

New Time Method

Astronomy

A new method of telling time was described to the astronomers by Prof. F. B. Littell, from the Naval Observatory in Washington. The usual method of finding time from the stars, which is the ultimate source of our time no matter where we set our watches, is with the use of a transit. This is a telescope swinging around an east and west axis. Thus it can only move in the meridian, from north to south. The astronomer watches the star through it and as it reaches the center, the exact time indicated by the observatory clocks at the moment is recorded. As the position of the star is known with precision, the astronomer can tell when it should have crossed the center, so he knows the amount that his clock is fast or slow.

Prof. Littell's suggestion was to use another, and less common instrument, the "photographic zenith tube," for telling time. This is a special form of telescope that points directly overhead. Half-way down is a dish of quicksilver, or mercury. The surface of the mercury is always exactly level, and so the light that enters the tube is reflected back to the top. A tiny photographic plate just below the lens receives this light, and a record is left of the star. By letting the star trail across the plate, in a special holder that gets a jerk every second from a magnet connected to the clock, a series of short dashes are obtained. By measuring their position, said Prof. Littell, the time can be obtained more accurately than with a transit, because the mercury is always level, and so gives a point exactly overhead and precisely on the meridian.

Science News-Letter, September 14, 1929

In a recent survey of chronic sickness in Boston it was found that one-sixth of the chronic invalids were children.

Anemia is a comparatively new and serious disease among pigs, affecting especially those raised in the confined quarters of apartment style hog houses.

Transverse fissures in steel rails have been the cause of railroad wrecks, but the origin and reason for these defects still puzzle engineers and physicists.

A Free Biology Manual for High School Teachers

Our new catalog, which is now ready for mailing, is a combined teachers' manual and catalog of biological supplies for high school use. We have made every effort to make this 192-page book of real value to the high school teacher. It contains a Botany and Zoology Manual, a detailed article on the school aquarium, a large number of original illustrations and many short biological notes. The illustrations include over fifty original drawings, a large number of which are carefully labeled, diagrams of dissections and identification plates of laboratory plants and animals.

The Botany and Zoology Manuals, which occupy about sixty pages, are written especially for the high school teacher. In these manuals, we have made no attempt to present detailed courses of study, as such material is readily available in the many students' laboratory manuals now on the market. Instead, we have tried to include information which will be of value to the teachers in planning and carrying through a worth-while course in beginning biology. The desirability of studying living material is emphasized and we have made many suggestions as to ways in which teachers can collect and prepare much of their own laboratory material.

In the Zoology Section of the manual, the following type forms are discussed in detail, under such headings as collection, care of specimens in the laboratory, study of living specimens, etc.: Protozoa, Grantia, Hydra, Earthworm, Crayfish, Grasshopper, Honey-bee and Frog. The Botany Section of the teachers' manual considers in a similar way, Gleocapsa, Nostoc, Vaucheria, Spirogyra, Rhizopus (Mucor), Lichens, Mosses, Marchantia, Fern and Pine, as well as general discussions of the main groups—Algae, Fungi, Gymnosperms, Angiosperms, etc. An abundance of carefully labeled illustrative matter supplements the text.

Some of the practical suggestions will, we believe, be of value and interest to even the more experienced teachers. The following subjects are just a few of those which are discussed and explained in the manual:

- Demonstrating how Hydra feed.
- Finding living Vaucheria during the winter months.
- Collecting mosses at the proper seasons.
- Growing protozoan cultures.
- Suitable material for a study of the angiosperms.
- Studying living frog eggs.
- Collecting insects.
- Aquarium methods.
- Living earthworms in the laboratory.
- Regeneration experiments with Planaria.

The catalog section lists a very complete line of material for high school biology work. The items which have been included are those which are particularly useful in beginning biology courses. Many of the preparations have been specially developed to meet the need and requirements of high school teachers. In this section of the catalog are described—preserved and living specimens, microscope and lantern slides, demonstration preparations, life histories, models, charts, apparatus and instruments—everything, in fact, that is needed in the high school course.

This combined High School Biology Catalog and Teachers' Manual will prove of interest to every science teacher. We have already mailed copies to all teachers whose names are upon our mailing list. Addresses change, however, and if you have failed to receive your copy, please ask for it. One of these books will be sent to you at once and, we believe, that you will find it helpful and interesting.



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