

SCIENCE

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EARTH-CRUST MOVEMENTS AND THEIR CAUSES.*

INTRODUCTION.—SOURCES OF ENERGY.

NEARLY all the processes of nature visible to us—well-nigh the whole drama of nature enacted here on the surface of the earth—derive their forces from the sun. Currents of air and water in their eternally recurring cycles are a circulation driven by the sun. Plants derive their forces directly, and those of animals indirectly through plants, from it. All our machinery, whether wind-driven, or water-driven, or steam-driven, or electricity-driven, and even all the phenomena of intellectual, moral and social activity, have still this same source. There is one, and but one, exception to this almost universal law, namely, that class of phenomena which geologists group under the general head of *igneous agencies*, comprising volcanoes, earthquakes, and more gradual movements of the earth's crust.

* Annual address by the President, Joseph Le Conte, read before the Geological Society of America, December 29, 1896.