

Department of Agriculture is striving to re-establish this important industry in the United States.

By experimentation in fifty or more localities in the United States where flax cultivation was thought possible, the department has proved the fallacy of the opinion widely prevalent less than a decade ago, that flax could not be produced commercially in the United States. By these experiments it has not only been proved that commercial flax production is possible, but that good fiber and good seed with careful culture can be produced in the same plant. The most important results have been obtained on the Pacific coast, where, as in the Puget Sound region of Washington, an ideal flax climate has been discovered. Experiments here have shown that for the flax culture the Puget Sound region is the equal in climate to some of the best flax-producing regions of Europe. The superior quality of straw produced, which resembled the straw of the famous Courtrai region of Belgium, attracted the attention of the Barbour Company, of Lisburn, Ireland, resulting in this firm undertaking a retting experiment in Ireland with a ton of Puget Sound straw. The experiment demonstrated that it is possible to produce very fine fiber and good seed in the same plant.

It is stated that if the flax is grown and manipulated under proper conditions, and by people who thoroughly understand their business, in Puget Sound, the cultivation of it would be of the greatest importance and in a short time would rival the great Belgian district of Courtrai. The flax plant is now widely distributed throughout the world. It is cultivated in portions of South America, especially in Argentina, though more for seed than for fiber. It is produced commercially to a greater or less extent in Great Britain (Ireland especially), Sweden, Denmark, Holland, Belgium, France, Germany, Austria, Spain, and Portugal. It has been introduced into Algeria, and into Natal. In India large tracts are under cultivation, though more for the seed crop than for the fiber.

Japan has introduced its cultivation commercially, and it has been experimented with in the Australian colonies, where there is a wide range of soil and climate suited to its growth. The special agent of the Department of Agriculture says: "There is no doubt about the ability of the inhabitants of the United States to grow commercial flax if the people will only make beginnings, and go to work in earnest with the idea in view first to establish the industry, and to make money out of it afterward. The time is ripe for the establishment of the industry, as is proved by the profound interest that has been awakened in our experiments by foreign manufacturers."

THE LOSS OF THE "MARIA TERESA."

The painful news of the abandonment of the "Maria Teresa" as she was being towed from a Cuban port to Norfolk Harbor has been followed by a report from Captain McCalla, of the United States navy, stating that there is practically no hope of saving the vessel, which, as our readers are aware, was, subsequently to her abandonment, cast ashore on Cat Island, Bahamas.

The "Maria Teresa," it will be remembered, was used by Admiral Cervera as his flagship in the Santiago engagement. She headed the squadron as it issued in single column from the harbor, and she was the first to open the battle and receive the concentrated fire of the American fleet. She kept up the running fight for over seven miles when fire broke out between decks, and she was run ashore.

In the subsequent examination by the naval board it was found that she had suffered less injury from fire and the guns of our fleet than either of the sister ships "Vizcaya" and "Oquendo." The frames above water were practically intact, and while the deckbeams and bulkheads above the protective deck were warped by the heat, the bulkheads, longitudinal and transverse, below this deck were generally in good condition, thus insuring the integrity of most of the watertight compartments. The outside plating, moreover, was in good condition. The effect of gun-fire was less severe upon her than the other vessels, and she escaped the magazine and torpedo explosions which completely wrecked the "Vizcaya" and "Oquendo." The shot holes dangerously near the waterline were made by two 6-pounders, a 4-inch, a 6-inch, two 5-inch, and two 12-inch shells.

In agreement with the recommendation of the board wrecking operations were commenced, and subsequently carried to a successful completion under Lieut. Hobson. The greatest obstacle encountered was a point of rock which had pierced the bottom near the forward turret. This had to be blasted away and a cofferdam built over the hole before the ship could be floated. She was subsequently pulled off and towed to Guantanamo Harbor, where temporary decks were laid and the vessel put in trim for the trip to Norfolk navy yard. She ultimately got away under her own steam and in tow of the wrecking tugs, accompanied by the repair ship "Vulcan." Good headway was made until heavy weather was encountered, in which the "Teresa" began to labor heavily and take in a considerable amount of water. The heavy pumping

machinery on board was unable to control the water, the suction becoming choked with coal and the wreckage of the ship. She settled by the head, and the commanding officer, thinking she was about to go down, cut the tow ropes and left the ship to its fate.

