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REGULATIONS

FOR

ARMY ORDNANCE SERVICES.

(PROVISIONAL EDITION.)

N.B.—*These Regulations are undergoing extensive revision, and the present edition is merely provisional to meet demands which may be received before the revised edition is ready for publication.*



WAR OFFICE, 1904.

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ASTOR, LENOX AND
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DEFINITIONS.

N.B.—The following terms used in these Regulations will have the signification shown below:—

Inspector-General of Ordnance Stores.	The Officer charged with the inspection of the Army Ordnance Department and Mobilization Equipments.
Principal Ordnance Officer.	The Officer at the head of the Army Ordnance Department at the Royal Arsenal, Woolwich.
Chief Ordnance Officer.	The Officer at the head of the Army Ordnance Department of any Military Command.
Ordnance Officer	An Officer in charge of an Ordnance Depôt.
Inspecting Officer ...	An Ordnance Officer who has qualified as a Firemaster in the Ordnance College, and has been appointed to carry out inspection duties.
Chief Inspector	The Senior Officer of each division of the Inspectional Staff.

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[*The amendments made in the Regulations of* 1902, *which have undergone extensive revision, are denoted by a black line in the margin. As some typographical errors may have occurred in publication, it is requested that, should any be discovered, they may at once be pointed out in writing to the Secretary, War Office. The present Edition is Provisional only, and will shortly be further revised.*]

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REGULATIONS

FOR

ARMY ORDNANCE SERVICES,

1904.

SECTION I.

Administration.

I.—General Instructions.

G.O.C., responsibility of.

1. The general or other officer commanding a district or command at home or abroad, is responsible under the King's Regulations for the efficient and economical performance of all Army Ordnance services in his command.

C.O.O.'s rank and position.

2. The chief ordnance officer of a district, or with troops in the field, will be an officer on the staff of the Army, and will be an officer of the directing staff of the Army Ordnance Department.

Duties.

3. The chief ordnance officer will perform his duties under the orders of the general or other officer commanding. Where, in these regulations, it is stated that particular acts will be done by the chief ordnance officer, it is not intended to imply that he has an independent responsibility, but merely to indicate that he is the officer appointed to carry out the duty under, and for, the general or other officer commanding. The chief ordnance officer will have free access to the general or other officer commanding at all times on questions relating to the department.

C.O.O. to act in case of emergency.

4. In cases of emergency, or in matters of detail not provided for by these regulations, the chief ordnance officer will act on the orders of the general or other officer commanding, his proceedings being reported to the War Office.

Instructions to troops.

5. Any instructions to the troops regarding Army Ordnance services (including clothing and necessaries), which may be necessary in districts or commands from time to time, will be drawn up by the chief ordnance officer, and submitted for the approval of the general or other officer commanding, and then issued in the usual manner.

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Unsuitable patterns of stores.

6. In all cases in which officers commanding or others bring to notice that the quality or pattern of any equipment renders it unsuitable for the purpose for which it is issued, the matter should, before further action is taken, be reported to the War Office, if the general or other officer commanding considers that the defects require consideration.

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Guards for depôts, and military assistance.

7. In garrison or in the field, the chief ordnance officer will apply to the general or other officer commanding, or other proper authority, for guards to the storehouses, and depôts of the department, for the necessary escorts and fatigue and working parties, and for such other assistance as may be necessary.

Estimates voted by Parliament.

8. The chief ordnance officer will be held responsible that any sums which may have been authorized by the Secretary of State for any particular services in the district are not exceeded without special sanction; and he will require that claims are preferred sufficiently early to allow of their being paid within the year to which the services appertain. He will prevent the payment of claims being deferred for the purpose of producing an apparent agreement between estimated and actual expenditure.

Payment of claims.

9. Omitted.

Estimates for payment of labour.

Wages and stores.

10. He will exercise a check over the estimates for the payment of labour for all descriptions of work to be executed in or on account of the department. He will ascertain whether it is necessary to expend the proposed amount of money and stores; and whether working pay is allowable for the particular service for which it is claimed.

Appeals against disallowances.

11. He will enquire into all appeals against disallowances made by the War Office on the cash or store accounts of his department, before transmitting them to the War Office for decision.

Boards of Survey and Courts of Inquiry.

12. The chief ordnance officer will not, unless under exceptional circumstances, be appointed a member of boards of survey, or courts of inquiry, as he may be required to report to the general or other officer commanding on the proceedings of courts of inquiry relating to Army Ordnance services. He will see that steps are promptly taken for the recovery of money on account of lost and damaged stores and equipment, as ordered by the approved findings of courts of inquiry held under instructions in the Equipment Regulations.

Custody of, and accounting for, stores.

13. He will not, as a general rule, be a custodian of, or an accountant for, stores; but he will take care that stores are received, issued, and accounted for by the ordnance officer in charge, in strict accordance with the regulations of the service, and with a due regard to economy.

Exceptional issues.

13a. The chief ordnance officer will be responsible that the issue of supplies under exceptional circumstances ceases when the necessity no longer exists; and that articles of a non-consumable nature are withdrawn when no longer required.

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Duties and responsibilities of officers.

14. He will distribute the duties between all officers serving under him, giving each a definite charge, and holding him responsible for everything connected with it.

Verification of stores.

15. He will be responsible for the steps taken to ensure the correctness of the stock of stores at each station in his district, and will make such arrangements as will provide for the periodical verification of stock in the manner laid down in section XIII of these regulations.

Taking over a district.

16. In taking over a district, a chief ordnance officer will assure himself that the verification of stock has been carried out properly and sufficiently in the past, and will make a report to that effect or otherwise, when taking over the duties.

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Storehouses, workshops, &c.

17. The chief ordnance officer will, from time to time, inspect the storehouses, workshops, and other parts of the Army Ordnance premises. He will give the ordnance officers any orders necessary for the due arrangement and care of the stores, and for the efficient performance of the storehouse, workshop, and outdoor duties; and will, by close supervision of details, see that all orders as to inspections and arrangements for the custody and care of ordnance premises and stores, as laid down in these regulations, are strictly carried out by officers and others serving under him.

Inspections and custody of stores.

Reserves of stores.

18. He is also responsible, under the general or other officer commanding, that all reserves of ordnance stores ordered to be kept in his district are maintained complete and in good order, and that the *turnover* of stores which are perishable, or which may deteriorate, is provided for. He will, from time to time, bring to the notice of the general or other officer commanding, any revision which he thinks could with advantage be made in those reserves; and the general or other officer commanding will make any representation to the War Office on the subject which he may consider necessary.

Turnover of stores and revision of reserves.

Issues from reserves.

19. No stores will be issued from authorised war reserves maintained at an Army Ordnance depôt without the authority of the War Office.

Local provision on mobilization.

20. In compiling lists of reserves, all stores available or procurable locally are to be taken into account, so that reserves of stores easily available and constantly procurable shall not be held both in general store and in war reserve.

Waste and accumulation.

21. The chief ordnance officer will bring any case of apparent waste, misappropriation, or undue accumulation of stores by corps or departments, under the notice of the general or other officer commanding, and may, with the authority of that officer, take stock of articles in possession of units.

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Reports of Boards of Survey on A.S.C. expense stores.

22. Reports of surveys on unserviceable expense stores, rendered periodically by the Army Service Corps officers in charge of barracks, will be examined and submitted for the approval of the general or other officer commanding, by the chief ordnance officer.

Weights and measures.

23. The chief ordnance officer will, once in each year, cause all weights and measures in use by the department to be examined, and any defects in them to be adjusted; for which purpose a set of standard weights and measures will be supplied to such districts as may be specially approved.

Armament, extent of.

24. He will make himself well acquainted with the nature and extent of the armaments within the command, and also with the proportion and allotments of stores required for the same.

Official Secrets Act.

25. A copy of the "Official Secrets Act, 1889," will be posted in a conspicuous place in every Army Ordnance establishment.

Departmental orders.

26. He will, from time to time, as may be necessary, issue departmental orders on subjects of general application or importance, in connection with Army Ordnance duties, to officers and others serving under him. They will be duly recorded in a book kept for that purpose, and will include all appointments, promotions, moves, temporary employment, or changes in the Army Ordnance establishments in his district, and leave granted to officers.

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Handing over on relief by chief ordnance officers.

27. Upon a chief ordnance officer being relieved, he will prepare the documents detailed in Appendices VII and VIII of these regulations, in duplicate. One copy will be transmitted by the general or other officer commanding to the War Office, and the other retained at the station. A copy of the statement as regards naval services will be forwarded by a chief ordnance officer abroad to the Naval Commander-in-Chief, together with a covering letter, notifying his relief. Should circumstances necessitate the departure of a chief ordnance officer before the arrival of his successor, the documents will be prepared, signed, and left for transmission by the relieving officer.

Responsibility for care, &c., of stores.

28. An ordnance officer is responsible for the security of the stores in his depôt, and will therefore make such application for the appointment of guards or other assistance as may be necessary for the adequate protection of the property entrusted to him.

Duties of ordnance officers.

He will relieve the chief ordnance officer from the ordinary details of the storehouse, workshop, and out-door duties.

29. Omitted.

Supervision of persons employed.

30. He will by personal supervision see that the storeholders, foremen, artificers, labourers, and military working parties give the prescribed attendance ; and he will be responsible that the men are employed to the best advantage, and in strict conformity with the rules of the service.

Irregularities to be reported.

31. He will report to the chief ordnance officer any irregularity of attendance or other misconduct on the part of any of the subordinates of the department.

Inspection of storehouses and workshops.

32. He, or an officer on his behalf, will visit all storehouses and workshops in his charge at least once a day, except in the case of magazines or storehouses which are scattered, or at some distance from the main depôt, where the visits may be less frequent, as the chief ordnance officer may direct ; but in no case should they be made less frequently than once a week.

Division of duties.

33. At large stations where there are junior officers to assist with the duties, the ordnance officer in charge should exercise particular control over all establishment questions, the junior officers having charge of divisions such as the issue branch, the receipt branch, and the cash or ledger branch.

Responsibility for duties.

34. Ordnance officers are to be very careful to give exact and precise orders for the performance of duties by those serving under them, as the officer in charge will be held responsible unless it can be shown that his full and detailed orders were not carried out.

Inspection duties.

35. Ordnance officers who have a firemaster's certificate or that of the Ordnance Course or Advanced Class will, in addition to their other duties, be appointed to carry out the following services :—

The superintendence of the inspection and examination of ordnance on Army Ordnance and Royal Artillery charge ; the examination of gunpowder, cordite, guncotton, fuzes, tubes, and other munitions of war ; and the carrying out of all such laboratory operations and repairs of laboratory stores as can be effected in their respective districts. They will also perform similar duties in connection with naval armaments where required.

Annual inspections.

36. An officer of the inspection staff, Woolwich, will make the annual inspection of explosives in Army Ordnance and Royal

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Artillery charge in any districts at home where there is no ordnance officer appointed to carry out the duty, in which case the dates will be arranged by the Master-General of Ordnance, and notified to the general officers commanding concerned.

C.O.O.'s correspondence with C.I.W.

37. A chief ordnance officer may correspond direct with the Chief Inspector, Royal Arsenal, Woolwich, on any points of a technical nature in connection with the examination or proof of ordnance and explosives.

Patterns and lithographs.

38. In order that full and accurate knowledge of the peculiarities of warlike stores may be available for the information of the ordnance officers and other officers concerned, lithograph drawings of all new or altered munitions of war will be sent to each station where those officers are serving, and will be kept in charge of the Army Ordnance Department, properly arranged for inspection, with an alphabetical list thereof showing the dates of approval and when received, together with such other explanatory information as may be necessary. This will not affect the arrangement under which certain instruments, models, and specimens are issued to the Royal Artillery for use by gunnery-instructors, and held in regimental charge.

Lithographs, number issued to stations. 38407 Ordnance 223

39. Copies of every lithograph in each of the departmental series are issued to the ordnance stations detailed in Section XIII, Equipment Regulations, Part I. They should be distributed to officers as required, and kept for guidance and reference by all concerned.

Produce and manufactures in district. Recommendations to purchase locally.

40. At stations abroad, ordnance officers will make themselves acquainted with the produce and manufactures of their districts, with the view of supplying their requirements, as far as possible, by local purchases. They will examine demands for stores before sending them home, and will report upon the articles which can be obtained locally, showing in detail the description and prices of such articles, the mode of supply, and the time within which they can be provided ; and will furnish any other useful information.

Attention to duties; special knowledge required; and accounting.

41. All ordnance officers will acquire a full and practical knowledge, not only of the various descriptions and proportions of ordnance stores and munitions of war required for the several services, but also, as far as possible, of the nature and qualities of the materials of which such stores and munitions are composed. They will also pay particular attention to correctly accounting for all stores committed to their charge.

II.—Authorization of Expenditure.

Purchase and repair of stores.

42. The purchase of stores provided under the vote for warlike and other stores in a district or command is dealt with by the chief ordnance officer, under the orders of the general or other officer commanding.

38407 Ordnance 221, Tenders, procedure.

42A. When necessary, tenders for Ordnance Stores will be sent out and dealt with as laid down in the Regulations for Supply, Transport, and Barrack services. In this connection the chief ordnance officer will be regarded as the staff officer referred to in those Regulations.

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Hire of labour and repair of stores.

43. Charges may be incurred without special approval for services authorized by regulation, such as for hire or miscellaneous labour, repairs of stores and purchases of the necessary materials or articles required for executing repairs, and also for purchases up to a limit of £5 of stores authorized by regulation but not available in store.

Laying of floor coverings.

43A. The laying of floor coverings of approved patterns, supplied at the public expense, for messes, quarters or storehouses, when approved, is an Army Ordnance Department service.

The cost, if any, of carrying out this service should be charged to Vote IX, Sub-head H, "Barrack, &c., Stores."

Purchase locally of stores approved by Principal Ordnance Officer.

44. General officers commanding at home may authorise the purchase of stores directed by the Principal Ordnance Officer to be obtained locally, unless the expenditure exceeds £25 on any one description of store, when application should be made, on Army Form G. 1041, to the War Office for authority to purchase In cases of urgency purchase may be effected, up to a limit of £100, without previous reference to the War Office.

At stations abroad the general officer commanding will authorise local purchase of stores approved by the Principal Ordnance Officer for local provision.

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All purchases over £25, both at home and abroad, will be reported monthly to the War Office, with the reasons for the action taken, except in cases where authority has already been given by War Office.

Emergent provision stores, authority for.

45. In the event of any emergency requiring the immediate supply of additional or special stores for the use of the troops, the general or other officer commanding may incur the necessary expenditure, which, if over £25 in value, will be reported monthly to the War Office for covering approval. As, however, it is the duty of the Army Ordnance Department to maintain a sufficient reserve of stores of the regulated patterns, these special purchases should be of rare occurrence, especially at home stations.

Record and character of contractors.

45A. While every attention is to be given to purchasing at the lowest possible price, full consideration is to be given to the record and character of the firms tendering, and of the probability of their executing the order satisfactorily and punctually.

No alteration of Contract.

No alteration of a contract or of its subject matter affecting prices will be made without reference to the War Office.

Reports of nonfulfilment of contract to War Office.

Reports will be made to the War Office in cases where the general officer commanding cannot obtain satisfactory fulfilment of a contract.

Contracts.

46. All contracts will be entered into, and in the field all important purchases will be made, under the orders of the general officer commanding.

Salvage claims.

47. Rewards for salvage of serviceable, repairable or unserviceable stores will not exceed one-third of their assessed value when received after recovery. General officers commanding may sanction payments for this service not exceeding a total of £10, but if the salvage claims exceed that amount they will be submitted for War Office authority.

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Preparation of bills, &c.
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48. The chief ordnance officer will cause all bills, pay lists, and other documents for the payment or receipt of money for the service of his department, to be prepared and completed in every particular, before being presented to the paymaster.

Particulars of contracts notified to paymaster.

49. The material particulars of all contracts will be notified to the district paymaster by or to whom the sums due under such contracts are payable, together with the number and date of the authority under which the contract has been concluded.

Contractors' bills.

50. Contractors' bills for services at home stations will contain a reference to the contract or authority under which the amounts are claimed; and, for services abroad, to the letter reporting the contract to the War Office.

51. Omitted.

III.—Inspection from Head Quarters.

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Inspection by I.G.O.S.

51A. An inspection of the Army Ordnance Department, and of mobilization stores in each command at home and at such stations abroad as may be directed, will be made from time to time by the Inspector General of Ordnance Stores.

Inspection of reserves.

51B. The duties of the Inspector-General of Ordnance Stores will include inspection of all war reserves of ordnance stores, and of all mobilization equipments stored under the G 1098 series of Army Forms, whether in charge of units or of the Army Ordnance Department; also in the case of the Army Ordnance Department, enquiry into the methods by which the various duties are carried out, the knowledge of officers of the department as regards the details of their work, condition of the ordnance buildings and of the stores and reserves contained in them, and the steps taken to procure an efficient turnover. He will also inspect the civil establishments and report when required upon proposals involving an increase of expenditure, &c.

Ordnance buildings.

Civil establishment.

Report of I.G.O.S.

51C. The report of the Inspector-General of Ordnance Stores will be furnished to the general officer commanding the Army Corps or District in which the inspection is made, who will forward it with his remarks to the War Office.

SECTION II.

Duties of Inspection Staff.

52 The regulations in this section will apply to the undermentioned departments :—

	Dealt with by the
(*a*) Small-arms, machine guns, and cycles	Chief Inspector of small arms.
(*b*) Guns, carriages, proof, and laboratory stores, and all explosives	Chief Inspector, Woolwich.
(*c*) Steel (contract)	Inspector of Steel.

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(*d*) General stores	Chief Inspector of General Stores.
(*e*) Position and rangefinders	Chief Inspector, Range-finders.
(*f*) Chemical*	War Department Chemist.
(*g*) Superintending Engineer	Superintending Engineer.
(*h*) Clothing	Chief Inspector, Pimlico.

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Patterns, &c., for stores.

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53. Patterns, specifications, samples, drawings, or models of all stores will be kept by inspectors; and when inspecting stores, each part will be carefully compared with its pattern, specification, &c. A register of such patterns, models, &c., will be kept, showing the date of the approval thereof; each entry will be numbered, and a corresponding number will be attached to the pattern in store, so that easy reference may be had thereto. All patterns will be sealed by the Chief Inspectors concerned.

Approval of patterns.

54. Officers of the several departments concerned in the inspection of stores will take steps for obtaining the approval of the Director at the War Office responsible for the provision of the stores concerned for patterns of all the articles usually manufactured at, or received by, those departments severally and of which there are not established patterns: and a specification suitable to each pattern will be prepared and retained with the pattern, for the guidance of the person concerned in tendering for, or in the manufacture, inspection, or receipt of, such articles.

Specification kept with each pattern.

Patterns, &c., held.

55. Sealed patterns, drawings, specifications, and standard gauges will be held by the inspector concerned.

Specifications, instructions for preparing.

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55A. In preparing specifications, the following principles are generally applicable, and should, as far as possible, be adhered to. They should distinctly lay down all that is essential to the serviceability of the arm or store, and state all the tests to be applied. No conditions should be inserted as compulsory unless they are essential to the serviceability of the arm or store, and are to be enforced at inspection. In guns, rifles, and many other warlike stores, interchangeability of parts is a condition of serviceability.

In all cases where dimensions or weights are inserted in a specification or drawing, a reasonable plus or minus margin should be allowed in the specification or drawing.

Verification of patterns.

56. Patterns, drawings, and specifications of new stores, or of altered existing stores will be referred to the inspector concerned for verification, before being approved and sealed to guide manufacture for the service. When necessary, specifications will be referred to the chemical department before approval.

Patents.

Inspectors will ascertain and report if the pattern is covered by a patent.

Drafts for lists of changes, &c.

57. Each Chief Inspector will furnish paragraphs for publication in the List of Changes in War Matériel, and also advise in regard to details of spare parts and materials for repair, for the Equipment Regulations.

Damaged seal on patterns.

58. Whenever it is discovered that the seal upon an original pattern is damaged, and likely to become obliterated, a report thereof will be made to the War Office by the officer in charge of

* Includes oils, lubricants, illuminants, waterproof goods, &c.

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the pattern, in order that directions may be given for its being resealed.

Specifications and drawings.

59. With regard to such stores of general use as do not, from their nature, admit of being governed by patterns, specifications only (and drawings, where necessary) will be prepared, and after they have been submitted to, and approved by, the Director concerned, they will be retained in the same manner, and for the like purposes, as the patterns.

Alterations.

60. No alteration will be made in any established pattern, drawing, or specification, without the special sanction of the War Office being first obtained.

Stores must not differ from pattern.

61. Officers entrusted with the inspection and receipt of stores are not to pass any stores which differ from the approved pattern, drawing, or specification without the sanction of the War Office, nor without there being an approved pattern, drawing, or specification for their guidance, unless such pattern, drawing, or specification shall, from the nature of the stores, or the mode in which they have been ordered to be obtained, be specially dispensed with.

Responsibility for passing articles.

62. Each inspector will be responsible for the examination of the stores assigned to his department, whether manufactured or repaired in a government factory or by contract. The articles inspected will be passed for service if they are in accordance with the sealed patterns, drawings, and specifications (where such exist), are to the satisfaction of the inspector, and have passed the specified tests. The inspection will include detailed examination, when necessary, during the process of manufacture or repair.

Inspectors to conduct firing proofs.

63. Firing proofs of small arms, guns, gun carriages, cordite, gunpowder, and small-arm ammunition will be conducted by the inspectors concerned, on the ranges and in the buildings appropriated for the purpose. The firing proof of projectiles and fuzes for ordnance will be performed at Shoeburyness. When carriages are proved at Shoeburyness or other stations, the Chief Inspector, Woolwich, will also control the tests.

Inspection of arms and bicycles in use by the troops.

64. The Chief Inspector of Small Arms will carry out an annual inspection of all the arms and service bicycles in possession of the regular forces in Great Britain and Ireland, also service bicycles in store, at such times as may be most convenient to the public service, except the arms of the Army Pay Corps, Gymnastic Staff, Royal Military College Staff, Army Ordnance Corps, and Royal Army Medical Corps, which will be examined triennially. He will examine the arms in possession of Militia triennially; the arms of the Imperial Yeomanry and Volunteer forces will be examined triennially when returned to Birmingham.

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Inspection of small arms for India and the Colonies.

65. Supplies of small arms received from contractors for India or the colonies will, after inspection by the Chief Inspector of small arms, be packed by him for shipment, and retained until instructions for their disposal have been received from the India store depôt, or the Crown Agents, as the case may be. A receipt for the consignment will be obtained and forwarded to the War Office with a statement of issue on A.F. G 1018. The bills for the supplies will be forwarded direct to the India office or Agent-general for payment.

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Packing S.A. and M.-G. ammunition...

66. The Chief Inspector, Woolwich, will pack all small-arm and machine-gun ammunition for issue after inspection.

Forms for demand, and tenders to be issued.

67. Prior to the issue of tender forms to private firms, the Principal Ordnance Officer and the Superintendent, Ordnance Stores, will submit demand forms to the inspectors concerned, who will insert thereon the details of patterns, &c., to which contractors will be required to work, stating at the same time whether the stores are covered by a patent, and whether a longer period than thirty days is necessary for inspection.

Copies of extracts made on factories.

68. The Principal Ordnance Officer, the Superintendent, Ordnance Stores, or the Chief Ordnance Officer, Weedon, as the case may be, will furnish to the inspector concerned copies of all "extracts" made on the ordnance factories for the manufacture or repair of stores.

Particulars of contracts

69. Particulars of contracts will be furnished to the inspector concerned.

Patterns, drawings, or specifications for inspection.

70. Upon receipt of copies of "extracts" on the ordnance factories, or particulars of contracts, the inspector concerned will at once satisfy himself whether he has in his possession duly approved patterns, or drawings, and specifications, to govern the inspection of the stores in question; and should such patterns, &c., not be in his possession, he will take the necessary steps to at once obtain them.

Invoices of stores and reports of their inspection.

71. The Principal Ordnance Officer and Naval Ordnance Officer, Woolwich, will furnish to the inspector concerned, inspection notes of all contract stores delivered for inspection; and the results of the inspection will be communicated to the officer concerned.

Factories to furnish invoices.

72. The ordnance factories will furnish corresponding documents for all stores made by them.

Chemical analysis of samples.

73. Inspectors will submit to the War Department chemist samples of material for report, when required by the terms of the specification, and whenever otherwise necessary, with copies of specification, or patterns, to facilitate examination of the samples.

Inspection *personnel*, buildings, works, stores, and accounts.

74. Each inspector will be responsible for the administration of the entire *personnel* under his orders; and will certify for their payment. He will have charge of the buildings, ranges, butts, plant, tools, appliances, and stores necessary for conducting his duties; and will keep such accounts as may from time to time be ordered, and for which separate instructions are published.

Annual estimate, and periodical demands for stores.

75. All stores required will be demanded from the Principal Ordnance Officer; and in order that due provision may be made, an estimate will be furnished by each Chief Inspector to the War Office, on the 1st October every year, for the next financial year. After the estimates have received the approval of the War Office, the Principal Ordnance Officer will comply with the demands of the inspectors, provided that the value of the stores asked for does not exceed the approved estimate, and will take the necessary steps for replacing the stores issued, as far as is considered necessary. Any demand of an exceptional character will be submitted to the War Office by the Principal Ordnance Officer for instructions.

Demands of an exceptional character for stores.

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76. For small services, including ammunition, inspectors will demand direct from the Chief Superintendent of Ordnance Factories, on open "extracts." Direct demands on ordnance factories.

77. The numbers of the employés, and their rates of pay, will be fixed by chief inspectors, under the orders of the War Office. Establishments.

78. The general regulations in force for the employés of the manufacturing departments, as regards taking on and discharge of hands, &c., will also apply to the employés of the inspection staff, except as regards the general stores department, which will be governed by the regulations in force for the employés of the Army Ordnance Department, Woolwich. Engagement, discharge, &c., of employés.

79. The expenditure on wages will be strictly confined within the amount allotted to each Chief Inspector. Should there be any probability of that amount being exceeded, the attention of the Director concerned will be called to the subject. Control of expenditure for wages.

80. Subordinates will not hold any communication with contractors or their agents, without the express sanction of the senior officer of their department. Communication of subordinates with contractors.

SECTION III.

Establishments, Discipline, Duties, Reports, and Returns of Personnel.

I.—Army Ordnance Corps.

81. The Army Ordnance Corps is administered by the officer commanding that unit, subject to the general instructions of the Director of Equipment and Ordnance Stores, as described in the King's Regulations. Administration.

82. The officer commanding the Army Ordnance Corps will correspond with chief ordnance officers on questions appertaining to the interior economy of the corps, and corps orders issued by him are issued with the authority, and by direction, of the Quartermaster-General. Transmission of orders.

83. In cases of movements or transfers from one command to another, or on subjects affecting the discipline of detachments in a command, he will address the communication to the chief staff officer of the command. Transfers.

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84. Further instructions as to the interior economy of the Army Ordnance Corps are contained in the Standing Orders. Standing Orders.

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II.—Establishments.

Annual cash estimate, home stations.

85. At home stations the chief ordnance officer will forward annually to the War Office, so that it may be received not later than the 1st November in each year, a detailed estimate of the probable cost of the establishment of the department under his charge.

Abroad.

86. At stations abroad the estimate will be forwarded with the general estimate of the command, in accordance with the Financial Instructions.

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87. This estimate will be rendered on Army Form M 1435, and the several columns will be filled up, so as to give the information required in the fullest possible manner.

Changes to be shown in red ink.

88. All changes of every kind, whether sanctioned by regulation, such as increments to salaries, &c., or whether previously approved or not, will be shown in red ink, and the amount, if any, included in the previous estimate, will be shown in black ink.

Estimate of increase of expenditure.

89. In putting forward applications involving an increased expenditure of money, the estimated cost should invariably be stated.

Increases of pay.

90. Recommendations for increases of pay to subordinates should be prepared on the prescribed printed form, and forwarded in sufficient time to admit of their receipt at the War Office by the 1st September in each year.

Authority for increasing wages, &c.

91. Although increments to wages and increases to establishment may have been approved for insertion in the estimates, they will not be carried into effect without a further application being made so as to reach the War Office not later than the 1st March, and approval duly received in reply thereto.

92. In cases, however, where War Office authority has been granted for the issue of special scales with fixed periodical increments of pay to civilian subordinates on the wages list, the increases may be granted upon the publication of satisfactory service in the "Departmental Orders," and reported in the monthly casualty returns. (*See* Pay Warrant).

Periodical increase of pay, recommendation for.

93. Whenever a subordinate upon a fixed progressive scale of pay has failed to obtain recommendation for his periodical increase, under the terms of the Pay Warrant, no further recommendation in that respect should be forwarded on his behalf for at least six months after the date upon which such subordinate was last eligible for the advancement in question.

III.—Discipline and Personnel.

Hours for business.

94. The chief ordnance officer, with the sanction of the general or other officer commanding, will determine the hours during which the offices and storehouses of the department shall be open for the transaction of business; and will cause the same to be published for the information of the garrison and of the public.

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95. Should the business of the department fall into arrear, the chief ordnance officer will require closer attention, or extra work, in the office where the arrear has arisen; or if that be insufficient, he will report the matter to the general or other officer commanding, and temporary assistance will be obtained in the manner laid down in the Pay Warrant. Work in arrear. Temporary assistance.

96. Omitted.

97. Leave of absence granted by general or other officers commanding, to proceed to England from stations abroad on urgent private affairs, is to be understood as extending only to the termination of the voyage. Officers who have obtained such leave will, immediately on landing in England, report their arrival to the Director of Equipment and Ordnance Stores, when it will be determined what further leave, if any, on full pay, shall be given, or what other steps shall be taken. Leave on urgent private affairs.

98. Officers or other persons belonging to the department are not to carry on, or be concerned in, any trade whatever, or to be employed in any agency. They are not, either directly or indirectly, to derive the smallest advantage from their positions in the service, beyond their authorised pay and allowances. Trading or agency forbidden.

99. Omitted.

100. At all large Army Ordnance depôts, an officer will be detailed as officer of the week, to carry out fixed inspections of magazines, and other duties as may be laid down for the station. He will, among other duties, carry out the following :— Duties of the officer of the week.

(*a*) Be present one morning in each week, at the commencement of work for the day, and at once visit storehouses, or other places where work is being carried on. He will, at the same time, receive a report from the establishment foreman, as to the presence or otherwise of the men of the establishment. Morning visit.

(*b*) Be present on two days a week, at the time the depôt is closed and the men leave off work, take a verbal report from the storeholder or foreman charged with the duty that all fires are out, and doors and windows properly secured, and see that the keys of the establishment are deposited in their proper place: Evening visit.

(*c*) Be present at the weekly payment of wages. Wages.

(*d*) Attend the periodical practice of fire engines in charge of the department. Fire engine

(*e*) Where military working parties are employed, muster the parties where practicable, at an uncertain hour, to see if all are present and correct. Muster working parties.

(*f*) Carry out the stocktaking during the week.

101. The performance of the foregoing duties is to be recorded by each officer in a book kept for the purpose, to be termed the "Officer's Inspection Report Book,"—a sample page of which is printed in Appendix I of these regulations. Officer's report book

102. It is not intended to limit the duties of the officer for the week to the instructions contained in paragraph 100, but they should be supplemented by such additions as local circumstances may require. Extra duties

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Roster for weekly duties.

103. All officers at the station, other than the chief ordnance officer and the inspector of ordnance machinery, are to be on the roster for these duties.

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Large stations.

104. The stations to which the foregoing orders refer are Portsmouth, Devonport, Dover, Stirling, Aldershot, Chatham, Dublin, Haulbowline, York, Burscough, Weedon, Purfleet, Malta, Gibraltar, and Hong Kong.

Smaller stations.

105. In the case of smaller stations, the inspection report book need not be kept, but the officer in charge is to see that the spirit of the foregoing regulations is observed, and a report furnished to the chief ordnance officer that this has been done.

Cash payments.

106. All cash payments to military or other working parties or services are to be made by, or in the presence of, an officer.

Note books.

107. Officers in charge of divisions or branches in an Army Ordnance depôt will keep a note book of duties, orders, and War Office or other instructions appertaining to their branch. This book will remain with the branch, and will not be taken away by the officer on transfer to another division or station.

IV.—Civilian Subordinates.

Competent men.

108. The chief ordnance officer will take every precaution that none but thoroughly competent men are engaged or retained in the department in any capacity.

Pensioners and army reserve men.

109. In selecting labourers, preference should be given to pensioners and men of the army reserve. If there are none available, civilians may be appointed; and in any case a certain proportion of civilians should always be employed, to provide for the contingency of army reserve labourers being recalled to active service.

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110 to **115.** Omitted.

Temporary labour.

116. No additions to the establishment other than of a temporary nature, where money has been provided for the purpose in the annual cash estimate, under "temporary labour," will be made at home stations, under any circumstances, without the previous sanction of the War Office.

Emergent employment of additional men abroad.

117. Whenever, owing to an unusual pressure of business at a station abroad, it may be necessary to employ additional men, the chief ordnance officer will submit to the general or other officer commanding a full detail of the circumstances which render such assistance indispensable, who will, if he sees fit, authorise the expense provisionally, reporting his action to the War Office by the first opportunity.

Authority for appointments, &c.

118. Appointments and promotions to the grades of storeholder, master artificer, or laboratory foreman, should not be made without the approval of the general or other officer commanding being previously obtained.

Appointment, promotion, or dismissal of labourers.

119. Appointments and promotions of foremen and assistant foremen may be made locally. Such appointments, as well as those of labourers and artificers to complete establishment, or their promotion or reduction from one class of labourers to another,

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or their dismissal, need not be specially reported. They will be shown in the casualty return.

120. Omitted.

121. In the event of any storeholder, foreman, or master-artificer being dismissed, or recommended for dismissal, a full report of the misconduct charged against him will be made to the general or other officer commanding. Dismissal.

122. No man will be charged for in one capacity and employed in another, but labourers may be employed, when necessary, as watchmen and warders at ordnance establishments. Employment. Labourers as watchmen.

123 to **126.** Omitted.

127. The men who go on watch for the first part of the night will not remain longer than 12 o'clock, when they will be relieved by an equal number of other men, who will watch during the remainder of the night, and receive the regulated allowance. Watchmen necessarily employed at stations abroad will be paid at rates specially authorised for the command. Watchmen, relief of. Pay, special rates, for watchmen.

128 to **131A.** Omitted.

132. The employment of men on overtime should be avoided as much as possible, and should only be resorted to upon occasions such as discharging or loading vessels to save tides, or looking after steam cranes, &c., during meal hours, or in dealing with special issues and receipts of stores in urgent cases. The local head of the department will decide whether overtime is necessary or not, but he will not order it to be worked, unless the expense entailed can be met out of the money at his disposal for wages. If money is not available authority will be obtained from the War Office by an application through the general officer commanding. Overtime to be avoided if possible. 38407 Ordnance 207

133 to **140.** Omitted.

141. All serious cases of injury to subordinates sustained in the execution of their duty will be investigated by a departmental court of inquiry, or by the officer in charge at the station, and a copy of the proceedings of the court of enquiry, or a statement of the result of the investigation will be retained at the station for permanent record, or forwarded to the War Office in cases where a claim for compensation is made. Injuries, investigation of.

142. Omitted.

143. At home stations application for the supply of trusses for men ruptured in the execution of their duty will be made on Army Form I. 1222, to the general officer commanding through the principal medical officer, who, when the issue is approved, will forward the requisition to the Government contractor for supply. Trusses, application for. 38407 Ordnance 223

144. Further regulations are laid down in the Regulations for Civilian Subordinates in Army Departments regarding the pay of departmental civilian subordinates, absence on leave or from sickness, and other matters, to which the attention of officers is generally directed. General Regulations.

V.—Returns and Reports of the Department.

145. A list of the returns and reports to be rendered by chief ordnance officers in connection with the personnel of the department is given in Appendix XXIX. 38407 Ordnance 223

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Casualty report, officers.

146. When an officer or warrant officer arrives at, or leaves a station, a report should at once be forwarded to the War Office on the prescribed printed form.

Special reports on officers and warrant officers. Gen. No. 6. 4275

147. If an officer or warrant officer leaves a command during the year, a special confidential report will be rendered on his transfer; but this report will not be required in cases of removal for temporary duty only.

Remarks by C.O.O. on qualification reports.

148. When the command of a general officer consists of more than one district or division, the remarks of the district officers will be supplemented by those of the chief ordnance officer.

Casualty returns.

149. The monthly casualty return will show all appointments, promotions, and changes in the establishment of the department and A.O.C. in the district. Temporary labour employed, either with previous War Office sanction or under paragraph 117, will also be shown, and repeated in each month's return so long as the employment is continued. The total expenditure under Vote 9.A.2. from the 1st April to the end of the month for which the return is rendered will be shown.

Establishment returns.

150. The establishment return (A.F. C 341) will include warrant and non-commissioned officers and men of the Army Ordnance Corps, except at Aldershot and Woolwich.

SECTION IV.

Correspondence, Records, &c.

1.—Correspondence.

Principal Ordnance Officer.

151. The Principa Ordnance Officer will conduct his duties under the direction of the Army Council, and all his communications to the War Office will be sent direct. He is authorised to communicate direct with general officers commanding.

C.O.O. through G.O.C. 38407 Ordnance 223

152. The chief ordnance officer at stations other than Royal Army Clothing Department and Weedon will forward all correspondence with the War Office relating to Army Ordnance services through the general or other officer commanding; and he will submit all such letters and communications for signature, as laid down in the King's Regulations.

153 and **154.** Omitted.

Preservation of records.

155. The chief ordnance officer will preserve in his office all letters and other records relating to his department, unless his office is located in the headquarter offices of the district, in which case they will be dealt with in the central registry. (*See* regulations for the registration of correspondence in military offices.) He will countersign statements of remains, returns, certificates of losses, and replies to observations on store and cash accounts, after having taken the necessary steps to assure himself that they are, in every respect, correct and satisfactory.

Store accounts.

Countersigning.

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156. Omitted (*see* paragraph 42, Financial Instructions).

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157. At home stations, packages of accounts, &c., weighing over 11 lbs. will be forwarded by rail or carrier. Accounts and printed papers addressed to the War Office from stations abroad will be transmitted by parcel or book post, and not as ships' parcels, in all cases where they can be forwarded by British mail packets. The packages, when sent by book post, will be made up in covers open at the ends or sides, so as to pass at the reduced rates of postage chargeable for book packets; and the postage will in all cases be prepaid. Papers containing information as to armaments or other matters which it is undesirable should be open to inspection will not be sent by book post.

Transmission of accounts.

Book post.

Papers on armaments.

158. When parcels or packages intended for the War Office are forwarded by ship from stations abroad, they will be consigned upon bills of lading in transit to the Principal Ordnance Officer, who will forward them to their destination.

Packages to W.O. by ship.

II.—Official books and documents.

159. All books and documents relating to the public accounts and transactions of the department will be carefully kept and classified, so as to show as precisely as possible the transactions recorded in them, and to be available for reference, and ready at any time to be handed over to a successor. The accounts will be sent to the War Office at the prescribed time, and prompt attention given to all observations arising on their audit.

Keeping, classification, &c.

Accounts to W.O.

160. In case of an officer of the department being relieved and ordered on other service, all books and documents connected with his official proceedings, either in correspondence with the War Office or with his own or any other department, and all other books, circulars, and papers likely to furnish useful information regarding the business of the department, are to be left with his successor.

Documents to be left for successor.

161. Omitted.

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SECTION V.

Charge of Storehouses, Magazines, and Workshops, and Maintenance of Armaments.

I.—Buildings appropriated to the Army Ordnance Department.

162. The gun wharves and other Army Ordnance establishments are in charge of the chief ordnance officers, and no officer or other person connected with the war department, except members of the Army Ordnance Department, has any right of entrance therein, unless with the permission of the chief ordnance officer, or as provided for by these regulations.

Admission to Ordnance Establishments.

163. Visitors will not be allowed to go round the establishments and storehouses without the permission of the chief ordnance officer,

Visitors.

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nor will they be allowed to go independently about the premises; they will remain with the person who may be directed to attend them.

Furniture.

164. At stations such as the gun wharves, or in any enclosed ordnance depôt premises, or the Royal Arsenal, Woolwich, where the buildings are in Army Ordnance charge, the furniture will be provided and accounted for by the Army Ordnance Department as "articles in use." (*See also* Regulations for Supply, Transport and Barrack Services.)

Private use.

165. No storehouses, magazines, or other public buildings will be used for any private purposes.

Proper store-houses to be provided.

166. Proper storehouses and places of deposit will be provided for all stores committed to the charge of the department.

Selection of site.

167. In the selection of storehouses, &c., the essential point to be attended to is that they shall be placed in such a position as will secure for them adequate military protection, that they are easy of access for wagons, and that they afford facilities for the shipment and general issue of stores.

Building estimates.

168. A statement on A.F. M 1424 (at home), and 1425 (abroad), of all Army Ordnance services, including storehouses, quarters, and workshops,—other than those solely connected with barracks,—proposed to be provided for on the ordnance buildings estimates for the vote for works, will be transmitted by the chief ordnance officer to the Commanding Royal Engineer, for submission to the general or other officer commanding, not later than the 21st of May in each year. A copy of the statement will be sent direct to the War Office (addressed Q.M.G. 10).

169. Early in April in each year, the chief ordnance officer will pass his office copy of his annual building statement (A.F.M. 1424–1425), with a memorandum to the Commanding Royal Engineer of his district, requesting that the services that have been allowed may be noted thereon, and the form returned.

170. In framing the annual Army Ordnance building statement for the following year, should it still be found necessary to insert items which, for want of funds, &c., have been struck out or postponed from the preceding year, the same will be shewn against each by writing "postponed from last year" in red ink.

Inspection of magazines and other buildings.

171. An annual inspection of Army Ordnance magazines and buildings will be made by the Commanding Royal Engineer, the Officer Commanding Royal Artillery, and the Chief Ordnance Officer, and also a quarterly inspection by an officer of the Royal Engineers, as laid down in the Regulations for Engineer Services.

IA.—Magazines.

Guarding magazines.

172. Magazine stations at home are to be watched by a military guard and warders by day, and by a guard and watchmen by night; or by police day and night.

172A. At stations abroad the civil wardens and watchmen are not usually required, and the watching will be performed by military sentries.

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172B. An officer will inspect the police, warders and watchmen at uncertain periods, and see that they are alert and doing their duty. Inspection of police, &c.

172C. The officers in charge of magazines and laboratories will superintend all operations which are being carried on by the foremen, artificers, labourers and others under their orders, and see that their duties are properly conducted. Officer to superintend operations.

172D. The officer in charge is not to be absent for a night without authority. Officer not to be absent at night.

172E. At stations where bells are supplied, the night sentries and watchmen will, each quarter of an hour throughout the night, strike the hour and the quarters on their respective bells. Any sentry or watchman who does not hear the bell next him struck will report the circumstance. Bells to be struck at night.

172F. Immediate alarm will be given in case of fire or other extraordinary occurrence by ringing the nearest bell. On an alarm being given, the bells on the several posts will be rung by the sentries, warders, watchmen, or police, when all the magazines and danger buildings will at once be closed. On the approach of a thunderstorm the bells will not be rung, but the sentry or police constable on the main gate will see that the storeholder or foreman in charge is informed, so that the magazines may be closed. Alarm of fire, &c. 24662 1560

Chief ordnance officers will arrange that the necessary instructions for police and sentries are included in their orders.

172G. The times for ignition and extinguishing of all lights in government quarters attached to a magazine station, occupied by employés, will be regulated as follows:— Lights in quarters.

Stations abroad	....	....	By the G.O.C.
„ at home....	....	....	By the Metropolitan Police Regulations.

172H. The foreman in charge will be present when the labourers arrive in the morning. He will close and bar the shutters and air holes on leaving work, see that everything is secure, lock the doors, and make his report to the officer in charge, with whom he will deposit the keys. Opening and closing by the foreman.

II.—Workshops.

173. The central district workshops belonging to the Army Ordnance Department will be under the supervision of the inspector of ordnance machinery, and he will employ all artificers, whether military or civilian, in such a manner as the various maintenance or other services may require. When the company artificers of the Royal Garrison Artillery are not required for artificers' work in the forts, they will be employed in the central ordnance workshops, as laid down in the King's Regulations. Central workshops under I.O.M.

174. The chief ordnance officer will be responsible that these workshops are in an efficient state, that no more workmen are engaged in them than can be fully employed, and that the conversion and repair of stores are effected in the most economical manner consistent with efficiency. Condition and management.

175. No repairs will be executed in these workshops except for the public service; and no foreman, artificer, or labourer will on Repairs for public service only.

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any account be employed for private purposes during working hours, even though his pay be checked in the check book.

Requisitions for repairs or manufactures.

176. Requisitions for the repair of stores (on Army Form G 1045) will be approved by the chief ordnance officer before being passed for execution in the workshops. He will exercise his discretion as to whether the stores shall be repaired or brought forward for condemnation.

Preparation of requisitions for repairs or manufactures.

177. In the case of repairs to stores for other corps or departments the repair requisitions will be sent in by the officer commanding concerned, specifying the number and description of articles to be repaired, as also the nature of the defects to be made good. In the case of repair for the department the requisition will be prepared by the storeholder or foreman of the section.

Day-book of workshop, entries in.

178. Upon receipt at the workshops these requisitions will be entered into the workshop day-book, A.B. 154, a consecutive number being given to each order, and a sufficient space being left between each entry to allow of the whole of the material expended on the service being entered against the requisition.

Alternative woods for repairs, &c.

179. When repairing wooden articles, if the description of timber originally employed is not available, the alternatives laid down in Appendix XI. may be utilised.

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Sanitary precautions.

180. In painters' shops, suitable conveniences for washing, including nail-brushes and towels, shall be provided for the use of those employed therein, and measures will be taken to ensure every man washing his hands and face before leaving work.

There shall also be overall suits for men grinding paint in water or oil, or mixing paints, of which dry white lead or arsenic are component parts.

Sanitary drink.

A sufficient supply of approved sanitary drink shall be provided for the use of men employed in the above work, to be obtained from the medical officer, who will decide what quantities are necessary on requisition by the officer in charge of workshops.

Eating and chewing.

No food is to be eaten or tobacco chewed in any painters' shop

III.—Armaments, Maintenance of.

Machinery artificers.

181. Artificers of the machinery section, Army Ordnance Corps, may be posted for duty in certain forts, if their permanent services are so required, in which case they will be under the orders of the officer commanding the Royal Artillery; at other times they will be employed in the central workshops, or in the district, as may be required.

Mountings and machinery &c., maintenance of.

182. The Royal Artillery and Army Ordnance Department will take on charge all mountings, machinery, engines, and gear used exclusively by them, and be responsible for their maintenance and repair as far as possible, the assistance of the Royal Engineers being applied for in exceptional cases only. The mountings will be frequently examined (as may be decided by the officer commanding Royal Artillery) by the inspector of ordnance machinery, who will see that they are at all times in thorough

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working order, and bring any defects to the notice of the officer in immediate charge, but he will not place any gun out of action without the approval of the officer commanding Royal Artillery. The examination of ordnance will be carried out by the inspecting ordnance officers, inspectors of ordnance machinery, or officials from the inspection staff, Woolwich. Examination of armaments.

183. All proofs and trials of guns and mountings which take place in the district will be attended by the inspector of ordnance machinery, in order that any specialities may be pointed out to, and useful information gained by him, of the practical working of the guns and mountings. Proofs and trials of guns and mountings.

184. Practice with heavy guns will (when the officer commanding Royal Artillery so decides) be attended by the inspector of ordnance machinery, and it will then be his duty to assist the commanding officer at the practice in every point connected with the gear or machinery in use, calling attention to any points that may occur to him in the use of the gear, and advising as to the continuance of practice in case of the suspected or apparent development of defects in any portion of the ordnance, mountings, or machinery. Heavy gun practices.

185. The examination of mountings should be arranged for by the officer commanding Royal Artillery and the chief ordnance officer. No specific requisition for this duty, nor for the attendance of the inspector of ordnance machinery at proofs or practice, is to be sent in, beyond a notification sent direct to that officer by the lieutenant-colonel or other officer commanding Royal Artillery as to the time and place of the examination. Attendances of I.O.M.

186. The Royal Artillery officer in immediate charge of armament will communicate direct with the inspector of ordnance machinery in the event of any defect or breakdown occurring which requires to be attended to with greater rapidity than would be obtained by the usual channel. Armament officer to communicate with I.O.M.

187. Immediate report will be made by the inspector of ordnance machinery to the officer commanding Royal Artillery, through the chief ordnance officer (or in urgent cases direct), of defects as they may arise, together with a recommendation of the steps considered necessary for their rectification, and also of any alterations suggested to existing mountings. Report to O.C.R.A. through C.O.O.

188. In cases where the defects are of a nature which can be remedied by means of the appliances and tools available on the spot, they will be carried out locally by the inspector of ordnance machinery, upon the orders of the officer commanding Royal Artillery. Defects to be remedied, &c.

189. Where, however, the work to be performed requires the expenditure of material and of appliances not locally available, or if the inspector of ordnance machinery reports that the work could be more advantageously carried out in the central workshop, a covering requisition will be sent to the chief ordnance officer, by the officer commanding Royal Artillery, for the performance of the service in question. No further requisition for tools, stores, or materials, will be necessary, such being provided and accounted for in the Army Ordnance workshop. The work should be taken in hand at once by the inspector of ordnance machinery without wait- Work to be transferred to central workshops. Covering requisition.

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ing for the receipt of the requisition, which is only required to support the expenditure of materials used in effecting the repairs, &c.

I.O.M. to supervise and order repairs, &c.

190. All repairs or adjustments to ordnance, mountings, machinery, or engines, belonging to the armament, whether carried out in the forts or in Army Ordnance workshops, will be executed under the superintendence and orders of the inspector of ordnance machinery, except in cases where special orders are given on the subject from the War Office. The fort workshops, with the tools belonging to them, are in charge of the fort accountant, and available for any repairs, whether carried out by the Royal Artillery or the Army Ordnance Department, under the foregoing instructions.

Fort shops and tools.

Report of repairs, &c.

191. The inspector of ordnance machinery will report the completion of all repairs, whether effected in the forts or in Army Ordnance workshops, to the chief ordnance officer, by whom the report will be transmitted to the officer commanding Royal Artillery.

I.O.M. in charge of workmen, &c.

192. All artificers, workmen, and fatigue parties, when employed in forts or batteries on the repair or examination of ordnance, mountings, machinery, engines, or other gear, under the superintendence of the inspector of ordnance machinery, act under his orders.

Weekly reports.

193. The weekly reports (A.F. K 1296) of work performed by the several parties of armament artificers and other working parties employed under the orders of the inspector of ordnance machinery, will be filed for reference in the ordnance office.

I.O.M.'s journal.

194. The inspector of ordnance machinery, or the senior artificer where there is no inspector of ordnance machinery, will keep in A.B. 192 a description of the mode of effecting the different repairs and adjustments, with notes on all important matters in connection with the armament of the station or district.

Notes of defects, &c., armaments.

This book should contain full information of any defects or irregularities of working detected in the ordnance machinery, engines, and gear in Royal Artillery charge. A convenient number of pages should be allotted to each gun and mounting.

Report, quarterly.

195. A quarterly report will be rendered by the inspector of ordnance machinery, on the 1st of January, April, July, and October, on all important subjects contained in A.B. 192, for the information of the officer commanding Royal Artillery, who will forward extracts of such portions of it as cannot be dealt with locally, with his remarks thereon, to the general officer commanding, for transmission to the War Office.

Central workshops.

196. The inspector of ordnance machinery should not be called upon to undertake the clerical work of the central workshops; his work therein should be supervision of work done, and arrangements for its being carried out in the most efficient manner and with the greatest despatch.

Land armament work.

197. It should also be understood that the services of the inspector of ordnance machinery and of the armament artificers, when employed in the central workshops, are to be considered of the first importance in connection with land armament work, which may necessarily place guns out of action; their employment should be regulated accordingly.

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198. Under arrangements to be made between the chief ordnance officer and the officer commanding Royal Artillery, the inspector of ordnance machinery will instruct the master-gunners and others in all matters relating to the care and preservation of the machinery and stores connected therewith in their charge. Instruction of master-gunners.

199. When armament artificers are attached to the Royal Artillery for duty at a special fort or group of forts, they will, for purposes of discipline, be under the orders of the officer commanding the fort or work in which they may be doing duty, but will carry out their work under the superintendence of the inspector of ordnance machinery at districts and stations where these officers are appointed. At stations where there are no inspectors of ordnance machinery, the senior artificer will have charge and be responsible for the proper performance of all work in connection with repairs to gun mountings, &c. Artificers will, when required, be placed at the disposal of any inspecting or other officer of the Army Ordnance Department. Artificers attached to R.A. For A.O.D. services also

200. These artificers will execute any work necessary for the repair or alteration of armaments; all fitters' work connected with carriages, slides with their parts and appurtenances, hydraulic jacks, and mechanism of disappearing carriages; and all ordinary operations for the repair of ordnance and the adjustment of guns and their fittings, including the hydraulic mountings, steam engines and machinery used in the service of heavy ordnance. Work of artificers on armaments.

201. When available, an artificer will be present during practice in order to adjust or repair any fitments that may become damaged. Damaged fitments at gun practice.

202. The artificers will accompany and assist inspectors or examiners on tours of inspection of armaments in the district, and will carry out repairs under their orders. Artificers at armament inspections.

203. When artificers are required for any duty at outlying forts away from the workshops, they will invariably take with them the bag of tools provided for the purpose, so that there may be no delay in carrying out small or immediate repairs. A complete set of these tools will always be in the care of each artificer. They will be accounted for in the Army Ordnance workshops as "articles in use," a receipt being taken from each artificer for the articles. Tools to accompany artificers. Accounting for tools.

204. For heavy and more extensive repairs, the workshops and tools in the forts will be made use of. These sets of tools will generally suffice for all ordinary work in districts, as the artificers will, provided material be given them, generally be able to manufacture any special tools required. Tools, &c., on charge in forts.

205. According to the nature of the armaments, a suitable set of tools for the examination of ordnance, as detailed in Appendix XIV, will be held in each district or command, either in Army Ordnance or Royal Artillery charge, as convenient for such duties. Should it be considered advisable, owing to difficulties or excessive cost of transport services, to have extra supplies of these tools, special War Office authority must be obtained for their issue. Tools for examination of ordnance.

206. The senior artificer of any working party will furnish the inspector of ordnance machinery with a weekly report of work performed, on A.F. K 1296; but at other stations, where there is no inspector of ordnance machinery, these reports will be furnished Weekly report of work.

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to the officer commanding Royal Artillery through the officer in charge of the sub-district where the artificer is employed. An artificer working singly will render an account of his work on the form above quoted.

Repair of field guns.

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Artificers

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207. Tools for the repair of field artillery equipment will be held at the Army Ordnance workshops at the following stations, viz., Aldershot, Colchester, Curragh, Devonport, Dover, Dublin, Haulbowline, and Portsmouth.

Repairing field artillery equipment.

208. In carrying out any repairs to field artillery equipment in Army Ordnance workshops, in cases where a battery has not sufficient facilities to do so in its own charge, the work will be effected as far as possible by the battery artificers, who, while working in the Army Ordnance workshops, will be supplied with the tools and materials necessary, and given such other assistance as may be required.

Tools for.

209. A list of tools considered necessary for the work referred to in paragraph 207 is given in Appendix X, and these should at all times be available at the stations named.

Stores, &c., for I.O.M.

210. The stores, instruments and drawing materials, shown in Appendix XIX, are allowed to inspectors of ordnance machinery, and will be held on their personal charge as "articles in use" and accounted for in the store ledger. The "gauge taper flat" is allowed to all stations, and where there is no inspector of ordnance machinery it will be on charge of the senior artificer, who will be personally responsible for its safety and good order.

IV.—Boats and vessels, Maintenance and upkeep of.

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(*a*) *Home Stations.*

Periodical inspection.

211. General service steam vessels, and the machinery and boats belonging thereto, will be inspected twice a year by the Superintending Engineer and Constructor of Shipping, or his representative.

One of the two inspections will be made with the vessel in dry dock, or on a slipway, with engines and appliances opened out as required. The second inspection will be made with the vessel afloat and under steam.

Testing boilers.

The boilers of general service vessels will be examined and tested at least once a year by the Superintending Engineer and Constructor of Shipping or his representative.

Sailing craft.

Sailing and other barges will be inspected once a year on a local slipway or in dry dock by the Superintending Engineer and Constructor of Shipping or his representative.

Particulars as to repairs.

212. The Superintending Engineer and Constructor of Shipping will communicate to the chief ordnance officers of districts the items of repair and renewal found necessary at these inspections, and advise as to any special steps to be taken locally to carry out the same, either by the Army Ordnance Department artificers or by the trade.

A.O.D. to arrange for repairs.

213. The general repair and upkeep of boats and vessels, together with the machinery and appliances appertaining thereto, will be arranged for locally by the Army Ordnance Department, and carried out either in the departmental workshops or by local

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tradesmen, as may be advised by the Superintending Engineer and Constructor of Shipping. In allotting the work in such cases, the time likely to be occupied will be carefully considered as well as the cost, and the workshops of the Army Ordnance Department will not undertake more work than they can be sure of performing efficiently within a reasonable time, so that in all cases, whichever course is likely to prove the most economical in the end, should be adopted.

Allotment of work.

Duration of repairs.

Due weight will also be given to the question of the cost of hiring—if any—which is likely to be incurred whilst the vessel is under repair.

Cost of hiring.

214. Requisitions covering any services recommended by the Superintending Engineer and Constructor of Shipping will *not* be necessary, and requisitions will only be rendered by the Officer in Charge of Transport for any pressing services, intermediate to the reports of inspections by the Superintending Engineer and Constructor of Shipping. Copies of such requisitions will be sent quarterly to the Superintending Engineer and Constructor of Shipping for record.

Requisition for repairs.

Copies of requisitions.

215. General officers commanding and the Superintending Engineer and Constructor of Shipping will be informed of the amounts approved for the upkeep of boats and vessels in the particular districts, and these amounts will not be exceeded without War Office approval.

Amounts allowed for repairs and upkeep.

216. Large repairs and structural alterations will be carried out by War Office Contracts on specifications and particulars to be furnished by the Superintending Engineer and Constructor of Shipping.

Specifications for War Office contracts.

217. In cases where local trade assistance is necessary an expenditure for work to any particular vessel up to £200 may be ordered by the chief ordnance officer on the advice of the Superintending Engineer and Constructor of Shipping without reference to the War Office, providing such expense does not cause excess on the total amount allowed for maintenance purposes, in accordance with paragraph 215.

Limits of expenditure.

In the case of any service considered by the Superintending Engineer and Constructor of Shipping important or pressing, in order to maintain a vessel or its machinery in a safe condition, orders will be given by him direct, and the chief ordnance officer of the district informed of the circumstance.

Small services up to £50 will be ordered by the chief ordnance officer from the trade without special reference of the tender to the Superintending Engineer and Constructor of Shipping, unless he wishes to obtain technical advice on any point involved.

218. In applying for local tenders for repairs to vessels no penalty is to be inserted in tender forms if the value of the repairs is below £50. Above £50 a penalty of 10*s.* per day for every working day's delay should be provided for.

Penalties.

219. Tenders for small repairs to War Department vessels will be called for on Army Form K 1344. It is not intended, however, that the use of this Form, which comprises the conditions in paragraphs 218 and 222 of these Regulations, should be enforced in any trivial cases of repair or renewal as would render the use of a specially signed contract unreasonable.

Tender forms.

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Certificate on bills.

In the case of all work done to vessels *by the Trade*, no payment over £50 will be made without a certificate from the Superintending Engineer and Constructor of Shipping or his representative that the services have been carried out satisfactorily.

Structural alteration.

No work involving structural alteration of any description will be carried out without the approval of the Superintending Engineer and Constructor of Shipping.

Cash estimates (annual).

220. The Superintending Engineer and Constructor of Shipping will, under instructions from the War Office, prepare the general annual cash estimates for the provision and maintenance of general service boats and vessels.

Annual report by S.E.C.S.

He will forward, with these estimates, a general report on the condition of the several vessels in each district, with forecast of their probable future life and upkeep, and he will also describe any particular items of expense in connection with their maintenance during the preceding twelve months.

Charges in excess.

In the case of a breakdown or other damage to hull or machinery, involving repairs which cannot be covered by the amount allowed for the upkeep of vessels in a particular district, the circumstances connected with such extra expenditure will be reported to the War Office for authority to proceed with the work.

Returns expenditure.

221. A return of the expenditure incurred locally in districts for the maintenance of boats and vessels will be rendered quarterly to the Superintending Engineer and Constructor of Shipping by the chief ordnance officer.

The local officer for transport will also be informed, quarterly, by the chief ordnance officer of the expenditure incurred, to enable him to record it against the general expenses of the transport services in the district.

Insurance, &c.

222. When a contractor is employed to carry out repairs or renewals, the chief ordnance officer will arrange for the vessel to be insured by the contractor, whether it is sent to the contractor's works or not.

Such insurance is to cover fire risk only, and the policy to be taken out in an approved British Company in the name of the Secretary of State for War, to be free of all average clauses, and the cover note to be handed in before proceeding with the work.

The value of a vessel for insurance purposes will be given by the Superintending Engineer and Constructor of Shipping.

All claims for settlement under an insurance policy will be effected through the Secretary of State for War.

The contractor will also guarantee payment to the Secretary of State for War to the extent of the full value of any damage which may occur to the vessel during the period of repair.

(*b*) *Stations Abroad.*

Periodical inspection.

223. At stations abroad, all general service vessels, and the boats belonging thereto, will be inspected twice every year by the Royal Naval dockyard authorities where such exist at the station, or by a competent and qualified marine surveyor.

These inspections will be carried out, as far as practicable, in accordance with paragraph 211 (Home Stations).

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Disposal of inspection reports, &c.

The reports of inspections will be forwarded to the chief ordnance officer for submission to the general officer commanding, who will forward them to the War Office with his observations, and state the action he has taken upon them within the limits of these instructions.

Specifications and estimates.

In cases where repairs are effected in the Royal Naval dockyards, the inspections, also the specification and estimates for repairs should—by preference—be made by the Naval authorities.

When repairs are carried out by the trade, under the inspection of a Lloyds' or other marine surveyor, the estimates and specifications governing the work should—by preference—be prepared by such surveyor.

Arrangement for repairs, requisitions, &c.

Instructions in paragraphs 213, 214, and 219 (Home Stations) will be followed, and for "Superintending Engineer and Constructor of Shipping" in such paragraphs read "Royal Naval authorities" or "marine surveyor."

Amounts allowed for repairs and upkeep.

224. The general officers commanding will be informed of the amounts approved for the up-keep of boats and vessels in the particular districts, and these amounts will not be exceeded without War Office approval. Such approved amounts are intended to cover the cost of all materials and labour, whether the services be carried out in the workshops of the department or by local tradesmen.

Contracts.

225. Contracts for repair services may be entered into, without previous reference to the War Office, under the regulations governing the execution of such services, but whenever practicable estimates will be obtained from the Naval authorities if the work is to be performed at a dockyard, or, if to be done by the trade, alternative tenders called for. In the latter case an opinion will be obtained from the Naval authorities or marine surveyor as to the reasonableness, or otherwise, of the most favourable tender, before ordering the service. (See paragraph 46.)

Certificates of completion.

On completion of a contract, and before payment to the contractor, a certificate will be obtained from the Naval authorities or marine surveyor that the work has been carried out satisfactorily.

Repairs to vessels, estimate of cost to be rendered annually.

225a. The chief ordnance officer at each station abroad will forward to the Superintending Engineer and Constructor of Shipping, by the 31st October in each year, a statement showing the amount required to be provided for the repairs of each boat or vessel, whether carried out departmentally or by contract, during the following financial year. This statement will include the cost of any skilled, or other, labour which it is considered will be necessary in addition to the permanent establishment, where repairs are carried out in the Army Ordnance Department workshops, and for such special stores as it may be found necessary to purchase.

V.—Precautions against fire.

Smoking and matches.

226. Smoking, and the introduction of tobacco-pipes, or matches, except safety matches, into army storehouses, workshops, or buildings, are expressly forbidden; and a notice of the prohibition will be conspicuously hung up in all such buildings. The safety

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matches are to be used only for lighting fires and gas or other lights; and to be in the actual custody of the storeholder or foreman only.

Clothing, &c., to be examined.

227. All clothing and articles of apparel returned by the troops will be thoroughly examined before they are received into any army storehouses, in order to remove any matches or other similar articles.

Oiled rags and other waste to be removed.

228. Care will be exercised in the use of oiled rags, oakum, cotton, and other waste, as they are liable to spontaneous combustion, they will on no account be allowed to remain lying about the stores and buildings, but will be collected from time to time and burned.

Cotton sponge cloths, blankets and wadmiltilts.

229. Cotton sponge cloths, which are also liable to spontaneous combustion when dirty, will be kept in water until washed and cleaned. Woollen goods, such as blankets and wadmiltilts, are also liable to spontaneous combustion if stored when damp, and should be spread out or hung up till dry before being put away.

Care of buildings when workmen leave.

230. Whenever artificers and workmen are employed in any of the establishments of the Army Ordnance Department, whether in closed or open buildings, the greatest care will be taken by the superintending authority that all lights and fires are completely extinguished on the discontinuance of work for the day, and that all doors, windows, and other means of access to such buildings are locked and secured as soon as the workmen leave work, and the keys are deposited in the place appointed for that purpose.

Keys.

230A. At all Army Ordnance stations the buildings will be locked by the respective foremen in charge when work ceases, and the keys placed by them on hooks in a press with a glass front on hinges; the press will be locked by a responsible subordinate, and the key deposited by him in safe custody.

Each foreman will sign the lock-up book, a specimen page of which is given in Appendix XXIV.

The situation of the press and the orders as to the custody of the key will be notified to all concerned.

Key of key-press.

The key will be in the custody of the Metropolitan Police at stations at which they are in charge of the establishments.

Fire-buckets, filling and disposal of.

231. Fire buckets will be kept, at all times filled with water, at certain positions in the storehouses and workshops, for use as a first means of extinguishing fire. When an Army Ordnance depôt is enclosed, a certain number of buckets will be placed also on brackets or hooks on the outside of the buildings. A label will be fixed to the wall near the buckets showing the number to be kept in each position.

Sand to be strewn on floors.

232. The floors of oil and paint stores should be strewn with clean dry sand, and a few buckets of sand instead of water be kept ready for use. On no account should the floors be strewn with sawdust.

Practice with fire engines, &c.

233. Practice with fire engines and appurtenances in charge of the Army Ordnance Department will be carried out once a month, as laid down in the King's Regulations.

Lanterns for engine-houses.

234. Every engine-house, unless lighted with gas, will be furnished with a lantern; and a candle will always be kept in it ready for use.

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235. In the event of any unusual appearance of fire or light, or any indication of danger to the premises by fire, however trivial it may seem, within the walls of any garrison or war department establishment, notice will be instantly given to the proper authorities by the party observing it; and to guard as much as possible against fires, a notice to this effect will be posted within the several buildings. Alarm of fire.

VI.—Field Depôts.

236. In forming a field ordnance depôt on active service or for manœuvres, advantage should be taken of any permanent buildings that may be available; but in their absence, store marquees and tents should be used. Buildings or tents.

237. When tentage is used, care should be taken to select a site having good natural drainage. The space required will depend upon the strength of the troops to be provided for, a square measuring about 100 yards each way being desirable for a division of infantry. Site and space.

238. Store tents should be provided for the accommodation of all articles likely to be damaged by exposure, and a supply of tarpaulins provided for general use. Use of tents and tarpaulins.

239. When a field depôt on home service is formed, the personnel, together with the tents and stores required for its formation, should be despatched to the camp one or two clear days before despatching the general supply of equipment to be dealt with, in order that the store tents may be erected, and every preparation made for the receipt and custody of the equipment on its arrival. Two days for preparation of depôt.

SECTION VI.

Charge of Stores.

I.—General Instructions.

240. No storehouses or magazines will be lent or disposed of without authority of the general or other officer commanding, and stores not belonging to the War Department will not be taken charge of, neither will any powder, arms, or stores be lent without his direct sanction. Loan of storehouses.

241. At certain stations, gunpowder, dynamite, detonators, or other similar explosives, belonging to merchants and private individuals are permitted to be stored in Government magazines on payment of the following rent annually, or for any part of a year, viz.:— Merchants' powder.

s.	*d.*				
1	0	for a whole	barrel of gunpowder		Or an equivalent package of detonators, dynamite, etc.
6	„	half	„	„	
3	„	quarter	„	„	

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Payable in advance.

242. The rent will be made payable in advance, and the year or any part of a year, will commence from the date of the deposit of the gunpowder, or other explosive, which must be securely packed to the satisfaction of the officer in charge of the magazine before it is received.

Allotment of store charges.

57 Gen. No. 2817

243. The stores in an Army Ordnance depôt must be allotted according to the number of storeholders or foremen allowed—one storeholder or foreman being, as far as possible, placed in charge of a group of complete store sections. Each group will be allotted a distinctive letter.

Grouping ledgers.

244. The station ledgers will be grouped to agree with the storeholders' or foremen's charges.

Group buildings.

245. The charge of each storeholder or foreman should, as far as possible, be concentrated in the same or contiguous buildings.

Numbering of store-rooms.

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246. Each store-room is to have the store section number or numbers indicative of the class of its contents; and each group of store-rooms under the same storeholder or foreman, the distinctive sectional Roman letter, painted in a conspicuous position on all doors by which entrance is effected to store-rooms from the outside. Every external door will also have on it a consecutive depôt number, which should be stamped or engraved on the keys belonging to it.

Responsibilities of storeholders and foremen.

247. Storeholders and foremen are held responsible that stores under their charge are correct according to the quantities borne on the books; that they are kept in good order, and the necessary precautions taken to preserve them from the deteriorating effects of damp, heat, dust, and from the ravages of insects; that the store rooms are kept clean, and the stores properly arranged, the oldest being conveniently placed for first issue.

Investigation of thefts and other losses.

248. If any ordnance stores are lost or stolen, the circumstance will be at once reported to the general or other officer commanding, who will cause the matter to be dealt with in the manner laid down in the King's Regulations.

Payment of deficient stores.

249. The value of all losses or deficiencies, unless the loss is allowed to fall on the public, will be paid to an officer of the Army Pay Department, for credit to the public, instead of the articles being replaced by the accountant, and brought to his debit on his store account. Credit will be given to the War Office in the case of land service stores, and to the Admiralty in the case of naval stores.

Lost articles recovered. Refund of money paid.

249A. Should any deficient article for which a charge has been made, be subsequently recovered, a refund of the amount paid may be made if authorized by the general officer commanding. The refund should be supported by a reference to the cash credit, and to the voucher and account by which the returned article has been brought on store charge.

Private issues forbidden.

250. Stores and materials belonging to Government will not be issued for private purposes.

Patterns to guide purchases.

251. Samples, drawings, or specifications of stores will, in such cases as may be considered desirable, be supplied to the department at outstations to guide local provision.

Inspection of contract stores.

252. Stores purchased locally will be minutely inspected by a responsible officer before they are received from a contractor, tradesman, or other person, in order to ascertain that they agree

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with the pattern, specification, or description, and that they are of good quality and fit for the service.

Rejection of contractor's stores.

253. Whenever stores are rejected as unfit for His Majesty's service, either from nonconformity to the size or shape of the patterns or specifications, or from their inferiority in quality to such patterns or samples, the Chief Inspector or ordnance officer concerned will notify to the contractor or person from whom the stores are purchased that such stores have been rejected, stating the reason of such rejection, and that they must be immediately replaced by others of the proper manufacture or quality.

Failure in day of delivery.

254. In cases where a contract is entered into by the Director of Contracts, if the contractor fails to deliver his stores within the appointed time, a report will be made on the subject to the War Office.

Stores from Weedon, Woolwich, or Pimlico.

255. Stores that are sent from Weedon, Woolwich, or Pimlico, need not be inspected at out-stations unless specially ordered, as all such stores will have undergone the required inspection by officers appointed for that purpose.

Professional opinion, when inspecting articles.

256. At stations where there are Royal Engineer and other mechanical establishments, the chief ordnance officer will apply to them, when necessary, for assistance in inspecting stores on which a professional opinion may be considered desirable.

Supply of lists of changes in patterns.

257. A list of all approved changes of pattern in artillery matériel, small arms, accoutrements, and other military stores, is issued monthly. Every officer of the department is expected to make himself thoroughly acquainted with the changes contained in this list, of which a copy will be issued to him each month gratis.

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Arrangement of stores.

258. All stores should be properly arranged according to the rules laid down in paragraphs 259 to 340, except where such arrangement would interfere with the security of the stores, with the despatch sometimes required in equipping large armaments, or with special orders which may from time to time be issued.

Stores to be kept in a collected state.

259. Every store of the same description will be kept in a collected state, so that the whole stock of each may be at once ascertained; and all stores will be so arranged that their numbers or weight may be readily identified and counted, or otherwise verified; but, as far as possible, filled cartridges, small arm ammunition, fuzes, tubes, and similar stores should be arranged in groups identical in nature and age. Repairable, doubtful, and unserviceable stores will be kept distinct from those which are serviceable.

Storage in bundles.

260. When the nature of stores will admit of it, they should be tied in bundles of 10, or some multiple of 10, before being placed in the racks or shelves, so that they may be readily counted; and stores which cannot be tied in bundles should be stacked or stowed on the same principle.

Turnover of stores.

261. On receipt of new stores at an out-station, care is to be taken to remove similar articles which are stored apart as mobilization or reserve equipment, and substitute those which have been received of later dates of manufacture.

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P.-W., and longest in store, issue of.

262. In making issues to the troops, part-worn articles, if serviceable, will be first issued, and then those which have been longest in store at the station, or which are of the oldest dates of manufacture.

Labels to be kept with articles stored.

263. A label, on A.F. G 1043, will be affixed to the most conspicuous part of the stock, with the total numbers or weight of the stores marked thereon. On each bay or bin in which stores are deposited, labels will be placed, descriptive of each store therein contained, and the number or quantities of each; and the contents of all boxes, casks, or other packages, will be distinctly marked on the parts most exposed to view.

Marking contents on packages.

Fixing fresh labels over old ones.

264. The storehouse label should be securely gummed to an inventory board for about two inches at the top; and when the first label has been filled with entries of receipts and issues, a fresh label will be gummed on the top in such a manner as will leave the old label visible by holding up the new. The same course will be pursued with all subsequent labels,—these documents being the storehouse records of all transactions.

Posting and balancing the labels.

265. Entries in the storehouse labels should be made immediately stores are placed in stock or removed for issue, and they should be balanced whenever the station ledger accounts are balanced.

Reserves, shown on labels.

266. The reserves of any articles ordered to be maintained at the station should be entered at the top of the label in the space provided for that purpose.

Disinfecting agents.

