

have each been named as a suitable proportion. It is calculated that an acre of good flax, as it stands in the field, containing, say, about fifty stone of fibre, will afford employment for from twelve to fourteen weeks to a man skilled in the several processes of its preparation." But it is not to men only that flax affords employment, but also to women and to children; as it is skill rather than strength that is required for many of the operations.

Flax grown in Russia, Prussia, and Egypt, is, generally speaking, coarser than that grown in Holland, Belgium, and France. But it is the latter, which is chiefly required in increasing quantities. Mr. McAdam says:—"It is certain that all hot countries, or those which, like Russia, have a short, warm summer, cannot furnish fine flax fibre, but it is precisely coarse fibre that is now so much wanted. The bulk of fine flax used in the linen manufacture is trifling compared with the coarse. A Belfast or Leeds mill of 5,000 spindles will consume only 200 to 250 tons of flax annually; while one of the same size at Dundee or Kirkcaldy, will consume 1,000 to 1,200 tons. Belgium, Holland, France, and Ireland can supply the world with fine fibre; but Russia and Egypt cannot keep pace with the demand for coarse."

Canadian flax will bring on an average from £40 to £50 a ton in Dundee and Belfast, and these prices ought to pay for the growth and export.

PRODUCTS OF THE FLAX PLANT.

The useful products of the flax plant consist of the seed, and of the fibre. Linseed or the seeds of the flax plant, are oval, pointed in shape, compressed with a sharp margin; brownish colored, smooth, and shining on the outside, but white internally, and without odour. The outside has a bland, mucilaginous taste, in consequence of the skin of the seed being covered with condensed mucus. The white part, or almond of the seed, has an oily taste, from containing fixed oil, which is separated by expression.

These seeds analysed by Meyer, consist, in one hundred parts, of 15.12 mucilage (nitrogenous mucilage with acetic acid and salts, according to some), chiefly in the seed-coat, 11.26 fatty oil in the nucleus. In the *husk*, emulsion 44.38, besides wax 0.14, acrid soft resin 2.48; starch with salts 1.48. In the *nucleus*, besides the oil, gum 6.15, albumen 2.78, gluten 2.93, also resinous coloring matter 0.55, yellow extractive with tannin and salts (nitre and the chloride of potassium and calcium) 1.91, sweet extractive with malic acid and some salts 10.88.

The condensed mucus which abounds in the testa of the seed is readily acted on by hot water, and a viscid mucilaginous fluid is formed, in which are two distinct substances; one completely soluble in water analogous to common gum, called Arabine by chemists; the other portion is merely suspended, and is considered to be analogous to the Bassorine, found chiefly in Gum Bassora, and in Cherry-tree gum. Alcohol produces a white, flaky, and acetate of lead, a dense precipitate in mucilage of linseed.

Linseed oil, which we have seen is contained in the kernel of the seeds, is obtained by expression, and may be either cold-drawn, or, as usually obtained, after the seeds have been subjected to a heat of 200°. The former, as in the case of cold-drawn castor oil, is paler, with less color and taste than linseed oil prepared with the aid of heat. This is of a deep yellow or brownish color, of a disagreeable smell and taste, specific gravity 0.932, soluble in alcohol and ether; differing from many other fatty oils, especially in its property of drying