The watertight compartments, however, kept her afloat, and she was ultimately driven by the storm upon the coast of Cat Island. Capt. McCalla was immediately dispatched to the wreck, and reported that it was hopeless, in his opinion, to expect the rescue of the ship. He says:

"The wreck is stranded in from sixteen to twenty-one feet of water, and rests on a rocky reef covered with coral sand interspersed with boulders.

"I spent Sunday on the wreck, examining carefully all the compartments which were not flooded, as well as the ship's surroundings. The evidence showed that after striking the reef the mainmast was driven up and broken off short below the spar deck, the military top lying outside the bilge under the port quarter.

"Seas had gone entirely over her and the inner bottom generally had been driven upward from 1½ to 2 feet. A patch on her bottom abreast the forward turret had disappeared. The air ports had been driven in and the seas had entered through them and the gun ports on the starboard side. The spar deck and deck-houses had been crushed in by seas after the ship struck. Both starboard and port engines have been forced up by from six to eight inches.

"The best way to illustrate the general condition of the wreck is to say that the two sets of engines, boilers, and their foundations form part of the reef itself, around which the rest of the ship works laterally and vertically. The same effect would be produced, in my opinion, if the ship had settled on a pinnacle of rock. I can best describe the condition of the ship generally by saying that she is already telescoped, and I believe that, as the rivets are sheared by the constant working of the ship, the telescopic process must continue. In considering the practicability of rescuing the Teresa, the fact must be considered that she lies upon a coral reef with but a thin layer of sand on the windward side of an island, constantly exposed to seas, due to the trade winds and to the influence of many storms developing to the eastward or southward."

It must be evident to the most sanguine that the "Teresa" will never figure on the official lists of our navy.

Interest now centers in the "Christobal Colon." The government has abandoned its wrecking operations; but there is a possibility that the work of saving her may be undertaken by the Swedish wrecking company that performed the seemingly impossible feat of raising the British battleship "Howe" in Ferrol Harbor.

THE NOVEMBER METEORS.

Some brilliant Leonid meteors were observed on the morning of November 15. Some of the brightest meteors were not far from the constellation Leo. One particularly bright one fell from the constellation Taurus leaving a trail of phosphorescent brilliance. Others came from the direction of Ursa Major. The display was disappointing. In the last Leonid shower in 1866, 8,000 meteors were counted at one observation station, but the shower of 1866 did not compare with the one in 1833, when the number of the meteors made some people think the world was coming to an end. Prof. C. A. Young, of Princeton University, observing with an assistant, reports that he saw 100 Leonid meteors on the morning of November 15. He said, "My assistant, Mr. Reid, and myself conducted the observations, which were much more successful than I thought they would be. Between the hours of 3:15 o'clock and 5 o'clock we saw about 100 meteors which were Leonids, that is, they belong to the meteoric swarm that gave the shower. Perhaps one dozen were as bright as first magnitude stars. The rest were faint and left trains which continued from one to ten seconds. The maximum of the shower was at 3:45 o'clock, at which time there were two or three meteors per minute for about twenty minutes. The radiant point seemed to be in the Sickle of Leo and a little further south and west than in 1866. It was a distinctly meteoric shower, but a very faint one, and augurs well for a good display in 1899."

Prof. Rees, of Columbia University, saw no Leonids. "As a matter of fact," says the Professor, "I saw only two meteors. They came from the direction of Ursa Major, and not from Leo, as had been expected. I watched the sky every hour from sunset to sunrise between the southwest and the west."

At the Yerkes Observatory, Williams Bay, Wis., the shower was also observed. The fore part of the evening the sky was overcast, but about midnight the sky cleared, and in a short space of time, during which they were visible from the observatory, 200 meteors were seen. Dr. William L. Elkins, of the Yale Observatory, photographed 30 meteors. Six cameras were used, two at the observatory, two from the church steeple, and two in one of the suburbs. Prof. Prentiss, of Rutgers College, states that while the display of the meteors was not unusual, this scarcity is not regarded by astronomers as a disappointment; furthermore, they

are valuable indications of large showers of meteorites for 1899 and 1900.