267. Carbolic acid or other disinfecting agents for the preservation of stores (including guncotton), will be supplied on demand by the Army Service Corps officer in charge of barracks.

Moth in storehouses.

268. Camphor or naphthaline will be used as a preservative against moth in storehouses, and should be demanded from the chief ordnance officer in each district.

Carbolized waterproof paper.

269. Carbolized (waterproof) paper is to be used for keeping the flying moth and other insects, as well as the fungi constituting mildew and mould, from stores. When kept exposed to the air, the paper should be renewed, but not oftener than once in twelve months. It is obtainable from the stationery office on demand.

II.—Explosives.

Magazine Regulations.

270. The Regulations for Magazines will be adhered to for all the purposes therein laid down; they contain full instructions for packing explosives, and officers in charge will be held responsible for their subordinates being fully conversant with their duties so far as they are affected.

Shells for Woolwich.

271. No shells should, as a rule, be returned filled to Woolwich.

Ventilation underneath packages.

272. To diminish damage from dampness, packages containing cartridges, fuzes, tubes, and similar stores are to be kept about 4 inches off the floor—by being placed on battens—so as to allow ventilation underneath.

Issues.

273. When issuing explosives, those of earliest date of manufacture or repair will, except by special orders to the contrary, be issued before others of the same nature; but in the case of time fuses or time and percussion fuses, issues will, as far as the store admits, be made in complete lots from those bearing the same number of thousand or date of repair.

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Care should be taken to make issues of filled cartridges and small arm cartridges, as far as possible, of the same make and date of filling or manufacture.

Each lot of gunpowder and cordite, in bulk or in cartridges will, as far as practicable, be stored separately and issued for the same service, and marks, dates, and numbers of lots will be recorded in all receipt and issue vouchers.

Detonators, Whitehead torpedo.

274. Torpedo detonators, 38 and 76 grains, held on charge for use with Whitehead torpedoes, will be periodically examined, and those over 5 years of age disposed of as follows:—5 per cent. will be sent to Woolwich, in packages plainly marked—"For special examination in accordance with the instructions laid down in paragraph (quoting the number of this paragraph) of the Regulations for Army Ordnance Services," and the remainder will be destroyed locally if the stock admits. Detonators nearing that age will not be issued to H.M. ships if others are available. Provision should be made in the annual demand for detonators to replace any in store which will reach the age of 5 years before the expiration of the period covered by the demand.

War rockets.

275. New war rockets will not be issued from Woolwich until one year after the date of their manufacture, and any war rockets more than 10 years old, reckoning from date of manufacture, will be destroyed locally.

276. Omitted. *See* paragraph 273.

Gunpowder, examination of.

276A. All gunpowder returned into store, except Class VI, will be examined as soon as possible and classified, the packages being marked with chalk to distinguish them until the results of examination are known. Should there be any delay in the examination, it will be temporarily placed in Class IV (doubtful).

Gunpowder, classification of.

276B. Gunpowder arriving in original packages, which are sealed with the explosive label and show no signs of deterioration, should be brought on charge under its original classification. Should the packages show symptoms of damage, the consignment will be treated in the same way as gunpowder returned into store (*vide* 276A).

Gunpowder, cartridges, surplus, etc.

276C. Where filled gunpowder cartridges become surplus, or unserviceable as cartridges, at a station, and their disposal has been approved, the following points should be considered and given effect to:—

In the event of the powder being required at the station for future use, a sufficient number of the cartridges should be examined to ascertain whether the powder is suitable for the class required. If this is found to be the case the cartridges should not be broken up, but retained and held on charge as powder in bulk under its new classification until required for use. There may be exceptions where the cylinders, containing the cartridges, may be required for immediate use. Such cases must be specially considered, and decided upon by the chief ordnance officer locally.

276D. When opportunities of sending from stations unserviceable gunpowder, freight free, do not occur, this class of gunpowder should not be allowed to accumulate to an undue extent. Provided no local objection exists, unserviceable gunpowder of Class V will

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Disposal of unserviceable gunpowder when freight not available.

be disposed of, as may be necessary, by public tender, arrangements being made with the purchasers to return to store the empty barrels and copper hoops. When the sale cannot be effected locally, the fact will be reported to the Superintendent, Ordnance Stores for Naval, and to the Principal Ordnance Officer, Woolwich, for Land Service, so that instructions for disposal of the powder may be given. Class VI wetted gunpowder is not to be sold, but when it unduly accumulates will be destroyed locally by being sunk in deep water, the emptied barrels being retained for future use with wet gunpowder.

Explosives seized.

276E. Gunpowder and other explosives seized under the Explosives Act, 1875, 38 Vic., c. 17, or from any treasonable associations, will not be received into the magazines without direct orders from the War Office or Admiralty.

277. Omitted. *See* paragraph 273.

277A. Whenever cordite ammunition 3-pr. Q.F. and upwards is issued from Store to the Royal Navy or Royal Artillery, a list of the lots of cordite contained in the cartridges will be furnished by the Ordnance Officer to the Officer concerned.

Quick-firing cartridges, careful handling of. 38407 Ordnance 223

278. As quick-firing cartridges contain their own means of ignition, great care should be taken in handling the boxes or cases containing them.

S.A.A., issue of. 38407 Ordnance 229

279. Small arm ammunition will be dealt with as follows :—

Land Service.

(*a*) *Issues generally.*—To be made in complete unopened boxes, that number of boxes being issued whose contents correspond most nearly, either more or less, with the number of rounds demanded. Exact numbers will, however, be issued in the case of demands for very small quantities.

S.A.A., remnants, packing and labelling.

(*b*) *Remnants returned by troops.*—To be examined and, if found serviceable (such as are not in wrappers being rebundled in wrappers bearing the monogram of the station and date of repacking), packed in metal-lined cases, which will be kept lutened and labelled, showing contents and manufacturers, and date marks, when such is possible, ready for re-issue at first possible opportunity.

(*c*) *Broken boxes in A.O.D. store.*—As in (*b*) but examination and re-bundling not necessary.

S.A.A., return to Woolwich.

(*d*) *Return to Woolwich.*—In unopened boxes only, except when fractional quantities are sent for special examination or other purposes; in such instances packing should be in metal-lined cases, if only 20 rounds, properly labelled to show contents.

Naval Service.

S.A.A., disposal of remnants in Naval Service.

(*e*) *Remnants*—Will be issued :—

At Home.—To gunnery schools, R.M. Divisions, Coast Guard, or R.N.R. services.

Abroad.—To H.M. ships.

These issues will be arranged by officers in charge of naval depôts, as opportunities occur.

(*f*) *Return to Woolwich.*—As in (*d*) above.

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Empty cartridge cases.

280. Fired small arm and machine gun cartridges will be returned, dry and free from dirt, to the Principal Ordnance Officer in empty small arm ammunition or other suitable packages available at the station.

Allowances will be paid to the regular forces for the collection of empty cartridge cases of ammunition issued on payment only. Militia, Imperial Yeomanry and volunteers will draw allowances for this service under their respective regulations, and civilian rifle clubs under Appendix XXVII.

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281–284. *See* paragraphs 279 and 280.

Fired Q.F. cartridges and electric primers.

285. Fired Q.F. cartridges, 1-inch electric or percussion aiming cartridges, and electric primers, will be returned to the Army Ordnance Department for transmission to Woolwich. The cartridges will first be cleaned as directed in Magazine Regulations.

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Tubes, primers, fuzes, and detonators, when sent for "special examination."

285A. On receipt from either Land or Naval Service of electric tubes, primers, fuzes, or detonators which have failed to fire, the inspecting ordnance officer will not subject them to continuity and firing test, but send them in the condition received to the Principal Ordnance Officer if they are Land Service stores, and to the Naval Ordnance Officer, Woolwich, if they are Naval Ordnance stores.

Packages to be marked "For special examination."

In either case the packages and vouchers should be marked "For special examination," and this regulation should be quoted in addition.

Electric primers which have failed to fire.

Electric primers of earlier Marks than I***, II***, III***, IV**, and V which have failed to fire, should be emptied locally and returned to Woolwich.

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Report to be sent to the C.I.W.

A report on the same will be sent direct to the Chief Inspector, Woolwich, and it should contain full particulars of the defective stores, pattern, date, nature of failure, when it occurred, &c., &c.

The above, however, will not be necessary when such stores fail to fire in consequence of their having become damaged in handling, rough usage, &c.

Unexploded shell, reward for discovery of.

286. In order to insure the discovery and destruction *in situ* of unexploded shells lying on land or sea ranges, a reward will be paid to any soldier or member of the Militia, Imperial Yeomanry, or Volunteers, up for training or exercise, who reports at the nearest military station the position of any unbroken projectile, fuzed or plugged, on or near any practice range. Payment will not be made if the projectile has been disturbed by the finder.

Reward to be paid.

287. The amount to be paid will depend on the circumstances of each case, time and labour involved, &c., and will be decided by the officer commanding at the camp or station, but in no case will it exceed the following amounts per projectile :—

B.L.—Under 6-inch, 2*s.* 6*d.*; 6-inch and higher nature, 5*s.*
R.B.L.—All natures, 2*s.* 6*d.*
R.M.L.—Under 7-inch, 2*s.* 6*d.*; 7-inch and higher nature, 5*s.*

Disposal of shell.

288. All fuzed and filled plugged shell will be destroyed *in*

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situ as prescribed in the Magazine Regulations. Plugged shell not filled with explosive will be returned to the Army Ordnance Department, being brought on charge as repairable, and sent to Woolwich.

Posters on ranges.

289. Notices will be posted up in the vicinity of all ranges, cautioning the public of the extreme danger of handling projectiles found on the ranges, and informing them that no rewards or payment of any description for finding shell, or collecting projectiles, will in future be made to a civilian.

No rewards to civilians.

Lydd and Shoeburyness.

290. Paragraphs 286 to 289 will not apply to Lydd and Shoeburyness, where special arrangements are authorized.

Receipts for rewards paid.

291. Receipts for all sums paid for the recovery of projectiles, &c., will be obtained on A.F. G 892.

Projectiles recovered on sea ranges.

292. In regard to the recovery of projectiles, &c., on sea ranges, fired over by the naval and military authorities in common, the following rules will be observed :—

Admiralty receive and pay for.

(1) The Admiralty will receive all recovered projectiles and produce, plugs, and gas-checks, and will pay all charges on account of salvage.

L.S. articles, transfer to W.O.

(2) All projectiles, &c, which can be identified as land service will afterwards be transferred to the War Office free of charge by the Admiralty.

Quarterly transfers.

(3) The transfer of recovered projectiles, &c., to the War Office, will be made quarterly, and will be effected by writing them off charge as a free issue in the Naval Ordnance store ledgers, and bringing them on charge in the Army Ordnance accounts.

III.—Harness and Saddlery.

Saddlery and harness to be kept dry, protected, and cleaned. 38407

293. Harness and saddlery will be kept perfectly dry, and the store-houses well aired. In the tropics great care will be required to protect saddlery and harness from the white ant. It should at all times be kept well cleaned, and covered with carbolized paper and canvas, and all ironwork lacquered with varnish for bright work.

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Issue of P.W. harness and saddlery.

294. Part-worn harness and saddlery will invariably be issued before new articles, as the leather parts, when stored after wear, are particularly liable to mildew.

Dubbing.

295. Harness and saddlery received at out-stations from the Royal Arsenal, Woolwich, should be dubbed, if necessary, before being placed in store, and afterwards in the manner laid down in paragraphs 296 to 300.

Tallow instead of dubbing.

296. Tallow should be used, instead of dubbing, on officers' saddlery, seats and flaps of saddles, carbine buckets, and lance and range-finder buckets.

Dusting before greasing.

297. Each article should be wiped over with a cloth or brush, to remove dust, before grease is applied. The residue of grease should be cleared off the surface before storing.

Periodical application of preservatives.

298. The following are the periods after which dubbing or tallow should be applied :—

Triennially.—All leather articles of harness and saddlery except as hereinafter mentioned.

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Every fourth year.—Traces, tugs, breast-pieces, wallet-fronts, rifle-buckets, signalling-buckets, cases, small articles of pack-saddlery and mule-harness; straps only of carbine-buckets, of lance-buckets, and of range-finding-buckets; riding-school equipment; breast-collars and neck-collars.

Every sixth year.—The leather backs of pack-saddles, pannels, and leather parts of web girths, cases, large (not of crop leather).

Every eighth year.—Preller leather articles. Straps of sheepskins, and leather parts of saddlery pannels and of numnahs; crop leather articles which are required to be kept stiff, such as carbine-buckets, lance-buckets, &c., also seats and flaps of saddles.

299. Articles not included in the above should be dealt with at periods named for others of a similar class.

Lacquering ironwork.

300. The lacquering of ironwork should be attended to, if necessary, when the articles are being gone over.

Saddle pannels.

301. Saddle-pannels will be packed in cases lined with carbolized paper, oil-canvas, and brown paper, and made as air-tight as possible, plenty of napthaline being used and renewed as soon as it is found on examination to have evaporated. In the tropics they will be examined, brushed, and cleaned, once a month; at other stations once in three months at least.

Saddles without pannels.

302. Saddles without pannels will be stacked in bays, and covered over with carbolized paper and canvas; they should be placed end upwards on the front arch.

Bridles.

303. The bits of bridles will be kept separate, when practicable, from the leather work. The heads and reins will be stacked, and covered with carbolized paper.

Collars.

304. Collars will be kept separate from the harness, and stacked with strips of wood and carbolized paper between each row.

Saddlery and harness prepared for issue.

305. In preparing sets of saddlery or harness for issue, two, four, or six sets, complete, will be packed in cases or vats, preference being given to the former when for shipment. In packing for home stations, brown paper will be placed round the inside of each case or vat; oiled canvas and carbolized paper will be added in packing for stations abroad.

Hides and backs, storage of.

306. Hides, backs, &c., should be kept in store as shewn below.

Hides	bellows....	All to be kept flat (only to be rolled for transit); powder hides not more than 40 in a stack; light and cloak 50 in a stack.
	powder....	
	hose-pipe	
	cow, Preller's	
	brown, light	
	brown, cloak	
	brown, shoulders	
	brown, backs, bridle	
	brown, backs, collar	
	brown, backs, heavy	
	brown, crop, 40 lb.	Rolled in parcels of 5.
	brown, crop, 26-lb.	
	bullock....	Doubled as received.
	horse	Rolled as convenient.

Strips, leather, for pipes, trace; to be kept flat, in parcels of about 20.

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Turn-over of hides in stacks.

307. The above should be turned over when newly received from contractors, every month for three months, and after that period every three months. The lower hides in the stack, when turning, should be placed uppermost for the next three months.

Use of preservatives for hides.

308. Crop, horse, and bullock hides do not require grease; the remainder should be dubbed triennially, or when the leather appears harsh and dry.

Brushing and cleaning hides.

309. The hide should be brushed and cleaned on both sides before the dubbing is applied.

Grease in excess on hides.

310. Too much grease on the surface attracts dust and grit, and it makes the leather objectionable to handle for repairing purposes.

Dampness, &c.

311. Damp and draught are injurious to leather.

Temperature for hides.

312. The temperature when possible should be kept at about 60°. The white layer of tallow that appears on the surface of new leather is not injurious; and, provided dirt is not allowed to accumulate on it, may be left on until the next treatment with tallow or dubbing.

IV.—India-rubber articles.

India-rubber or gutta-percha, storing of.

313. Articles which consist entirely, or partly, of india-rubber or gutta-percha, and which are not already issued packed in water, will be stored in the manner specified below.

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314. (*a*) Small articles, such as gauge glass rings, C 20 wire, &c., will be issued in tins, &c., filled with french chalk, and so stored.

(*b*) Large articles which cannot be kept in french chalk will be stored in a cool, dark place, having, if possible, an equable temperature.

(*c*) Where neither (*a*) nor (*b*) can be carried out, the articles will be stored in water.

Tins of india-rubber or gutta-percha articles to be unpacked for store.

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315. When articles which are stored under (*c*) of paragraph 314, are received into store at outstations, they will, if not intended for immediate issue, be taken out of the hermetically-sealed tins in which they are packed, and placed in water. Such articles, when transferred from store to any ship, must not be out of water for more than one or two days. The hermetically-sealed tins containing these articles will always be labelled before issue, with directions that their contents are to be taken out and placed in water when received into store or on board ship.

Labels on sealed tins.

Covered wires to be cemented.

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316. The extremities of covered wires, whether kept out of water or packed in water or french chalk, will be sealed up with a cement consisting of equal parts of gutta-percha and pitch, heated over a flame, and moulded over the ends.

Articles to be stored in dry, dark, and cool places.

317. The following articles will be stored in a dry, dark, and cool place:—

Diving dresses, complete,
Waterproof cartridge covers for rifled M.L. guns,
India-rubber bags for lime-light apparatus,
„ bags for charges of guncotton and gunpowder,
„ seats for signallers,
„ hose imbedded, suction,

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India-rubber straps for winding gear,
" tubing for Denayrouze's apparatus,
" pads, elastic, buffer, for carriages,
" tape (in the hermetically sealed tins as issued, until actually required for use),
" washers, Mark II, for box, junction, disconnecting 1 group and 4 branch cables.

and all articles not enumerated above, which consist of india-rubber in conjunction with fabrics.

318. When it is probable that the articles enumerated in the previous paragraph may be kept a long time in store, they will, if it is convenient, be packed in hermetically-sealed cases, care being taken not to pack them too tightly. Packing in hermetically sealed cases.

V.—Inspection of submarine mining stores and naval stores for torpedoes, &c.

319. Submarine mining stores, except explosives, in charge of the Army Ordnance Department will be inspected annually by an officer of the Royal Engineers; chief ordnance officers will therefore ask the Commanding Royal Engineer in the district to depute an officer for this duty. Submarine mining stores, inspection of.

320. Naval stores for torpedoes, submarine-mining, and for electric firing, will also be inspected annually by naval officers appointed by the Admiralty. At these examinations, cylinders containing naval electric primers, gun tubes, detonators and No. 15 detonators, are not to be opened for examination, and none are to be tested or fired. Inspection of stores for torpedoes, submarine mining, &c.

The number of cylinders of each year's packing of the various gun tubes, primers and detonators, &c., are to be recorded.

At stations abroad, the quantities of all naval electrical and torpedo stores kept at the depôt, for whatever purpose, are to be entered in the proper columns of Admiralty Form S 309, by the officer in charge of Naval Ordnance stores previous to the first day of inspection. After completion by the inspecting officer, this form will be passed by the senior naval officer to the officer in charge of Naval Ordnance stores, who will return it to the senior naval officer, stating the steps taken, or proposed to be taken, to remedy any of the defects that may have been discovered at the examination. The return, together with the local correspondence, will then be transmitted by him to the Admiralty. These reports by naval officers will not however diminish the responsibility of ordnance officers for the efficient condition for service of the stores in question.

VI.—Miscellaneous stores.

321. Tents will be thoroughly dried before being stowed away or returned into store, so as to prevent the duck becoming mildewed and rotten. Tents to be dried before return.

322. Tents returned after use will not be washed unless this should be absolutely necessary in order to render them fit for reissue. Tents not to be washed.

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Bedding, &c., suspected of contamination owing to prevalence of infectious diseases.

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322A. The regulations for Army Medical Services prescribe the precautions to be taken in cases of infectious diseases; but should the chief ordnance officer have reason to suspect that, owing to the prevalence of an epidemic, or from other cause, bedding, tentage or other articles in Ordnance Store could possibly have become contaminated, he will, before issuing or disposing of such stores, submit the case for the orders of the general officer commanding, who may order the articles to be disinfected or burnt. These instructions apply equally to horse clothing.

Blankets.

323. Blankets returned after use in camp will be carefully shaken and examined before being put into store. Those which have been in use by militia battalions for their annual trainings under canvas will be washed on return to store. The washing of those which have been in use by other troops must be determined by the length of time they have been used, or by the necessity which may arise from bad weather or other causes.

Washing of waterproof sheets.

324. Waterproof sheets which require washing after use by the troops should be washed with cold water and scrubbing brush, the sheet being laid out on a suitable table for the purpose, and afterwards hung up until perfectly dry. Frequent washing is, however, undesirable; brushing will, in most instances, meet all requirements.

Washing, annual clearance.

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324A. On the 31st March in each year any stores which are with washing contractors will be withdrawn, and a report made to the General or other officer commanding that this has been done. If any stores are then found deficient a list should be attached showing the number for which the contractor has been charged.

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325. Omitted.

326. Omitted.

Cooper's ware.

327. Cooper's ware will be kept in a store-room which is not too dry; and the hoops of tubs, pails, and other cooper's ware will be driven well home and properly tightened before the stores are issued for service.

Packages of paint to be dated.

328. All packages containing paints prepared for use will be marked at Woolwich, before issue to other stations, with the date of preparation of their contents. The preparation for use at stations other than Woolwich is to be delayed until the paints are actually required for use.

Duration of paints in store.

329. In cold or temperate climates, prepared paints may be stored, under ordinary circumstances, for a period of two years from date of preparation (except Prussian blue, which, whether ground in oil or prepared, is liable to become unserviceable within about a year from date of preparation; and Pulford's magnetic oxide, which will remain in good condition for about seven years); but in warm climates, about eighteen months only. If unavoidably kept longer in store, and the paint—when about to be used—is not found in the usual fluid state, it may be thinned by adding a little turpentine; and ordnance officers are to instruct the troops accordingly when issuing such paints. Red lead, when pre-

Paint to be thinned.

Instructions to troops.

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pared for use, dries very quickly, and should therefore be stored in a "dry" state, for mixing locally, as required, with equal parts of boiled linseed oil and turpentine. Ordnance officers will therefore be careful to limit their stock of prepared paints accordingly. Red lead, dry storage of.

330. Ground paints can be prepared for use by the addition of linseed oil, turpentine, and driers, in the proportions laid down in Appendix III. Preparation of ground paints.

331. Water-colours, such as brown vandyke and black lead, should be obtained in their "dry" state, as they are not for mixing in oil, and will not dry if so mixed. Water-colours, dry storage of.

332. Driers for paints, being liable to dry up through storage, should not be demanded for use in warm climates; but powdered litharge is to be used in lieu, in the proportion of 6 lbs. per cwt. of paint. Litharge will not incorporate with paints thinned for use; and they should be thoroughly blended whilst the paints are in a stiff condition. Litharge for use instead of driers.

332A. Exposed ironwork of Aldershot pattern ovens and their appurtenances, in store, will be given a preservative coating of mineral jelly (vaseline), which should be wiped off when the articles are required for use. Preservative for exposed ironwork.

333. Each description and nature of shot and shell will be kept distinct, and arranged so that the number of each may be ascertained without the necessity for removal. Where covered space is available it should be utilised for storing empty projectiles. Shot and shell, stacking and painting of.

334. Gun sponges should never be stored vertically, but always horizontally (heads and tails), and pieces of wood of sufficient width should be placed between the staves, so as to prevent the heads from pressing against each other. Gun sponges, storing of.

335 As regards the undermentioned wagons, care is to be taken that the stays are not wrenched away from the footboards, through neglecting to fasten up the latter (thereby allowing them to foul the splinter-bar) before turning the vehicles in store, or working them otherwise than by long-rein driving, viz.:— Fastening up footboards of wagons.

Wagons, { ammunition and store, R.A., Mark II; G.S., { Marks III and IV; R.E.; light, spring, surgery.

336. Canvas covers of wagons, aprons, &c., when requiring renewal of waterproofing will be returned to Woolwich for the purpose.

337. Empty cartridge bags, and bags burster, are not to be exposed more than is absolutely necessary to damp air, particularly in localities near the sea. When bales have been opened, and part of their contents removed, the remainder will be well wrapped up in waterproof material (oiled canvas) to keep them dry, and such as are made of shalloon, or felt jackets, will be well sprinkled with naphthaline and repacked in metal-lined cases. Empty cartridge bags, and bursters to be kept dry.

337A. All empty silk cloth, serge, or shalloon cartridges, whether in bales, or loose, which have been in store for more than one year, will be inspected annually. One cartridge from each of ten per cent. of the bales, or one per cent. of loose cartridges will be examined. Cartridges and bags, examination of.

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Cartridges, examination of. 38407 Ordnance 223

The cartridges selected for examination should be taken from various parts of the bales, and subjected to a close inspection, so that deterioration by any such cause as moth, damp, or mildew, may not escape notice.

If the bale or lot is found to have suffered from moth, the damaged cartridges will be separated from the good ones and condemned, the serviceable ones being rebaled if necessary.

Silk cloth testing.

337B. In addition, silk cloth will be tested by weights as laid down in Magazine Regulations, 1902, para. 230.

If the silk cloth fails to lift these weights before breaking a second proof will be taken from the bale or lot of loose cartridges. If a further failure occurs, the bale or lot will be condemned.

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338. Omitted.

Ash poles, &c. to be paraffined.

339. Articles made of wood, such as the poles of hospital stretchers, helves, staves, or other stores, liable to damage by worms or white ants, will be examined periodically and wiped or rubbed over with paraffin.

Rope, care of.

340. Instructions for the care and preservation of rope are given in Appendix II.

VII.—Packages.

(*See also paragraphs* 1309 *to* 1311, *cylinders.*)

Receipt and disposal of.

341. Ordnance officers will receive, and give receipts for, such packages and chests as may be returned into store by regiments and departments. They will apply the packages in question to the current service, returning any that are not required to Weedon or Woolwich, provided always they are worth the cost of return; if not, they should be disposed of locally.

R.A.C.D. packages and wrappers. 38407 Ordnance 223

341A. Packages and wrappers issued from the Royal Army Clothing Department will, if handed in to the Army Ordnance Department, be brought on charge, and dealt with as laid down in the Clothing Regulations.

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342. Omitted.

Sale at stations abroad.

343. At stations abroad, except as provided in paragraphs 347 and 348, surplus empty packages will be sold on the spot, or issued to the Army Service Corps, as firewood.

Testing naval powder cases. 74 — 2 642

344. At depôts at home and abroad, naval powder cases containing, or intended to contain powder cartridges, will, if they are fitted with testing plugs, be tested for air-tightness by means of the "pump, air, testing powder cases"—

(1) On receipt into store.
(2) After packing.

345. The test will only be considered satisfactory when the indicator on the gauge of the pump remains stationary (under compression or exhaust) for a period of not less than 1½ minutes at a pressure of 1½ lb. per square inch.

346. Any cases which fail at this test should be emptied and

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returned to Woolwich as soon as they can be spared, if the defects are such as cannot be satisfactorily remedied locally.

Cartridge boxes, metal cases, arm chests, etc.

347. Empty small-arm ammunition and rocket boxes, zinc cartridge cylinders, powder and cordite cases, and metal and metal-lined cases, when no longer required, will be returned to Woolwich, provided they are, or can be made fit, for further service. Such empty packages will be filled with light stores, if available. Tin cylinders and boxes for detonators, tubes, and fuzes, should not be returned, not being worth the cost of repair. Arm chests will be returned to Weedon.

Empty barrels.

348. All surplus empty powder and cartridge barrels, and copper hoops for powder barrels, will be sent to Woolwich.

Shipment.

349. In shipments from stations abroad, or in cases where a saving of tonnage may be desirable, casks and barrels will be taken to pieces, and their staves tied up in bundles; the copper and iron hoops will not be bent, but their proper shape will be retained as far as possible, so that they may be readily available for service. The hoops and heads will be securely tied up in bundles, and forwarded without being packed.

Screws to secure lids of chests and cases.

350. The lids of chests and other packing cases will be fastened with screws, instead of nails, whenever from their value or the nature of the contents it may be considered advisable, and the screws will be preserved for future use.

Packages to be accounted for.

351. Chests, barrels, and other packages will be brought on charge and accounted for in the same manner as any other article of store; and when emptied, all useless marks will be obliterated, and the lids carefully preserved.

Empty packages, issue of.

352. The chief ordnance officer may authorise the issue of empty packages required by regiments and corps for the return to store of equipments, clothing, &c.; also for packing stores, &c., when moving from one station to another.

VIII.—Fire engines.

Fire engines, provision of.

353. Fire engines will be provided by the Army Ordnance Department.

Inspection of.

354. They will be inspected when necessary by a competent person belonging to the Army Ordnance Department, and will be dealt with in accordance with the regulations governing the custody of stores generally.

Demands to be in detail.

355. Demands for fire engines will always state, in detail, the appurtenances that may be required, especially in the case of new engines to replace the old, as it may be unnecessary to supply complete sets of appurtenances with the engine. When any of the appurtenances are required to complete the engine equipment, the size of the engine they are to fit will be invariably stated.

Damaged when used for private purposes.

356. In the event of fire engines or their apparatus being destroyed or damaged when used to extinguish fires in buildings, &c., not belonging to Government, the expense of replacing the deficiency or repairing the damage will be charged to the proprietor or occupant of the premises.

Exercises.

357. Fire engines will be exercised immediately after receipt in store, and before issue to the troops. After use the hose will be un-

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Hose, care of after use. screwed, and each length hung over wooden poles and pins, with both ends downwards, that the water may be thoroughly drained out. Fresh water only is to be used.

IX.—Marking stores.

(*See paragraphs* 1043, 1044, *and* 1287.)

Broad arrow §§ 5534, 7815, and 8115, I of C. N for naval ordnance stores. **358.** Carriage, gun, and laboratory stores will be marked with the initials of the manufacturer, numeral of pattern, date of manufacture, and the broad arrow; all other War Department stores with the broad arrow, unless from their nature they are incapable of being marked; and all naval ordnance stores with the letter N in addition, as soon as they shall have been received as fit for His Majesty's service.

Purchases or manufactures. **359.** These instructions apply to stores purchased or manufactured at outstations as well as at Woolwich.

Date of issue on equipment. 38407 Ordnance 223 **360.** All accoutrements, arms, and articles of harness and saddlery, whether new or part worn, will be marked by the Army Ordnance Department with the date of issue before being handed over for the use of the troops, in accordance with the detailed instructions laid down in these regulations and in the Equipment Regulations.

Water carts, numbering of. **360A.** All water carts held at Army Ordnance Depôts for local use should be numbered in progressive numbers from one upwards, together with the initial letter of the station, thus:—$\frac{A}{20}$, $\frac{D}{14}$ representing Aldershot and Dover respectively. The letters and figures should be painted on the rear end of cart in white paint on barrel water carts, and in black paint on the canvas covering of tank water carts; size of letters and figures to be four inches.

From contractors. **361.** Stores supplied by contract other than carriage, gun, and laboratory stores dealt with in paragraph 358, will be legibly marked by the contractors with the names of the contractors and makers, and the year in which the supply is made, except where the articles would be injured thereby.

Red-hot brands. **362.** Great caution will be observed in the use of red-hot brands for marking stores; this mode of marking will only be adopted where other methods would not be equally effectual.

X.—Returns.

38407 Ordnance 223 **363.** A list of the returns to be rendered in connection with stores is given in Appendix XXIX.

SECTION VII.

Custody and Arrangement of Mobilization Stores.

I.—General Instructions.

Separate storage for. **364.** Mobilization stores will always be kept quite distinct and apart from any other equipment which may be stored at the same station.

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365. Storage of mobilization equipment in charge of the Army Ordnance Department or in charge of the unit should be made in accordance with the latest print of the mobilization store tables mentioned in army orders; and no corrections are to be made in the tables except under instructions from the War Office. Proposals to the War Office for amendment of a table will, if approved, be given effect to, as a general rule, at the annual revise of such table. Latest print of table to guide storage.

366. With the exception of vehicles, none of the mobilization equipment in charge of the Army Ordnance Department or in charge of the unit will be marked until taken into use by the troops on mobilization. Marking limited.

367. A separate compartment will be allotted to each unit, and marked with the name or description of the unit, as given in the Detail of Field Army and other Field Formations for Home Defence, thus— Equipment separate for each unit, and indicated.

Marking of compartments, &c.

Cavalry.
1st Cavalry Brigade.
Brigade Staff.

1ST ARMY CORPS.
1st Infantry Division.
1st Brigade.
One battalion (Guards).

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368. To each compartment will be attached a mobilization store table showing the equipment of the unit. The columns in this table which apply to the station will be kept corrected in red ink, to show the exact state of storage up to date. Store tally.

369. All the mobilization stores for a unit, with the exception of explosives, and the optional exceptions provided for in the special instructions for small-arms, accoutrements, harness and saddlery, and vehicles, will be kept in the compartment allotted to it. Concentration of stores generally for each unit.

370. Photographs showing the general system of arrangement of mobilization stores in the compartment will be supplied to those concerned on application to the Principal Ordnance Officer, Woolwich, until the original stock is exhausted. These photographs owing to numerous alterations of details of equipment, are only useful as a general guide. Photos. of the system of storage.

371. Omitted.

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II.—Small Arms.

372. Small arms may be kept in a general armoury. They will be racked by units. Racked in a general armoury.

373. All swords and pistols will be packed in chests, cases, or other suitable packages. Swords and pistols.

374. The new pattern armoury racks for reservists' arms at head-quarters of regimental districts are provided with small hooks, in lower side of the upper support, to take a string loop for hanging the sword bayonets with scabbards. In racks of any other pattern the latter articles will be hung with the rifles. Bayonets.

375. Omitted.

376. Omitted.

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Examination and oiling periodically.

377. All small arms or parts should be examined and oiled periodically, in accordance with the general instructions for the care and preservation of arms.

III.—Accoutrements.

Bays for each unit separately.

378. Accoutrements may be kept in a general storeroom. Those of each unit will, in such case, be in a separate bay allotted to the unit, and marked accordingly. They will be stored by complete sets.

379. Omitted.

Water-bottles.

380. Water bottles should either be kept with the accoutrements to which they belong, or stored in packing cases placed conveniently near them. In either case, napthaline should be used for their preservation.

381.
382.
383. } Omitted.
384.

IV.—Harness and Saddlery.

Instructions for storage by sizes, &c., of H. and S.

385. Instructions relating to harness and saddlery stored for registered horses will be found in the Appendices to the Equipment Regulations, Part I.

Storing in Frames.

Grouped by units.

386. Harness and Saddlery may be kept in a general storeroom. It will be grouped by units, but not assembled. It will be stored in conformity with Section VI, Sub-section III, of these Regulations. Each class of article will be kept together in a manner suitable for ready issue, and their preservation.

The Present Frame.

Store frame for harness and saddlery.

387. The "frame" specially referred to herein measures 10 feet in length, 4 feet 3 inches in depth, and 10 feet in height. It has three shelves and a top (or platform), which are composed of short planks, laid in but not fixed, so that they can be removed to facilitate the packing or withdrawal of harness and saddlery. Above the third shelf there are a number of short bars, laid in across the frame, for the reception of neck collars, when the frame contains harness, or for carbine buckets, when it contains saddlery. These bars are also removable, for the reason given above. A portion of the top is specially fitted with similar bars for hanging bridles on, and two removable upright bars are provided to secure the top load from falling off.

Capacity of frame.

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388. This frame will take the components of 60 single sets of harness, or 20 sets of universal saddlery, with saddle blankets (or pannels) and numnahs.

Extra-size frame for larger units or higher storehouses.

389. Storehouses will be provided with a number of frames of the above dimensions; and also, where practicable, with a proportion of frames having the same length and depth, but a height of 12 feet 6 inches, the difference being that in the higher frames there is an additional shelf similar to the lower ones.

390. This latter frame will, it is estimated, take 8 to 10 sets more of harness, or 12 to 15 sets more of saddlery than the smaller frame, the greater part of which must be placed on the additional shelf itself.

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391. Omitted.

392. A ladder has been designed to serve also as a means for raising and lowering the bales which are packed on the top of the frame. With this object it is provided with a detachable way board to rest against the rungs, when in use. Each storehouse should have a certain number of these ladders, and also a certain number of ropes with hook for use in raising and lowering the bales. Ladder for use with frame. Ropes with hooks for frame.

393. Omitted.

394. *Blankets (or pannels) and numnahs.*—Blankets or numnahs will be stored in 2 bales of 25 and 1 of 10, on top platform of frame, and pannels (if stored instead of blankets) in cases lined with carbolized paper, oil-canvas, and brown paper, made as air-tight as possible, plenty of napthaline being used, and renewed as soon as it is found, on examination, to have evaporated.

394A. Particular attention is to be given to the care of the undermentioned articles, to prevent them becoming unshapely and unsuitably bent.

Breechings.—If not kept flat are to be folded in bundles of three, one seat inside the other, the loin straps of each being passed outside and round the three. Care to be taken that the seat of a single breeching is not sharply bent.

Head Collars.—To be tied by the top of the heads only, in bundles of six.

Traces, Wheel and Lead.—The straps are not to be tightly buckled round the traces, but turned loosely over other traces or laid out flat.

395. Omitted.

396. Omitted.

397. The harness and saddlery should be gone over at least once in every two years, the dust wiped off, and the parts treated conformably with the instructions in force for the preservation of harness and saddlery. Rust should be carefully guarded against by lacquering the iron-work. The dates upon which the harness and saddlery in each storeroom is dubbed or oiled, &c., will be recorded on the inside of the door of each room. Care and preservation of harness and saddlery in frames. Dates of dubbing and oiling.

398. The harness and saddlery frame should be provided with a canvas cover for the top, with portions hanging loosely across the front and any exposed ends to act as curtains to shield the leather from sun and light which quickly discolours and detoriates it ; and from dust. Canvas covers for frames.

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Miscellaneous Articles and Stable Necessaries.

399. *Materials for repair* will be placed with other equipment in the compartments allotted to the several units. Materials for repair.

400. *Stable necessaries.*—The following articles, which are also excluded from the frames, will be kept together in a safe place ; if possible, locked up in the compartments allotted to the several units, viz. :— Stable necessaries.

Brushes, harness, hard.
„ horse.
Combs, curry.
Couples, trace.
Pickers, hoof.
Sponges.

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V.—Camp Equipment.

Camp equipment, packing and storage of.

401. *Tents* and *tent poles* will be stacked in heaps in the bays of the unit.

402. *Blankets* will be baled and similarly stacked.

403. *Waterproof sheets* will be stacked in rolls or bundles of 10.

404. *Ropes, head, heel, &c.*, will be tied in bundles of 10 or 20.

405. *Camp kettles* will be stacked in cradles.

406. Pegs, picketing; axes, felling and hand; hooks, bill, &c., will be racked on shelves or packed in cases, except such of them as form part of the "wagon equipment" of the vehicles of the unit, in which case they should be in the vehicles if stored on wheels, and packed in cases if not. Under any circumstances, they will be stored *with* or *by* the vehicles.

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VI.—Tools.

Tools, packing and storage of.

407. Tools belonging to cart and wagon equipment will be stored in the vehicles, as described in Sub-section VII. Other tools will be packed in cases or chests, according to their nature, excepting articles such as picks, shovels, &c., which will be stacked loose.

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Edged tools.

408. The edges of cutting tools are to be in good condition for use.

VII.—Vehicles.

Vehicles and their appurtenances, storage of.

409. Carts and wagons may be kept in a general store, or in general stores, grouped by units. The complete appurtenances of each vehicle will always be kept fitted on it.

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Vehicles on their wheels.

410. Where space will admit, vehicles will be stored on wheels.

Vehicles in pieces.

411. Unless there is ample room in a store for all the vehicles belonging to the same unit to be stored complete, with space to admit of their being easily cleaned and examined, the vehicles will be taken to pieces and stacked, the several items of which the vehicles are composed being placed on independent stacks. No stack will exceed 8 feet in height.

Height of stacks.

Vehicles for any one unit.

412. Care will, however, be taken that all the vehicles for one unit are similarly stored, and that there is sufficient space near to the stacks for the assembly of any vehicle.

Tallyboards for stacks.

413. Tallyboards will be attached to each stack, and will indicate the number and description of what it consists.

R.A. vehicles, packing of.

414. Royal Artillery gun carriages, limbers, and ammunition wagons will be kept packed with all their stores. The general rule is that field gun ammunition should be stored in all the vehicles in which it is to be carried, whether these are in regimental or Army Ordnance charge, but in cases where the vehicles are necessarily kept in dangerous proximity to inhabited houses or other possible causes of fire, suitable arrangements will, as far as possible, be made locally for the storage of (*a*) the cartridges, (*b*) all lyddite shell, and (*c*) the shrapnel shell of heavy batteries. Packages in which such ammunition is stored will be stencilled to clearly indicate the contents.

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414A. To avoid continual stress on the same spoke of any wheel, the wheels of all vehicles in mobilization charge should be revolved one spoke in the same direction at least once a month.

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415. To prevent the joints of woodwork opening and spokes of wheels loosening through prolonged dry storage, vehicles kept on their wheels, and at least the wheels of stacked vehicles, will be taken into the open in wet weather, and left for a day in the rain, twice a-year, about June and September. Before returning the exposed articles to store, all water lodging in their cavities will be carefully removed. Vehicles to be left in rain.

Carts, water barrel, should be kept three-quarters full of water, such water to be changed periodically for fresh.

416. Covers for carts and wagons will be neatly rolled and stowed on the raves of the vehicles to which they belong, or in any other way convenient. Covers to be rolled.

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They should be unrolled and cleaned periodically, at least once in three months. Those painted khaki colour must not be rolled until they have been exposed to the air, and are thoroughly dry. Cleaning.

Under no circumstances are covers for carts and wagons to be stored folded. Not to be stored folded.

417. A convenient place will be found for storing cushions, covers, &c., not necessarily with the vehicles for which they are intended, but in a non-heated store, and in such a position that they can readily be got at for drying and cleaning. Cushions, covers, &c.

418. Aprons will be hung up so as not to touch each other. Aprons.

419. Straps not in use will be tied up in sets, each set being labelled with the description of vehicle to which it belongs, and will be placed in the lockers of the vehicle to which they belong. Straps in sets.

419A. All vehicles except those in Army Medical Services, or vehicles marked with a red cross, will be painted khaki colour. Vehicles, painting of.

420. The details of the marking of vehicles are given in the Equipment Regulations. Marking vehicles.

421. All leather-work of vehicles, including straps, will be periodically dressed with dubbing. Dubbing leather.

422. Grease for the wheels will be kept in the grease boxes on the vehicles. Grease.

423. Cart and wagon appurtenances not provided for above will be stored where they would be carried on the march. Appurtenances of.

424. Spare axletrees, shafts, wheels, timber, iron, and oil, which cannot be conveniently stored in the separate compartments, should be kept in the wagon sheds. Spare articles.

425. All vehicles, spare wheels, and harness and saddlery will be examined once every three years by artificers of the inspection branch; and a permanent record will be kept painted up on the inside of the storehouse showing when the inspections have been made. Examination of vehicles, and Harness and Saddlery. Records of inspections.

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426. Applications for the examination at any other time will be made to the Chief Inspector, Royal Arsenal, or the Chief Inspector of general stores, Royal Dockyard, Woolwich.

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VIII.—Mobilization Stores.

W.O. authority for issues on loan.

427. With the exception of the periodical issues for practice in packing the vehicles, as ordered in the Mobilization Regulations, and those connected with the turnover, none of the stores held for mobilization will be withdrawn for use without special War Office authority. For temporary peace services, however, special authority will be given for the issue on loan of articles such as vehicles only. In the event of water and small-arm ammunition carts being necessarily required in the district for use on field days, or at manœuvres and camps of instruction, the temporary issues of these vehicles may be sanctioned by general officers commanding, who are responsible that they are returned to store in a thoroughly serviceable condition, as soon as possible after termination of the practice.

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Mobilization store tables, provision for, and supply of.

428. General or other officers commanding are responsible that the mobilization store tables are in possession of officers commanding units, as directed in the Mobilization Regulations. Upon a reprint of any table taking place, a supply will be sent from the War Office to the chief ordnance officer of the district, who is responsible for sending a first supply of any new edition to the officer commanding a unit concerned in the district. Any further quantities required by units will be demanded by the officer commanding from the chief ordnance officer.

IX.—Custody, Inspection, and Turnover of Mobilization Stores.

Responsibilities of G.O.C.

429. The entire responsibility for the efficient custody of these stores rests with the general or other officer commanding the district, who will also see that they are properly *turned over*.

Charge of groups.

430. The various depôts in a district in which mobilization stores are kept in Army Ordnance charge will be placed in charge of an ordnance officer.

Inspections by officers commanding units.

431. The Mobilization and Equipment Regulations require officers commanding corps to arrange for visiting the Army Ordnance depôts periodically, to inspect any equipment held there for the mobilization of their units.

Inspections of mobilization depôts and equipment.

432. All equipment stored for mobilization will be inspected as follows :—

Once annually by the chief ordnance officer of the Army Corps on behalf of the general officer commanding the Army Corps.

Once annually by the chief ordnance officer of each district at a period of six months after the Army Corps inspection.

In each case the result of these inspections will be reported on A.F. G 1097, which will be forwarded by general officers commanding districts to Army Corps Head-quarters. They will not be forwarded to the War Office unless for any reason the Army Corps Commander is desirous of doing so.

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In cases where, either at home or abroad, districts are not incorporated in an Army Corps, the general officer commanding will cause a second annual inspection to be made if he considers it desirable. This second inspection would be carried out in the Aldershot command, either by the C.O.O., 1st Army Corps, or an officer to be deputed by him.

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433. Mobilization store depôts and the mobilization equipment in charge of units will also be inspected from time to time by the Inspector-General of Ordnance Stores.

Inspections of mobilization depôts.
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434. Issues to troops of articles included in these stores will, as far as possible, be made from them, being replaced by new articles from general Army Ordnance charge. No issues, however, are to be made from mobilization stores until those to replace them are actually in the district.

Issues of mobilization stores.

435. Stores which are subject to deterioration from storage will be exchanged from time to time for new articles. No definite periods can be laid down for the various natures of stores after which exchange should take place, but the general or other officer commanding will recommend exchange being carried out as may be required.

Exchanges of mobilization stores.

436. Stores held on charge for mobilization which become surplus to the requirements of a district, will be used to meet general Ordnance Services in the district, except in the case of vehicles, or large quantities of articles, in which cases application should be made to the Principal Ordnance Officer, Woolwich, for instructions prior to disposal. As regards arms, application should, in every case, be made to the Chief Ordnance Officer, Weedon.

Instructions for disposal of surplus articles.
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437. Vehicles and ammunition of mobilization equipment in artillery charge will be examined at the same time as the inspections of vehicles and ammunition of the peace equipment of the battery are carried out. The vehicles of other units will be examined as directed in paragraph 425.

Examination of vehicles and ammunition for R.A. units.
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438. Whenever a unit holding mobilization equipment is inspected, unless the inspection is carried out while the unit is absent from the place at which its mobilization equipment is kept, the inspecting officer will also inspect the mobilization equipment.

Inspections of units and their mobilization equipment.
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Ord.
223

439. Omitted.

440. The turnover of gun ammunition stored in ammunition parks, columns, and battery equipments at home should be carried out upon a system which generally assimilates the procedure of supply to that which would obtain on service. To ensure the expenditure of ammunition of the oldest date of manufacture, detailed instructions are laid down in the Equipment Regulations.

Gun ammunition of field guns.

Chief ordnance officers will be held responsible that ammunition of oldest date of manufacture is issued from the parks and columns, in their districts, to the batteries or districts which they supply; and that, as far as possible, newer ammunition to replace such withdrawals is available before the columns are depleted.

In the event of the supply of new ammunition failing to arrive in sufficient time to admit of withdrawal from, and replacement in the column, proceeding simultaneously, a special report of the deficiencies will at once be made to the Principal Ordnance Officer; but the completion of batteries should not be delayed.

Completion of batteries not to be delayed.

All ammunition to meet the foregoing services should be specially provided by intermediate demand; and blank gun ammunition for exercise only should be included in the station annual demand.

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Carriers' and consignment notes for gun ammunition.

441. Separate carriers' and consignment notes should be used for gun ammunition to be issued to batteries or transferred to districts, in accordance with the instructions for turnover of ammunition referred to in paragraphs 440, 992, and 993, a reference to those paragraphs being quoted on all requisitions for transport in connection therewith.

442. Further instructions for guidance as regards the mobilization equipment are laid down in the Equipment Regulations.

Custody of mobilization equipment when in A.O. charge.
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443. Where mobilization equipment of artillery units is held on charge of the Army Ordnance Department, instead of that of the officer commanding the unit to which it belongs, its custody and inspection will be dealt with under paragraphs 429 to 447 of these regulations, and the return referred to in paragraph 450 will also be rendered in connection therewith.

X.—Accounts and Returns.

A.O.D. ledgers for mobilization accounts.

444. Store ledgers are to be kept for each depôt of mobilization stores in charge of the Army Ordnance Department, in A.B. 334, excepting at Aldershot, where ledgers in manuscript will be prepared. It will not be necessary to distinguish between the stores of each unit in the account, where the stores of more than one unit are held at the depôt.

Accounts, examination and rendering of.
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445. Only one copy of A.B. 334 will be kept at each depôt—the station copy. This will be balanced on the 31st March, but will be sent to the War Office or to the auditor, in commands where an Army Corps auditor is appointed for examination only when ordered. On its return to the station all transactions which have occurred in the interim will be at once posted up.

The balance sheet mentioned in paragraph 1293 will be forwarded as soon as ready.

Equal exchanges.

446. Where an equal exchange of articles in a mobilization depôt is made with a similar number of new ones from an Army Ordnance depôt, as described in paragraphs 434 and 435, the transactions need not be recorded in the ledgers.

Vouchers for issuing off A.O.D. charge. Equipment ledgers.

447. Receipt and delivery vouchers will be prepared upon the mobilization store tables for each unit, and kept with its outfit, ready for the signature of the commanding officer of the unit when the outfit is issued to him on mobilization. At stations where equipment is kept for units to be formed on mobilization, which do not exist in peace, equipment ledgers will be kept with the stores of each unit, having the "state" of the equipment of each unit duly entered, for handing over to the officer commanding the unit, with the equipment, on mobilization.

Accounting for mobilization equipment.
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448. Omitted.

449. Omitted.

Issues for packing practice not posted in accounts.

449A. Mobilization equipment issued for practice under the Equipment Regulations, Part I, will not be struck off ledger charge by the Army Ordnance Department, nor taken on in the equipment account of the unit concerned. Receipts for issue and return of the stores will be taken on copies of the mobilization store tables concerned; the Army Ordnance Department making

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any necessary adjustment in the accounts on the return of the equipment.

450. The following return will be rendered to the War Office, through the general or other officer commanding, by officers in charge of mobilization store depôts :—

Return to be rendered.

On the 1st May and 1st November—

Return of deficiencies in mobilization equipment by stations or depôts and districts on A.F. G 1081.

Forms
G. 1081
12

SECTION VIII.
Small Arms, and Machine Guns.

I.—Care and Custody.

451. All small arms, whether manufactured at the royal small arms factories or by the trade, will be sent to Weedon for account in the first instance.

All small arms to be sent to Weedon.

452. Carbines and rifles are classified as follows :—

Classification.

Classification.	Distinguishing marks.
Serviceable Arms. Consisting of new arms and such used or repaired arms as may be fit for the service.	None (except the descriptive and view marks before being sent into store).
E.Y. Arms. Consisting of arms not up to the standard of service arms, but which may be utilised in case of emergency.	E.Y. on butt, fore-end, body, and barrel, and in the case of magazine arms on bolt.
D.P. Arms. Those intended for drill purposes only.	D.P. on ditto ditto.
M.T. Arms. Those intended for use with Morris tubes only.	M.T. on ditto ditto.

453. Ordnance officers in charge of arms will observe these distinctions in the preparation of their store accounts and periodical returns.

Distinctions for accounts and returns.

453A. A record will be kept of the manufacturing number of all pistols received and issued at Army Ordnance depôts.

Pistols, record of manufacturing number.

454. Machine guns and machine gun spare part boxes are issued in special chests, in which they should be kept while in store.

Storage of machine guns.

455. When possible, arms, especially service rifles, should be kept in store racked. On no account will they ever be piled or racked horizontally.

Arms to be racked.

456. Arms in store, whether in chests or racks, will be complete with side arms and other appurtenances, in order to ensure that they are in a fit state for immediate issue. This rule is not to apply to arms held temporarily at stations, on deposit from Weedon, unless specially arranged.

Bayonets and protectors.

457. A proportion of butt swivels will be kept in store for rifle regiments, when in the district, and not armed with M.L.M. Mark II or M.L.E. Marks I and I* rifles. When butt swivels are removed, the holes will be filled up with the wood plug provided for that purpose.

Storage of rifle with butt swivels.

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Buff pieces.

458. Swords will not be stored with the buff pieces on; these articles will be kept loose in the chests.

Half-yearly inspections.

459. Inspections of all arms, whether in chests or racks, will be made at least half-yearly to ascertain whether they have deteriorated. In the case of arms in chests and after inspection, on re-packing, the chests will be duly marked and treated as ready for issue.

Arm chests to be kept dry.

460. Arm chests, whether full or empty, will be placed in dry, airy storehouses, free from all damp, the lower tier of chests being raised about 4 inches from the ground or flooring.

No arm chests to be made locally

461. At stations abroad arm chests will not be made locally, except under urgent circumstances. When required, they will be demanded from Weedon.

Materials for repairs of B.L. arms.

462. In order to carry out the authorised issue of small-arm components to the various services, a two years' supply will be kept in store at each station, in accordance with proportions required to meet the repairs of arms in the hands of the troops and of those held in reserve at the station in Army Ordnance charge.

Rangoon oil.
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463. Rangoon oil will be used for lubricating actions and cleaning arms in store. For preserving arms, a composition consisting of 95 per cent. mineral jelly and 5 per cent. beeswax, will be used for all descriptions of arms, including bayonets, swords, &c.

Cleaning arms in store.
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464. Arms placed in racks will be constantly dusted, and wiped over with Rangoon oil, the mixture specified in paragraph 463 being used for the interior of the barrels, also between stock and barrel, every 2 years or oftener, as may be necessary. The cleaning will be performed continuously, so that the ordinary working-staff of the station may be able to get through the work.

Care of machine guns in store.

465. Machine guns and their spare parts and tools are to have their unpainted iron or steel surfaces coated with the following mixture when returned to store or packed for transmission :—

Wax, bees	4 lbs.
Paraffin, hard yellow scale	4 ,,
Chalk, white	2 ,,
Oil, Rangoon	6 quarts.

or,

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A mixture of 95 per cent. mineral jelly and 5 per cent. beeswax may be used in place of the above ingredients.

The mixture is to be made hot and a piece of flannel dipped in it with which the exterior parts will be dabbed.

To coat the inside of the barrels draw a bunch of lamp-cotton well saturated with the mixture through from both ends. The lamp-cotton is to be attached to a rod of twisted copper wire. If the gun or spare parts are dirty when received, they should be thoroughly cleaned before applying the mixture. Any water left in the barrel casing or steam tube of Maxim guns should be run off.

Periodical.

466. Machine guns and their spare parts will be looked over

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every three months, and if necessary regreased. Once every twelve months the barrels will be cleaned, examined, and if correct regreased. Lock springs of the guns or spare locks are never to be left compressed. Inspection of machine guns.

467. Rust in the metal, and an appearance of salt in the stock, will be looked for, and removed without delay. Rust and salt.

468. A label showing the date of inspection will be attached to each rack or chest. Date of inspection.

469. The repairs and work performed in the armourers' shops, as well as in the armouries, will be executed under the orders given by the officer in charge to the senior armourer. Orders to armourer.

470. The senior armourer will supervise generally the packing and unpacking of arms. He will make arrangements to prevent the men injuring the floors, or littering the part in which they are working, by dropping waste, hemp, or oiled rag; and he will see that the work is performed in as cleanly and neat a manner as possible. Responsibility of senior armourers.

471. On receipt of arms, the duty of receiving, tallying, &c., will be performed by the receiving foreman and his assistants; and when this is completed, the senior armourer will inspect and report upon the condition of the several articles. The particulars of examination are specified in paragraphs 495 to 503. Receipt of arms from regiments or ships.

472. The instructions for armourers in the care, repair, browning, &c., of arms, issued from time to time with Army Orders, or in the Equipment Regulations, will be carefully followed, so far as they apply to arms in charge of the Army Ordnance Department. Instructions for care, repair, &c.

473. The following repairs will be undertaken locally by the Army Ordnance Department at stations where the duty can be carried out by competent armourers. Repairs locally.

Rifles and Carbines.

1. Replacing components,—including barrels with bodies.
2. Adjustment of loading and firing positions, M.M. and M.E arms.
3. Renewing lines on sight slides and caps.
4. Repairing and splicing butt and fore-end.
5. Re-browning barrels, nose caps, bands, &c.

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Pistols.

1. Replacing components, including barrels and cylinders assembled.
2. Adjusting loading and firing position.
3. Cleaning stock, and erasing marks.
4. Re-browning components.

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Scabbards.

General repairs, as laid down in the Instructions for Armourers.

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Machine Guns.

1. Replacing components.
2. Repairing and adjusting fore-sights.
3. Setting and re-soldering drums and hoppers.
4. Re-browning barrels.
5. Re-painting guns.

Dummy cartridges for armourers.

474. Special dummy cartridges, as described in paragraphs 6489 and 9518 List of Changes in War Matériel, will be supplied for the use of armourers or armament artificers in testing the hoppers, belts, cartridge feeders, cartridge carriers, &c., of the various machine guns in their charge, to ensure these appurtenances and components being correct and free from obstruction before firing the gun. Three cartridges will be issued to each armourer-serjeant or armament artificer for each nature of machine gun which he has in his charge. They are not to be used for drill purposes.

History sheets of machine guns.

475. The result of any examination of machine guns should be shown upon the memorandum of examination, and initialled by the ordnance officer in charge. Upon any transfer, or when returning guns to store, the memorandum of examination is always to be packed in the chest with the gun. The date and particulars of any transfer of the gun are to be entered upon the memorandum of examination.

II.—Browning.

Ingredients for browning-mixture.

476. The several ingredients for making "mixture for browning arms," will be supplied in the proportion shown in the following table, and care must be taken to demand by quarts, gallons, or larger quantities.

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477. Table of ingredients, showing proportions :—

Water, rain	gall.	1
Acid, nitric	ozs.	6½
Steel, tincture of	,,	13
Wine, pure spirits of	,,	5

Mixture, browning, supply of.

478. About three pints of mixture is sufficient to brown 100 stand of arms. Materials for less than one quart of mixture will not be supplied to home stations, nor for less than a gallon to stations abroad. Rain-water will be invariably used for dissolving the ingredients, which should be placed in a vessel, when mixing, in the order above shown.

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Browning, instructions.

479. General directions in regard to browning arms will be found in the instructions referred to in paragraph 472.

III.—Packing.

Packing.

480. Unless removed by the troops, arms and machine guns and spare parts will be properly packed before issue, to prevent injury during transit.

Rifles—foresight protector as component.

Rifles will always be issued or received with foresight protectors on them.

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481. For this purpose there are approved patterns of arm chests to hold 20 arms each, and cases to hold from 2 to 10. There are also approved patterns of chests for all machine guns, spare parts, &c. These packages, before being selected for packing arms, should be free from damp and fit in all respects. For securing the lids, screws will be used. Arm chest and cases for arms.

482. Chests and cases for arms, machine guns or spare parts intended for shipment to stations abroad will be specially prepared as follows:—They will be stripped entirely of fittings, and the whole of the interior surface painted with a mixture composed of two parts red and one part white lead, with the proportion of linseed oil and driers usually allowed to paint, the exterior surface being painted khaki colour. Strips of calico 2 inches wide will then be soaked in methylated spirit, placed carefully over the joints on the inside, and coated with the mixture. When the first coat is dry, any holes or defects will be stopped with putty, after which a second coat of the mixture will be applied to the interior, and a second coat of khaki-colour paint to the exterior. Strips of felt or "cloth, collar, white," will then be attached to the top edges of the chest by means of shellac cement and tacks, and tallow will be subsequently rubbed into these strips. Preparation of packages for arms for shipment abroad.

483. Arms of all natures, and parts of arms, will be covered with the beeswax-mineral jelly composition mentioned in paragraph 463, before being packed. Carbines, pistols, and rifles will also have the insides of the barrels treated in a similar manner. Machine guns and spare parts will be greased as described in paragraph 465. For shipment abroad this composition will be more freely used. Preparation of arms for packing.

484. At the time of packing, the chests will be distinctly labelled, showing the number and description of the contents, also the tare and gross weight. A full detail of the contents, signed by the packer and the person who witnessed the packing, will be placed in each package. Labelling, showing contents and weights.

485. Before placing the arms in the chest, the band and butt swivels, if any, of the lower tier of arms will be turned back so that the weight of the arms may not rest upon them. Butt swivels.

486. Long and short butt arms will be packed with grooved slips, the front or grooved part being used for long, and the back or plain side for short butts. When long and short butt arms are packed together, long butt arms will be placed in pairs, one above the other, and the same will be done with the short butts, the long butts commencing where the short butts terminate, but they will not be intermixed. In packing arms with long or short butts it would be advisable to commence fitting the first and second butt slips from either side, fitting the middle slip last; this method will prevent an undue strain being placed on the last arm, which might otherwise be the case should the butt slips be fitted from right to left, or *vice versâ*. Long and short butt rifles, packing of.

487. Special arrangements will be made when a chest is to contain less than 20 arms, or a mixture of arms with sword and common bayonets. When there is an odd number of arms, the Chests of less than 20 arms.

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outside butt slip will be screwed on to the ends of chest, as in this case it does the duty of the sides of the chest.

Fittings to be replaced in empty arm chests.

488. Arm chests and machine gun chests, on being emptied, will have the fittings and screws carefully replaced to secure their safety. Under no circumstances will the fittings be thrown in loosely.

IV.—Receipt and Issue of Small Arms and Machine Guns.

Damages in transit.

489. When arms, machine guns and their spare parts are received damaged by salt water or otherwise, they will, if not repairable on the spot, be cleaned, well oiled (particularly under the barrel), and forwarded in the case of small arms to the Inspector of Small Arms, Sparkbrook, Birmingham, and in the case of machine guns, by the cheapest route either direct or through the Principal Ordnance Officer, Woolwich, to the Chief Inspector of Small Arms, Enfield Lock, as early as possible for examination and repair. The vouchers for machine guns to be passed through the Principal Ordnance Officer, Woolwich.

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490. Omitted.

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491. Omitted.

New arms.

492. On receiving a supply of new arms or machine guns they will be carefully examined to see whether they have sustained damage in transit or otherwise, and action should be taken accordingly.

Civil power, arming of.

493. Under exceptional circumstances, arms may be issued, under special authority, to arm the civil power.

Painting Maxim guns before issue.

494. Before issuing Maxim guns they should be painted in accordance with paragraph 10348 "List of Changes in War Matériel" if necessary.

V.—Examination and Repair of Small Arms and Machine Guns, and Assessment of Damages.

Doubtful arms.

495. All returned arms which cannot be dealt with locally under paragraph 473, will, with the exception given in paragraph 502, be brought on charge as "doubtful," sent to the Inspector of Small Arms, Sparkbrook, Birmingham, for disposal and so far as the unit that returned them is concerned replaced unless surplus to establishment, by the issue of serviceable articles.

Arms for special examination.

496. When damaged arms are ordered to be sent for special examination, labels should be attached to them giving a reference to the orders under which they are sent, and a copy of any board or court of inquiry which may have been held regarding them should accompany the vouchers.

Machine guns:—

497. Machine guns returned to store at home stations should be inspected by a viewer, whose services may be obtained on application to the Chief Inspector of Small Arms, Enfield Lock, through the chief ordnance officer of the district concerned.

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If the machine gun is obviously damaged beyond local repair this inspection by a viewer is unnecessary and the course in paragraph 489 will be adopted. Damaged.

At foreign stations, machine guns on return to store should be examined by an armourer serjeant and any deficient or defective spare or reserve parts should be replaced. Should the serviceability of any of the non-interchangeable parts be suspected, the gun, if possible, should be practically tested by firing about 100 rounds of ball cartridge to decide whether it is necessary to return the gun home for repair. Foreign stations.

498. All machine guns returned into store from service will, as soon as possible after receipt, have the bright portions of the metal work and the inside of the barrels coated with composition, preserving arms, or a mixture of mineral jelly and beeswax, with a view to their preservation from the effects of rust. Preservation of. 38407 Ordnance 223

499. Unless arms have been returned to store after examination by the small arm inspection branch, charges for damage not caused by fair wear as well as for deficiencies will be assessed locally in accordance with the following scale :— Charges.

			s.	d.
Repairable articles	Rifles or carbines .... barrel		1	0
	Pistol — Barrel....		1	0
	Pistol — Cylinder		0	9
	Swords, sword-bayonets and dirks, all patterns	Blade slightly cut on edge or rusty	0	6
		Rusty or damaged hilts or sockets	1	0
	Scabbards, leather, sword-bayonets		0	6
	Scabbards, steel all patterns	Rusty or dented, or both	0	6
	Lances — Steel parts rusty or damaged		0	6
	Lances — Other defects....		1	0
	Tubes, aiming, rusty or slightly damaged		0	6
Deficient or undoubtedly unserviceable articles	The unexpired period of wear. No charge for any one arm or part of an arm must exceed £2 unless otherwise determined by sentence of a court martial, or be less than one quarter of the vocabulary rates, even though it may have lasted the full period of wear assigned to it.			

When a charge for a complete rifle or for any of its components, except the barrel, is made, the date of issue will be taken from the butt plate or marking disc.

In the case of barrels the date will be taken from the side of the barrel to the left of "Knox" form, but if not shown there, from the date on the butt plate or marking disc. 54 Gen. No. 9387

499A. Stars in front of "Knox" form of barrels of rifles and carbines, and on the left-hand side of the top strap of pistols, denote that the trace of a cut or of rust may be found inside the barrels. Stars on other portions of barrels denote that a trace of exterior erosion exists in the region of the star. A star on the pommel of sword-bayonets, pattern 1888, denotes that the pommel Signification of stars on sword bayonets and in front of "Knox" form of

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barrels of rifles and carbines, &c.
77
26
3217

is cut or otherwise blemished. No charge will be made against the troops at subsequent inspection for such cuts or rust. These stars are placed on the arms at the factories only.

Claims.

500. Claims under paragraph 499 will be made on A.F. G 838, and payment will be made to the local paymaster.

Authority to send to Birmingham.

501. Before transmitting a large consignment of arms to the factory, it should be ascertained from the Inspector of Small Arms whether he is prepared to receive them.

Breaking up of condemned arms.

57
Cape
1740

502. Arms and small arm components returned by the troops, which on examination are found to be unserviceable, will be broken up and brought to produce locally under similar conditions to those dealing with general equipment. Their destruction should be effected by heating in a forge and then being hammered.

The voucher or document upon which the transaction is recorded will be certified to the effect that all have been thoroughly destroyed by the officer under whose authority the items have been condemned. In the case of arms and components in charge of units condemned by inspection department viewers, and ordered to be returned to store, the order directing their return should be attached to the store receipt voucher which deals with the transaction.

Examination for repairs.

503. Only the following classes of arms may be examined at out-stations for purposes of repair, and the only repairs allowed to be effected there are those detailed in paragraph 473 :—

(*a.*) Surplus arms returned by the troops. Such arms, when they only require repairs of the nature specified in paragraph 473, will either be returned to the corps for repair, or they will be repaired by the departmental armourers, at the expense of the corps.

Corps without an armourer.

(*b.*) Arms belonging to corps which have no armourer-serjeants of their own.

If requiring more extensive repairs than are authorised by paragraph 473, they will be forwarded to the Inspector of Small Arms, Sparkbrook, Birmingham, under paragraph 496.

Naval arms.

(*c.*) Arms returned by His Majesty's ships at stations where there are competent departmental armourers.

Repairs, &c., for civil power, &c.

(*d.*) Any damage to arms, or parts thereof, issued on loan to arm the civil power, or for other exceptional services, will be reported to the War Office, when it will be decided whether the necessary repairs are to be executed at the station, or at a royal small-arms factory.

Militia in Ireland.

(*e.*) Arms belonging to the Militia in Ireland, which will be kept in repair by the departmental armourers.

Marking of barrels.

(*f.*) The marking of barrels in any way is strictly forbidden, and charges will be made against all services on this account, and for all marks on arms other than those provided for by regulation.

Reference in doubtful cases.

(*g.*) In all cases of doubt as to the disposal of arms, the question should be referred by the chief ordnance officer to the Chief Ordnance Officer, Weedon, and in the case of machine guns, to the Principal Ordnance Officer, Woolwich.

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VI.—Marking.

504. The marks to be placed on arms issued from store, and the way in which the marking is to be done, are detailed in Appendix IV. Mode of, and by whom.

505. The marks described as "Army Ordnance marks" will be made by the Army Ordnance Department; except in cases where a butt plate or marking disc is replaced by the unit, when the old marks will be transferred to the new parts by the regimental armourer. The "corps marks" will also be made by the Army Ordnance Department, except in the case of arms issued to corps which have armourer-sergeants of their own, in which case the corps marking will be done regimentally. Care should be taken that the marks on arms be not too deeply stamped. A.O. and corps marks.

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506. The distinctive letters of Army Ordnance depôts, mentioned in Appendix IV, in connection with extra service arms will be—AE. for Athlone, CM. for Chatham, CH. for Chester, DR. for Dover, ST. for Stirling, SH. for Sheerness, and in the case of other depôts the initial letter or letters of their names, *e.g.*, A. for Aldershot, H. for Haulbowline, &c. Ordnance depôts, distinctive letters.

506a. Carbines or rifles and bandoliers supplied to armourer-sergeants attached to cavalry regiments and infantry battalions will not be marked with an ordnance number, but with the Corps abbreviation and a Staff number, thus: 1/R.S.— $\frac{S}{20}$, and will not be transferable between corps.

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507. The arms of station staff Army Service Corps will be marked with distinctive letters, similarly to those used on extra service arms of Army Ordnance depôts as above.

508. Arms issued for temporary purposes will not be marked. Temporary issues

509. All arms issued on payment, except M.E. rifles supplied to Civilian Rifle Clubs, will be marked with the sale mark before issue, and will not again be received into store without War Office authority (*see* paragraph 1043 and Appendix XXVII). Arms sold

SECTION IX.
Examination of Explosives.

I.—General Instructions for Examination of Explosives.

510. All explosives will be examined annually by the officer appointed for inspection duties, in each district or command, the year dating from 1st January. Guncotton on Royal Engineer charge will be inspected by an officer appointed for that purpose by the Commanding Royal Engineer; records of inspection will be rendered as provided in paragraph 514 (*e*). Annual inspection.

510A. Reports of examination of explosives by inspecting officers should always be accompanied by a list showing the forts, magazines and ammunition stores inspected, and a covering letter, in which any special points should be brought to notice, it being understood that minor details dealt with in the reports need not

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be referred to in the covering letter. The officer commanding in transmitting the covering letter and reports should state what action has been taken in regard thereto.

No action will, however, be taken on the sentence of "unserviceable" (except as provided in para. 595) until such sentence has been confirmed.

Roy. Arty. charge.

511. If in Royal Artillery charge, the dates of the inspection will be arranged by the officer commanding Royal Artillery with the chief ordnance officer, who will notify the date of inspection to the commanding Royal Engineer. On the completion of the service, the chief ordnance officer will forward the inspecting officers' reports as in paragraph 514. Any special examination or inspection that may be required will be carried out in a similar manner on requisition being put forward to the chief ordnance officer.

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Special examination, &c.

Inspection of ordnance charge.

512. If in Army Ordnance charge, the dates of inspection will be arranged by the chief ordnance officer, who, on completion of the service, will forward the inspecting officers' reports as in paragraph 514.

Naval charge.

513. The examination of any explosives on board H.M. ships will be arranged by the chief ordnance officer with the Commander-in-Chief.

513A. Ammunition landed from ships for any cause, which has not been unpacked for two years, must be examined, and if necessary made serviceable before being re-issued to a ship.

Inspection returns and reports.

514. Returns and reports of the results of inspection of gunpowder, fuzes, and other munitions of war will be rendered by inspecting officers to the chief ordnance officer for disposal as follows :—

For Naval Ordnance Stores.

(*a.*) On shore, to the naval ordnance officer, or other officer, in charge of them, for transmission to the Superintendent, Ordnance Stores.

(*b.*) On board ship, through the officer in charge of Naval Ordnance stores to the Commander-in-Chief for transmission to the Admiralty. At Portsmouth and Plymouth the reports on Naval Ordnance stores afloat are rendered in duplicate. The original is to be forwarded through the naval ordnance officer to the Superintendent, Ordnance Stores, the duplicate through the naval ordnance officer to the Commander-in-Chief.

For Land Service Stores.

(*c.*) In Army Ordnance charge, for transmission to the Chief Inspector, Woolwich, through the general or other officer commanding.

(*d.*) In Royal and Militia and Volunteer Artillery charge, to the officer comanding Royal Artillery for transmission to the Chief Inspector, Woolwich, through the general or other officer commanding.

(*e.*) In Royal Engineer charge, to the Commanding Royal Engineer for transmission to the Chief Inspector, Woolwich, through the general or other officer commanding.

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515. List of Forms for Reports of Examination of Explosives. Forms for reports of examination.

No. of Form.	Subject.
Army Form—	
G 803	Inspection of S.A. and M.G. Ammunition.
,, 810	,, of 6 and 3-pr. Q.F. Ammunition.
,, 841	Proof of fuzes, time, time and percussion, or percussion.
,, 848	,, ,, detonators and electric tubes and fuzes.
,, 864	Examination of gunpowder.
,, 897	Proof of tubes, friction, copper, quill, and vent sealing.
,, 900	Inspection of filled cartridges, cannon and Q.F. powder and cordite, except 6 and 3-pr., also cordite in bulk (L.S.).
,, 911	Inspection of filled shells.
,, 930	,, ,, wet guncotton.
,, 931	,, ,, dry ,,
Naval Form—	
S 1429	,, ,, cordite, naval.
,, 1146	,, and proof of filled lyddite shell landed from H.M. ships.
M S.	All other explosives.

516. As soon as possible after the date of inspection has been arranged as in paragraph 511, officers in charge of explosives will render in duplicate the Army Forms referred to in paragraph 515, signed and completed in all respects, especially noting the lots, dates of manufacture or repair, correct designation of the explosives as marked on them or on the packages, &c., but the condition of the buildings, the number and percentage of the stores examined, the results and sentences, will be left blank for the inspecting officer to complete ; blank returns need not be rendered. The forms will be forwarded to the chief ordnance officer for the information of the inspecting ordnance officer, who will fill in the condition of the buildings and packages, percentages examined, results and sentences. Information required in reports.

Second proof will be entered separately in red ink.

Each item on the form, whether actually inspected or not, will have a sentence ("serviceable," "unserviceable" or "repairable") entered against it. If "repairable," a note should be added, stating what steps have been taken or can be taken, in confirmation of sentence, to carry out the repairs. In the case of small repairs the inspecting ordnance officer will use his discretion as to the necessity of waiting for confirmation. In cases where, from the condition of the stores, the percentages laid down for examination do not afford sufficient data for sentencing the whole of the stores, the inspecting ordnance officer will use his discretion as to increasing such percentages (see paragraph 796).

These reports will be transmitted after each inspection, as directed in paragraph 514.

