Science Bulletin

Volume 2 | Number 5 Article 2

1-1930

Title - Masthead

SCIENCE BULLETIN

A Service Bulletin for Teachers of High School Science. Published Monthly by the Extension Division and Edited by the Departments of Natural and Physical Science.
IOWA STATE TEACHERS COLLEGE
Editor-in-Chief: Dr. C. W. Lantz. Advisory Board: Dr. L. Begeman, Head, Department of Physical Science; Dr. E. J. Cable, Head Department of Natural Science.

VOLUME II JANUARY, 1930. NUMBER 5.

MOTION

Physics.

Motion is a general property of matter. There is no rest in the absolute sense. An object at rest with reference to the earth's surface is in rapid motion with reference to the earth's axis of rotation, just as a person may be at rest in a Pullman car and at the same time be in rapid motion with reference to the ground. All divisions of matter,—masses, molecules, atoms, protons, and electrons are moving relatively all of the time.

Motion may be classified under three heads:—translatory, rotary, and vibratory. Translatory motion is illustrated by an automobile traveling down a road. By means of such a motion, we travel to distant parts of the earth's surface. Translatory motion may take place in a straight or a curved path depending upon the variations of its directions while in progress. Rotary motion is referred to an axis and is practically illustrated in the revolving parts of machinery. Vibratory motion is illustrated in the motion of the pendulum of a clock and in the pistons of steam engines and of gasoline motors. It is also roughly illustrated in the swaying of the branches of a tree or of growing stalks of grain when actuated by the force of the wind. Vibratory motion is also called periodic motion since it continuously repeats itself in a definite interval of time. In a broad sense rotary motion is also vibratory motion. It is evident that vibratory motion is basic in mechanic arts as well as in the phenomena of nature.

Of course the most important property of any kind of motion is speed or velocity. When a person sees an automobile dashing down the street, it is speed that attracts his attention. When the speed of a moving object is maintained without variation through successive hours, minutes, or seconds, it is said to possess uniform motion.

When, however, the speed of an object varies continuously, it is said to possess variable or accelerated motion.

Translatory motion is commonly studied in physical science under two heads,—uniform and variable motion. Generally, the man in the street estimates all translatory motion in terms of uniform motion. If a train travels 300 miles in 10 hours, he says it moves at the rate of 30 miles per hour. In reality that is only the average speed as it may never have possessed such a speed in an exact sense for more than a few moments during all its journey. Perfectly uniform motions are practically impossible in a gravitational field of force such as the earth possesses.

The high school student, like everyone else, readily grasps the idea of uniform motion since it illustrates the common way in which most of the motions of his experience are gauged. Consequently when he comes to a scientific consideration of accelerated motion, he has great difficulty. It comes to him more as an abstraction than as a concrete phenomenon, therefore it is best in taking up the simplest form of accelerated motion which happens to be uniformly accelerated motion in a straight line to introduce the subject with common every day illustrations.

Uniformly accelerated motions in an approximate practical sense are quite common in our daily environ-