AN ELEMENTARY TEXT-BOOK OF PHYSICS; PART II: SOUND

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AN ELEMENTARY

TEXT-BOOK OF PHYSICS.

PART II.

SOUND.

BY

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P.

PREFACE.

THIS volume, which is issued as Part II. of an Elementary Text-Book of Physics, deals with the elements of *Sound*.

An effort has been made to give, as simply and as clearly as possible, a fairly complete exposition of the fundamental facts and principles of the subject. The experiments described in the text are intended to illustrate and develop the theory, but in most cases the descriptions are given with sufficient experimental detail to be of service in the laboratory.

This Part is complete in itself, but a knowledge of some of the elementary principles of Dynamics dealt with in Part I. is necessarily assumed.

April, 1909.

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SOUND.

CHAPTER I.

SIMPLE HARMONIC VIBRATION.

1. **Simple Harmonic Motion.**—Let P (Fig. 1) be any point on the circumference of the circle APB, and AB *any* diameter of the circle. From P draw P*p* perpendicular to the diameter

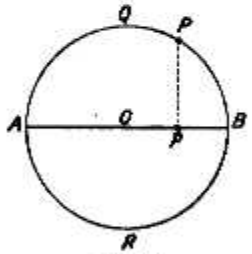

Fig. 1.

AB, and meeting the diameter at the point *p*. The point *p* is the *projection* of the point P on the diameter AB. For different positions of the point P on the circumference of the circle, the point *p* will have different positions on the diameter AB, for the point *p* will in all positions be the foot of the perpendicular from P on to the diameter.

Now, imagine the point P to move round the circumference of the circle with uniform speed, and consider the corresponding