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517. In the case of mounted batteries and ammunition columns, or for ammunition held by Volunteers for movable guns under schemes of local defence or Volunteer heavy batteries, the forms are required to be sent in for the purposes of the inspection, but the inspecting ordnance officer need not complete and transmit them unless he has actually had to test any of the stores in accordance with paragraphs 561, 756 or 799, in which case he will transmit the results on the forms concerned in accordance with paragraph 514.

Repair of ammunition in armaments.

518. When ammunition and laboratory stores in the armaments require repair, this may be carried out either *in situ* or in the Army Ordnance workshops or laboratory, as may be most advantageous, the instructions contained in the Magazine Regulations being, however, at all times strictly adhered to.

Stores expended in repairs, &c., for R.A.

519. Materials and stores used in examination and repairs, as described in the foregoing paragraphs, will be expended through the accounts of the Army Ordnance Department, no requisitions being necessary from the Royal Artillery beyond the initial requisition for the performance of the service in question.

Working parties, R.A.

520. When inspections and repairs are being carried out in the forts or works, the necessary assistance of working parties will be furnished by the Royal Artillery.

Correspondence with C.I.W.

521. The inspecting ordnance officer may correspond direct with the Chief Inspector, Woolwich, on any questions regarding the technical details of the examination.

Packages opened to be reclosed.

522. When inspecting cartridges in magazines and cartridge stores in Royal Artillery charge, the cylinders or cases will be opened one by one in a selected locality where the air is dry, and will be closed immediately after the examination is over. If practicable, a central Royal Artillery laboratory will be utilised for that purpose. The inspecting ordnance officer will also make a general inspection of the cylinders and cases in each magazine, and if any are found with the tape band detached or the luting defective they will, at the same time, have their lids properly secured. He will be accompanied by some competent person who will secure the cylinders or cases. The necessary materials will be provided by the Army Ordnance Department.

Competent person to reclose.

Cartridges giving abnormal pressures.

523. When complete unopened packages of filled cartridges are landed from H.M. ships, on account of abnormal pressures having been observed, they will be forwarded unopened at the earliest possible opportunity, by the quickest route to the Naval Ordnance Officer, Royal Arsenal, Woolwich, marked "very urgent" for special examination. A reference sheet is to be despatched at the same time explaining why the cartridges are sent and quoting the marking on the packages for identification. Any further packages of the same cartridges landed will be retained in store until receipt of instructions from the Superintendent, Ordnance Stores.

Labels intact.

524. Before opening a package, particular notice should be taken as to whether the explosive and station, and packer's labels are intact; if such is not the case it should be mentioned in the report with, if possible, any reasons for the labels being broken.

Packages examined to be marked.

525. The packages opened at examinations will in each case be marked "Examined," with date and station; others will be selected

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when the same lot is again examined. All original markings will remain unaltered unless the contents are altered or ordered to be reduced in class, but a fresh packer's station and explosive label must be affixed.

526. When returning defective explosives to Woolwich for special examination, care should be taken that they are forwarded in their original packages, all markings and labels being left intact. Should this not be possible an explanation of the circumstances preventing it will be inserted on the vouchers on which the explosives are charged to Woolwich.

Cylinders of fuzes, &c., to be reclosed.

527. All tin cylinders and boxes containing detonators, fuzes, primers or tubes, opened for examination, if their contents are not entirely expended, or any open cylinders returned to the Army Ordnance Department will be reclosed as follows :—

(*a*) Melted beeswax, softened with spirits of turpentine to a consistency similar to that of paint or paste, will be applied by means of a small brush to the top of the cylinder, round that part which will be covered by the lid. The lid will then be put on and forced tightly down, and any surplus wax wiped off.

(*b*) A band of linen tape, $\frac{11}{20}$ or $\frac{7}{8}$-inch wide, cut to a length sufficient to go round the cylinder with an overlap of about 2 inches, will then be coated with shellac varnish (consisting of 2 lb. gum-shellac, dissolved in 1 quart of methylated spirit), and tightly passed round while the varnish is moist ; a coat of varnish being applied over the band, the end of which will be well secured.

Marking after reclosing.

528. After the cylinder or box is re-closed, the number of detonators, fuzes, primers, or tubes remaining in it, and the date of re-closing, will be marked on the label on the lid. A blank space will be left on the label for this purpose.

Disposal of unexpended fuzes, &c.

529. Unexpended detonators and friction tubes which for any reason cannot be re-enclosed in cylinders as above directed, will, if they cannot be kept in a dry state of preservation, or used at drill (if authorized), be destroyed at once, according to the instructions given in paragraphs 816, 817, 872. Unexpended fuzes or tubes, other than friction tubes, which cannot be reclosed in cylinders, will be preserved if they can be kept in a dry state.

Examination of machine gun ammunition.

530. When making his annual inspections of ammunition in Royal Artillery charge, the inspecting officer will take particular care to note the dates of manufacture of the ammunition belonging to the machine guns of the armaments. The dates will be duly recorded in his reports ; and before transmission to the officer commanding Royal Artillery, it will be ascertained whether the ammunition cannot be exchanged for that of a later date of manufacture in Army Ordnance Department charge.

531. Small exchanges of single boxes should not be made, but only when the complete boxes for one gun may render it desirable.

Fuzes returned by mounted batteries.

532. Fuzes returned by mounted batteries, which are liable to have sustained damage from the jolting of the ammunition boxes in which they had been carried, will be set aside for special examination and report.

Empty packages to be examined.

533. All empty ammunition or powder barrels or packages will be very carefully examined to see that they are free from iron nails, grit, and dirt, before being returned into store.

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Labels on empty packages.

534. When packages containing explosives in group I (Classification of Explosives) are emptied, they will have a label attached in such a manner that the package cannot be opened without tearing it. The label will show the corps or department by which emptied, the date, and the station, and will be signed by the person who examined or emptied the package, and who will be responsible that the package is empty.

Reduction in class, provisional.

535. At the periodical examination no final reduction in class of gunpowder or condemnation of explosives will be made, nor will any consequent transfer in the store ledger be carried out, until orders to that effect have been received. The authority will always be quoted on the transfer voucher wherein the transaction appears.

While awaiting orders.

536. Gunpowder or cordite which has been recommended for reduction in class or condemnation will not be considered available for service in its original class, except in case of urgency.

Luting of cases, &c.

537. Particular attention should be paid to the luting or other means of securing the lids of the boxes, cases, and cylinders. Should the luting be found hard or cracked, it will be scraped away and fresh applied. Cylinders with hooks, 100-lb. powder cases, and packages from which the luting cannot be so removed, will be opened and fresh luting applied.

538. A complete list of stores for the examination and proof of explosives, is given in Appendix XVIII, and for re-forming Q.F. 12, 6, and 3-pr. blank ammunition in Appendix XX. The numbers of such articles as are liable to break are sufficient to allow spare ones.

II.—Examination of Gunpowder.

Percentage of packages to be opened.

539. About 3 per cent. of packages containing grain or pebble powder, and 1 per cent. of those containing moulded powder, selected indiscriminately from each lot contained in each magazine of the station or district, will be opened, and a portion of the powder examined from each package; if, however, the powder is of recent manufacture or has been recently repacked, fewer packages need be opened, the reason being stated in the report. The instruction on the label attached to hermetically sealed cases containing prism powders, stating that the case is not to be opened until the contents are required for cartridges will not apply to the annual inspections, but cases opened should, after the examination, be again hermetically closed.

If correct, no more to be examined.

540. If there be no sign of deterioration, the state of gunpowder may be deemed to be satisfactory, and no further packages will be opened.

If not correct, more to be examined.

541. Should, however, there be unmistakable signs of deterioration, further packages will be opened, until the actual extent of the damage can be arrived at, a reliable opinion formed as to the existing condition of the gunpowder, and a recommendation made as to the class to which it should be reduced.

Dampness suspected.

542. Where there is suspicion of deterioration from the damp condition of the magazine or other cause, a large proportion of the same group should be examined at the following periodical inspection.

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Condition of powder.

543. The condition of gunpowder is ascertained by examination by hand and eye, and by finding the percentage of moisture present in the powder when there is reason to suspect an excess or deficiency.

Object of examination.

544. Grain or pebble powders* are to be examined for :—

(*a*) *Dust.*—Freedom from dust can be ascertained by pouring the gunpowder from a bowl held two or three feet above the barrel in a good light.

(*b*) *Foreign matters.*—If the presence of foreign matters is suspected, the powder should be slowly poured from one barrel to another.

(*c*) *Deterioration by damp.*—The grain should be firm, crisp, and bright; the appearance will, however, vary according to the mode in which the gunpowder has been originally finished, and whether dressed with graphite or not.

Cubical or moulded powders.

545. In examining cubical or moulded powders, it should also be ascertained that the cubes or prisms are not broken or chipped to any very considerable extent.

Cartridges caked.

546. Powder in cartridges which have been tightly packed will sometimes feel as if it were caked, but it will be distinguished from damp powder by its returning to the proper state when handled.

White specks on powder.

547. When inspecting gunpowder, if there is any appearance of white or light-coloured specks or stains upon the surface of the powder-grains or prisms, they should be examined with a magnifying glass; the peculiar appearance of mildew or fungoid growth, which does not injure the powder, will be readily distinguished from the crystalline appearance of an effloresence or incrustation of saltpetre, which might be found upon powder which has been greatly damaged by damp. When any fungoid growth appears on moulded powders it should be removed with a soft brush.

Examining powder for moisture.

548. The following are instructions for the examination of gunpowder to ascertain the percentage of moisture :—

(*a*) Take a sample of about two ounces, and crush it to a coarse powder; mix the sample by stirring, and weigh out 200 grains in a watch glass (which has its weight marked upon it).

(*b*) Have a water-oven ready heated to a temperature of 160° Fahrenheit, and place the watch glass with the powder in the oven. Leave it there for one hour in the case of black powders, the temperature being maintained at 160° Fahrenheit. Prism[1] brown, E.X.E., and S.B.C. powders must be dried for three hours.

(*c*) Then remove the glass, place it near the scales to cool, covered with another watch glass, and when cool weigh it carefully (the powder itself must not be touched after its first weight has been taken). The edges of the watch glasses should be ground so as to fit accurately and form an air-tight joint.

(*d*) The difference between the original weight of the powder and its weight after exposure to heat, when divided by two, will give the percentage of moisture in the powder.

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* Grain powders include Pistol, F.G., R.F.G., R.F.G.[2], L.G., R.L.G., R.L.G.[2], R.L G.[4], and M.G.[1] powders. Pebble powders include P., P.[2], and Q.F.[1] powders.

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(e) The limits of moisture are :—

	Maximum.	Minimum.
Prism[1] brown, or S.B.C.	2·4 per cent.	1·5 per cent.
EXE	2·2 „	1·3 „
RFG or RFG[2]	1·4 „	0·7 „
All others	1·5 „	0·8 „

If the moisture is outside these limits, the powder will be recommended for reduction in class.

Appliances required.

549. The following appliances are required for inspection of powder :—

Balance	1
Funnel, glass	1
Glass, magnifying	1
Mortar and pestle	1
Oven, water, with stand	1
Spatulas	2
Watch glasses, 2½-inch diameter .... pairs	6
Weights and forceps, in box .... set	1
Lamps, spirit .... } forming also part of ap- } Methylated spirit, bottle of } paratus for heat test }	1
Thermometers, chemical	2

Set to be issued to I.O.O.

550. A complete set of these articles will be supplied to each inspecting officer of the Army Ordnance Department, the consumable stores being replaced as required.

Samples of large reductions.

551. Where reductions in class, recommended in the annual report, embrace batches of more than 25 barrels or cases of gunpowder, samples from each batch will be sent to Purfleet for further examination by the Chief Inspector, Woolwich.

Transport of samples.

552. At home stations, should there be no War Department transport available within about a month, iron cylinders, if not already at the station, will be demanded from Woolwich ; and the bags containing the samples will be put into them and sent at once to Purfleet.

Bags for samples.

553. The naval ordnance officer, or chief ordnance officer, in each district, will be supplied by the Superintendent, Ordnance Stores, or the Principal Ordnance Officer, Royal Arsenal, Woolwich, with a sufficient quantity of the following stores, for the purpose of packing the samples of gunpowder referred to in paragraph 551 :—

Bags, waterproof (two to a set).
Tape.
Labels, linen.

To be thoroughly dry.

554. The waterproof bags will be thoroughly dried in a warm room before the samples of gunpowder are placed in them.

Samples, how taken and packed.

555. The samples of gunpowder will consist, in the case of grain powders, of a quantity of about 4 lbs., taken from the centre of the barrel or case, and placed in one of the bags, which will then be choked with tape, a label being tied on to it giving the name of the magazine, date of sampling, and full particulars regarding the gunpowder ; this bag will then be inserted into another similar bag, which will be choked with tape as before. Of pebble powders, 20 lbs., or if possible a barrel, and of Prism powders a case, should be sent. The sample bags will be packed in a metal-lined case (failing which, they may be packed in half or whole barrels), and for-

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warded to Purfleet with as little delay as possible,—the Superintendent, Ordnance Stores, being so informed when the sample is from naval store, and the Principal Ordnance Officer, Royal Arsenal, Woolwich, when it is from land service store.

III.—Examination of Cordite.

Inspection of cordite. 24 / 6 / 2235

556. All cordite, "Mark I" M.D. and M.D.T., whether in cartridges or in bulk, excepting small arm and machine gun cartridges, will be inspected by the inspecting ordnance officer for stability, as follows :—

At home stations, for Army Ordnance, Royal Artillery, and Naval Depôt charge, once a year, at the time of the annual inspection of explosives; at all other stations and in His Majesty's ships, twice a year, about the 31st March and 30th September, one of these examinations coinciding, if possible, with the annual inspection.

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557. Omitted.

Test-register to be kept.

558. A register of the results of all tests will be kept, the entries being made by lots so that the results for the same lot may be found together.

Replacing cordite taken for test.

559. Wherever facilities exist, in all cartridges except 6 and 3-pr. Q.F., the cordite taken for tests will be replaced with the same weight of cordite of the same size from store. No alteration will be made in the marking of cartridges so treated, except that the date of re-making and the monogram of the station or depôt will be marked on the cartridge.

Broken up 3 and 6-pr. cartridges.

560. In 6 and 3-pr. Q.F. cartridges, if a re-filling apparatus is available, the whole charge will be replaced, but where there is no re-filling apparatus the boxes from which the cartridges for heat test have been taken, will be completed with cartridges of the same nature and numeral, and if possible the same maker as those remaining in the box,—either from a serviceable fraction in store or from a box in store set aside for the purpose. The components of the cartridges broken up for testing the cordite will be sent to Woolwich, the charges being packed in metal-lined cases, but at all naval depôts abroad and at such other stations or naval depôts, where opportunities for freight seldom occur, the charge will be destroyed locally.

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Labelling repaired cartridges.

560A. 6 and 3-pr. Q.F. cartridges that have been repaired by means of the indenting machine, either after having been opened for inspection, or found with loose shell, will be placed in boxes, labelled in manuscript, as follows :—

Re-indented.
Station.
Date.

To be fired first.

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560B. All Q.F. cartridges in boxes that have been opened for the purpose of taking heat tests should be examined for cracks, in accordance with paragraphs 715A and 720A.

Percentage for test.

561. Samples from the following cases or cartridges will be taken at each inspection, examined for appearance, and the heat test applied. (In the case of cordite cartridges packed in ammunition boxes of limbers and wagons of horse and field artillery, no heat

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test is necessary ; any special examination of such cartridges that may be desirable will be regulated by instructions which will be issued as may be necessary.)

Cannon and Q.F. cartridges.

(*a.*) Cordite in bulk :—1 per cent. of cases, or one case from each lot if there are less than 100 cases of the lot.

(*b.*) Cannon cartridges and quick-firing ammunition—

On board ships	One cartridge from each magazine. These samples will be taken irrespective of the number, or the calibre, of the cartridges or of the lots of cordite in the magazine. Cordite which has been exposed to a continuous temperature of 100 degrees Fahr. for six weeks or more, will be treated in accordance with the instructions in Appendix XXV.
In land magazines (naval and land service).	Below 6 inches calibre—one cartridge in every 2,000 in each magazine or cartridge store.
	6 inches calibre and upwards—one cartridge in every 1,000 in each magazine or cartridge store.

Where several cartridge stores of similar construction are situated under similar conditions in a work, they may, for the purpose of the heat test, be considered as one.

Cartridges to be tested, if not quick-firing, should be taken from a package which has not been previously opened, and those made from the oldest cordite should be preferably selected. If the samples to be selected exceed one, they should be taken, where possible, from different natures of cordite, or, in any case, from different lots, if of the same nature.

Cartridges of H.M. ships.

(*c.*) Cartridges from His Majesty's ships. These will be selected by the inspecting officer, in accordance with (*b*), from unbroken packages, landed by the commanding officer, with the naval form giving details as to magazines, &c.

Appearance to be noted.

562. *The general appearance of the cordite should be noted in the report. It should be stated whether it is normal or in a changed condition, such as hard, brittle, or with the surface rough or black. The colour varies from light to dark brown where the cordite is new.

The packages from which the cartridges for heat test have been taken will be marked "Heat test" with monogram of station and date, and if the packages are reissued incomplete, the marking will be altered to show the actual contents.

Stability known by heat-test.

563. The test for stability is known as the "heat test," and should be carried out in accordance with the following instructions :—

(i.)—*Apparatus and Materials required.*

Apparatus, &c., for heat-test.

564. The undermentioned apparatus and materials are required for carrying out the test. The spirit lamp is only required at stations where gas is not available :—

Water bath, with lid, copper screen, and stand	1
Burner, gas, Argand	1
Tubing, indiarubber (for above)	yards 6

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* Cordite M.D. in its normal state is of a horny nature, harder and more brittle than Cordite Mark I.

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Mill	1
Sieves (nest of two)	1
Rods, glass, with platinum wire hook	6
Test-tubes, 5¼-inch	12
„ tube holder	1
Papers, test, iodized starch	a supply
Bottles, glass-stoppered, brown glass, 6-oz. (for above)	2
Paper, standard tint	a supply
Bottles, glass-stoppered, brown glass, 4-oz. (for above)	1
Stoppers, indiarubber, No. 3 (for thermometer)	6
red, perforated, No. 4 (for glass rod)	6
Brushes, paint, sash, tool, No. 2	1
Glycerine and water mixture in brown glass dropping bottle with solid glass rod stopper	4-oz. bottle
Acid, acetic	2-oz. „
Lamp, spirit (Berzelius)	1
Wicks (for above)	12
Thermometers, chemical	2
Spirit, methylated, forming also part of apparatus, paragraph 549	bottles of 1
Balance	1
Weights and forceps in box	set 1

(ii.)—*Description of Apparatus.*

565. The water bath consists of a spherical copper vessel (A, Fig. 1), of about 8 inches diameter, with an aperture of about 5 inches; the bath is filled with water to within a ¼ inch of the edge. It has a loose lid of sheet copper about 6 inches in diameter (B), and rests on a tripod stand about 14 inches high (C), which is surrounded with a screen of thin sheet copper (D). Within the latter is placed an Argand burner (E), with copper chimney. Water bath for heat-test.

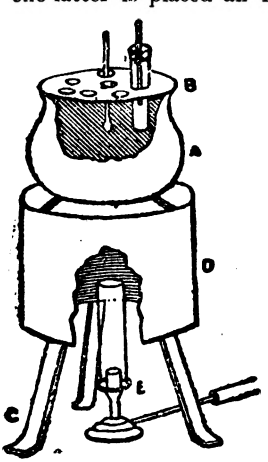


FIG. 1.

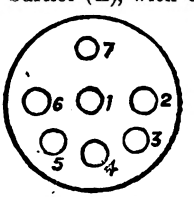


FIG. 2.


FIG. 3.


FIG. 4.

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The lid (B) has seven holes arranged, as seen in Fig. 2, No. 7 to receive the thermometer, and Nos. 1, 2, 3, 4, 5, and 6 the test tubes containing the cordite to be tested. Around holes 1, 2, 3, 4, 5, and 6, on the under side of the lid, are soldered three pieces of brass wire with points slightly converging (Fig. 3); these act as springs, and allow the test tubes to be easily placed in position and removed.

Spirit lamp. **566.** The Berzelius spirit lamp has an arrangement for regulating the flame by raising or lowering the wick; for use where gas is not available.

Test tubes. **567.** The test tubes are from 5¼ to 5½ inches long, and of such diameter that they will hold from 20 to 22 cubic centimetres of water when filled to a height of 5 inches.

Glass rod. **568.** The glass rod, terminating in a platinum wire hook, is for suspending the test paper in the test tube, and is fitted into the latter by means of a perforated indiarubber stopper (Fig. 4).

Thermometer. **569.** The chemical thermometer, ranging from 30 to 212 degrees Fahrenheit, is fitted into the orifice in the lid of the water bath by means of a perforated cork or stopper.

Sieves. **570.** The nest of sieves consists of two sieves, with perforations of the specified size, a lid, and a base made of copper.

Clock or watch. **571.** A minute clock or watch is also required for timing the duration of the test.

(iii.)—*Preparing the Apparatus.*

Preparing water bath. **572.** The water bath should be filled to within ¼ of an inch of the edge, and the instructions given in (vi.) regarding the position of the test tube and test paper should be carefully carried out.

Temperature. **573.** The thermometer must be carefully watched during the test, and the temperature kept at the proper point by regulating the supply of heat.

Heating the water. **574.** Where gas is not available, the spirit lamp must be used; and in this case it is better to heat the water in a kettle or other vessel before pouring it into the bath, the lamp being only used to maintain the temperature.

Mill to be cleaned. **575.** The mill must be cleaned before or after each operation. To do this, unscrew the nuts on the ends of the screw bolts with the wrench supplied with the mill, draw the mill off along the bolts, and withdraw the spindle which carries the cutters. The screw at the back of the mill intended to regulate the cutters should not be used. The cutters should be brought up to the stationary knives by pulling the spindle forward by grinding. If the mill has been lying unused for any length of time, an ounce or so of cordite should be ground through the mill and discarded before proceeding to grind the first sample for heat test.

Sieves to be cleaned. **576.** The sieves should be cleaned before and after each operation, with the No. 2 brush provided for the purpose.

(iv.)—*Papers used in the Test.*

Preparation of test papers. **577.** Test paper.—This is prepared by treating filter paper with a mixture of starch and potassium iodide in solution. The dimensions of the pieces of test paper used are about ·4 inch by ·8 inch

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(10 mm. by 20 mm.). The paper should be kept in the stoppered coloured bottles supplied for the purpose and in the dark. Special arrangements will be made for the supply of the test paper to inspecting officers (*see* paragraph 580). The test paper should not be used immediately after it has been prepared, but should be kept at least six weeks, after which time its indications are regular, and remain so for many months if the paper is properly kept.

Test paper to be tested.

578. The paper is, however, liable to deterioration ; and its condition should be ascertained from time to time by the following test :—put a drop of dilute acetic acid (1 volume of acetic acid, B.P. strength, diluted with 4 volumes of distilled water) by means of a glass rod on the paper ; if the paper is in good condition no discolouration takes place. If the acid produces a brown or bluish colouration the paper should be rejected. If the paper is unserviceable the discolouration takes place at once ; any discolouration occurring some time afterwards may be disregarded.

Standard tint paper.

579. Standard tint paper.—Strips of filter paper of about the same size as the test papers above described, and having a brown line drawn with caramel solution across the centre of them, will be supplied for use as standard tint paper as in paragraph 589. This paper should be treated with the same precautions as the test paper.

Test papers, supply.

580. Test papers prepared for use can be obtained on application to the Chief Inspector, Woolwich Arsenal, to whom Inspecting Ordnance Officers should apply direct in all cases. The iodized starch paper should not be kept for more than 12 months after receipt, and should be tested before use. It will be kept the time prescribed above, before issue.

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(v.)—*Preparation of the Sample of Cordite Mark I., M.D. or M.D.T. to be tested.*

Grinding cordite.

581. In all cases, both B.-L. and Q.-F. cartridges, the sticks should be taken from the interior of the cartridge. Not less than three sticks from the largest sizes of cordite, and more as required of the smaller sizes above size 5. From size 5 and all smaller sizes a cross section of the cartridge should be taken, excluding the external layers. The ends of sticks in all cases should be discarded.

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When sticks are taken they should be cut in halves, one half of each stick to be set aside for sending to Woolwich if necessary (*vide* paragraph 597), the other half sticks, or equal portions of them, to be cut into small pieces, about $\frac{1}{8}$ inch, and introduced into the hopper of the mill for grinding. When sections are taken, half should be set aside and a similar procedure followed. The first portion which passes through the mill should be discarded on account of the possible presence of foreign matter from the mill, while sufficient cordite should be ground to admit of a second test if necessary.

The mill should be taken to pieces and cleaned after each sample has been ground.

Heat test applied to different sizes of cordite.

In composite cartridges, no test is to be taken of the $3\frac{3}{4}$ size cordite, provided that the larger size of cordite gives a satisfactory test. If, however, the heat test of the larger size is unsatisfactory,

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tests should also be made of the size 3¼ cordite in the same cartridge, or cartridges from which the low test cordite was taken.

Sifting the ground cordite.

582. The ground material is put on the top sieve of the nest of sieves and sifted. That portion which has passed through the top sieve and been stopped by the second is put aside for the test. If a sufficient quantity for the test is not reduced to the necessary fineness by passing once through the mill, that which remains on the top sieve may be passed through again, but not oftener.

Keeping before test.

583. The ground and sifted material prepared for the test must be kept in a dark place, freely exposed to the air, for 24 hours before testing.

(vi.)—*Application of the Test.*

Making the test.

584. The thermometer is inserted through the lid of the water bath, described in paragraph 565, so as to be immersed in the water to a depth of 2¾ inches; and the water is heated and maintained at a constant temperature of 160° Fahrenheit.

Inspection of cordite.

585. When this temperature is reached, 25 grains of the ground and sifted cordite are carefully weighed, put into one of the test tubes, and collected at the bottom by gentle tapping.

Preparation of test paper.

586. A test paper is fixed on to the hook of the glass rod so that when inserted into the tube it will be in a vertical position. This is best affected by making a hole with a clean stout pin in the centre of the piece of test paper, near the upper edge, through which the platinum wire hook is passed.

Glycerine to be applied.

587. A mixture of equal parts of distilled water and pure glycerine (Price's) as supplied is now applied to the upper edge of the test paper by means of the "solid rod stopper of brown glass dropping bottle" in sufficient amount to moisten the upper half. Only a very small quantity of the mixture should be applied near the upper edge of the paper, for, as the paper hangs from the hook, the glycerine creeps down, and will cover the whole of the paper if too much is put on at first.

Insertion of test paper in test tube.

588. The stopper carrying the rod and paper is then fixed into the test tube and the position of the paper adjusted so that its lower edge is about half way down the tube; the latter is then inserted through one of the perforations of the cover to the same depth as the thermometer. The lower margin of the moistened part of the paper should then be about ⅝ths of an inch above the surface of the cover.

Completion of test.

589. The test is completed when the faint brown line, which after a time makes its appearance at the margin between the wet and dry portions of the test paper, equals in depth of tint the brown line drawn on the standard tint paper.

Duration of test.

590. The time which elapses between the insertion of the test tube and the completion of the test up to 12 minutes will be entered in the report, "over 12 minutes" being entered if the test is not completed by that time.

(vii.)—*Precautions in Testing.*

Precautions necessary.

591. The heat test is a very delicate one for the presence of free acid, and the presence of the slightest trace of acid from any

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extraneous source will render the test useless and misleading. The greatest care must therefore be taken that there is no trace of acid on any of the articles used or on the operator's hands, and that the laboratory is free from acid fumes; and it is better to carry out this test in a separate room, where no chemical testing is done. The handling of the cordite should be avoided as much as possible.

592. No direct sunlight should be allowed to reach the cordite before or during the test. Sunlight to be excluded.

(viii.)—*Modified Heat Test.*

593. Where the necessary apparatus and materials for carrying out the "heat test" as above described cannot be obtained, the test described in paragraph 594, known as the "modified heat test," may be used.

594. About 1 oz. of the cordite to be tested should be cut moderately fine, and placed in a small, clean, and dry flask or bottle, together with a piece of iodized starch paper and a piece of ordinary white filtering paper of the same size, both dry, the flask or bottle being closed with a stopper or clean cork. The flask should then be put in a cool and dark place and left for 24 hours. After the expiration of that time the test paper should be examined for discolouration. If the cordite is in good condition, no discolouration of the test paper will take place. Modified heat test. Duration of test.

(ix.)—*Sentence and disposal.*

595. When two or more heat tests are taken from the same sample, the mean of all the tests is to be considered the true one. Cordite which stands the "heat test" for 6 minutes will be sentenced "serviceable." If the cordite fails to stand the heat test for 6 minutes, three further tests should be taken from a fresh sample of the same box, or cartridge, and the mean of these three tests is to be considered the true one; if the cordite again fails it should be sentenced unserviceable. Sentence, S. or U.

At a foreign station all the cordite of the same lot (*i.e.*, with the same manufacturer's initials and number) stored in the same magazine or cartridge store as that sentenced "unserviceable" will be destroyed. When a lot of cordite is condemned, the Commander-in-Chief, or Senior Naval Officer, in the case of a Naval Ordnance Depôt, the General, or other officer commanding, in the case of a military station will inform the Admiralty or the Master-General of Ordnance respectively by telegram. The Admiralty will inform all other Naval Ordnance depôts, and the Master-General of Ordnance will notify all other military stations.

At St. Lucia, Sierra Leone, Mauritius, Halifax, and Ceylon, when a naval officer is not present, the chief ordnance officer should acquaint the Admiralty and the Commander-in-Chief by telegraph. N.O. 12798

At home stations, cordite found unserviceable under this paragraph is to be isolated in some safe place, and a sample as described in paragraph 597, sent immediately to the Chief Inspector, Woolwich, who will take a further test and finally sentence the cordite.

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and telegraph the sentence to the Inspecting Ordnance Officer concerned, and in case of naval cordite, to the Director of Naval Ordnance, Admiralty. This course is also to be followed in the case of cordite at home stations sentenced unserviceable in accordance with the instructions given in Appendix XXV.

Samples, testing of.

596. When any sample tested fails to pass the test, further samples of other lots will be taken from the same magazine or cartridge store, as follows :—

(*a*) A sample from the lot which has been next longest stored there; if that fails, a further sample from the lot next longest, and so on until a lot is reached which passes the test; when this, and all other lots, which have been the same or a shorter time in the same magazine or cartridge store, will be considered serviceable.

(*b*) The same course is to be pursued as regards oldest manufacture, until a lot has been reached which passes the test; when this, and all cordite of the same or more recent date of manufacture, will be considered serviceable.

If any lot of cordite is found unserviceable under the above provisions, samples of that lot in every ship, magazine, or cartridge store in which it is stored, whether at the same station or not, should be tested at the next periodical inspection at stations abroad; but at home stations, where an Inspecting Ordnance Officer is available, the test should be carried out directly information is received as to that lot having been found unserviceable. At home stations where an Inspecting Ordnance Officer is not available, samples of the lot from each magazine or cartridge store in which it is stored should be sent to the Naval Ordnance Officer, or Principal Ordnance Officer, Woolwich, for special examination by the Chief Inspector.

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The procedure above will govern the sentence, treating each ship, magazine, or store separately.

Samples for special examination.

597. When cordite is sentenced "unserviceable" under paragraphs 595 and 596, a sample of about 5 lbs. (together with the half sticks set aside of samples taken for testing, *vide* paragraph 581), all carefully labelled, are to be placed in a sealed and air tight package for immediate transmission to Woolwich for special examination by the Chief Inspector, Woolwich. Until the samples can be forwarded, and during transit to Woolwich, they must be stored in some isolated place and not in a magazine with other explosives.

Doubtful cordite.

598. If for any other reason the inspecting officer is doubtful regarding the condition of the cordite, he should class it as "doubtful," and send samples for examination, as detailed in paragraph 597, reporting his reason for so doing.

Cordite wet with sea water.

599. Cordite which has been wetted with sea-water should be well washed in fresh water, dried in a well ventilated building, and re-packed.

Cordite from broken cartridges and remnants.

599A. All cordite from broken-down cartridges or remnants should be tested by the heat test, and if it passes, it will be classed as serviceable, but if it is from cartridges with powder igniters, it will be well washed in fresh water, dried, and re-packed. Any which does not pass the test will be dealt with according to paragraphs 596, 597.

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600. Cordite sometimes has the surface moist, which is called sweating. This may be due to the exudation of nitro-glycerine, which is liable to take place when the cordite has been subjected to temperatures below 45° Fahrenheit and again warmed. Below 45° Fahrenheit the nitro-glycerine freezes and crystalises on the surface, and the melting of these crystals forms the sweating. Sweating of cordite.

600A. The sweating has sometimes an oily appearance only, but at other times extends to drops on the surface of the sticks. It does not injuriously affect the cordite, and if it occurs in made-up cartridges, no action need be taken, but if it appears in cordite in bulk, the cordite should not be handled till it recovers its normal state, which it will do (if its temperature is kept above 45° Fahrenheit) by the re-absorption of the nitro-glycerine; when this has taken place it will be considered serviceable. Sweating of cordite.

600B. An oily appearance is also sometimes seen in cordite which has been subjected to temperatures approaching or exceeding 100° Fahrenheit; this is due to exudation of mineral jelly and has no injurious effect on the cordite. Sweating of cordite.

600C. All cases of sweating should be reported, stating whether it is from heat or from cold, and whether the cordite has recovered on being left to itself. Sweating of cordite.

600D. To distinguish the exudation of nitro-glycerine from the exudation of mineral jelly, wipe a stick of the sweating cordite with a strip of clean thin blotting paper (about $\frac{1}{4}$ inch in width), so that the stain from the exudation shall appear about the centre of the strip. Then, in some comparatively dark place, hold the strip in a horizontal position and light it at one end. If the exudation is of nitro-glycerine, the flame will travel faster and become distinctly green on reaching the stain. Exudation of nitro-glycerine and mineral jelly.

Directions for destroying unserviceable Cordite.

601. When authority for destroying cordite has been received, its destruction by burning will be carried out strictly in accordance with the instructions laid down in paragraphs 602 to 608. Destruction of cordite.

602. The cordite is to be sent to the ground selected in barrels or cases, the usual precautions for transport of explosives being observed. Transport precautions.

603. The ground on which it is to be burnt and its neighbourhood are to be free from grass and any inflammable substance. Site for a burning.

604. Only one burning is to take place in one day, and not more than 250 lb., laid out in a train about 50 feet in length, is to be burnt at one time. Quantity for burning.

605. The cordite will be burnt under the personal superintendence of the inspecting ordnance officer. Responsible officer.

606. The following apparatus will be required:— Apparatus required.

Battery, Le Clanché, 3 cell, or battery and key, test and firing.
100 yards of D 1 cable.
Tube, electric, No. 10.
Two water buckets.
Watering can.
Two shovels.
Tools for opening the barrels or cases.

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Firing by electricity.

607. After having ascertained that the ground is clear and that the wires are disconnected from the battery, the operator is to connect up the tube and place it in the train of cordite so that the direction of burning may be as far as possible against that of the wind. He will then proceed to the battery, and when ordered to do so by the inspecting ordnance officer, he will make connection and fire. All persons in the vicinity are to retire to a safe distance, not less than 20 yards, before the cordite is fired.

Safety distance.

Extinction of fire.

608. Immediately after the cordite is burnt out, the ground is to be well watered, for which purpose the two watering cans and two buckets are to be ready filled. The ground will then be carefully examined to see that no fire remains. Unconsumed cordite will be carefully collected and burnt.

Directions for destroying paper linings of cordite boxes.

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608A. After cordite boxes are emptied, the paper lining will be carefully searched for loose pieces of cordite which may have become enclosed in its folds. The paper will be destroyed locally, by being burnt in small quantities under precautions.

Directions for destroying unserviceable picric powder.

608B. This operation will be carried out similarly to that described for the destruction of cordite (paragraphs 602 to 608), with the following differences :—

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The waste picric powder will be collected in barrels containing sufficient machine oil to thoroughly soak the quantity put in.

The oil-wetted powder should be spread out in a train, not more than 3 inches wide, on a piece of open ground, away from buildings, and free from dry grass or other inflammable material. The train may be ignited at one end (against the wind) by means of a length of cordite, or by a slow match or other similar means.

The quantity to be burned at one time is limited by the extent of ground available, but, as a rule, should not exceed 20 lb. Before firing the bulk, about 1 lb. of the prepared waste powder should be burned to see that sufficient oil is mixed with it.

Where facilities exist, the waste powder may be thrown into the sea, in which case it may previously be wetted with water, but should not be oiled.

If the quantity to be destroyed is not likely to exceed 1 lb., it may be mixed with water instead of oil, in the proportion of 1 lb. of powder to 1 gallon of water, and poured into a sewer.

IV.—Examination of Lyddite, Picric Powder, Blasting Gelatine, or Dynamite.

Inspection of lyddite, picric powder, picric acid.

609. When there is any lyddite, picric powder, or picric acid in store, not in shells, samples of them (about 1 lb. of each) should be forwarded annually to the Principal Ordnance Officer or naval ordnance officer for transmission to the Chief Inspector, Royal Arsenal, for chemical examination.

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610. Dynamite requiring examination will be tested for :— Inspection of dynamite.

(*a*) Exudation and Appearance.
(*b*) Stability of the Nitro-glycerine by the Heat Test.

610A. The dynamite should not feel greasy to the touch, nor should the wrappers of the cartridges show more than traces of nitro-glycerine on the inner surface when carefully examined by eye.

The surface of the cartridge, when the wrapper is removed, should appear smooth and not pasty, and when broken across the fracture should have a granular appearance and show no visible traces of nitro-glycerine.

610B. The nitro-glycerine for the heat test will be prepared in the following manner :— Heat test.

610C. About 400 grains of dynamite, finely divided (by gently scraping a cartridge with a bone or wooden spatula on a well-glazed porcelain tile), are placed in a glass funnel (about 3 inches wide at mouth, which should be plugged with a small tuft of cotton wool, glass wool, or asbestos) and made to fill it, as evenly as possible, to not less than half an inch from the top, the surface being smoothed by gently pressing with a wooden rammer. Preparing the dynamite.

610D. The funnel so charged is placed on the ring of a wooden filtering stand and a small glass cylinder (about 3 inches high and 1 inch in diameter) placed under the stem of the funnel. Water is then poured carefully over the surface of the dynamite and allowed to sink into it by its own weight, until a sufficient quantity of nitro-glycerine has been displaced and collected in the cylinder. The cylinder is then removed, and a second cylinder, of similar size, placed under the funnel to collect any remaining fluid. The contents of the first cylinder are used for the test. Collecting the nitro-glycerine.

610E. Should any water have passed through with the nitro-glycerine (which, however, will not happen if the operations have been carefully carried out and the cylinder been changed in time) it should be removed with a piece of blotting paper, and the nitro-glycerine, if necessary, filtered through a dry filter paper. Removal of water.

610F. The nitro-glycerine, thus obtained, should be tested by the heat test as detailed in instructions for testing cordite, but the brown line, denoting the completion of the test, must not appear until the test has been continued for 15 minutes at 160° F. Heat test of nitro-glycerine.

610G. In examining blasting gelatine, gelatine dynamite, and analogous explosives, the inspecting officer will satisfy himself by ocular inspection whether there is any appearance of exudation, and, if so, will report it. Inspection blasting gelatine.

610H. Fifty grains of blasting gelatine are to be intimately incorporated with 100 grains of French chalk. The mixture is to be gradually introduced into a test-tube of the dimensions prescribed for the cordite heat test (paragraph 567), with the aid of gentle tapping upon the table between the introduction of successive portions of the mixture into the tube, so that when the tube contains all the mixture it shall be filled to a height of $1\frac{3}{4}$ inches. The test paper is then to be inserted, and the heat is to be applied in the manner prescribed for the dynamite heat test, Heat test.

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and the sample tested is to withstand exposure to 160 degrees Fah. for a period of 10 minutes, before producing a discoloration of the test papers corresponding in tint to the standard colour test which is employed for governing the results of the dynamite heat test.

V.—Examination of Dry Guncotton.

General Instructions.

Inspection of dry guncotton.

611. Every six months (about the 31st March and 30th September), at tropical stations, and every year at non-tropical stations, one cylinder from each of half the number of packages of *all* dry guncotton in every store will be inspected and tested for free acid, and reports made on A.F. G 931.

Selection for examination.

612. At each subsequent inspection the proportion to be inspected is to be taken from packages and cylinders not previously opened, so long as such exist, and afterwards in the order of date of the previous inspections. The inspection should be conducted in a locality where the atmosphere is not damp.

Testing dry guncotton.

613. To test the guncotton, the cylinder having been opened as in paragraphs 633 and 635, take out the guncotton, place a piece of blue litmus paper, which has been moistened with clean water, upon a face of one of the primers (scraping away the paraffin from a small portion if the primer is coated with it) or discs, and then press a face of another of the primers or discs, upon it, or with the torpedo primer press the litmus paper on the exposed surface of the guncotton by means of the forceps.

Paraffining the scraped primers.

614. Primers from which the paraffin coating has been scraped will, after testing, be re-covered with melted paraffin, by means of a brush. (The litmus paper is to be obtained from store, and to be used as in paragraph 618.)*

Replacing tested primers.

615. If the litmus paper remains blue, or if it is not decidedly reddened, remove it, rub away any moisture, and dry the guncotton with a piece of clean cotton waste, or by repeatedly pressing some clean blotting paper upon it; replace the guncotton, if it has been removed, and close up the cylinder, as in paragraphs 621 to 623.

If paper is reddened.

616. If the paper becomes red, the guncotton should be destroyed by burning. If this cannot be done at once, the whole contents of the cylinder should be immersed in water, and destroyed as soon afterwards as possible.

617. Should any guncotton redden the test paper, the whole of the cylinders in its package, and also a further proportion of 10 per cent. of the cylinders similar to that in which it was found, will be inspected. If by this inspection any further defective guncotton is found, the whole of the cylinders in store are to be inspected, and action taken as in paragraph 616.

Papers not to be handled.

618. A supply of test papers enclosed in a well-stoppered bottle, with a pair of forceps for handling them, must be kept at every station, for the inspection of the guncotton. The test papers are not

* Litmus paper will not in future be enclosed in cases containing guncotton; if it is found in a case or cylinder it is not to be taken as a test, as it may have become discoloured without the development of free acid.

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to be touched with the fingers, but are to be taken from the bottle containing them, and placed on the guncotton by means of the forceps, which must be kept clean.

619. A standard acid in a special glass-stoppered bottle will be issued to inspecting ordnance officers, on application to the chief ordnance officer, or Naval ordnance officer, at the station. To carry out the test, take, with the forceps, a piece of blue litmus paper and touch it with the glass rod containing acid. The degree of redness imparted to the blue paper by the acid will be taken as a standard of comparison for the purpose of paragraph 616. Standard acid to be supplied to I.O.O.

620. In the event of any cylinders being found accidentally broken, the contents are to be tested; if found correct, they will be repacked in new cylinders; if there are no new cylinders, and the damaged one cannot be repaired locally at once, the contents will be washed in clean water, soaked in carbolic acid solution, and then stored as wet guncotton. If the contents are found defective, they will be dealt with under paragraph 616. Broken cylinders.

Primers in cylinders.

621. To close a cylinder, which is to be secured with a tape band, melted beeswax cement is applied by means of a small brush to the top of the cylinder, round that part which will be covered by the lid; the lid is then put on, and forced tightly down, and any surplus wax wiped off. Closing cylinders with beeswax.

622. A piece of tape cut to a sufficient length to go round the cylinder, and overlap about 2-in., is then coated with the shellac cement, passed tightly round the lid, and well secured over the joint. When dry, a coat of paint will be applied over the tape. If paint is not available, a coat of shellac should be applied instead. Securing cylinders with tape.

623. Cylinders containing guncotton primers for cavalry pioneers and disabling ordnance equipment are closed with a bayonet joint; no tape band or beeswax cement is used, the primers being coated with paraffin. Paraffined and torpedo primers.

624. The materials required for securing cylinders with tape bands are as follows:— Materials for closing cylinders.

Per 100 cylinders of primers.	1½-lb.	9-oz.	2-oz.	1-oz.
Beeswax cement, ... ozs.	12	8	5	4
Shellac cement, ... ,,	14	8	6	4
Tape, linen, ½-in. ... ... yds.	70	40	...	...
Tape, linen, 11/16-in. ... ... ,,	..	..	30	24

625. Beeswax cement is made by mixing spirits of turpentine with melted beeswax, in the proportion of 1 gill of the former to 8 oz. of the latter. Beeswax cement.

626. Shellac cement is prepared by dissolving the gum shellac in methylated spirits, in the proportion of 1 pint of the latter to 1 lb. of the former. Shellac cement.

627. No soldering will be done to any cylinder, nor will heat be applied in any way to packages containing dry guncotton, except as in paragraphs 633 and 635. Soldering, &c., objected to.

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Opening 6-oz. torpedo primers.

628. The copper cylinders for 6-oz. torpedo primers have no lid; they are closed by an indiarubber washer placed between two metal discs, which are united by a small screw; the tightening of this screw compresses the indiarubber washer and causes it to expand radially, thus hermetically closing the cylinder. A screw-driver and an extracting bolt, for opening and closing, are packed in each box with the cylinders. To open the cylinder unscrew and remove the screw with the screw-driver, then screw in the extracting bolt, and withdraw the washer.

Opening primers.

629. The 1 lb. 1 oz. torpedo primer is enclosed in a brass cylinder with a screwed lid, which is turned by means of a spanner one of which is packed in each box.

Testing naval primers.

630. In addition to the test for free acid as in paragraph 613, the following further examination will be made of naval torpedo primers which have been opened for inspection as well as all returned from ships.

Test for leaks.

631. Tightly close the primer and immerse it in warm water. Any air bubbles except at the plug will indicate a leak, and the guncotton from the primers which show this should be repacked in new cylinders. If the leak is at the plug only, and cannot be stopped by tightening the latter, a new plug should be fitted.

Gauging screws.

632. Gauge the screw thread and diameter of body with the gauges supplied for the purpose.

Opening Brennan primers.

633. The Brennan torpedo primer is enclosed in a brass cylinder with the lid secured with cement. It may be opened by standing it head downwards on some cotton waste soaked in hot water, and then drawing off the lid in a vice. It is closed, as in paragraph 621, using Pettman cement instead of beeswax.

Testing of Brennan primers.

634. In addition to the test for free acid, 5 per cent. of the Brennan torpedo primers will be returned annually to Woolwich for proof, if transport is available, if not, the guncotton from the primers selected will be burnt out locally, to ascertain if dry.

Opening cylinders.

635. In order to open a cylinder, tear off the tape band, and if the lid is then difficult to remove, stand the cylinder head downwards on some cotton waste soaked in hot water.

VI.—Examination of Wet Guncotton.

General Instructions.

Examination of wet guncotton.

636. Twenty-five per cent. of the packages of each nature containing wet guncotton (except R.E. submarine mines and Brennan torpedo charges, vide paragraphs 690 to 708), will be examined and weighed, every half-year at tropical stations, and 50 per cent. every year at non-tropical stations, so that the whole will be weighed every two years.

Damaged packages.

637. If any of the packages, charges, &c., are found damaged on receipt, or at any subsequent inspection, or if any of the labels have been defaced or detached, a report will be made of the circumstance, new labels being demanded when required.

Gas evolved by wet guncotton.

638. Small quantities of gas (chiefly carbonic acid) may be evolved from wet guncotton. The development of this gas is harmless, and is no indication of deterioration of the guncotton,

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but if allowed to accumulate in the hermetically sealed case containing the guncotton, so as to attain considerable pressure, it may cause a leak.

639. To prevent this, the closing plugs of the whole of the inner cases or charges in store, will be removed (to allow the escape of gas if there is any) and immediately replaced as follows :—

Non-tropical stations.—Once a year at inspection.

Tropical stations.— Once a year, it being left to the option of the inspecting officer either to remove half of the plugs at each half-yearly inspection or the whole at one of them, provided that the interval between two successive removals of plugs does not exceed twelve months.

All stations.—For torpedo charges—the whole once a quarter.

Mines and torpedo charges.

640. Torpedo charges closed by bolts and nuts, without closing plugs, will have the nuts loosened to allow escape of gas, and then tightened up again.

Re-wetting guncotton.

641. The following course is to be pursued in order to bring guncotton to its original weight by rewetting :—unscrew the closing plug, and pour in, through a funnel, sufficient carbolic acid solution, to make up the deficiency, then replace the plug. With torpedo charges closed by bolts and nuts, and having no closing plug, unscrew the nuts, remove the closing plate, and pour in the solution.

Preparation of solution.

642. The solution of carbolic acid is to be prepared at the time it is required, in the following manner :—Dissolve one ounce of soda crystals (common washing soda), or 5½ drams of soda ash (anhydrous carbonate of soda), in one gallon of fresh water, in a stoneware bottle or jar, add two ounces of carbolic acid, and shake or stir the whole for about 30 minutes.

Re-closing linings.

643. No soldering will be done, nor heat applied in any way to packages containing wet guncotton. If a lining has been opened and the contents not all used, the closing plate should be replaced, and sealed by means of a tape band covering the junction of plate and body, and secured with shellac cement.

Testing for leaks.

644. Should there be reason to suspect a leak, screw in the closing plug tightly, and wholly immerse the lining or case in *warm* water. A leak will be indicated by bubbles of air issuing from it. If any are observed, except from under the plug, the case must be returned to Woolwich for repair; if only at the plug, make up to correct weight, and insert a new washer under the plug.

Disposal of guncotton in leaky boxes.

645. If any soldered lining or case is much damaged so as to leak, and the guncotton is not likely to be used during the next three months, the latter will be removed and packed in half metal lined cases prepared for wet guncotton. If there are none of these available, or if the guncotton is likely to be soon required for use, it should be left in its original package, and be re-wetted every three months.

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Marking boxes examined.
646. The boxes which have been re-wetted will be marked "re-wetted," with the date of re-wetting and monogram of station.

Frosty weather unsuitable.
647. The inspection, wetting, &c., of wet guncotton will not be carried out during severe frost.

Boxes, Guncotton, wet, 50 lb. and R.E. Equipment.

Boxes, lined and fitted with plugs.
648. These boxes have a soldered copper tinned lining, with a closing plug in the latter, and a screw plug in the lid of the box over it.

Weighing.
649. To examine these, unscrew the lid, lift out the copper tinned inner case by the wire handle at each end, and weigh it (the proper weight is shown on a label on the top of the inner case). If the weight is within the limits specified on the label, the contents may be considered sufficiently wet.

Re-wetting, if under or over limit.
650. If the weight has decreased below the limit, the guncotton is to be re-wetted as prescribed in paragraph 641. If the weight has increased beyond the limit, the box should be returned, for examination, to Woolwich, but if the excess over limit be very slight, the box need not be sent to Woolwich until another is available to replace it. After weighing, replace the inner case in the box, and screw down the lid.

Limits of weight.
651. The limits of weight, where not given on the label, may be taken as ± 2 per cent. of the weight of the wet guncotton. The high limit is not marked on the labels of some of the boxes issued.

Unlined boxes.
652. A few unlined boxes may be met with at out stations. They will be weighed as a whole, and any which are found to have lost weight to the extent of more than two per cent. will be re-wetted through the closing plug, the air plug being also removed.

Cases, Powder, Metal-lined, Half, Powder, and Wet Guncotton.

Cases, M.L., fitted for guncotton.
653. These cases have the bottom attached to the sides by screws to allow the removal of the lining. The bung is fitted with a closing plug, the lid of the case having a hole for access to it.

Weighing contents.
654. The following course is to be pursued in examining cases, lay the case on its side, remove the screws in the bottom, and while holding the bottom in position, turn the case upright; then draw the wood case off the lining, and weigh the latter.

Limits of weight.
655. The limits of variation in weight allowed are ± 2 per cent. of the weight of the guncotton. If any case is found to be below the limit, it will be re-wetted as laid down in para. 641. If the weight is above the limit, the case should be opened and stood in as dry a place as possible, until the excess of moisture has evaporated.

Replacing linings.
656. To replace the lining, stand it on the bottom, and lower the wood case over it, taking care that the case and lining occupy the same relative positions as before. Turn the case on its side, holding the bottom in position to prevent the lining slipping out, and replace the screws.

Closing cases.
657. The bung and lid are secured or opened as in Magazine Regulations, but when inserting the bung, care must be taken that the re-wetting plug is in the proper position, as shown by the arrows on the bung and top of case so that it is under the hole in the lid.

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658. These cases will be used for packing wet guncotton taken from damaged or open mines, boxes, &c. The weight of the contents, and the date and station of packing will be marked on them. Cases specially prepared, as in para. 653, will have the lining packed, weighed, and marked with the weight before it is enclosed in the case. Packing and marking.

659. For transport, any spare spaces without guncotton will be filled up with blocks or strips of wood of convenient sizes, well coated with black lacquer. Blocks for filling up cases.

660. If cases specially prepared, as in para. 653, are not available, "cases, powder, metal-lined, half," may be appropriated for packing wet guncotton, and will be lacquered internally with black lacquer. M.L. cases to be lacquered.

Guncotton, Slabs "II"—6½-inch by 3 1/16-inch by 1⅜-inch.

661. For cavalry pioneers, these slabs are packed one in a copper tinned box, closed by a soldered band round the lid, and fitted with a closing plug, 16 boxes being packed in a wooden packing case. Each copper tinned box is labelled with the contents and gross weight, and will be weighed as a whole at each inspection. If the weight has not increased or decreased more than 7 drams the guncotton may be considered serviceable. Guncotton, cavalry pioneers'.

662. If the weight is below the limit, the guncotton will be re-wetted, as in para. 641, by the required quantity of carbolic solution. If the weight is above the limit, the box should be placed in as dry a place as possible, with the plug out until the excess of moisture has evaporated. Weight deficient, or in excess.

663. For siege, these slabs are packed eight in a copper tinned box, closed by a tape band round the lid, two boxes being packed in a wooden case. The boxes will be examined as in paras. 661 and 662, but the limit for increase or decrease in weight is 2½ ozs. Guncotton, siege.

664. The boxes closed with a tape band, which have been opened, will be reclosed as directed in para. 621. Re-closing boxes.

Charges, Naval, 16¼ lb.

665. These charges are packed two in a wooden box with screwed lid; each charge is fitted with a closing plug in the top. Charges, naval, 16¼ lbs.

666. The limit of variation in weight allowed is ± 6 ozs. Should any charge be found to be below the limit of weight it will be re-wetted as in para. 641. If the weight is above the limit a new charge will be demanded, and, when received, the old one will be returned to Woolwich. Weight deficient or in excess.

Charges, Torpedo (except Brennan).

667. These are packed one in a wooden box; the later patterns are fitted with a closing plug; with the earlier ones there are no means of re-wetting. Charges, torpedo.

667A. Each warhead is marked with "actual and "low" weights. The "actual" is the weight to which it should be brought up when re-wetting is necessary. The "low" weight allows a 3 per cent. loss of moisture, and is only applicable to ships. So far as depôts are concerned, the loss of moisture allowed is 1 per cent. only, and is given in paragraph 668. N.O. 14254

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Weight deficient. N.O. 14254

668. If any charge is found to have lost weight, more than the amount given in the following table, and not in excess of 3 per cent. of the dry guncotton in the charge, and is mechanically correct, it is to be brought up to its original weight in the manner laid down in paragraph 641, locally at the depôt.

Should the loss be in excess of 3 per cent. as above, steps will be taken to procure another charge in lieu, the defective charge being wetted up as in paragraph 641. When the new charge is received the defective one will be returned to Woolwich, but in the meantime it may be used on an emergency.

Loss of weight allowed.

Nature.	Loss of weight Allowed.	
	lbs.	ozs.
14-in. R.G.F. and R.L. VIII, VIIIA	0	10
N.O. 14254 „ „ „ IX	0	12
„ „ „ X, X*	0	12
38407 Ordnance 223 „ Weymouth Mark I	0	12
18-in. R.G.F., I, IA, II	1	14
„ „ III, IV	1	11
„ „ V and V*	1	11
„ Fiume, II and IIA	1	14

Weight in excess.

669. If the weight has increased beyond that marked on the head, the charge may be retained, provided that the case is watertight, which may be ascertained as described in para. 644, but if found to be leaky, another one should be demanded, and on its receipt the one which it replaces will be returned to Woolwich; but in the meantime it may be issued on an emergency, provided that the increase of weight does not exceed the limit given for decrease in the above table. The actual weight of the charge at the time of issue should, in such cases, be notified to the officer taking charge of it.

Overweight charges, issue.

Naval Countermines and Mines in which Guncotton is contained in Copper-tinned Cases.

Cases to be weighed.

670. These mines or countermines will be opened, the fittings removed, and the copper-tinned cases taken out and weighed, but the closing plugs will be previously removed in order to allow the escape of gas, which may cause the case to jam. The weight and limits of increase and decrease in weight are marked on each case, except in some mines of early issue, where no limits are given, in which case the limits are $\pm 1\frac{1}{2}$ per cent. of the gross weight of the case.

Weighing, re-wetting, defective mines.

671. The regulations as to weighing, re-wetting, &c., are the same as those laid down for boxes, guncotton, wet, paragraphs 648 to 650. If any case is found beyond the limit of weight or defective, a new one should be demanded of the same weight as the defective one.

Examination of interior.

672. The wood fittings will also be removed, and the interior of the mine examined, and cleaned if necessary, before replacing the contents. New washers will be inserted as laid down in paragraph 680.

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Naval Countermines and Mines, in which the Guncotton is not contained in Copper-tinned Cases.

Countermines and mines, limits of weight.

673. These will be weighed as a whole at each periodical inspection; the limits of increase or decrease of weight are as follows :—

Countermines, Naval, 500 lb.	± 28 lbs.
Mines, Naval, 72 lb.	± 4 „

Weight deficient.

674. If the loss of weight from escape of moisture reaches the limit allowed, remove the cover from the manhole or loading hole, and pour in through the holes in the deck provided for the purpose sufficient carbolic solution or clean water to make good the deficiency. After re-wetting, replace the cover, inserting a new washer if necessary. The washer and its seating should be dusted with powdered black-lead before closing.

Return to Woolwich if very light.

675. If, however, the loss of weight is more than half the weight of the normal moisture, the mine must be returned to Woolwich for examination.

Weight in excess of limit.

676. If any mine has increased in weight, and reaches the limit allowed, it shows that water has leaked into the mine; this may render the guncotton unfit for use, and it should be removed from the mine and transferred to half metal-lined cases prepared for wet guncotton, paras. 653 and 658. The mine may then be repaired and refilled. If a mine is found to be cracked the guncotton should be removed and disposed of as above.

Weight slightly increased.

677. If a mine has slightly increased in weight, from inefficient closing, and not from any crack or radical defect in the case itself, it will be opened in as dry an atmosphere as possible, and the excess of moisture allowed to evaporate until the mine is reduced to its proper weight. It will then be reclosed, the whole of the fittings, &c., closely examined, and new washers provided if necessary.

Percentage opened for examination.

678. At the periodical inspection 10 per cent. of the mines will be opened, and examined as to the amount of moisture that has condensed on the inside of the case. If the condensation is sufficient to cause an accumulation of water at the bottom of the case, the mine should be unloaded, carefully dried, any rust on the interior of the case removed, and the parts repainted if necessary.

Guncotton examined.

679. The guncotton should be examined, and any slabs which appear too dry should be weighed, and if found light, will be brought up to the required weight by the addition of carbolic solution. The mine will then be reloaded, weighed, and marked with the new weight.

Washers of mines.

680. All washers of mines and countermines in store are to be renewed at intervals not exceeding 2 years, or before issue to ships.

Re-closing precautions.

681. Care must be taken that the proper cover, bearing the same number as the body, is replaced on each mine opened, and before putting on a new washer, the seating and the washer itself should be dusted with powdered black-lead.

Record of mines opened.

682. The number of mines thus opened, and their conditions, should be briefly noted in the column of remarks on A.F.G. 930.

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Testing Insulating Plugs and Repainting.

Closing plug to be tested before issue. 57 Inspectors 2035

683. Before the issue of a mine the insulating plug will always be tested, in the manner laid down in instructions and diagram issued with "Tube, test, hydraulic," after the mouthpiece of the mine has been removed.

684. Omitted.

685. Omitted.

686. Omitted.

Stores for making tests.

687. The stores required for testing insulating plugs are detailed in Appendix XVIII. The battery and the leads should be tested before use.

687A. The leather washers of insulating plugs should not be lubricated, they are paraffined before issue and only require to be warmed and rubbed.

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To prevent the rubber serving on the leads at the bottom of the plugs becoming deteriorated by contact with the leather washers, they will be tied together (where they would otherwise touch the washer) by tape or canvas.

When screwing up the gland nut the leads should be pulled through into the mine, to prevent them touching the washer.

Repainting mines.

688. When mines are repainted (which will be done as a laboratory operation, under an inspecting ordnance officer), they will be weighed before and after painting, and marked accordingly, to prevent the changes in weight due to painting being attributed to leakage or evaporation.

Record of weights of mines.

689. The weights of all filled mines will be recorded in a book which will be kept for the purpose, and which will be written up at each inspection.

Mines, submarine, Royal Engineer Service.

Dates for inspection.

690. These mines, when stored loaded, will be inspected and weighed as follows :—

(*a*) In temperate climates—

At the conclusion of the annual course, all mines used in training, and 50 per cent. of the remainder.

(*b*) In tropical climates—

The inspection to be half-yearly. All mines used in training during the preceding six months, and 25 per cent. of the remainder.

(*c*) At all stations—

Every buoyant mine will be unloaded and completely overhauled once every four years.

Weighing every two years.

691. The inspections referred to in (*a*) and (*b*) of para. 690 should be so arranged as to ensure that every mine is weighed and inspected not less than once every two years.

Removal of dummy apparatus.

692. The dummy apparatus of each mine inspected will be removed for the purpose of ascertaining, as far as it is possible to do so without unpacking the charge, whether the guncotton is free from serious discolouration, and, as far as outward appearance goes, in sound condition Buoyant mines should at the same time be

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examined as to the quantity of moisture that may have condensed on the inside of the case.

693. In addition to the above, one ground mine in every 20 should, at each inspection, be sufficiently unloaded to enable the bottom layers to be seen, and two or three slabs selected from different layers should be made up into extemporized charges and fired, the result of each such explosion being carefully noted. Unloading.

694. The limit allowed for loss or increase of weight is 2 per cent., *i.e.* :— Limit of weight.

12 lbs. for 600 lb. mines (when loaded solely with guncotton).
10 „ „ 500 „ mines.
5 „ „ 250 „ „
2 „ „ 100 „ „
1 „ „ 50 „ „

695. If the loss of weight from escape of moisture reaches the limit, the following course will be pursued :— Weight lost, adjustment of.

(*a*) Sprinkle the guncotton with sufficient carbolic solution (prepared in accordance with para. 642), or clean water to make good the deficiency.

(*b*) Reclose the mine as quickly as possible.

(*c*) Weigh the mine, and note the weight, date, &c., in the book referred to in para. 703.

696. If the increase in weight, due to leakage of water into the mines through defective closure, and not from any cracks or radical defects in the mines themselves, reaches the limit allowed by para. 694, they will be opened in as dry an atmosphere as possible, and the excess of moisture allowed to evaporate until the mine is reduced to its proper weight. The instructions contained in para. 695 will then be carried out. Weight in excess through defective closure.

697. If the increase in weight exceeds to a large extent the limits laid down in para. 694, the mine will be unloaded, the charge thoroughly washed and soaked in fresh water, after which each slab will be reduced to its proper weight by evaporation ; the mine may, however, in the meantime be reloaded with fresh guncotton. Weight exceeding limits.

698. The use of artificial heat in evaporating moisture from guncotton is strictly forbidden. No artificial heat.

699. If the guncotton shows visible signs of deterioration, the charge will be unpacked and all defective slabs be replaced with fresh guncotton. Doubtful slabs should be tested by firing one or more as explained in para. 693. If any considerable portion of the mines inspected are found to be defective (in that parts of their charges have become discoloured, sodden, or inert) the whole of the mines will be examined for this fault. Except where guncotton has been kept unduly soaked, general deterioration in its condition should be rare. Any case of such deterioration discovered should be reported, with full particulars, to the Chief Inspector, Woolwich. Visible signs of deterioration.

700. In the case of buoyant mines, if the condensation is sufficient to cause an accumulation of water at the bottom of the mines they will be unloaded, the interiors carefully dried, any rust removed, and the parts (including the wood deckings) repainted if necessary. The guncotton will be examined, any slabs found too light being Accumulations of water in buoyant mines.

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brought up to their proper weight, as directed by paragraph 695 (*a*), and those found too heavy being reduced by evaporation. The mines will then be reloaded and dealt with as directed by paragraph 695 (*b*) and (*c*).

Large percentage affected.

701. When the condensation is so general as to necessitate the unloading of the whole of the mines examined, the remaining buoyant mines should be examined for condensation.

Record of mines opened.

702. The number of mines opened, and their condition, will be briefly noted in the column for remarks on A.F. G 930.

Record of all loaded mines.

703. The weights of all loaded mines in Royal Engineer charge will be recorded in A.B. 359, which will be entered up at each inspection, and revised on every occasion of painting or repairing the mines. The date of inspection should be noted against each mine, so that no mine shall be left unweighed more than two years.

Painting inside of mines.

704. Cement lined mines will in future be well painted inside with Brunswick black before loading or re-loading.

Charges, Torpedo, Brennan.

Weighing of Brennan T. charges.

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705. When received into store these charges will be carefully weighed and their weights compared with those marked on the charge chamber; this inspection will be repeated at intervals of not more than two years and on every occasion of damage to or sinking of a torpedo, even if there is reason to believe that the charge chamber has escaped injury and that water has not leaked in.

Plug to be unscrewed.

706. To allow accumulated gas to escape, closing plugs should be withdrawn once a quarter, and also when the charge chambers are weighed

Weight lost, limit.

707. If the loss of weight from escape of moisture reaches the limit allowed, viz., 2 per cent., sufficient carbolic solution (prepared in accordance with paragraph 642) should be added to make up the deficiency.

Weight in excess of limit.

708. Should the weight have increased beyond the limit allowed, viz., 2 per cent., it shows that moisture has leaked into the case. This may render the guncotton unfit for use, and the charge should be returned to Woolwich, but at stations abroad it will be left to the discretion of the officer in charge either to unload, test, and repair the chamber, and reload it with fresh guncotton, or to return the charged chamber to Woolwich for examination.

VII.—Examination of Cannon Cartridges other than Quick-Firing.

Percentage to be examined.

709. At least 3 per cent. of the packages in each magazine of the station or district will be opened, and a few cartridges examined from each package; if, however, the cartridges are of recent manufacture or have been recently repacked, fewer packages need

Packages selected.

be opened, the reason being stated in the report. The packages to be examined will be selected indiscriminately from each group, the selection being so arranged that no group shall be left without examination longer than 2 years.

Examining cartridges, ranging, &c.

710. A proportion of the cartridges should be gauged, and the choking and hooping examined to ascertain if correct.

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711. The condition of the material should be closely examined, and any cartridges which have holes or are moth-eaten should be put aside for repair or condemnation. Condition of the material.

712. If there is any appearance of mould or mildew, especially under the folds of the choke and underneath the hoops, the defect, if it has not gone too far, may generally be overcome by careful drying and brushing in a dry place. Mould or mildew, removal of.

713. The gunpowder or cordite in the cartridges will be examined, as already detailed for those explosives. Powder or cordite to be examined.

VIII.—Examination of Quick-Firing Cartridges.

12-*pr. Quick-Firing Cartridges and Upwards.*

714. The proportion of packages to be examined, and arrangements as to selection, will be the same as in paragraphs 709 and 710 Packages selected.

715. To examine a cartridge, the primer will be removed and tested as in paragraphs 824 and 825. The lid will then be removed by raising two of the clips which hold it down. If the cordite or powder is found to be serviceable, replace the components, and insert a new primer, in accordance with the detailed instructions for filling to be obtained from the Royal Arsenal, Woolwich. Examination of cartridges.

With 15-pr. Q.F. cartridges, the procedure will be the same as above, excepting that there is no primer to be removed or replaced, and that if the cap is blackened or corroded, it should be wiped with a clean cloth. Should the glazeboard lid be damaged in extracting it, a new one will be inserted (concave side uppermost) the edges painted with Petman cement, to seal it, and the clips at the mouth of the cartridge turned down.

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715A. All Q.F. cartridge cases, in boxes opened at periodical or other inspection, are to be carefully examined for cracks, especially at the base. Those from which charges are withdrawn to be so examined, inside as well as out, immediately before the charges are replaced.

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Naval ammunition will also be re-examined for split cases before re-issue.

Whenever a report is made on cracked cases the initial of the manufacturer, and the date of manufacture of the case stamped on the base, should be quoted.

716. If the primers fail to pass the test laid down for them (paragraph 824), all the primers in the group should be tested or replaced. Failure of primers.

2·95″, 6-*pr.*, 3-*pr. and* 1 *pr. Quick-Firing Cartridges.*

717. Five per cent. of boxes of 6 and 3-pr. quick-firing ammunition will be opened. Q.F. cartridges, opening of boxes

718. The cartridges will be examined and gauged in the chamber gauge, the safety clip being removed, and the state of the caps examined. If they appear serviceable, repack as directed in the Magazine Regulations. If the caps are blackened and corroded they will be wiped with a clean cloth. Examination of cartridges.

719. If there is any appearance of slight rust on the shell, or verdigris on the case, it must be removed with a piece of cloth moistened with turpentine, but no turpentine should be left on the paint. Should the rust be considerable, a special report will be at Repainting shells.

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once made, and authority obtained for repainting, which will be carried out as detailed in the Magazine Regulations.

Paint to be dry and hard in boxes.

720. If the paint is soft, all the boxes of the same date should be opened in a dry atmosphere and left open till the paint dries and hardens. In the case of cordite cartridges there is no objection to the shell being loose in the case, provided it is well held by the indents in the cannelure, but if this condition is not met, 2·95 inch and 1-pr. Q.F. cartridges will be returned to Woolwich for repair, and 6 and 3-pr. will be dealt with as in Magazine Regulations. In powder-filled cartridges, if the shell can be easily turned round in the case by the hand, action should be taken as laid down in Magazine Regulations. Six and 3-pr. land service cordite cartridge cases found cracked at the mouth to an extent less than $\frac{3}{4}$ inch may be used up for practice purposes. All such naval service cartridge cases cracked at the mouth or elsewhere, and all land service cartridge cases cracked at the mouth more than $\frac{3}{4}$ inch, or cracked elsewhere, will be returned to Woolwich. Any 1-pr. cartridge cases found to be cracked should be returned to Woolwich.

Cordite cartridges looseness of shell in case.

Cracked cordite cartridge cases.

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720A. The instructions laid down in paragraph 715A as to the examination of Q.F. cartridges, 1?-pr. and upwards, for cracks and split cases, apply equally to 2·95 inch, 6-pr., and 3-pr. Q.F. cartridges.

Emptying Q.F. Cartridges.

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720B. Whenever Q.F. cartridge cases are emptied, the letter F or R on the base denoting the last filling, should be obliterated by stamping a bar over it, unless the cases are condemned.

720C. At periodical or other inspections of 6 and 3-pr. Q.F. ammunition, if it is found that 5 per cent. or more of any particular maker's cases in any R.L. lot are cracked in the base, all the ammunition in the lot, made up of that maker's cases, is to be returned to Woolwich; or at depôts at which it is authorised to carry out such work the charges are to be transferred to new cases (if the state of the work at the depôt admits) and the old cases returned to Woolwich.

IX.—Examination of Small Arm and Machine Gun Cartridges.

General Instructions.

Marking to be given in reports.

721. In completing the report of inspection, the manufacturer's initial, which will be found in the lower left hand corner of the descriptive label, should be quoted. If any special defect is found, the number which is stencilled on the top, and the date on the end of the box should also be quoted. The latter is the date of packing, and may not always agree with that on the wrappers, which is the date of manufacture.

Percentage of boxes examined.

722. One per cent. of the boxes of all ammunition in store will have the bottom unscrewed and removed so as to allow the withdrawal of the lining, which will be externally examined. The boxes will be selected as far as possible from different dates of manufacture.

Condition of lining.

723. If the external condition of the lining is good, the cartridges may be considered serviceable, but should the tin be rusted through,

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the linings of all boxes of the same date should be similarly examined, and all that are rusted through should be opened, the cartridges examined, and, if serviceable, replaced in serviceable linings, which should, if possible, be soldered down. If this cannot be done, the lids of the linings should be secured with tape and shellac cement.

Open linings.

724. All cartridges in boxes with open linings will be similarly dealt with if complete boxes can be packed, if not the fraction will be dealt with as in paragraph 282.

Seal not intact.

725. If the box is not properly sealed by the calico label over the wire attached to the pin, the lining will be opened to ascertain if the contents agree with the labels on the box.

Verdigris or rust.

726. Deterioration of the cartridges is indicated by verdigris on the case or round the cap chamber, or by rust on the base disc of rolled cartridges.

Cartridges, Small-Arm, ball.

Firing proof.

727. If these cartridges show signs of deterioration, a firing proof of not less than two targets of twenty rounds will be taken; one or more lots being taken from each box, the cartridges in each lot to be kept separate for a target.

Firing proof how performed.

728. The targets will be fired on a calm day by a marksman, from a sand-bag rest, at a range of 500 yards, for rifle or carbine, and 50 for pistol cartridges, the 20 rounds composing a target being all fired from the same rifle, carbine, or pistol, aiming at the same spot on the target, the object being to obtain a group of 20 shots fired under as near as possible the same conditions. Sighting shots may be fired, which should not be included in the figure of merit.

Target ruled for marking.

729. The target will be ruled with horizontal and vertical lines, 6 inches apart, and the position of each shot noted, as also the point aimed at, on a diagram drawn to represent the target on a reduced scale.

Calculation of figure of merit.

730. To calculate the figure of merit, select an origin on the diagram, at the intersection of one of the vertical with one of the horizontal lines to the left, and below the whole group of shots. Measure the horizontal distance of each shot from this point, and divide the sum by the number of shots for the horizontal co-ordinate of the mean point of impact. A similar calculation gives the vertical co-ordinate. The intersection of vertical and horizontal lines at the distance respectively of these horizontal and vertical co-ordinates gives the position of the mean point of impact, which is marked on the diagram. The radial distance of each shot from the mean point of impact is then measured and recorded. The sum of the radial distances divided by the number of shots gives the figure of merit.

Limits for figure of merit.

731. The figure of merit should not exceed—

Martini-Henry rifle rolled case	15 inches.
„ „ solid „	18 „
„ carbine rolled case	16 „
„ „ solid „	18 „
Snider, fired in the rifle	24 „
·303-inch	12 „
Pistol	10 „

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Second proof if limit exceeded.

