Liberia have already been put in the nurseries, and the plants are coming up beautifully.

(To be continued.)

GENERAL ITEMS.

Mr. J. H. Maiden, the Consulting Botanist of New South Wales, thus refers to the need of education for forest officers :—I think the time has now arrived for officers in Government or municipal employment who have, in the ordinary course of business, to diagnose hardwood, to pass an examination in the subject, just as professional men have to do in regard to other materials of construction. The pity is that we have so many men here learned in European and American timbers, and only possessing a rule-of-thumb knowledge of the timbers of the country in which they were born, or in which their lot is cast. How the knowledge shall be imparted or tested is a mere matter of detail; that the reform is desirable is undisputed, and I hope I may live to see it carried out. Knowledge of colonial timber can only be obtained by handling it as sawn stuff, and by careful observations as to the circumstances under which it grows in the forest. The subject is not an easy one, and I don't intend to say it is. There is no more a golden road to a knowledge of colonial timbers than there is to a knowledge of Greek. Very often the man who knows least about our colonial timbers is readiest to assail them. We must suspend our judgment with regard to the absolute merits of many of them, and what I plead for is a systematic attempt to get at the value of each timber—to test it from various points of view. Many of our timbers have not had a fair "show." These are times of reduced expenditure, but I would like to see £10,000 spent on a proper survey, examination, and test (not merely of strength), of colonial timbers. The sum mentioned might be spread over five years. I am sure that such a sum would be a justifiable expenditure in regard to a national property which is reasonably valued at millions of pounds.

Fish guano is a material the use of which is largely increasing, says the *Farmer's Gazette*. It consists of dried and powdered fish or fish refuse. Sometimes it is made from whole fish—sprats, herrings, menhadden, etc.—which are boiled to remove the bulk of the oil (which is a valuable commercial product) the residue being then dried for manure; sometimes—and very largely—it consists of the residue of offal from the cod-fisheries, haddock and herring curing operations, market fish offal, etc., similarly treated or simply dried. The more the oil has been extracted, the better the manure, for the more the rapid is its decomposition. Oil retards this, and is in itself useless as a manure. In good fish guanos the nitrogen varies from 7 to 8 per cent up to 10 or 12 per cent, and the phosphates from about 6 to 16 per cent. As a rule, the higher the nitrogen the lower the phosphates. Like Peruvian guano, fish guano furnishes both phosphates and nitrogen; but its nitrogen is all in the form of undecomposed animal matter, whereas in guano it is already largely in the form of actual ammonia. Peruvian guano, therefore, acts much more rapidly than fish guano, and while the former is generally best applied in the spring, fish guano is generally best applied in the autumn, so that it may become well rotten by the time it is wanted. It is much valued in market gardening and as a manure for hops. Considering the abundance of fish in Indian rivers, it is surprising that an industry in making fish guano out of putrid fish and offal is not started by some enterprising capitalists.

Dr. W. J. Beal, of the Michigan Agricultural College, says :—By possessing great vitality, seeds of weeds may last in the soil ten to fifteen years or more, until the soil is turned up, exposing them to conditions favourable for germination. It is now nearly fifteen years since I buried in bottles with barren soil numerous lots of seeds of twenty kinds, fifty seeds of each kind in each lot. Most of one lot grew after remaining in the soil for five years. The seeds of another set were tested after remaining buried for ten years.

Soot is not used in gardens half so much as it should be. In some respects, says the *Indian Agriculturist*, it is better than any kind of artificial manure, inasmuch as it not only enriches the soil, but destroys many sorts of insects. It may be dug into vegetable garden soils with much advantage, and mixed with soil for potting the majority of plants. There is no vegetable that is not benefited by soot, and in soil for onions, carrots and all kinds of roots it is excellent. It is not, however, lasting in its effects which hardly last a year, but it is cheap and easily obtained, and may be put in any quantity annually. It should be spread over the surface of the ground and dug in either into cattle manure or by itself. When sown in drills with potatoes it prevents them from being worm eaten. It cannot be sown on the surface after the crops appear, and if put on when rain is falling will be washed down to the roots. This is a good way of applying it; soot-feeding imparts a deep green colour to vegetation, and then satisfactory returns are sure to be the result. Potting soil sprinkled with soot always remains free from worms, and plants so treated always assume a bright, healthy appearance. It may be sprinkled on the surface of the pots and watered in, or, better still, given in the form of soot-water. Newly-potted plants, and those with few roots, do not require it, but when the soil is full of roots soot-water proves beneficial. Pines, vines, strawberry plants, kidney beans, orchids, pelargoniums, and nearly all growing vegetation may be watered with it safely. In some cases a difficulty is experienced in getting soot to mix with water. The best way is to put the soot into a sack, tying up the mouth of the bag; then put it in a pail, cask, or tank, and the water will soon penetrate through the foot, making it into a pulp, thus making pure soot-water. There is no time or season in particular in which soot-water may be especially used, as it may be given to fruiting and flowering plants all the year round. When it is desired to make the foliage assume a deep green, healthy colour, or the flowers a brighter hue, judicious application of soot-water will accomplish it better than anything else.

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