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WILLIAM LEES

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LATE EXAMINER IN MATHEMATICS, UNIVERSITY OF EDINBURGH.

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ACOUSTICS.

CHAPTER I.

1. Object of Acoustics.—The term "acoustics" is derived from a Greek verb signifying "to hear." It is applied to designate that branch of science which treats of the phenomena of sound.

2. Cause of Sound.—The *immediate* cause of sound is the vibration of the sounding body. If, for instance, we take a glass receiver, and holding it by the top, strike it with a wooden mallet, it emits a clear ringing sound; and we can be assured of the fact that it is in a state of vibration, by observing the tremulous motion of the mallet when allowed to rest lightly on the side of the receiver—or by suspending a series of cork balls from the top of the receiver, when a peculiar dancing motion of the balls takes place.

3. How the Air is Affected—Amplitude.—The question arises, in what way is the air affected by these vibrations on the part of the sonorous body? The particles of air in the immediate vicinity of the body are thrown into a forward, and thence by their elasticity into a backward motion, passing to a short distance, then returning, and so on successively; but the air contiguous to this directly affected portion of air takes up the impression, and a similar motion of the aërial particles takes place; in like manner the air contiguous to this second affected portion takes up the impression; and thus the original motion is transmitted from one portion of air to another,