732. Should these figures of merit be exceeded, a second proof should be taken in different rifles. Should the figure of merit of the second proof exceed the limit, the ammunition should be provisionally condemned (*see* paragraphs 535 and 739).

Miss fires, &c.

733. If there are any miss-fires, hang-fires, pierced caps, or bad split cases when firing the targets, the rifles giving them will be examined, and, if correct, a second proof in different rifles will be fired as in paragraph 734. If the same defects again appear, the rifles being correct, the ammunition will be provisionally condemned.

Firing proof without a range.

734. If no range is available the cartridges will be fired into a bank of earth or other safe place, to test for miss-fires, hang-fires, split cases, or pierced caps only.

Cartridges, Small-Arm, Blank.

Blank examined by eye.

735. These unless very rusty will usually be found serviceable. A few will also be opened and the powder examined. The caps often appear corroded, but this may be caused by the purple wrappers and is not important. If, however, the caps appear doubtful, some should be fired.

Cartridges, Machine Gun, Ball and Blank.

Machine gun cartridges, firing test.

736. For these cartridges proof for accuracy will not be required. It will, however, be necessary, if a machine gun is available, to test the caps and cases by firing into a bank both rapidly and slowly, a pause of two seconds being, however, made between each round of 1-inch ball ammunition. When no machine gun is available for firing proof, an examination of machine gun ammunition will suffice.

Disposal of Condemned Cartridges.

Disposal of condemned cartridges.

737. When small-arm or machine gun cartridges have been sentenced to be unserviceable, and this sentence has been approved, they will, unless special orders are given to the contrary, be dealt with as follows :—

(*a.*) 1-inch Nordenfelt cartridges will be returned to Woolwich.

(*b.*) With the above exception all small-arm and machine gun ball cartridges will have their bullets extracted.

(*c.*) Rolled case cartridges, from which the bullets have been removed, and rolled case blank cartridges will then be destroyed locally, under the orders of the general or other officer commanding being thrown into deep water if possible.

(*d.*) Solid case cartridges, from which the bullets have been extracted, and solid case blank cartridges will be fired off and dealt with as other fired cases.

Unburnt cordite to be destroyed.

738. In firing off cordite cartridges from which the bullets have been extracted, a large amount of cordite will be blown unburnt out of the bore of the rifle ; this should be swept up and destroyed in accordance with paragraph 601.

Cartridges returned by troops.

739. When land service S.A. and M.G. cartridges, whether blank or ball, are returned by the troops to the Army Ordnance Department, they should be examined at once by the inspecting ordnance officer, and such as are unserviceable should be dealt with as above, under the authority of the general or other officer commanding, without reference to the War Office.

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739A. When Naval Service small arm and machine gun ammunition (ball or blank) are sentenced unserviceable on examination after return to store at a foreign depot, they should be dealt with as in paragraph 737 under the authority of the senior naval officer. Naval service small arm and machine gun ammunition, examination of.

At R.N.O. Depôts at home other than Woolwich, S.A. and M.G. ammunition which cannot be sentenced without the firing proof prescribed by paragraph 727 is to be entered as "doubtful" and sent to Woolwich. Small quantities of ullages which from external appearance (*e.g.* after having been under water) or through failure to pass the test prescribed in paragraph 734, appear to the local I.O.O. to be clearly unserviceable may be so sentenced by him, but this is not to apply to large quantities or to complete boxes. N.O. 12247

IXa.—Examination of Filled Shells returned or landed for examination by H.M. Ships.

739B. All shells must be examined externally as to their general condition, especially with regard to the external condition of the fuzes, and with special reference to paragraph 742A. All A.P. shell must be examined for cracks. External examination.

739C. All shell (1) which have been filled abroad, or (2) which have had their dates of filling obliterated, will be examined internally; of the shells which do not come under the above categories, a percentage varying according to date of filling, date of last examination and exterior condition, but never less than 10 per cent. of each nature and calibre of shell, should be examined internally. Internal examination.

739D. If the percentage of a particular nature and calibre examined is found correct, the remainder of that nature and calibre can be sentenced serviceable. If defects are found in the percentage examined, the whole of the remainder should be examined. N.O. 14349.

739E. Any A.P. shells that may be emptied should be examined internally for cracks. A.P. shell emptied.

739F. Two per cent. of each description of fuzes returned in the shell must be examined in accordance with the instructions contained in paragraphs 826 to 857. Fuzes.

739G. Two per cent. of lyddite shell will have their exploders extracted and tested for moisture in accordance with paragraphs 756 and 756A. Exploders of lyddite shell.

X.—Examination of Powder Filled Shells.

740. The examination of filled shells will be carried out in the inner room of the laboratory, but the number of shells to be in the building at one time is not to exceed the following:— Selection for examination.

		Under Examination.	Awaiting Examination.
10-inch and upwards	Common	1	1
	Shrapnel	2	2
4-inch and under 10-inch	Common	2	2
	Shrapnel	3	3
Smaller natures		6	6

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If however, the shells are fuzed, the number being examined will be limited to one (vide paragraph 396 Magazine Regulations).

Percentage of shells to be examined.

741. Five per cent. of each nature of shell filled with gunpowder, except when recently filled, will have their plugs or fuzes removed and examined to ascertain if they require regreasing, the bursting charge will also be examined in the manner laid down in paragraphs 743 to 755, and a report will be made of all shells found defective. Should any of the shells examined be found to have damp bursting charges, or broken bags, or be insufficiently filled, the whole of the lot will be examined and their state reported on. In carrying out this examination the instructions laid down in Magazine Regulations (Section XIV) are to be observed.

Fuzes in fuzed shell.

742. Five per cent of fuzes in fuzed shell examined will be removed and proved as laid down in sub-section XII, being replaced with fresh fuzes.

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742A. B.L., Q.F., or R.M.L. common and armour-piercing shells, fitted with large or medium base fuzes, will be examined on receipt into store and on issue to, His Majesty's ships to ascertain if the pressure plates of the fuzes have been damaged.

Any base fuse, medium or large, found with damaged pressure plates, will be dealt with as follows :—

If the external damage to the fuse is apparently limited to the indentation or crushing in of the pressure plate, there should be no danger in the removal of the fuze ; the removal of any fuze must, however, be left to the discretion of the inspecting ordnance officer on the spot.

Should the fuze be damaged to such an extent, or in such an abnormal way as, in the opinion of the inspecting ordnance officer, to render its removal undesirable—

Base fuzes in fuzed shell.

At a home depôt, the Chief Inspector, Woolwich, will be immediately informed by the officer in charge direct, in order that an officer from the Inspection Department may be sent to inspect the shell.

At depôts abroad, the shell should be removed under the superintendence of the inspecting ordnance officer, the point being kept uppermost, to a place where it can be safely destroyed with gun-cotton, as laid down in paragraph 460, Magazine Regulations, 1902, or lowered carefully overboard from a boat into deep water.

It should be noted that when the pellet is supported by the spring alone, a drop of 4 inches, point downwards, is sufficient to fire the detonator.

Shells, Common, Double, Ring, and Segment filled with Loose Powder without Bags.

Wad to be drawn and powder examined.

743. Remove the fuze-hole plug or fuze, pass the "hook, G.S. wad" through the hole in the centre of the wad, and draw the wad out of the fuze-hole ; if the powder charge is in a serviceable condition insert a new G.S. wad, and re-plug the shell as directed in Magazine Regulations. If a shell is not quite full, sufficient powder should be added to fill it. If the powder charge is found to be caked from the effects of damp, the shell should be sentenced to be emptied.

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744. The papier-mâché wad at the bottom of the socket of the 20-pr. L.S., 12-pr. and 9-pr. R.B.L. common shells, will be driven into the shell by means of a piece of wood. These shells, however, will not be thus examined, unless there are evident signs of their being affected by damp. Wad of R.B.L. shells.

Shells, Common, and Double, filled with Powder in Bags.

745. Remove the plug or fuze from the end through which the shell has been filled, and, if present, remove and examine the "7 dram, primer." Draw out the neck of the bag by means of the above hook, and untie the twine round the neck of the bag. If the powder is in a serviceable condition, tie up the neck of the bag again, and proceed as directed in the instructions for filling in the Magazine Regulations. If the powder is caked from the effects of damp, empty the shell, as laid down in the Magazine Regulations, insert a new bag, and refill with serviceable powder. Powder in shell-bag, examination of.

746. If the shells examined are found not full (which can usually only be ascertained in shells with fuze hole at the nose, as the bursting charge is liable to settle to the base), the whole should be opened, and filled up through the fuze-hole with 7 dram primers, but (in shell filled from the nose), if more than 6 are required, the bag should be opened and the shell filled with powder. In shells filled from the base, it will not—as a rule—be possible to add more powder, and such shells must be filled up. Shells not full.

747. In the case of B.L. shells filled from the base, and having a lead disc over the base plug, the disc must be removed by bronze hammer and chisel. A new disc will be required after the plug has been replaced. In the case of those having an adapter in the base, the lead ring and the adapter will not be removed for examination. Shells having lead disc over base plug.

748. With 4·7-inch quick-firing shells, which are fuzed with the Armstrong fuze, remove the lead cap over the fuze with the extractor, and insert a new one after replacing the fuze, as directed in the Magazine Regulations. Q.F. fuzed shells, lead caps of.

Shells, Shrapnel, having Bursting Charge in the Base.

749. Remove the fuze-hole plug, and note specially whether any powder has worked up into the socket, unscrew the primer with the "driver, screw, shrapnel, large," and lift out the primer with the "pincers, shrapnel, primer"; turn the shell nose downwards, and allow a portion of the powder to run out; if the powder charge flows out freely, return it, and replace the primer and plug. Examination of shrapnel with burster in base.

If however the primer appears deteriorated it should be proved as in paragraph 820, and if found unserviceable, further primers should be examined till an opinion can be formed as to the serviceability of the group of shells concerned.

750. The shell should be well shaken if the powder does not come out quite freely, as a portion of the powder may possibly be jammed in the tube; if the powder cannot be extracted as above, a few grains should be loosened by means of a copper wire, and from the condition of these grains it can be ascertained whether the charge is caked or only jammed; the use of the copper wire will be restricted to inspecting ordnance officers and laboratory Powder jamming in tube.

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foremen when examining shell, and care will be taken that force is not employed in loosening the grains.

Faulty shells for practice.

751. If the primer cannot be extracted the shell will be plugged, and will have a yellow band, denoting practice, painted round the body, all other marking being obliterated, except the red ring and tip, if present. Only B.L., R.B.L., or R.M.L. shrapnel shells 5-inch and under, will be sentenced for practice.

Wet shells, wash-out, &c.

752. If the shell is found wet inside, or the powder is found to be caked, it will be washed out, and treated as directed in Magazine Regulations.

Returned shells to be examined.

753. All shrapnel shells when returned to store from service will be taken on charge, and dealt with as doubtful, until examined and, if necessary, repaired.

Shells, Shrapnel, having the Bursting Charge in the Head.

Examination of burster in head.

754. Remove the plug, and examine the powder to see that it is serviceable, or if it is in a bag, see that the latter is not frayed or torn. The bags should not be removed from the shell unless there is good reason to believe them or the powder unserviceable, as they are liable to be torn in the operation. If found serviceable, the plug should be replaced.

Wet chambers.

755. If the chamber is found wet inside, proceed as directed in paragraph 752.

XI.—Examination of Filled Lyddite Shells.

Lyddite shells, examination.

756. Two per cent. of each natures of filled lyddite shell with kit plaisters intact, and two per cent. of shells which have not been fitted with kit plaisters will be opened at each inspection and the exploder removed. If in removing the exploder the "pincers, shrapnel, primer," is found to tear the exploder so that the latter cannot be removed, the shell should be destroyed with gun-cotton, as laid down in Magazine Regulations, or dropped into deep water, but at home stations the shell should be returned, plugged, by earliest water transport, to Woolwich to be dealt with. On no account is the shell to be upended, or knocked to extract the exploder. The condition of the cavity of the lyddite charge will be ascertained by ocular inspection and by probing with a thin smooth wooden rod. If, in any shell the walls of the cavity are found broken, so that the exploder cannot be replaced, it must be condemned as unserviceable, and a further four per cent. must be similarly examined for condition of lyddite and if any more are found defective the whole must be examined.

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Two per cent. of each nature of lyddite shells in His Majesty's ships or a minimum of one shell of each nature from each shell room, will be landed annually for this examination, and if found serviceable, those landed will be fitted with new exploders and returned to the ship.

If any are found unserviceable, all the shells on board stored in the particular shell room from which the defective shell was taken will be landed for examination, and such as may be found defective will be made serviceable locally, or replaced by others.

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The shells landed will be marked with the name of the ship and designation of the shell room from which taken, also the monogram of the station at which landed and the date.

The results of the moisture tests, and a statement of the subsequent action taken, will be entered on Admiralty Form S 1146.

756A. The exploders removed from the shells will be tested for moisture, as follows :— Exploders, testing of.

The contents of the exploder bag should be emptied into a glass stoppered bottle, and turned over several times so as to thoroughly mix the powder : 100 grains of the powder should be accurately weighed in a weighed watch glass, and dried in a water-oven at 120 degrees Fah. for 1½ hours. The sample should then be removed, covered with another watch glass, allowed to cool and weighed again. The loss of weight represents the percentage of moisture in the powder. The powder is to be considered serviceable unless the percentage of moisture is above 0·5.

756B. If any exploders are found with excess of moisture, those in shells of the same date of filling must be replaced. The exploders tested must be replaced by new ones. Exploders with excess of moisture.

Care must be taken in replacing exploders that those of the correct lengths are used (*vide* paragraph 10504 List of Changes in War Matériel). The length of the exploder is shown on the waterproofed paper cylinder, but where exploders without paper cylinders exist, or where the marking on the paper cylinder has been obliterated, the depth of the cavity in the lyddite will be measured from the bottom of the recess for the plug flange in the bush of the shell, deducting the depth of screwed portion of the bush, viz., 1·8 inch. Exploders, care in replacing.

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756C. The plug or fuze will be replaced after being lubricated as laid down in Regulations for Magazines, 1902, paragraph 351. After replacing Mark II plugs they will be secured by stabbing the raised lip on the head into the fuze hole of the shell. The fuze before being replaced, should be examined externally, the cap being removed where necessary, special attention being paid to any signs of corrosion in the head. Any doubtful fuzes should be put aside for return to Woolwich, being replaced in the shells by new fuzes. Fuzes and plugs.

756D. Such shells as have been fitted with kit plaister but which have the latter detached so as not to seal the fuze hole, shall be examined as in paragraph 756A for condition of lyddite, and the exploder, and if fuzed, the fuze renewed. The old fuzes will be returned to Woolwich. Ditto.

756E. Fuzed shells and those in which Mark I fuze hole plugs have been inserted will be fitted with a fresh kit plaister ("large" for 9-inch shells and upwards, "small" below 9-inch) as follows :— Ditto.

(*a.*) Wrap the body of the shell in canvas, or other suitable material, to prevent the kitting mixture from running down it.

(*b.*) Turn the plaister with the side to which the braids are attached downwards, and, holding it by the loops, immerse it for a few seconds in the following mixture, keeping the loops clear of the liquid :—

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Tar, Stockholm	1 quart.
Shellac	6 lb.
Spirits, Methylated	½ gallon.

The mixture does not require heating.

After immersion let the plaister drip for a few seconds, then place on the shell, and, with the hands, arrange the cut edges of the plaister correctly, and then press the whole firmly on to the shell with both hands, using a downward motion.

(*c.*) Dust the kit plaister on the top with dry sawdust, and press it home with the hands.

(*d.*) If the shell is fuzed, the kit plaister must be painted red with the mixture laid down in paragraph 368, Regulations for Magazines, 1902, but this should not be done till 24 hours after attaching the kit plaister.

(*e.*) The kit mixture does not set hard for about 10 days, during which period the shell should not be handled.

Number of shells in examining room.

756F. During the above operations, the number of shells to be in the examining room at one time is not to exceed :—

Up to and including 6-inch	30
Over 6-inch	20

If, however, the shells are fuzed, only two are to be in the room, and only one must be operated on at one time.

756G. While the moisture test is in progress, the shells will be temporarily plugged, and, if, necessary, removed from the building but must not be mixed with shells which contain exploders.

756H. A list of the apparatus required will be found in Appendix XII.

XII.—Examination of Rockets, Lights, and Signal Cartridges.

War Rockets.

Examination of rockets.

757. All possible care will be taken to prevent rockets from being exposed to excessive changes of temperature.

758. Ten per cent. of the war rockets of each year's manufacture on charge will be tested annually, as laid down in paragraphs 760 to 768.

759. War rockets will be destroyed locally by burning them out in the same manner as they are proved.

760. War rockets will be proved in a S.B. gun or carronade, which should be on its carriage or securely fixed to baulks, and must be placed with its muzzle turned towards, and surrounded by some obstacle, to prevent the rocket escaping should it be forced out of the gun and to receive the pieces of the rocket in the event of its bursting.

Gun for proof.

Position of rocket.

761. A block of wood should be placed in the gun, of such a length that, when the rocket is placed in the bore, the end of the tail piece is about flush with the muzzle. The gun should be slightly elevated.

Priming with quick-match.

762. The rocket, with quick-match inserted in one of its vents, will be placed in the gun with the head resting against the wooden block. The quick-match will then be turned back, so that it may lie about 4 feet along the top of the gun.

Operator to light match, retire, and note results.

763. The end of the quick-match will then be lighted, and the operator will at once retire to a short distance. The time of burn-

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ing of the rocket, and any puffs of considerable volume which may occur should be noted. The correct times of burning of rockets are the following :—

24-pr. Mark VII	... ...	8 to 10 seconds.
9-pr. „ VII	... ...	7 „ 9 „

Time of burning of each pattern.

764. If the quick-match fail to ignite the rocket, it must be replaced. Care should be taken not to stand in front of the gun while performing this operation, and about 5 minutes should be allowed to elapse before replacing the match, so as to ensure its being out.

Faulty match, replacing of.

765. Good quick-match in one length will always be used ; quick-match in short lengths knotted together is dangerous. If available, safety fuze may be used instead of quick-match ; about 2 feet should project from the vent of the rocket.

Match to be in one length, or safety fuze.

766. When the rocket is burnt out, it should be pulled out of the gun with a hook, care being taken to keep out of the way of any hot liquid slag which may come out. All the burning slag should be removed from the inside of the gun, and the gun sponged out with a damp (not too wet) sponge, before inserting another rocket.

Burnt-out rocket, removal of.

Gun to be sponged.

767. After proof, the cases will be carefully examined, and started rivets, &c., noted. A report will be rendered as directed in paragraph 514, giving all cases of rockets which may have burst, and the exact nature of any failure which may have occurred, with the dates and number of rockets from which proof is taken.

Examination of burnt out cases.

768. If a rocket does not burn correctly for the proper time, or bursts, the rockets of the same date from which it was selected will be provisionally condemned.

Failure at proof.

Signal Rockets and Lights.

769. About five per cent. of these should be examined externally to ascertain if they show any signs of deterioration. If correct, they should be replaced in their cylinders, and the lids closed as laid down in paragraph 527.

Examination.

770. If they appear doubtful, the percentage examined should be fired. The rockets should give satisfactory results as to height of burst and number of stars ignited. The lights should burn as follows :—

If doubtful, to be fired.

Lights, limits of burning.

Lights	Coast Guard, 5 to 7 minutes.
	Illuminating wrecks, 22 to 33 minutes.
	Long, G.S., 4 to 7 minutes.
	Coloured blue or red, 2 to 2¾ minutes.
	Coloured green, 1½ to 2¼ minutes.
	Signal magnesium, 1 to 1½ minutes.

But if the lights burn steadily and give a good light they will not be condemned merely for not burning within above limits.

Burning out of limits.

Very Signal Cartridges.

771. These will be proved by firing about one per cent. in a Very pistol. The star should rise to a height of 300 feet, and burn from 7 to 10 seconds without breaking up. There should be no miss-fires or pierced caps.

Proof in pistol.

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771A. Unserviceable cartridges will be destroyed as follows :—
Remove the wad with a copper pricker, shake out the star and powder, and fire the cap in the pistol.
The stars will be destroyed by immersion in boiling water until the composition is thoroughly dissolved.

Cartridges, Impulse Torpedo.

Cartridges, impulse torpedo.

772. Five per cent. of linings of boxes in store to be examined for corrosion or leakage (being tested for the latter, by immersion in warm water). If correct, the linings will be replaced in the boxes which will be marked with the date of examination.

772A. If any linings appear corroded or leaky, they should be opened and 5 per cent. of the tubes tested in accordance with paragraph 815, and one or two of the cartridges opened to ascertain the condition of the powder.

772B. If correct, the remaining cartridges will be re-packed in the linings, which should be closed down with a tape band and shellac cement, the number of contents and date of examination being marked on the box. At stations where skilled men are available and facilities exist, the linings should be re-soldered, new lids being used, and tested by immersion in warm water.

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Cartridges, impulse torpedo.

772C. If 5 per cent. of the proof fail, the cartridges will be considered unserviceable. If the failures are due to the tubes, only fresh tubes will be inserted, and the cartridges re-packed, the boxes being marked "Re-tubed," with station and date. If, however, the cartridges from external appearance are obviously deteriorated, the whole should be returned to Woolwich as "Doubtful."

Ditto.

772D. In addition to the above, where there are boxes with intact linings containing cartridges over 4 years old, one box of each year's manufacture will be opened and contents examined, tested as in 772A and 772F and, if correct, the box reclosed as in 772B.

Ditto.

772E. Ten per cent. of cartridges in metal-lined cases should be examined as above, a proportion being opened.

Ditto.

772F. The tubes of all cartridges in cases and boxes opened for examination are to be tested electrically for continuity in accordance with paragraph 791. Any failures to be treated as laid down in paragraph 772C.

Cartridges, when destroyed locally. N.O. 13431

772G. Cartridges in boxes with linings which have been opened and reclosed with a tape band and shellac cement, if not issued within twelve months of such opening, are to be destroyed locally.

XIII.—Examination of Tubes, Primers, Fuzes, &c.

Apparatus for Proof.

Proof apparatus for fuzes, &c.

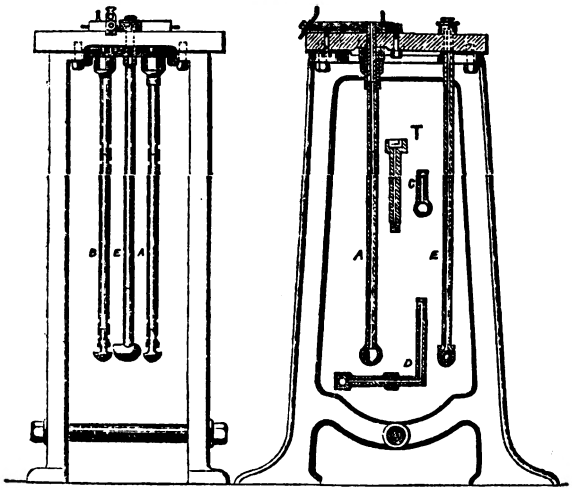
773. The apparatus for proof of tubes, primers, &c., Mark IV, consists of two stands with the necessary vents, anvils, and weights, for proof of all descriptions of tubes, primers, and the majority of fuzes.

Description of stand.

774. The stand for proof of tubes and primers is a cast-iron table fitted with vents for the various tubes and primers hereafter detailed, and with a pin and lanyard guide for naval tubes with loop. A hole 2 inches in diameter is drilled through the centre of the stand, to be used in connection with the apparatus for proof of detonators of fuzes. Two iron spanners for fixing and unfixing vents, &c., are furnished with the stand.

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FIG. 1.



The following are the vents used with the apparatus :—

Vents	A, upper part	....	....	for copper tubes.
„	B „ „	....	....	„ quill „
„	C	....	....	....	„ 7-pr. „
„	D	....	....	....	„ vent piece primers.
„	E	....	....	....	„ shrapnel primers.
„	F, upper part*	....	....	„ V.S. tubes.
„	A, B, or F, lower part (3 per set).			
„	T	....	....	....	for T tubes.

Stand for proof of detonators of fuzes.

775. The stand for the proof of detonators of fuzes consists of a cast iron base plate, fitted on the top with 3 wrought-iron pillars carrying a brass plate, on which are erected 3 steel guide bars of such a height as to admit of a weight, placed within the bars, being dropped on to the top of a detonator, placed on an anvil beneath the guide bars. One of the guide bars is graduated in inches, and is fitted with a suspender or sliding bracket with fixing screw for carrying the weights ; the weights are attached to the suspender by a brass pin ; so that the distance measured from the point of the weight to the face of the anvil is that laid down for the drop, in paragraph 834 and succeeding paragraphs ; when all is prepared for releasing the weight, the pin is to be drawn out with a *sharp* pull, so as to allow the weight to drop freely. The anvil bed of wrought-iron is pivoted to one of the wrought-iron pillars by a handle, so as to allow the anvil bed to be moved from the centre of the stand whilst the required weight and anvil are being inserted, or removed from within the guide bars at the bottom.

* See figure 2, p. 110.

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Shield for protecting operator.

776. To protect the operator from the effect of the explosion of the detonator, a shield of sheet brass, in the form of a half frustum of a cone, is fitted on the brass plate, so as to revolve round the guide bars, the open side of the shield being brought next the operator when placing the detonator, weight, and anvil in position, and the shield reversed before the weight is released.

Position and adjustment of stand.

777. The stand for the proof of detonators of fuzes is intended, when in use, to rest on the top of the stand for proof of tubes and, in order to adjust it perpendicularly, the base plate is fitted with four adjusting screws; a "lever, steel, for adjusting screws," is provided for this purpose. Before using the stand care should be taken that the fall is perfectly true; this may be ascertained by hanging any small weight or plummet by a thread to the pin, through the eyes of the suspender.

Anvils and weights for proving detonators.

778. The anvils and weights are issued with the apparatus, and are used for the detonators, &c., as noted against each :—

(A) Blocks, steel, for fuze, Armstrong No. 9.
(B) Weight, steel, 5 oz. for fuze, Armstrong No. 9.
(F) Anvil, steel, for detonating balls of Pettman fuzes.
(G) Anvil, steel, for steady plugs of Pettman fuzes, and detonators of fuzes, percussion, small, marks II, II*, and III.
(I) Anvil, steel, for detonators of fuzes, percussion, R.L., mark I, and B.L., plain.
(J) Anvil, steel, for detonators of fuzes, percussion, R.L., except mark I.
(K) Anvil, steel, for detonators of large and medium base fuzes.
(L) Weight, steel, 18-oz. for Pettman fuzes.
(M) Weight, steel, 7½-oz. for wood time fuzes with detonator.
(N) Weight, brass, steel pointed, 1-oz., for fuzes, percussion, R.L., mark I, and B.L., plain.
(O) Weight, steel, 1-oz., for fuzes, percussion, R.L., except mark I, and small.
(P) Weight, steel, 3½-lb., for direct action fuzes.
(Q) Weight, steel, 2-oz., for percussion pellets of time and percussion.
(R) Block, steel, for wood time fuzes with detonator.
(S) Drift, steel, for wood time fuzes with detonator.
(U) Block, steel, for direct action and delay action fuzes.
(V) Drift, steel, for direct action fuzes, marks I* and II, and delay action fuzes, mark II.
(W) Anvil, steel, for percussion pellets of time and percussion fuzes.
(X) Cap, steel, for direct action marks I* and II, and delay action mark II fuzes.
(Y) Cap, steel, for direct action, mark III, and delay action, mark I, fuzes.
(Z) Drift, steel, for direct action, mark III, and delay action, mark I, fuzes.

Prism[1] black, puff.

779. The "puff, powder, prism[1] black," consists of one prism of prism[1] black powder enclosed in one thickness of shalloon.

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780. The "puff, powder, R.L.G.^{2}," consists of 2 drams of R.L.G. or R.L.G.^{2} gunpowder contained in two thicknesses of silk cloth, No. 1 Class. The "puff, powder, R.L.G.^{2}," is also used with one thickness of silk cloth, for proof of 7-pr. copper friction tubes, the second thickness being removed locally when the puffs are used for this purpose. R.L.G.^{2}, puff.

781. Puffs will be made up locally as required, or may be demanded from Woolwich. Demands should provide for a year's supply in advance. The puffs should be kept in metal-lined cases carefully luted down. In order to avoid possible deterioration, the puffs should not be kept in store for much over a year, and special care must be taken to prevent the access of damp to them. Puffs, provision and storage of.

782. For proving electric tubes, &c., the following stores are required :— Stores to prove with.

(1) A 3-cell Le Clanché battery, or a battery and key, test and firing.
(2) 100 yards of D1 cable in suitable lengths.
(3) A Menotti test battery, } if a battery and key, test and fir-
(4) A 3-coil galvanometer, } ing, is not available.

783. For proving electric fuzes, a strong iron receptacle ; and for detonators, "primers, guncotton, 1¼ inch by 1¼ inch, 1 oz.," and a rectifier are required. Primers and rectifier.

784. 2 cells of the 3-cell battery, or the battery and key, test and firing, will suffice for firing electric tubes or primers in the apparatus, when short leads only are necessary ; but for firing with the 100 yards of D1 cable, 3 cells are required, and if the battery and key, test and firing, is used, a third cell must be connected up, care being taken that it is so connected as not to work in opposition to the cells in the battery. Each cell of the battery can be tested with the cell-tester, and care should be taken that each cell is in good working order before proof. Cells for in tests.

785. If a test-bridge is available, it can be used for testing the batteries and connections, the bridge being repaired, when broken, with iridio-platinum wire, ·45 grains per yard, as laid down in the Magazine Regulations for the repair of drill tubes. Test-bridge, use, &c.

Le Clanché Firing Battery.

786. If a Le Clanché battery, with open cells, is supplied, it will be charged, when required, by filling each cell, to within 1 inch of the top, with a ¾ saturated solution of sal-ammoniac, prepared by dissolving 4½ ounces of the powdered salt in 1 pint of water. After a lapse of half-an-hour the battery will be ready for use. Charging open battery.

787. When the operations with the battery are completed, the cells are to be taken to pieces, thoroughly washed with water, and dried, the bag being also allowed to dry before the battery is put away. Washing cells of battery.

788. If the battery is likely to be required again within a short time (say a week), the solution of sal-ammoniac should be retained and used for recharging, instead of a fresh quantity. Retention of solution for re-charging.

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Cells filled and sealed; expending and re-filling.

789. The cells of the service, 3-cell, Le Clanché firing battery and of the battery and key, test and firing, are filled with dry sal-ammoniac, and sealed up. To prepare them for action, remove the cork from the aperture in the top of each cell, almost fill with water, and replace the cork. When a new solution is required, the cell will be emptied and rinsed with clean water, and then filled with a new solution made up as directed in paragraph 786.

Sal-ammoniac solution, replenishment of.

790. If the battery is likely to be required again within a short time (say a week), the solution of sal-ammoniac should be retained, as directed in paragraph 788, or the solution may be left in the battery. A new solution should not be required for a considerable period, depending on the amount of work done by the battery; but the loss from evaporation should be made up, from time to time, by an addition of clean water. If it should appear weak, it will probably recover in a day or two if left to itself, its condition being tested with the cell-tester. Should it not recover, even after filling with a new solution, the battery or the defective cell, if it is removable, must be exchanged.

Menotti Test Battery.

Testing resistance of bridges.

791. The Menotti test battery is intended for testing the continuity of the bridges of the low tension detonators, tubes, and fuzes, and not for firing purposes. The leads of the tube or fuze to be tested are connected to the two terminals of the battery, and the key depressed. A strong deflection of the needle of the galvanometer should result.

Preparation of battery.

792. To prepare the battery for use, remove the galvanometer, zinc plate, and fearnought diaphragm, take out the sawdust, and soak it in clean fresh water, or, if available, in a weak solution of sulphate of zinc. Squeeze out the excess of liquid, and replace sawdust, &c. Care must be taken in this operation that none of the crystals of sulphate of copper, which are in the bottom of the battery, get into the sawdust, or the action of the battery will be spoilt. The sawdust must always be kept damp.

Test of the battery.

793. The battery should then be tested by joining the terminals with a short wire, then place the galvanometer so that the needle points to zero, and press the key. A deflection of 80 to 90 degrees should be shown. A magnet is supplied for the purpose of steadying the needle, and controlling its deflection. The battery does not always attain its full strength at once.

Cleaning and re-charging battery.

794. The battery should be cleaned once in six months by renewing the copper sulphate crystals in the bottom of the cell, using again any that may be found undissolved. The sawdust must also be changed. The zinc plate should have its under surface cleaned, and all connections and insulations carefully examined.

Ammeter Rheostat and Galvanometer Detector.

795. These are supplied to inspecting ordnance officers in connection with the testing of electric primers (paragraphs 824, 825), and other electrical stores.

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The "Ammeter rheostat" consists of a "Weston" ammeter reading up to 3 ampères, and a rheostat graduated to 50 ohms. The apparatus is contained in a box divided in halves which are connected by hinges. Instructions for use are given on a label fixed to the lid. Ammeter rheostat and galvanometer detector.

The "Galvanometer detector" is an instrument for reading direct resistance up to 3 ohms. It is contained in a box in which are full instructions as to use This is used in connection with a "Daniell" cell, the pattern of which usually issued to inspecting ordnance officers being of the "gravity" description.

General Instructions.

796. The instructions for percentages of tubes, fuzes, &c., to be proved, will be carried out as far as possible, and they are generally applicable to special inspections, when called for. Occasions may, however, arise when the inspecting ordnance officer will have to use discretionary powers. He should be guided by the knowledge that the object of the inspections is to ensure the tubes in Royal Artillery and Army Ordnance or Naval Ordnance Department charge being at all times in serviceable condition; and that this object should be attained with as small an expenditure as possible, consistent with a reasonable certainty. Percentages of tubes, fuzes, &c., for proof.

797. Tubes, fuzes, primers, and detonators, in hermetically sealed cylinders or boxes, will be proved by whole cylinders or boxes. Such as are in open cylinders or boxes may be used for proof; but if there are any failures, a second proof should be taken from unopened cylinders or boxes. Whole and open cylinders of tubes, &c., for proof.

798. A portion of all low tension electric tubes, primers, fuzes, and detonators should be tested with the Menotti test battery, if available, to ascertain if the bridge is correct before firing; this is not, however, necessary, if the battery and key, test and firing, is used, as the bridge is then tested before pressing the key for firing. Battery-test of low-tension tubes, &c.

Proof of Tubes.

799. The percentages of electric, friction, and percussion tubes to be proved, will vary according to circumstances, but the following rules are to be adhered to as far as possible: Percentage of tubes for proof.

(*a*) About 3 per cent. will be proved, this percentage being selected from each thousand, date, or group (*vide b*), except those in mounted batteries and volunteer batteries of position, but with tubes more than 10 years old a larger percentage should be taken.

(*b*) Where the numbers of any thousand or date are so small, that one cylinder would considerably exceed 3 per cent. several thousands or dates should be grouped together, till the percentage of the group represented by one cylinder is normal, but, tubes of widely different dates, and new, repaired or converted tubes should be kept separate.

(*c*) If 8 per cent. of the selections made from any nature of tubes fail, and the failures take place in several dates of one month or group, that month or group must be deemed unserviceable. If the failures take place with tubes or primers of

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a particular date, or with those coming from a particular store or fort, &c., they only should be considered unserviceable. In doubtful cases, as when the failures reach nearly 8 per cent., a second proof should be taken as may be requisite. If one date in a group fails, other dates in the group should be proved, before condemning the whole group.

(*d*) If the condemnation reduces the number of "serviceable" tubes or primers to less than the authorised proportions held on charge, no destruction of the unserviceable will take place until replaced. In the meantime, the unserviceable should be kept apart from the general stock, so as to avoid subsequent confusion.

(*e*) In mounted batteries, volunteer batteries of position, and ammunition for movable guns held by volunteers for local defence the tubes will not be proved. They will be sentenced on the condition of the cylinders. If the latter are closed, and in good condition, the tubes may be taken as serviceable. If open, improperly closed, or much damaged, the tubes will be sentenced to be exchanged, as directed in Equipment Regulations. The above will also apply to tubes in charge of ammunition columns unless a proof is considered necessary as a special case, owing to difficulty of turn-over. Where no proof is taken a report on A.F. will not be necessary.

(*f*) Tubes for drill and instruction will not be proved.

Lanyards for tubes.

800. Friction tubes are fired in the apparatus by means of a service lanyard, used in the same manner as in firing a gun.

Vent to be cleared, washed, &c.

801. In proving tubes, &c., care should be taken to prevent the vent and channels from being choked with fouling, and they should be frequently cleared. Before beginning proof, a tube should be fired, to remove damp from the vent. As a rule, the vent should be washed out after about 50 rounds. It must be well dried before recommencing proof. The end of the receiver should be brushed out after every round, with a "brush, painter's sash tool No. 8."

Bad appearance, report of.

802. Bad external appearance of tubes, shrivelling of quill tubes on firing, or any other matters concerning their condition, should be noted in the remarks, as well as the sentence, also the reasons when the proportion proved varies greatly from that laid down, or proof is dispensed with, as may be done with tubes of recent manufacture. "Second Proofs" should be separately reported, and so headed in red ink.

Copper, Quill, and T Friction Tubes.

Short, copper friction tubes.

803. Short copper friction tubes are proved with the R.L.G.^{2}, puff, in the upper part of vent (A), and receiver (A) or (B) screwed on to the stand. This represents a vent of 14 inches, with a clear space of about half an inch to the top of the puff.

Long and S.D. copper tubes.

804. Long and solid drawn copper friction tubes are proved with the R.L.G.^{2} puff, in the same vent, but with the addition of the lower part of vent (A) making a 30-inch vent.

Friction 7-pr. tubes.

805. 7-pr. copper friction tubes are proved with the R.L.G.^{2} puff, in the brass vent (C), and receiver (C) screwed on to the stand in place of vent (A), and representing a 5¼ inch vent.

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806. Short and long quill friction tubes are proved in the same manner as short and long copper friction tubes, respectively, but the parts of vent (B) should be used instead of those of vent (A), the pin and lanyard guide being also used. Quill friction tubes.

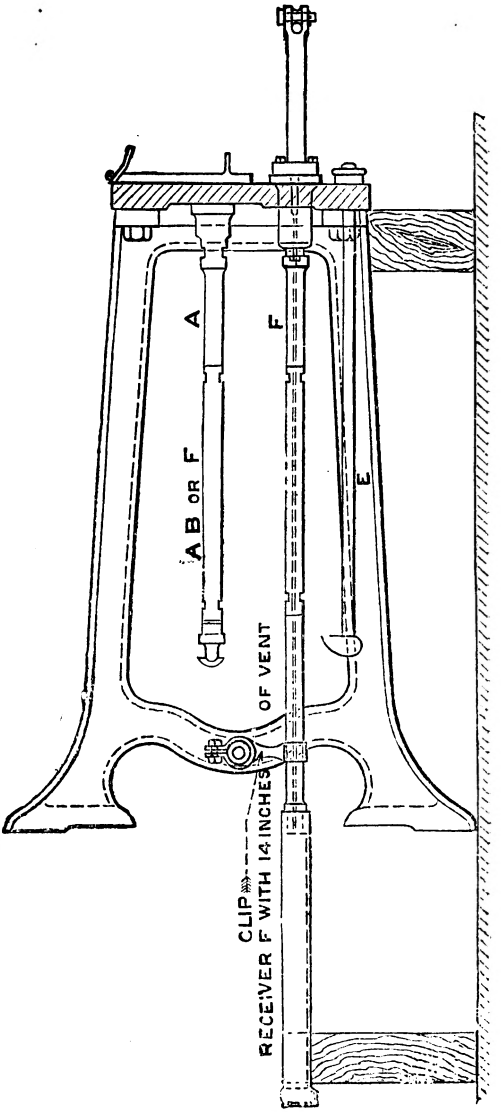
807. T friction tubes are proved with the R.L.G.[2] puff in the vent (T), and receiver (C) inserted in the stand, in place of vent (A) or (B), figure 1. T friction tubes.

Tubes, Vent-Sealing, Friction and Percussion.

808. Friction vent-sealing tubes are proved with the prism[1] puff, in the vent (F), upper, middle, and lower parts and receiver (F). Friction V.S. tubes.

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FIG. 2.



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with 14 inches of vent attached, forming a vent of 40 inches long, with 14 inches of air space at the end. Before fixing the vent, the apparatus must be turned on its side, and supported on suitable blocks, as shown in Figure 2; the vent is then screwed on to the stand as shown. A clip, for supporting the receiver (F), is supplied, to be attached to the cross bar of the stand in order to support the vent, on account of its length. The tube is inserted in the vent, and the slide placed over it. The lanyard is then attached, and passed over the pulley on the bracket.

Clear space, rear of vent.

809. No one should be allowed to stand in rear of the vent when vent-sealing tubes are being proved.

Percussion V.S. tubes.

810. Percussion vent-sealing tubes are proved in the same manner as friction vent-sealing tubes, but the percussion lock is used instead of the slide. Should a tube fail to fire, at the first blow from the hammer, a second, and if this fail, a third blow should be given.

Tubes, Vent-Sealing, Electric.

Firing-proof.

811. The P, M and V electric wired tubes will be proved in the vent (F), as described in paragraphs 808, 809. After inserting the tube in the vent, the wires to the battery will be connected to it, one only being connected to the battery; the second wire will finally be connected to the battery, and contact made by the firing key.

The electric wireless P tubes will be proved in the same manner as above, but the special contact piece "B" will be attached to the side by means of a thumb-screw.

The T electric tubes will be proved in the vent for the T friction tubes, and should ignite the same puff.

Tube, Electric, Low Tension, No. 10.

Electric tube No. 10.

812. These tubes are fired in the same way as the V.S. electric tubes, but are inserted in the 30-inch vent (A) with a "puff, powder, R.L.G.^{2}," as in paragraph 804.

Tube, Electric, High Tension, No. 17.

Electric tube No. 17.

813. This tube is only supplied, as required, to certain stations, for time guns, and need not be proved.

Tubes, Electric, Impulse, Torpedo.

Electric Impulse tubes.

814. The wired tube is fired in the same way as the V.S. electric tubes, but the vent (A) should be used, and no puff is required.

815. For proof of the wireless tube, the fitting for proof of primers, electric, large (paragraph 823), is used, and the adapter is screwed into the vent. The tube is then proved as directed in paragraph 823, using receiver (G), but a naked pebble of P powder is used instead of a puff.

Disposal of "U" tubes.

816. Unserviceable copper and quill tubes should be burnt out locally, and the metal returned as old metal. Unserviceable vent-sealing tubes should be returned to Woolwich.

Heads to be utilized.

817. The heads of T friction tubes, mark II, can be utilized in the manufacture of new tubes; therefore all that have been expended in proof should be immersed in ordinary mineral oil, as

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soon as possible after firing, then allowed to drain, and afterwards packed and sent back to Woolwich as convenient.

Proof of Primers, Vent Piece and Shrapnel Shell.

Percentage of primers for proof.

818. The shrapnel and vent-piece primers do not deteriorate with age, and will seldom be found to be unserviceable, unless they have been exposed to an abnormal degree of damp or bad usage. As a rule about 1 per cent. should be taken for proof, and the failure of 8 per cent. will condemn them, subject to the rules laid down for tubes.

Primers, vent-piece.

819. "Primers, vent piece" are proved with the R.L.G.^{2} puff, in brass vent (D), 4 inches long, and the receiver (D). This vent is screwed on to the stand, in place of vent (B), figure 1. The primer is inserted into the horizontal end of the vent, and the receiver then screwed on. The distance between the end of the primer and the puff is 4 inches. The primer is fired by means of a friction tube, placed in the vertical portion of the vent. Tubes known to be good should alone be used for this purpose.

Primers, shrapnel shell.

820. "Primers, shrapnel shell" are proved in the brass vent (E), with receiver 30 inches long. The upper end of the vent is fitted internally, to receive the primer. It is screwed through the top of the stand, into a steel boss, which is screwed and fitted to receive a brass cap, for covering and enclosing the top of the vent when firing the primer. The brass cap has a small hole bored through the side, through which a piece of quickmatch is inserted to fire the primer. About two drams of loose R.F.G. or R.F.G.^{2} (service, blank, or shell) are to be placed in the receiver, at the bottom of the vent.

Disposal of U shrapnel primers.

821. Unserviceable shrapnel primers will be burnt out locally, and the metal returned as old metal. Unserviceable vent-piece primers will be destroyed locally.

Proof of Primers, Electric.

822. One per cent. of electric primers in cylinders are to be proved, the proof being selected in a similar manner to that of tubes (paragraph 799).

Large electric primers.

823. For proof of the primer, electric, large, a "holding block," with vent screwed to take the primer, and "receiver" underneath, is attached to the table of the apparatus, by 2 screws, so that the receiver projects through the hole in the centre of the table. A "contact piece" slides in the holding block, so that it can be pushed over the head of the primer, when in the vent, and is retained in that position by a spring bolt, which drops into a recess in the holding block. The contact piece is fitted with an insulated spring plunger, to make contact with the insulated centre of the primer head. Two receivers are used, (G) for the mark I and I*, and (H) for the later marks of primers.

Receivers, G and H.

824. To test for resistance, screw the primer into the vent with the "key inserting primer," and put the contact piece over it until locked by the spring bolt. Connect one wire to the plunger, the other to the brass terminal on the holding block. Join the other ends of the leads to the terminals of the "Galvanometer

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detector, 3 ohms." On pressing the key the resistance is shown by the pointer on the scale, and should be between the following limits, I*, II, III and IV, ·6 to ·9 ohms, I**, II*, III* and IV*, 1·5 to 1·8 ohms, and with I*$_*$*, II*$_*$*, III*$_*$*, IV**, and V, ·75 to ·95 ohms. Proof of primers, electric. 38407 Ordnance 223

825. To fire the primer, screw it into the vent, and connect the leads with the block (as in paragraph 824). Attach the other ends of the leads to the terminals of an "Ammeter, 3 ampères" with "rheostat." Marks I, II, III and IV primers will be fired with a current of 1·25 ampères; marks I**, II*, III* and IV*, I*$_*$*, II*$_*$*, III*$_*$*, IV** and V, with a current of 1 ampère, the instructions on the box being followed in each case. The primers should fire, without appreciable delay, and ignite a "puff powder R.L.G.^{2}" placed in the receiver.

Such primers as fail to fire, when tested as above, should be returned to Woolwich for special examination.

Proof of Percussion and Time Fuzes.

826. The rules for selection of proof of fuzes will be the same as laid down for tubes (paragraph 799), but the percentage of percussion fuzes will be one instead of three.

827. The limits of time of burning full length, are :—

Description of Fuze.	From	To
	Sec.	Sec.
Fuze, time, Armstrong E, time set to 3 inches ..	5·6	7·2
,, ,, sensitive { long†	29·2	31·6
,, ,, sensitive { middle†	14·6	15·8
,, ,, common	9·6	11·0
,, ,, diaphragm shrapnel	4·8	5·6
,, ,, hand grenade	7·4	9·0
,, ,, mortar { large	30·0	33·0
,, ,, mortar { small	15·0	16·6
,, ,, parachute { 10-inch	14·4	16·6
,, ,, parachute { 8 ,, ...	12·6	14·5
,, ,, parachute { 5½ ,, ...	9·6	11·0
,, ,, 30 seconds	28·4	33·0
,, ,, 20 ,, ...	19·4	22·0
,, ,, 15 ,, ...	14·6	16·6
,, ,, 9 ,, ...	9·6	11·0
,, ,, 5 ,, ...	4·8	5·6
,, ,, and percussion { middle†	17·6	18·8
,, ,, and percussion { short, mark I*† ..	10·6	11·4
,, ,, and percussion { short, mark II† ..	12·0	13·2

† These limits of burning only apply to the present store of metal time fuzes.

Burning time of fuzes.

828. Metal time fuzes of recent manufacture have the mean time of burning at rest, full length, printed on the label of each cylinder, and the limits will be + ·6 second, — ·4 second on that time for such fuzes. Burning time of metal fuses.

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Correction of observed time.

829. The observed time of burning of metal time fuzes will be corrected for barometer, by adding or subtracting ·03 of the observed time for each inch the barometer, at the time of proof, is above or below 30 inches. The height of the barometer will, when possible, be stated on the report of proof.

Record of times of metal fuzes.

830. A record will be kept of the times of burning of all metal time fuzes; and when such fuzes are considered doubtful or unserviceable, the times of burning will be entered on the back of the report.

Cleaning bodies of burnt-out metal fuzes.

831. The bodies of metal percussion and time and percussion fuzes burnt at proof (except naval time and percussion fuzes, which will be brought to produce) will, as soon as possible, be cleaned by being boiled in water, the boiling being repeated a second time in clean water. They will then be thoroughly dried, packed, and returned to Woolwich.

Fuze, Percussion, B.L., Plain, No. 2.

Proof of B.L. plain fuzes.

832. This is proved as laid down for R.L., mark I fuzes, paragraph 836. Some of these fuzes have solid bottoms, and cannot therefore be proved locally. A percentage of such should be sent to Woolwich for proof.

Fuze, Percussion, Direct Action, No. 3, and Delay Action, No. 10.

Proof of D.A. fuzes.

833. Unscrew the bottom plug, and remove the powder from the magazine. Screw the fuze into the block (U), remove the cap or plug, and replace it by the cap (X), in mark I* or II, direct, or mark II delay, or the cap (Y) in mark III, direct, or mark I, delay. Insert the drift (V) for marks I* or II, direct, or mark II, delay, or (Z) for mark III, direct, or mark I, delay, in the hole in the cap, and place the block in the recess in the stand. The weight (P), dropped 25 inches, should fire the fuze. With delay action fuzes the delay should not be less than half a second.

Fuze, Percussion, Pettman, G.S., No. 5.

Proof of Pettman G.S. fuzes.

834. Unscrew the top plug, and take out the plain ball, steady plug, and detonating ball. The steady plug is proved by placing it on the anvil (G), the plain ball being placed on the ring of composition. The weight (L), allowed to fall through 25 inches on to the plain ball, should fire the detonating composition in the ring. The detonating ball is proved on the anvil (F), the weight and drop being the same.

Fuze, Percussion, Pettman, L.S., No. 6.

Proof of Pettman L.S.

835. This is proved in the same manner as the G.S. fuze, but there is no steady plug, and the weight (L) is only given a fall of 22 inches.

Fuze, Percussion, R.L., No. 7.

Proof of R.L. fuzes.

836. Unscrew the bottom plug, and remove the detonator pellet. Place the latter on the anvil (I) for mark I, (J) for later marks, and allow the weight (N) for mark I, (O) for marks II, II*, and III, to fall through 10 inches, on to the detonator, which should fire. The weight (O) must fire marks III* and IV, when it is allowed to fall through 15 inches.

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Fuze, Percussion, Small, No. 8.

Removal of pellet of small II, II*, and III.

837. Remove the safety pin, unscrew the small screw plug near the top of body, and remove the small spiral spring and brass pellet. Unscrew the top plug, and take out the spiral spring. With a sharp pricker, remove the two brass discs which will be found in the side of the body, and then turn the fuze head downwards, and push in the points of the two centrifugal bolts. The percussion pellet will then drop out.

Preparation of pellet.

838. Remove the powder from the channels, also the washer over the detonator, if it is screwed in, but not if it is spun in, and place the pellet in the anvil (G), which is then placed in the stand. The weight (O), allowed to fall from a height of 18 inches on to the detonator, should fire it.

Removal of pellet.

839. The pellet may often be removed from the body, by rolling it quickly between the hands, head down, in which case the brass discs over the holes receiving the bolts need not be removed.

Fuze, Percussion, base, Armstrong, No. 9.

Proof at Woolwich.

840. To prove the detonator, remove the needle plug and spiral spring, place the fuze in the block "A," which is to be inserted in the recess in the stand. The weight "B" dropped 10 inches should fire the detonator.

Fuzes, Percussion, Base, Large, No. 11, and Medium, No. 12.

Proof of medium and large base fuzes.

841. Unscrew the cap at the end of the fuze, and remove the plug and magazine from it. Place the cap, detonator upwards, in the anvil (K). The weight (O), allowed to fall from a height of 18 inches on to the detonator, should fire it.

842. Bodies of these fuzes should—after local proof, be packed in the cylinders sealed with tape bands, and returned to Woolwich.

Fuze, time, Armstrong, E., No. 22.

Preparation of E time fuze.

843. Scrape out the solder round the bottom plug, with a V-shaped tool, unscrew it, and remove the brass cup supporting the pellet; then replace the bottom plug, and screw the fuze into the mark I gad, or adapter of mark II gad.

Setting and igniting the fuze.

844. To set the fuze, loosen the nut with the key, and move the collar with the forefinger and thumb of the left hand until the arrow points to the required length of fuze (set at 3 generally for proof); then screw up the nut with the right hand, steadying the collar at the same time with the left hand. Finally, tighten the nut with the key; and ignite by striking it a smart blow, on a lead block, base down.

Fuzes, time, sensitive, Nos. 23 and 24.

845. Proof of these fuzes will not be taken at out-stations; they will be examined externally and sentenced upon their apparent condition.

846. Omitted.

847. Omitted.

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848. Omitted.

849. Omitted.

Fuzes, time, wood, without detonator, Nos. 32 to 42.

Ignition and burning.

850. These fuzes are placed in an upright position, in any convenient holder, and ignited by a portfire, after removal of the safety cap or band. The time of burning will be noted, also the strength of the flash from the powder channels, and whether they all act.

Screw fuze into holder.

851. The fuze must on no account be struck on the head, but should be screwed into the holder by hand.

Fuzes, time, wood, with detonator, No. 43.

Preparation.

852. Remove the securing wire in the top plug, and unscrew the latter, and remove the safety pin. Insert the drift (S) in the guides, and place the fuze in the block (R), under the stand, so that the drift rests on the hammer of the detonator.

Ignition and burning.

853. Allow the weight (M) to fall 30 inches on to the drift, which should fire the detonator. The time of the burning will be noted, also the strength of the flash from the powder channels, and whether they all act.

Fuzes, time and percussion, Nos. 54, 55, 56, 57, 60, 61 and 62.

Remove pellet for proof.

854. In all No. 55 and No. 54 earlier than Mark III, unscrew the bottom plug. Take out the detonator pellet, and remove the screw collar over the detonator, and the powder from the channel, by pricking the shalloon at the bottom with a copper wire. Place the pellet in the anvil (W), and allow the weight (Q) to fall through 18 inches on to the detonator, which should fire. In the number 54, Mark III, and the number 56 fuze, the percussion detonator is in the body of the fuze, and need not be proved.

Set fuze in gad.

855. To prove the time arrangement, the fuze, after removal of the percussion pellet, is screwed into the gad, and the fuze set at full length.

Ignition.

856. The safety pin is then withdrawn, and the fuze struck a smart blow, base down, on a lead block.

If second blow requisite.

857. Should a fuze fail to ignite at the first blow, it is probably due to weakness of the blow, or to its being given obliquely. In this case the setting should be examined, and the cap tightened up, before striking a second blow, and the fact should be noted on the report.

Proof of detonators and electric fuzes.

Percentage for proof.

858. The percentages of detonators (except for torpedoes) and electric fuzes, for proof and condemnation will be the same as laid down for friction tubes (paragraph 799), but as they are proved by whole cylinders of 25, it will seldom be found possible to keep to the percentage given. The instructions contained in paragraphs 796 to 798 will be observed.

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Fuzes, Electric, Nos. 14, 16, 19.

859. The fuzes are proved by firing, through such length of cable as may be convenient, provided the safety of the operator is ensured. The fuzes should be enclosed in a strong iron receptacle, such as an empty unserviceable common shell, to prevent splinters flying about. The connection of the wires with the fuzes and firing battery will be made as in paragraph 864. Firing-proof by battery.

Fuze, Safety, No. 9.

859A. One per cent. of all cylinders which have been in store more than two years, should be opened and the contents proved by burning a length of 24 feet of fuze. In the case of a cylinder previously opened, a shorter length may be burned. Fuze, safety.

The fuze should burn from 70 to 100 seconds per yard.

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Detonators, torpedo.

860. 5 per cent. of all torpedo detonators in store or in Royal Engineer charge for use with Brennan torpedoes, over two years old, should be returned to Woolwich for inspection every year, as they cannot be proved locally. As regards torpedo detonators, 38 and 76 grains, five years old, held on charge for use with Whitehead torpedoes, see paragraph 274. Torpedo detonators.

Detonators, Electric, Nos. 9, 12, *and* 13, *Low Tension.*

861. Electric detonators will be fired, through about 100 yards of electric D1 cable, or such length as will ensure the safety of the operator from the effects of the detonation. The battery should not be less than 20 paces from the detonator. Battery, firing electric detonators.

862. A "guncotton primer, 1¼ in. × 1¼ in., 1 oz.," will be used to test the detonation; the guncotton must be *quite dry*, and the central hole will be rectified with the rectifier to ensure its being the correct size. Guncotton primer to test detonation

863. As great care is always necessary in handling detonators, all these proofs should be carried out by a competent person, under the immediate direction of an officer. Great care required for proof.

864. One operator only will conduct the proof. He will first disconnect one of the wires from the battery; he will then connect the two distant ends of the wire with the detonator, insert the detonator into the guncotton primer, and place it on the ground. Lastly, he will return, and connect the second wire to the battery, and make contact with the firing key, when ordered. The reason of one operator only being employed is important, as it tends to diminish risk. One operator, and his duties.

865. The sound will be a sufficient indication of the detonation having taken place properly; if the guncotton has not detonated, pieces of it will generally be found scattered on the ground. Sound indicating detonation.

866. Sandy ground free from stones is most suitable on which to carry out the proof; if it is wet or stony, the guncotton primer should be placed on a piece of wood. Sandy ground.

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Detonators Nos. 8 and 15.

Preparation of No. 8.

867. No. 8 will be prepared for firing by removing the twist of paper at the thicker end of the detonator, and inserting into the tube one end of about 18 inches of safety fuze, the tube being pinched on to it. In these operations the detonator must be carefully handled, and held by the thicker end, not by the tapering portion which contains the fulminate. If the detonator has a safety fuze attached, it requires no preparation.

Preparation of No. 15.

868. No. 15 will be prepared for firing by removing the milled headed wooden plug from the end of the tube, and inserting therein one end of about 18 inches of safety fuze. The tin tube of the detonator is then pinched on to the safety fuze, with the same precautions as in the case of No. 8 (paragraph 867). A piece of tape is then coated with shellac, and wound round the junction of detonator and safety fuze, to prevent any chance of a spark from the port-fire passing into the detonator of the safety fuze.

Insertion in primer.

869. Insert the detonator into the guncotton primer, in such a manner as will ensure contact, the primer being examined, as detailed in paragraph 862.

Places for safety firing.

870. Then place the primer so that some solid obstacle may intervene between it and the operator; the muzzle of an unserviceable gun, or the angle of a wall, will be found suitable.

Ignition of fuze.

871. Ignite the safety fuze with a portfire, and retire about 20 paces. Care must be taken to prevent the guncotton being ignited by a spark, or by the safety fuze. The result will be judged as in paragraph 865.

Disposal of Defective Detonators.

Disposal of defective or "U" detonators.

872. All defective detonators, whether for land, naval, or submarine mining service, or detonators, which are from any cause useless, with the exception of those which should be reserved for examination, should be disposed of as follows:—

(*a*) If the detonators are capable of being fired by the ordinary methods, and the necessary appliances are available on the spot, they should be destroyed by a skilled man, by firing without guncotton. If the number is not large, the detonators may be fired singly in an empty 13-inch or 10-inch mortar, or other shell of large calibre; but if the number to be destroyed is too large to allow of their being fired singly in a convenient time, a special safety box (in which five can be fired together) will be demanded, and a report made of the circumstances necessitating it.

(*b*) In the case of inland stations, such detonators as cannot be fired off as above should be forwarded, at the first convenient opportunity, to the Principal Ordnance Officer or Naval Ordnance Officer, Royal Arsenal, Woolwich, for disposal.

(*c*) In all other cases, defective or useless detonators should be disposed of, by being taken out to sea and thrown into deep water by twos and threes.

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SECTION X.

Examination of Ordnance and Aiming Rifles.

ORDNANCE.

Procedure for Examination of Land Service Ordnance.

Examination of L.S. ordnance.

873. Ordnance in charge of the Royal Artillery, Militia and Volunteer Artillery, will be examined by the inspecting ordnance officer or inspector of ordnance machinery in the district or command. When guns require examination, the officer commanding will submit A.F. G 875, with the memorandum of examination, to the chief ordnance officer, who will make arrangements for the examination to be carried out by the inspecting ordnance officer or by the inspector of ordnance machinery, whose sentence shall be final, except in the case of provisional condemnation. The inspector will make two copies of this form ; and on the completion of the examination, will enter the sentence on, and sign all three. He will pass the original direct to the officer in charge of the gun, for transmission to the officer commanding Royal Artillery ; the other two copies, with impressions (except in obviously trivial cases) will be forwarded by the chief ordnance officer direct to the Chief Inspector, Woolwich. The Chief Inspector, Woolwich, will enter the final sentence, retain one copy, and return the other to the chief ordnance officer, who will retain it after passing to the officer commanding Royal Artillery to note. In the event of the gun being serviceable, the "memorandum of examination" will be returned by the inspector direct to the officer in charge of the gun ; if unserviceable, he will forward it with the impressions to the Chief Inspector, Woolwich, who will return it after final sentence, through the chief ordnance officer.

At home where there is no I.O.O. or I.O.M.

874. In districts at home in which there is no inspecting ordnance officer or inspector of ordnance machinery, the chief ordnance officer will forward the requisition to the Chief Inspector Woolwich, who will arrange for the examination to be carried out, and if necessary send an examiner to the station.

Abroad where there is no I.O.O. or I.O.M.

875. At stations abroad where there is no inspecting ordnance officer or inspector of ordnance machinery, the examination of ordnance will be carried out under the direction of the officer commanding the Royal Artillery, who will report result of examination direct to Chief Inspector, Woolwich (forwarding impressions of the gun, if necessary) for final sentence.

Ordnance in charge of public bodies in the United Kingdom.

876. Ordnance in charge of corporations and other public bodies, except the Irish Light Commissioners, will be examined locally, upon special requisition from the body concerned to the general officer commanding the district.

877. Arrangements will be made for the examination of guns belonging to the Irish Light Commissioners on requisition to the General Officer Commanding at Cork.

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Procedure for Examination of Naval Ordnance.

Examination of guns of ships at home.

878. The guns of a ship at home are usually examined at a Naval Ordnance Depôt, but should the ship be remote from such depôt, and its guns require examination, an application will be made by the officer commanding the ship direct to the nearest chief ordnance officer, who will act as laid down for ships abroad.

Examination of guns on ships abroad.

879. At stations abroad, the guns on board H.M. ships will be examined by the inspecting ordnance officer, or inspector of ordnance machinery, or other qualified officer, whose sentence shall be final, except in the case of provisional condemnation. Requisitions for the examination of such guns will be accompanied by Forms O 21, S 1404, for B L., R.B.L., or Q.F. guns, O 24, S 1406, for R.M.L. guns, and O 22 for S.B. guns. After the examination the sentence will be entered on the memorandum of examination, which will afford information to the captain of the ship, and also on the forms which accompanied the requisitions for examination, which latter will be handed to the chief ordnance officer for transmission to the Admiralty as follows :—

N.O. 14410

(*a.*) When the inspecting officer doubts the serviceability of the gun, and in case of accidental injuries, unless obviously trivial, two copies of the forms specified will be prepared ; one to be forwarded to the naval Commander-in-Chief, for transmission to the Admiralty, the other, accompanied by impressions, to be forwarded to the Chief Inspector, Woolwich.

(*b.*) In the case of ordinary fair wear and tear, such as scoring in the bore, unless it presents any unusual feature or shows signs of abnormal development, one form only is required, and is to be forwarded to the naval Commander-in-Chief for transmission to the Admiralty.

879A. Whatever the number of rounds fired, the guns in use in the Navy should be examined once at least in every three years.

Mode of sentence.

880. No ordnance on board a sea-going vessel should be sentenced otherwise than as serviceable or provisionally condemned, except in regard to minor repairs, which can be carried out at once on the spot, or except as provided for in paragraph 887. In a doubtful case the ordnance should be provisionally condemned.

Procedure for Examination of R.N.R. Ordnance.

Examination R.N.R. Ordnance.

881. When a R.N.R. gun has fired its series of rounds, or from any cause requires to be examined, the battery officer will forward Form C 154, in duplicate, the impressions, and the memorandum of examination, to the army ordnance officer, or the naval ordnance officer, from whom supplies of ordnance stores are obtained ; this ordnance officer will pass the Form C 154, the impressions, and the memorandum of examination, to the local inspecting ordnance officer.

The battery officer will afford all possible assistance to the inspecting officer, or examiner, when a gun has to be examined.

882. On the completion of the local examination, the inspecting

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ordnance officer will inform the battery officer, *by wire*, of the sentence, so that in the case of a gun being serviceable, the practice may be proceeded with at once.

In the event of the gun being sentenced serviceable by the inspecting ordnance officer, he will return the memorandum of examination *direct* to the battery officer.

883. The inspecting ordnance officer will enter the sentence on, and sign both the original and duplicate copies of Form C 154. He will pass the original copy of this form to the local ordnance officer (naval or military). He will forward the duplicate copy with impressions (if necessary) direct to the Chief Inspector, Woolwich (*vide* paragraph 885).

Annual examination of the bores of R.M.L. guns.

883A. In the case of R.M.L. guns, impressions of the vent will be sufficient, except when the guns are re-vented, when impressions of the bore, as laid down in paragraph 898, should be taken. The bore must, however, be thoroughly examined at least once a year, and oftener if its condition is such as to warrant it. The impressions of the bore should be forwarded with the duplicate copy of Form C 154 to the Chief Inspector, Woolwich, for his information.

884. The ordnance officer (naval or military) will forward the *original* copy of Form C 154 to the Superintendent, Ordnance Stores, who will note the sentence, and pass the form to the Chief Inspector, Woolwich. The Chief Inspector, Woolwich, will insert the final sentence on the original copy of Form C 154 and return this copy to the Superintendent, Ordnance Stores, who will note the final sentence and return the form to the local ordnance officer who will retain it after passing the same to the inspecting ordnance officer to note. The Chief Inspector, Woolwich, will retain the *duplicate* copy of Form C 154.

885. If the gun is provisionally condemned by the local inspecting ordnance officer, he will forward direct to the Chief Inspector, Woolwich, the memorandum of examination, at the same time as he forwards the duplicate copy of Form C 154, and the impressions (*vide* paragraph 883).

The Chief Inspector, Woolwich, will retain the impressions, but he will return the memorandum of examination, after final sentence, *direct* to the battery officer.

886. If no person competent to take impressions be available at the battery, the battery officer will apply to the army ordnance officer, or naval ordnance officer, for the services of an artificer, to perform such service.

General Instructions.

Special cases.

887. The maximum number of rounds for which a gun may be sentenced, and after which it must be examined, are given in Magazine Regulations. In any case where there is any appearance of defects likely to develop rapidly, or where the local inspecting ordnance officer is in doubt as to sentencing a gun firing cordite for a complete series, he may sentence the gun for a smaller number of rounds, provided that in the case of B.L. or Q.F. 6-inch and upwards, that number exceeds the number for a half series and is not less than fifteen rounds (equivalent full charges).

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In such cases he should send impressions and measurements if necessary to Chief Inspector, Woolwich, for adjudication.

Estimate of life of gun.

In sentencing a gun an estimate should be made of the number of full charges it is capable of firing before condemnation, and if the inspecting officer is of opinion that the gun will not fire a complete series, he should draw attention to the fact in his Report of Examination, and the naval ordnance officer (or chief ordnance officer) should take steps to have a reserve gun in readiness to replace it.

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887A. Hotchkiss and Nordenfelt guns, in which the eccentricity of the blow on the cap in the cartridge exceeds ·03 inch, will have the worn fittings removed and spare fittings substituted. If after the substitution of spare fittings the eccentricity still exceeds the limit mentioned above, the guns will be provisionally condemned.

Final condemnation.

888. As it requires great practice and experience in order to become a competent judge of the various defects and conditions, final condemnation will be pronounced only by the Chief Inspector, Woolwich.

Provisional condemnations. Return of naval guns to Woolwich.

889. In all cases, however, where there are sufficiently serious defects, or if there be any doubt as to the serviceable state of a piece, it must be provisionally condemned, pending the decision of the Chief Inspector, Woolwich. Naval guns provisionally condemned will be returned to Woolwich at once, without waiting for the final sentence of the Chief Inspector, Woolwich.

Further firing in case of doubt.

890. When the inspecting officer is in doubt as to the nature or importance of any defect, and when circumstances permit, it is well to fire a few rounds and then take another impression; if on comparing this with the first, the defect does not appear to have increased, the gun may be considered serviceable for another series of rounds.

Breech fittings and impressions of guns examination of.

891. As a rule, it is sufficient for the inspecting officer to examine the impressions, without personally seeing the gun; but in the case of B.L. and Q.F. ordnance, it is desirable that, unless he considers the artificer working under him is qualified to deal with the breech fittings, he should himself inspect them, and see that they are in proper working order.

When examining the breech fittings, care must be taken to test the concentricity of the striker with the primer in the cartridge or tube in the vent. This can be tested by the use of the "eccentricity" gauge with B.L. and B.L.C. guns using vent sealing tubes, and with Q.F. and Q.F.C. guns (except Hotchkiss and Nordenfelt), by removing the primer in the cartridge and substituting an adapter for the reception of the gauge. If the impression made in the plug of the gauge by the point of the firing pin is found to be so much eccentric as to be likely to cause miss-fires with either percussion or electric firing, further examination should be made to ascertain the portion of the mechanism in fault, and steps taken to have it repaired or exchanged.

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891A. When a new breech screw, obturator, vent axial, or lock is taken into use, a note to that effect should be made on the memorandum of examination.

Ordnance in important positions, &c.

892. If ordnance found unserviceable, or requiring re-venting or repair, as above, are mounted in an important position, or if local circumstances render their immediate exchange necessary, they will at once be exchanged, if practicable, by the chief ordnance

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officer, on requisition of the officer commanding the Royal Artillery approved by the general officer commanding. In such cases the requisition, after being complied with, will be forwarded by the chief ordnance officer to the War Office.

Examination after re-venting or repairing.

893. When ordnance requires to be re-vented or repaired in any way, the work will, whenever possible, be carried out locally, and, when completed, will be examined by the inspecting ordnance officer or inspector of ordnance machinery, who will ascertain and report, if possible, from the impressions, whether it has been satisfactorily carried out; but in all cases after the work is completed, impressions, showing the state of the gun before and after repair, should be sent through the chief ordnance officer to the Chief Inspector, Woolwich, for confirmation of sentence.

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Impression not to be destroyed.

894. An impression taken of an accidental defect to a gun, must not be destroyed until the gun is finally sentenced, and, except in obviously trivial cases, an impression of a defect should be forwarded with the report.

Reference to C.I.W. direct.

895. The Chief Inspector, Woolwich, may be referred to direct on any questions regarding the technical details of the examination as laid down in paragraph 37.

Cost of repairs.

895A. Should any of the ordnance referred to in paragraphs 876 and 877 be sentenced for repairs, the persons in charge will be furnished with particulars of the defects and an estimate of the cost of repairing them as laid down for service ordnance, and will be asked whether the work should be done at their expense. The cost of all inspections and repairs of such guns will be recovered locally.

The charges made will include wages and allowances of civilian workmen, extra cost of military artificers while so employed (but not their ordinary pay and allowances), and cost of vents or other parts and materials used, together with the percentage notified from time to time as chargeable on labour and material expended in Army Ordnance workshops on naval work. Travelling expenses and charges for carriage of tools, etc., will also be included.

Examination of Bore.

Examination of bore.

896. The bore should be carefully cleaned and examined, and gutta-percha impressions taken. Instructions for these operations are given in Magazine Regulations.

Tools.

897. For the purposes of the examination of bores, etc., tools are provided for rifled and smooth-bore ordnance respectively, see appendices XIV and XV.

898. These will generally meet the requirements, but extemporized arrangements have sometimes to be resorted to. In the periodical examinations it will be sufficient under ordinary circumstances to take impressions of the following parts:—

Impressions required.

(*a*) B.L., B.L.C., Q.F., and Q.F.C. Ordnance—The whole of the chamber (including seat of obturator in B.L. and B.L.C. guns) and all round the bore at the commencement of rifling. Should the erosion in the bore extend further, another set in front of these should be taken. In the case of part lined guns impressions of the joint should be taken

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(*b*) R.B.L. guns—The powder chamber where any flaws are seen, and, as a rule, of the breech bush in the gun.

R.M.L. wrought-iron ordnance. (*c*) R.M.L. ordnance—The powder chamber all round showing the bottom of the vent, and the bore for a distance of about 3 feet from the commencement of the rifling, or further, if necessary, to include the whole of the scoring.

R.M.L. converted guns. (*d*) R.M.L. converted guns—The whole of the powder chamber, showing also the cup and the joint, where the cup closes the end of the bore.

S.B. ordnance. (*e*) S.B. ordnance—The crown (curve of powder chamber extending from the vent) and bottom of the vent and the portion of the bore adjoining.

Defects in the bore.

S.B. guns. **899.** For smooth-bore guns, such as are used for saluting and time guns, it is not easy to lay down any rules to govern provisional condemnation; a great deal must be left to the experience and judgment of the examiner, but it may be generally stated that cavities less than ·1 inch deep in rear, and less than ·2 inch in front of the trunnions, need not cause suspension of firing unless the edges are jagged and liable to retain pieces of cartridge.

Rifled ordnance. **900.** With rifled guns the defects which are likely to be found may be classed under three distinct headings, viz.:—(1) Original, (2) Fair wear, and (3) Accidental.

(1) *Original Defects.*

Tools, marks of. **901.** These are generally "tool marks," or slight irregularities and scratches caused in manufacture during the boring and rifling, and are usually noted on the first page of the memorandum of examination issued with the gun. A chip of steel or grain of sand getting between the machine and the surface of the bore will cause marks of this kind, while the emery powder used in lapping may leave very fine marks.

902. With steel tubes, on account of the hard surface of the metal, fine lines become very apparent, and they have at times been mistaken for cracks when running lengthways in the bore. By an experienced person, however, the difference is easily recognised.

(2) *Fair Wear Defects.*

Fair wear. **903.** There is a great variety of defects which may be included under this head. In many cases they depend upon the material of the "A" tube.*

Erosion. **904.** Erosion is a general term applied to the effects produced by the action of gas on the bore of a gun. These effects are of two kinds, viz.:—

Wear. (1.) The gradual enlargement of the bore and smooth wearing away of the surface by the action of the gas in rear of the projectile, which is called wear, and is independent of the sealing of the bore by the projectile.

* The material of which the "A" is made is stamped on the muzzle, and is also entered in the Memo. of Examination.

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(2.) The irregular eating away of the surface of the bore in holes and gutters which is called scoring and is mainly due to imperfect windage and sealing of the bore. Scoring.

