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NEW ZEALAND.

CELLULOSE INDUSTRY

(REPORT ON THE).

Mr. W. FRIEDLEANDER to Sir WESTBY B. PERCEVAL, K.C.M.G., 13, Victoria Street, S.W.

DEAR SIR,— 60, Fenchurch Street, London, 15th February, 1895.

I now beg to hand you the desired report on the cellulose industry, and shall be glad if you will look through same to see if there is all the information you desire.

Should you wish for any further information I am always with pleasure at your disposal.

I remain, &c.,

W. FRIEDLEANDER.

REPORT ON THE CELLULOSE (WOOD-PULP) INDUSTRY.

IN giving any information regarding the cellulose industry, it is first necessary to describe the different kinds which are manufactured, and the purposes for which the same are used.

Cellulose or wood-pulp is therefore to be divided into three distinct groups—viz., mechanical, sulphite, and soda or sulphate, and in this order I propose to deal with them.

Mechanical pulp may be described as wood ground by an ordinary mechanical grinding process, and compressed into more or less thick sheets. It goes without saying that pulp produced in this manner cannot have any fibrous qualities to speak of, and therefore this pulp is used more in the manufacture of common papers, or as a “filling” to give weight or opaqueness to paper. There are various kinds of mechanical pulp, varying in colour and quality from the light, almost white, pulps produced from the wood of the aspen, poplar, spruce, pine, and fir, and used largely in the manufacture of common “news,” to the quite brown pulps which are used in the manufacture of brown or buff papers.

Sulphite pulp is produced by the reducing of wood to fibre by boiling with bisulphite of lime. This pulp is made in a variety of qualities, chiefly under two systems—respectively, the Ritter-Kellner and the Mitscherlich systems. Most of the factories have, however, their own especial systems, which contain, nevertheless, the salient points of one or other of the above systems. The sulphite pulps have at once this advantage over the soda and sulphate pulps, in that the pulp is turned out in its unbleached state already so white in colour that for “news” and such papers it is sufficiently white to be used right off without bleaching; and, seeing that the process of bleaching must necessarily tend, however little, to weaken the fibre, the advantage of a pulp that can be used right off without bleaching (saving the labour and expense of that process) in papers where strength is the great desideratum will at once be perceived. Besides this, pulp made by a sulphite process is naturally much stronger in fibre than that made by the other methods. When bleached, the sulphite pulp of choice pure quality can be used with the best and highest results in the manufacture of the finest “writings,” book, and plate papers.

Soda and sulphate pulps: These are mostly delivered in an unbleached state, and, according to the quality of the pulp, are used in the manufacture of almost all classes of papers, inclusive of “news” and “writings,” as well as for envelopes and cartridge-papers, for which purposes this class of pulp is eminently suitable. The soda pulp, which was the first of the chemical pulps in the field, is obtained by boiling the raw wood with caustic soda.

The sulphate pulp is somewhat similar in appearance to the soda pulp, and is the outcome of a combination of the soda and sulphite processes. The chief characteristic of this class of pulp is its extreme feltiness, and it is also contended that it bleaches easier than the soda pulp. Both soda and sulphate pulps are produced in a great variety of qualities, some makes being much cleaner and stronger than others, whilst other differences arise through the raw wood used. This is especially noticeable when comparing the Scandinavian pulps with those of German origin, the fibre of the former being soft and fluffy, wasting in use, whilst the latter pulps possess hard, tough fibres yielding much better returns. This difference arises from the fact that the Scandinavian pulps are manufactured from the wood of the common pine, whilst those of German origin are made from the young wood of the Scotch fir, which it is well known yields the best wood for the purpose, and also from the fact that the Germans are better chemists than the Scandinavians.

The following are the best woods for the production of cellulose, stated in their order of merit—viz.: *Pinus sylvestris*, *Pinus abies*, and *Pinus pioca*, and these yield in the soda and sulphate systems about 35 to 38 per cent. of cellulose, whilst in the sulphite system they yield about 50 to 55 per cent. cellulose. Besides the above-mentioned, the wood of the following trees can also be used in the production of cellulose with advantage—viz.: *Populus alba*, *Pinus austriaca*, and *Pinus larix*.

With regard to the advisability of erecting a wood-pulp factory in New Zealand, the following points would require your most careful consideration: (1) Is the pulp to be produced for export to paper-making countries? or (2) is the pulp to be used for paper-making in New Zealand?