eight of the olive-green water form and seven of the vermillion land form were examined. Every one of the former was abundantly supplied with the parasites, but only two of the land forms were infected.

All that is necessary to obtain living specimens of the trypanosomes for study is to snip off a little piece from the end of the tail, and then squeeze out several drops of blood on each slide. A cover glass can be added directly or a ring of vaseline may first be spread around the blood so that the preparation will be sealed when the cover glass is put in place. In such a preparation the spiral movement of the organism is evident, and the flagellum and undulating membrane are easily observed in action. The nucleus and other structures are clearly revealed in dried films stained with Wright's or Leishman's stains. Obtain a drop of blood near one end of a clean slide. Place the end of another slide near the drop of blood at an angle of about 30 degrees with the shorter end of the slide. Draw this slide along until it touches the drop. When the blood has spread along the edge, push the slide fairly rapidly toward the other end. A thin even film will result covering about one half of the slide. Allow this to dry. Then place a few drops of the stain on the film and allow to remain one minute. Add double the volume of distilled water and after five minutes wash the film with distilled water, and dry in the air. Balsam and a cover glass may then be added but the stain will fade. If oil immersion objectives are available no cover glass should be used but the oil placed directly on the film, and after the examination is completed this oil may be wiped off with lens paper or washed off with xylol. The stain may be obtained in small 0.1 gram tubes. This amount is dissolved in 10 c.c. of pure methyl alcohol and is then ready for use.

R. W. Hegner
School of Hygiene and Public Health,
The Johns Hopkins University

HORIZONTAL RAINBOWS

To the Editor of Science: With respect to Reese's account of an "unusual form of rainbow" in Science for December 12, 1919 (Vol. L., p. 542), it may be said that, in Europe, rainbows on the surfaces of ponds and lakes have been reported from time to time during the past fifty years. They have been observed, also, on several bodies of water in Japan during the past few years and the investigators of that country have given some attention to the mathematical explanation of these phenomena.

In the United States these spectral displays have been seen frequently on the surface of Lake Mendota at Madison, Wisconsin, during the past ten or twelve years. Some of these displays have been unusually brilliant and varied; double and triple primary bows together with a secondary bow have been noted at times. These phenomena have been described in the *Monthly Weather Review* for February, 1916 (Vol. 44, p. 65).

The complete bows that have appeared on the surface of Lake Mendota possessed a very different outline from the diagram shown by Reese. They were parabolic in shape instead of circular; neither did they possess an inverted segment connecting the outer extremities as in his figure.

As far as the present writer is aware, these horizontal rainbows have been reported for only two lakes in this country, namely, Lake Mendota and the lake referred to by Reese. This seems to indicate that it is not a widespread phenomenon, or else other observers have not taken the trouble to publish accounts of their observations. It would be interesting to know whether these spectral colors have been seen on any other bodies of water in this country.

Chancey Juday
Madison, Wisconsin

CHEMISTRY APPLIED TO COMMERCE

The divorce of science and industry, which has long been a noisesome skeleton in our economic household, is fast being annulled. "During the war, American industry acquired —or had thrust upon it—a wholesome respect for American science," *Drug and Chemical*