

The Torpedo and Torpedo Boats.

The torpedo is an essentially modern artifice of war. It was first used at Wei-hai-wei in 1895, suggestively enough by the Japanese, who then sank three Chinese battleships by its use. During the war between the United States and Spain, in 1898, the torpedo was not used, but since then the various nations, in piling up the deadly machinery which seems necessary to their individuality, especially in the old world, have become alive to its value, and now a flotilla of torpedo boats and "destroyers" is considered indispensable to any up-to-date navy.

The kind of torpedo used by Japan in the present war is the Whitehead navigable species. It is a long cigar-shaped affair, from 14 to 18 feet in length, and in its passage through the water is said to resemble, somewhat, a sturgeon. The explosive charge, weighing, usually, between 150 and 200 lbs., is contained in a section at the nose of the torpedo, and is exploded by a pin which projects from the end and is driven in as soon as it hits any solid object. The torpedo is driven from the torpedo-boat by compressed air, but when started on its way is self-propelling, and, hence, notwithstanding the resistance of the water, has a considerable range, usually 1,000 yards.

Nearly all large war vessels have a few torpedo tubes, but the boats constructed especially for torpedo service are immeasurably superior for warfare of this nature. In their very diminutiveness lies an element of safety, while for night manoeuvres, or in any action in which lightness and speed are required, they have proved the most effectual medium yet invented, being able to run in, cripple a battleship, and retire in comparative safety, where larger vessels would have found it impossible to act. The so-called "destroyers" have a speed of from 25 to 30 knots an hour.

The newest kind of torpedo-boat is the submarine. This kind has not so great a speed, being capable of only about 11 knots on the surface, and 6 or 8 when submerged; but in the character of the boats lies their efficiency. The submarine runs on the surface until within a mile or two of the enemy, being even then not at all conspicuous, little being visible but the whale-backed top. During this time it is driven by a gasoline engine. Once within proper distance of the enemy, however, it sinks until partially or wholly submerged, a propelling power of storage batteries and an electric motor now being called into requisition. Thus, like the hidden serpent, it goes on its way until within sufficient range for the discharge of the torpedoes, one of which is sometimes sufficient to sink a vessel. Steering under water is also made easy, by means of a peculiar optical instrument confined in the top of a tube, which projects out of the water, and which, by means of a mirror arrangement, transmits a picture of the outlook above to the observer who sits below.

Upon the whole the modern torpedo, with its boat, is one of the most deadly and ingenious contrivances of war ever invented, and its agency in the coming struggle between Togo and Rojestvensky will be watched with keen interest.

May Crop Report.

Below is the monthly report of the Ontario Department of Agriculture, based on the reports of the departmental correspondents, and representing the conditions in Ontario on May 10th:

Fall Wheat.—Taking the Province over, this crop suffered less than usual from winter-killing. The cold winds prevailing in April were very trying to fields in exposed places; but the crop has picked up wonderfully with the more favorable weather in May, and has a most promising appearance in most quarters, more especially in the case of early-sown fields.

Winter Rye.—Reported to have come through well.

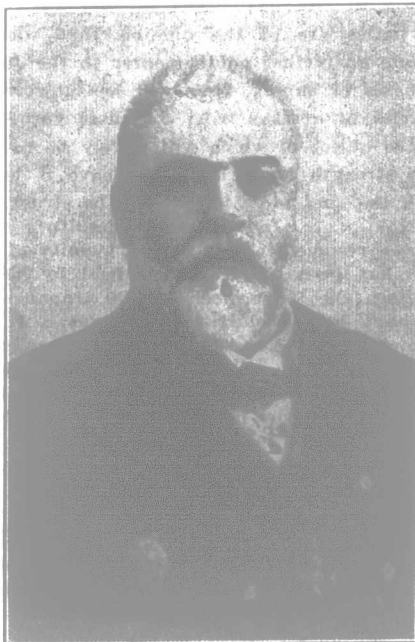
Clover.—The present indications are that there will be a full yield of clover this season, taking the Province as a whole. In the central and western counties clover fields are in a really first-class condition, having suffered little from winter-killing of any form. In the more eastern counties prospects are not so bright, but the fields are rapidly recovering from the heavy check given the crop by the raw winds of April. The general report is that new fields are particularly strong, the catch last year having been most successful.

