

The practical utility of geological surveys is incidentally illustrated at several points in the volume, where it is shown that money, up to more than a million dollars in a single case, might have been saved by a good preliminary examination of the circumstances.

The world (if Ohio does not) must needs feel very grateful to Professor Orton and his assistants, some of them not contributors to the volume, for their largely gratuitous and very successful labors, and, congratulating him and them on having accomplished so much with such limited time and means, must hope that he may soon find himself able to publish at least one more volume on the several other economical subjects of high importance necessarily neglected this time.

THE WINDMILL AS A PRIME MOVER.

THIS treatise is intended to present the theory and the practice of construction and use of windmills, the history of this form of prime mover, its progress and development, and the economy attained in its application to the production of available power. It is a careful and conscientious study of the machines in use, of the theory of the transformation of the available energy of wind for purposes of application, and of the commercial aspect of the case.

Here will be found an account of the extent to which windmills are used, and of the comparative value of these forms of motor and the steam-engine, the theory of wind-pressure, and the effect of air in motion upon the sails. The history of the construction and use of windmills is given with a description of the best known. The whole is a very complete treatise, and will probably take its proper place as the standard, the only real treatise upon this subject. It supplies a want, and will probably be extensively read.

The arrangement of the book seems to us excellent, the treatment good, the work, so far as we have been able to check it, accurate, and the conclusions correct. Chapters ii. and ix. on the construction of the formulas for effect, and on the commercial economy of the mill, are the most strikingly valuable parts of the book; and the former will interest the student of the theory of prime movers as greatly as the latter will interest the proposed user of the machine, and the practising engineer. The text is well written, the book-making excellent,

The windmill as a prime mover. By ALFRED R. WOLFF, M.E., New York. Wiley, 1885. 8°.

and the whole book is an illustration of a kind of work which is always welcomed by the profession to which its author has presented it.

NOTES AND NEWS.

A LARGE stone slab has just been placed in the wall of the entrance hall of the newly completed portion of the Museum of comparative zoölogy, which was built by Dr. Alexander Agassiz at his own expense, and presented to Harvard college. The simple inscription reads as follows:—

LVDOVICI ▼
AGASSIZ ▼
PATRI ▼ FILIUS ▼
ALEXANDER ▼
MD ▼ CCC ▼ LXXX ▼

— On the last day of August, according to *Nature*, Professor Michel Eugene Chevreul entered upon his 100th year. Apart from the fact, that, among men whose lives have been devoted to active scientific research, no one has before attained such an age, Chevreul stands conspicuous for the vast amount of work he has done, and for the great practical effect his work has had on the industries of the world. When Dumas, in 1852, addressed him on the occasion of handing to him the prize of 12,000 francs accorded to him by the Société d'encouragement pour l'industrie nationale, he said, "Le prix consacre l'opinion de l'Europe sur des travaux servent de modèle à tous les chimistes; c'est par centaines des millions qu'il faudrait nombrer les produits qu'on doit à vos découvertes." More recently, in 1873, when the award of the Albert medal was made by the English society of arts, the terms in which the council expressed the grounds of the award were, "For his chemical researches, especially in reference to saponification, dyeing, agriculture, and natural history, which for more than half a century have exercised a wide influence on the industrial arts of the world." His scientific work, apart from its commercial outcome, was recognized by the Royal society of London as far back as 1826, when he was elected a foreign associate. In 1857 the Copley medal was awarded to him. Other countries have also paid him honor, while the distinctions of his native land have showered upon him. Born in Angers in 1786, where his father was a physician of note, he was but seventeen when he went to Paris to be 'manipulateur' in the laboratory of the celebrated Vanquelin. At the age of twenty he published his first chemical paper, and in the next half-dozen years he had published more than a score on different subjects. Then began that series of papers (commencing in 1813), "*Recherches chim-*