

around the stem and heats it electrically for several seconds, which causes the temperature of the sap to rise by fractions of a degree. A few inches higher up the passage of the heated sap is registered by a tiny electrical thermometer which can be introduced between bark and wood without doing any harm.

This method, of course, is efficient only if the sap flows more quickly than it loses its heat, which is the case when the speed is more than one-half an inch a minute.

In this way it is easy to observe the daily speed fluctuations in one and the same plant throughout the year. For

instance, Prof. Huber found that the sap in a vine moved with a speed of 30 inches an hour between 6 and 7 o'clock in the morning, that at 1 o'clock the speed rose to approximately 28 feet an hour and fell again to about 30 inches an hour at night.

In the case of conifers, the condition that the sap should move more quickly than it loses its heat is not fulfilled, so that measurements are impossible. But in the case of foliage trees he found speeds from the measurable minimum up to 36 feet per hour, with vines even up to 150 feet per hour.

Science News Letter, July 15, 1933

PHYSICS

Electrical Gage Measures Springy Rubber Articles

PRECISE measurements of the dimensions of rubber slabs and cylinders are now possible by means of what might be termed a set of electrical gages developed by W. L. Holt of the National Bureau of Standards. It is obvious at once that the measurement of the thickness of a compressible substance like rubber would be rather inaccurate with the ordinary screw micrometer due to the difficulty of telling when the spindle and foot of the instrument just make contact with the surface of the material without pressing into it.

The new devices make use of the principle of the screw micrometer but substitute a "presser foot" with a spherical surface for the ordinary foot which is plane. When the contact surface of this presser foot is forced down by the specimen of rubber due to the pressure of the spindle acting on the upper surface, it makes contact in an electrical circuit thus causing the needle of a galvanometer in front of the operator to deflect. The indentations in the rubber made by the presserfoot are said to be practically zero so that no errors creep in from this cause.

For measuring the width of the rubber slab or the diameter of a rubber cylinder another gage has been built which operates, with slight modifications, on the same principle as the gages for measurement of thickness just described.

Measurements made with these electro-micrometer gages compare well with those determined from computation of

the volume of the specimens as well as those obtained with the usual types of dial gages. It is expected that the new device will be a boon to the rubber technologist who must know the exact dimensions of the specimens he is testing if his results are to mean anything.

Science News Letter, July 15, 1933

PHYSICS

Magneto-Optic Method Measures Minute Amounts

NOT ONLY can the presence of minute traces of chemical elements be detected in a solution by means of the magneto-optic method, but how much of each can be estimated, Dr. Edna R. Bishop of the Alabama Experiment Station, Auburn, Ala., told the American Association for the Advancement of Science.

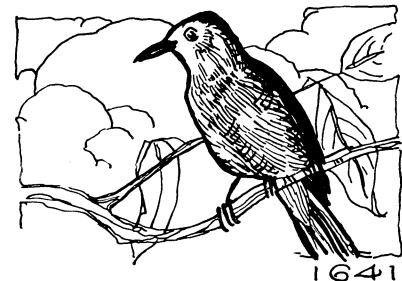
The magneto-optic method was invented by Prof. Fred Allison of Alabama Polytechnic Institute, and depends on the fact that if a beam of polarized light is shot through a solution, and a powerful magnetic field then suddenly applied, the direction of the wavefronts of the light is twisted out of line.

The use of this method for quantitative analysis, Dr. Bishop said, has the advantage of great sensitiveness, of being able to pick out any desired element without troublesome preliminary separations, and of not changing the original sample to be analyzed in any way.

Science News Letter, July 15, 1933



ORNITHOLOGY



Yankee Mockingbird

THE MOCKINGBIRD is the chief boast of all southern birddom, and justly so. He is an excellent songster, with an exceedingly varied repertoire.

But though the North is not blessed with the mockingbird, it has an almost equally talented cousin of his, in the catbird. The mockingbird and the catbird look a good deal alike, being slim, long-tailed birds of a general gray color scheme, and they have the same habit of ducking in and out among the branches when you try to get a good look at them; not flying away, but keeping inconvenient bunches of leaves between themselves and the observer.

The cousinship is most clearly traced through the catbird's song. This mockingbird of the North has an assortment of notes of his own, and of imitations of other sounds, that fairly rivals the stock of his more widely reputed cousin in Dixie. There are even some loyal Yankees who prefer the catbird. And indeed if it were not for the mewing call he sounds when excited or alarmed, the catbird might well have been formally named the Northern Mocker.

That catcall is the most realistic imitation in nature, though it is not a deliberate imitation. Catbirds were using it long before white men came to America and brought their pets with them. But it is so much like the voice of a somewhat distressed kitten that it will fool even a cat.

But let no cat presume on a similarity of language and try and get familiar. The catbird, like the mockingbird, has a decidedly combative streak, and will turn himself into a low-flying, strafing combat plane if anybody, no matter how big, gets too close to his nest.

Science News Letter, July 15, 1933