LATIMER CLARK.

With the death of Latimer Clark, on October 30, the number of those who are connected with the earlier developments of land and submarine telegraphy has become greatly reduced. We now have only Lord Kelvin, Sir Samuel Canning, and Messrs. Bright, Webb, and Clifford.

Mr. Clark was born in 1823, and in his early youth showed a strong taste for chemistry, and he soon obtained a position in a chemical industry. In 1847 he became assistant engineer to the Electric Telegraph Company, and on the retirement of his brother a short time later he was appointed engineer of the company. His first telegraph work which brought him into notice was the employment of electricity in firing a time gun. He devised an excellent insulator and also a pneumatic system for transmitting telegraph messages. His field of professional activity constantly extended itself and he became engineer-in-chief of various companies. Mr. Clark was the first to draw attention to the retardation of electricity in a covered wire by induction and to insist that a high potential was of no advantage for the transmission of signals through cables. In 1861, Mr. Clark associated himself with Sir Charles Bright, and this firm acted as engineers for the construction and laying of nearly all the early telegraph cables. In the same year these gentlemen read a paper before the British Association on electrical standards and units, in which, for the first time, a definite and practical system of electrical measurement was suggested and adopted. The two engineers conducted many experiments on the effect of temperature on the electrical resistance of gutta serena and deduced from this a formula for correcting the resistance to a standard temperature. They also acted as engineers for the purpose of making and laying the second and third Atlantic cables. In 1868 the partnership was dissolved and the new one was formed, headed by Mr. Clark, and this firm was connected with the laying of 60,000 miles of submarine cables. The Clark standard cell is well known. The year 1898 has been most unfortunate on account of the death of many electricians, including Dr. John Hopkinson, Camille A. Faure, and Latimer Clark.

A USEFUL BEETLE.

Entomologists are interested in the shipments made by Dr. Howard, Entomologist of the United States Department of Agriculture, of beetles to the Department of Agriculture, Portugal. The beetle is known as the *Novius cardinalis*. Its home is in Australia, and it was introduced in California several years ago by the Board of Horticulture of that State. It was hoped it would prey upon the white or fluted scale, which was ravaging the orange groves of California at that time. A similar case has occurred in Portugal, and the Portugal authorities asked the United States authorities to aid them in exterminating the insects, which were destroying the orange and lemon groves along the River Tagus. Dr. Howard secured about sixty specimens from California, with some larvæ. They were packed in moss, with a quantity of the scale insects, and they were shipped by mail to Portugal. Only five of the beetles survived the trip, and another colony was obtained from California, and was forwarded by direct steamship to Lisbon. One male and five females survived. These beetles are noted for their fecundity, and within a few months their progeny numbered thousands. These were distributed to work upon the scale bugs. The latest advices from Washington indicate that the beetles now number millions and are rapidly ridding the country of the pest. This is only another instance of the good work which this important department of the government is performing. We frequently get inquiries relating to soils, entomology, etc., from correspondents in foreign countries, and invariably we receive answers from the heads of the different divisions of this department which show that their scholarship is only equaled by their courtesy.

"Possibly the wholesale deforesting of the Colorado mountains by the fires that have been raging there for many days may have a useful effect in hastening the time when tree planting on a large scale will be undertaken not only there, but throughout the country," says The Philadelphia Ledger. "The great middle West is already very much alive to the importance of preserving its water supply; and if the destruction of the forests shall have its anticipated effect in diminishing the streams, it will not be long before the people of that section will throw their characteristic energy into the business of replacing the forest growth and extending it as far as may be necessary. From them perhaps we in the East, who have witnessed with so much indifference the destruction of our own forests, may possibly catch the enthusiasm and make some worthy effort to replace our vanished trees. If all this should follow, the burning of the Colorado timber will be a blessing in disguise."