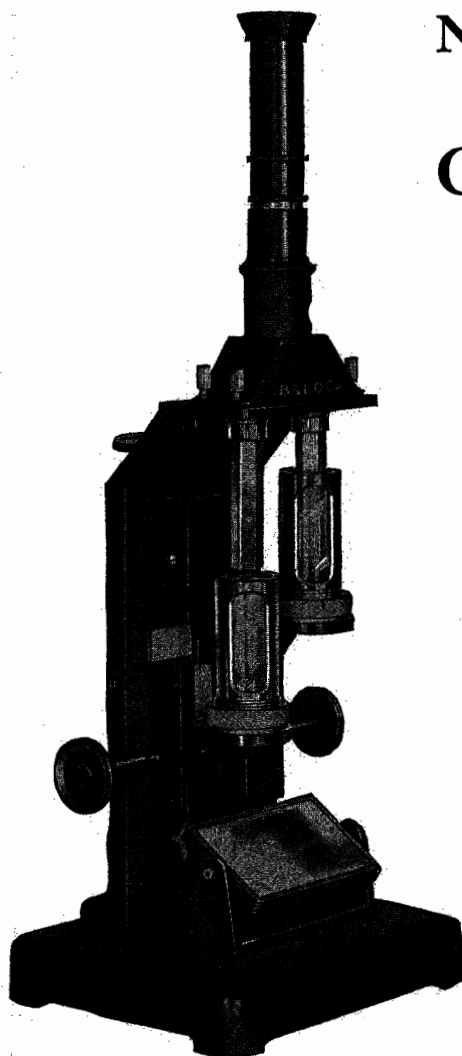


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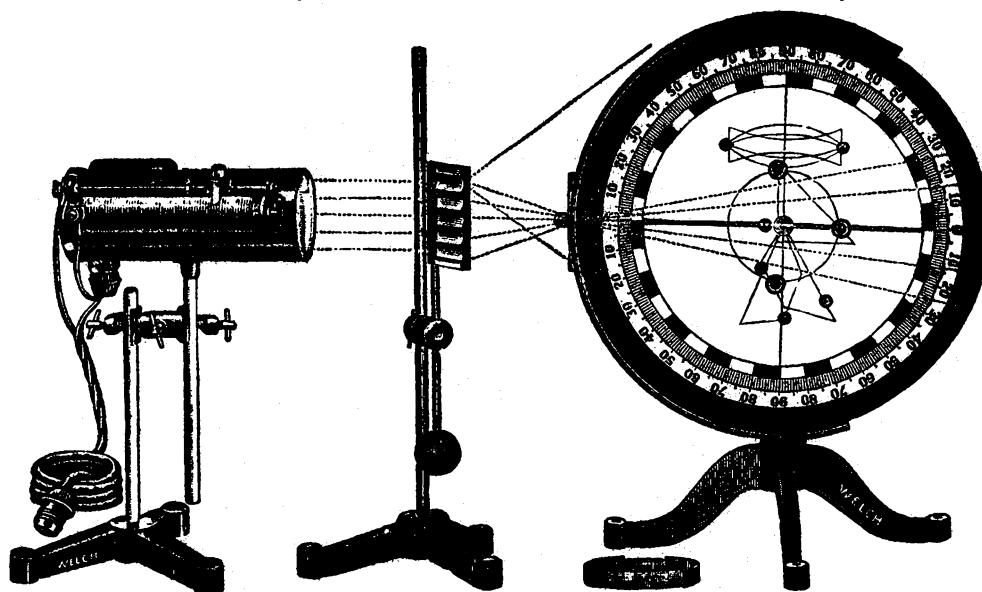
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SCIENCE: A Weekly Journal devoted to the Advancement of Science, edited by J. McKeen Cattell and published every Friday by

THE SCIENCE PRESS

Lancaster, Pa. Garrison, N. Y.
New York City: Grand Central Terminal.
Annual Subscription, \$6.00. Single Copies, 15 Cts.

SCIENCE is the official organ of the American Association for the Advancement of Science. Information regarding membership in the Association may be secured from the office of the permanent secretary, in the Smithsonian Institution Building, Washington, D. C.

Entered as second-class matter July 18, 1923, at the Post Office at Lancaster, Pa., under the Act of March 8, 1879.

JAMES HUTTON, THE PIONEER OF MODERN GEOLOGY¹

GEOLOGY had its beginnings in ambitious attempts to solve by a single system of philosophy all the secrets of the physical universe, at a time when little was known and when it was the custom to evolve conceptions out of the workings of the inner consciousness rather than by reasoning from the facts of observation. It is, therefore, of the greatest significance that our civilization grew up within the most unstable belts upon the earth's surface, within which the awe-inspiring and catastrophic phenomena of nature draw attention to man's impotence in the face of these destructive manifestations.

From the outset religious beliefs have strongly colored the conceptions of natural phenomena. Earthquakes and volcanic eruptions, devastating floods of waters and plagues of insects have one and all been looked upon as indications of the displeasure of some deity. The Christian era inherited both from the pagan world and from the Hebrew conceptions of the Old Testament the idea of punishment through the infliction of destructive geological phenomena.

Under these circumstances it was but natural that the church should have been looked upon as the fountain of all wisdom in matters scientific as well as spiritual, the more so since the intellectual class of the middle ages was restricted to the churchmen and to the physicians, who were usually closely attached to the persons of powerful Christian princes on whom they were dependent for their support. The records of ideas were, moreover, treasured in the monasteries of the church. Little wonder is it, therefore, that reasoning from the facts of observation was so long in usurping the place of the inherited conceptions over which the church had spread the protecting cloak of divine revelation.

Science has been inclined to ascribe an emancipation from church dictation to the controversy which developed near the middle of the last century over Darwin's "Origin of Species," but evidence is not wanting that within large sections of our own country its shackles are still upon the popular beliefs.

There were certain fundamental problems of geology on which the church had made no very definite pronouncement, and it was in this supposedly safe quarter where no affront would be offered to church

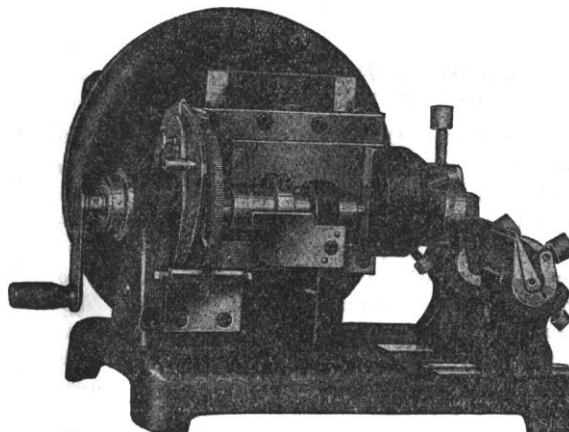
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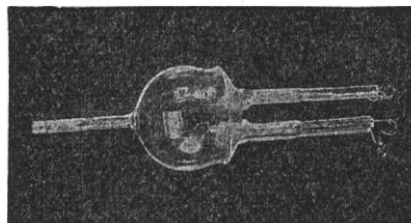
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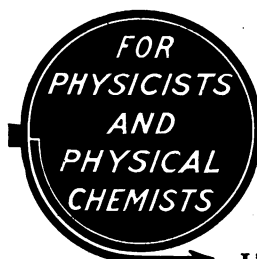
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