905. These two actions may occur separately or conjointly, and with cordite charges the differences are marked. In the latest high velocity B.L. guns, in which the sealing is nearly perfect, wear occurs with very slight or no trace of scoring. In R.M.L. guns where there is considerable windage the scoring is considerable and the wear practically nil, while in the older type of B.L. guns both wear and scoring appear.

906. In estimating the life of a gun all rounds should be reduced to full as follows (powder and cordite charges being totalled together and considered of equal value) :— Life of gun,

$$\begin{array}{r} 73 \\ \hline 3 \\ \hline 3839 \end{array}$$

1 full = 4 three-quarter = 16 half charges.

907. The position and maximum depth of scoring, and, with B.L. and Q.F. ordnance 6 inch and upwards, the wear at 1 inch from the commencement of the rifling* should be entered in the forms of examination as well as in the memos. Depth of scoring to be recorded.

908. Appendix XXI gives the probable life, maximum wear, scoring, and wear plus scoring permissible of the guns for which sufficient data are available.

909. When a new gun is taken into use with cordite charges, wear at once begins, the lands near the breech end of the bore are worn down rapidly while the grooves are also worn but not to the same extent as the lands. The wear is always more than if powder had been used. The rate of enlargement increases greatly with the weight of charge and pressure and a heavy gun wears much more quickly than a light one. The wear per round is greater at first than subsequently. The scoring, however, once it begins, increases very rapidly, and grows at an increasing rate as firing progresses. A tool mark in the vicinity of the seat of the projectile is likely to start the scoring, but its importance is lessened the further it is from this point. Wear with cordite charges.

910. All B.L. and Q.F. guns, 6 inch and upwards using cordite charges should be measured at each examination at the three standard points laid down in Appendix XXIII. Instruments measuring bore will be supplied for this purpose; instructions for use are contained in Appendix XXVI.

911. For the purpose of estimating the probable life and checking measurement of guns the wear and scoring are to be plotted on a chart as in Appendix XXII. Copies of this chart will be supplied on application to the Chief Inspector, Woolwich. In all cases, measurements should be calculated from plan size. Plotting, wear, and scoring.

912. For the present the limit of bore measurement at 1 inch from the commencement of the rifling to govern condemnation should be the maximum diameter of the gascheck portion of the driving band of the projectile used for the gun, and Appendix XXI has been compiled on this assumption. Limit of bore measurement.

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* The distance of the commencement of the rifling from the muzzle is shown on the memorandum of examination.

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Scoring in B.L. and Q.F. guns (unlined).

913. In the case of guns below 6 inch, firing cordite, in which the maximum scoring shall have reached the depths mentioned in Appendix XXI, Column IV; (Column II being disregarded), as measured on the gutta percha impressions from the lands to the top of the scoring, shall be provisionally condemned. Scoring is found chiefly on the front incline of the powder chamber, and thence for one or two feet down the bore. So long as the scoring continues to increase gradually in proportion to the number of rounds fired, it may be considered as of no great importance. Appendix XXI gives the probable life of rifling and the maximum permissible scoring for guns below 6 inch.

913A. Should the inspecting ordnance officer be of opinion that the scoring in any gun would reach the limit before another complete series, he may sentence it for a less number of rounds, but not less than half a full series. If he considers that the limit would be reached in less than a half series, he will provisionally condemn the gun.

3 and 6-pr. Q.F. 38407 Ordnance 217

914. 3 and 6-pr. Q.F. guns frequently become unserviceable through obliteration of the rifling at the breech, they may be provisionally condemned when three inches from the commencement is so obliterated.

Scoring in R.M.L. guns.

915. In R.M.L. ordnance, which have enlarged chambers, the chief scoring will be found on the front slope of the chamber, and thence for two or three feet down the bore. In unchambered guns the deepest part will be over the seat of the projectile, and along the loading side of the grooves.

Limit of scoring for gas-checks.

916. It is worthy of notice that scoring has never caused the destruction of a gun on service, though it must tend towards failure of the tube eventually. Guns formerly exhibited an enormous amount of erosion, but since the introduction of gas-checks the furrows have not attained any very great size.

Sharp furrows in scoring.

917. Should, however, sharp furrows or streaks be found to develop in the field of erosion or elsewhere they should be very closely watched, and if found to develop abnormally in depth or length, the gun should be provisionally condemned.

Annular erosion, Q.-F. guns. N.O. 12161

918. Annular erosion, immediately in front of the "short" cartridge, will occur in the chambers of Q.F. guns in which short cartridges are used; this is not important if within the limits of wear and scoring allowed for the rest of the bore (*see* Appendix XXI.), but, when the erosion exceeds ·05 inch, long cartridges must not be used.

Guns with A tube.

919. In the case of guns where the strength of the gun depends upon the integrity of the A tube, streaks of scoring of whatever length should be very closely watched, and a small impression taken and kept with the memorandum of examination of the gun for comparison at the next examination.

Cracks.

920. Should it be found that a streak is extending more rapidly than the rest of the scoring, or should the slightest appearance of a crack be found at any time at the bottom of the streak, or should the streak extend continuously from the slope of the powder chamber into the bore, the gun should be provisionally condemned.

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921. Wearing of the grooves may take place in all rifled guns, but more especially in R.M.L. ordnance, with which studded projectiles are used; it will generally be noticed in guns which have iron A tubes, and those with steel tubes which have a uniform twist in the rifling. Scoring will tend to obliterate very shallow grooves, but the result is rough and irregular. The wear from friction will present a different appearance, and it is of greater importance because the studs might at last "over ride" or get shorn off in the bore. Wearing of the grooves.

922. "Coil marks" and "defective welds" can only appear in guns which have a tube of coiled iron. The term coil-mark is applied to the lines which may be found running spirally round the surface of the bore, due to the manufacture of the "A" tube by coiling, where the weld has not been quite perfect. They are generally not very deep, and consequently are of little importance. When, however, they happen to be large or serious in character, they are called "defective welds." This term is also applied to a defect at the junction of the different lengths, from imperfect work in the process of uniting together; in this case the flaw would run circumferentially. Unless there is reason to believe that a coil mark is developing into a defective weld, or some material change is observed from its state at a former inspection, the gun need not on this account be condemned. Speaking generally, the depth of a defect is of more importance than its extent; but should a defective weld of moderate depth run two-thirds of the way round the bore, the piece should be provisionally condemned. Coil marks and defective welds.

923. "Specks," "spots," and "pin-holes," are terms applied to small cavities in iron tubes, which are generally produced by cinder or dirt in the iron, or by blisters, &c. They sometimes occur in clusters, and are usually disclosed to view after the surface has been removed by erosion. Specks, spots and pin-holes.

924. The importance of flaws and defective welds depends in a measure on the position of the defect, one in rear of the trunnions, and especially in the powder chamber, being more dangerous than one of the same nature and extent in the forward part of the bore, because the powder gas will act much more rapidly upon it, and if ragged it might hold a piece of ignited cartridge. Very few instances have occurred in which coil-marks have been the cause of an accident, or in which the defects have increased to any material extent after issue, unless such defects have been situated in the powder chamber, and for this reason no guns are issued with any but trifling flaws in that part of the bore. Position as a point of importance.

925. "Longitudinal fissures" are peculiar to iron tubes, but only to those which have been made out of solid forged iron. They are caused by the erosion of gas along the lines of the forging, and may be due to defective welding. When these fissures are fairly developed, they weaken the tube (already too weak in a circumferential direction) and therefore they should always be regarded with suspicion. This however only applies to a few 20-pr. R.B.L. guns. Longitudinal fissures.

926. Cracks may occur in iron or steel, but it may be said that they are almost restricted to steel tubes. Steel is free from most of the defects inherent in iron, and generally shows a perfectly clear Cracks.

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surface at first, excepting tool marks. Cracks usually take a longitudinal direction. It is necessary to distinguish between streaks of scoring and cracks, as a crack is at all times sufficient to condemn any piece, although many rounds may sometimes be fired from it with safety, after failure of the tube. This has been proved by firing, under precaution, one or two guns in which the tube was split, but on service the gun should always be immediately exchanged.

Guns with Liners.

Split liners.

927. As a liner is merely a provision by which the interior of the bore can be from time to time renewed, *lined* guns may continue to be fired *in cases of emergency*, although the liner or bush at the rear of the same is split. If the split extends over the obturator, or if the bush at that part is split, an escape of gas to the rear may be expected.

Turning of half liner.

928. A gun fitted with a half liner, or with one extending as far as the "Alpha" tube, may continue to be fired notwithstanding that the liner has turned so that the rifling at its forward part is no longer in accord with the rifling in advance of it—this irrespective of the amount of difference—because the result of such turning is merely to cause the copper of the driving band to be re-engraved. This process demands so comparatively slight an exercise of power as to be practically inappreciable as regards stress on the gun. It is incapable of causing a retardation in the velocity of the shot, or of more than very slightly reducing the normal acceleration of that velocity, at this point.

Bore liner.

929. Certain heavy guns have the chamber and bore liners separate. When this construction is adopted "guttering" occurs at the joint at the rear end of the bore liner. This is of no importance for the reasons given, when considering the question of split liners (*see* paragraph 928).

Endway movement of liners.

930. Small movement of a liner forward, or to the rear, is, for the reason given with reference to split liners (*see* paragraph 928), of no importance, provided that in the latter case the efficient closing of the breech be not interfered with.

Flaws in liners.

931. Flaws in liners are not of importance (*see* paragraph 928) unless they show signs of developing to a serious extent, in which case the gun should be repaired as opportunity occurs.

Erosion of the bore.

932. With respect to the safety of lined guns, erosion is obviously, for the reasons given in paragraph 928, an unimportant matter.

(3) *Accidental Defects.*

Accidental defects.

933. This class includes all injuries caused by premature explosions or the breaking up of a projectile in the bore, splitting of a Q.F. cartridge, using aiming rifles without removing the muzzle tampeon, shot, splinters, &c.

Prematures.

934. *Prematures* in the bore, give rise to: (1) denting, (2) grazing, (3) flattening of the lands and enlargement of the bore, (4) bulging of the exterior, (5) cracking or blowing off of muzzle.

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935. Owing to the varying character of the effects produced, it is impossible to lay down precise rules for sentencing the different natures of ordnance. The following remarks are a guide, and it should be borne in mind that the main reasons for condemning are that the damage is likely to cause another premature, appreciably affect the strength of the gun, or lead to bad shooting, or undue scoring :— Rules for sentencing.

(1) The importance of dents depends on their position, size, and the nature of the gun. No limits of size can be fixed. Dents.

(2) Grazes alone, unless very deep or extensive, are not of importance. Grazes.

(3) Flattening by itself is of little consequence unless extensive, but it is usually combined with enlargement and is then more serious, especially if near the breech. If the enlargement extends more than a quarter round the bore, the gun should be provisionally condemned. Flattening and enlargement.

(4) Bulging of the chase is usually sufficient to warrant provisional condemnation. Bulging.

(5) Cracking or blowing off muzzle entails provisional condemnation. Cracking.

936. *Splitting of a Q.F. Cartridge.*—The general result, if at or near the base, is a scoring of the rear end of the chamber and of the face of the breech block, which is seldom important, and unless opening of the breech and extraction of cases after firing are affected, the gun and breech block should be made serviceable. In the event of injury to the chamber of a Q.F. gun through the splitting of a cartridge case, the inspecting ordnance officer, when making the examination, will ascertain from the officer in charge of the gun whether extraction is effected thereby. If such be the case he will endeavour, if possible, to remedy the defect by filing away the scoring towards the rear of the chamber, so as to allow the cartridge to be extracted. He will then make arrangements with the Officer Commanding Royal Artillery, in the case of land service guns, to fire one or two rounds to test the extraction. In the case of naval guns the inspecting ordnance officer will ascertain from the senior naval officer if it is practicable to fire one or two rounds to test the extraction, if not the gun should be provisionally condemned and exchanged, the particulars being furnished in the report of examination. If after the additional rounds have been fired, the difficulty cannot be overcome, the gun should be provisionally condemned and particulars relating to the difficulty of extraction furnished in the report of examination. Splitting of a Q.F. cartridge case.

937. *Injury to Muzzle.*—In cases where a bullet from an aiming rifle strikes the bore but does not perforate the A tube, the gun may be regarded serviceable. Injury to muzzle.

938. Impressions should always be taken of the above defects and forwarded with the report unless the injuries are trivial. Any filing down of metal set up, clearing of rifling grooves, or removal of sharp edges, that may be necessary, being done on the spot by an artificer. Impressions of defects.

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Examination of Vents.

Examination of vents.

939. Besides examining the bore of a piece of ordnance, it is necessary to examine the vent itself, and that part of the chamber or bore of the piece where it enters. For this purpose the vent channel is thoroughly cleared and scraped, and then, in S.B., R.M.L., and R.B.L. side-closing pieces, gauged by means of a set of gauges issued for the purpose.

Gauging.

Choke.

940. It is not uncommon to find a choke, where the metal has been set up, near the bottom of the vent; this should be removed by a drill or rimer before gauging.

Impressions of vents.

941. A clean impression of the bottom of the vent must also be taken. This will be taken with the improved instruments for taking impressions of bores, the plates for which are now fitted with ends to suit the chambers of guns, or with the instrument provided among the tools for venting ordnance, if this instrument and the proper blocks are at hand.

R.B.L. top closing guns.

942. R.B.L. top-closing guns are vented through the vent-piece: the mode of examining the same is similar to that laid down in paragraph 939.

Guns using V.S. tubes.

943. In guns using P and V vent sealing tubes the tube chamber is gauged and an impression of it taken. The latter is also done in the case of T vents.

In axially vented M.L. guns and in T radially vented B.L. guns the copper washer and seating must be examined.

With the Mark II radial T vent it is important that the vent head be properly screwed down so as to be in contact with the top of the vent bolt, the feather on the former fitting into the recess in the latter.

Defects in vents of S.B., R.M.L. radial and R.B.L. side-closing guns.

Effects of firing on vents.

944. The effect of firing on a radial vent is seen either by a gradual increase to the channel of the vent itself, by an irregular wearing away of the bottom, by the metal of the vent setting up, and the gas forming a hollow ring round it, or by fissures or hair lines radiating into the metal of the bore from the edge of the vent bush.

Sentence.

945. Ordnance will be sentenced either for re-venting or condemnation, according to the state of their vents, as follows:—

S.B. and converted guns.

(*a*) S.B. ordnance and converted rifled guns.—To be re-vented if 0·3-inch gauge passes down.

Other rifled ordnance.

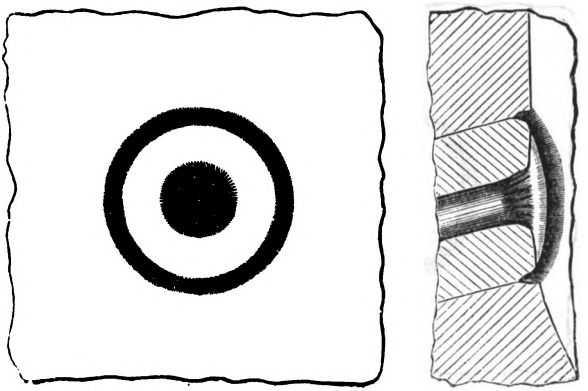
(*b*) Other rifled ordnance, if 0·275-inch gauge passes down.

S.B. bushed ordnance.

(*c*) S.B. bushed ordnance.—The defects usually found round the vents of bushed pieces are the giving way of the iron round the bush, from the gas getting in between the two metals (*see* Fig. 1) and the fissures or hair lines which radiate in the iron from the edge of the vent-bush (*see* Fig. 2, p. 136).

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BUSHED ORDNANCE.—FIG. 1.



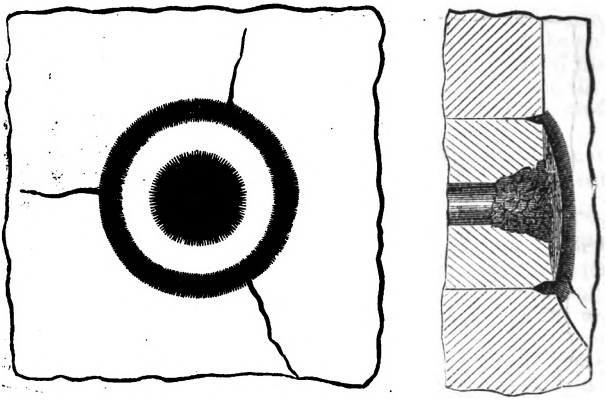
(*d*) The metal around a bush begins to give way almost immediately after a piece is vented, forming a hollow ring round it, which gradually increases. So long as this wear is uniform, and the edges are not jagged, it is not of importance; and ordnance will not be re-vented or condemned for this cause, until the ring has become 0·1 inch deep, or 0·1 inch wide. If, however, the edges are ragged, or if one side has given way much more than the other, so as to be likely to hold a piece of unconsumed cartridge, the examiner must use his discretion as to sentencing the ordnance, it being impossible to lay down fixed rules for all cases. Ring worn round bush.

(*e*) Fissures, or hair lines, radiating in the iron from the edge of the bush, will be found in bushed ordnance. There will often be one on either side, and a third to the front. The examiner will carefully trace the fine lines on the gutta-percha impressions, and if they extend more than one-tenth part of the circumference of the bore in any direction, measured from the centre of the vent, he will provisionally condemn the piece. One-tenth may be taken as— Fissures, or hair lines.

68-pr.	...	...	...	...	$2\frac{1}{2}$ inches.
32 „	...	...	...	...	2 „
24 „	...	...	...	...	$1\frac{3}{4}$ „

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BUSHED ORDNANCE.—FIG. 2.



Vents R.M.L. and R.B.L. side-closing ordnance.

(*f*) R.M.L. and R.B.L. side-closing ordnance.—Should the ring (Fig. 1, p. 134), worn away around the bottom of the bush, be 0·075 inch wide, or 0·1 inch deep, or jagged and irregular, so as to be, in the opinion of the examiner, likely to retain a piece of cartridge, the gun will be condemned for re-bushing, and if possible with a cone bush. Much wear of the lower portion of the fire-channel in the vent will also necessitate the re-venting of the gun. The amount and nature of wear which should condemn a vent must be left to the judgment of the examiner. Generally speaking, if any sign of fissure of the copper is apparent, or if the thickness of the wall is much reduced in any part, the vent must be condemned. In case of hair lines radiating from the edge of the vent in steel-tubed pieces, the gun must be provisionally condemned if the hair lines are 1 inch in length, except when they are directly to the front or rear, when the limit of condemnation is smaller (½ inch), owing to that position being the worst for the development of a crack. The measurements are taken from the edge of the bush

Fissures in steel barrels.

946. In heavy ordnance with steel barrels, a so-called fissure frequently develops in front of the vent (caused apparently by the rush of gas through the vent-channel). This fissure partakes at first of the nature of a slight scoring. If not attended to, it may increase in depth to a crack. Such a fissure should therefore be filed out, and an examiner must use his judgment as to when this operation is necessary, but in no case should such scoring be allowed to attain a depth of 0·075 inch.

Discretion as to sentence.

947. Although a properly instructed examiner will generally be able, with the aid of the above rules, to sentence a vent either as serviceable for a further series of rounds (as laid down in paragraph 887), or for re-venting, yet many cases will arise in which it will be advisable for the vent to be sentenced as fit to fire some smaller number of rounds, and then to be further examined (*see*

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paragraph 887). Such cases must be left to the discretion of those whose duty it is to give sentence on the impressions taken.

Defects as to vents of R.B.L. (top-closing) Guns.

Vents of R.B.L. (top closing) guns.

948. The vent piece should be condemned if the ·3 guage passes through the vertical portion of the vent channel, or if, when the bush is made up of several pieces, there is some considerable opening between the pieces.

Defects in Vents of guns using V.S. tubes.

Vents of guns using V.S. tubes.

949. A vent should be condemned, if,

(*a*) any portion of the tube seating, as judged from an impression, shows scoring more than ·005 deep.

(*b*) In the case of P and V tube vents any of the tube chamber gauges enter to the + limit.

(*c*) In R.M.L. axially vented guns the outside of the vent in contact with the copper washer is scored.

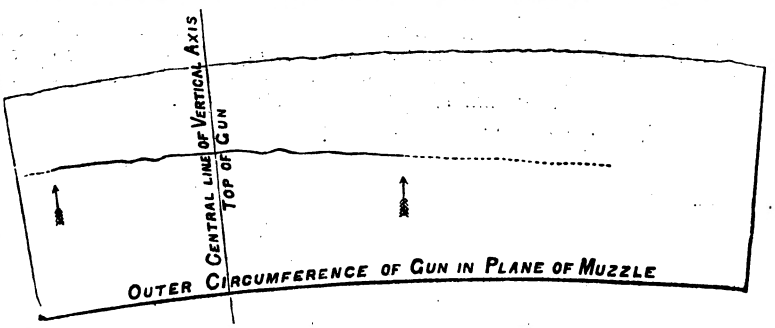
950. In T radial vents when the vent seating in the gun has become scored by escape of gas past the copper washer the gun should be repaired as laid down in paragraph 8725 "List of Changes in War Matériel."

951. Vents found unfit to last for the number of rounds due before the next examination of the gun will be condemned.

Exterior Defects.

Wrought-iron ordnance.

952. Very considerable defects may exist on the exterior of wrought-iron ordnance, without the strength being affected. Occasionally, on firing, one of the outer tubes develops a flaw running round the gun, due to the coil or tube having been in an undue state of tension. Such defects are, as a rule, unimportant, and are easily repaired when the gun passes through the royal gun factory.



Defective welds.

953. Defective welds on the exterior, near the muzzle, are sometimes developed in the "B" tube.

Example.

954. The above sketch represents a defective weld in the exterior of the "B" tube of a 9-inch R.M.L. gun. The opening,

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after 7 rounds (2 full, 5 reduced), extended 30·5 inches round the chase at about 12 inches from the muzzle. The gun was then sent to the royal gun factory for examination and repair. It was submitted to the test of firing 40 full rounds, and the crack then extended 16·5 inches further, but no other alteration took place.

Result.

955. This result shows that defective welds near the muzzle are of no practical moment, and that no ordnance should be condemned on such grounds alone, although it should be exchanged when opportunity offers.

Shifting of coils.

956. It also occasionally happens with wrought-iron ordnance that the outer coils shift on firing; if, on examination, the shifting is found considerable, the ordnance will be provisionally condemned; but a slight shift, which is sometimes perceptible when the piece is first used, and which has gone no further afterwards, may be disregarded. Unless there be reason to suspect damage on the exterior, it will not be necessary to scrape the whole of the paint off the exterior whenever a gun is examined.

Openings between hoops.

957. Openings may appear in B.L. guns between the hoops on the chase; these, however, if slight and uniform all round, may be considered unimportant, and should be hammered up.

Openings between hoops and bending.

958. The bending of the gun and the openings between the external hoops are not necessarily indications of the gun being unsafe, but they should be watched, and any increase reported at once. Openings amounting in the aggregate to one-fiftieth of an inch to every foot length of gun in front of the trunnions may occasionally be anticipated, in cases where the bending of the gun, and openings between the hoops continue, half-yearly reports will be made.

Examination of Aiming Rifles and their Fittings.

Aiming rifles.

959. Aiming rifles and their fittings will be examined by inspecting ordnance officers or inspectors of ordnance machinery as follows:—

Barrels (exterior).

960. The exterior of the barrel should be examined to see that it is free from rust and burrs, and that all working surfaces are in good condition.

Expanding or adjusting frames.

961. The expanding or adjusting frames should be examined to see that they are sound and work freely. The marking on the breech ring, and rear adjusting frame of 1-inch Elswick B aiming rifles should be examined to see that it is legible.

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Breech blocks, electric and percussion.

962. The insulation of the terminals and electric needles should be tested to ensure that it is perfect. An accumulation of dirt and grit in the interior of the block is liable to cause a short circuit. The block should also be examined to see that various parts are sound and that it locks correctly in the barrel, and that the point of the (percussion) striker or needle is free from burrs and indentations.

Springs and other small fittings.

963. Springs and other small fittings should be examined to see that they are sound and in a serviceable condition.

Removal of burrs.

964. Any burrs found to exist on any of the parts of the rifle should be removed with a smooth file.

Barrels (interior) and tube.

965. The interior of the barrel and the 0·23 inch tube will be examined by an armourer serjeant, or qualified armament artificer as laid down in "Instructions for Armourers."

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SECTION XI.

Supply and Receipt of Stores.

I.—Estimates.

966. The chief ordnance officer, before preparing the annual store demand, will apply to officers and departments authorised to draw stores, to furnish him with detailed estimates or annual demands, of their requirements during the ensuing financial year, on the following forms, and will embody them in the annual store demands sent from the district. Annual estimates and demands.

Service.	No. of Army Form.	How rendered.	When rendered to the Chief Ordnance Officer.
Army Service Corps*	G 963	Triplicate	By 1st July.
	,, 999	Duplicate	
Royal Artillery‡ ...	,, 800	Original	By 1st August.
	,, 801		
Royal Engineers§ ...	,, 896	Duplicate	
	,, 939		
	,, 1039		By 15th September.
	,, 991		

Forms
G 801
28

967. He will see that the estimates and demands, as above, for stores, furnish information on every essential point of detail, that the articles are described in accordance with the nomenclature of the priced vocabulary of stores issued from time to time by the War Office, and that stores for which there is no authorised nomenclature are kept apart from, and placed after, the known service articles of each section wherein they should, apparently, be classified, with the words "Not in Vocabulary" written over them. Drawings and specifications will be annexed where necessary, in order to obviate the necessity of making any further reference to the station. Nomenclature of stores, &c. Stores not in vocabulary.

968. He will see that the estimate from each corps or department, except the annual estimates for expense stores, shows the data on which the estimates are prepared, and the purpose for which the stores are required, as well as the average annual consumption, and the numbers on hand. Estimate, purpose, &c.

969. The estimates will also show the cost of any article proposed to be made by regimental tradesmen, or to be procured locally where there is no representative of the Army Ordnance Department. Cost of provision locally.

970. The estimates will contain references to any special applications and orders respecting the supplies estimated for. Special applications.

* Regulations for Supply, Transport and Barrack Services.
‡ Equipment Regulations.
§ Regulations for Engineer Services, and Equipment Regulations.

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Revision of estimates.

971. Should the chief ordnance officer, having regard to the consumption of previous years, consider any estimate to be excessive, or on any other account to require revision, he will return it with his remarks in writing to the officer sending in the estimate. If that officer should desire to adhere to his estimate as originally framed, the chief ordnance officer will submit the matter to the general or other officer commanding.

Expense store, annual demands.

972. The chief ordnance officer, after obtaining the approval of the general or other officer commanding to the demand on A.F. G 963, will pass the original and duplicate to the ordnance officer, who will, after inserting them in his annual demand, treat them as laid down in paragraphs 1244-5. The triplicate will be returned through the officer administering barrack services in the district to the expense store accountant.

Tools, etc., for R.E. volunteers, field works instruction.

973. Ordnance officers at home stations will make provision in their annual demands for tools and materials for instruction of engineer volunteers in field works. These articles will be demanded and accounted for by officers commanding volunteer corps, to whom they will in all cases be issued direct, and they will not appear in the estimates of Commanding Royal Engineers. Requisitions for first supplies, or for working or waterproof clothing, in accordance with the Clothing Regulations, will, however, be sent through Commanding Royal Engineers, and the supply will be made direct, as in the case of ordinary issues.

Estimates for Royal Engineer services.

974. The chief ordnance officer will receive by the 1st September in each year, from the Commanding Royal Engineer, an annual estimate on A.F. G 1017, showing number and quantity of drawing and surveying instruments which will probably be required during the ensuing year, the approval of the general officer commanding having been previously obtained. These instruments will not be included in his consolidated annual demand, but in a special intermediate demand for such items as are not already available locally. He will be careful to note that the articles are appropriated to the service in question, and will retain the approved estimate as his authority to issue the articles upon receipt of requisitions from the sub-district Commanding Royal Engineer.

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R.E. estimates.

975. The duplicates of the annual estimates for such of the submarine mining stores and stores for military telegraphs, telephone, and signal stations, also stores of general service descriptions for torpedo installations, on A.F. G 896 and 1039, as may be required for repairs and maintenance during the next financial year, as well as for any stores to complete establishments already authorised, will be transmitted to the War Office by the chief ordnance officer, and the originals retained as a guide for checking the demands on account. It is to be clearly understood that when it is considered necessary at any time to propose an augmentation of establishment for the above-mentioned services, such proposal should be submitted to the War Office by the general or other officer commanding, in a separate demand, in duplicate, accompanied by an explanatory letter.

R.E. proposals for increase of establishment of stores.

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976. The issues of barrack, hospital, and military prison stores authorised for supply on the annual demands from the expense store accountants will be in as large consignments as the barrack store accommodation will allow: the first consignments may be made, if the stores are available, as soon as convenient after the 1st January; and should consist, if possible, of a due proportion of each kind of stores demanded. Issues on expense store, annual demands.

977. The necessity for the provision of additional vessels and boats should be reported, by the general or other officer commanding the district, to the War Office, explaining fully the reasons for the increase, together with the approximate cost of his proposals, including that of the personnel involved. Necessity for additional vessels, &c.

978. When new vessels, or new machinery, or extensive structural alterations have been approved, the designs and specification will be prepared by the Superintending Engineer and Constructor of Shipping. The provision will then be proceeded with in the usual manner, the supervision of the work and the inspection thereof being carried out by the Superintending Engineer and Constructor of Shipping at home stations, and by the Royal Naval dockyard authorities, or the appointed marine surveyor, at stations abroad, who will be furnished with a copy of the contract, and will certify the bills for payment, as instalments become due, and on completion of the contract. Provision of new vessels and machinery.

979. Should there be any probable delay in the transmission of the annual demand, one copy of the estimates on A.F. G 999, for new boats, etc., will be forwarded so as to reach the Principal Ordnance Officer, Royal Arsenal, Woolwich, by the 31st October in each year, in order that due provision may be made in the general shipping estimate. New boats should be taken on charge by the Army Ordnance Department, and regularly issued. Delayed estimates. Issue of new boats.

980. *See* paragraph 225A.

II.—Annual store demands.

981. A consolidated annual demand, based on the estimates referred to in paragraphs 966 to 970, prepared in triplicate by the carbon process on A.F.G. 983 or G. 983b, from the station copy referred to in paragraph 986, will be made by the chief ordnance officer, for military stores for all departments of the service, with the following exceptions:— Annual demands.

Royal Engineers.—Building materials and articles of machinery and fixtures for the construction or repair of works or buildings. Exceptions.

Army Medical Department.—Medicines and surgical instruments.

Veterinary Department.—Veterinary medicines and instruments.

These stores will be demanded direct by the heads of the departments concerned.

982. Stores required for naval services except as hereafter stated will not be included in the consolidated demand (A.F. G 983). Stores for Navy and Marines.

Annual estimates from the Royal Marines will be dealt with by the despatch of intermediate demands to the Principal Ordnance Officer, as soon as possible after the 15th August for any stores

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of a special pattern not in general use in land service, or where the numbers asked for are large, or where the articles are expensive, in order that the Principal Ordnance Officer may include the items specially in his estimate for the following year and which he would be unable to do without this special demand being sent to Woolwich at the time named.

In the case of articles of ordinary supply the Royal Marine requirements should be met by the necessary provision in the annual demand from the station, a note being made in the column of remarks on the A.D. form as to the numbers of each article included to meet Royal Marine estimates.

Compilation of demand.
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983. The demand will be compiled from the estimates referred to in paragraphs 966 to 970, and will show clearly, in the respective columns, the stores required by each department or service. It will be forwarded in triplicate, any printed sheets not required being removed.

Stores in charge shown in demand.

984. The demand will show, in detail, not only the articles to be supplied but all stores on general charge of the department on the 31st August, both those which constitute the service proportions and any that may be surplus or obsolete.

985. Issues remaining in the hands of the troops on the 31st August for purely local and temporary services, such as camp equipage, and articles returned to store and not brought on charge, are to be included in the column "Available in Store," less a percentage to cover anticipated condemnations and deficiencies.

Printed sections to be used.

986. In compiling the station copy of the demand, the printed sections A.F. G 983A, or plain sheets A.F. G 983B, will be used according to the number of items. Stores for which there is no authorised nomenclature will be placed at the end of the Woolwich or Weedon sections of the vocabulary to which they belong, and, where necessary, will be accompanied by descriptive drawings.

Forwarding demand.

987. As the various sections of the annual demand are completed at a station, they will be sent to Woolwich without waiting for the whole demand to be completed.

Fixed reserves.

988. The column for fixed reserves will show only such as have been approved by War Office authority.

Stores for R.A. armaments.
7968
9419

988A. Stores held for R.A. armaments under paragraph 35, Part 2, Section XII, Equipment Regulations, should be shown in the column headed "Stores held on deposit."

Average annual issues.
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989. The greatest care will be exercised in calculating the average annual issues to be shown in column 1, that no issues of an exceptional (such as first issues of equipment to corps on change of pattern, &c.) or temporary (such as issues to camps) nature, or loans, transfers, &c., which do not affect the average consumption, may be taken into account. Provision is to be made only of such stores as are in current use, and those of a special nature which may not be again required by the Royal Engineers are not to be included.

990. Omitted.

Stores in hand.

991. The chief ordnance officer will arrange to have at least six months' stores in hand to meet the current wants of the service after the 31st March in each year, so as to carry on the issues until the next year's supply has been received.

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992. The demands for gun ammunition for practice and exercise will include a supply sufficient to meet two years' expenditure, except for

(*a*) Volunteer batteries and guns of position allotted to local defence, for which provision should only be made for the amount included in the R.A. estimates for the ensuing year.

(*b*) Batteries of horse and field artillery, for which only sufficient blank ammunition to complete up to two years' expenditure should be demanded.

Special instructions regarding demand and supply of practice ammunition for batteries of horse and field artillery have been issued, and are referred to in paragraph 440, and laid down in the Equipment Regulations.

Gun ammunition demands.

993. Ammunition will be held in Army Ordnance charge in the several districts, at or as near to their stations as possible, for heavy batteries, R.G.A. (Volunteers) and guns of position allotted to local defence.

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Issues will be made from this ammunition to these batteries, to replace that expended for practice purposes.

Ammunition for volunteers and guns of position.

The newer ammunition obtained on demand from Woolwich should be used in completing the approved proportions of ammunition to be maintained, and the fresh supply of ammunition should be on the spot before that locally available is drawn upon.

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994. The chief ordnance officer will obtain the approval of the general or other officer commanding to his annual demands, before forwarding them.

Approval of annual demands.

995. The land service demands for each financial year will be despatched from the several stations so as to reach the Principal Ordnance Officer, Royal Arsenal, Woolwich, or the Chief Ordnance Officer, Weedon, by the 30th September in each year immediately preceding that for which the stores are required, in the case of home stations; and by the 15th October for Weedon stores and 31st October for general stores for stations abroad.

When despatched.

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4477

996. Demands for small-arms will be sent to the Chief Ordnance Officer, Weedon.

Small-arms, demands for.

997. When the annual demand has been approved, the triplicate copy will be returned to the chief ordnance officer.

Triplicate copies.

998. Full provision should be made in the annual demands to prevent the necessity of frequently sending in intermediate demands, which should be prepared in triplicate, by the carbon process, and forwarded to the Principal Ordnance Officer, Royal Arsenal, or to the Chief Ordnance Officers, Weedon, or Purfleet, as may be necessary. They should only be forwarded on the 1st of each month, unless urgent services require them to be sent upon any other date, the explanation for which should be shown thereon. All the columns of the demand form should invariably be filled in, and provision made for store, if the stocks in hand, together with those already due on previous demands, are falling low. They will invariably be signed by the ordnance officer and chief ordnance officer, and approved by the general officer commanding.

Careful provision.

Intermediate demands.

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Intermediate demand for R.E. services.

999. Intermediate or supplementary demands for stores in connection with Royal Engineer services, not included in para. 966, will be received in duplicate on A.F. G. 991 from the Commanding Royal Engineer, and will be acted upon in the same manner as demands from all other services. Should any items not be available, they will be demanded from Woolwich in the usual way by including them in the monthly demands referred to in para. 1004. This does not apply to racers for heavy guns, as to which see Regulations for Engineer Services.

Chief ordnance officers should be careful to bear the following points in mind when examining the demands :—

Stores that are issuable under the Equipment Regulations, or Supply Transport and Barrack Regulations should be struck out.

Nomenclature and arrangement of stores demanded to be in accordance with the Priced Vocabulary of Stores.

If the general officer commanding specially approves of the issue of stores that are not of service patterns, local purchase should be resorted to when within the powers of the general officer commanding, so as to avoid demanding non-vocabulary stores from Woolwich.

Hastening of supplies.

1000. Stores once demanded and ordered to be supplied, if not duly received, will not, except as directed hereafter, be re-demanded, but their supply will be hastened on A.F. G 1063. In order, however, that the Woolwich and Weedon books may be cleared of old orders, ordnance officers will, as soon as practicable after the commencement of each financial year, furnish compiled demands for all stores still required in their districts, but unsupplied on demands of which the date of the Woolwich or Weedon issue number ordering the supply is prior to the 1st of April of the previous year. The date of the Woolwich or Weedon issue number is to be the guide in determining the stores to be redemanded, and will apply equally to annual as well as to intermediate demands, and to issue orders prepared at Woolwich or Weedon, without demands having been originally prepared. They will quote thereon the former Woolwich or Weedon issue orders and station numbers, and dates for each item, or any War Office authority for the issue in the first place ; and these compiled demands treated as new demands, all the old orders being cancelled. They will be prepared in the same manner as ordinary demands; and, before being put forward, chief ordnance officers will ascertain that these outstanding stores are still actually required.

Renewal of old orders.

Compliance with demands.

1001. The Principal Ordnance Officer will be empowered to comply with all demands made upon him, after revising them in accordance with the regulations, either by issuing the articles demanded, or by arranging for their purchase locally, when it is not convenient to make the supply from Woolwich.

Supply of stores due on A. D.'s. 38497

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1002. Stores which have been demanded on annual demands may be considered as due to the station, when the section in which they are included has been despatched to Woolwich, and if any are urgently required hasteners for their supply may be put forward instead of preparing a further intermediate demand for them.

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III.—Issues.

1003. Omitted.

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1004. When requisitions cannot be met from local store, the articles required will be included in the next intermediate demand prepared as laid down in paragraph 998. All information as to the service and authority, or necessity, for supply contained in the requisition will be inserted in the intermediate demand, and a copy of the requisition in support thereof is therefore unnecessary. Issues on these intermediate demands will not be delayed by any check at Woolwich or Weedon. Intermediate demands.

1005. Intermediate demands on Woolwich will be made out separately for each of the groups of sections as under, a separate sheet or sheets, as necessary, being used for each section, and each section must contain information as to the service for which the stores are required, the War Office or other authority for the supply and all other necessary particulars, viz. :—

Group 1. Woolwich sections 1 to 12.
Group 2. Woolwich sections 13 to 17.
Group 3. Woolwich sections 20 to 24.
Group 4. Woolwich sections 18, 19, 25 to 30.

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Demands for gunpowder will be sent direct to Purfleet.

1006. In "latest date" columns of demands and hasteners for stores, unless an actual date can be stated, the terms to be used are "first conveyance" (*i.e.* by first opportunity) or "earliest conveyance" (*i.e.* required at once by rail or other quick conveyance, passenger train excepted), and when using these terms an explanation of the urgency will, in all cases, be added. Hasteners by telegram will be regarded as implying "earliest conveyance." Where the urgency is such that passenger train should be resorted to, the words "passenger train," with explanation of necessity, should be inserted in telegrams, demands, or hasteners. Hastening supplies in terms of urgency.

1007. When stores, material, or fittings are ordered to be supplied by the Lists of Changes in War Matériel, or other special authority, to carry out alterations of pattern, or for other reasons, the whole requirements of the troops or service of each district should be included in one intermediate demand, as soon as possible, not waiting till the demands from all units affected are received, when the necessary information is procurable in the office of the chief ordnance officer.

1008. When a unit leaves a district, returns on A F. G 1042 will be sent by the chief ordnance officer to the Principal Ordnance Officer, or the Chief Ordnance Officer, Weedon, showing both the stores which are due to the unit from the local ordnance officer, and also those due to the local ordnance officer from Woolwich or Weedon for issue to the unit. The station to which the unit is proceeding will be recorded on the returns, and the issue orders on which the stores are due from Woolwich or Weedon will be quoted. Such stores as are due from Woolwich or Weedon will then be cancelled as a supply to the station which originally demanded them, unless reasons to the contrary are given in the return. Stores due to units on change of station.

1009. The Principal Ordnance Officer and the Chief Ordnance Officer, Weedon, will transmit these returns to the chief ordnance

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officer of the district to which the unit is proceeding, who, after first communicating with the officer commanding the unit with a view to ascertaining whether any of the stores may be cancelled, will note them for issue to the unit without further requisition, and will include any not available in the next intermediate demand made upon the Principal Ordnance Officer, or the Chief Ordnance Officer, Weedon.

Small arm ammunition balance certificate.

1010. The instructions contained in paragraphs 1008 and 1009 do not apply to small-arm ammunition, the supply of which is governed by the Equipment Regulations.

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1011. Omitted. (Renumbered 13A.)

Sale on repayment.

1012. The sale of public stores, on repayment, to officers or others under circumstances unauthorized by regulation, is forbidden.

Issues to divisions of Marines.

1013. In making issues of stores to the Royal Marines, the "Division of Marines" by which the stores will be ultimately accounted for is to be noted upon the requisitions and vouchers in support of the issues.

Loans for military entertainments.

1014. General or other officers commanding large garrisons may give authority in writing for the loan, if available, of a few tents and other necessary articles, when required for strictly garrison or regimental purposes in connection with military sports or entertainments, on the understanding that the articles are only to be lent for the actual day or days of such sports. All applications for such loans will be addressed to the chief ordnance officer in each district. All loss or damage will be paid for, except those caused by fair wear; and no expense for conveyance will in any case be admitted as a charge against the public. (See paragraphs 248 and 249). Issues of this nature to the navy, or other departments of the State, and to the colonial forces or departments at stations abroad, will be made under similar circumstances, on requisition from the senior naval officer, head of the department, or governor, respectively; and in these cases, the value of the articles when issued and returned will be estimated by the chief ordnance officer, and the depreciation attributable to each loan recovered, and credited to the public. Militia, yeomanry and volunteers at home are not entitled to loans of a similar kind.

Charges for losses and damages.

Reports of.

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1015. Omitted.

Packages to be marked.

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2817

1016. Each package of stores will be distinctly marked with—

	Example.
1. Station monogram.	C. T. (*i.e.* Cape Town).
2. Station group.	B
3. Number of package.	507

Also the description of the stores, and the tare and gross weights. As an exception, the tare weight is not to be inserted on small arm ammunition boxes with soldered linings.

Loose articles, which it is not practicable to mark in this manner, should have the particulars marked on a metal, canvas, or other suitable label, which should be securely attached.

All metal articles will be described by weight, independently of other particulars.

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Numbers or marks on boxes or packages containing stores, are not to be removed, stencilled over, or in any way defaced.

1017. A list of inflammable stores in use in the Army Ordnance Department, divided into 3 classes, is given in Appendix XXVIII.

Issues of these will be distinguished for Class A by the words "Highly inflammable Class A"; and for Classes B or C by the words "Inflammable Class B or C" being marked on the packages containing such stores in addition to the label showing contents.

These words will also appear in red ink against such items on all storeholders' issue reports, applications for freight, tonnage lists, bills of lading, and carriers and lighterman's notes.

Inflammable stores, classification of Labelling.
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3606

1018. Omitted.

1019. In the case of damaged or other stores ordered to be returned to Woolwich for special examination, separate vouchers will be prepared and forwarded, marked "for special examination," and the War Office or Woolwich authority for their return quoted on the voucher. The stores or packages will also be marked "for special examination."

Stores for special examination.

1020. As a general rule, no ordnance services chargeable to army funds will be performed, or stores supplied, by the Admiralty, except on the requisitions of the chief ordnance officer. On the completion of the service, or on the receipt of stores from the Admiralty, the chief ordnance officer will give a receipt on the Admiralty voucher, and will certify thereon, either that the work has been satisfactorily performed, or that the stores have been duly brought on charge according to their actual condition. He will also quote the date and number of the War Office authority (if any) for the service, and will specify the vote and item to which the cost is chargeable, and the date and number of the voucher by which the stores are brought on charge.

Services done or stores supplied by the Admiralty.

1021. No issue of stores of any description, except issues on repayment, can be allowed as a final discharge from the accounts of the ordnance officer, unless the issue be made to an officer, or a department, directly accounting to the War Office, or as provided for in paragraph 1029.

Stores issued to accountants; or on repayment, or on loan.

1022. In the event of stores being issued by authority to individual officers or others who are not accountants (except as provided for in paragraph 1029), and issues authorized by paragraph 1014 the supply can only be considered as on loan.

Issues to non-accountants.

In order to ensure that stores issued on loan are not lost sight of, and to enable any necessary subsequent disposition of stores to be arranged, the chief ordnance officer will ascertain, at half-yearly intervals, the date of the probable return to store of the articles. When the stores have been supplied specially from Woolwich, this information will be reported to the Principal Ordnance Officer.

Half-yearly inquiry.
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1023. If, on their return, there are damages or deficiencies, the ordnance officer will assess them, and forward at once to the chief ordnance officer a statement of them in triplicate, on A.F. G 838, for recovery and credit by the station paymaster; the original and triplicate will be sent to the paymaster, and the duplicate to the officer or department concerned. (See paragraph 249.)

Loss or damages to be assessed
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Paymaster's vouchers.

1024. The paymaster will retain the triplicate as his debit voucher for crediting the money to the public, and will sign the original, and quote upon it the account and voucher in which the credit will appear. He will then return the original, through the chief ordnance officer, to the ordnance officer, who will attach it to the voucher by which the adjustment of the ordnance account is effected.

Claim for value of stores.

Camp equipment issued to the troops.

1025. Camp equipment issued to the regular forces, militia, yeomanry, and volunteers, for manœuvres or other encampment purposes (except as provided for in paragraph 1029), will be struck off Army Ordnance charge by ordinary voucher, and the regiment or corps to which the issue is made will bring the stores on charge in camp equipment ledger, A.F. G 973.

Accounts to be rendered to C.O.O. for examination, &c.

1026. Upon the termination of manœuvres or encampment, when the stores have been returned, the account, with all supporting vouchers, will be forwarded to the chief ordnance officer of the district in which the issues were made. Upon receipt of the account, the chief ordnance officer will have it examined and compared with the accounts of the ordnance officers by whom the issues were made, and to whom the articles were returned, and will see that deficient stores have been struck off charge by due authority, as described in paragraph 1023. Should any further deficiencies be brought to light during the examination of the account, the chief ordnance officer will have claims made out for the recovery of their value, or see that authority is obtained for writing them off charge at the public expense; one copy of the claim duly receipted by the paymaster, or a copy of the authority for striking them off charge at the public expense, will be attached to A.F. G 973.

Claims for value of deficiencies.

Deficiencies chargeable to the public.

Deficiencies, value chargeable.

1027. In preparing charges for deficiencies, the rules for proportionate charges laid down in the Equipment Regulations will be followed—a reduction from full vocabulary rates only being made upon the certificate of the ordnance officer who made the issue, showing that the rates charged are the fair or real proportionate value of the articles deficient.

Examination and disposal of subsidiary camp accounts.

1028. The chief ordnance officer of the district or command will be responsible that all accounts for camp equipment issued as above are duly sent in and examined, and he will cause them to be forwarded to the War Office or Army Corps Auditor as the case may be when the periodical Army Ordnance accounts of the station or district are sent forward.

Issues of camp equipment to non-accountants.

1029. All officers or others who are non-accountants will, if possible, draw their camp equipment through a regiment, corps, or staff, to which they should be attached for the purpose. If this is not possible, the chief ordnance officer will, by published orders or otherwise, take steps for the due return of, and accounting for, the stores so issued, in the best manner that the circumstances of the case admit of.

Camp equipment, requisitions for.

1030. Requisitions for camp equipment should be made out by all arms and services on A.F. G 968, and sent to the chief ordnance officer of the district in which the encampment is to take place. Care should be taken by commanding officers of units to fill in all information the form requires, and that equipment is demanded only for the numbers that will be encamped.

Return of equipment

1031. In the event of corps or regiments engaged in manœuvres proceeding to a district with camp equipment different from that in

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which they originally drew it, and returning it to an Army Ordnance depôt in that district, the officer commanding the unit will still forward his equipment account (A.F. G 973), with supporting vouchers, to the chief ordnance officer of the district in which the first issue was made, for action in accordance with paragraphs 1026 and 1028. in another district.

1032. Naval bedding which has been supplied by the transport department of the navy for troops proceeding in government ships, transports, or freight ships, will not be received, on the disembarkation of the troops, by ordnance officers without authority, except when there is no naval depôt in the neighbourhood, when it will be received on the requisition of the senior naval officer, on account of the Admiralty. In all such cases the particulars will be forthwith reported by the chief ordnance officer to the War Office. Naval bedding, receipt of by O.O. Receipts, reports to War Office.

1033. When supplies of barrack and hospital stores, or of mess equipment, are issued by the Army Ordnance Department, on requisition from the local naval agent, for the use of troops embarking on a hired transport, the officer making the issue will obtain a receipt for the stores from the master of the vessel, and will show on his issue voucher her destination. Stores supplied to a hired transport.

1033A. When infectious disease has occurred on board a vessel conveying troops, the officer commanding troops in charge will furnish a certificate when handing over stores that all the articles which could convey infection have been disinfected on board or handed over to the sanitary authorities at the port of debarkation or destroyed. Disinfection of stores which could convey infection. 57 Gen. No. 4246

1034. A copy of this receipt will be passed to the local naval agent for transmission to the transport department of the Admiralty. That department will see that the articles are duly accounted for by the master. Issue voucher, copy to Admiralty.

1035. The ordnance officer at the port of destination will receive into store any such articles, at the request of the local naval agent, and give a receipt for them to the master. A copy of this receipt will be passed to the local naval agent for transmission to the Admiralty. Return of the equipment.

1036. When such articles are returned by the naval department, or from ships, the stores will be re-valued by the officer receiving the stores, and a reasonable allowance made for the wear of the articles, in order that the Admiralty may be credited with the amount. Stores returned to be re-valued.

1036A. Hospital clothing and equipment issued to the Medical Officer in charge of a hospital ship or transport will be struck off charge by the issuing officer, supported by an issue voucher duly receipted by the Medical Officer, who will then account for them. Hospital clothing, &c., issues to hospital ships and transports. 120 Cape 6869

1037. When a hospital ship arrives at home for discharge, a representative of the Army Ordnance Department will, upon application by the medical officer in charge to the nearest chief ordnance officer, be detailed to take over from such medical officer all hospital clothing and Ordnance stores. Vouchers, giving details of the stores in question, will be prepared by the medical officer in charge, who will state the time most convenient for the transfer to take place. Timely notice will be given, in order that the department Hospital ship's stores, return of.

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may be enabled to provide such packages as may be required, and also the necessary labour for packing and moving, should it not be obtainable on board; but where possible, labour and other assistance should in such cases be given to the department by the medical staff.

Tents and bed boards.

1038. The Army Ordnance Department will supply tents, and if necessary bed boards and trestles, when they are required to supplement barrack accommodation. All other barrack stores will be provided by the officer in charge of barracks.

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Malta
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1039. Omitted.

Inventory boards.

1040. Inventory boards will be supplied to the Royal Engineers on demand.

Old woollen and linen for cleaning.

1041. Old woollen and linen material may be drawn from Army Ordnance depôts, by regiments and corps, for cleaning purposes, on repayment. The price to be charged will be fixed in accordance with rates notified on the half-yearly statements from Woolwich. The quantities required will be demanded quarterly from the nearest ordnance officer, and the issue will depend upon the sufficiency of the supply in his hands. Ordnance officers will in all cases be careful to see that all sheets issued for this purpose are torn into six pieces, and blankets, or other articles, into at least four pieces before they leave their stores. Any expense for carriage will be borne by the troops.

Sheets, etc., to be torn up.

Issues to colonial services, on repayment.

1042. Issues to colonial governments are, as a rule, only made with the sanction of the Army Council on requisition from the governor of the colony, forwarded through the Colonial Office. General or other officers commanding at stations abroad may, however, under exceptional circumstances, authorize the issue of stores (having regard to the requirements of the imperial service) upon the written application of the governor that the same are urgently and immediately required. In the case of gun and small arm ammunition, issue may be made from that of oldest date of manufacture in the command to colonial volunteer corps, or to such other units or forces as the general officer commanding may approve. Local estimates for the ammunition required for this purpose during the following year should be obtained in good time for inclusion in the station annual demand, and care should be taken that replacement in stock by new supplies follows automatically the issue of the oldest available ammunition. At stations where it is not practicable to embody such requirements in the annual demand, the necessary provisions should be made by intermediate demand, with the exception of camp equipment mentioned in the next paragraph. Such issues will be on repayment, the value being recovered locally, and a report of the issue made to the War Office. (*Vide* also para. 1331).

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Ceylon
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Issues of camp equipment to colonial services.

1042A. The General Officer Commanding may authorize the issue on loan of articles of camp equipment for the use, during periods of annual encampments, of colonial corps who will, on mobilization, form part of the garrison of an imperial coaling station; on return of the articles to store, charges will be assessed for depreciation, whether caused by fair wear or neglect, and for all deficiencies,

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1043. Articles issued on payment and by sale under section XIII of these regulations, will be marked, when the nature of the stores will admit, with the sale marks of the department, thus ⚜ Stores issued on repayment to be marked.

1044. Stores issued on repayment to the Royal Marines or transferred to the Naval Ordnance Department, will not be marked as sold. Issues to navy or marines.

IV.—Receipts.

1045. Stores in possession of corps and of the several departments of the army, not required for the service for which they were originally supplied, and also such stores as may be obsolete or unserviceable, will be returned to the Army Ordnance Department. Stores in excess, obsolete, or unserviceable.

The chief ordnance officer may authorize the destruction on the spot, in the presence of an officer, of unserviceable stores, such as brushes, brooms, tinware, and galvanized articles, when such articles are not worth cost of conveyance to an ordnance depôt (*see* Regulations for Supply, Transport and Barrack Services).

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1046. On all occasions of stores being received, the officers or others receiving them will ascertain whether the packages have been damaged in transit (either by wet, or by being opened, or in any other way). Should any suspicion arise as to their having been tampered with, the circumstance will be at once pointed out to the person conveying the stores, and the packages will be opened, if requisite, in his presence; a note of the circumstance will also be made on the bill of lading, or way bill. Receipt of stores, inspection of packages.

1047. Should packages, on receipt, appear to be damaged or to have been tampered with, the weight marked upon them will be compared with the actual weight to see that they agree. In the event of this not being the case, officers will have each package opened, by itself, in the presence of a witness (and, if possible, the person who conveyed the stores), and the contents compared with the packing notes contained therein. If the contents are correct, all stores of the same kind will be collected together, and the packing notes will be kept until the articles delivered are compared with the voucher. If any package is without a packing note, or if the contents of a package do not agree with the same, a report of the circumstance will be made to the consignor, the packages or wrappers and their contents being kept for further inquiry. (*See* paragraphs 1016 and 1046). Comparison of weights with marks.

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Packing notes.

Discrepancy reports.

1048. Bills of lading, invoices, and vouchers will be checked by the numbers, quantities, and descriptions of stores actually received: the numbers and quantities of stores actually received, will at once be brought on charge in the journals and ledgers. Stores received in original bales and packages may be brought on charge in the ledger, as marked, if so charged in the vouchers, provided the weights marked upon the packages are ascertained to be correct. Bills of lading and invoices to be checked.

1049. When discrepancies are found to exist between the quantities or descriptions of stores actually received and those charged, a discrepancy report on A.F. G 985 will be sent to the consignor (except as provided in para. 1051), and will, with the subsequent correspondence be attached to the receipt voucher in Discrepancies, report and adjustment of.

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support of the alterations made therein, only the numbers and descriptions of stores actually received being brought to account, and a receipt being given to the consignor only for these numbers and descriptions, except as at (*c*) below; and the original entry in the consignor's ledger will be allowed to stand:—

(*a*) If the discrepancy be admitted by the consignor, his account will be adjusted by certificate receipt or issue vouchers for the numbers over or under charged, a reference being given upon the certificate voucher to the original issue voucher, and upon the original issue voucher to the certificate voucher.

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(*b*) When the consignor cannot admit that the consignee's report of the discrepancy represents the actual issue, the deficiency will be dealt with in the district from or in which the issue was made in accordance with the King's Regulations. In cases where authority is thus obtained for the loss to fall upon the public, a reference will be made on the issue voucher, against the item or items concerned, to the covering authority, which should then be attached to the voucher.

(*c*) In cases where it is clear that the full numbers charged were actually issued by the consignor, and it is also evident to the consignee how the deficiency has arisen—such as a loss in unloading a vessel—the enquiry (as ordered by King's Regulations) will be made by the receiving authorities, and a report of the proceedings will be attached to the consignee's receipt voucher, in explanation of the difference between the numbers brought on charge and those allowed to stand as charged in the issue voucher.

Condition of stores.

1050. When the condition of stores transmitted from one Army Ordnance station to another is found, on receipt, to be different from that shown on the vouchers, the ordnance officer receiving the stores will amend the delivery voucher to agree with the condition of the stores as received by him—the report or correspondence being attached to voucher in explanation of the alteration.

Discrepancies.

1051. When the discrepancies are trifling, no discrepancy report need be made in the case of stores charged by schedule to a bill of lading: the actual numbers only, as in other cases, should be brought on charge, an explanation of the trivial discrepancy being attached thereto. When similar trivial discrepancies occur in vouchers, the delivery copy will be amended, and an explanation attached; but the consignor's receipt will be signed without alteration, a tissue copy of the explanation being attached thereto.

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Stores delivered without invoices.

1052. If stores are delivered from any source without the proper invoices or vouchers, an account thereof will be at once sent to the chief ordnance officer, who will take immediate steps to obtain the requisite vouchers; and if the consignor cannot be ascertained the stores will be brought on charge without delay by certificate, countersigned by the chief ordnance officer, a report of the particulars being made to the War Office, giving the date of their delivery, and specifying from what source they were delivered into the Army Ordnance Department.

Authorised numbers, receipt of.

1053. When articles are returned for repairs, or as unfit for service, the ordnance officer will see that the stores agree in numbers

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quantities, and condition with those authorised to be returned (see paragraph 1283).

Acknowledgment.

1054. The ordnance officer will give to the officer returning the stores an acknowledgment for the total numbers or quantities received, without reference to their condition.

Inspection.

1055. The ordnance officer will carefully survey the stores, and will enter them according to their condition, in the store account receipt voucher.

Examination certificate. 7508 V. 9 621

1056. A certificate of examination on Army Form G. 1032, amended as may be found necessary, will be added by the receiving officer to each receipt voucher, whenever stores are reduced to produce or brought on charge other than serviceable.

"U" stores, conversion to produce.

1057. When stores are converted to produce or rubbish as a result of the ordnance officer's inspection, he will strike the unserviceable items out of the voucher, and will quote against them the nature of produce in each case. The produce will be brought on charge at the end of each month, by a certificate voucher on A.F. G 1031, upon the back of which a reference to the receipt vouchers will be made, upon which the produce has arisen.

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1058. Omitted.

Damages attributable to unfair usage.

1059. A report will be made to the chief ordnance officer, for the information of the general officer commanding, when stores returned appear to have been damaged otherwise than by fair wear; or, if returned as unserviceable, when they are considered not to be in that condition.

"R" stores to be repaired or returned.

1060. When stores, on return to the department, are brought on charge as repairable, they will be repaired locally, either in departmental workshops or by contract, and placed in stock for re-issue as soon as possible. Such stores as cannot with advantage be repaired locally will be sent to Woolwich, and if again required at the station, will, at the same time, be redemanded.

Telescopes for repair.

1060A. In case of breakage of a lens of a telescope, the complete telescope should be returned for repair, whether it is a complete instrument or only part of instruments, such as depression range finders, position finders, and projectors.

Whenever the telescopes of telemeters or mekometers are broken, it is necessary to send the *complete set* of instruments to Woolwich before the repairs can be carried out.

Breaking up arms, vehicles, &c.

1061. No carriages, carts, wagons, tents, or musical instruments except (vide para. 1057) bugles and trumpets, will be broken up without authority obtained on the usual half-yearly surveys or otherwise. All the produce obtained from old carriages or other stores, so directed to be broken up, will be brought on charge.

Surveys on stores and produce for disposal locally.

1062. No unserviceable stores or produce arising therefrom will be sold locally, until they have been inspected and recommended for such disposal by the half-yearly board of officers, or by a special survey, as laid down in paragraph 1210.

No surveys on U stores etc., if for Woolwich, Weedon, or Purfleet.

1063. Unserviceable stores or produce which, under existing or special orders, have to be sent to Woolwich, Weedon, or Purfleet, for final disposal, should be forwarded as opportunities occur, without being brought before survey.

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"U" accoutrements and harness.

1064. Unserviceable harness and accoutrements will, as a rule, be sent to Woolwich from home stations for disposal. At stations abroad they will be disposed of locally under the orders of the general or other officer commanding; but in the event of the quantities being considerable, and an opportunity for free freight occurring to send them home, the general or other officer commanding will decide whether they are to be so dealt with or not. These unserviceable stores, when sent to Woolwich, will be consigned to the Principal Ordnance Officer, addressed to Sale Section, Royal Arsenal.

V.—Clothing.

Estimates for clothing and necessaries.

1065. All clothing and necessaries for the department, or for hospitals and military prisons, will be estimated for by officers holding and accounting for such stores. These officers will also estimate for such miscellaneous supplies of clothing as are not included in regimental demands.

Demands.

1066. The demands will be made out separately from those for stores, and will be transmitted to the chief ordnance officer, who will insert in the demands what articles can be supplied locally by the Army Ordnance Department, and forward them to the Chief Ordnance Officer, Pimlico.

Dates for demands.

1067. The demands will be made out annually, and will be despatched in such time as will ensure their arrival at the Royal Army Clothing Department on or before the following dates:—

Home Stations	1st October....	for service of the year commencing on the succeeding 1st of April.
Mediterranean		
China	1st April	
Straits Settlements		
Bermuda	1st June	for service of the year commencing on the succeeding 1st of April.
South Africa		
Ceylon		
Mauritius		
Nova Scotia		
St. Helena		
West Coast of Africa		
West Indies		

Consignment of supplies.

1068. The supplies for stations abroad will be consigned to the Army Ordnance Department, in transit, for distribution.

Return of clothing.

1069. A return, on A. F. H 1151, showing clothing and necessaries on charge, will be rendered to the Chief Ordnance Officer, Pimlico, on 1st September of each year.

SECTION XII.

Transmission and Consignment of Stores.

I.—General Instructions.

Requisitions for transport.

1070. Whenever means are required for the conveyance of stores, application will be made to the officer in charge of transport.

1071. In the transmission of stores care will be taken that they

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are properly packed, that the packages used are of sufficient strength, that ammunition is always kept separate, and entered in separate vouchers, and that ball and blank ammunition are not included in one and the same package. All valuable articles which are likely to be subject to more than ordinary risk of theft or breakage will be placed in separate packages, and proper precautions will be taken to ensure the safety of such packages: if sent by water they will be consigned as cabin freight. Boxes containing instruments for observation of fire should be enclosed in an outer case and will be packed with straw or other material.

Packing and transmitting valuable articles.

1072. On receipt of a package so consigned, it will be opened immediately—if possible in the presence of a responsible officer of the ship,—and any loss or damage will be recorded on the bill of lading.

1073. Particulars of packing explosives and shells are given in Magazine Regulations.

1074. When large consignments of stores from out-stations are invoiced to, or through, Woolwich, vouchers, or schedules of bills of lading, will be prepared according to the following detail, separately for each category :—

Consignments invoiced to or through Woolwich.

Description.	To be invoiced to.
1. Serviceable arms, and components, arm-chests and cases, and tools special to small arm armourers.	Chief Ordnance Officer, Weedon.
1*a*. Damaged machine guns and cycles	Chief Inspector of Small Arms, Enfield Lock, *see* para. 489.
1*b*. Doubtful and repairable arms and materials	Inspector of Small Arms, Royal Small Arms Repairing Factory, Sparkbrook, Birmingham.
2. Clothing and necessaries	Chief Ordnance Officer, Pimlico.
3. Old books and stationery	His Majesty's Stationery Office.
4. Gunpowder	Ordnance Officer, Purfleet.
5. Stores in Woolwich Sections Nos. 3, 7, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19, 20, 21 (except gunpowder in barrels and cases, which should be sent to Purfleet), 22, 23, and 24, should be packed for, and addressed to Royal Arsenal; and those in Nos. 1, 2, 4, 5, 6, 15, 25, 26, 27, 28, and 29, to Royal Dockyard, Woolwich.	Principal Ordnance Officer, Royal Arsenal Woolwich.
6. Stores in transit	
7. Produce	

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Charging transit stores. 38407 Ordnance 223

1075. Stores for Weedon, Birmingham, and His Majesty's Stationery Office, will be charged on bill of lading to Woolwich, in transit only.

1076. Ordnance officers, on receiving bills of lading containing entries of engineer and medical stores, books, stationery, or other stores of any kind, consigned to them for transmission, will immediately notify the particulars, together with the name of the vessel, and the date of the bill of lading, to the officer concerned, that they may arrange to draw them on arrival.

The actual arrival of the stores will also be notified to the officers concerned. If the stores are required at an out-station in the district the officers concerned will inform the ordnance officer by what date they are required in order that he may make the necessary requisition for their transport.

Lading camp equipment.

1077. A tabulated statement showing weights and wagon loads of certain articles of camp equipment is given in Appendix IX

II.—Conveyance of Non-explosive Stores by Land.

Stores sent by carrier. 57 Gen. No. 3606

1078. When stores (except explosives, for which see paragraph 1094) are to be sent by a carrier, a carrier's note (Army Form G. 980) detailing the number and weight of the packages, bundles and loose articles, as well as the number of articles in each bundle, will be sent to the local transport officer, who will arrange the mode of conveyance.

1079. Omitted.

1080. Omitted.

By convoy.

1081. Stores forwarded by convoy or escort will be entered on way bills or convoy notes (A.B. No. 158.) These documents will be made in triplicate, and signed by the officer or other person sending the stores, and by the conductor, if there is one, or else by the officer commanding the escort. One copy will be retained by the consignor as his receipt, and the other two copies will be delivered to the conductor or officer commanding the escort, as the case may be, who will give one to the consignee, and obtain his receipt on the other, which he will retain as proof of the due delivery of the stores.

III.—Conveyance of Explosives by Land.

Despatch of explosives.

1082. No ammunition, gunpowder, or other explosive will be sent to any station at home until the officer who has to receive it has been communicated with by the officer who has to make the supply, and the consignee has replied that he is prepared to receive it.

Modes of conveyance.

1083. There will be four methods by which the explosives can be conveyed to and from the railway stations:—

I. By military transport in their own wagons, and with their own horses.

II. By means of Army Ordnance Department wagons, and military horses.

III. By departmental wagons and contract horses.

IV. By hired wagons and hired horses.

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Responsibility for loading wagons, &c.

1084. When explosives are conveyed, as in case I in paragraph 1083, the Army Ordnance Department will leave the loading of the wagons to the military authorities; but in cases II and III, specified in that paragraph, the Army Ordnance Department will be responsible for the proper loading of the wagons, and for the wagons being suitable in all respects. In case IV, the Army Ordnance Department will also be responsible for the wagons and horses.

Conveyance wholly effected by the troops

1085. When the stores are wholly conveyed by military transport, the ordnance officer will apply to the officer commanding for the necessary wagons and horses. In making the application he will confine himself to the quantities to be conveyed, leaving it to the officer commanding to determine what transport he will send. The application will also state the time when the wagons will be required at the railway station, and the officer commanding will notify to the ordnance officer the hour at which he will send them.

When horses only are required.

1086. When horses only are required to be furnished by the military authorities, the ordnance officer will state the number of wagons required and the weight to be conveyed, as also the time when they are to be at their destination, and the officer commanding will send such horses as he may consider necessary, and notify to the ordnance officer the hour at which he will send them.

Classes to be kept separate.

1087. Explosives in each group may be sent together, but the two groups should not be mixed unless sufficient vans are not available, and with large consignments the different classes should be kept as distinct as possible.

Removal by the troops in their own wagons.

1088. When small-arm ammunition, gunpowder, or any other explosive is to be conveyed by military transport or in the wagons belonging to the Army Ordnance Department, a requisition will be made to the officer in charge of transport, stating the nature and weight of the explosives to be conveyed, and the day on which they will be ready for removal.

Handing over packages.

Wadmiltilts.

Responsibility for delivery.

1089. At the time and place appointed, an ordnance officer, or a duly authorised person as conductor, will be in attendance, to hand the packages over to the officer commanding the party. Should wadmiltilts be required for the security of the explosives, they will be lent, and the ordnance officer will take care they are duly returned to store when the service has been completed. The officer commanding the party will, however, be responsible for the due delivery of the packages, as well as for the wagons being in all respects suitable, properly stowed, and not overloaded.

Conveyance by contractors.

Wadmiltilts and hides.

1090. When large quantities have to be forwarded otherwise than by military conveyance, the ordnance officer making the issue will take care that the contractor by whom the packages are forwarded provides proper conveyance for the same, that the carts or wagons are not overladen, and that each are properly secured both from danger and damp; and for this object, when explosives of Group I are being conveyed, wadmiltilts and hides may be lent to the contractor on the same terms as those laid down in paragraph 1089. Wadmiltilts are not required when explosives of Group II only are concerned.

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IV.—Conveyance of Explosives under the "Explosives Act."

Contract carriers under the Act.

1091. When gunpowder, small-arm or other ammunition, or any other explosive is conveyed by carriers in the United Kingdom, it is, during transit, subject to the general regulations of the "Explosives Act" and all orders and bye-laws made thereunder,—except that all packages bearing the Government explosive label (affixed in such a manner that they will be destroyed by opening of the packages) are exempt from operation of the Act, so far as the packing of the explosives, the quantities to be allowed in each case or parcel, and the marking of such packages are concerned; and that any consignment of Government explosives—even without the labels in question—accompanied by a War Office conductor, as described in paras. 1095 to 1130, is exempt from the provisions of the Act in every way.

Packed as per Explosives Act.

1092. When a consignment is subject to the provisions of the "Explosives Act," care is to be taken that all explosives are properly and securely packed in the manner approved therein.

Railway and contract carriers.

1093. As all ammunition, gunpowder, or other explosives classified under Group I, sent by railway, are placed in properly constructed railway vans, except when secured in iron safety cases or cylinders, no further precautions against danger are necessary, the railway authorities and contract carriers being responsible; but the contract carriers will have to see that the packages are handed over to the railway officials in proper order and condition. They will also have to make all arrangements with each railway company for the due forwarding of the ammunition, gunpowder, or other explosives, without delay, after receipt at the station, and will therefore have to give due notice to such company of the day and hour on which the ammunition, gunpowder, or other explosive, is to be forwarded. The contract carriers will further be responsible that, when the explosive reaches the railway station, proper conveyances are at hand to convey it to its final destination.

Consignment note, explosives. 38407

Ordnance 223

1094. A special form of carrier's note (A.F. G 996) will be used when government explosives are forwarded by rail or road.

V.—Conveyance of Explosives by Conductors under the Exemptions contained in the "Explosives Act."

Conveyance in charge of conductor. 7180 6314

1095. On an emergency, or when, for some special cause, it may be necessary to send explosives to their destination with the least possible delay, it may be expedient to cause them to be conveyed under Warrant by the Secretary of State, in charge of a conductor. A copy of the warrant should be given up by the conductor in charge to the railway company at the station from which he starts. The original warrant will be carried and brought back by the conductor.

This Warrant, which is not to be used merely to save expense for conveyance, will only be issued by the Secretary of State for War; the Principal Ordnance Officer, Royal Arsenal, Woolwich; or by General Officers Commanding Army Corps or Districts, when specially authorised by the Principal Ordnance Officer, Woolwich.

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1096. When the course referred to in paragraph 1095 has been approved, the ordnance officer at the depôt from which the supplies will be issued will at once send a communication to the stationmaster at the nearest railway station, in accordance with the form printed in Appendix V. Communication to railway station.

1097. He will, at the same time, telegraph to the consignee, and warn him to be prepared for the receipt of the stores, or to make arrangements for their re-conveyance at such a day and hour. On receipt of a reply from the railway authorities, he will telegraph again and give full information to the consignee. Telegraph to consignee.

1098. Should the orders in force in the district specify the necessity of an escort, the consignor and consignee will both apply to the officer commanding for the same, and will further state the day and hour when, and the number of wagons or carts for which, the escort will be required to accompany the stores to the railway, and from the station to their destination. Escorts.

1099. The ordnance officer will detail the conductor who is to proceed with the stores, will fill in the warrant (*see* Appendix VI), and will give the conductor his instructions, together with a copy of the Act of Parliament (Explosives Act, 1875, 38 Vict., c. 17), and a note-book. The ordnance officer will also, on the day of departure, advance to the conductor a sum of money on account, to meet current and other expenses. The amount of money advanced will depend on the distance and nature of the service. Warrant, instructions, cash, &c.

1100. The ordnance officer will take care that every package is carefully and clearly marked with its contents, weight, and destination. Marking and labelling of packages.

1101. It is to be distinctly understood that only those explosives which are government property, and have been passed into the service, are to be so treated, and that the provisions of the Explosives Act, 1875, and all orders and bye-laws made thereunder, are to be carried out in all other respects, except as regards the above particulars, and except in cases where a War Office conductor accompanies the consignment. Government explosives under conductor, from the Contractors, or sold.

1102. The ordnance officer will see that specific orders are given against smoking, and against the possession of matches by any one employed. Smoking and matches.

1103. The ordnance officer will send vouchers to the consignee by post, and will notify the departure of the convoy at the same time. Vouchers.

1104. The ordnance officer will see that the convoy leaves at the proper time, so as to secure its arrival at the destination at the appointed hour. Punctuality of marching.

1105. When explosives are consigned to more than one consignee at the same station, as for instance when one portion is intended for the ordnance officer and the other portion for the officer commanding the troops or detachments, the following rules will be adopted :— More than one consignee.

(*a*) In the first case the ordnance officer will arrange for the wagons being at the railway station at the time named, and he will make provision for them as laid down in paragraphs 1083 to 1086 and 1098. Ordnance officer as consignee.

(*b*) In the second case the commanding officer will make his own arrangements ; but if the hiring of wagons is necessary, the Army Ordnance Department will hire them. C.O. as consignee.

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Transport from railway to ship.

1106. The chief ordnance officer in the district in which explosives may arrive in charge of a conductor for shipment (*see* paragraph 1127), will provide the land transport from the railway station, boats for shipping the stores, and the necessary freight to places within the United Kingdom.

VI.—Instructions for Conductors of Explosives.

