WOOD PULP DEPARTMENT

PULP AND PAPER PRODUCTION IN THE UNITED STATES.

THE United States Department of Labor recently undertook the collection of data relative to the production of paper and pulp during the six months of 1898, from January 1 to June 30. Out of a total of 723 plants in the United States which were in active operation during this period, statistics were obtained from 644 of these. By the word plant is meant one or more mills in the same locality, owned or operated by the same person, firm or corporation. From 644 plants complete returns of production were secured, while for 79 plants an estimate has been made which is believed to approximate closely the actual facts.

The tables compiled show that during the six months there were produced in the 644 plants from which reports were secured, 994,087 tons of paper and 619,383 tons of pulp, the value of the paper being $48,689,880, and that of the pulp $13,428,542. In this connection it should be noted that the pulp produced was almost entirely consumed in the manufacture of the 994,087 tons of paper, and that therefore its value should be added to that of the paper in order to secure total value of product.

Of the 619,383 tons of pulp produced, 367,744 tons were ground wood pulp, 173,420 tons were sulphite fibre, and 74,379 tons were soda fibre, while 3,840 tons of cotton fibre were produced.

FIBRE FROM SAWDUST.

HERE is a new and original idea that reaches The Paper Mill from a well-known chemist and government official. He has evidently solved the problem of manufacturing fibre for paper-making from sawdust and shavings. The detailed account of his discovery is given below :

"The special object of my process is to prepare a fibre suitable for paper making from planer shavings, sawdust and the like. Of course I know that this is an old, old problem, upon which effort and money have been expended without developing a commercial process, but I have looked into the matter with care and discussed it with people in a position to know about the difficulties in the way of a successful process, and particularly with a man who had considerable experience some years ago in trying to make fibre from sawdust. As a result of my work I have found that there are three chief difficulties in the way of commercial success: First, the small yield of fibre ; second, the excessive amount of solution required in boiling ; third, the difficulty of washing the fibre, which required the use of large amounts of wash water, resulting in the production of large quantities of solution too weak in soda to pay for the recovery of the soda. If there are other serious difficulties I have not yet come across them, and I would be glad if you would point out any other obstacles in the way of commercial success.

In my process I provide means for overcoming all three of these difficulties. The small yield of fibre by the ordinary soda process is due to its being too drastic when applied to sawdust on account of the state of the subdivision of the wood. Cellulose is chemically very inert and yet under the severe treatment of the ordinary soda, boiling considerable cellulose, is dissolved and wasted. My treatment is comparatively mild in connection with my method of washing the resulting fibre.

Ordinarily wood is entirely submerged in soda solution during boiling. Owing to the light and bulky nature of shavings and sawdust this requires a very large volume of solution, but I have ascertained by trial in the laboratory that this is not necessary and that a much smaller volume of a weaker solution will do the work. Finally I wash the resulting fibre in the boiler by means of steam generated within the boiler, and thus the soda is removed from the fibre and a concentrated solution obtained.

Now, just what I do is as follows: I have found that shavings and sawdust will hold from three to four times their weight of water without showing any visible excess of liquid. Therefore I mix them with about this amount of soda solution and charge the mixture into a closed boiler of special construction. The charge rests on a perforated false bottom. Into the space below the false bottom is put water or weak soda solution, leaving a clear space above the liquid. There is also a clear space above the charge. There is an open passage through the charge by means of a tube communicating between these two open spaces. There is also an ordinary vomiting arrangement to circulate the solution through the charge.

The boiler being charged and closed, the liquid in the bottom is heated to give steam pressure and a solution is circulated for a sufficient length of time. The circulation is then stopped and steam from the liquid in the bottom of the boiler is used to wash the soda solution out of the fibre.