Vegetation.—Growth in field and forest was hardly so advanced as usual on the 10th of May, the date when most of our correspondents filled in their returns, although even then a large number of cattle were reported to be on the grass. April proved to be a backward month for vegetation, but May weather was much more favorable.

Fruit Trees.—A considerable loss is reported among plum trees, and some peach and other fruit trees are also said to have been winter-killed, although not to the same extent as last year. In fact, much of the immediate loss of orchard trees is charged against the severe weather of the winter of 1903-4. Blossoming was starting as correspondents wrote, and cherries, plums and peaches were coming out profusely. Apples are not likely to be so heavy a crop. Field mice continue their attacks upon young fruit trees, and there are many complaints of serious injury. There are now but few counties exempt from the injury of this active pest.

Live Stock.—Live stock of all classes came through the winter without any serious mishap, any disease complained of being more or less local in character. Horses are described as being rather thin, but in good working condition otherwise, as the weather was not too warm during spring operations. There are the

usual scattering reports of distemper, with but few fatalities. Cattle are also said to be on the lean side, but hearty. Like other live stock, they had to be carefully fed, owing to the lack of corn and high prices of millfeed, but they are now rapidly picking up in form on the grass. Sheep are generally reported as in good condition. Ewes have been prolific this spring, and lambs are said to be remarkably strong and active. Swine are more generally raised, but do not appear to be so plentiful as usual this spring. Occasional reports have been received of crippling from rheumatism or other causes, but these attacks are generally the result of local housing and feeding. New litters of pigs do not appear to have done so well in the eastern part of the Province as in the counties farther west. Gen-

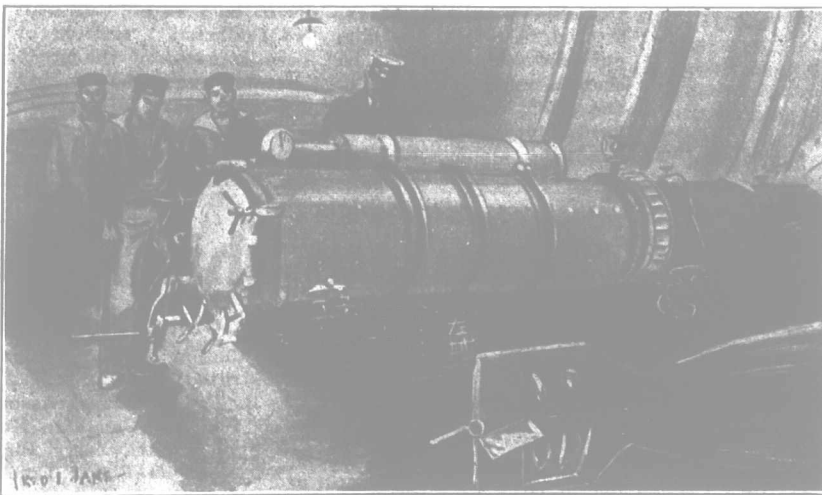


Vice-Admiral Nebogatoff.
Commander of Second Baltic Squadron.

erally speaking, there was a sufficiency of fodder, although many farmers were pinched for corn and straw.

Farm Supplies.—In most parts of the Province there is more than a sufficiency of hay, although the scarcity of straw and corn drew largely on this fodder. Oats have been largely fed, and high prices have been paid for what was marketed, and while there is a surplus on hand, it is not a large one. Wheat is comparatively scarce from the same causes. Fat cattle have nearly all been bought up, and store cattle are not so plentiful as usual. In fact, more farmers are grazing their own stock than in former years, good prices for beef and the scarcity of fit agricultural laborers leading to this end.

Spring Seeding.—The sowing of spring grain averaged a week or two earlier than usual, in many instances being concluded in April. The seed-bed was in ideal condition, and the seeding was generally successful. In the Georgian Bay section, the northern districts, and some of the St. Lawrence and Ottawa counties, frequent rains delayed operations on low-lying fields; but on high lands work was well ahead. Peas were purposely sown late by many farmers, in order to escape the weevil.



Tube for Discharging Torpedoes.

On Japanese Cruiser.

As a Magazine.

I must say that we appreciate your paper very much, both as a farm paper and a magazine as well.
Kent Co., Ont. W. R. REEK.