Attendance when loading vehicles.

1107. The conductor will attend at the place named, on the day and at the hour appointed, and will witness the loading of the wagons or other conveyances.

Convoy notes.

1108. Three convoy notes (on A.B. 158) will be prepared, describing the packages; and when the wagons leave the issuing depôt the conductor will sign one of them and leave it with the consignor, and take the other two with him.

Warrant and Act of Parliament.

1109. He will at the same time receive his warrant (*see* Appendix VI). He will compare the warrant with the convoy notes, and will see that they agree in the minutest details. He will also receive a copy of the Act of Parliament (Explosives Act, 1875, 38 Vict., c. 17).

Warrant and way-bills to agree.

Care of packages and instructions.

1110. He will not permit any one to open or interfere with any of the packages under his orders, nor will he show his instructions to any one.

To show warrant and Act to police when required.

1111. He will have the warrant ready at all times to show to the police or other civil authorities; and should they question his authority, he will explain that he is proceeding under the warrant of the Secretary of State and instructions from the War Office. He will produce the warrant, and also the Act of Parliament, if required to do so.

Responsibility for wagons.

1112. When the wagons are provided by the troops, the conductor will not be responsible for their efficiency; but when they are found by the Army Ordnance Department or furnished by contract, he will be responsible that they are in every way suitable.

Loading of wagons.

1113. He will be responsible that the wagons are not overladen, and that the stores are properly packed and stowed. For this last-named purpose he will be supplied with such hides, wad mil tilts, and hair-cloths as he may require.

Condition of packages.

1114. He will take care that each package is in good order, and properly marked with its weight, contents, and the address of its final destination.

Smoking not allowed.

1115. He will not smoke himself, and he will be responsible that neither the contract drivers, nor other persons accompanying the wagons, smoke. Should an escort be in attendance, and should any of them smoke, he will call the attention of the officer commanding the escort to the circumstance, and note it in his book, but will not otherwise interfere.

No other goods to be conveyed.

1116. He will not allow any other goods to be conveyed with those entrusted to his care in any of the carts or wagons under his orders.

Money to be advanced.

1117. He will be supplied with money by the Army Ordnance Department to meet small contingent services, and for the purpose of providing for his return journey. A careful record will be kept of all disbursements on this account.

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1118. He will be provided with a note-book, in which he will enter the hour of his departure and arrival at the several places he goes to, and he will insert therein minutes of all transactions that may occur, to which future reference may be necessary. On his return to the issuing depôt, he will deliver the book with his warrant to the issuing ordnance officer. Note-book to be kept.

1119. He will not interfere with the escort, but should he find that it is proceeding at too slow a pace to enable him to keep his engagements with the railway, he will represent the circumstance to the officer commanding the escort, and make a note of having done so. Not to interfere with the escort.

1120. He will, if moving with hired wagons and horses, be responsible that he is at the railway station at the time named by the issuing ordnance officer To keep time with railway.

1121. On arrival at the railway station, he will put himself in communication with the railway officials, so that the stores may be placed in the vans appointed for their conveyance. This will be done by the railway porters, with whom the conductor will not interfere; but should he consider that the packages are not handled carefully, he will report the circumstances to the railway station-master and take a note of it. He will see that the stores of which he is in charge are kept by themselves, and that other goods are not put into the same railway van with them. He will also take care that the classes of explosives are kept distinct, as laid down in Appendix XIII. Loading in railway vans.

1122. Before the train leaves the railway station, he will telegraph to the consignee, the hour of his departure. He will also telegraph if the train is delayed, wherever it may be. Telegraph to consignee time of departure.

1123. On arrival at the railway destination, the conveyances should be ready for the removal of the stores, and he will not question their suitability. The railway porters will load the wagons; and if the latter are supplied under a contract, he will be responsible for their being properly laden and protected; if the wagons are provided by the military authorities, he will not be responsible in any way. Loading in wagons from railway.

1124. If the ammunition is consigned to the troops, he will take a receipt on one of the duplicate convoy notes alluded to in paragraph 1108, and will hand the other convoy note to the commanding officer; and his duty will then be at an end. Consignments to the troops.

1125. He will, should the commanding officer require it, lend such hides and other coverings as may be required, and will take his receipt for them. He will hand the others over to the railway authorities on a proper way bill, for return to the issuing depôt. Wadmiltilts and hides, disposal of.

1126. Should the goods have to be forwarded from the railway station to the Army Ordnance depôt, or to troops at a distance from the station, he will accompany them in the same way as he did when he received them at the issuing depôt. To accompany the stores to their destination.

1127. In the event of the goods having to be shipped on board a vessel for service abroad, or for conveyance across the Irish Channel, he will accompany them on board. In the first case, his duties will be at an end on the delivery of the stores on board the vessel, and on his having taken the necessary receipt; but if the stores are ordered across the Irish Channel, he will accompany and land In the event of shipment in vessels.

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with them, and then proceed with them in the same way as before laid down, until he hands them over to the consignee.

To telegraph if delayed.

1128. In the event of delay, he will telegraph to the consignee for instructions, and to the consignor for his information, giving full details in each case.

Provision of carriage and boats.

1129. He will have nothing to do with the provision of carts, wagons, boats, or conveyances, which will be provided by the local officers.

To return when duty completed.

1130. When his duty has been completed, and he has obtained the receipt of the consignee, he will return without delay to the depôt from which he started.

VII.—Conveyance of Ammunition and Gunpowder or other Explosives by War Department Vessels.

Explosives, separate, stowage of.

1131. The master will frequently examine the hold, and see that it is thoroughly clean, and will always do so before receiving explosives. When explosives in Group I are being conveyed, the master will take the necessary precautions to cover up all exposed ironwork with hides or wadmiltilts supplied by the Army Ordnance Department, and to separate thereby the several classes. The two groups should be stowed separately, and no stores should be placed over any explosives in Group I. Detonators (Division IV, Group II) should be stowed in a hold or partitioned off space by themselves. When not so carried they will always be packed in ammunition cylinders or safety cases to protect them from damage by other packages. Unless unavoidable, they should never be stowed in the same hold as other explosives, but when a vessel has only one hold, and it is absolutely necessary that they should be shipped, they must be stowed in a separate compartment, formed by a course of cargo not less than 6 feet thick, and placed as far as possible from all other explosives. *If only explosives are carried, the ammunition cylinders or cases containing the detonators should be kept as far as possible from explosives in Group I, and in no case must they be nearer than* 6 *feet, the interval being occupied by packages containing explosives in Group II. If this cannot be done the detonators must not be shipped. In no cases are other stores to be stowed upon them.*

1132. The master will be held strictly responsible for the proper stowage of the explosives, and their protection by hides and wadmiltilts ; and an officer of the ship is to be constantly in charge of the shipment, stowage, or discharge of explosives. He will take special care that the men thus employed are perfectly sober.

On receiving gunpowder.

1133. On receiving explosives of Group I, the master will see that the platform in the vessel's hold, the gangways and the combings of the hatchways, and all exposed ironwork are covered with tanned hides or wadmiltilts ; that the barrels or cases are carefully stowed, and the hatches properly secured and locked ; and that the key remains in his own possession.

Cushion for landing barrels.

1134. When vessels are loading or discharging gunpowder, a cushion (stuffed with white oakum) covered with leather, will be used for all gunpowder barrels or cases, whether in the hold of the vessel or on the wharf.

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Stowing.

1135. In stowing gunpowder in the hold of the vessel, the barrels will be carried, and on no account rolled.

No leaky barrels.

1136. No leaky or badly coopered barrel, or defective cases containing explosives, will be received on board; and should such be offered, the master will refuse to receive them, and will immediately report the circumstance to the ordnance officer in charge.

After vessel has discharged.

1137. After the vessel has been discharged, the hides and wadmiltilts will be removed, and the hold carefully cleaned out. The wadmiltilts must be thoroughly dried if at any time they get damp, as otherwise they are liable to spontaneous combustion.

Caution in delivery.

1138. On delivery of the explosives, the same caution will be used as in loading; and if any barrels or cases should have been unavoidably broken, any powder which may have become loose will be carefully swept up, and the circumstances reported by the master to the ordnance officer in charge, before delivery to the magazine.

Fires, when allowed to be lighted.

1139. No fires, other than the engine-room fire, will be lighted on board any vessel, barge, or craft, conveying explosives (excepting safety cartridges), in the river Thames between Nine Elms and Blackwall, or within 100 yards of any town or village on a canal, or within 200 yards of any town or village below Blackwall, or in the River Medway, or within Harwich Harbour.

Cook-houses.

1140. Fires will be provided in the cook-houses at the several stations, when requisite, for cooking the provisions.

Magazine clothing.

1141. The men, when employed in loading or unloading explosives in Group I, must wear the following magazine clothing :—

Cap, lasting jacket, cloth trousers, and shoes (magazine).

Matches, pipes, &c.

1142. Any man, while so employed, found with a match of any description on his person, will be subject to instant dismissal. No tobacco-pipes are to be carried on the person when handling explosives.

Fire lighted not nearer magazine than 200 yards.

Engine-room fires, Port regulations.

1143. When the vessel, barge, or other craft is in the vicinity of a magazine, and not nearer to it than 200 yards, a fire may be lighted on board for cooking purposes only, and the master will see it carefully extinguished at sunset, and one hour previously to going alongside any ship or magazine. The engine-room fires in the steamers must also be put out, or carefully banked up, one hour before going alongside any ship or magazine, at the discretion of the ordnance officer at the station. The port regulations for the shipment of explosives are to be adhered to.

Smoking.

1144. When there are explosives on board, no smoking is to be allowed within 200 yards of any magazine, or at any time when the hatches are off.

Red flag.

1145. When a vessel commences to receive explosives (excepting safety small-arm cartridges), a red flag will be hoisted at the mast-head, and kept flying (except at sea) until the cargo is discharged. Within the jurisdiction of the Thames Conservancy :—

1. A red flag with two yellow crowns in the centre :—
   (*a*) Will be the distinctive mark of War Department and Naval Ordnance craft when carrying Government explosives.
   (*b*) The same flag will also be used as a distinctive mark for *hired* craft carrying Government explosives *whenever a Government official is on board in charge*, and also when

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hired craft are loading and unloading explosives under the superintendence of a Government official.

2. A red flag with *one* yellow crown will be the distinctive mark of *hired* vessels carrying Government explosives *not* in charge of a Government official.

No vessel will remain without proper protection, for which the master, under the transport officer at the station, will be responsible.

Safety matches.

1146. Safety matches will at all times be used on board of the War Department vessels, and kept in possession of the officers, and used for the purpose of striking a light when actually necessary.

Loaded vessels at Purfleet, Bull Point, Tipnor, and Woolwich.

1147. At Bull Point, Purfleet, Rocky, and Tipnor, and at Nos. 1 and 2 magazines attached to the Royal Arsenal, when, in consequence of want of water, a vessel laden with explosives is unable to be unloaded or loaded on the day of arrival, she will be moored in the safest position at the wharf, the hatchways will be secured and covered with tarpaulins, and no other vessel will be allowed alongside of her when wharf accommodation admits. At all other stations the vessel, not unloaded, will haul into the stream a distance of not less than 200 yards from the magazine, if possible.

Watchmen.

1148. No vessel having explosives on board will be left without a responsible watchman in charge.

VIII.—Gunpowder Vessels.

Regulations, to whom applicable.

1149. The following regulations for receiving explosives of Group I are for the guidance of persons employed on board the War Department vessels, and on the laboratory craft used for the conveyance of explosives to and from the receiving vessels.

Special clothing to be worn.

1150. All persons employed in the receiving vessels, barges boats, and magazines will change their outer clothes, viz., coat, waistcoat, trousers, cap, and shoes, and wear the suits specially provided for them. These will consist of the following articles of clothing :—

Articles of clothing.

In summer :	In winter :
Cap.	Cap.
Lasting jacket.	Lasting jacket.
Cloth trousers.	Cloth trousers.
Shoes, magazine.	Great-coat.
	Shoes, magazine.

Undercloth-ing.

The persons employed will also wear woollen shirts and drawers, provided by themselves.

To be changed in shifting-house.

1151. The change of clothes will be effected in a shifting-room, where the ordinary clothing will be deposited.

Smoking. Lucifer matches.

1152. Smoking is strictly prohibited, and any man found with a lucifer match in his possession will be immediately dismissed.

No fires.

1153. No fire is on any account to be allowed, either in the receiving vessels, barges, or boats.

Vessel to be clean.

1154. The receiving vessels, barges, and boats will be kept scrupulously clean, and free from loose gunpowder.

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1155. In shipping or unshipping ammunition or gunpowder, tanned hides or wadmiltilts will be laid over that portion of the vessel over which the cases or barrels pass. Shipping and unshipping.

1156. A red flag will be kept flying when there is any gunpowder or ammunition on board the receiving vessel. Red flag.

1157. Gunpowder, ammunition, or other explosives required to be sent from Woolwich Arsenal by land carriage, or transported between the wharves, magazines, and factories there, will be dealt with in the manner laid down in the "Regulations for Explosives Traffic, Royal Arsenal Railways" in force for the time being. Gunpowder sent by land from, or transferred in, Woolwich.

IX.—Transmission of Consignments by Water.

1158. When stores are sent by inland water carriage, similar proceedings will be adopted to those laid down in paragraph 1081; the master of the vessel, or conductor (if there be one), signing the bills of lading for the stores embarked. Inland water carriage.

1159. In the transmission of stores by sea from one station to another in the United Kingdom, bills of lading, coastwise home (A.F. G 965), will be made in duplicate, one being given to the master, and the other retained at the station. Receipt and delivery vouchers accompanied by tissue copies of the bills of lading, will then be forwarded to the consignee, whose signature to the receipt voucher will be rendered in support of the store accounts. Stores sent by sea, at home.

1160. When stores are sent to or from any station abroad by His Majesty's ships or freight ships, the bill of lading will be made out in triplicate on A.F. G 964. The original will be given to the master of the vessel, the duplicate, supported by copies of the vouchers, will be retained by the consignor, and the triplicate will be forwarded by post to the consignee. These three copies will in all cases be signed by the master of the vessel and stamped, except in the case of His Majesty's ships, when stamps will not be required. In addition an unstamped copy will be forwarded in advance to the consignee at the earliest possible date to ensure of its being in his possession before the arrival of the vessel. The ordnance officer at the port of discharge is the consignee as far as concerns bills of lading; in those cases in which stores are consigned to this officer "in transit," the officers and stations for whom the stores are intended will be shown in the body of the bill of lading. Bill of lading to stations abroad.

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Stamped.
Unstamped.
57
Cape
1731

The vouchers will be forwarded at the earliest possible date to the ordnance officer to whom the stores are charged.

1161. The bills of lading of the shipments of stores from England, whether by freight vessel or by hired transport, will be forwarded to the ordnance officer at the station to which the stores are consigned, and he will at once report, on A.F. G 886, the arrival of vessels to the War Office, adding whether any damages or deficiencies were known at the time of making the report. Bills of lading, &c. Duties of consignee.

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1162. In shipments by freight vessel from stations abroad, the stores should be consigned to the Principal Ordnance Officer, Woolwich, and bills of lading sent to that officer, unless special orders are given to the contrary. By freight vessels from stations abroad.

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Hired transports.

1162A. For consignments by hired transports, including those from one station abroad to another, receipts should be obtained and given on the bills of lading, and reports of arrival, on A.F. G 886, should, in every case, be sent to the War Office. When stores are shipped on a hired transport from a station abroad, bills of lading, addressed to the consignee, should, unless they can be sent by post in sufficient time, be handed to the master of the transport, for delivery on arrival, in order to allow of the stores being checked by the consignee.

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In making shipments to England by means of hired transports, the consignee will be the Chief Ordnance Officer, Portsmouth, in transit. Bills of lading will be prepared accordingly, and forwarded to that officer. The vouchers, however, will be made out charging the stores to the Principal Ordnance Officer, or other officer, for whom the stores are intended.

Stores of a brittle nature.

1163. In order to lessen the risk of damage, in the conveyance by sea transport, of stores of a brittle nature, which are shipped loose or unpacked, ordnance officers will cause such stores to be protected as much as possible, before shipment, by means of hay or straw bands, matting wrappers, or any other simple and inexpensive method which may be available.

Tonnage, circulation of.

1164. In shipping stores, the tonnage of the stores shipped will be inserted in the bills of lading. At stations at home and abroad the tonnage will be calculated in accordance with the rule laid down in the Regulations for His Majesty's Transport Service, as follows:—40 cubic feet to the ton if light (or measurement) stores, and 20 cwt. to the ton if heavy stores, unless shipment is made by special scale, when an explanatory note will be made on the bills of lading by the consignor.

Minimizing bulk.

1165. Light tonnage should be calculated according to the circumscribing rectangular measurement of each package.

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Articles should be nested or otherwise made into convenient packages to save tonnage when possible, but articles so stowed must be secured together in order to constitute a package, and must be passed to the vessel in one lift.

Magazines in freight ships.

1166. When explosives are shipped from stations at home or abroad in store freight ships, the magazines will be constructed by the owners at their expense, in accordance with the specification laid down in the Regulations for His Majesty's Transport Service, subject to the approval of the officers of the War Department, under whose supervision the magazines will be erected. The freight will be paid at the special rate on the actual tonnage of the explosives themselves, and at the rate of freight for ordinary stores on the extra space occupied by the magazine, compartment, or box, beyond the tonnage (weight or measurement) of the explosives. The bills of lading are to show clearly the actual tonnage, measurement or weight, contained in each magazine, compartment, or box, and the outside measurement of each. When magazines or compartments are built from deck to deck, the measurement allowed to the ship should include the space between the beams.

Classification and stowage of explosives.

1167. Full instructions for the classification and stowage of explosives for transport by sea are contained in Appendix XIII.

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Transport regulations.

1168. In all other matters connected with the shipment of stores the chief ordnance officer will be guided by the Transport Regulations, published by the authority of the Lords Commissioners of the Admiralty, and by instructions contained in the Regulations for Supply, Transport and Barrack Services.

Duties at disembarkation.

1169. Ordnance officers or subordinates who may be sent to supervise the disembarkation of ordnance stores, should be directed to take with them a copy of the bill of lading, if one has been received, and if not, be directed to ask for the one on board the ship, and also to inspect the cargo book (if there be one), in which it is shown how the cargo is stowed in the vessel. Cargo books are not required to be kept by freight ships in time of peace.

Unloading stores.

1170. Stores arriving in hired transports or freight ships will be unloaded with all practicable expedition, without reference to the time, if any, provided for in the charter-parties.

Separate receipts.

1171. Stores shipped by different departments will not be included in one receipt; separate receipts will be granted, in accordance with the respective bills of lading.

Reports bills of lading.

1172. On the receipts granted for the cargoes will be noted the date of the arrival of the vessel, the date on which the master reports that he is ready to unload, the date of the last delivery, and, if the vessel is detained beyond a reasonable time for the delivery of her cargoes, the reasons for such detention.

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1173. Ordnance officers will be guided by the instructions contained in paragraphs 178–185 Regulations for Supply, Transport and Barrack Services.

Copies of bills of lading required by W.O.
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1174. When stores are conveyed by hired transports from one station abroad to another, or to England, a tissue copy of the bill of lading for all such shipments of stores should be forwarded to the War Office at the time of shipment, in order that before the balance of hire is paid, all charges against the ship for stores damaged or deficient may be recovered.

Report to resident naval officer.

1175. At stations where there is a resident naval officer or Admiralty agent, the chief ordnance officer will at once notify to him the particulars of damage or deficiency in any stores consigned to the Army Ordnance Department, with a view to the same being reported to the Admiralty.

Claims to be waived.

1176. In cases where the total value of the loss or damage to stores on any one bill of lading does not exceed one shilling, no claim will be made against the ship for recovery of the amount; nor will any record of the same be made on the bill of lading for shipowners. The necessary corrections in respect of the same will then be made on the receipt voucher, which should be supported by a certificate as to the cause of such corrections.

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SECTION XIII.

Remains, Inspection, Survey, and Sale of Stores.

I.—Comparison and Verification of Store and Ledger Balances.

Stocktaking every three years.

1177. The stock of stores at each station will be taken in such a manner as will ensure that the whole of it is verified at least once in three years, and that not more than three years shall elapse between any two verifications of the same item.

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Chief ordnance officer to take stock.

1178. The chief ordnance officer will also, from time to time, direct certain articles of stock at each station to be counted, weighed, or measured in his presence, and will compare the results with those shown in the ledger.

Stocktaking duties.

1179. The verification of stock will, in all cases, be carried out in the presence of an officer, and in strict accordance with the instructions laid down in paragraphs 1180 and 1181.

1180. The chief ordnance officer will signify weekly to the ordnance officers in charge, the sections which shall be taken during the following week. Officers in charge will, each morning, prepare lists, on A.F. G 987, of the articles in each section which are to be verified, and the lists will contain such a number of items only as can be readily verified, and compared with the tallies and ledgers, in one day. In no case will the ledger balances be filled in or communicated to the storeholder prior to the stocktaking. The stores shown upon the stocktaking lists will be counted, measured, or weighed, and the quantities found in stock, as well as the balances shown by the tallies, will be at once entered in A.F. G 987, in the columns provided for the purpose. At the same time, the quantities found to be in stock will be entered in the tallies, a line being drawn under all previous entries.

Weights and measures.

1181. Such means only will be resorted to in ascertaining the weight, measure, or tally of the several articles of store as may be sufficient for determining the actual stock in possession, and as may be satisfactory to the officer conducting the stocktaking; it being requisite that no unnecessary details should be allowed to impede the speedy completion of the service. The officer will note at the end of his list, any instances in which the actual tale, weight, or measurement of any articles has not been resorted to, will include a full explanation in his report, and will state the particular course taken in all such instances for arriving at the quantities returned in the stocktaking lists.

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1182. Omitted.

Ledger charge.

1183. The ledger charge, at the date of stocktaking, of each item of which stock is taken, will then be inserted in A.F. G 987, and the actual stock will be entered in the ledger.

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1184. The stocktaking report (A.F. G 987) will be completed, and signed by the ordnance officer by whom the stock is taken, and also by the storeholder or foreman in charge of the stores. Report, signatures required to.

1185. When discrepancies are found to exist between the actual stock and the ledger charge, the officer in charge of the depôt will order them to be provisionally adjusted by means of certificate receipt or issue vouchers, and will call for explanations from the person in charge of the stores. Discrepancies, adjustment of.

1186. The stocktaking report, accompanied by the explanations of the discrepancies, will be forwarded to the chief ordnance officer. Transmission of reports.

1187. On receipt of the stock-taking reports, the chief ordnance officer will, if they disclose surpluses or deficiencies which cannot be satisfactorily explained by the person in charge of the stores, or the officer under whom he is placed, take such measures of a disciplinary nature as the circumstances of the case demand. All clear deficiencies of stores will be brought to the notice of the general officer commanding, with a view to their being dealt with in the manner prescribed by the King's Regulations. Discrepancies found at stock-taking.

1188. The original stock-taking reports (A.F. G 987) will be retained in the district, in the office of the chief ordnance officer, unless specially applied for by the War Office, or by the Army Corps Auditor in commands in which an Audit Office exists. Reports of stock-taking disposal of.

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1189. Omitted.

1190. The date of last stock-taking will be recorded above each ledger heading, and such date will in each case be carried forward, from one account to the next. Stocktaking date in ledgers.

1191. The Secretary of State will cause arrangements to be made for examining and counting any description of stores, at any station, whenever he may deem such a course desirable for the verification of the store account balances, and of the statements, remains, and returns which he receives. In each case, he will send a notification to the general or other officer commanding the district or station at which the inspection is about to take place. Special stocktaking.

II.—Transfers.

1192. When an officer is placed in charge at an Army Ordnance station he will at the time take steps to test the accuracy of the stock of such items of stores as have not been recently verified, and will furnish a certificate that he has done so, and has no reason to doubt the general agreement of the stock with the ledger balance. This certificate will be forwarded by the chief ordnance officer to the War Office, when reporting a change of officers. Officer assuming charge of a depôt.

1193. When a charge of stores is transferred from one storeholder or foreman to another, the whole of the books and tallies of the charge will be handed over, in the presence of an ordnance officer, to the relieving storeholder. The storeholder or foreman taking over the charge should, if possible, have previously satisfied himself by stocktaking that the stores were correct prior to the transfer of the tallies and books referred to. If, however, circum- Storeholder or foreman being placed in charge.

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stances prevent stocktaking being made prior to the transfer of the books and tallies above referred to, the verification should be made immediately after such transfer, and the officer in charge will be held responsible that this is carried out.

III.—Stocktaking of Mobilization Stores; also General Instructions.

Stocktaking of special articles.

1194. Once in each year, at a time most convenient at the station, a complete stock will be taken of the following mobilization stores and the result reported on A.F. G 987 :—

1. Accoutrements.
2. Ammunition and other explosive stores.
3. Arms, with appurtenances.
4. Any other complete class of stores such as tools, camp stores, harness, or saddlery, of which, in the opinion of the chief ordnance officer, a complete stocktaking may seem desirable.

Stocktaking by units.

1195. Stock of mobilization equipment generally will also be taken by units, until the whole has been counted, at least once in two years.

Store table, report.
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9224

1196. The unit to be taken is to be named by the chief ordnance officer on the morning of the day when such duty is to commence. A copy of the particular mobilization store table will be used for reporting the result.

Comparison of tables with ledger.

1197. The quantities shown by the mobilization store tables will be compiled and compared with the ledger remain on the 31st March in each year, a certificate being furnished that this has been done, and detail given of any discrepancies found, together with explanations of the same.

Dealing with deficiencies.

1198. Any deficiencies discovered at a stocktaking or verification of stores, carried out under the preceding subsections, will at once be brought to the notice of the general or other officer commanding, and will be dealt with as directed in the King's Regulations on the subject of the loss or damage of stores.

IV.—Half-yearly Boards of Survey on Unserviceable Stores.

Survey every half-year.

1199. Before the half-yearly balance of the ledgers is carried out, a half-yearly survey will be held at each Army Ordnance depôt, on all stores which may be considered unfit for service, including such stores as have become worn out in use by the department as "Articles in Use"; stores which, on return from the troops as repairable, have been found on further examination to be not worth, or capable of repair; articles of minor value or importance which have become damaged or deteriorated while in store; and such other articles as vehicles, etc., for which special instructions are given in these regulations that they are not to be condemned without being brought before this survey board.

Constitution of board.

1200. The half-yearly survey of stores will be conducted by a board of officers composed of an officer of artillery, an officer of engineers, and an officer of the line, in addition to the ordnance officer in charge. When naval stores are to be included in the survey, application will be made to the senior naval officer to appoint a naval officer as a member of the board to assist in

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the duty. With a view of avoiding unnecessary expenses for travelling, the general or other officer commanding will exercise his discretion in modifying the constitution of the board, if the above-named officers are not available at the station.

Report of the survey.

1201. The result of each survey will be shown in a report on A.F. G 1044. When the columns of the report do not allow sufficient space for explanation, memoranda containing the fullest possible information relating to the stores will be annexed. The form will be signed by all the members of the board. Any articles ordered by the board to be destroyed will be destroyed on the spot, in the presence of the members, who will furnish a certificate at the end of the proceedings that this has been done.

Destruction of valueless articles.

Approval report.

1202. The proceedings of the board will then be forwarded to the chief ordnance officer, who will, after approval by the general or other officer commanding, cause the recommendations to be acted on.

Report used as a transfer voucher.

The original copy of the proceedings will be the only document required in support of the transactions in the ledger, and will be forwarded to the War Office or Army Corps auditor (see paragraph 1291), with the other transfer vouchers, in support of the accounts.

Obsolete articles, disposal of.

1203. No stores will be condemned on account of being of an obsolete pattern, unless orders have been received to that effect either in the monthly List of Changes in War Matériel or other special instructions; and when they have been so declared obsolete, steps will be taken for their disposal. If the existing stock of the articles is not to be utilized, but disposed of at once, they will be sent to Woolwich or Weedon, or in the absence of any instructions to the contrary, brought before the next half-yearly board of survey for local disposal.

Blankets for coir beds.

1204. Such blankets as are sufficiently good for use with coir beds, and have been condemned merely on account of being thin and worn, will not be disposed of, but will be retained and used for that purpose. These will be marked with the letter U, in white paint, of large size, and each corner of the blanket, six inches deep, will be cut off to prevent the possibility of these blankets being again dealt with otherwise than as unserviceable.

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Explosives.

1205. As a general rule, explosives will not be condemned by boards of survey, but will be dealt with, under the Magazine Regulations, in reports of inspection of warlike stores, and under special instructions from the Principal Ordnance Officer, Royal Arsenal.

Stores "U," marking and breaking up.

1206. Condemned stores, except as stated below, will, when practicable, be marked with the condemned mark, $\overset{\downarrow}{\uparrow}$ or be broken up or torn in pieces as the case may be. When it is proposed to dispose of stores without breaking up or tearing them, the reasons will be given in the survey report. Unserviceable guns, instead of having the $\overset{\downarrow}{\uparrow}$, will be marked with a *, cut on the vent-field and face of muzzle in the case of cast-iron ordnance (including converted guns), and painted in white (of a size suitable to the nature of gun, and after the places to be marked have been perfectly cleaned with turpentine) on the breech and muzzle faces, as well as where

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the weight is stamped on top of the breech, in the case of the R.M.L., B.L., and Q.F. ordnance.

Condemned blankets, accounting for.

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1207. Condemned blankets, whether on Army Service Corps or Army Ordnance Department charge, should be retained on charge by numbers and not by weight, until they are actually sold out of the service, in which case they should be torn into four pieces and sold by weight. The voucher writing them off charge should state quantity and actual weight. The same course should be followed when they are issued for cleaning purposes or for repair of targets. Condemned sheets will be torn into two pieces, except those which are to be used for cleaning purposes, which will be torn into six pieces. Condemned hospital and prison clothing will be torn up, the large articles in six, the smaller into four pieces.

Sheets.

Condemned clothing, hospitals, &c.

Dirty bedding, &c disposal of.

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Gen. No.
4246

Bedding, clothing or tentage, which is in a dirty state, should be cleaned before being sold or should be burnt if cleaning be not practicable, or if the articles are not worth the cost of cleaning.

Testing tent canvas as to its durability.

1208. Upon the examination of tentage, neither knives nor any sharp instruments are to be used in testing the canvas; a strong pressure of the hand or thumb is sufficient to ascertain its condition, and any undue ripping of seams or gores should be avoided. A tear of a few inches is quite sufficient to test the quality of the material.

Marking condemned tentage.

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1209. Condemned tents, marquee roofs and walls should be marked with a 2-inch condemned mark stamp in from three to six places on each side, according to the size of the tent.

Other pattern tents in similar proportions.

V.—Special Surveys.

1210. Omitted.

Special surveys, how conducted.

1211. Should the chief ordnance officer consider it necessary to hold a special survey of stores at any intermediate date, it will be conducted under the rules laid down for half-yearly surveys, and in case of deficiency, damage, or loss, the board or the officer appointed to make the survey will state the extent and apparent cause thereof, whether arising from fair wear and tear, from bad usage, or from other causes.

VI.—Instructions for Disposal of Surplus, Obsolete, or Unserviceable Stores.

1212. Half-yearly statements of the rates obtainable at the Royal Arsenal, Woolwich, will be forwarded for the guidance of ordnance officers in the disposal of stores condemned in survey reports. These prices, which are all given in weight, will be inserted locally by the ordnance officer at the end of the survey form, and the probable cost of carriage or freight to Woolwich will be shown in the column for that purpose. When the cost has been deducted from the Woolwich rates, the balance will give the value at Woolwich, and enable ordnance officers at once to judge of the advisability of returning the stores or disposing of them locally, by

Sale prices.

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comparing such value with the local rates obtainable, which will also be inserted in the column under that head.

Local sale under certain conditions. 57 21 8232

1213. When the local rates obtainable do not come within 10 per cent. of those at Woolwich, it is left to the discretion of general or other officers commanding to decide whether it is or is not more advantageous to send stores to Woolwich for sale, subject to the reservation that when the full original value (at vocabulary rates where they exist) of any particular lot of stores exceeds £500, they should not be sold locally without prior reference to the War Office. Contracts entered into for the sale of stores should be reported to the War Office, in accordance with the procedure laid down in the Regulations for Supply, Transport and Barrack Services.

Report of sale by contract. 38407 Ordnance 223

Cost of carriage at home stations.

1214. From home stations the stores will as a rule be brought to Woolwich by the vessels of the War Department, so that in these cases the cost of the carriage from the inland stations to the port of embarkation only need be inserted in the return.

Judgment requisite in selling and transfers.

1215. In the case of surplus and obsolete stores, chief ordnance officers, both at home and abroad, will recommend disposal locally or return to Woolwich, in the lists of such stores forwarded with the annual demands. In making these recommendations for the decision of the Principal Ordnance Officer, the cost which would be involved in handling, packing, and clerical work, and the delay, and storage-room occupied while awaiting shipment, will be taken into consideration, as well as the points mentioned in the paragraphs above.

57 Gen. No. 3065

When surplus stores, being a portion of those in stock, are ordered to be transferred to Woolwich or to other stations, articles which are new must be sent, if in store, or, if not, the part-worn articles which are in best condition. Care must be taken that such articles are thoroughly serviceable.

Disposal of building materials.

1216. No unnecessary expense will be incurred in the removal of building materials from the places where they are deposited, but they will be disposed of on the spot when it may be deemed advantageous to do so.

Condemned stores for submarine mining.

1217. At stations where submarine mining operations are being carried on, a list of the articles proposed to be sold in accordance with a survey report should be furnished beforehand to the Commanding Royal Engineer, so that he may select any which are suitable and required for obstructions, dummy mines, &c.

VII.—Sale of Condemned Stores.

Authority for sale.

1218. As a general rule, condemned stores will be disposed of, whether by sale or otherwise, upon the approved proceedings of boards of survey, or by order of the general officer commanding. Condemned hospital clothing will always be sold on the spot.

Hospital clothing.

Guns, disposal of.

1219. When guns that are no longer required are specially authorised to be disposed of by sale, they may be sold without being mutilated, but they should first be stripped of their fittings, if any, including the breech mechanism in the case of breech-loading guns.

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Unserviceable steam boilers.

1220. All unserviceable steam boilers will be so cut up or distorted before sale, as to render them unfit for further use, and past profitable repair.

Such mutilation may be considered as effective if each plain and stay tube is cut out and punctured or flattened at two or three places in its length, the front plate, with furnace or furnaces, drawn out from the shell, and the cylindrical form of such furnace or furnaces destroyed by a falling weight.

The gunmetal and iron fittings on an unserviceable boiler will not be sold with the boiler, but will be brought to produce with other old metals.

Mode of sale.

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Gen. No. 4

1221. When a sale is authorised, the stores will be sold by contract (if a contract for the station is in force), by auction or by public tender; and the chief ordnance officer will apprise the station paymaster, in order that the latter may promptly recover the proceeds, which will be immediately credited in the cash accounts of the station.

Auctioneer to recover proceeds.

1222. The auctioneer will recover the amounts due from purchasers, and will pay them over, less his commission, to the station paymaster, who will credit the amount in his accounts.

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1223. Omitted.

Expenses of sales.

1224. All incidental expenses connected with sales, such as advertising, posting bills, &c., will be borne by army votes, and will not be deducted from the amount realised.

Professional auctioneer.

1225. When the quantities of stores authorised to be sold are large and the value considerable, the chief ordnance officer will employ a professional auctioneer to conduct the sales, public notice being given by advertisement and handbills. If, however, he considers it preferable to dispose of them by tender, he will apply to the general or other officer commanding for instructions.

Tender.

Sale by a departmental subordinate.

1226. When the stores are few and of small value, the chief ordnance officer will take such steps as may give publicity to the intended sale, without incurring unnecessary expense, and will cause the stores to be sold, in the presence of an ordnance officer or other responsible person, by a departmental subordinate, who will not be allowed any commission or extra pay for this duty.

Catalogue and conditions of sale.

1227. When an auctioneer is employed to sell the stores, the officer in charge of the stores will (in conjunction with the auctioneer, if necessary) prepare an inventory or catalogue of the stores to be sold. The conditions of sale will be plainly stated thereon.

Purchaser.

1228. No officer or other person in the military service of the Crown, or in the departments of the army, will under any circumstances be permitted to purchase stores disposed of at public sales.

Purchase by repairing contractor.

1229. Repairing contractors may be allowed to purchase from store locally such articles of condemned clothing or bedding, for use in repairs only, as may be reasonably expected to be required for the purpose for which they are demanded. Before issue, these articles are to be torn up as directed by paragraphs 1206 and 1207. The rates quoted in the last half-yearly statement from Woolwich, or the sale price locally (whichever may be higher) will be charged

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for the pieces of bedding; and the rate for rags, in the contract for worn-out clothing, will be charged for the destroyed clothing.

1230. Stores will not be delivered to purchasers without the production of a certificate from the auctioneer or station paymaster that the whole of the lots bought by such purchasers have been paid for. Certificate of payment. 8 / Gen. No. 4 / 38407 / Ordnance / 223

1231. Omitted.

1232. On the completion of the sale, the auctioneer will note on the catalogue or inventory the amount realised by the sale, less his commission, and will return it to the ordnance officer as the issue voucher for the store accounts, signing it in evidence of the stores having been sold. Auctioneer to give an account.

1233. Three copies of the catalogue or inventory will be prepared by or on behalf of the officer in charge of the stores. The catalogue will show in detail the gross proceeds and the nett amount realised by the sales, and the date and number of the cash voucher in which the amount will be found credited to the public. It will be signed by the auctioneer, in evidence of the sale of the stores and of the sums realised thereby. One copy will be used as the store issue voucher; and another copy as the cash debit voucher; and the third copy will be retained as a station record. Catalogues to support accounts.

SECTION XIV.

Receiving, Issuing, and Accounting for Stores.

I.—Receiving.

1234. Vouchers for articles returned to store by the troops or departments must in all cases be made out in triplicate by carbon process on A. F. G 1033. When stores in more than one Woolwich section (as shown by the "Priced Vocabulary of Stores") have to be returned, each separate Woolwich section will commence on a separate page or under a separate perforation, the perforations being ignored until a different Woolwich section is reached. Each complete voucher need only be headed on the first page, and signed on the last page, but the portion relating to each separate Woolwich section will bear the regimental or corps office stamp. Vouchers stores returned.

1235. The original and triplicate copies of the voucher will be divided into parts according to the grouping of the sections of the vocabulary under storeholders or foremen at the station. The sections will be pasted on spare blank copies of Army Form G 1033, and given a voucher number,* so that each group of store sections will have its own series of vouchers, and will be passed from the office to the storeholder or foreman, who will receive the stores. Receipt vouchers, procedure with. 57 / Gen. No 2817

* A.B. 344 will be used for recording the numbers of, and action taken upon, receipt vouchers.

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The duplicate copy to be returned to the corps or department will be left intact, the numbers of the corresponding receipt vouchers being quoted upon each perforated portion.

Packages.

1236. Packages will, as far as possible, be charged upon the same perforated portion of the voucher as the stores that are contained in them. In the event of a package containing stores in more than one Woolwich section, a reference will be given in each instance to the section under which the package is shown upon the voucher.

Vouchers to be initialled, dated, posted, checked, &c.

1237. Upon the receipt and verification of the stores, the storeholder or foreman will complete the vouchers by inserting the condition of the stores (S.R.D.U.), any other information necessary being inserted in indelible pencil. He will initial the vouchers and quote under his initials the date of examination or verification of the stores. The stores will then be posted upon the tallies from the vouchers, the date quoted upon the tally being that given by the storeholder or foreman under his initials. The posting upon the tallies will be checked by the storeholder or foreman, and the vouchers returned to the office for the receipt to be given, upon the duplicate copy of the voucher, to the officer who returned the stores.

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Vouchers, triplicate copy to be retained as a receipt journal.

1238. The triplicate copies of receipt vouchers will, on return to the office duly completed, be pasted into guard books and retained as a receipt journal for station record. Receipt journals will not be kept by storeholders or foremen, who will refer to the office receipt journal when necessary.

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Receipts for stores.

1239. Receipts for articles received into store will be signed by the ordnance officer in charge, or by an officer on his behalf; but in the absence of officers, conductors will sign these and other for and on behalf of the officers.

Issue of stores not passed inspection.

1240. When, from unavoidable causes, it happens that there are stores received from purchase, or otherwise, which have not been recorded in the accounts, and when, to meet an urgent demand, it is necessary to make an issue from them, the quantities required for issue to meet the urgent demand will be brought on charge by a certificate voucher, which will give a reference to the bill of lading, invoice, or delivery voucher on which the remaining stores are ultimately brought on charge. The voucher ultimately put forward will be for the remaining stores, and will give a reference to the the certificate voucher.

II.—Issuing.

Requisition forms to be rendered in duplicate.

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1241. Requisitions from regiments, corps, or departments for stores will be rendered in duplicate on the authorised forms direct to the chief ordnance officer, as early as possible. They will specify the purpose for which the stores are demanded, and the regulations which sanction the supply; and, when stores are required to be exchanged, the periods during which the old articles have been in use will be stated as far as practicable. The chief ordnance officer will see that the requisition is complete in every detail which the form of requisition may require.

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1242. The chief ordnance officer will, after due examination as to their correctness, approve all requisitions for the issue of stores and equipment.

Requisitions, examination and approval of.

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1243. A reference will be given on every issue and receipt voucher to the number and date of the approved requisition, or authority, upon which the transaction is carried out.

Reference to requisitions to be given on voucher.

1244. The original requisition will be divided according to the grouping of the sections at each station, and will be passed to the storeholders or foremen to execute and retain, the issues being marked off thereon in the blank columns provided for that purpose.

Execution of requisition.

1245. The duplicate requisitions will be retained in the office and will be used for checking the storeholder's or foreman's reports when the stores are ready for issue and for marking off the issues as they occur.

1246. When commencing the execution of a requisition, the storeholder or foreman will specify upon the form of report or issue voucher, A.F. G 982, the number and descriptions of the stores to be collected from stock, giving a reference to the number of the requisition referred to in paragraph 1242.

Report of issues.

1247. When a report or issue voucher contains stores under several requisitions or orders, they will be shown separately under each requisition or order, instead of being mixed up and having all the orders quoted together.

Vouchering.

1248. Vouchers for stores sent to Woolwich should show under what authority or circumstances the stores are returned, War Office or Woolwich orders being quoted where such exist.

Vouchers for stores sent to Woolwich.

1249. The forms of issue vouchers thus prepared will be handed over, upon boards with elastic bands, to the person deputed to superintend the collection of the stores. Great care must be exercised in handling the forms, in order that they may not be defaced.

Collecting stores as per voucher form.

1250. The stores will be written off the tally-boards at the time they are taken from the bins or bays; in any case tally-boards are to be written up before the stores are removed for packing.

Tally-boards, posting of.

1251. All entries upon tally-boards will be made in indelible pencil. Only indelible pencils supplied through the stationery office will be used.

Tallies kept in pencil.

1252. When the stores have been collected and laid out, the quantities shown in the report or issue vouchers, after being verified by the storeholder, will be marked off upon the requisition.

Marking up requisitions.

1253. When the stores are packed, such particulars as may be necessary as to packages, measurement, weight, &c., will also be filled in upon the issue voucher. In filling in these columns, all information of which it is necessary to keep a record will be inserted. A packing note (A.F. G 1028), detailing the articles, will be placed in each package, which will be signed by the packer, and also, if practicable, by the person who witnessed the packing. A copy of each, taken by the carbon process, will be retained in the book for future reference.

Packages tonnage, &c., noted on report.

Packing notes.

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1254. Packages will be charged or mentioned on the same

Charging for packages.

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voucher as the stores that are contained in them ; and in the event of stores on two or more separate vouchers being contained in one package, the voucher on which the package is mentioned but not charged, will always give a reference to that on which the package is charged.

Vouchers by carbon process.

1255. Two copies of the issue voucher will ordinarily be taken by the carbon process, and in all cases the original voucher will become the consignee's receipt voucher, the duplicate the consignor's issue voucher, and the last copy will be left in the book and retained in the storehouse for reference. But when stores are issued to an Army Ordnance depôt three copies will be made, and the triplicate will accompany the original for retention by the consignee under paragraph 1238. There will also be three copies for an issue on repayment, and the triplicate will be used for securing repayment.

Checking of tallies.

1256. The entries upon the tally-boards will at once be checked by the storeholder or foreman from his book copy.

Numbering and dating reports.

1257. A voucher number and date will be given in the storehouse to each form of report or issue voucher, in the space provided in the left-hand top corner. This number and date will be quoted against each entry on the tally-boards, and upon the requisition. These numbers must show the station group to which they belong, and will be written thus:—

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$\frac{A}{12'}\ \frac{A}{13'}\ \frac{B}{47'}\ \frac{B}{48'}$ &c.

Reports to office.

1258. Forms of report or issue vouchers will, immediately the stores are ready for issue, be sent into the office, where the necessary arrangements for transport, preparation of bills of lading, carriers' notes, &c., will be made.*

Checking reports.

1259. The vouchers thus submitted will be checked in the office with the copy of the requisition.

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1260. Any further information required to be inserted upon the station issue voucher will be made in indelible pencil.

Report sheets not to be permanently fastened together.

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1261. The various sheets of issue reports, and of the copies, making up a whole issue will not be permanently fastened together.

1262. Omitted.

Notifying issue ready.

1263. When stores are ready for issue to troops, in cases where they are drawn direct from the Army Ordnance depôt, a notification to that effect, on A.F. G 981, will be sent to the corps or department concerned.

Temporary receipts for stores.

1264. When it is necessary to obtain a temporary receipt for stores drawn by troops direct, such receipt will be obtained upon the storeholder's or foreman's copy of the report. When taken away by carrier, the same procedure will be followed in obtaining a signature for packages.

* A.B. 345 will be used for recording the numbers of, and action taken upon, issue vouchers.

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1265. Issue and receipt vouchers will be forwarded to the consignee at the time of each transaction, and will show the date of issue and the mode of conveyance by which the stores have been sent. Vouchers to be sent to consignee.

1266. Any difficulty or delay in obtaining receipts for stores issued will be reported by the issuing officer to the chief ordnance officer, who will take the necessary steps for obtaining the receipts. Delay in obtaining receipts to be reported.

1267. Ordnance officers or other persons in charge of stores will invariably insert on the voucher returned to the consignor the date and number of the voucher by which the stores are brought on charge in their ledgers. Vouchers returned to be dated and numbered.

III.—Accounting.

1268. The store ledgers will be kept in the office, under the immediate supervision of the ordnance officer, and will act as a record perfectly independent of that kept in the storehouse upon the tallies. They will include every article of public property in the storehouses or on the premises of the Army Ordnance Department, and will show separately the stores that are in a "serviceable," "repairable," "unserviceable," and "doubtful" condition. Every transaction in the store ledger will be supported by proper vouchers. Ledgers kept in office as check on tallies in store, &c. Transactions supported by vouchers.

1269. The stores will be described in the vouchers and ledgers in strict accordance with the nomenclature and classification of the authorised vocabulary of stores, and great care will be taken that the stores described in the vouchers are those actually issued. Special stores not named in the vocabulary, and new stores, the introduction of which is announced in the monthly "List of Changes in War Matériel," will be entered in the ledgers and other documents, in alphabetical order, as far as possible, at the end of the unit of the Woolwich section to which they belong. In the case of stores introduced by or mentioned in the "Lists of Changes in War Matériel," the unit of section to which they belong is indicated therein. Stores to be described as per vocabulary. Special patterns of stores. List of Changes, a guide.

1270. When the nomenclature of an article is altered by "List of Changes in War Matériel" the ledger and tally descriptions will be amended in red ink, the authority being quoted above. New editions of the priced vocabulary of stores will always take effect, as regards nomenclature, from the commencement of a period of account. In cases where the nomenclature or sectional arrangement is altered by the new edition, references will be given in the old ledgers to the new ledger folios and *vice-versâ*. The only instance in which a transfer voucher (A.F. G 1049) may be used, in connection with the foregoing, is where the alteration involves a transfer of the stores from one storeholder or foreman to another. Alteration of nomenclature.

1271. Storeholders will not be allowed to have access to the ledgers. Access to ledgers.

1272. Receipts will be posted in the ledgers from the original receipt vouchers, the date to be quoted against each entry being that given under the storeholder's initials, *i.e.* the actual date of receipt of the stores. Posting receipts.

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Posting issues.

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Checking ledgers.

Posting ledgers, &c., at Woolwich and Weedon.

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1273. Issues will be posted in the ledgers, from the duplicate copies of the storeholder's reports, immediately they have been checked with the copy of the requisition in the office; the voucher number and date, and name of corps or department to which the stores are issued being quoted against the entry in the ledger. The posting will be at once checked, and the vouchers returned to the issue branch without delay. All entries in the ledger must be duly vouched before the account is submitted for audit.

1273A. At Woolwich and Weedon the system of grouping sections of the vocabulary (paragraphs 243 and 246) will not be followed; vouchers will be prepared and ledgers posted under rules specially applicable to those stations.

Daily posting and checking of ledgers.

1274. The chief ordnance officer will make such arrangements as will ensure that each receipt and issue is invariably posted in the ledger, and the entry checked by a competent person daily, as the documents are received from the storeholder; so that at the end of each day, the balance of any item in the ledger will show the correct amount of stock unappropriated in the storehouse on the previous day.

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1275. Omitted.

Monthly vouchers for transfers, conversions, &c.

1276. Vouchers recording the transfer and conversion of stores will be prepared monthly at all stations, and the portion relating to each storeholder or foreman's unit of the charge will be numbered as a separate voucher.

Transfer, and conversion vouchers.

1277. These vouchers (on A.F. G 1049) will contain a complete statement of the transfer and conversion transactions, and will show on the one side the stores received, and on the other the numbers and dates of the vouchers upon which the material expended has been written off charge.

Expense vouchers from workshops.

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1278. The vouchers for material expended in carrying out repairs and conversions will be prepared in the workshops, on A.F. G 890. These vouchers should, where possible, show the number of the receipt voucher by which any manufactured articles are brought on charge. Three copies will be prepared, two of which, after approval by the officer authorising the issue, will be detached and passed to the storeholder, and one copy left in the book for workshop record, from which the day book, referred to in paragraph 178, will be entered up.

Posting expense vouchers in ledgers. Record for storeholder. Posting tally boards.

1279. The material having been issued, the storeholder will pass one copy to the office for posting in the ledgers, and no further monthly or other expense issue vouchers will be necessary; he will retain the other copy as his record of issue. The tally boards will be entered up at the time the issue is made.

Stores available for expense to be on voucher. Requisition for stores to be provided.

1280. The master artificer of the workshops should only prepare the expense vouchers (A.F. G 890) for stores that he knows to be available. Should stores have to be provided, he will send a requisition for them to the storeholder concerned, by whom they should be entered in the inability book, for provision in the usual manner.

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Vouchers separate for each group or section.

1281. These expense vouchers should be made out separately for each storeholder's or foreman's group of store section at the station.

Expense vouchers from storeholders, or foremen.

1282. Expenditure of material in the storehouses, for cleaning, packing, or other purposes, should be carried out in a similar manner, and by means of the same form of expense voucher—which, in this case, should be prepared by the storeholder or foreman by whom the stores are required.

Stores received for repair.

1283. Stores received for repair only will not be brought on charge in the store accounts, but will be shown in the body of the expense vouchers on which the materials expended in the repair are written off charge.

Expenditure for care and preservation.

1284. Consumable stores expended in the care and preservation of stores and premises, and materials used for packing, will be written off charge on A.F. G 890, showing the purposes to which they have been applied. Sacks used for packing purposes will be written off charge as expended, and will be shown "within the line" on issue vouchers. Any found to be serviceable when unpacked will be brought on charge by certificate voucher.

Responsibility of O.O. for vouchers.

1285. The ordnance officer will be responsible that all stores written off charge as expended, converted, or transferred, have been duly and satisfactorily disposed of in the public service.

Stores or ammunition on deposit.

1285A. Stores, or ammunition, sent to an Ordnance Station "on deposit" will invariably be accounted for by the officer in whose charge they are deposited, and will be written off charge by the depositing officer. The accountant will only issue such stores on the written authority of the depositor, and will keep the latter periodically informed of the state of the stock.

Expenditure in examinations and proof.

1286. Stores expended in examination and proof of warlike stores will be written off charge on a certificate expenditure voucher showing precisely for what purpose the stores were expended, duly certified by the inspecting ordnance officer, and approved by the chief ordnance officer.

Stores taken into use.

1287. Stores taken into use will be written off charge in the general store account, and brought on a separate account of stores in use and will be conspicuously marked with the letters A U to distinguish them from those on general store charge.

Concise ledger headings.

1288. No stores will be issued for use unless and until actually required. They will be described as concisely as possible in the ledger headings, in one alphabetical series, without reference to store units of the vocabulary.

Posting for average annual issues.

1289. With a view to simplifying the working out of the average annual issues for demand purposes, all issues not affecting the average annual consumption of stores will be posted in the ledgers in red ink. Such entries will embrace temporary issues to troops, &c., transfers between store depôts or different store sections, and new equipments, although in the latter case some extra provision for up-keep may at once be necessary in the annual estimates.

Totals on issue side of ledger-accounts, nature of.

1290. In adding up the issue side of the ledger, for balancing when closing an account, only two totals need be made :—

(*a*) "Issues," which will embrace all issues which have to be deducted from the receipt side in order to arrive at the balance remaining on charge ; and

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(*b*) "Total normal issues," which will include all issues entered in black ink during the whole period of the account.

In cases where a stocktaking balancing has occurred during the account, care must be taken to include in the "Total normal issues," those both above and below the stocktaking balancing.

Station ledgers, balancing.

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1291. At stations, home and abroad, the original ledgers will be balanced on the 31st March and 31st August in each year, and forwarded with the station accounts to the Accountant-General, War Office, or to the auditor in commands to which an Army Corps auditor is appointed, as follows :—

Station.	When Rendered.	Mode of Procedure.
At home	Half-yearly... ...	Report to be sent to the War Office or to the auditor in commands where an Army Corps auditor is appointed immediately the account is ready for audit; when called for, it should be transmitted forthwith—where necessary—by rail.
All stations abroad ...	Yearly, ending 31st March	Account to be forwarded within six weeks of the expiration thereof; if opportunity offers, by free freight, if not, by steamer as a mail parcel. The date of transmission, and name of steamer by which consigned to be reported by letter to the War Office at the time.

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Alternate sets of ledgers, excepting the articles in use ledger, will be kept at each station, so as to prevent interruption in the record of current work while either is under examination.

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Articles in use ledgers will be balanced half-yearly and forwarded only when called for, but the vouchers will be rendered with each account.

1292. Omitted.

Balance sheets for audit, preparation of.

1293. A balance sheet on Army Form G 922, showing the whole of the stores, except articles in use, remaining on ledger charge (in the case of Home Stations at the close of each account, and in the case of stations abroad, at the close of the account ending 31st March only) will be prepared in the following manner and transmitted to the War Office, or to the auditor in commands to which an Army Corps auditor is appointed, as soon as possible after it has been made out and checked :—

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(*a*.) At Home Stations on the 31st March and 31st August, and stations abroad on the 31st March only, Army Form G 922 showing all the ledger headings, but not the ledger balances, will be completed in the ledger office, where necessary, in manuscript, and distributed to the storeholders or foremen concerned.

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(*b*.) The balances in the tallies will be inserted by the storeholders or foremen, and the forms, completed in ink, returned to the ledger office within 10 days.

(*c*.) The ledgers will in the meantime be balanced, after which the balances will be compared with those shown in Army Form G 922.

(*d*.) In every case where the tally and ledger balance may disagree,

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the postings will be checked in detail, stock being taken if advisable, and the necessary corrections made in whichever record is found to be incorrect.

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A certificate to the effect that the instructions (*a*), (*b*), (*c*), and (*d*) have been carried out, will be given in each ledger prior to the transmission of the account for audit.

The transmission of the balance sheet is not to be delayed for the account.

Balance sheets.

1294. The balance sheets of those sections in which the items are few, will be prepared in manuscript instead of on the printed sections of A.F. G 922.

1295. Omitted.

Return junk, &c., when sent to War Office.

1295A. An account of old cordage or junk, converted to oakum in military prisons (or barrack) cells, will be rendered with the station accounts on A.F. G 330, in support of the issues and receipts made in the Army Ordnance Account.

1296. Omitted.

1297. Omitted.

1298. Omitted.

Stores appropriated but not issued.

1299. The balance sheets rendered for the 31st March in each year, as laid down in paragraph 1293, will show in red ink the total numbers or quantities of stores appropriated and written off charge, but not actually issued from the station, on the 31st March; also the total numbers or quantities of stores received from other ordnance officers, which have been written off charge at the issuing station on or before the 31st March, but which have not been taken on charge at the receiving station until on or after the 1st April. These entries will be made in the balance sheets in the columns next to those required for the ledger remain. The figures can be reduced to a minimum if care is taken in preparing issues towards the end of each financial year.

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Vouchers and reports, checks against missing of.

1300. From the register of issue vouchers, the issue section of the office will watch that no numbers of storeholders' or foremen's copies are missing, and the ledger section will watch that the numbers of both receipt and issue vouchers run consecutively, and that none are missing.

Ledgers, name of corps, &c., to be inserted.

1301. The entry in the ledgers at all stations, except Woolwich, will show the name of the corps or department from which stores are received or to which they are issued.

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Corrections and marks on ledgers and vouchers.

1302. Officers will take care that the ledgers and vouchers are not ticked or altered with blue or red ink or blue or red pencil, that no correspondence is carried on upon them, and that no erasures are made. No entries in black lead pencil will be shown either in the ledgers or on the vouchers. Any necessary corrections will be made in black ink, and will be duly initialled in the case of vouchers by the person who signs the vouchers, and in the case of ledgers by the responsible accounting officer, but the original entries should remain legible.

1303. Omitted.

Observations on War Office examinations.

1304. Observations arising out of the examination of the accounts will be answered and returned to the War Office, or to the Army Corps Auditor as the case may be, with the least possible delay,

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and the chief ordnance officer will see that the replies to the observations are full and explicit. A copy of the observations arising out of the examination of the accounts, with any decisions thereon, will be retained at the station.

Packing cases containing store accounts.

1305. Packing cases in which store accounts are transmitted to the War Office or Army Corps Auditors will be written off charge in the store account, by certificate voucher. The certificate voucher should specify the name and period of the account which the case contained, and should state when the account was despatched, and by what vessel or other mode of conveyance.

Transfer to inferior state or condition.

1306. No stores on Army Ordnance ledger charge, excepting those referred to in paragraphs 1029 and 1050, will be converted to an inferior condition without the authority of a board of officers.

Gas-checks.

1307. Gas-checks which are not permanently attached to their projectiles will be separately demanded, charged, and accounted for. Gas-checks which are permanently attached to their projectiles when manufactured will be treated as components of their shells and will not be separately demanded, charged or accounted for.

Projectiles for practice.

1308. Projectiles to be issued for practice only should be accounted for separately from service projectiles, the word "practice" being added in each case to the vocabulary designation.

Tinned copper cylinders.

1309. Tinned copper cylinders will be separately accounted for, being taken on charge when received and written off when issued. They will be kept in as good condition as possible, and will, from time to time, be returned to Woolwich, for re-filling.

Tin and zinc cylinders and boxes.

1310. Tin cylinders and boxes containing tubes, fuzes, and detonators need not be taken up in the store accounts. The same rule will apply to tin boxes containing material supplied by contractors. Zinc cylinders for cartridges will be accounted for.

Cartridge-cylinders. Tin cylinder with paint.

1311. New tin cylinders for paint, when empty, will be accounted for. When filled and subsequently issued, they will be written off on the issue voucher in which the paint is included, but will only be shown within the line. Tin cylinders for paint, when received filled, will not be taken on charge, and when empty after use may be destroyed.

IV.—Active Service and Manœuvres.

Field depôt groups.

1312. On active service and manœuvres, the stores at a field Army Ordnance depôt will be divided into groups of sections under non-commissioned officers acting as foremen, as the magnitude of the depôt may require.

Preparation of vouchers.

1313. Each group foreman will be provided with a copy of A.B. 8, from which he will prepare vouchers for stores issued from his group. Three copies will be made, two copies being torn out for action as ordinary vouchers and the third left in the book for the foreman's record.

Marking of issue books.

1314. These army books in charge of the foremen will be marked on the outside with consecutive letters, A, B, C, &c., according to the number of groups at the depôt, and in making out the vouchers a letter, A, B, C, &c., corresponding with the letter on the outside of the book, will be placed on the top of each voucher.

Ledgers.

1315. The ledgers, if more than one, of the depôt will not be

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grouped, nor will any further number be given to the voucher than that placed on it by the foreman, such as A 1, A 2, A 3, &c. The whole of the vouchers from all the groups of sections will be considered as one series belonging to the depôt ledgers. The vouchers, however, will be placed in bundles according to the letters for the sake of convenience, before rendering the account for audit.

Issues.

1316 In preparing issues, the original requisition will be passed to the group foremen concerned, who will at once prepare vouchers for such stores as are available, and note on the requisition those which are not, recording the latter at the same time in a book, for the purpose of making issues as soon as the stores are available.

Requisitions.

1317. The original requisition will be returned to the officer in charge of the depôt, for provision of stores as may be necessary; and it should be finally placed in a bundle, and rendered with the depôt accounts.

Temporary receipts.

1318. In cases where stores are drawn from the depôt by the troops, a temporary receipt will be taken from the person drawing the stores, on the third copy of the voucher which is retained by the group foreman in A.B. 8.

Officer in charge, duties.

1319. The officer in charge, or the officer charged with the duty of making issues at the depôt, will, at the end of each day, personally see that all requisitions received during the day have been passed to each foreman concerned, and all action necessary thereon duly taken.

Receipt of stores.

1320. When receiving stores, it will be necessary to keep a receipt journal in manuscript. The delivery copy of the voucher will be passed to the foremen in charge of groups, each of whom will initial for such of the stores as he receives into his charge, placing them in the S, R, or U column, as, on examination, may be necessary. He will not take a copy of the document, nor will any further action be necessary beyond placing the stores in his stock or preparing them for issue, as may be required.

Receipt vouchers.

1321. This voucher, when duly initialled by those concerned, will be returned to the officer in charge of the depôt, who will retain it to forward with the accounts; the other copy, after being compared with the copy initialled by the foremen, will be signed and returned to the officer by whom the stores were sent in.

Produce.

1322. When stores are condemned and reduced to produce, each foreman will record the produce at the end of the voucher, which entry should also be certified by the officer in charge of the depôt, or an officer on his behalf, and, except on active service, the usual certificate on Army Form G 1032 (*see* paragraph 1056) will be attached. The totals of produce on each voucher will be posted in the ledger.

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1323. Omitted.

Correspondence.

Letter-book.

1324. Vouchers, correspondence and returns will be prepared with indelible pencil, such copies as are necessary for record purposes being made by means of carbon paper. For correspondence, the A.B. "manifold letter-writer" will be used.

V.—Stores in Transit.

Transit stores.

1325. When stores are received in transit, notice will be at once given, on A.F. G 1034, to the department or persons for whom the stores are intended (*vide* also paragraph 1076)

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Packages handed over to non-accountants

1326. When packages in transit are handed over to any one who is not an accountant to the War Office, the ordnance officer who hands them over will secure their return to store as soon as possible, and bring them on charge in his store account on a certificate voucher, quoting the bill of lading or invoice on which they came to him in transit. A statement will be transmitted with the Army Ordnance account, showing any packages in transit which may not, at the date of closing the account, have been returned to store by a consignee who is not an accountant to the War Office.

Verification of packages of clothing, etc.

1327. In addition to the usual examination for signs of tampering, it should be seen that all packages containing clothing, necessaries, or other stores in transit, have the gross weight marked on each package; and the same should be verified immediately after receipt. Should any such packages be delivered at an Army Ordnance depôt unmarked in this respect the weight will be ascertained at once, and entered thus: "Weight at* , gross ," and the transit documents from the consignor completed with a note to that effect. Packages which have the appearance of having been tampered with are to be opened forthwith, and their contents verified with packing notes or outside marking. The packing note, if any, will be so endorsed, or, if none is found, a fresh one will be inserted showing the actual contents of the package, which will then be properly secured in a fresh outer packing case or cover, whether there were discrepancies or not, and re-addressed and marked.

Weight.

Packages tampered with.

* Insert name of station or depôt and figures representing weight.

VI.—Purchases, Issues on Repayment, and Loans.

Purchases, or supplies by contract, A.O.D. account of.

1328. When stores are purchased or supplied by contract, the store account in, and the number and date of the voucher by, which they are brought on charge, will be inserted on the cash vouchers, which will be certified by the store accounting officer. All articles purchased, however trifling their value, will be brought on Army Ordnance charge.

Stores from the Admiralty, A.O.D. account of.

1329. Stores received, whether on loan or otherwise, from the Royal Dockyards at home or abroad, and for the value of which a claim on the War Department is made by the Admiralty, will be brought to credit in the store ledgers, and accounted for in the usual manner.

Loans of stores to museums, &c.

1330. Ordnance officers will render with their accounts to 31st March, a list showing the balance of all stores on loan on that date, supported by returns on A.F. G 1023 signed by the individual or by the representative of the colonial government or public body to whom the stores are lent.

Arms, &c., Civilian Rifle Clubs. Annual Report.

1330a. Arms, &c., issued to Civilian Rifle Clubs will be reported annually to the War Office, *vide* paragraph 5 of Appendix XXVII.

Repayment reports, No. &c., of vouchers quoted on.

1331. When there is occasion to report the issue or receipt of stores on repayment or otherwise at a station, the date and number of the store issue or receipt voucher will be quoted.

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Appendix I.

[*Referred to in paragraph* 101.]

(Specimen.)—Report of Officer of the Week.—Officer for Week ending 10th September, 1892, Captain N. M. Dash.

Nature of duty performed.	Date.	Remarks.
Fire-engine practice.	5th September, 8 a.m.	Being first Monday in the month, fire-engine practice was carried out. Engine, hose, &c., were in good order—(or otherwise).
Afternoon visit to workshops.	6th September, 4.15 p.m.	Visited workshops. Mustered establishments; all present except private Wotton, absent without leave; report sent to O.C. No. 1 Company for absence. Water in fire-buckets very dirty.
Visited grand magazine and shell store.	7th September, 11.30 a.m.	All correct. Magazine clean. A consignment of ammunition being received from Woolwich, per barge "Alice."
Morning visit to workshops.	8th September, 8.30 am.	All present and correct.
	8th September, 3 p.m.	On going round No. 45 Store, found Privates John and Tom idling; crimes, with necessary evidence, sent to O.C. Company.
Attended morning parades.	7th and 10th September, 8 a.m.	All present and correct.
		I certify that I was present at 8 a.m. parades, on dates stated; and have carried out the duties of officer of the week, during the past week, as laid down in the duties to be performed, and memoranda on the subject. N. M. Dash, Capt., A.O.D. 10th September, 1892.
		Seen.—Foreman directed to see to frequent refilling of fire-buckets. 10/9 (Signed) O.O.
		Initials of C.O.O. 12/9

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APPENDIX II.

[*Referred to in paragraph* 340.]

Care and use of cordage, and rope slings.

1. A complete record of all rope and rope slings should be kept by those responsible for their use and custody. Pegs should, if possible, be arranged in the storehouse or building in which they are kept, and a place allotted to each, with a board upon which should be recorded—A description of the rope, its age when received, when last tested, its safe working load, and the kind of heavy work to which it has since been subjected.

2. All responsible persons who in the course of their duties require to use ropes and rope slings for lifting heavy weights should first carefully examine them, and by periodical or frequent test satisfy themselves as to their fitness for the work required.

3. Slings can be tested before issue at any Army Ordnance station where there is a crane or gyn capable of lifting the weight required. Such weight need be raised only a few inches off the ground, so as not to damage the gun or other article used for the test. In any case in which it may be considered desirable, application may be made to have ropes and rope slings tested at Woolwich.

4. No rope or sling should be used to lift any greater weight than its tabulated safety strain.

5. Slings should be so adjusted that the splice is not round any edges or corners or over the lifting hook. In most cases it is considered best for the splice to be between the lifting hook and the load. The sling should not be left to adjust itself, but should be so arranged before lifting that the strain may be immediately equalized throughout ; and all jerking should be avoided.

6. Heavy articles with edges, projections, or corners, should be carefully padded with old sacking or suitable pieces of wood to prevent damage to the rope.

7. Steadying ropes should be securely attached and used to gently regulate the position of the load, when lifting out of the perpendicular, and to prevent surging or swinging.

8. Ropes and rope slings of a heavy nature which may be found unfit for the work for which they are required, should not be condemned on that account alone, but should be utilized, if possible, for work of a lighter nature where there is no risk of danger, and where the larger size would not be likely to be detrimental to the work in hand.

9. The limit of safety in the accompanying table is based upon the average breaking strain, the testing for which, it should be remembered, has been carried out under the most favourable circumstances, the rope having been secured to a machine without contact with edges or corners, and the strain applied steadily and free from jerk or adjustment. Ropes and slings in daily use cannot always

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escape these, but it is considered that danger and accident may to a very great extent be avoided by an acquaintance with, and careful observance of the foregoing instructions, and with the help of the following table. Considerable discretion must of course still be exercised in the use of part-worn rope and slings, as so much depends on age and treatment.

When making a bight with Manilla rope, the bends should be as large and full as possible, as the fibres of that rope are somewhat brittle, and the larger the bend the better it will be for the rope.

TABLE showing safe working strain and test load for ropes and slings.

Circumference of rope.	Single rope.				Slings.			
	Working strain.		Test load.		Working strain.		Test load.	
inches.	tons.	cwts.	tons.	cwts.	tons.	cwts.	tons.	cwts.
1	..	2½	..	3¾	..	5	..	7½
1¼	..	5⅝	..	8½	..	11¼	..	17
2	..	10	..	15	1	..	1	10
2½	..	15⅝	1	3½	1	11¼	2	7
3	1	2½	1	13¾	2	5	3	7½
3½	1	10⅝	2	6	3	1¼	4	12
4	2	..	3	..	4	..	6	..
4½	2	10⅝	3	16	5	1¼	7	12
5	3	2½	4	13¾	6	5	9	7½
5½	3	15⅝	5	13½	7	11¼	11	7
6	4	10	6	15	9	..	13	10
6½	5	5⅝	7	18½	10	11¼	15	17
7	6	2½	9	3¾	12	5	18	7½
7½	7	0⅝	10	11	14	1¼	21	2
8	8	..	12	..	16	..	24	..
8½	9	0⅝	13	11	18	1¼	27	2
9	10	2½	15	3¾	20	5	30	7½
9½	11	5⅝	16	18½	22	11¼	33	17
10	12	10	18	15	25	..	37	10
10½	13	15⅝	20	13½	27	11¼	41	7
11	15	2½	22	13¾	30	5	45	7½
11½	16	10⅝	24	16	33	1	49	12
12	18	..	27	..	36	..	54	..

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APPENDIX III.

INGREDIENTS FOR PAINTS.

[*Referred to in paragraph* 330.]

Ingredients to convert dry paints into ground.	To make 112 lbs.				Application.
Paints.	lbs.	oz.	galls.	qrts.	
Black, Frankfort	76	8	...	...	Copper-plate printing.
Oil, raw linseed	...	...	4	0	
Black, ivory	65	0	...	...	Lithographs and arts.
Oil, raw linseed	...	...	5	1	
Black, lamp	56	0	...	...	To make service lead colour.
Oil, { boiled, linseed	...	...	3	0	
Oil, { raw do.	...	...	3	1	
Blue, ultramarine	80	0	...	...	See prepared paints.
Oil, raw linseed	...	...	3	3	
Brown, Spanish	83	0	...	...	As required.
Oil, raw linseed	...	...	3	1	
Green, Brunswick, "light or dark."	94	0	...	...	Vessels and boats.
Oil, raw linseed	...	...	2	0	
Green, emerald	94	0	...	...	Boats.
Oil, raw linseed	...	...	2	0	
Lead, white	...	...	...	...	See prepared paints.
Supplied ground by contract	...	...	...	...	
Magnetic oxide	...	...	...	...	See prepared paints.
Supplied ground by contract	...	...	...	...	
Ochre, spruce	74	0	...	...	Staining paint for buff colour.
Oil, raw linseed	...	...	4	0	
Ochre, stone, Oxford	60	0	...	...	Staining paint for buff colour.
Oil, raw linseed	...	...	5	3	
Red, Chinese, "or vermilion" ...	60	0	...	...	See prepared paints.
Oil, raw linseed	...	...	3	3	
Red, Venetian	76	0	...	...	See prepared paints.
Oil, raw linseed	...	...	4	0	
Sienna, raw or burnt	60	0	...	...	Graining purposes.
Oil, raw linseed	...	...	6	0	
Umber, burnt or Turkey	60	0	...	...	Staining paint for stone colour.
Oil, raw linseed	...	...	6	0	
Umber, common, English ...	76	0	...	...	Staining paint for stone colour.
Oil, raw linseed	...	...	4	0	
Yellow chrome	...	...	...	...	When a very bright yellow is required.
Lemon, middle tint, or orange ...	94	0	...	...	
Oil, raw linseed	...	...	2	0	

Ingredients for paints for projectiles are detailed in **Magazine Regulations.**

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Ingredients for Paints—*continued.*

Ingredients to convert ground paints into paints ready for use.	To make 112 lbs.				Application.
Paints—continued.	lbs.	oz.	galls.	qrts.	
Black, Frankfort, ground... ...	66	0	...	...	"Frankfort black."—All kinds of superior work. See ground paints.
Driers, patent	8	0	...	...	
Oil, raw linseed	...	...	3	2	
Turpentine	...	...	1	0	
Black, lamp, ground	60	0	...	...	"Black, lamp."—Lettering packages. Staining lead colour, and for officers' boats.
Litharge, "driers"	6	0	...	...	
Oil, boiled linseed	...	...	2	1	
Oil, raw "	...	...	2	0	
Turpentine	...	...	1	0	
Blue, ultramarine, ground ...	64	0	...	...	"Blue, ultramarine."—Officers' boats, machinery.
Driers, patent " ...	8	0	...	...	
Oil, raw linseed	...	...	3	2	
Turpentine	...	...	1	0	
Green, Brunswick, "dark or light," ground	84	0	...	...	"Green, Brunswick."—Boats, barges, general work, &c.
Driers, patent, ground	8	0	...	...	
Oil, boiled linseed	...	...	1	0	
Oil, raw "	...	...	1	0	
Turpentine	...	...	1	0	
Green, emerald, "dry"	65	0	...	...	Officers' boat.
Driers, patent, ground	17	0	...	...	
Oil, raw linseed	...	...	2	1	
Turpentine	...	...	1	1	
Lead, white, ground	90	0	...	...	Lettering carts, carriages, and wagons, and "general work."
Driers, patent "	8	0	...	...	
Oil, raw linseed	...	...	1	1	
Turpentine	...	...	0	2	
Lead, white, ground	64	0	...	...	"Lead colour, dark."—Platforms, &c., as required.
Driers, patent	9	2	...	...	
Black, lamp, ground	11	7	...	...	
Oil, raw linseed	...	...	3	1	
Turpentine	...	...	0	1	
Lead, white, ground	71	12½	...	...	"Lead colour, light."—Boats and general work.
Driers, patent "	8	15½	...	...	
Black, lamp "	5	9¾	...	...	
Oil, raw linseed	...	...	3	1	
Turpentine	...	...	0	1	
Magnetic, oxide, ground	62	0	...	...	"Magnetic oxide." Guns, iron garrison (if required) and naval carriages, slides and platforms, barrack bedsteads, and general iron work.
Litharge, "driers"	6	0	...	...	
Oil, raw linseed	...	...	2	3	
Turpentine	...	...	2	2	
Red, Venetian, ground	70	0	...	...	"Red Venetian."—Trench carts, boats, &c.
Litharge, "driers"	8	0	...	...	
Oil, raw linseed	...	...	3	0	
Turpentine	...	...	1	0	
Red lead, dry	46	0	...	...	"Paint, red."—Floating magazines, powder barges, &c.
Red, Venetian, dry	23	0	...	...	
Litharge, "driers"	10	0	...	...	
Oil, boiled linseed	...	...	3	0	
Turpentine	...	...	0	3	

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Ingredients for Paints—*continued.*

Ingredients to convert ground paints into paints ready for use.	To make 112 lbs.				Application.
Paints—continued.	lbs.	oz.	galls.	qrts.	
Lead, white, ground in oil ...	63	14	...	...	"Khaki colour" all vehicles and their appurtenances except those in Army Medical Services. (See paragraph 419A.)
Driers, patent	9	0	...	...	
Ochre, spruce	18	4	...	...	
Umber, burnt	2	4½	...		
Oil, linseed { boiled	...	...	...	2¼	
Oil, linseed { raw	...	...	...	6	
Turpentine	...	...	...	¾	
Red, Chinese, ground	80	0	...	...	"Red Chinese,"*—Boats, &c., fire engines, fire buckets, and hose reels.
Driers, patent ,, ...	8	0	...	...	
Oil, raw linseed	...	...	2	2	
Turpentine	...	...	0	2	
Lead, white	71	0	...	...	"Stone colour."—Hospital bedsteads, metal-lined cases, &c.
Umber, common, dry	6	0	...	...	
Litharge, "driers"...	7	0	...	...	
Oil, raw linseed	...	...	2	2	
Turpentine	...	...	0	2	
Lead, white, dry	70	0	...	...	"Stone colour." — Corrugated brass powder cases and zinc cylinders.
Umber, burnt, ground	1	8	...	...	
Copperas, white, driers	1	14	...	...	
Varnish, { copal	...	...	1	3	
Varnish, { gold size	...	...	1	1	
Turpentine	...	...	1	1	
Yellow, chrome, lemon, middle tint, or orange ground	66	0	...	...	"Yellow chrome." — Marking timber, decorating timber, &c.
Driers, patent, ground	8	0	...	...	
Oil, raw linseed	...	...	3	2	
Turpentine	...	...	1	0	

* This is now substituted for vermilion; vermilion being more expensive.
N.B.—Prepared paints to be always well stirred before used.

