

ticularly to the Barr and Stroud type. A full description of Service instruments may be found in the "Handbook of Artillery Instruments," 1914 (Wyman and Sons, price 1s. 6d.).

Reflection of light from plane surfaces. Reflecting prisms. Bending of a ray of light by prism. Lenses, positive and negative. The mekometer. Full description of Barr and Stroud range finder. Time required, about three hours.

#### EXPLOSIVES.

In general, it will be found advisable to restrict the teaching of this subject to officers, the treatment being decided by the time available and the previous chemical knowledge possessed by the class. The common explosive compounds and mixtures may be dealt with, stress being laid on the precautions to be taken in handling. The Service "Text-Book of Explosives" may be consulted, but can no longer be regarded as up to date. Beyond imparting general ideas and useful hints, this subject is too specialised for the average teacher to undertake to advantage.

It is hoped that the above hints will prove of service to the numerous correspondents who wrote me concerning my letter in NATURE for January 20, to whom I have not been able to reply individually. The syllabus may be amplified at the discretion of the teacher if time permits. What is here given is the minimum information that should be imparted.

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#### A LAND OF DILEMMA.<sup>1</sup>

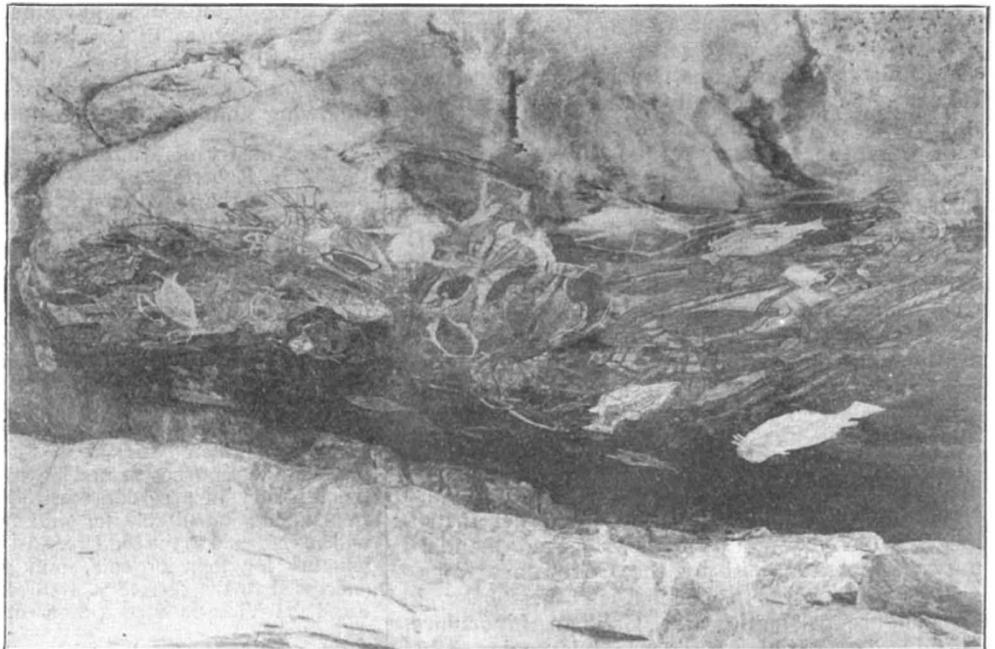
THE most perplexing Australian problem is that of the Northern Territory, and all interested in the present efforts to solve it will welcome Miss Masson's interesting sketches of that vast land of dilemmas. The book deals with various phases of life and work in the Northern Territory, and records the impression of a keen and sympathetic observer who had unusual opportunities for insight into its present condition and prospects. The work owes part of its charm to its graphic expression of the attractiveness of the country and the author's friendly sympathy with all classes of its people. The first chapter gives

<sup>1</sup> "An Untamed Territory. The Northern Territory of Australia." By Elsie R. Masson. Pp. xii+181. (London: Macmillan and Co., Ltd., 1915) Price 6s.

an excellent summary of the political history of the Territory, which began with a jealous scramble between South Australia and Queensland, who were inspired by blind lust for acres; it records the slow disillusionment of the successful claimant, the transfer of the country to the Commonwealth, and the attempts now in progress to discover its possibilities and determine the best methods of developing them.

The author indicates the chief questions which the country is putting to its administrators, but does not answer them. She is doubtful whether the aborigines can be saved from extinction, and bears emphatic testimony to their amiability and intelligence.

"The quickness of the average native is a surprise to those who have always heard that the Australian



Native paintings on a rock near the Alligator River. From "An Untamed Territory."

aboriginal belongs to one of the lowest races extant. The blackfellow's mind is that of an absolutely uneducated, intelligent child. He has the same acuteness of observation, the same power of mimicry, the same irresponsible nature, the same unerring sense of justice that tells him whether he is being fairly treated or no. He is as unhesitating in his likes and dislikes, as difficult to compel, as easy to persuade" (p. 154).

