Factorization of $y^n \pm 1$, $y=2, 3, 5, 6, 7, 10, 11, 12$ up to high powers (n.) By A. J. C. Cunningham and H. J. Woodall. London, Francis Hodgson, 1925. xx+24 pp.

This little volume gives the latest account of the efforts of arithmeticians in factoring numbers of the form $y^n \pm 1$. The tables for $2^n \pm 1$ and for $10^n \pm 1$ owe much to other computers but the remainder of the work is the outcome of some thirty years of faithful work on the part of these veteran computers. The table for $2^n - 1$ runs up to $n = 500$ but the blank spaces for n greater than 100 remind one of the unexplored regions in ancient maps. No doubt in the next few years explorers armed with high-power computing machines will fill up many of these white spaces. Within the last half year $2^{139} - 1$ has been proved composite and before the end of the year Kraitchik's investigation concerning $2^{257} - 1$ will be confirmed or rejected by a recomputation. Every year witnesses the invention of some new device for examining the primality of "large numbers" and doubtless what today are considered as "large numbers" will be "small numbers" for the next generation. In the meantime this little book will serve to point out the gaps.

D. N. LEHMER

Atomicity and Quanta. Being the Rouse Ball Lecture delivered on May 11, 1925. By J. H. Jeans. Cambridge University Press, 1926.

In this lecture, Dr. Jeans has sketched the development, and outlined the present state of the quantum-theory. As space and time are linked together in the theory of relativity, so are matter and energy; and the atomicity of matter may imply a like property in energy. The evidence for the atomicity of energy furnished by recent experimental results seems, at first sight, almost conclusive; and the difficulty of reconciling a bullet-theory of radiation with the undulatory theory, which appears to be essential for accounting for the greater part of optics, leads to the conclusion that "we are still very far from understanding the working of the atom or the true meaning of atomicity and quanta."

The lecture is written in the lucid style characteristic of the distinguished author, and every one interested in modern physics will be well repaid for reading it.

E. P. ADAMS