

The Rod Mill as a Beater

A description has already been given³ of the pre-

³Rue, J. D., and Wells, S. D., loc. cit.

liminary application of the rod mill at the Forest Products Laboratory to the beating of sulphite pulp for greaseproof papers. Further studies are under way to determine the extent to which the mill can be adapted to the production of sulphite papers less thoroughly hydrated than greaseproof and to the production of kraft papers. While these investigations are not yet completed, some preliminary conclusions are warranted.

What has already been said with regard to the speed of rotation of the mill and the consistence of the stock applies with equal force when considering the rod mill as a beater for chemical pulps. The consistence should be between 4 and 8 per cent, preferably about 6 per cent. Slush stock may be deckered to a consistence in excess of 6 per cent and, together with the required water, fed into the mill with a worm screw. Wet laps and dry sheets may be shredded directly into the worm feeder and the water added continuously. The degree of beating will be determined by the rate at which the pulp is fed into the mill, or, in other words, by the length of time the pulp is under the action of the rods.

In any given operation the power required to operate the mill is a constant determined by the speed of rotation and of the weight of the rod charge. It is affected very little by either the manner or the rate of feeding the pulp to the mill. For that very reason, however, the power per ton of pulp is determined almost solely by the rate of feed.

The results thus far obtained at the Laboratory with a southern kraft indicate that with the expenditure of about 15 horsepower-days per ton in a 6 by 12 foot rod mill the pulp, without further beating or jordaning will produce a paper equal to the usual commercial grade made from the same pulp. The 6 by 12 foot rod mill would in that case have a capacity of 6 tons per 24 hours. The usual power for beaters and jordans is from 25 to 30 horsepower-days per ton.

A preliminary test with a Mitscherlich sulphite indicates that a large mill would have a capacity of 10 to 15 tons per 24 hours and a corresponding power requirement of 9 to 6 horsepower-days per ton.

Potential Values of the Rod Mill

The indications which our preliminary investigations give of the potential values of the rod mill as applied to refining knots and screenings and to beating chemical pulp have been discussed here in rather general terms. As our investigations proceed, the indications may be modified or they may be more fully substantiated. In any case it is our hope that the information now available will stimulate careful investigation on the part of the superintendents and that you may be induced to study the application of the rod mill to your individual problems. You may be sure that the Forest Products Laboratory will gladly cooperate with you if you desire to test its merits in your mills.