Shrapnel shells, R.M.L. or B.L., special attention should be paid to the junction between the head and the body; loose heads may be met with, especially in F.S. Shrapnel of early patterns. A loose head renders the shell unserviceable; also early patterns should be examined to see whether any rosin has worked up into the socket, which might prevent the flash of the fuze from igniting the primer.

Studded projectiles should be examined by passing the cylinder (or ring, body and studs) gauge over them. As the gauge is slightly smaller than the calibre of the gun, a shot which passes the gauge is certain to load easily.

In examining common shells, M.L. or B.L., the condition of the lacquer should be looked to, and also as to whether any loose iron filings may be present in the shell. B.L. shells, with black lacquer, may occasionally be found and prematures may occur when using them. Any loose matter may be detected by "upending" the shell. Extracts, Vol. III, pp. 143-240.

Palliser projectiles are sometimes damaged in transit, if the point is broken off the shell becomes unserviceable. They can, however, be utilized at practice.* Any Palliser shot having the base closed with a wedge of wrought-iron must be returned for repair, as directed in § 2040. All made prior to 1870 require alteration.

See § 1872 for the patterns which do not require alteration.

Case shot are sometimes damaged in transit, or by the jolting motion of a limber. They can generally be repaired by a tinsmith, a little solder is often all that is wanting.

Shells that have been stored in the open air are sometimes found to have admitted water; they should be carefully dried.†

Nothing requires more care than the examination of shells returned into store as empty; frequent accidents have happened from the presence of powder in shells so returned; they are therefore received into store

Cl. 143, paras. 32, 33, 34.
A. C./69.

* See page 202, for regulations on this point.

† If Shrapnel shell once get wet inside it is most difficult to dry them.

as *doubtful* and carefully examined. At out-stations shell so examined are marked with an E in red.*

When it is necessary to break up old shells it may be done by placing an iron wedge in the fuze-hole and striking it with a sledge hammer. Shell should be washed out with water before this is done.

It is important to remember that projectiles which are not fit for service may often be used for practice; thus shells may sometimes be found so damaged about the bush as to be unfit to use with a fuze, but they can be fired at practice as plugged shell.

B.L.S. arm
ammunition.
Examination.

B.L.S.A. Ammunition.—By opening the cartridge the state of the powder and the condition of the brass case can be ascertained.

In some of the early patterns, especially in Mark V., the brass may be found to be corroded by the action of the saltpetre on the metal

The condition of the bullets as to dents and corrosion is rarely important, a bullet may be much knocked about, and still will be found to shoot well.

Firing some targets from a rest will determine whether the cartridges are serviceable.

The Snider cartridge should be condemned† if it gives a figure of merit over 20 inches when fired at 500 yards in fine calm weather from a fixed rest: where no mechanical rests are provided, a good marksman using a sand bag will be able to fire with sufficient accuracy to test the ammunition.

The Martini-Henry should shoot about five inches better than the Snider.

Missfires are a most important defect and should be reported, all details as to date of ammunition, &c., being given if possible.

Breaking up
small arm
ammunition.

Breaking up B.L.S.A. ammunition is an operation requiring great care, the cartridge should be opened with a copper tool, and the powder at once placed in water; on no account should any accumulation of loose powder be allowed on the table.

It is necessary to stir the powder to prevent its floating on the top of the water. In order to prevent risk in transit, the empty cases should be boiled to destroy the cap composition and the powder which is apt to stick to the cases.

Hales' and
life-saving
rockets.
Examination.

Hales' Rockets should be examined carefully and frequently for rust, especially along the seam and rivets, if the slightest trace is found the rockets are to be repainted, full directions will be found in § 2441, and p. 270. Similar instructions apply to the life-saving rockets. It is important to distinguish between rust due to a case itself and rust caused by contact with another rusty case. A magnifying glass is useful to detect any flaw in the iron. Rockets with flaws or cracks are unsafe.

If rockets are very rusty they are probably dangerous, and should be returned to Woolwich. As before pointed out Mark I. is unserviceable.

Rockets of all kinds may be tested as to soundness of composition by entering them head first down the bore of the gun, firing them with a quickmatch leader, and noting the time of burning of the composition.

* At Woolwich they are first marked E in *yellow*, and then re-examined; if empty the E is then marked in *white*.

† B.L.S.A. ammunition is not to be condemned without the sanction of the Surveyor-General.

and whether any sudden puffs are heard before the end. Times of burning are about the following: 24-pr. Hale, 10 seconds; 9-pr., 8 seconds; Boxer life-saving, $4\frac{1}{2}$ seconds.*

**GENERAL INSTRUCTIONS FOR THE GUIDANCE OF THE ROYAL ARTILLERY
IN CHARGE OF MAGAZINES OR AMMUNITION STORES.**

1. No one will pass the barrier at the entrance of a magazine or ammunition store except in the presence of the officer, master gunner, or non-commissioned officer, in local charge of the building, who will be responsible that all persons entering comply with the necessary precautions, and that they have no articles of a combustible nature in their possession.

2. All persons employed in magazines, cartridge stores, and in shell stores when connected with cartridge stores, will, before entering the same, change their own clothes and boots for magazine clothing and slippers. This will be effected in the place appointed for shifting, where the boots and clothing taken off will be deposited.

3. Smoking is strictly prohibited near any magazine or ammunition store, and any soldier entering them with a pipe or lucifer match in his possession will be made a prisoner.

4. Only the hand magazine lantern will be used within the magazine or ammunition stores, and then only in the presence of the person in actual charge.

5. Laboratory operations will not be carried on in any magazine, cartridge, or shell store, or in any of the passages connected therewith, but only in the building, or tent, specially provided for the purpose (*vide* Regulations for Laboratories).

6. Every favourable opportunity will be taken for airing the magazines on the principles given in the memorandum attached. Common thermometers will be issued to all magazines containing 100 barrels and upwards of loose powder.

7. Magazines will never be left open unguarded, and sentries will be particularly attentive to the earliest appearance of a storm, however distant, and upon hearing thunder, or seeing a flash of lightning, they will give the necessary notice, in order that the doors and ventilators may be immediately closed.

8. The floor of a magazine or ammunition store will be kept scrupulously clean and free from loose grains of powder. The passages will be covered with hides, wadmiltits, or hair cloths, when powder in bulk is being moved; these coverings should be frequently lifted and dusted.

9. Barrels, cylinders, and cases will be placed so that the air can circulate freely round them. They should be at least six inches from the masonry of the building.

10. No packing or shifting of cartridges, or issue of powder from cases or barrels, will be permitted within the block containing the magazine or cartridge stores. These operations will only be carried on in the Laboratory.

11. No friction, detonating or common tubes, fuzes, quick or slow

* As previously mentioned in the text, the 24-pr. Marks IV. and V., will burn about 6 seconds, the 9-pr., Marks V. and VI., about 4 seconds.