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APPENDIX IV.

1.—MARKING OF ARMS ISSUED FROM STORE FOR OTHER THAN ORDINARY SERVICE.

[*Referred to in paragraphs* 504 *to* 506.]

EXTRA SERVICE ARMS	Will be marked by the Army Ordnance Department with the distinctive letters of the issuing depôt (*see* paragraph 506), and with consecutive numbers. They will receive no corps marks, except in the event of their being taken on active service, when they will receive corps marks and corps consecutive numbers. The size of the marks and the implements to be used for marking will be as detailed hereafter for arms issued for ordinary service.
ARMS ISSUED ON LOAN FOR TEMPORARY PURPOSES	Will not be marked.
ARMS SOLD TO THE ADMIRALTY	Will only be marked as arranged for by the Admiralty.
ARMS SOLD TO THE INDIAN GOVERNMENT	Will not be marked.
ARMS SOLD TO ANY PURCHASER, EXCEPT THE ADMIRALTY AND THE INDIAN GOVERNMENT.	Will be marked with the sale mark, $\frac{1}{4}$ carbines and rifles being marked on both barrel and body, near the proof marks. (This does not refer to issues to replace lost and damaged arms that have been paid for, as, in such cases, it is the lost or damaged arm, not the new one, that is paid for.)
ARMS HELD FOR MOBILIZATION	Will only be marked, on mobilization, with corps marks and consecutive numbers.
ARMS ISSUED TO CIVILIAN RIFLE CLUBS..	Will be marked as per Appendix XXVII.

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2.—MARKING OF ARMS ISSUED FROM STORE FOR ORDINARY SERVICE.

ARMS ISSUED FOR ORDINARY SERVICE will be marked as detailed below. For a full detail of the authorised abbreviations of corps titles, *see* Lists I., II., and III. of this Appendix. Some illustrations of the proper juxtaposition of corps marks and consecutive numbers are given at the end of this Appendix. *The marking should be no deeper than is necessary.*

	Arms, &c.	Ordnance marks.	Corps marks.	Position of marks.	Sizes of marks. Letters.	Figures.	Dash lines.	Implements with which marking is to be done.	Remarks.
					in.	in.	in.		
Carbines and rifles	(*a.*) With disc embedded in butt.	Number of month and year of issue.	Corps marks and consecutive numbers.	On the disc	$\frac{5}{64}$	$\frac{5}{64}$	...	Stamps, steel, for metal.	Disc to be removed for the purpose of being marked.
	(*b.*) Without disc, with brass butt plate.	,, ,,	,, ,,	A.O. marks: just above manufacturer's mark.	...	$\frac{5}{64}$	..	Hammers, stamping.	
				Corps marks: On strap of butt plate.	$\frac{5}{64}$	$\frac{5}{64}$	...	Stamps, steel, for metal.	
	(*c.*) Without disc, with iron butt plate.	,, ,,	,, ,,	A.O. marks: just above manufacturer's mark.	...	$\frac{5}{64}$	...	Hammers, stamping.	
				Corps marks: between manufacturer's mark and butt plate, close to former.	$\frac{7}{64}$ and $\frac{5}{64}$	$\frac{5}{64}$	$\frac{1}{2}$	Stamps, steel, for wood.	
	M.T.	,, ,,	,, ,,	As at (*a.*), (*b.*), or (*c.*)	...	...	...	... ...	
	D.P.	As for extra service arms.	Nil.	,, ,, ...	...	...	...	... ...	

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MARKING OF ARMS—*continued.*

Arms, &c.	Ordnance marks.	Corps marks.	Position of marks.	Sizes of marks. Letters.	Figures.	Dash lines.	Implements with which marking is to be done.	Remarks.
				in.	in.	in.		
Pistol, Webley	Number of month and year of issue.	Corps marks and consecutive numbers.	On upper part of strap of stock	$\frac{5}{64}$	$\frac{5}{64}$	...	Stamps, steel, for metal.	
Lance	,, ,,	,, ,,	On shoe, above collar; marks to be in an upright position.	$\frac{5}{64}$	$\frac{5}{64}$	...	,, ,,	
Bayonets, triangular ...	None	Consecutive numbers only.	Across blade, close to neck ...	...	$\frac{5}{64}$	...	,, ,,	
Sword-bayonets	,, ...	Corps marks and consecutive numbers.	On pommel, the marks to be on that side which is away from the body when worn.	$\frac{5}{64}$	$\frac{5}{64}$	...	,, ,,	54 Artillery 4449
Dirks	Number of month and year of issue.	,, ,,	On band at bottom of hilt ...	$\frac{1}{8}$ and $\frac{5}{64}$	$\frac{1}{8}$	...	To be engraved.	
Sword, buglers' and drummers' { Mark I	,, ,,	,, ,,	Lengthways, on edge of hilt ...	$\frac{5}{64}$	$\frac{5}{64}$	...	Stamps, steel, for metal.	
Sword, buglers' and drummers' { ,, II	,, ,,	,, ,,	At bottom of hilt	$\frac{5}{64}$	$\frac{5}{64}$	...	To be engraved.	
Swords, other kinds (except Naval).	,, ,,	,, ,,	On termination of guard at back of hilt	$\frac{5}{64}$	$\frac{5}{64}$	...	Stamps, steel, for metal.	38407 Ord. Store 154

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Marking of Arms—*continued.*

	Arms, &c.	Ordnance marks.	Corps marks.	Position of marks.	Sizes of marks. Letters.	Figures.	Dash lines.	Implements with which marking is to be done.	Remarks.
Scabbards,	bayonet	None	Consecutive numbers only.	On the stud	in. ...	in. $\frac{5}{64}$	in. ...	Stamps, steel, for metal.	
	sword-bayonet, leather	,, ...	,, ,,	On top of mouth piece... ...	...	$\frac{5}{64}$	...	,, ,,	To be held in vice by locket steel between wooden clams which the armourer must make.
	,, steel ...	,, ...	,, ,,	On the stud	...	$\frac{5}{64}$	...	,, ,,	
	dirk, for all services except Scots Guards.	Number of month and year of issue.	Corps marks and consecutive numbers.	On locket above loop	$\frac{1}{8}$ and $\frac{5}{64}$	$\frac{1}{8}$	...	To be engraved.	
	dirk, for Scots Guards	,, ,,	Corps marks and consecutive numbers, and the letters "S.G."	Letters "S.G.": in centre of thistle in front of locket.	$\frac{3}{8}$	...	...	,, ,,	
				Other marks: on locket above loop.	$\frac{1}{8}$ and $\frac{5}{64}$	$\frac{1}{8}$	...	,, ,,	
	sword, with flat mouthpiece.	Number of month and year of issue.	Corps marks and consecutive numbers.	On top of mouthpiece	$\frac{5}{64}$ $\frac{5}{64}$	$\frac{5}{64}$	...	Stamps, steel, for metal.	When holding locket in vice, care to be taken not to unduly compress sides.
	sword, with curved mouthpiece with band.	,, ,,	,, ,,	On that side of band of mouthpiece which is next to the body when worn.	$\frac{5}{64}$	$\frac{5}{64}$	...	,, ,,	The mouthpiece should be removed and held on a mandril for the purpose of being marked.
	sword, with curved mouthpiece without band.	,, ,,	,, ,,	Immediately below mouthpiece, on that side of scabbard which is next to the body when worn.	$\frac{5}{64}$	$\frac{5}{64}$	...	,, ,,	The mouthpiece should be removed and a mandril inserted into the scabbard.
	buglers' and drummers'	,, ,,	,, ,,	On reverse side of locket ...	$\frac{3}{8}$ and $\frac{5}{16}$	$\frac{3}{8}$	...	To be engraved.	

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Arms, &c.	Ordnance marks.	Corps marks.	Position of marks.
APPURTENANCES, &c.			
Rods, cleaning, M.H. ...	None	Consecutive numbers only.	About 2 inches from the thick end.
Actions, skeleton, and waster.	,, ...	None	... ...
Aim-correctors (magazine arms).	,, ...	,, ...	... ...
54 / Gen. No. / 9387 Barrels, with or without body.	Number of month and year of issue.	,, ...	Side of barrel on the left of Knox form.
Bottles, oil (M.L.M. arms)	None	Consecutive numbers only.	On top of stopper ... ...
Gauges, action	,, ...	None	... ...
Implements, action, M.L.M. arms ...	,, ...	Consecutive numbers only.	On flat part of shoulder ...
Implements, action, Martini-Henry arms	,, ...	,, ,,	On the drift ... ...
Axes, boarding	,, ...	,, ,,	On one of the languets, one each above lower rivet.
Pikes, boarding	,, ...	,, ,,	,, ,, ,,

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d.

Sizes of marks.			Implements with which marking is to be done.	Remarks.
Letters.	Figures.	Dash lines.		
in	in.	in.		
...	$\frac{5}{64}$	...	Stamps, steel, for metal.	
...	...	...	... ...	
...	...	...	... ...	
...	$\frac{5}{64}$	...	Stamps, steel, for metal.	
...	$\frac{5}{64}$	...	,, ,,	
...	...	...	... ...	
...	$\frac{5}{64}$	...	Stamps, steel, for metal.	
...	$\frac{5}{64}$	...	,, ,,	
...	$\frac{1}{8}$	...	,, ,,	N.O. 6392
...	$\frac{1}{8}$	...	,, ,,	

Marking of Arms—*continued.*

Arms, &c.	Ordnance marks.	Corps marks.	Position of marks.	Size of marks. Letters.	Figures.	Dash lines.	Implements with which marking is to be done.	Remarks.
				in.	in.	in.		
Appurtenances, &c. —*continued.*								
Jags ('45-in. arms), steel	None	Consecutive numbers only.	On shoulder, close to the swell	..	$\frac{5}{64}$	...	Stamps, steel, for metal.	
Jags ('45-in. arms), brass	,, ...	,, ,,	On iron part	...	$\frac{5}{64}$	...	,, ,,	
Protectors, front sight (all arms).	,, ...	,, ,,	On cylindrical portion, just above sight guard.	...	$\frac{5}{64}$	...	,, ,,	A mandril to be used, to keep form of cylinder perfect.
38407 Ord. 223 Protectors, front sight, steel	,, ...	,, ,,	On cylindrical portion, under sight guard.	...	$\frac{5}{64}$	...	,, ,,	57 Gen. No. 1741
Pull-throughs ('303-in. arms).	,, ...	,, ,,	About centre of weight ...	...	$\frac{5}{64}$	...	,, ,,	
Pump, mineral jelly ...	,, ...	Consecutive numbers only.	On top of nut	...	$\frac{5}{64}$	...	Stamps, steel, for metal.	38407 Ordnance 223
Reflectors (magazine and Martini-Henry arms).	,, ...	None	... ...	..	...	...	... ...	
Sights, auxiliary (Martini-Henry arms).	,, ...	,, ...	... ...	...	...	...	... ...	
Tubes, aiming	,, ...	,, ...	... ...	...	...	...	... ...	
Cuirasses	Number of month and year of issue.	Corps marks and consecutive numbers.	On the leather lining	$\frac{1}{8}$	$\frac{1}{8}$	...	Stamps, copper, inlaid, with marking ink.	

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LIST I.

The following are the abbreviations to be used for the titles of the undermentioned services. Examples of the mode of combining abbreviations of titles common to several corps, with the numerals, &c., that are necessary to distinguish each individual corps bearing the common title, are given at the end of the appendix.

Services.	Abbreviations.
Regular Forces.	
Life Guards	L.G.
Royal Horse Guards	R.H.G.
Royal Horse Artillery	R.H.A.
Dragoon Guards	D.G.
54 Dragoons	D.
Artillery Lancers	L.
3054 Hussars	H.
Royal Field Artillery	R.F.A.
Royal Garrison Artillery	R.G.A.
Regimental District Staff, Royal Artillery	D.S.R.A.
Royal Engineers	R.E.
Grenadier Guards	G.G.
Coldstream Guards	C.G.
Scots Guards	S.G.
Irish Guards	I.G.
West India Regiment	W.I.
Army Service Corps	A.S.C.
Royal Malta Artillery	R. Mta. A.
Royal Army Medical Corps	R.A.M.C.
Army Ordnance Corps	A.O.C.
Armament Artificers, Army Ordnance Corps	A.A., A.O.C.
Armourer Section, Army Ordnance Corps	A.S., A.O.C.
Army Pay Corps	A.P.C.
Military Mounted Police	M.M.P.
Military Foot Police	M.F.P
School of Military Engineering	S.M.E.
School of Musketry	S.M.
Royal Military College	R.M.C.
Royal Military Academy	R.M.A.
Militia.	
The Channel Islands Militia — Royal Jersey — Artillery	M.
The Channel Islands Militia — Royal Jersey — Infantry	R.J.A. M.
The Channel Islands Militia — Royal Guernsey — Artillery	R.J. M.
The Channel Islands Militia — Royal Guernsey — Infantry	R.G.A. M.
The Channel Islands Militia — Royal Alderney Artillery	R.G. M.
	R. Ald. A.

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MARKING OF ARMS—LIST I—*continued.*

Services.	Abbreviations.
MILITIA—*continued.*	
The Bermuda Militia { Artillery	M. / BER. A.
The Bermuda Militia { Engineers, Submarine Miners	M. / BER. S.M.
The King's Own Malta Regiment of Militia	M. / K. O. MTA.
The Malta Division Submarine Miners Militia	M. / MTA. S.M.
IMPERIAL YEOMANRY.	
Devon, Royal 1st	I.Y. / 1. DVN.
Devon, Royal North	I.Y. / N. DVN.
Lanarkshire	I.Y. / LNK.
Lanarkshire (Queen's Own Royal Glasgow and Lower Ward of Lanarkshire)	I.Y. / L.G.
Lancashire Hussars	I.Y. / LCS. H.
Lancaster's Own, Duke of	I.Y. / D.L.O.
Nottinghamshire (Southern Notts)	I.Y. / S. NTT.
Nottinghamshire (Sherwood Rangers)	I.Y. / NTT.
Yorkshire Hussars	I.Y. / Y.H.
Yorkshire Dragoons (Queen's Own)	I.Y. / Y.D.
VOLUNTEERS.	
The Honourable Artillery Company	V. / H.A.C.
The Engineer and Railway Volunteer Staff Corps	V. / E.R.S.
The Queen's Rifle Volunteer Brigade	V. / Q.R.B.
The Bermuda Rifle Volunteers	V. / BER.

54 Yeomanry 76

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LIST II.

The following are the abbreviations to be used in marking arms of corps which bear the titles detailed below; the letter "V" being placed above these abbreviations in the case of volunteers. Examples of the mode of combining abbreviations of titles common to several corps, with the numerals, &c., that are necessary to distinguish each individual corps bearing the common title, are given at the end of the appendix.

Territorial Regiments.	Abbreviations.
The Royal Scots (Lothian Regt.)	R.S.
The Queen's (Royal West Surrey Regt.)	W.Sr.
The Buffs (East Kent Regt.)	E.K.
The King's Own (Royal Lancaster Regt.)	Lan.
The Northumberland Fusiliers	N.F.
The Royal Warwickshire Regt.	Wk.
The Royal Fusiliers (City of London Regt.)	R.F.
The King's (Liverpool Regt.)	Ll.
The Norfolk Regt.	Nk.
The Lincolnshire Regt.	Lin.
The Devonshire Regt.	Dvn.
The Suffolk Regt.	Sk.
Prince Albert's (Somersetshire Light Infantry)	St.
The Prince of Wales's Own (West Yorkshire Regt.)	W.Y.
The East Yorkshire Regt.	E.Y.
The Bedfordshire Regt.	Bd.
The Leicestershire Regt.	Leic.
The Royal Irish Regt.	R.I.
Alexandra, Princess of Wales's Own (Yorkshire Regt.)	Yk.
The Lancashire Fusiliers	L.F.
The Royal Scots Fusiliers	S.F.
The Cheshire Regt.	Ch.
The Royal Welsh Fusiliers	W.F.
The South Wales Borderers	S.W.B.
The King's Own Scottish Borderers	K.O.S.B.
The Cameronians (Scottish Rifles)	S.R.
The Royal Inniskilling Fusiliers	In. F.
The Gloucestershire Regt.	Gr.
The Worcestershire Regt.	Wr.
The East Lancashire Regt.	E.L.
The East Surrey Regt.	E.Sr.
The Duke of Cornwall's Light Infantry	Cll.
The Duke of Wellington's (West Riding Regt.)	W. Rid.
The Border Regt.	Br.
The Royal Sussex Regt.	Sx.
The Hampshire Regt.	Hts.
The South Staffordshire Regt.	S. Stf.
The Dorsetshire Regt.	Dt.
The Prince of Wales's Volunteers (South Lancashire Regt.)	S.L.
The Welsh Regt.	Wel.
The Black Watch (Royal Highlanders)	R.H.
The Oxfordshire Light Infantry	Ox.

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MARKING OF ARMS—LIST II.—*continued.*

Territorial Regiments.	Abbreviations.
The Essex Regt.	EX.
The Sherwood Foresters (Nottinghamshire and Derbyshire Regiment)	DY.
The Loyal North Lancashire Regt.	N.L.
The Northamptonshire Regt.	NN.
Princess Charlotte of Wales's (Royal Berkshire Regt.)	BRK.
The Queen's Own (Royal West Kent Regt.)	W.KT.
The King's Own (Yorkshire Light Infantry)	Y.L.I.
The King's (Shropshire Light Infantry)	SH.
The Duke of Cambridge's Own (Middlesex Regt.)	MX.
The King's Royal Rifle Corps	K.R.R.
The Duke of Edinburgh's (Wiltshire Regt.)	WTS.
The Manchester Regt.	MAN.
The Prince of Wales's (North Staffordshire Regt.)	N. STF.
The York and Lancaster Regt.	Y. & L.
The Durham Light Infantry	DM.
The Highland Light Infantry	H.L.I.
Seaforth Highlanders (Ross-shire Buffs, The Duke of Albany's)	SEA.
The Gordon Highlanders	GOR.
The Queen's Own Cameron Highlanders	CAM.
The Royal Irish Rifles	R.I.R.
Princess Victoria's (Royal Irish Fusiliers)	I.F.
The Connaught Rangers	CT.
Princess Louise's (Argyll and Sutherland Highlanders)	A. & S.H.
The Prince of Wales's Leinster Regt. (Royal Canadians)	LEIN.
The Royal Munster Fusiliers	M.F.
The Royal Dublin Fusiliers	D.F.
The Rifle Brigade (The Prince Consort's Own)	R.B.

LIST III.

The following is a code of abbreviations to be used in marking arms of certain corps whose titles are not to be found in List I. or II. Above their abbreviated corps marks the letter "M" will be placed in the case of Militia; the letters "I.Y." in the case of Imperial Yeomanry Cavalry; and the letter "V" in the case of volunteers. Examples of the mode of combining abbreviations of titles common to several corps with the numerals, &c., that are necessary to distinguish each individual corps bearing the common title, are given at the end of the appendix.

County and other titles.	Abbreviations.	County and other titles.	Abbreviations.
Aberdeenshire	AB.	Ayrshire and Galloway	A. & G.
Anglesey	AGS.	Banff	BFF.
Antrim	AM.	Berks	BRK.
Argyll and Bute	A. & B.	Bermuda	BER.
Ayrshire	AYR.	Berwick-on-Tweed	B.T.

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MARKING OF ARMS—LIST III.—*continued.*

County and other Titles.	Abbreviations.	County and other Titles.	Abbreviations.
Berwickshire	BWK.	Herts	HTF.
Buckinghamshire ..	BCK.	Highland	HLD.
Bucks	BCK.	Humber	HR.
Caithness	CNS.	Isle of Wight	I.W.
Cardigan	CDN.	Kent	KT.
Carmarthen	CMN.	Kent, East	E.K.
Cheshire	CH.	Kent, West	W.K.
Cheshire and Carnarvonshire	C. & C.	Lanarkshire	LNK.
Cinque Ports	C.P.	Lancashire	LCS.
Clare	CL.	Leeds	LDS.
Clyde	CLY.	Leicestershire	LEIC.
Cork	CK.	Limerick or Limerick City	LCK.
Cornwall	CLL.	Lincolnshire	LIN.
Cornwall and Devon ..	C. & D.	London	LD.
Cumberland	CBT.	Londonderry	LDY.
Denbighshire	DB.	Lothians and Berwickshire	L. & B.
Derbyshire	DY.	Maidstone	MDS.
Devon	DVN.	Malta	MTA.
Devonshire	DVN.	Manchester	MAN.
Devonshire and Somersetshire	D. & S.	Medway	MED.
Donegal	DL.	Mersey	MY.
Dorset	DT.	Middlesex	MX.
Dorsetshire	DT.	Midlothian	ML.
Dublin City	DN.	Mid-Ulster	M.U.
Dumbartonshire ..	DBT.	Milford Haven ..	M.H.
Durham	DM.	Monmouthshire ..	MM.
Edinburgh	ED.	Montgomeryshire ..	MG.
Edinburgh City ..	ED. C.	Needles	NS.
Essex	EX.	Newcastle-on-Tyne ..	N.T.
Falmouth	FH.	Norfolk	NK.
Fife	FE.	Northamptonshire ..	NN.
Fifeshire	FE.	Northumberland ..	NTB.
Flint	FT.	Norwich	NH.
Forfarshire	FF.	Nottinghamshire ..	NTT.
Forfar and Kincardine	F. & K.	Orkney	ORK.
Forth	FTH.	Oxfordshire	OX.
Galloway	GLL.	Pembroke	PB.
Glamorgan	GM.	Plymouth	PLM.
Glamorganshire ..	GM.	Portsmouth	PTS.
Glasgow	GW.	Renfrew and Dumbarton	R. & D.
Gloucestershire ..	GR.	Roxburgh	RB.
Haddington	HAD.	Roxburgh and Selkirk	R. & S.
Hampshire	HTS.	Severn	SEV.
Hampshire and Isle of Wight	H. & I.W.	Shropshire	SH.
Harwich	HH.	Shropshire and Staffordshire	S. & S.
Herefordshire ..	HF.		

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MARKING OF ARMS—LIST III.—*continued.*

County and other Titles.	Abbreviations.	County and other Titles.	Abbreviations.
Sligo	So.	Tyne	TYN.
Somerset, North ..	N. ST.	Tynemouth	TMH.
Somerset, West ..	W. ST.	Warwickshire.. ..	WK.
South Wales and Severn	S.W.S.	Waterford	WD.
Staffordshire	STF.	Westmoreland and Cumberland ..	W. & C.
Suffolk	SK.	Wicklow	WW.
Surrey..	SR.	Wiltshire	WTS.
Sussex..	SX.	Woolwich	WH.
Sutherland	STL.	Worcestershire ..	WR.
Tay	TAY.	Yorkshire	YK.
Tees	TS.	Yorkshire, East Riding	E. RID.
Thames	TMS.	Yorkshire, North Riding	N. RID.
Thames and Medway..	T. & M.	Yorkshire, West Riding	W. RID.
Tipperary	TIP.		
Tower Hamlets ..	T.H.		

The following are typical examples of the mode of combining abbreviations of titles common to several corps, with the numerals, &c., that are necessary to distinguish each individual corps bearing the common title :—

Corps.	Abbreviations.	
REGULAR FORCES.		
1st Life Guards	1. L.G.	
5th Lancers	5. L.	
"A" Battery, Royal Horse Artillery	A. R.H.A.	
"A" Depôt, Royal Horse Artillery	A. DEP. R.H.A.	
Riding Establishment, Royal Artillery	R.E. R.H.A.	54 Artillery 6642
1st Battery, Royal Field Artillery..	1 R.F.A.	
No. 1 Depôt, Royal Field Artillery	1 D. R.F.A.	
IV. Brigade R.F.A. Ammunition Column	4. BDE. A.C. R.H.A.	57 Portsmouth 4795
2nd Cavalry Brigade, Ammunition Column	2. C.B. A.C. R.F.A.	
II. Ammunition Park	II. A.P.	
10th Company, Royal Garrison Artillery	10. R.G.A.	54 Artillery 176
No. 1 Depôt, Royal Garrison Artillery and District Establishment allotted thereto..	1 DEP. R.G.A.	

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MARKING OF ARMS—TYPICAL EXAMPLES—*continued.*

	Corps.	Abbreviations.
	REGULAR FORCES—*continued.*	
	Army Ordnance Corps	A.O.C.
	Armament Artificers, Army Ordnance Corps	A.A., A.O.C.
	Armourer Section, Army Ordnance Corps	A.S., A.O.C.
	Regimental District Staff, Royal Artillery..	D.S. R.A.
	School of Gunnery, Royal Artillery	S.G. R.A.
	Royal Engineers (all units armed with rifles)*	R.E.
	1st Division, Telegraph Battalion, Royal Engineers ..	1. T. B. R.E.
54	Balloon Depôt and Section	B.S. R.E.
Engineers 9951	5th Field Company, Royal Engineers	5. R.E.
	"A" Pontoon Troop, Royal Engineers	A. T. R.E.
	Training Depôt, Field Depôt, Royal Engineer Troops	D. R.E.T.
	1st Field Troop, Royal Engineers	1. F.T. R.E.
	1st Field Park, Royal Engineers	1. F.P. R.E.
	Supernumerary Staff, Royal Engineers	R.E.†
	1st Battalion, The Prince Albert's (Somersetshire Light Infantry).	1. ST.
	Depôt, The King's Royal Rifle Corps	D. K.R.R.
	23rd Regimental District	23. R.D.
	2nd Battalion, The West India Regiment..	2. W.I.
54	No. 6 Company, Army Service Corps	6. A.S.C.
A.S.C. 2676	Station Staff, A.S. Corps, Woolwich	W. A.S.C.
	MILITIA.	
54	1st Battery, The Lancashire Royal Field Artillery ..	M.
Gen. No. 8668		1 LCS. R.F.A. M.
	Carmarthen Artillery, Royal Garrison Artillery.. ..	CMN. R.G.A. M.
	Royal Monmouthshire Engineer Militia	MM. E. M.
	Plymouth Division, Submarine Miners, Royal Engineers	PLM. S.M.
	3rd Battalion, The Prince Albert's (Somersetshire Light Infantry).	3 ST.
	3rd Regiment Royal Jersey Militia	M.
54	The Southern District Company, Royal Army Medical	3. R.J. M.
Gen. No. 8668	Corps	S.R.A.M.C.
	IMPERIAL YEOMANRY.	
	Fifeshire and Forfarshire Imperial Yeomanry	I.Y. FE. & FF.
	Gloucestershire Imperial Yeomanry	I.Y. GR.

* On the transfer to Chatham of surplus arms of the dismounted men of the Royal Engineers as laid down in Part I Equipment Regulations, the re-marking will be carried out by "G" Depôt Company Royal Engineers, thus: $\frac{\text{R.E.}}{1}, \frac{\text{R.E.}}{2}$.

† These letters will suffice for arms of the supernumerary staff, and their arms will not be numbered.

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MARKING OF ARMS—TYPICAL EXAMPLES—*continued.*

Corps.	Abbreviations.	
IMPERIAL YEOMANRY.		
Middlesex Imperial Yeomanry	$\frac{\text{I.Y.}}{\text{Mx.}}$	
Royal East Kent Imperial Yeomanry	$\frac{\text{I. Y.}}{\text{E.K.}}$	
VOLUNTEERS.		
1st Sussex Royal Garrison Artillery (Volunteers) ..	$\frac{\text{V.}}{\text{1. Sx. R.G.A.}}$	$\frac{54}{\text{Gen. No. } 8668}$
Middlesex Royal Engineers (Volunteers)	$\frac{\text{V.}}{\text{Mx. E.}}$	
Mersey Division, Submarine Miners, Royal Engineers (Volunteers)	$\frac{\text{V.}}{\text{My. S.M.}}$	
1st Cinque Ports Volunteer Rifle Corps	$\frac{\text{V.}}{\text{1. C.P.}}$	
26th Middlesex Volunteer Rifle Corps*	$\frac{\text{V.}}{\text{26. Mx.}}$	
2nd Volunteer Battalion, The South Staffordshire Regiment	$\frac{\text{V.}}{\text{2 S. Stf.}}$	
2nd Cadet Battalion, The Queen's (Royal West Surrey Regiment)	$\frac{\text{V.}}{\text{2. C.B. W. Sr.}}$	$\frac{54}{\text{Gen. No. } 8668}$
1st Cadet Corps attached to the 2nd Volunteer Battalion The Royal Warwickshire Regiment.	$\frac{\text{V.}}{\text{1. C.C. 2. Wr.}}$	
Leeds Company, Royal Army Medical Corps (Vols.) ..	$\frac{\text{V.}}{\text{Lds. R.A.M.C.}}$	

* This is a departure from the general rule: the corps now belongs to the 2nd V.B. K.R. Rifles, but as another volunteer corps (the 2nd Middlesex) is shown under the same battalion number, the ordinary marking, viz., $\frac{\text{V}}{\text{2 K.R.R.}}$ would not be distinctive; and therefore it is necessary to use the old county denomination.

When the regular rule affords distinctive marking, it should, however, be adhered to: for example, the correct corps marks for arms of the 13th Middlesex R.V. would be $\frac{\text{V}}{\text{6 K.R.R.}}$

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MARKING OF ARMS—TYPICAL EXAMPLES—*continued.*

The following are illustrations of the proper juxtaposition of corps marks and consecutive numbers on carbines and rifles.

On brass disc; the figures above the screw are the Ordnance marks (dates of issue.)	On the strap of brass butt plate.	On the butt, between manufacturer's mark and butt plate.
	I.L.F. 324.	M CMN.R.G.A. 673.
	M LDY.A 375.	V 2.WEL 435
	I.LEIC. 534.	V I.LEIC. 659

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APPENDIX V.

CONVEYANCE OF EXPLOSIVES.

Form of Letter to Station-Master.

[*Referred to in paragraph* 1096.]

To the Railway Station-Master
at _____

ORDNANCE OFFICE,
_____ 19___

SIR

It is the intention of the Secretary of State for War to issue his warrant for the conveyance, under his instructions, of the following goods, viz. :* _____
_____
_____
weighing in all † _____
and requiring ‡ _____ powder vans (which be so good as to provide), from § _____
to § _____ so as to arrive at that station on || _____ the _____
at || _____ o'clock.

* Detail packages and contents.
† Fill in weight.
‡ Fill in number.
§ Fill in places of departure and destination.
|| Insert day and hour.

You are requested to state on what day and at what hour the goods should be at your railway station, so as to secure their reaching their destination by the time named.

The articles will be in charge of conductor ¶ _____ conveyance for whom, by the same train as the stores themselves go by, will be required.

¶ Fill in name.

On the completion of the service, on your forwarding to Transport Officer _____ Station your claim for expenses incurred, it will be paid.

38467 Ordnance 223

I am,
Sir,
Your obedient Servant,

_____
Ordnance Officer.

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APPENDIX VI.

CONVEYANCE OF EXPLOSIVES.

Form of Warrant to be signed by the Secretary of State.

[*Referred to in paragraphs* 1095, 1099 *and* 1109.]

To _____

of the _____

You will proceed from _____

_____ to _____

in charge of the following quantities of _____

_____

_____

and this shall be your authority and warrant for so doing.

You will observe and obey all the regulations and directions that are from time to time in force for the safe custody and care of gunpowder and other explosives, as promulgated by me.

(*To be signed by the Secretary of State for War.*)

_____

Date

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APPENDIX VII.

Form of Report from C.O.O., on being relieved of his Duties in a District.

[*Referred to in paragraphs* 27, *and* 159 *to* 161.]

Station_____
Date_____

SIR,

On my relief in this district by the officer named in the margin, in accordance with War Office Order_____, I have the honour to attach statements as under, viz. :—

(*a.*) Detailing the reserves of stores and equipment directed to be maintained in the Army Ordnance Depôt (s) at _____.

(*b.*) Showing various points regarding the state of the work at the depôts in question.

I further certify that the station copies of Army Orders, Lists of Changes, and various books of regulations in my office have been duly amended from time to time, as amendments were required, and that stocktaking has been carried on with regularity as the regulations direct.

I have the honour to be,
Sir,
Your obedient Servant,

_____
Chief Ordnance Officer.

The
GENERAL OFFICER COMMANDING THE TROOPS,

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APPENDIX VIII.

Form of Statement from C.O.O., on being relieved of his Duties in a District.

[*Referred to in paragraph* 27.]

Station_____
Date_____

The Reserves ordered to be kept for_____
were last inspected and verified by_____
during the month of_____, 190 .
The station ledgers of the Department at_____
are posted and checked up to_____.
The amounts authorized for expenditure in the cash estimate for current year are : vote_____£_____
and vote_____£_____of which up to_____the expenditure has been £_____
and £_____respectively, exclusive of particular purchases or services for which special War Office authority has been received or asked for.
Regarding the establishments, I have to make the following remarks, viz. :—[1]

Signed_____
Chief Ordnance Officer.

[1] Any remarks on this head are to be written on the back of this form, and can be marked "Confidential" if so desired. If no remarks the word "Nil" should be inserted.

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APPENDIX IX.

LIST OF SOME OF THE PRINCIPAL ARTICLES OF CAMP EQUIPMENT ARRANGED WITH REGARD TO THEIR TRANSPORT IN GENERAL SERVICE WAGONS.

[*Referred to in paragraph* 1077.]

1. The following list is arranged on the understanding that a general service wagon can be loaded with * one ton's weight of stores.

2. In the case, however, of certain articles, it is impossible to pack a sufficiency to amount to this weight. When this is so, attention is drawn to the fact in the column of remarks.

3. Stores of a like nature should, as far as possible, be packed in the same wagon, with this restriction, that each wagon in a convoy be of about equal weight.

4. Where no entry is made in the column "G.S. Wagon Load," the particular stores in question would not be issued in sufficient quantity to amount to a load.

Articles.	Weight in lbs.	G.S. Wagon Load.	Remarks.
Axes, felling, curved helve	6	300	Packed in cases.
Axes, hand	2⅜	600	Packed in cases.
Axes, pick, § heads, 6½ lbs.	6½	260	
Axes, pick, helves, 34½ in.	2	260	
Axes, pick, heads, 4½ lbs.	4½	290	Packed in cases.
Axes, pick, helves, 36 in. ferruled	3¼	290	Packed in cases.
Barrows, wheel, intrenching	64	25	About 16 cwt.
Barrows, hand, single	19	120*	110 for long distances.
Blankets, general service	4½	400	About 16 cwt.
Boxes, stationery	26½		
Buckets, water, general service, leather	4½	500*	350 for long distances.
§Bars, crow, 5 ft. 6 in.	30		
§Bars, crow, 4 ,, 6 ,,	20		
Brooms, birch	2		
Chairs, folding	7½		
Covers, saddle	2¼	1000*	900 for long distances.
Cases, tin, stationery	10½		
Cases, bolster	⅞	4500*	4000 for long distances.
Cases, paillasse	3¼	700*	630 for long distances.
†Chairs, officers'	11	35	About 3½ cwt.
†Forms, 6 ft.	38	30	About 11 cwt.
†Forms, soldiers', 4 ,,	31	35	About 15 cwt.
§Hammers, miners', sledge, 14 lbs.	16		
Hooks, bill	3		
Implements, butchers', cases complete	28		
Kettles, camp, 12 quarts	8½	Cradles, 40	5 in a cradle weigh 50 lbs.
Lanterns	3		
Mallets, heel peg	2½		
Mauls, iron hoop, G.S., mark III.	13		
Pads, surcingle	¼	1600*	1200 packed in 6 cases for long distances. Packed in cases.
Pegs, picketing	1	600*	400 packed in 2 vats (and other stores) for long distances. Packed in 3 vats.
Posts, picket, 2½ ft.	4½	500*	450 for long distances.
Nails, iron, galvanised	9	250*	225 for long distances.

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LIST OF ARTICLES, &c.—*continued.*

	Articles.	Weight in lbs.	G.S. Wagon Load.	Remarks.
	Ropes, head	½		Usually packed with vats of picketing pegs.
	Ropes, heel	1½		
38407 Ordnance 223	Ropes, picketing, 4 ft. 9 in.	1		
	Ropes, picketing, 8 ft.	17	132*	118 for long distances.
	Ropes, picketing, 66 ft.	8	280*	250 for long distances.
	Rugs, horse, large	8½	260	Packed in bales.
	Rugs, horse, small	7½	300	
	Screens, latrine, complete	70		
	Sheets, ground	2½	900*	800 for long distances.
	Sheets, field, cavalry, waterproof	2½	900*	800 for long distances.
	Stools, camp, folding	5		
	Stoves, Soyer's	166	8	About 11 cwt.
	Surcingles, web, cavalry	⅜	1800*	1350 packed in 3 cases (and other stores) for long distances.
38407 Ordnance 223	Shovels, G.S.	3½	640*	Packed in 4 cases. 570 for long distances.
	Shovels, universal	6	350*	300 for long distances.
	Spades, new pattern	6	350*	300 for long distances.
	Stones, rag, or rub	2½		
	Stretchers, regimental, complete	28		
	Stools, sergeants'	10		
	§Scales, weighing, with weights comp.	707		
	Tables, camp, folding	16		
	Tents, circular, S.L., complete	80	28*	25 for long distances.
	Tents, circular, S.L., bottoms, wood, sets	489	5*	4 for long distances. About 22 cwt.
38407 Ordnance 223	Tents, dining, complete (without bottoms, forms, tables, and trestles).	1879	1	Bulky. Packed in 7 valises. Poles, 10 bundles. Pins in bags and 12 steel pins.
	Tents, bottoms, wood, tent in 48 pieces.	10080	¼ set	12 pieces.
	Tents, forms, 6 ft. (100 to each tent)	32	70*	60 for long distances.
	Tents, tables, 12 ft. (25 to each tent)	88	25*	20 for long distances.
	Tents, trestles, table (25 to each tent)	13	170*	150 for long distances.
	Tents, marquee, hospital, complete	488	4	About 17½ cwt.
	Tents, marquee, hospital, bottoms, wood, sets	1232	1	Pack 1 marq. hosp. tent, comp., in same wagon for long distances. Pack 2 marq. hosp. tents, comp., in same wagon.
	Tents, marquee, hospital, bottoms, canvas	118	19*	17 for long distances. Only issued for field hospital.
	Tents, marquee, officers', comp.	190	12*	10 for long distances.
	Tents, ridge, complete	266	8	
	Tents, ridge, bottoms	1540	1½	
	Tents, store, complete	680	3	
	Tubs, washing, 3½ gallons	5½	400*	350 for long distances.
	Tops, table, 4 ft.	34	66*	60 for long distances.
	Tops, table, 6 ,,	52	43*	38 for long distances.
	Trestles, iron	26	86*	78 for long distances.
	§Wedges, sawyers', steel, 10 in.	6½		

*When a convoy is to travel a long distance (more than nine or ten miles) the stores loaded in each wagon should not exceed 18 cwt. in weight.

† Stores marked thus are of a light but bulky nature, and should be packed as far as possible with certain of the stores marked §.

§ The foregoing mark signifies stores that are of a heavy but compact nature, and these should therefore be packed with stores marked †.

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APPENDIX X.

LIST OF ADDITIONAL TOOLS TO BE SUPPLIED TO EACH OF THE ROYAL FIELD ARTILLERY STATIONS FOR THE PURPOSE OF CARRYING OUT REPAIRS TO FIELD BATTERIES.

[*Referred to in paragraph* 209.]

Articles.					Aldershot and other large stations.	Small stations with 2 batteries.
Braces, ratchet,	18 in.				2	1
	18 in., strong, drills,		¾ in.		4	1
			⅝ „		4	1
			½ „		4	1
			⅜ „		4	1
			¼ „		4	1
	18 in., drills, tapping,		⅝ „		4	1
			½ „		4	1
			⅜ „		4	1
	post, 24 in.				2	1
Callipers, 10 in.				prs.	2	1
Chisels,	rivet head				2	1
	hand, cold, ¾ in. by 8 in.				6	2
Cloth, emery, fine				sheets	6	2
Cramps, fitters', 5 in.					2	1
Drifts,	brass, round,	1 in. by 9 in.			2	1
		¾ „ „ 9 „			2	1
	metal, for removing axletrees				2	1
	steel, round,	1 in.			2	1
		⅞ „			2	1
		¾ „			2	1
	bastard,	flat,	16 in.		2	1
			14 „		6	2
			12 „		2	1
			8 „		4	1
			6 „		4	1
		half-round,	16 „		4	1
			14 „		4	1
			10 „		4	1
			8 „		4	1
			6 „		4	1
		knife,	5 „		2	1
		round,	16 „		2	1
			14 „		2	1
			12 „		4	1
			6 „		3	1
			4 „		3	1

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LIST OF ADDITIONAL TOOLS, &c.—*continued.*

Articles.				Aldershot and other large stations.	Small stations with 2 batteries.
Files,	bastard,	hand, safe edge,	16 in.	4	1
			14 „	4	1
			8 „	2	1
			6 „	2	1
		square,	12 „	2	1
			10 „	2	1
			6 „	2	1
		3-square,	16 „	2	1
	rough, ½-round		14 „	2	1
	2nd cut,	½-round	14 „	2	1
		hand, safe edge,	14 „	2	1
			10 „	2	1
			6 „	2	1
			4 „	2	1
	smooth,	½-round,	14 „	2	1
			8 „	2	1
			6 „	2	1
		hand, safe edge,	12 „	2	1
			8 „	2	1
			6 „	2	1
			4 „	2	1
Hammers,	boilermakers', riveting, 2½ lbs.			2	1
	fitters',	48 ozs., copper		2	1
		24 „		2	1
Handles, file,	large			8	2
	middling			8	2
	small			6	2
	swan-neck			2	1
Holders, rivet, head,	large			2	1
	small			2	1
Irons, soldering, tinman's				2	1
Levels, spirit, block, 12 in.				2	1
Plates, surface 3 ft. × 2 ft.				2	1
Pliers, round nose			pairs	2	1
Punches,	R.B.L. guns, steel 4 in.			2	1
	smiths', cold			2	1
Rules, armament artificers', 2 feet				2	1
Saws, cutting metal,	12 in.			2	1
	blades, 12 in.		spare	2	1
Snaps, riveting, rod,	1¼ in.			2	1
	1 „			2	1
	⅝ „			2	1
	½ „			2	1
Spanners, armament artificers', double ended,	1 „ and ⅞ in.			2	1
	¾ „ and ⅝ „			2	1
	½ „ and ⅜ „			2	1

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LIST OF ADDITIONAL TOOLS, &c.—*continued.*

Articles.		Aldershot and other large stations.	Small stations with 2 batteries.
Spanners, armament artificers', socket,	¾ in.	2	1
	⅝ „	2	1
	½ „	2	1
Straight-edges,	6 ft.	2	1
	4 „	2	1
	2 „	2	1
Vices, standing, 80 lbs., with iron bench ..		3	1
Vices, hand,	20 ozs.	2	1
	8 „	2	1

The following should also be added to the chest of stocks and dies, Whitworth thread :—

CHEST, TOOL, No. 10 (SMITH'S, R.A., FIELD).

			No.
Dies,	$\frac{5}{16}$ in.	set	1
	¼ „	„	1
Taps,	$\frac{5}{16}$ „ plug		1
	$\frac{5}{16}$ „ 1st turn		1
	$\frac{5}{16}$ „ 2nd turn		1
	¼ „ plug		1
	¼ „ 1st turn		1
	¼ „ 2nd turn		1

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APPENDIX XI.

Table of alternative woods that may be used in the repair of articles.

[*Referred to in paragraph* 179.]

Nature of repair.	Description of woods.	Remarks.
For box work ..	Beech	Should be interchangeable.
	Teak	
	Oak	
	Pedowk	
	Mahogany	
	Pine	
	White deal	
	Yellow deal	
	Kawrie pine	
	Pitch pine	
For vehicles ..	Oak	Should be interchangeable for ordinary work.
	Ash	
	Hickory	
	Oak, Greenheart, Pedhowk — for spokes	Should be interchangeable for wheels.
	Ash, Hickory, Beech — for felloes	
	Ash	Should be interchangeable for bale hoops and bent work.
	Hickory	
	Yellow deal	Should be interchangeable for ordinary work.
	Yellow pine	
	Pitch pine	

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APPENDIX XII.

APPARATUS FOR EXAMINATION OF LYDDITE SHELLS.

[*Referred to in paragraph* 756H.]

Articles.	No.	Remarks.
Woolwich Section, No. 11.		
Bottles, glass, narrow mouth, without capsule, 8 oz. .. with ground stopper	1	
*Methylated spirits	As required	*See* para. 351, Regulations for Magazines, &c., 1902. *See* para. 368 ditto, for ingredients.
Mineral jelly		
Paint, red (for lyddite shells)		
Methylated spirits .. } for kit composition.		
Shellac .. .. .. }		
Tar, Stockholm .. .. }		
Woolwich Section, No. 12.		
Sawdust	As required	
Woolwich Section, No. 20.		
*Wicks (for lamp, spirit, Berzelius)	12	
Apparatus, testing, gunpowder—		
†Balance, in case	1	
†Forceps .. .. pair	1	
†Funnels, glass, 4 oz.	1	
†Glasses, common, 3 in. square .. pair	6	
†Glasses, watch, 2½ in. diameter .. pair	6	
*Lamps, spirit, Berzelius	1	
†Ovens, water, copper	1	
†Spatulas	2	
†Stands, iron, for water oven	1	
*Thermometers, glass, F. 212°, in wood case	2	
†Weights, grain, set, in wood case	1	
Woolwich Section, No. 22.		
Implements, fuze, shell, and cartridge.		
Tongs extracting exploder	As required	
Luting, mark III .. .. .. lbs.	As required	*See* para. 351. Regulations for Magazines, &c. 1902.
Woolwich Section, No. 24.		
Plaisters, kit, unprepared { large .. small .. }	As required	
Woolwich Section, No. 25.		
Brush, paint, sash-tool, No. 2, for luting ..	As required	
Woolwich Section, No. 29.		
†Glass, reading (or magnifying) $\frac{13}{16}$ in. diameter, folding, in frame	1	

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* Included in apparatus for "heat test," para. 564.

† Included in apparatus for inspection of powder, para. 549.

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APPENDIX XIII.

Extract from Magazine Regulations :—

Classification of Explosives.

[*Referred to in paragraphs* 1121 *and* 1167.]

57 Gen. No. 3848

Group.	Division.	Stores.
I.	..	*Explosives which must be placed in a magazine, each division in a separate compartment, in which magazine conditions must be observed.*
	I.	Cordite in bulk.
		Cordite cylinders without igniter.
		Ballisite.
		Gunpowder, except that which has been wetted.
		Cannon cartridges filled with gunpowder, ballisite, or cordite, except Q.F. cartridges, but including all charges for Q.F. cartridges.
		Puffs, powder.
		Igniters, powder.
		Cordite cylinders fitted with igniter.
		Bags, primer, filled.
		Charges and primers, impulse torpedo.
		Fuze, instantaneous.
		Quick match.
		Stars, incendiary.
	II.	Guncotton, dry.
		Picric powder.
		Dynamite.
		Exploders, filled, for lyddite shell.
		Blasting gelatine.
		Tonite.
		Tonite charges, for sound rockets.
		Gelignite.
	III.	Guncotton, wet (except in mines).
	IV.	Picric acid.
II.	..	*Explosives that must be stored in explosives stores, but not in magazines. (The stores for Q.F. cartridges are to be, wherever the exigencies of the Service permit, under Home Office rules as to distances.)*
	I.	Balls, light, parachute.
		Bursters, segment shell.
		Caps, percussion.

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CLASSIFICATION OF EXPLOSIVES—*continued.*

Group.	Division.	Stores.
II.	I.	Cartridges, small-arm, machine gun, aiming tube, signal, Very } which are safety cartridges.
		Cases, cartridge, Q.F., capped and empty.
		Composition, priming.
		Fuzes, time.
		,, percussion.
		,, time and percussion.
		,, electric.
		,, safety.
		Match, slow.
		Portfires.
		Primers, light, G.S., and portfires, life-saving.
		,, electric.
		,, shrapnel shell.
		,, vent.
		Rockets (except war and life-saving).
		Service lights of sorts.
		Tubes, electric.
		,, friction.
		,, percussion.
	II.	Gunpowder, wetted.
		Mines and countermines, containing wet guncotton only.
	III.	Shells filled and fuzed.
		Rockets, war and life saving.
		Shells, filled, but not fuzed.
	IV.	Detonators.
		Matches, vesuvian.
	V.	†Filled Q.F. cartridges, "fixed" ammunition.
		‡ ,, ,, ,, not "fixed" ammunition, but containing a cap or percussion primer.
	VI.	‖ Filled Q.F. cartridges, not "fixed" ammunition, and fitted with electric primers or adapters.
		Cartridges, impulse torpedo.

† Q.F. 18½-pr., 12½-pr., 6-pr., 3-pr., 1-pr., and 2·95-inch.
‡ Q.F. 15-pr.
‖ Q.F. (or Q.F.C.) 6-inch, 4·7-inch, 4-inch, and 12-pr. (12 and 8 cwt).

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APPEN

TABLE A.—LIST OF TOOLS FOR THE

[*Referred to in para*

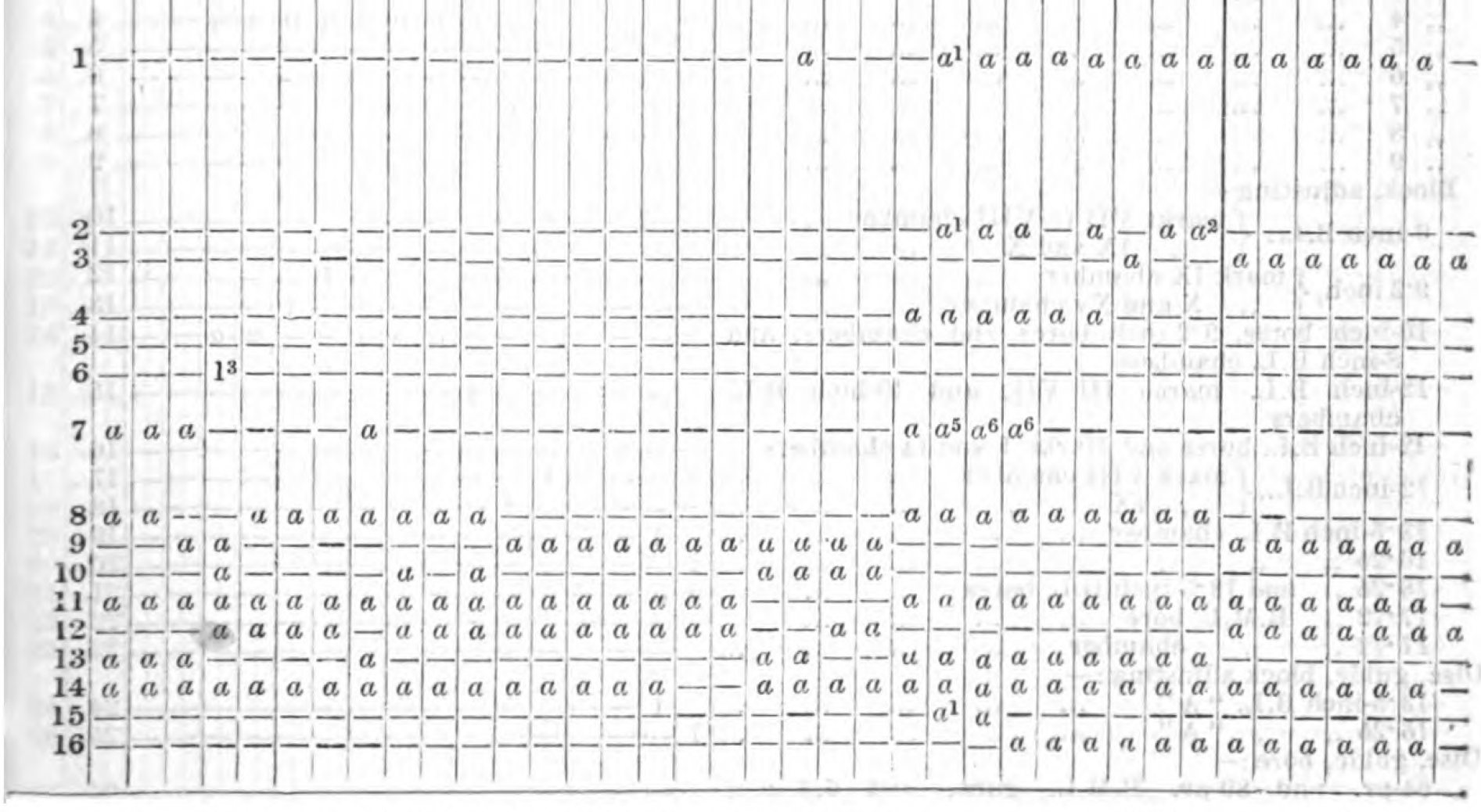
57
I. of Wight
2111

Tools.	Nature. B.L. 16·25-inch.	13·5-inch.	12-inch, marks I and Ia.	12-inch, marks III–VII.	12-inch, mark VIII.	12-inch, mark IX.	10-inch.	9·2-inch, marks I. Ia, II, and IIa.	9·2-inch, marks III–VII.	9·2-inch, mark VIII.	9·2-inch, mark IX.	9·2-inch, mark X	8-inch, marks III, IV and VI.	8-inch, marks VII and VIIa.	6-inch, marks III, IV, VI, and VIa.	6-inch, mark V.	
(*Woolwich Section, No. 7.*)																	
Brace, smith's																	1
(*Woolwich Section, No. 16.*)																	
Brace, smith's:—																	
Rimers, vent. { long																	2
{ short																	3
Gauges, vent:—																	
24-inch																	4
15 ,, ...																	5
4 ,, ...																	6
Tube chamber, { bottom	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	7
{ centre																	
{ top																	
Lamps, examining bore:—																	
Large	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	8
Small																	9
Searchers, { chisel ended																	10
{ pointed	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	11
Stoves, { lamp																	12
{ soyer	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	13
Straight-edge, 18-inch by 1½-inch	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	14
Scraper, ordnance, { 24-inch...																	15
vent, half-round, { 14 ,, ...																	16

[1] Mark I guns only. [2] 64-pr. guns only. [3] 15 pr. guns only.

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[5] Mark I guns fitted with steel cone vent, and Mark II guns.

[6] H.A. guns only.

a Common.

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DIX XIV.

EXAMINATION OF RIFLED ORDNANCE.

graphs 205 *and* 897.]

Nature.				
B.L.	B L.C	Q.F	R.B.L.	R.M.L.
6-inch, marks VII—X.				
5-inch, marks II–V.				
4-inch, marks II–VI.				
15-pr. and 12-pr.				
8-inch howitzer.				
6·inch, 30 cwt. howitzer.				
5-inch howitzer.				
	5-inch.			
		6-inch, and 6-inch B.		
		6-inch Q.F.C.		
		4·7-inch, 4·7-inch A and B.		
		4-inch.		
		4-inch Q.F.C.		
		15-pr.		
		12-pr., 12 cwt.		
		12-pr., 8 cwt.		
		6-pr.		
		3-pr.		
			40-pr.	
			40-pr. side closing.	
			20-pr.	
			12-pr. and 9-pr.	
				17·72-inch.
				12·5-inch.
				10-inch.
				9-inch.
				8-inch howitzer.
				7-inch.
				6·6-inch howitzer.
				80-pr. and 64-pr., 71 and 58 cwt.
				64-pr., 64 cwt., and 6·3 inch howitzer.
				40-pr.
				25-pr.
				16-pr.
				13-pr.
				9-pr.
				7-pr.
				2·5-inch jointed.

APPENDIX

Table A.

57
I. of Wight
2111

(*Woolwich Section, No.* 29.)

Tools.	Nature. B.L. 16·25-inch.	13·5-inch.	12-inch, marks I and Ia.	12-inch, marks III–VII.	12-inch, mark VIII.	12-inch, mark IX.	10-inch.	9·2-inch, marks I, Ia, II, and IIa.	9·2-inch, marks III–VII.	9·2 inch, mark VIII.	9·2-inch, mark IX.	9·2-inch, mark X.	8-inch, marks III, IV and VI.	8-inch, marks VII and VIIa.	6-inch, marks III, IV, VI, and VIa.	6-inch, mark V.	
Instruments, taking impressions, bore:—																	
No. 1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	*a*	*a*	1
,, 2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
,, 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
,, 4	—	—	*a*	*a*	*a*	—	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	—	—	4
,, 5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5
,, 6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6
,, 7	*a*	*a*	—	—	—	—	*a*	—	—	—	—	—	—	—	—	—	7
,, 8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8
,, 9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9
Block, adjusting—																	
6-inch B.L., { marks VII to VIII chamber	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10
,, IX and X ,, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11
9·2 inch, { mark IX chamber	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	12
,, X and Xv chamber	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	13
10-inch bores, 9·2-inch bores and chambers, and 8-inch B.L. chambers	—	—	—	—	—	—	*a*	*a*	*a*	*a*	—	—	*a*	*a*	—	—	14
12-inch B.L. marks III–VII, and 10-inch B.L. chambers	—	—	—	*a*	—	—	*a*	—	—	—	—	—	—	—	—	—	15
12-inch B.L. bores and Marks I and Ia chambers ...	—	—	*a*	*a*	*a*	*a*	—	—	—	—	—	—	—	—	—	—	16
12-inch B.L., { mark VIII chamber	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	17
,, IX ,, ...	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	18
13·5-inch B.L. chamber	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	19
16·25 ,, ,, ,, ...	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20
16·25 ,, and 13·5-inch B.L. bores	*a*	*a*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21
17·72 ,, R.M.L bore	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	22
17·72 ,, ,, chamber	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	23
Disc, guide, block adjusting:—																	
13·5-inch B.L. "A"	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	24
16·25 ,, ,, "A"	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	25
Disc, guide, bore:—																	
64-pr. and 80-pr. R.M.L. guns, and 6.3-inch howitzers	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	26

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XIV.—*continued.*

—*continued.*

| | Nature. | | |

APPENDIX

TABLE A.

57
I. of Wight
2111

(*Woolwich Section, No.* 29)—continued.

Tools.	Nature. B.L. 16·25-inch.	13·5-inch.	12-inch, marks I and IA.	12-inch marks III–VII.	12-inch, mark VIII.	12-inch, mark IX.	10-inch	9·2-inch, marks I, IA, II, and IIA.	9·2-inch, marks III–VII.	9·2-inch, mark VIII.	9·2-inch, mark IX.	9·2-inch, mark X	8-inch, marks III, IV and VI.	8-inch, marks VII and VIIA.	6-inch, marks III, IV, VI, and VIA.	6-inch, mark V.	
Instruments, taking impressions, bore :—																	
Disc, guide, bore :—																	
6·6-inch R.M.L.																	1
7 ,, ,, ...																	2
8 ,, ,, ...																	3
9 ,, ,, ...																	4
10 ,, ,, ...																	5
12·5 ,, ,, ...																	6
17·72 ,, ,, ...																	7
6 ,, B.L., Q.F., or Q.F.C.															a	a	8
8 ,, ,, ...													a	a			9
9·2 ,, ,, ...								a	a	a	a	a					10
10 ,, ,, ...							1										11
12 ,, ,, ...			a	a	a												12
12 ,, Mk. IX						1											13
13·5 ,, B.L., "B"		1															14
16·25 ,, ,, "B"	1																15
Disc, guide, chamber :—																	
6-inch B.L., marks III, IV, and VI guns															1		16
6 ,, ,, ,, V guns																1	17
8 ,, ,, ,, {III, IV, and VI guns													a				18
8 ,, ,, ,, {VII and VIIA ,, ...														1			19
9·2 ,, ,, ,, {I and II guns								1									20
9·2 ,, ,, ,, {III–VII ,, ...									1								21
9·2 ,, ,, ,, {VIII ,, ...										1							22
9·2 ,, ,, ,, {IX ,, ...											1						23
9·2 ,, ,, ,, {X ,, ...												1					24
10 ,, ,, ...							1										25
12 ,, ,, marks {I and IA guns			1														26
12 ,, ,, marks {III–VII ,, ...				1													27
12 ,, ,, marks {VIII ,, ...					1												28

a Common.

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XIV.—*continued.*

—continued.

| | Nature. | | |

APPENDIX

Table A.

57
I. of Wight
2111

Tools.	Nature. B.L. 16·25-inch.	13·5-inch.	12-inch, marks I and IA.	12-inch, marks III–VII.	12-inch, mark VIII.	12-inch, mark IX.	10-inch.	9·2-inch, marks I, IA, II, and IIA.	9·2-inch, marks III–VII.	9·2-inch, mark VIII.	9·2-inch, mark IX.	9·2-inch, mark X.	8-inch, mark III., IV and VI.	8-inch, marks VII and VIIA.	6-inch, marks III, IV, VI, and VIA.	6-inch, mark V.	
(*Woolwich Section*, No. 29)—continued.																	
Instrument, taking impressions, bore:—																	
Disc, guide, chamber:—																	
13·5-inch B.L.		1															1
16·25,, ,, ...	1																2
17·72,, ,, ...																	3
Piece, lengthening, 4 feet																	4
Plate, bore:—																	
3-inch																	5
16-pr. R.M.L. or 20-pr. R.B.L.																	6
25-pr. ,, ...																	7
40-pr. ,, or R.B.L.																	8
64-pr., 58 or 71 cwt. and 80-pr. R.M.L.																	9
64-pr., 64 cwt., 6·6 and 6·3-inch R.M.L.																	10
7-inch R.M.L. and R.B.L.																	11
8 ,, ...																	12
9 ,, ...																	13
10 ,, ...																	14
12·5 ,, ...																	15
17·72 ,, ...																	16
8-inch B.L.													*a*	*a*			17
9·2 ,, ...								*a*	*a*	*a*	*a*	*a*					18
10 ,, ...							1										19
12 ,, ...			*a*	*a*	*a*	—											20
12-inch Mk. IX						1											21
13·5 ,, ...		1															22
16·25 ,, ...	1																23
4 ,, Q.F., or Q.F.C.																	24
5-inch gun or howitzer Mk. IX, or 4 7-inch Q.F. ...																	25
6-inch Mk. IX Q.F. or Q.F.C.															*a*	*a*	26

a Common. *b* Also chamber for Marks II-IV guns.

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XIV.—*continued.*

—continued.

| | Nature. | | |

APPENDIX

TABLE A.

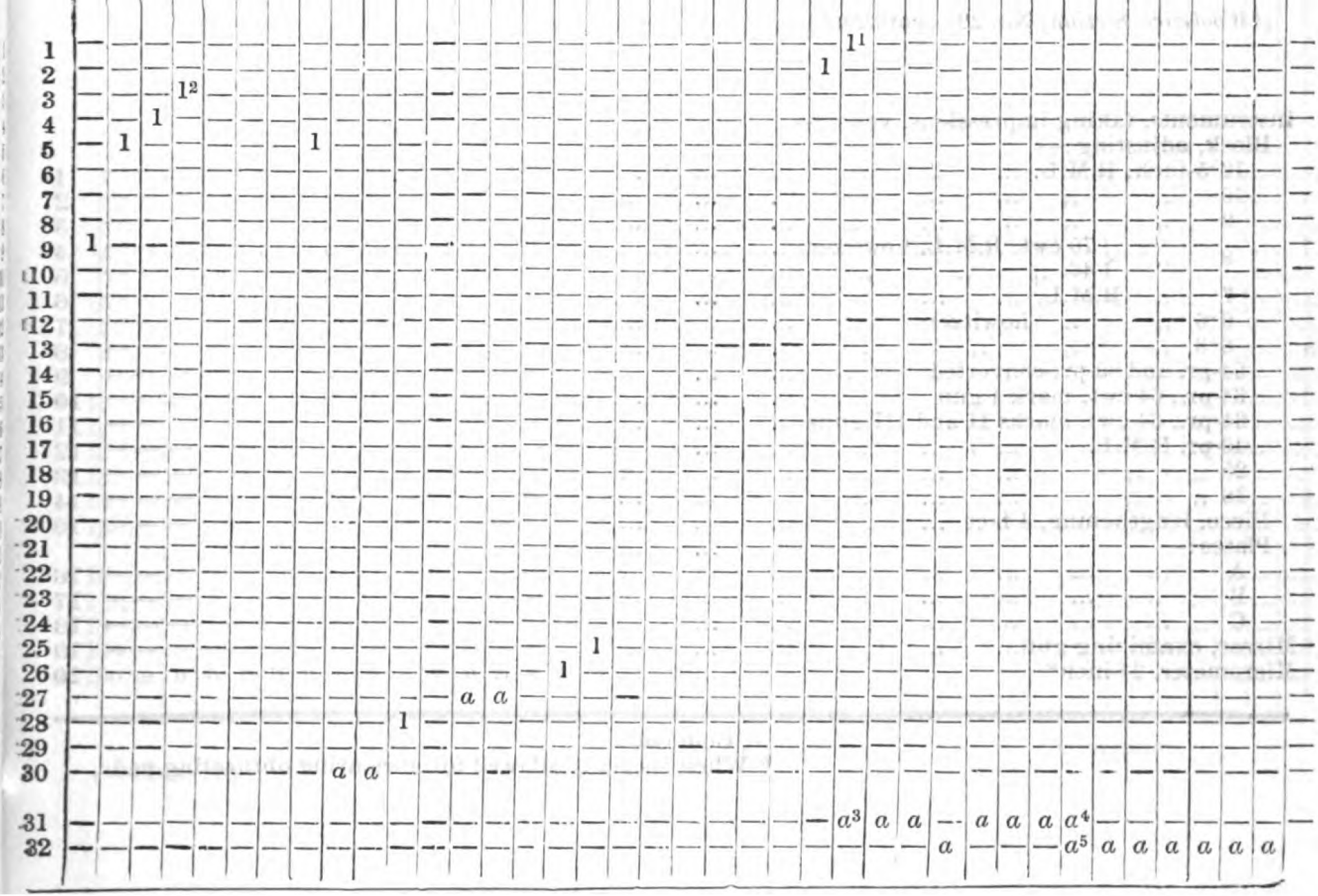
TOOLS.	B.L. Nature. 16·25-inch.	13·5-inch.	12-inch, marks I and IA.	12-inch, marks III–VII.	12-inch, mark VIII.	12-inch, mark IX.	10-inch.	9·2-inch, marks I, IA, II, and IIA.	9·2-inch, marks III–VII.	9·2-inch, mark VIII.	9·2-inch, mark IX.	9·2-inch, mark X.	8-inch, marks III, IV and VI.	8-inch, marks VII and VIIA.	6-inch, marks III, IV, VI, and VIA.	6-inch, mark V.	6-inch, marks VII and VIII.	
57 I. of Wight 2111																		
(*Woolwich Section, No.* 29)—continued.																		
Instruments, taking impressions, bore:—																		
Plate, chamber:—																		
12·5-inch, R.M.L. mark II gun																		1
17·72 ,, ,, ...																		2
15-pr. B.L.																		3
4-inch ,, ...																		4
5 ,, ,, ...																		5
6 ,, ,, marks III, IV, and VI guns															1			6
6 ,, ,, mark V gun...																1		7
6 ,, ,, ,, VII to VIII guns																	1	8
6 ,, ,, ,, IX and X guns	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9
8 ,, ,, ,, III ,, ...													1					10
8 ,, ,, marks IV and VI guns													1					11
8 ,, ,, ,, VII and VIIA ,, ...														1				12
9·2-inch, B.L. marks I and II guns...								1										13
9·2-inch, B.L. ,, III–VII ,, ...									1									14
9·2-inch, B.L. mark VIII gun										1								15
9·2-inch, B.L. ,, IX ,, ...											1							16
9·2-inch, B.L. ,, X and Xv guns												1						17
10 ,, ,, ...							1											18
12 ,, ,, marks I and IA guns			1															19
12 ,, ,, ,, III–VII ,, ...				1														20
12 ,, ,, mark VIII gun					1													21
12 ,, ,, ,, IX ,, ...						1												22
13·5 ,, ,, ...		1																23
16·25 ,, ,, ...	1																	24
12-pr., 8 cwt. Q.F.																		25
12 ,, 12 ,, ,, ...																		26
4-inch, Q.F. or Q.F.C.																		27
4·7-inch Q.F.																		28
4·7-inch, Q.F., mark V																		29
6 ,, ,, ,, ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	30
Instruments, taking impressions, vents:—																		
No. 1																		31
,, 2																		32

[1] **Mark II only.**

[2] **15-pr. Mark I only.**
a Common.

[3] **Mark I gun only.**

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[4] Gun only.

[5] Howitzer only.

a Common.

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XIV.—*continued.*

—*continued.*

	Nature.
6-inch, marks IX and X.	B.L.
5-inch, marks II–V.	
4-inch, marks II–VI.	
15-pr. and 12-pr.	
8-inch howitzer.	
6-inch. 30 cwt. howitzer.	
5-inch howitzer.	
5-inch	B.L.C.
6-inch, and 6-inch B.	Q.F.
6-inch Q.F.C.	
4·7-inch, 4·7-inch A and B.	
4·7-inch, mark V	
4-inch.	
4-inch Q.F.C.	
15-pr.	
12-pr., 12 cwt.	
12-pr., 8 cwt.	
6-pr.	
3-pr.	
40-pr.	R.B.L.
40-pr. side closing.	
20-pr.	
12-pr. and 9-pr.	
17·72-inch.	R.M.L.
12·5-inch.	
10-inch.	
9-inch.	
8-inch howitzer.	
7-inch.	
6·6-inch howitzer.	
80-pr. and 64-pr., 71 and 58 cwt.	
64-pr., 64 cwt., and 6·3-inch howitzer.	
40-pr.	
25-pr.	
16-pr.	
13-pr.	
9-pr.	
7-pr.	
2·5-inch, jointed.	

APPENDIX

Table A.

57
I. of Wight
2111

(*Woolwich Section*, No. 29)—continued.

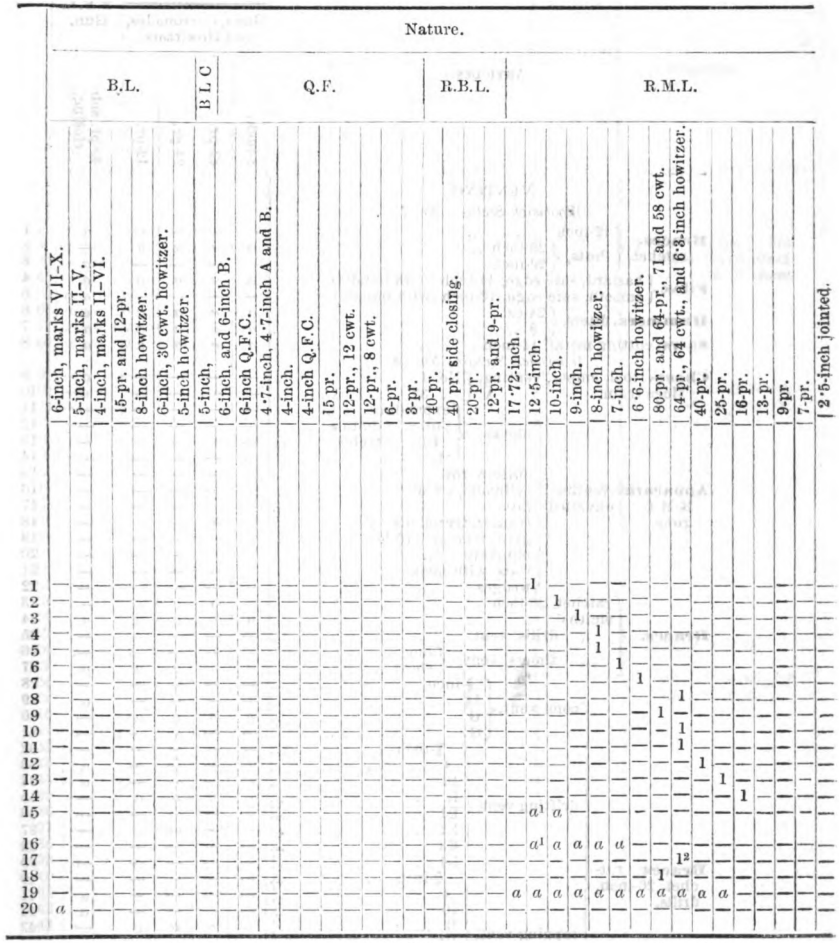
Tools.	Nature. B.L. 16·25-inch.	13·5-inch.	12-inch, marks I and 1A.	12-inch, marks III–VII.	12-inch, mark VIII.	12-inch, mark IX.	10-inch.	9·2-inch, marks I, IA, II, and IIA.	9·2-inch, marks III–VII.	9·2-inch, mark VIII.	9·2-inch, mark IX.	9·2-inch, mark X.	8-inch, marks III, IV and VI.	8-inch, marks VII and VIIA.	6-inch, marks III, IV, VI, and VIA.	6-inch, mark V.	
Instruments, taking impressions, vents:—																	
Block, adjusting:—																	
12·5-inch, R.M.L.																	1
10 ,, ,, ...																	2
9 ,, ,, ...																	3
8 ,, {70 cwt. R.M.L. howitzer																	4
8 ,, {46 ,, ,, ,, ...																	5
7 ,, R.M.L.																	6
6·6 ,, ,, howitzer																	7
6·3 ,, ,, ,, ...																	8
64-pr. and 80-pr. converted																	9
64-pr., 64 cwt. mark I gun																	10
64-pr., 64 cwt. marks II and III guns																	11
40-pr. R.M.L.																	12
25 ,, ,, ...																	13
16 ,, ,, ...																	14
Piece, lengthening, 4 feet																	15
Plates:—																	
A																	16
B																	17
C																	18
Mirror, examining gun...																	19
Micrometer, 24-inch*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	20

a Common.
* When specially allowed for measuring obturating pads,

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XIV.—*continued.*

—continued.



a Common.

