

laborious research, by the first men of the age, has brought out this law "seven times refined" for the benefit of the world. So long as we know that the maximum velocity of motion can be imparted to an engine before it reaches the half-stroke, we decide the fallacy of any argument which prescribes any later point of cut-off; and we also decide that the only limit to economy of steam by expansion, is to be determined by the practicable conditions of such initial motion, and the practicable perfection of construction.

Paper from Wood.

Many years ago, a M. Watt succeeded experimentally in manufacturing paper of fine quality from woody fibre. But the large quantity of concentrated alkalis which he was forced to use in a highly heated state, prevented the practical introduction of his process. It appears that a French lady, whose name is not given in the *Cosmos* to which we are indebted for the following account, has succeeded in avoiding the difficulty by the use of a peculiar cutter, by which the wood is reduced to a species of *lint* before it is subjected to the reagents. This cutter consists of a series of parallel wheels, set close together on an axis, and armed with fine points, which penetrate the surface to a small depth (not more than one-hundredth of an inch), and are followed by a sort of plane which ploughs off the surface thus minutely divided. The material is then made into a pulp by the action of acids and alkalis, and bleached by chlorine. The paper thus made is said to be equal or even superior to linen paper, and to be fitted for use for fine impressions of engravings in place of China or India paper, while its cost is less than one-hundredth of that material.—*Cosmos*.

On the Nature of the Deep-Sea Bed, and the Presence of Animal Life at Vast Depths in the Ocean. By Dr. G. C. WALLICH.

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(Continued from page 241.)

The *Foraminifera* are the organisms to which reference has been made as performing so very important a part in the formation of certain strata on the earth's crust. They occur abundantly in all existing seas. They are to be met with in a fossil state, not only in chalk, but in almost all marine sedimentary strata; as, for instance, in the hard limestones and marbles. The recent *Foraminifera* may therefore be looked upon as the oldest living representatives of any known class of organisms.

In the mud, or "ooze" as it has been termed, which is brought up from great depths in many parts of the open sea, immense assemblages of *Foraminifera* are to be met with, chiefly belonging to one species, however. In the absence of examinations conducted immediately on their being brought up to the surface by the sounding ma-