IF YOU HAVE A FARM FOR SALE OR WANT A SITUATION, PUT AN ADVERTISEMENT UNDER THE HEADING OF "WANT AND FOR SALE" IN THE "FARMER'S ADVOCATE."

Washington State Agricultural College.

W. A. Linklater, a graduate of the Animal Husbandry Department of the Iowa State College in 1903, has just been appointed Head of the Animal Husbandry Department in the Washington State Agricultural College at Pullman, Washington. As a student, he was one of the strongest of his class, being a member of the 1902 student judging team which won the "Spoor Trophy." Since graduating, he has very ably filled the position of Chief Examiner in the Sioux City Correspondence Agricultural College. Mr. Linklater's appointment makes a total of some fifteen important positions filled by graduates from the Animal Husbandry Department of the Iowa State College during the past two years.

Inoculation for the Growth of Legumes.

Prof. Frank T. Shutt, Chemist, Dominion Experimental Farms, in the course of an article on the above subject, refers to a test of cultures sent out from Washington, D.C., for promoting the growth of red clover and alfalfa. While the results were not satisfactory, the attention of farmers is drawn to the fact that effective inoculation for clover and alfalfa may be obtained by the use of a certain amount of the soil from fields growing good crops of these plants, which we may feel sure contain an abundance of the bacteria. This method has proved most successful. Such soil is not difficult to obtain in any of the provinces save, perhaps, Manitoba and the Northwest Territories. Directions for using these bacteria-containing soils may be briefly given as follows: The soil containing the bacteria is mixed with a larger quantity of soil, and this broadcasted over the area to be sown with the clover or alfalfa, as the case may be. The field is at once thoroughly harrowed. This may be known as soil inoculation. Another method is to place the bacteria-holding soil in a vessel, such as a pail, and pour on water. Stir and allow to settle. After standing a little time, decant the supernatant soil extract and thoroughly moisten therewith the seed of the legume. The seed should be sown as soon as it has sufficiently dried. In connection with inoculation for alfalfa it is of importance to note that Professor Cyril G. Hopkins, of the Illinois Experiment Station, has conclusively shown that soil growing sweet clover (*Medicago alba*) may be effectively used for the inoculation of alfalfa.

For many years past, as is well known, particular attention has been paid by Prof. Shutt to the system of soil enrichment by the growth of legumes, and to the various means that could be taken to obtain a vigorous growth of the crop. Experience and observations have shown that the necessity of inoculation is not so great as was at one time thought. We are led to believe, he adds, that the existence of the bacteria that serve to fix the nitrogen in the legume is by no means restricted to small or isolated areas. We have found—at all events, in Ontario and the Eastern provinces—that failures in the past to obtain a good catch of clover have been due rather to deficiency of moisture, an unsuitable mechanical condition of the soil, poverty in humus, or insufficient drainage, than to the absence of nitrogen-assimilating germs. The killing out of clover may, we think, in the majority of cases be attributed to the severity of the winter or water lying upon the soil in spring. The general—though probably not universal—presence of root nodules on the clover in Ontario and the East leads us to believe that special means for inoculation have not been necessary, save, perhaps, in exceptional instances in the aforementioned provinces. It is due to these facts, we consider, that there has been no general demand for inoculating material.

In a recent tour through the larger agricultural districts of British Columbia the writer found these organisms present upon every root of clover examined, and especial care was taken to obtain information upon this matter in all the agricultural districts visited. The same stands true alike for the irrigated soils of the dry belt (Nicola and Okanagan Valleys), as well as for the lower Fraser and the Coast soils and those of Vancouver Island. The luxuriant crop of clover observable in British Columbia almost everywhere this year convinced me that inoculation was not generally necessary in that Province.

It would seem from certain of the enquiries lately received that there is an impression abroad that the benefit to be derived from the nitrogen-fixing bacteria can be obtained directly from inoculation of the soil,

i.e., without the agency of a clover or other legume crop. This is, of course, erroneous, for these beneficial bacteria are only of assistance to the legumes. It is only through the growth of the clover (or other legume) and the subsequent decay in the soil of its roots (or whole plant) that the soil is enriched in humus and nitrogen. It is obvious that where clover-bearing nodules on its roots grows luxuriantly, inoculation is unnecessary. Where this condition is absent, cultures may be had from the O. A. C.