Miss Masson explains that the demoralisation of the blackfellow has been due to the Chinese, and gives an illuminating account of the trial of some blacks for the murder of a white trader. Of the guilt of the accused there was no real doubt, but the court obviously gave them every advantage; some of them, though clearly guilty, were acquitted owing to a technical lack of evidence, inevitable when legal processes evolved in the Old Bailey are adopted in untamed bush. The death sentence on those convicted was altered to imprisonment for life in the luxurious security of the Darwin jail. The account of the trial leaves

an impression of bewildered justice, loth to judge blackfellows by European standards and yet conscious of the added jeopardy to the defenceless pioneers by failure to avenge a murdered settler. Miss Masson does not hide the difficulties with which the Northern Territory is confronted; she notes the high and rising cost of labour and the need for faith and patience. Statistics throw little real light on the present progress of the territory; so Miss Masson's sketches should prove a contribution of permanent value to its literature, as an instructive picture of the country during the most critical stage in its development.

J. W. G.

#### OPTICAL INSTRUMENTS AND THE MINISTRY OF MUNITIONS.

AT the end of November, 1915, there appeared in the *London Gazette* a notice issued by the Minister of Munitions under which power was taken to commandeer all optical instruments of importance for the defence of the realm. Since that date the Ministry of Munitions has been examining the available supply of such optical instruments, both in manufacturers' and dealers' hands. The examination, which has been a very heavy piece of work, had for its purpose the enforcing of certain restrictions placed upon the sale of such instruments under the Defence of the Realm Act Regulations, 1914, and it was recently announced that traders can only offer such instruments for sale if and when they are specially marked. The announcement appears in the January Army Order, in which it is stated that "two marks will be used, one indicating instruments which do not come up to the standard Government requirements, and the other instruments which come up to the required standard but are not required by the Government."

The instruments scheduled in the Order in Council are prismatic and Galilean binoculars, portable terrestrial telescopes, telescopic sights for rifles, periscopes and hyposcopes, prismatic compasses, as well as range-finders, mekometers, telemeters, clinometers, angle of sight instruments, apparatus for control of fire, dial sights, directors, and field plotters.

It will be noticed that the announcement does not specify for the information of general readers the actual marks which are being used; and, therefore, it will probably be of interest to describe them here. The first of the marks referred to is the broad arrow with the left-hand barb omitted, thus: . This mark is engraved or otherwise marked on instruments which have been examined under the instructions of the Ministry of Munitions and come within the terms and schedules of the Order in Council referred to above, but do not fulfil all the conditions specified by the Government as necessary for naval or military service. The instrument is not necessarily defective, but the mark means that in some optical or mechanical detail or details it is considered unsuitable for naval or military use. It

would, therefore, be well for an intending purchaser to examine carefully an instrument bearing the mark.

The second mark which may be found upon such instruments is the broad arrow with the stem omitted, thus: . This has been engraved or marked upon instruments which satisfy the Government's specification as instruments suitable for naval and military use, but not at present required by Government, and which therefore, presumably, may be disposed of by traders. Such instruments have satisfactorily passed the Government tests.

Instruments which do not come within the terms of the Order have not been marked, such instruments not being of the types required in quantity by the military authorities.

Although measures have been taken to secure for the purposes of the State all suitable optical instruments in the hands of makers and dealers, many more seem to be required, judging from the following announcement made a few days ago:—

The Ministry of Munitions and the management of the Lady Roberts's Field-Glass Fund desire to give publicity to the fact that there is still a great demand for the supply of field-glasses and telescopes for the troops in the field. Both prismatic and ordinary field-glasses are required, but not opera-glasses. The owners of such instruments are urgently requested to place them at the disposal of the fund, either by way of loan or sale. It is hoped that owners who are unable to lend their instruments will, in any case, be willing to sell them to the Government at a valuation figure. With this object in view, the Ministry of Munitions has made special arrangements to value any instruments offered for sale if found suitable for military or naval purposes, and payment will be made by the Ministry in accordance with the valuation figure. Instruments unsuitable for military or naval purposes will be returned to the senders. All instruments sent in, whether for loan or sale, and all letters should be addressed to the secretary, Lady Roberts's Field-Glass Fund, 72 Victoria Street, London, S.W.

The necessity for Government taking such steps at this critical time to supply the requirements of the naval and military authorities is an ample and striking justification for the demand, to which reference has been made from time to time in these columns, for the establishment of a National Institute or School of Technical Optics, which would have for its main object the placing of this country in a position in the future in which it would not be dependent on any foreign country for an adequate supply of instruments so vital for modern naval and military efficiency. Incidentally, such an institute would also secure national independence in the supply of the still more numerous and highly specialised optical instruments so essential in the arts of peace.

The importance of the subject has long been insisted upon by the British Science Guild, and the Technical Optics Committee of the guild has prepared several valuable reports upon it. This committee, after a full investigation of the evidence available, shortly after the outbreak of hostilities forwarded to the Board of Trade a report,