[1] Mark I gun only.

[2] Gun only.

discs, cups, &c., of all the larger natures of guns.

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57
Gen. No.
3632

APPEN

TOOLS FOR VENTING, REPAIRING,

[*Referred to*

TABLE A.—List of Tools for Venting and Repairing R.B.L.,

Articles.	Ordnance, S.B. Guns, Carronades, and Howitzers. 8-inch.	32-pr.	24-pr.	12-pr.	R.B.L. Gun. 40-pr. side closing.	
VENTING.						
Woolwich Section, No. 7.						
Braces, ratchet, 12-inch	—	—	—	—	*a*	1
Braces, ratchet, Posts, 29-inch	*a*	*a*	*a*	*a*	—	2
Braces, ratchet, Posts, 20-inch	—	—	—	—	*a*	3
Files, bastard, safe edge, 14-inch (with handle)	*a*	*a*	*a*	*a*	*a*	4
Files, smooth, safe edge, 10-inch (with handle)	—	—	—	—	*a*	5
Hammers, fitters, 24-oz.	*a*	*a*	*a*	*a*	*a*	6
Hammers, fitters, 8 ,,	*a*	*a*	*a*	*a*	*a*	7
Saws, cutting metal, 14-inch	*a*	*a*	*a*	*a*	*a*	8
Woolwich Section, No. 16.						
Chests, tool, empty, venting, siege train, No. 1	—	—	—	—	*a*	9
Chests, tool, empty, venting, siege train, ,, 3*	—	—	—	—	*a*	10
Apparatus, venting, R.M.L. converted guns, blocks, expanding	—	—	—	—	—	11
Apparatus, venting, R.M.L. converted guns, blocks, pulley, double	—	—	—	—	—	12
Apparatus, venting, R.M.L. converted guns, blocks, pulley, treble	—	—	—	—	—	13
Apparatus, venting, R.M.L. converted guns, blocks, 4-in., stop	—	—	—	—	—	14
Apparatus, venting, R.M.L. converted guns, cutters, rose	—	—	—	—	—	15
Apparatus, venting, R.M.L. converted guns, cylinders, guide	—	—	—	—	—	16
Apparatus, venting, R.M.L. converted guns, falls	—	—	—	—	—	17
Apparatus, venting, R.M.L. converted guns, frames, trunnions	—	—	—	—	—	18
Apparatus, venting, R.M.L. converted guns, gyns, triangle, 10 feet	—	—	—	—	—	19
Apparatus, venting, R.M.L. converted guns, monkeys	—	—	—	—	—	20
Apparatus, venting, R.M.L. converted guns, rods, with hook	—	—	—	—	—	21
Apparatus, venting, R.M.L. converted guns, wedges	—	—	—	—	—	22
Braces, ratchet, 20-inch	*a*	*a*	*a*	*a*	—	23
Braces, smiths'	*a*	*a*	*a*	*a*	*a*	24
Braces, ,, drills, vent	—	—	—	—	—	25
Braces, ,, rimers, vent, long	—	—	—	—	—	26
Braces, ,, rimers, vent, short	*a*	*a*	*a*	*a*	*a*	27
cone vent, ⅝-inch	—	—	—	—	—	28
cone vent, 1⅛ ,,	—	—	—	—	*a*	29
cone vent, G	*a*	*a*	*a*	*a*	—	30
cone vent, G1	—	—	—	—	—	31
drifting vent, ⅝-inch	—	—	—	—	—	32
drifting vent, 4 ,,	—	—	—	—	*a*	33
drifting vent, 10 ,,	—	—	—	—	*a*	34
drifting vent, E	*a*	*a*	*a*	*a*	—	35
drifting vent, E1	—	—	—	—	—	36
drifting vent, E2	—	—	—	—	—	37
drifting vent, E3	—	—	—	—	—	38
drifting vent, E4	—	—	—	—	—	39
Braces, ratchet, 20-inch, drills, tapping vent, ⅝-inch	—	—	—	—	—	40
Braces, ratchet, 20-inch, drills, tapping vent, 4 ,,	—	—	—	—	*a*	41
Braces, ratchet, 20-inch, drills, tapping vent, 10 ,,	—	—	—	—	*a*	42
Braces, ratchet, 20-inch, drills, tapping vent, B	*a*	*a*	*a*	*a*	—	43
Braces, ratchet, 20-inch, drills, tapping vent, B1	—	—	—	—	—	44
Braces, ratchet, 20-inch, drills, tapping vent, B2	—	—	—	—	—	45
Braces, ratchet, 20-inch, drills, tapping vent, B3	—	—	—	—	—	46
Braces, ratchet, 20-inch, drills, tapping vent, B4	—	—	—	—	—	47
vent, hollow, ⅝-inch	—	—	—	—	—	48
vent, hollow, 1⅛ ,,	—	—	—	—	*a*	49
vent, hollow, A	*a*	*a*	*a*	*a*	—	50
vent, hollow, A1	*a*	*a*	—	—	—	51
sockets	*a*	*a*	*a*	*a*	—	52

a Common to all these.

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DIX XV.

FACING AND RE-COPPERING.

in paragraph 897.]

R.M.L., and S.B. Ordnance, showing what are required for each nature.

	R.M.L. Guns.																R.M.L. Howitzers.			Remarks.
	12·5-in., mk. I.	12-in.	11-in.	10-in.	9-in.	7-in.	64-pr., I to III.	Converted. 64-pr.	Converted. 80-pr.	40-pr.	25-pr.	16-pr.	13-pr.	9-pr.	7-pr.	2·5-in.	8-in.	6·6-in.	6·3-in.	
1	—	—	—	—	—	—	—	—	—	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	
2	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	—	—	*a*	*a*	*a*	*a*	*a*	—	—	—	The "large" file handle is required for each of these files.
3	—	—	—	—	—	—	—	—	—	*a*	*a*	—	—	—	—	—	*a*	*a*	*a*	
4	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	
5	*a*	*a*	*a*	*a*	*a*	*a*	*a*	—	—	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	
6	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	
7	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	
8	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	
9	—	—	—	—	—	—	—	—	—	*a*	*a*	—	—	—	—	—	*a*	*a*	*a*	
10	—	—	—	—	—	—	—	—	—	*a*	*a*	—	—	—	—	—	*a*	*a*	*a*	* Containing vents, copper, 7½-in., 18, 10½-in., 30.
11	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	
12	—	—	—	—	—	—	—	*a*	*a*	—	—	—	—	—	—	—	—	—	—	
13	—	—	—	—	—	—	—	*a*	*a*	—	—	—	—	—	—	—	—	—	—	
14	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	
15	—	—	—	—	—	—	—	*a*	*a*	—	—	—	—	—	—	—	—	—	—	
16	—	—	—	—	—	—	—	*a*	*a*	—	—	—	—	—	—	—	—	—	—	
17	—	—	—	—	—	—	—	*a*	*a*	—	—	—	—	—	—	—	—	—	—	
18	—	—	—	—	—	—	—	*a*	*a*	—	—	—	—	—	—	—	—	—	—	
19	—	—	—	—	—	—	—	*a*	*a*	—	—	—	—	—	—	—	—	—	—	
20	—	—	—	—	—	—	—	*a*	*a*	—	—	—	—	—	—	—	—	—	—	
21	—	—	—	—	—	—	—	*a*	*a*	—	—	—	—	—	—	—	—	—	—	
22	—	—	—	—	—	—	—	*a*	*a*	—	—	—	—	—	—	—	—	—	—	
23	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	—	—	—	—	—	—	—	—	—	—	
24	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	
25	—	—	—	—	—	—	—	*a*	*a*	—	—	—	—	—	—	—	—	—	—	
26	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	—	—	—	—	—	—	—	—	—	—	15 in. × 0·22 in.
27	—	—	—	—	—	—	—	—	—	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	
28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	*a*	*a*†	—	—	—	† Not required for Mark II gun.
29	—	—	—	—	—	—	—	—	—	*a*	*a*	*a*	*a*	*a*	—	—	*a*	*a*	*a*	
30	—	—	—	—	—	*a*	*a*	—	—	—	—	—	—	—	—	—	—	—	—	
31	*a*	*a*	*a*	*a*	*a*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	*a*	*a*	—	—	—	
33	—	—	—	—	—	—	—	—	—	*a*	*a*	*a*	*a*	*a*	—	—	*a*	*a*	*a*	
34	—	—	—	—	—	—	—	—	—	*a*	*a*	*a*	*a*	*a*	—	—	*a*	*a*	*a*	
35	—	—	—	—	—	—	*a*	*a*	*a*	—	—	—	—	—	—	—	—	—	—	
36	—	—	—	—	—	*a*	—	—	—	—	—	—	—	—	—	—	—	—	—	
37	—	—	—	—	*a*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
38	—	—	—	*a*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
39	*a*	*a*	*a*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	*a*	*a*	—	—	—	
41	—	—	—	—	—	—	—	—	—	*a*	*a*	*a*	*a*	*a*	—	—	*a*	*a*	*a*	
42	—	—	—	—	—	—	—	—	—	*a*	*a*	*a*	*a*	*a*	—	—	*a*	*a*	*a*	
43	—	—	—	—	—	—	*a*	*a*	*a*	—	—	—	—	—	—	—	—	—	—	
44	—	—	—	—	—	*a*	—	—	—	—	—	—	—	—	—	—	—	—	—	
45	—	—	—	—	*a*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
46	—	—	—	*a*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
47	*a*	*a*	*a*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
48	—	—	—	—	—	—	—	—	—	—	—	—	—	—	*a*	*a*	—	—	—	
49	—	—	—	—	—	—	—	—	—	*a*	*a*	*a*	*a*	*a*	—	—	*a*	*a*	*a*	
50	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	—	—	—	—	—	—	—	—	—	—	
51	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	—	—	—	—	—	—	—	—	—	—	
52	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	—	—	—	—	—	—	—	—	—	—	

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APPEN

Table A.—Tools for Venting and Repairing R.B.L.,

Articles.	Ordnance, S.B. Guns, Carronades, and Howitzers. 8-inch.	32-pr.	24-pr.	12-pr.	R.B.L. Gun. 40-pr. side closing.	
VENTING.—*continued.*						
Woolwich Section, No. 16—continued.						
Chisels, cold, flat (set of 5)	a	a	a	a	a	1
Chisels, graver (set of 3)	a	a	a	a	a	2
Drifts, steel, vent, square, $\frac{5}{8}$-inch	—	—	—	—	—	3
Drifts, steel, vent, square, 6, 8 and 10½-inch	—	—	—	—	a	4
Drifts, steel, vent, square, F, F1, F2, F3, F4, and F5	a	a	a	a	—	5
Gauges, vent, 15-inch (set of 4)	—	—	—	—	a	6
Gauges, vent, long	—	—	-	—	a	7
Gauges, vent, short	a	a	a	a	—	8
Gouges, cold, 9 in. × 1 in.	a	a	a	a	a	9
Rimers, cone vent, $\frac{5}{8}$ inch	—	—	—	—	—	10
Rimers, cone vent, 1½-inch	—	—	—	—	a	11
Rimers, cone vent, H	a	a	a	a	—	12
Rimers, cone vent, H1	—	—	—	—	—	13
Taps, vent, bush, $\frac{5}{8}$-inch	—	—	—	—	—	14
Taps, vent, bush, 1¼ ,, (set of 3)	—	—	—	—	a	15
Taps, vent, bush, long, C3, C4 and C5	—	—	—	—	—	16
Taps, vent, bush, short, C1, C2, C3, C4 and C5	a	a	a	a	—	17
Taps, vent, bush, D3, D4 and D5	a	a	a	a	—	18
Wires, directing, 48-inch	a	a	a	a	—	19
Wires, directing, 18 ,,	—	—	—	—	a	20
Wrenches, taps, and vents, large	—	—	—	—	a	21
Wrenches, taps, and vents, small	—	—	—	—	—	22
Wrenches, vent, bush	a	a	a	a	—	23
Wrenches, vent, bush	a	a	a	a	—	24
Woolwich Section, No. 18.						
Brushes, gun, soft, small	a	a	a	a	a	25
Woolwich Section, No. 29.						
Instruments, taking impressions, vents, No. 1	a	a	a	—	—	26
Instruments, taking impressions, vents, ,, 2	—	—	—	—	—	27
38407 Ordnance 155 **Instruments,** taking impressions, vents, blocks, adjusting	1	1	1	—	—	28
Instruments, taking impressions, vents, blocks, adjusting	—	—	—	—	—	29
Instruments, taking impressions, vents, pieces, lengthening, 4 ft.	—	—	—	—	—	30
Instruments, taking impressions, vents, plates, A	a	—	—	—	—	31
Instruments, taking impressions, vents, plates, B	—	a	a	—	—	32
Instruments, taking impressions, vents, plates, C	—	—	—	—	—	33
REPAIRING.						
Woolwich Section, No. 7.						
Braces, ratchet, 12-inch, drills	—	—	—	—	a	34
Braces, ratchet, 9 ,,	—	—	—	—	a	35
Braces, ratchet, posts, 20 inch	—	—	—	—	a	36
Files, bastard, round, 16-inch (with handle)	—	—	—	—	a	37
Files, bastard, round, 12 ,, (with handle)	—	—	—	—	a	38
Files, cross parallel, bastard, 14-inch	—	—	—	—	a	39
Files, cross parallel, bastard, 12 ,,	—	—	—	—	a	40
Files, cross parallel, smooth, 14 ,,	—	—	—	—	a	41
Files, cross parallel, smooth, 12 ,,	—	—	—	—	a	42
Tools, screw-cutting, bolt and nut Mark II, chests filled, A.B.C.D.	—	—	—	—	a	43
Woolwich Section, No. 16.						
Drifts, steel, square	—	—	—	—	a	44
Rimers, socket, drop sight	—	—	—	—	a	45
Sets, socket, drop sight	—	—	—	—	a	46
Machines, rifling, hand, R.M.L., guns	—	—	—	—	—	47
Machines, rifling, hand, R.M.L., howitzers	—	—	—	—	—	48

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DIX XV.—*continued.*

R.M.L. and S.B. Ordnance—*continued.*

	R.M.L. Guns.																	R.M.L. Howitzers.			Remarks.
	12·5-in., mk. I.	12-in.	11-in.	10-in.	9-in.	7-in.	64-pr., mks. I to III.	Converted. 64-pr.	Converted. 80-pr.	40-pr.	25-pr.	16-pr.	13-pr.	9-pr.	7-pr.	2·5-in.	8-in.	6·6-in.	6·3-in.	
1	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	
2	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	
3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	a	a	—	—	—	
4	—	—	—	—	—	—	—	—	—	a	a	a	a	a	—	—	a	a	a	
5	a	a	a	a	a	a	a	a	a	—	—	—	—	—	—	—	—	—	—	
6	—	—	—	—	—	—	—	—	—	a	a	—	—	—	—	—	a	a	a	
7	—	—	—	—	—	—	—	—	—	a	a	—	—	—	—	—	a	a	a	
8	a	a	a	a	a	a	a	a	a	—	—	—	—	—	—	—	—	—	—	
9	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	
10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	a	a‡	—	—	—	‡ Not required for Mark II gun.
11	—	—	—	—	—	—	—	—	—	a	a	a	a	a	—	—	a	a	a	
12	—	—	—	—	—	a	a	—	—	—	—	—	—	—	—	—	—	—	—	
13	a	a	a	a	a	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	a	a	—	—	—	
15	—	—	—	—	—	—	—	—	—	a	a	a	a	a	—	—	a	a	a	
16	a	a	a	a	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
17	—	—	—	—	a	a	a	a	a	—	—	—	—	—	—	—	—	—	—	For C.I. ordnance with vent bushes, having 6 threads per inch.
18	—	—	—	—	—	—	—	a	a	—	—	—	—	—	—	—	—	—	—	
19	a	a	a	a	a	a	a	a	—	—	—	—	—	—	—	—	—	—	—	
20	—	—	—	—	—	—	—	—	—	a	a	a	a	a	a	a	a	a	a	
21	—	—	—	—	—	—	—	—	—	a	a	a	a	a	—	—	a	a	a	
22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	a	a	—	—	—	
23	a	a	a	a	a	a	a	a	a	—	—	—	—	—	—	—	—	—	—	
24	a	a	a	a	a	a	a	a	a	—	—	—	—	—	—	—	—	—	—	
25	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	
26	a	a	a	a	a	a	a	a	a	—	—	—	—	—	—	—	—	—	—	
27	—	—	—	—	—	—	—	—	—	a	a	a	a	a	a	—	a	a	a	With plate.
28	1	1	1	1	1	1	2*	a	a	—	—	—	—	—	—	—	—	—	—	* 1 block for Mark I and 1 for Marks II and III
29	—	—	—	—	—	—	—	—	—	1	1	1	—	—	—	—	2†	1	1	† 1 for each nature.
30	a	a	a	a	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
31	a	a	a	a	a	a	—	—	—	—	—	—	—	—	—	—	—	—	—	
32	—	—	—	—	—	—	—	a	—	—	—	—	—	—	—	—	—	—	—	
33	—	—	—	—	—	—	—	a	a	—	—	—	—	—	—	—	—	—	—	
34	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	—	a	a	a	
35	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	—	a	a	a	
36	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	—	a	a	a	
37	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	—	a	a	a	
38	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	—	a	a	a	The "large" file handle is required for each of these files.
39	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	—	a	a	a	
40	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	—	a	a	a	
41	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	—	a	a	a	
42	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	—	a	a	a	
43	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	—	a	a	a	
44	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	—	a	a	a	
45	a	a	a	a	a	a	a	a	a	a	a	a	—	—	—	—	a	a	a	
46	a	a	a	a	a	a	a	a	a	a	a	a	—	—	—	—	a	a	a	
47	1	—	1	1	1	1	a	a	a	—	—	—	—	—	—	—	—	—	—	
48	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1§	1	—	§ 70-cwt.

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APPENDIX XV.—*continued.*

57
Gen. No.
8632

TABLE B.—Tools for Facing R.B.L. Guns.

Packed in a Chest.

Woolwich Section, No. 16.	7-inch. Letter.	7-inch. No.	40-pr. Letter.	40-pr. No.	20-pr. Letter.	20-pr. No.	12 or 9-pr. Letter.	12 or 9-pr. No.
Tools, facing, R.B.L.—								
	F 1	1	E	1	G	1	D	1
	G	1	F 1	1	I 1	1	F 1	1
Blocks	—	—	F 2	1	I 2	1	F 2	1
	K	1	H	1	L	1	J	1
	—	—	G	1	K	1	I	1
	—	—	M	1	M	1	C	1
Collars...	—	—	B O	set of 2	—	—	—	—
	E 1	set of 2	D	1	F	1	K	1
Cutters	E 2	,,	—	—	J	1	G	1
	H H	,,	—	—	J 1		G 1	
	—	—	—	—	H	1	E	1
Guards, wood	O	1	—	—	P	1	S	1
Guides—								
Breech-screw	C	set of 2	A	set of 2	C	set of 2	M	set of 2
Powder chamber ...	D 1	1	ex. C	1	D 1	1	N 1	1
	—	—	—	—	D 2	1	N 2	1
Wood	—	—	N	1	Q	1	R	1
Handles	P	1	P	1	—	—	—	—
Keys	—	—	—	—	N	1	O	1
Levers	B	1	J	1	B	1	B	1
Punches	N	1	L	1	R	1	P	1
	—	—	K	1	—	—	—	—
Spindles	A	1	I	1	A	1	A	1
	—	—	Q	1	—	—	—	—
Washers, stop ...	J J	set of 2	—	—	E E	set of 2	L L	set of 2
Wrenches	M	1	R	1	O	1	Q	1

TABLE C.—Tools for Re-coppering B.L. and S.B.B.L. Guns.

Packed in a Chest.

Woolwich Section, No. 16.	B.L. 8-inch. Mark VII.	B.L. 6-inch. Mark V.	S.B. B.L. 32-pr.
Tools, re-coppering—			
Blocks—			
Guide	1	1	1
No. 1	1	1	1
,, 2	1*	1*	1
,, 3	1	1	1
,, 4	—	1	1
,, 5	1	1	1
,, 6	1	—	—
Cups, obturating	1	1	1
Cutters	3	3	2
Drifts	1	1	1
Spindles....	1	1	1
Wrenches	1	1	set of 3

* With bronze guide.

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APPENDIX XVI.

LIST OF TOOLS FOR RE-FACING RAISING VALVE SEATINGS OF B.L. DISAPPEARING HYDRO-PNEUMATIC CARRIAGES.

57
Gen. No.
8632

Articles.	No.
Woolwich Section, No. 14.	
Tools, valve seatings—*	
Bush, metal	1†
Cutters, rose, $\frac{7}{8}$-inch	1‡
Cutters, rose, $\frac{1}{2}$ „	1†
Holder, rose cutters	1

* Forming the set of tools referred to in paragraph 7888 List of Changes in War Matériel.

† 9·2-in. and 10-in. mark I carriages only.

‡ 6-in. marks II to IV carriages only.

APPENDIX XVII.

THE DISTRIBUTION OF THE SETS OF TOOLS REFERRED TO IN APPENDICES XV AND XVI IS AS FOLLOWS:—

57
Gen. No.
1683

District and Works.	Tools.									Remarks.
	Venting and repairing.	Facing. R.B.L. 7-in.	Facing. R.B.L. 40-pr.	Facing. R.B.L. 20-pr.	Facing. R.B.L. 12-pr. or 9-pr.	Re-coppering B.L., 8-in., Mark VII.	Re-coppering B.L., 6-in., Mark V.	Re-coppering S.B., B.L., 32-pr.	Re-facing raising valve seatings.	
North-Western.										
Seaforth	1	...	1	1	...	...		...	...	
North-Eastern.										
Tynemouth	1	...	...	...	...	...	...	...	...	
District	...	...	...	...	...	...	...	...	1	
Scottish.										
Kinghornness	1	...	...	...	...	...	...	...	...	
Inchkeith	1	...	..	...	...	...	...	...	...	
District	...	...	1	1	1	...	...	...	1	
Eastern.										
Harwich	...	...	1	...	...	...	...	...	...	
Landguard Fort	1	...	...	...	...	...	...	...	...	
Shotley Battery... ...										
District	...	...	...	...	...	...	...	...		

57
S. Setts.
3971

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APPENDIX XVII.—*continued.*

The distribution of the Sets of Tools—*continued.*

District and Works.	Tools.									Remarks.
	Venting and repairing.	Facing. R.B.L. 7-in.	Facing. R.B.L. 40-pr.	Facing. R.B.L. 20-pr.	Facing. R.B.L. 12-pr. or 9-pr.	Re-copper-ing. B.L., 8-in., Mark VII.	Re-copper-ing. B.L., 6-in., Mark V.	Re-copper-ing. S.B., B.L., 32-pr.	Re-facing raising valve seatings.	
South-Eastern.										
Archcliffe Fort	1	...	...	...	...	..	...	...	...	
Castle (Spur Battery)										
Newhaven Fort	1	...	...	...	...	...	...	...	...	
District	...	1	1	...	...	...	...	...	...	
THAMES.										
Gravesend, S.D.										
Tilbury Fort	1	...	...	...	...	...	...	...	...	
New Tavern Fort										
Coalhouse Fort	1	...	...	...	...	...	...	...	...	
Cliffe Fort	1	...	...	...	...	...	...	...	...	
Shornmead										
Sheerness, S.D.										
Garrison Point Fort	1	...	...	...	...	...	...	...	...	
Grain Fort	1	...	...	...	...	...	...	...	...	
Hoo Fort	1	...	...	...	...	...	...	...	...	
Darnet Fort										
District	...	...	1	...	...	...	...	...	1	
SOUTHERN.										
Portsmouth and Gosport.										
Fort Fareham										
,, Brockhurst	1	...	...	...	...	...	...	...	...	
,, Grange										
,, Monckton										
,, Widley	1	...	...	...	...	...	...	...	...	
Hilsea Barracks... ...										
Warden Point Battery... ...	1	...	...	...	...	...	...	...	...	
Southsea Castle										
Horse Sand Fort	1	...	...	...	...	...	...	...	...	
No Man's Land Fort										
Spitbank Fort	1	...	...	...	...	...	...	...	...	
St. Helen's Fort...										
District	...	2	3	...	...	...	...	1	...	
Isle of Wight.										
Puckpool										
Sandown	1	...	...	...	...	...	...	...	...	
Yaverland										
Steyne Wood Battery	1	...	...	...	...	...	...	...	...	
Hatherwood	1	...	...	...	...	...	...	...	...	
Cliffend										
Hurst Castle	1	...	...	...	...	...	...	...	...	
Portland.										
Verne Citadel	1	...	...	...	...	...	...	...	...	
East Weir Batteries										
District	...	...	...	...	...	...	...	...	1	

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APPENDIX XVII.—*continued.*

The distribution of the Sets of Tools—*continued.*

District and Works.	Tools.									Remarks.
	Venting and repairing.	Facing. R.B.L. 7-in.	40-pr.	20-pr.	12-pr. or 9-pr.	Re-coppering. B.L., 8-in., Mark VII.	B.L., 6-in., Mark V.	S.B., BL., 32-pr.	Re-facing raising valve seatings.	
Western.										
Bovisand	1	...	...	...	...	...	...	...	...	
Breakwater Fort										
Fort Agaton										
Crown Hill Fort...	1	...	...	...	...	...	...	...	...	
Efford										
Tregantle...	1	...	...	...	...	...	...	...	...	
Maker Heights	1	...	...	...	...	...	...	...	...	
Steep Holme	1	...	...	...	...	...	...	...	...	
Flat Holme										
South Hook										
Popton										
Stack Rock	1	...	...	...	...	...	...	...	...	
Hubberstone										
Breandown Battery	1	...	...	...	...	...	...	...	...	
District	...	1	1	...	...	...	...	1	1	
Jersey.										
District	...	...	1	...	...	...	...	...	...	57 S. Setts. 3791
Fort Regent	1	...	...	...	...	...	...	...	...	
Alderney.										
Fort Albert	1	...	...	...	...	...	...	...	...	
District	...	...	1	...	1	...	...	...	...	
Guernsey.										
District	...	1	1	...	...	...	...	...	...	
Cork.										
Carlisle Fort	1	...	...	...	...	...	...	...	...	
Westmoreland Fort	1	...	...	...	...	...	...	...	...	
Camden Fort	1	...	...	...	...	...	...	...	...	
District	...	...	3	2	...	...	...	...	...	
Belfast.										57¶ Londonderry 453
Lough Swilly Defences	...	...	...	...	...	...	...	...	1	
Dublin.										
District	...	...	1	...	1	...	...	...	...	
Gibraltar.										
District	2	...	...	...	...	...	...	...	...	
Malta.										
District	2	...	2	...	...	...	...	1	1	

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APPENDIX XVII.—*continued.*

The distribution of the Sets of Tools—*continued.*

District and Works.	Tools.									Remarks.
	Venting and repairing.	Facing. R.B.L. 7-in.	Facing. R.B.L. 40-pr.	Facing. R.B.L. 20-pr.	Facing. R.B.L. 12-pr. or 9-pr.	Re-coppering. B.L., 8-in., Mark VII.	Re-coppering. B.L., 6-in., Mark V.	Re-coppering. S.B. B.L., 32-pr.	Re-facing raising valve seatings.	
Nova Scotia.										
York Redoubt...										
Ives Point										
Fort Charlotte	2	...	...	...	...	...	...	...	...	
Fort Clarence										
Citadel										
District	...	...	...	1	...	...	...	...	...	
Bermuda.										
District	3	...	...	...	...	...	...	...	...	
Jamaica.										
Port Royal	1	...	...	...	...	...	...	...	...	
Station	...	...	1	...	...	...	...	...	1	
St. Lucia.										
Station	...	...	1	...	...	...	...	...	1	
Mauritius.										
Fort George	1	...	...	...	...	...	...	...	...	
Station	...	1	1	...	...	...	...	...	1	
CAPE.										
Table Bay.										
Station	1	...	1	...	...	...	...	...	...	
Simon's Bay.										
Station	1	...	...	...	...	...	...	...	1	
CHINA.										
Hong Kong.										
Station	1	...	...	...	1	...	1	...	1	
STRAITS SETTLEMENTS.										
Singapore.										
Station	1	...	1	...	...	1	...	...	...	
CEYLON.										
Colombo.										
Station	...	...	1	...	...	...	...	...	...	
Trincomalee.										
Station	...	...	1	1	...	...	...	...	1	
ST. HELENA.										
Station	1	1	1	...	1	...	...	...	...	
EGYPT.										
Cairo	...	...	1	...	...	...	...	...	...	
SIERRA LEONE.										
Station	...	...	1	...	...	...	...	...	...	

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APPENDIX XVIII.

LIST OF STORES REQUIRED BY INSPECTING ORDNANCE OFFICERS FOR CARRYING OUT PROOF AND INSPECTION OF EXPLOSIVES.

(This list does not include such stores as ordinarily form the equipment of Laboratories or Forts.)

[*Referred to in paragraph* 538.]

Description of store.	Purpose for which required.	Number.
Woolwich Section, No. 9.		
Copper, sheet, No. 18 W.G., 8 in. square	for use in testing insulating plugs ...	1
Woolwich Section, No. 11.		
Acid, acetic	4-oz. bottle, for testing cordite ...	1
Glycerine	2-oz. „ „ „ „ ...	1
Woolwich Section, No. 20.		
Apparatus, heat test, cordite and gunpowder:—		
Balances	... ...	1
Baths	... ...	1
Bottles, glass, amber-coloured ...	for iodized starch paper	2
Bottles, dropping	brown glass with solid glass rod stopper...	1
Box, M.D. cordite cutting ...	... ...	1
*Burners, Argand, gas	with copper chimney	1
Cutter, cordite, M.D.	... ...	1
Forceps	... ...	1
Funnels, glass, 4-oz.	... ...	1
Glasses, watch	2½-inch diameter; pair, with brass strip	6
Holders, test tube	... ...	1
†Lamps, spirit	... ...	1
„ „ wicks	... ...	12
Mills, Mark II	with key	1
Mortars	... ...	1
Ovens, water	... ...	1
Papers, standard tint	... ...	a supply§
Papers, test, iodized starch ...	... ...	„
Pestles	... ...	1
Rods, glass	with platinum wire hook	6
Screens	... ...	1
Sieves	copper, nest of 2	1
Spatulas	... ...	2
Stand, oven	... ...	1
Stands, tripod	... ...	1
Stopper, I.B., red, { No. 3 ...	for thermometer	6
{ No. 4 ...	for glass rod	6
Test tubes, 5½-in.	... ...	12
Thermometers, glass, 212° F. ...	... ...	2
Tubing, indiarubber, ¼-in. ...	red, stout; also for testing insulating plugs	10 yards
Weights, grain	in wood case	set
Paper, litmus, blue:—	for testing guncotton.	
Bottles { filled	with 300 pieces	1
{ cases	tin, with bayonet joint	1

57 Inspectors 2131

57 Gen. No. 2597

* Required only when gas is available.
† Required only when gas is not available.
§ Supplied by Chief Inspector, Woolwich.

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APPENDIX XVIII.—*continued.*

List of Stores—*continued.*

Description of store.	Purpose for which required.	Number.
Woolwich Section, No. 22.		
Apparatus, proving detonators of fuzes, mark III :—		
Anvils—		
F	for detonating balls of Pettman ...	1
G	for steady plugs of Pettman and detonators of small percussion ...	1
I	for detonators of B.L. plain, and R.L., mark I	1
J	for detonators of R.L., except mark I	1
K	for detonators of large and medium base	1
W	for percussion pellets of T and P ...	1
75		
7		
7714		
Blocks—		
A	for fuze, Armstrong, No. 9	1
R	for wood time, with detonator ...	1
U	for D.A. and delay	1
Caps—		
X	for D.A. mark I* and II, and delay mark II	1
Y	for D.A. mark III and delay mark I	1
Drifts—		
S	for wood time, with detonator ...	1
V	for D.A. mark I* and II, and delay mark II	2
Z	for D.A. mark III, and delay mark I	2
Levers	adjusting screws	1
Stand	base plate, 4 adjusting screws, anvil bed, 3 pillars, 3 guide bars suspender, &c.	1
75		
7		
7714		
Weights—		
B	for fuze, Armstrong, No. 9	1
L	for detonating balls and steady plugs of Pettman	1
M	for wood time, with detonator ...	1
N	for B.L. plain, and R.L. mark I ...	3
O	for R.L. except mark I	3
P	for D.A.	1
Q	for percussion pellets, T and P ...	3
Apparatus, proving fuzes :—		
Adapter, gad...	for E time	1
Gad, mark II	for metal time	2
Springs	for use in proving sensitive time fuzes	50
Apparatus, proving tubes and primers, mark IV :—		
Adapters	for wireless, impulse tubes	1
Base pieces	with 2 strips, 8 screws and steel vent	1
Brackets	with gunmetal sheave and 4 bolts ...	1
Caps, vent E...	for vent E...	1
Clips, supporting, receiver F ...	with screw bolt and nut	1
Contact pieces, A	for electric primers and wireless, impulse tubes	1
,, ,, B	with fixing screws; for V.S. wireless, P tubes	1
Holding blocks	for electric primers, and wireless, impulse tubes...	1
Levers	for extracting wireless, impulse tubes	1
Locks, percussion	with 3 springs; for percussion V.S. tubes	1
57		
Gen. No.		
3491		
Receivers, A or B	for vents A or B	1
Receivers, D	for vent D	1
Receivers, F	with 14·1 inch vent, for vent F ...	1
Receivers, G	for electric primers, mark I, and wireless, impulse tubes	1
Receivers, H	for electric primer, mark II to IV ...	1
Slides	for V, M and wireless P V.S. tubes ...	1

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APPENDIX XVIII.—*continued.*

List of Stores—*continued.*

Description of store.	Purpose for which required.	Number.	
Spanners, large	... ...	1	
Spanners, small	... ...	2	
Stands	with vent, guide plates and friction pin	1	
Terminals	for electric primers, and wireless, impulse tubes	1	
Vents, A, upper part	for copper tubes...	1	
Vents, B ,, ,, ...	for quill tubes	1	
Vents, C ,, ,, ...	with receiver, for 7-pr. tubes ...	1	
Vents, D ,, ,, ...	for vent piece primers	1	
Vents, E ,, ,, ...	with receiver for shrapnel primers ...	1	
Vents, F ,, ,, ...	for V.S. tubes	1	57
Vents, A, B, or F, lower part	... ...	1	Gen. No.
Vents, T	for T tubes	1	3491
Batteries and keys, test and firing ...	... ...	2	
Forceps, blue litmus paper	... ...	1	
Gloves, rocket* ... ... pairs	... ...	1	
Handles, light, G.S.	with pin and hollow for 8 primers ...	1	
Handles, light, long, life-saving	with holder for 7 primers	1	
Handles, portfire, life saving ...	,, ,, ,, ,, ...	1	
Implements, fuze, shell, and cartridge :—			
Bits—			
Hook borer	... ...	12	
Cylinders, common	to hold 6 hook borer bits	2	
Cylinders, mortar	to hold 6 mortar bits	1	
Handles, hook borer	... ...	2	
Hooks, hook borer	... ...	2	
Wrench, opening fuzes	... ...	1	
Lanyard, friction tube—			
Field, Mark III	... ...	1	
Rectifiers, guncotton primers ...	... ...	1	
Stands—			
Lights, illuminating wrecks ...	... ...	1	
Signal rocket	... ...	1	
Test bridges	when cell tester is not available ...	1	57
Keys, removing, fuze plugs, No. ... ... 1... ...	for bottom plug of D.A. fuze ...	1	Gen. No.
Keys, removing, fuze plugs, No. ... ... 2... ...	for magazine plug of fuzes percussion, base ... large, No. 11 ...	1	1954
Keys, removing, fuze plugs, No. ... ... 2... ...	for magazine plug of fuzes percussion, base ... medium, No. 12	1	...
Keys, removing, fuze plugs, No. ... ... 3... ...			...
Keys, removing, fuze plugs, No. ... ... 4... ...	for bottom plug of T and P fuzes, and top plug of fuze, percussion, small, No. 8	1	3110
			...
			3491
Spanner, keys, removing fuze plugs	... ...	1	75
Tools, opening cartridges, Q.F., or Q.F.C.	... ...	1	7
Wrench, opening fuzes	for large and medium base fuzes ...	1	7695
Instrument, testing primary batteries	for testing cells of batteries, key, test and firing, &c.	1	57
			Malta
			2630
Woolwich Section, No. 22*a*.			
Implements, fuze, shell, and cartridge :—			
Keys, inserting primer, electric, Q.F. or Q.F.C., large ...	... ...	1	
Keys, removing primer, electric, Q.F., or Q.F.C., large	... ...	1	

* Army Clothing Department supply.

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APPENDIX XVIII.—*continued.*

List of Stores—*continued.*

	Description of store.	Purpose for which required.	Number.
	Woolwich Section No. 22a—contd.		
	Tools, reforming cartridges, Q.F., or Q.F.C. :—		
	Gauges—		
	Chamber, low—		
38407	12-pr.	... ...	1
Ordnance	6-pr.	also for recapping and repriming cartridges with guncotton	1
223	3-pr.		1
	Screw, primer hole	6-inch to 12-pr.	1
	Gauge, depth of cap	to be demanded only as required.	1
	Hammer, copper...		1
	Machines, extracting shell, 6 or 3-pr. ...		1
	Machines, indenting, 6-pr...		1
	Machines, indenting, 3-pr...		1
75	Picker, cartridge		1
12	Press, screw	for recapping and repriming with guncotton.	as required
3893	Dies, 6-pr.		,,
	Dies, 3-pr.		,,
	Rod, 17-inch		1
	Stamp, Arabic numeral (F)		1
	Tools cartridge, Q.F., saluting—		
	Rod, 4-inch (recapping) ...		1
	Woolwich Section, No. 23.		
	Tools, extracting bullet, small arm ...	with 2 sleeves; for all small arm and ·45-inch M.G. cartridges.	1
	Woolwich Section No. 24.		
	Tools, reforming cartridges, Q.F., or Q.F.C :—		
	Gauges—		
	Chamber, low—		
	6-inch	... ...	1
	4·7-inch	... ...	1
	4-inch	... ...	1
57	Implements, fuze, shell, and cartridge :—		
Gen. No.	Tongs, extracting, Exploders ...	For use until exploders with silk loop come into general use ...	1
3536			
	Woolwich Section, No. 25.		
	Brushes, paint, sash tool, No. 2 ...	for testing cordite	1
	,, ,, ,, ,, ,, 8 ...	,, cleaning receivers of vents ...	1
	Woolwich Section, No. 28.		
38407	Extractor, apparatus, priming ...	for testing plugs of mines	1
Ordnance	Key, contact, Mark IV	,, ,, ,, ,, ...	1
203	Spanners, H	,, ,, ,, ,, ...	2
	Spanners, L	,, ,, ,, ,, ...	1
	Spanners, P	,, ,, ,, ,, ...	1
	Woolwich Section, No. 29.		
	Barometer, aneroid, 4½-inch	for proof of fuzes	1
	Batteries, Le Clanché, testing, 6-cell	testing plugs of mines	1
	Battery, Le Clanché, 3-cell	when battery and key, test and firing, is not available	1
	,, ,, single cell ...	for use in conjunction with battery and key, test and firing	1

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APPENDIX XVIII—*continued.*

List of Stores—*continued.*

Description of Store.	Purpose for which required.	Number.
FOR TESTING INSULATING PLUGS. [*Vide* paragraphs 683 to 687.]		
Woolwich Section No. 29—contd.		
Battery test, Menotti	when battery and key, test and firing, is not available	1
Cable, electric, D. 1	testing plugs of mines, and proof of electric tubes	120 yards
Galvanometer, vertical, 3-coil ...	for testing plugs of mines	1
Watch, stop, $\frac{1}{5}$th seconds	for proof of fuzes	1
(*Non-Vocabulary Stores.*)		
Sheets, indiarubber—		
$\frac{1}{8}$-inch thick, 4-feet square ...	Testing plugs of mines	1
$\frac{1}{4}$,, ,, 2 ,, ,, ...	... ...	1
Twine, seaming	... ...	$\frac{1}{2}$-lb.
Woolwich Section No. 14.		
Cells, electric, Le Clanché "A," Mark III	... ...	6
Woolwich Section No. 20.		
Apparatus, heat test, cordite—		
Tubing, india-rubber $\frac{1}{4}$-in. ($7\frac{1}{2}$ ins. long)	... ...	1
Woolwich Section No. 27.		
Tape, linen, $\frac{1}{2}$-in., whited brown (16 ins. long) ... .. pieces	... ...	2
Woolwich Section No. 28.		
Countermine, naval, 500-lb., Mark II—		
Extractor, mine apparatus ...	... ...	1
Plates, insulating, circular	... ...	4
Plugs, insulating, dummy	... ...	1
Spanners, submarine mining—		
C Mark I	... ...	1
H ,, II	... ...	1
L ,, II	envelope for primer, naval countermine	1
P ,, II	plug in mouth of naval countermine, Mark III	1
Terminals, test table, double	... ...	1
Tube, test, hydraulic	... ...	1
,, insulated connecting wires ...	... ...	1
Washers, I.R. red, $1\frac{1}{4}\frac{1}{2}$ in. and $1\frac{1}{2}\frac{3}{2}$ in. diameters, $\frac{1}{8}$ in. thick...	... ...	1
Wire, electric, covered C. 5, yards ...	for leads	15
Woolwich Section No. 29.		
Galvanometer, vertical, 3-coil... ...	... ...	1

57 Gen. No. 1633

57 Inspectora 2035

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57 Malta 1808 1874

APPENDIX XIX.

LIST OF STORES, INSTRUMENTS AND DRAWING MATERIALS ALLOWED TO INSPECTORS OF ORDNANCE MACHINERY.

[*Referred to in paragraph* 210.]

	Articles.	Number.
	Woolwich Section No. 2.	
57 Gen. No. 2998	Lamps, safety	1 to 6 mountings or less per district, where the lamp, portable, electric, cannot be used.
	Woolwich Section No. 7.	
	Gauges, taper, flat, ·01 inch to ·15 inch* ..	1
	Woolwich Section No. 14.	
57 Gen. No. 2172	Gauge pressure, No. 4, Mark I	1 per district or station.
57 Malta 2735	Holders, removing caps, hydraulic buffers, Nos. 1 to 5†.	1 of each.
	Pumps, running back carriage, garrison, B.L. 12 inch.	1 per fort where 12-inch B.L. guns are mounted.
57 Gen. No. 2172	Pumps, testing compressed air reservoirs Mark I.	1 per district or station.
57	Box, Mark I.	
57 Malta 2735	Spanner No. 37	1 per district except in the case of Malta, which will have three.
71 1 9318	Tanks, liquid, portable	1 per fort for 9·2 inch and 10-inch Mark II disappearing mountings.

* See paragraph 210.

† Only the sizes suitable to the mountings in the district will be held on charge.

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APPENDIX XIX.—*continued.*

List of Stores, &c.—*continued.*

Articles.	Number.	
Woolwich Section No. 22.		
Instruments, testing primary batteries	1	
Woolwich Section No. 25.		
Stamps, steel for metal. figures 0 to 8, $\frac{3}{8}$ inch .. sets	1	
letters, $\frac{3}{8}$ inch .. .. „	1	
figures, 0 to 8, $\frac{1}{4}$ inch .. „	1	
letters, $\frac{1}{4}$ inch .. .. „	1	
figures 0 to 8, $\frac{1}{8}$ inch .. „	1	
letters, $\frac{1}{8}$ inch .. .. „	1	
Woolwich Section No. 28.		
Battery, secondary, "A," six cell	1 per 6 disappearing mountings or less per district, where there is an electric light installation for charging the battery.	57 / Gen. No. / 2998
Lamp, portable, electric	1 per 6 disappearing mountings or less per district where there is an electric light installation for charging the battery.	57 / Gen. No. / 2998
Woolwich Section No. 29.		
Clinometers inspectors	1 per district.	73 / 14 / 22
large	1	
Compasses, beam, 26-in.	1	57 / Gen. No. / 4796
Micrometers, 12-inch	1	
Boards, drawing, imperial	1 } Supplied by Stationery Office.	
„ Bristol	3 }	
Book, drawing large	1 }	
small	1	
Imstruments, drawing, G.S. .. .. sets	1	4796
Pins, drawing	6	
Set squares, celluloid 10-inch, 60 degrees	1	
45 „	1	
6-inch, 60 „	1	57 / Inspts. / 2030
45 „	1	

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APPENDIX XIX—*continued.*

List of Stores, &c.—*continued.*

Articles.		Number.	
T squares	42-inch	1	
	24 „	1	
Brushes, camel's hair	large..	2	
	medium	2	
	small	2	
Cloth tracing yards		12	
Indian ink .. .. pieces		1	
Ink erasers .. .. „		2	
Paint	gamboge .. .. .. cakes	1	
	burnt sienna .. .. .. „	1	
	crimson lake .. .. .. „	1	
	prussian blue.. .. .. „	1	
	grey Paynes .. .. .. „	1	Annual supply.
Paper	cartridge .. .. .. sheets	12	Supplied by Stationery Office.
	drawing, smooth W.O. Columbia .. .. .. „	12	
	tracing .. .. .. quires	2	
Pencils	black lead, H.H.H.	6	
	„ „ H.B.	6	
	blue..	3	
	red	3	
Pens	Hachuring (Gillott's litho.) dozen	1	
	swan quills .. .. .. „	½	
Saucers	rough	2	
	smooth	4	

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APPENDIX XX.

57
Portsmouth
4619

TOOLS REFORMING Q.F. 12, 6 AND 3-PR. BLANK AMMUNITION.

[*Referred to in paragraph* 538.]

Articles.	Cartridges. 12-pr.	6-pr.	3-pr.	Proportion.
Tools, Reforming Cartridges, Q.F. or Q.F.C.				
Drifts, 6 or 3-pr.	—	1	1	1 set per district where such guns are mounted.
Gauges, chamber, low :—				
12-pr.	1	—	—	
6-pr.	—	1	—	
3-pr.	—	—	1	
Gauges, screw, primer, hole	1	—	—	
*Hammer, 6-inch	1	1	1	
Holder	1	—	—	
Mandril :—				
12-pr.	1	—	—	
6-pr.	—	1	—	
3-pr.	—	—	1	
*Presses, screw, 4·7-inch, to 3 pr.	1	1	1	
Dies :—				
12-pr.	1	—	—	
6-pr.	—	1	—	
3-pr.	—	—	1	
Punches, centre	1	1	1	
*Stamps :—				
C	1	1	1	
F	1	1	1	
R	1	1	1	
P	1	1	1	
Wrenches, tap	1	—	—	
Machines, indenting :—				
6-pr.	—	1	—	
3-pr.	—	—	1	

38407
Ord. Stores
153

* Districts having cartridges of more than one calibre will only require 1 press, 1 hammer and 1 set of stamps.

173

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38407
Ordnance
223

APPENDIX XXI.

PROBABLE LIFE AND WEAR OF RIFLING OF ORDNANCE.

[*Referred to in paragraph* 908.]

Calibre.	Probable life of rifling in full rounds.	Probable maximum wear at 1 inch from commencement of rifling.	Probable maximum scoring.	Maximum permissible wear + scoring at any point in bore.	No. of rounds gun may fire before requiring examination.
		Inches.	Inches.	Inches.	
B.L. 16·25-inch	80	·4	·6	1·0	Not Lined, 16 Lined, 32
„ 13·5-inch	100	·5	·5	1·0	Mk. I and II, 16 Do. Lined, 32 III and IV, 32
„ 12-inch, VIII	*220 †130	·76 ·50	·3	1·1 ·8	25
„ 12-inch, IX	*130 †80	·76 ·50	·3	1·1 ·8	25
„ 10-inch..	200	·4	·25	·7	Mk. III & IV, 50 I and II, not Lined, 25 I and II Lined, 50
„ 9·2-inch, I to VII	350	·2	·34	** ·54	Not Lined, 25 Lined, 50 VI and VII, 50

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APPENDIX XXI—*continued.*

Calibre.	Probable life of rifling in full rounds.	Probable maximum wear at 1 inch from commencement of rifling.	Probable maximum scoring.	Maximum permissible wear + scoring, at any point in bore.	No. of rounds gun may fire before requiring examination.
		Inches.	Inches.	Inches.	
„ 9·2-inch VIII	250	·51	·20	·75	25
„ 9·2-inch, IX, X, and Xv	125	·51	·20	·75	25
„ 8-inch	350	·4	·2	·6	Not Lined, 25 Lined 50 Mark VI, 50
„ 6-inch, VII, VIIv, VIII, IX and X	350	·33	·17	·5	50
B.L. and B.L.C., 5-inch	1,500	·10	·17	·5	100
Q.F., Q.F.C., B.L. (below Mark VII) and B.L.C., 6-inch	700	·17	·23	·5	100
B.L. and Q.F.C., 4-inch	1,000	·10	·30	·4	100
Q.F., 4-inch	700	·10	·25	·25	100
„ 4·7-inch	900	·10	·25	·35	100
B.L. and Q.F., 15-pr.	1,500	·05	·25	·45	150
„ „ 12-pr.	1,200	·05	·25	·35	150
B.L., 10-pr.	2,000	·05	·1	·25	150
Q.F., 2·95-inch	3,000	·05	·1	·25	150
„ 6 and 3-pr.‡	2,000	·05	—	·25	150

* With new pattern rotating band. † With old pattern rotating band.

‡ These guns will, however, generally be condemned for wear and not scoring, and should be so condemned when the rifling is obliterated for a length of 3 inches measured from the proper termination of rifling.

** When gas-check driving bands are used, the limits of wear and scoring will be the same as those laid down for Marks IX, X and Xv.

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APPENDIX XXII.

WEAR AND SCORING OF ORDNANCE.

(*Referred to in paragraph* 911.)

Instructions for filling in this Form, 12-in. Mark VIII being taken as an Example.

1. Examinations to be made after every 25 full charges, or equivalent full charges computed as in (4) of page 251. Where both powder and cordite charges are fired, they should be totalled together and considered of equal value, a note being added to the Appendix to show that this has been done. When charges of cordite M.D. are taken into use, the heading of columns in all returns should be altered as follows:—For "cordite" read "cordite M.D.," and for "black powders" read "other powders." All ordinary cordite rounds then to be transferred to, and added up with, the previous black powder rounds.

3 407
Ordnance
223

2. The probable life of the rifling and probable depth of scoring after next series should be filled in after each examination, and for this purpose equivalent full charges are to be computed, as in (3) of page 251.

3. The amount of wear, and scoring added to wear, should be plotted as shown in the diagram on last page. For this purpose the equivalent full charges are computed, as at (3) of page 251.

4. A gun will be provisionally condemned when the wear at 1 inch from commencement of rifling (348 inches) reaches ·76 inch*, or maximum diameter of gas check driving band.

5. A gun will also be provisionally condemned if the wear and scoring together amount to 1·01 inches† at any point in bore.

73
3
3839

* In the case of guns using projectiles fitted with early pattern gas check driving band (maximum diameter = 12·51 inch), this limit should be ·51 inch.

† Under conditions of preceding note, this limit should be ·76 inch.

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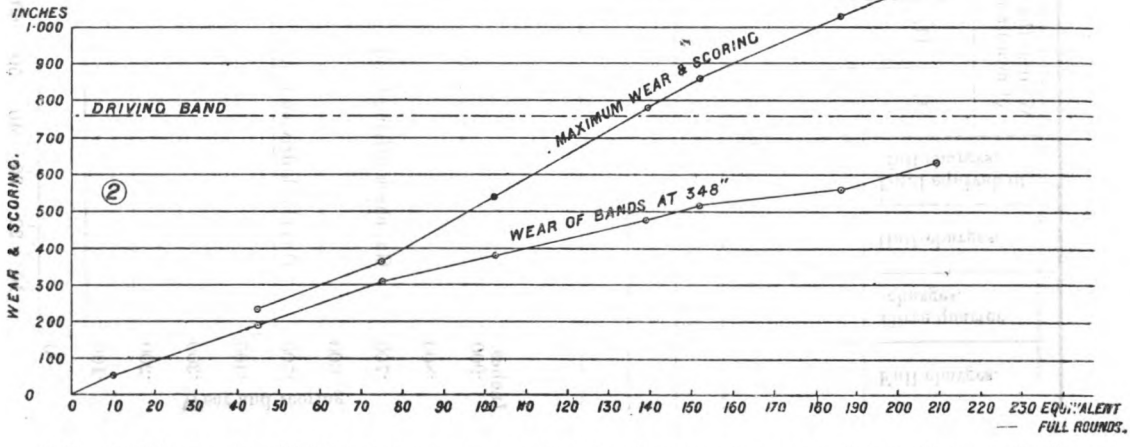
Example of 12-inch Mk. VIII with method of calculating rounds.

(O.R.)

	FULL CHARGES	THREE QUARTER CHARGES	HALF CHARGES	TOTAL EQUIV.T FULL CHARGES	WEAR AT THE POINTS OF MEASUREMENT III	II	I	MAX.m SCORING	MAX.m SCORING ADDED TO WEAR	SENTENCE & DATE	PROBABLE LIFE OF RIFLING IN FULL CHARGES	PROBABLE DEPTH OF SCORING IN NEXT SERIES
Proof (4)	2	-	-	10	·011	·025	·053	NIL	·053	↑ 23·5·95	190	SLIGHT
	27	25	42	45	·090	·116	·196	·04	·255	↑ 6·3·01	130	·05
	31	-	-	76	·163	·206	·302	·06	·362	↑ 28·8·01	100	·1
	26	-	-	102	·224	·274	·385	·15	·535	↑ 2·10·01	100	·25
	37	-	-	139	·291	·354	·484	·3	·784	↑ 18·11·01	60	·4
	14	-	-	153	·314	·376	·512	·35	·862	↑ 24·6·02	50	·5
	33	-	-	186	·377	·442	·589	·45	1·039	↑ 8·7·02	20	·5
	25	-	-	211	·402	·480	·635	·5	1·135	+ 20·1·03		
		-	-									

For all Purposes.

(3) *1 Proof round = 2 Full charges.*
1 Full charge = 4 Three quarter charges.
1 Full charge 16 Half charges.



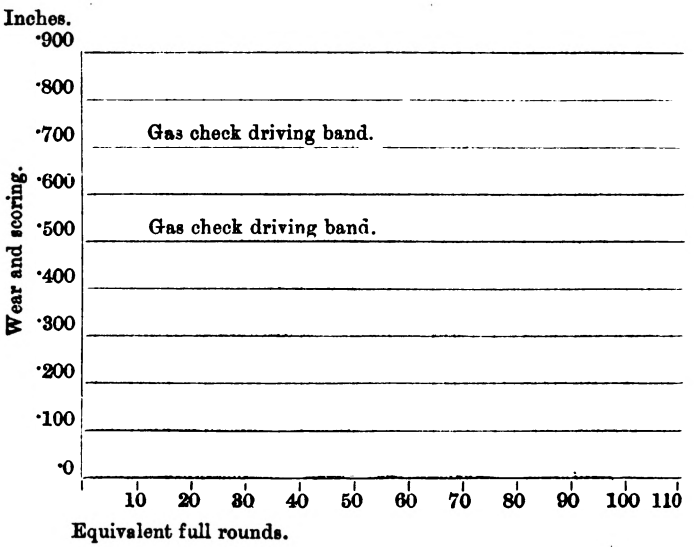
N.B.—In this example, which illustrates the wear and scoring in an actual gun, some intermediate examinations have been omitted.

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EXA

12-inch B.L., Mark

Full charges.	Three-quarter charges.	Half-charges.	Total equivalent full charges.	Wear at the points of measurement.			Maximum scoring.	Maximum scoring added to wear.	
				I.	II.	III.			



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MPLE.

VIII, No. .

Sentence and date.	Probable life of rifling in full charges.	Probable depth of scoring.

Rounds should be computed as follows :—

1 proof round = 2 full charges.

1 full charge = 4 three-quarter charges.

1 full charge = 16 half-charges.

120 130 140 150 160 170 180 190 200

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APPENDIX XXIII.

DETAILS OF RIFLING OF ORDNANCE.

[*Referred to in paragraph* 910.]

Gun.	Length of rifling.	Front of driving band to shoulder—		Maximum diameter of driving band—		Points of measurements.		
						I.	II.	III.
		Of shot.	Of shell.	Over gascheck.	Over parallel portion.	1 inch from commencement of rifling.	Shoulder of shot.	Shoulder of shell.
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches	from breech	face.
B.L., 16·25-inch	396·9	16·3	29·38	...	15·5	128·1	143·4	156·5
,, 13·5-inch	333·4	19·15	27·6	14·0	13·7	100·6	118·7	127·2
,, 12-inch, I and Ia	241·45	11·15	22·5			88·0	98·2	109·5
,, 12-inch, III to VII	250·8					78·7	88·8	100·2
,, 12-inch, VIII	*349·385	13·95	26·7	H 12·77	12·205	97·1	110·0	122·8
	†342·491			L 12·66	12·135	104·0	116·9	129·7
,, 12-inch, IX	*386·74					110·7	123·7	136·4
	†381·426					116·9	129·0	141·7
,, 10-inch, I to IV	262·18	13·4	21·0	10·4	10·145	81·2	93·6	101·2
,, 9·2-inch, I and II	187·73					69·0	79·8	87·5
,, 9·2-inch, III to VII	243·4					67·6	78·4	86·1
,, 9·2-inch, VIII	310·985	11·77	19·5	9·71	9·365	74·0	84·7	92·5
,, 9·2-inch, IX	*354·685					91·5	102·3	110·0
	†354·435					91·8	102·6	110·3
,, 9·2-inch, X	353·8					89·5	100·3	108·0

* With old pattern chamber. † With new pattern chamber.

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Appendix XXIII.—*continued.*

Details of Rifling of Ordnance—*continued.*

Gun.	Length of rifling.	Front of driving band to shoulder—		Maximum diameter of driving band—		Points of measurement.		
						I.	II.	III.
		Of shot.	Of shell.	Over gascheck.	Over parallel portion.	1 inch from commencement of rifling.	Shoulder of shot.	Shoulder of shell.
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches	from breech	face.
B.L., 8-inch, III	167·4	7·95	13·25	8·41	8·125	56·1	65·0	68·3
,, 8-inch, IV and VI	195·8					59·7	66·6	71·9
,, 8-inch, VII	162·2	7·1	10·0			60·7	66·8	69·7
,, 8-inch, VIIA	166·82					56·7	62·8	65·7
,, 7·5-inch, I	278·5	...	...	...	...	71·7	...	...
,, 7·5-inch, II								
,, 6-inch, IX and X	264·05					46·2	51·7	57·9
,, 6-inch, VII and VIII	*234·783					45·4	50·9	57·1
	†233·602					46·6	52·1	58·2
,, 6-inch, V	149·75	6·5	12·65	6·33	6·12	46·5	52·0	58·2
,, 6-inch, IV and VI	126·875					47·6	53·1	59·2
,, 6-inch, III	124·075					47·6	53·1	59·2
,, 5-inch, II	101·8							
,, 5-inch, III to V	103·95	4·206	8·656	...	5·11	36·2	39·4	43·8
B.L.C., 5-inch, I/IV and V	103·95					29·5	32·7	37·2
,, 6-inch, I/IV and VI, and II/VIA...	126·875	6·5	12·65	6·33	6·12	43·3	48·8	54·9
Q.F., 6-inch, I to III	214·7					35·5	41·0	47·2
,, 4·7-inch I to IV	171·0	4·456	6·071	...	4·819	24·1	27·5	29·1
,, 4·7-inch, V	179·21					34·4	37·8	39·4
Q.F.C., 6-inch, II and III/III	131·46							
,, 6-inch, I and III/IV and VI ...	134·01	6·5	12·65	6·33	6·12	36·1	41·6	47·7
,, 6-inch, II/IV and VI	134·26							

* With old pattern chamber.

† With new pattern chamber.

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APPENDIX XXIV.

SPECIMEN PAGE OF LOCK-UP BOOK.

[*Referred to in paragraph* 230A.]

WE certify that the buildings on our charge were left in a safe condition locked and secured, all fires and lights extinguished and gas turned off at the main, and the keys deposited in the key press.

Date.	Initials of foreman in charge of key press.	Hour.	Store or workshop.									
			Foreman's initials.	Hour.								

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APPENDIX XXV.

INSTRUCTIONS ISSUED BY THE ADMIRALTY FOR TESTING CORDITE IN SHIPS' MAGAZINES WHICH HAS BEEN EXPOSED TO A CONTINUOUS TEMPERATURE OF 100° FAH. FOR SIX WEEKS OR MORE.

74
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1592

[*Referred to in paragraph* 561*b*.]

1. Cordite which can be proved to have been at any time exposed, in ships' magazines, to a temperature of 100° Fahr. or more for six weeks continuously is to be tested at the first opportunity by an inspecting ordnance officer.

2. From each of such magazines containing cordite, samples are to be taken for testing, as follows :—

(*a*) From the hottest part of the magazine, and chosen from the cordite which has been longest stowed there.

(*b*) From that cordite which has been longest on board, irrespective of its position in the magazine.

(*c*) From cordite of oldest manufacture in that magazine, irrespective of its position in the magazine, and of the length of time it has been on board.

3. If all samples tested under paragraph 2 stand the usual heat test for 10 minutes, all the cordite contained in the magazine from which they were taken is to be considered serviceable.

4. If any sample tested under paragraph 2 stands the heat test for 6 minutes, but for less than 10 minutes, all the cordite of the same lot, that is, with the same manufacturers' initials and number which is stowed in the same magazine as that from which the sample was taken, is to be landed at the nearest depôt, a special label being placed on the packages indicating that they are to be issued only to ships in which the temperature of the magazines never exceeds 100° Fahr., or they may be reissued in small quantities to the same ship to be stowed in a cooler magazine. Packages of cordite charges labelled in this way are to be issued at the first opportunity in preference to other cordite in store, and are to be used up for practice.

5. If any sample tested under paragraph 2 fails to stand the heat test for six minutes, all the cordite of the same lot, that is, with the same manufacturer's initials and number, which is stowed in the same magazine as that from which the sample is taken, is to be considered unserviceable and is to be destroyed.

6. If any sample tested under paragraph 2 fails to pass either the 10 minutes or the 6 minutes test, further samples of other lots will be taken from the same magazines as follows :—

i. If the sample from (*a*) (hottest part) failed, the further sample is to be taken from the lot that has been next longest stored there ; if that fails, a further sample of the lot next longest stored there will be taken, and so on, until a lot is reached which

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passes the 10 minutes test, when this and all other lots which have been the same or a shorter time in the hottest part of the magazine will be considered serviceable.

ii. If the sample from (*b*) (longest on board) failed, a further sample is to be taken from the lot that has been next longest on board, and so on, until a sample is reached which passes the 10 minutes test, when this and all lots which have been the same or a shorter time on board, will be considered serviceable.

iii. The same course to be pursued as regards (*c*) (oldest manufacture) until a lot has been reached which passes the 10 minutes test, when this and all cordite of the same or more recent date of manufacture will be considered serviceable.

iv. Each lot which fails in any of the above tests will be dealt with as in paragraphs 4 and 5.

7. If any cordite is found unserviceable under paragraphs 4, 5, or 6, other magazines or stores in the same ship or depôt are to be examined, and if any cordite of the same lot is found, samples of this lot are to be taken from each magazine or store, and heat tests carried out. The procedure laid down in paragraphs 3, 4 and 5 will govern the sentence, treating each magazine or store separately.

8. When any cordite is ordered to be destroyed under paragraph 5, a sample of about 5 lb. is to be placed in a sealed and airtight package for immediate transmission to Woolwich for special examination by the Chief Inspector, Woolwich. Until it can be landed, and during transit to Woolwich, it must be stowed in some isolated place, and not in a magazine or with other explosive stores.

9. When two or more heat tests are taken from the same sample, the mean of all the tests is to be considered as the true one.

APPENDIX XXVI.

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INSTRUCTIONS FOR USING INSTRUMENTS MEASURING BORES OF GUNS.

[*Referred to in paragraph* 910.]

The instruments are for taking vertical measurements only, and will be used in the following manner :—

Attach the rods to the gauge, the graduated rod being placed at the lower end (*i.e.*, the farthest away from the scale plate and vernier), and the plain rod at the upper end.

Set the gauge to a slightly larger size (as indicated by the scale plate and vernier), to that of the diameter of the part of the bore of the gun to be measured, by releasing the clamping nut and pushing out the sliding portion, which will then be secured in the required position by tightening the clamping nut.

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Before placing the gauge in the gun push the rod at the upper end of the gauge forward, so as to force the gauge into a horizontal position, with the vernier facing downwards, and pass the gauge up the bore to the position at which the measurement is required.

Take the measurement :—Place a straight edge across the breech face of the gun, so as to indicate by means of the lower rod the exact distance the gauge is in the bore of the gun. Hold the graduated rod firmly in place, while the plain rod is pulled to the rear until the gauge is drawn into, and past, the vertical position. Withdraw the gauge carefully from the gun, and note the size indicated by the scale and vernier.

APPENDIX XXVII.

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Instructions for Ordnance Officers relating to the issue of Arms, &c., by the Army Ordnance Department to Civilian Rifle Clubs.

CIVILIAN RIFLE CLUBS.

1. Rifles and ammunition may be issued on prepayment to rifle clubs and miniature rifle clubs, duly affiliated to the National Rifle Association in the following proportions :—

Rifle Clubs.

Rifles, M.L.M. or M.L.E.	1 for every 10 members.
Rifles, M.E.	3 „ 10 „
Rifles, M.H.	As required.
Cartridges, S.A. ball, ·303-inch	100 per member annually.
Cartridges, aiming tube	500 „ „ „

Miniature Rifle Clubs.

Rifles, M.H.	As required.
Cartridges, aiming tube	500 per member annually.

(2) All arms (except M.E. and M.H. rifles) and ammunition issued to clubs will be charged for at the rates shown in the "Priced Vocabulary of Stores." M.E. rifles will be charged for at 38*s.* each, and M.H. rifles at 40*s.* each. The sale of the M.E. rifles is conditional on their being returned to Store on emergency if required.

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(3) All magazine and M.H. rifles supplied will be marked with the Government sale mark before issue. All M.E. rifles will be marked with the registered number of the club and the year of issue, but not with the sale mark.

(4) All arms supplied to clubs become the property of the club and not of the individual members. They are only to be used on ranges approved by proper military authority.

(5) Annual reports will be forwarded to the War Office by general officers commanding army corps and districts on the 1st August, showing the total number of arms and quantity of ammunition issued to each club in their commands since the last return.

(6) Ammunition boxes, arm chests, and other packing cases issued to clubs are to be charged for. On return of the articles to store, their value will be determined, and the amount assessed refunded to the club

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(7) The cases of expended small-arm ·303-inch ball cartridges will, if returned to store by clubs, be paid for at the rate laid down in the "statement of prices obtainable at the Royal Arsenal, to guide disposal of produce, &c.," published half-yearly by the Principal Ordnance Officer, Woolwich.

8. Rifles issued from public store to clubs may, if so desired, be repaired in Government workshops, the cost of the service, including carriage both ways, being defrayed by the club. General repairs will be executed at the Army Ordnance Depôt nearest the headquarters of the club. When, however, a club desires to have a new barrel fitted to a rifle, the work will be done at the Royal Small Arms Repairing Factory, Sparkbrook, Birmingham.

9. On dissolution of a club, the rifles supplied from public store will be taken over by the Government at a valuation. If an emergency arises necessitating the return to store of M.E. rifles, clubs will be refunded the full price paid for the rifles less 1–12th for each completed year from date of issue. The minimum amount refunded will be 1-4th the full price paid.

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APPENDIX XXVIII.

[*Referred to in paragraph* 1017.]

LIST OF INFLAMMABLE OR OTHERWISE DANGEROUS (NON-EXPLOSIVE) STORES IN USE IN ARMY ORDNANCE DEPARTMENT.

CLASS A.—*Liquids giving off inflammable vapour at a temperature of less than 73 degrees Fahrenheit (close test).*

Packages and documents to be marked "Highly Inflammable, Class A."

Designation.	Designation.
Acetone.	Polish, white, special.
Alcohol.	Solution, indiarubber.
Benzole.	Steel, tincture of.
Benzine.	Varnish, black. (Spirit Varnishes.)
Cement shellac.	,, imperial. (Spirit Varnishes.)
Composition, anti-fouling.	,, tar. (Spirit Varnishes.)
Ether, sulphuric.	,, for anti-fouling composition. (Spirit Varnishes.)
Fluid, lifts and jacks, hydraulic.	,, for cuirasses. (Spirit Varnishes.)
Knotting.	,, for photographic purposes. (Spirit Varnishes.)
Lacquer, black.	,, hard spirit:— brown. white. (Spirit Varnishes.)
,, deep gold.	,, mastic. (Spirit Varnishes.)
,, pale gold.	,, sealing wax. (Spirit Varnishes.)
,, white.	,, shellac. (Spirit Varnishes.)
Methylated spirits.	
Naphtha, coal tar.	
Nitre, sweet, spirits of.	
Polish, French.	

CLASS B.—*Liquids not giving off inflammable vapour at a less temperature than 73 degrees Fahrenheit (close test).*

Packages and documents to be marked "Inflammable, Class B."

Designation.	Flash point in degrees (Fahrenheit).
Composition black for bedsteads	73
Napthaline	182
Oil, mineral, burning	105
Terebene..	99
Turpentine, spirits of	84

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Appendix XXVIII—*continued.*

List of Inflammable or otherwise Dangerous (non-explosive) Stores in use in Army Ordnance Department—*continued.*

CLASS B.—*Liquids not giving off inflammable vapour, &c.*—contd.

Packages and documents to be marked "Inflammable, Class B."

Designation.	Flash point in degrees (Fahrenheit).	
Varnish, black Brunswick	104	Oil Varnishes.
,, bright	94	
,, copal	94	
,, ,, for charts		
,, crystal	84	
,, for bright work	94	
,, Japan :—		
black..	91	
gold size	88	

CLASS C.—*Corrosive and otherwise dangerous stores not giving off inflammable vapour.*

Packages and documents to be marked "Inflammable, Class C."

Designation.	Designation.
Acid, carbolic liquid.	Creosoted goods.*
,, hydrochloric or muriatic.	Ink, xylonite.
,, nitric.	Matches, Bryant and May's.
,, oxalic.	Oxygen mixture.
,, sulphuric.	Potash, chlorate.
Calcium phosphide.	Solution, bronzing.

* Classed as inflammable for purposes of shipment only.

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APPENDIX XXIX.

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Ordnance.
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[*Referred to in paragraphs* 145 *and* 363.]

RETURNS AND REPORTS OF THE ARMY ORDNANCE DEPARTMENT.

I.—Personnel.

The following returns and reports will be rendered by chief ordnance officers in connection with the personnel of the department:—

Army Form.	Description.	Date when rendered.	To whom rendered.
C 350	Annual Report on Department	1st January.	G.O.C. for transmission to the War Office.
C 341	Annual Establishment Return ...	1st October.	
M 1435	Annual Cash Estimate	1st Nov.	
C 300	Monthly Casualty Return ...	1st of each month	
B 70	Qualification Report on Army Ordnance Corps	1st January and 1st July	O.C.A.O. Corps, Red Barracks, Woolwich.
C 306	Confidential reports on officers	1st January and on quitting a station.	G.O.C. for transmission to the War Office.
C 378	Confidential reports on warrant officers ...	1st January and on quitting a station.	O.C.A.O. Corps, Red Barracks, Woolwich.
Special	Recommendations for increases of pay to subordinates.	To reach War Office by 1st September.	G.O.C. for transmission to the War Office.

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II.—Stores.

The following returns will be rendered in connection with stores, punctually on the dates described below. They will not include articles on charge as mobilization equipment for the field army or for unallotted or garrison units detailed on A.F. G 1098, returns of which will be rendered as laid down in paragraph 450.

Army Form.	Description.	Date when rendered.	To whom rendered.
	Annual.		
G 1023	Stores issued on deposit or loan	...	See para. 1330.
M 1415	Proposals for barrack annual estimate ...	1st May ...	G.O.C.
M 1424	Proposals for Army Ordnance buildings estimate. (Home.)	21st May ...	C.R.E.
M 1425	Proposals for Army Ordnance buildings estimate. (Abroad.)	21st May ...	C.R.E.
G 814	S.A. ammunition in the district...	7th Nov. ...	War Office.
G 865	Loose cordite, gunpowder, and made up cartridges in Army Ordnance Department charge.*	1st Sept. ...	P.O.O.
G 1021	Stock and issues of life-saving stores	31st Dec. ...	P.O.O.
	Half-yearly.		
G 834	Carriages and slides	1st April and 1st September.	War Office.
G 873	Rifled Ordnance		
G 954	Accoutrements in store†		
G 970	Camp equipment in store†		
G 813	S.A. and M.G. ammunition in store ...		
G 893	Small arms in store		
C 330	Old cordage or junk converted to oakum in Military Prisons, &c.	With station accounts, *vide* para. 1295 *a*.	War Office.

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* Not to include that of S.A. and M.G. cartridges.
† To be rendered by stations abroad only.

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