

a sewing-machine, or as a farmer does when he buys a mowing machine. He avails himself of the *thoughts and discoveries of others on education*; hence the importance of *educational publications*; they are the cheapest, readiest, and surest means a teacher can employ to keep himself and his class up in front. To be a first-class teacher, you must know what the most skilful of your profession would do if in your place.—*N. Y. School Journal*.

—A travelling agent of a St. Louis firm makes affidavit that the following is a literal copy of rules posted on a school-house in the interior of the State: "Each pupil is required to make a bow on entering the School-House of a morning also leaving of Evening the School Room. their shall be no profane language used in school or on the play ground nor there shall be no pin sticking, scratching, no tagging nor no fitting, nor no unesery whispering in school. No Pupill shall leave the school House without the permission of the Teacher. No unesery moving from seat to seat. No fitting on the road from or to school, nor no nick-naming. Every pupil over eight years is subject to those rules, and the teacher is to make the allowance for all pupils under eight years and enforce the rules according. If any scholar breaks these rules tha shall be punished by switchen."

—A few facts concerning the number of doctors in our country may be of interest to teachers, so we give them. In the United States there is one physician to 600 people; in Canada, 1 to 1,200; in Great Britain, 1 to 1,672; in France, 1 to 1,814; in Belgium, 1 to 2,048; in Austria, 1 to 2,500; in Norway, 1 to 3,480; and in Italy, 1 to 3,500. This number includes only those who have received diplomas from some regular medical college. It would be interesting if we could present similar figures in relation to the number of licensed teachers in the United States and the other countries of the world. We know the number of schools actually taught each year for at least three months, but we cannot tell how many qualified teachers stand ready to enter the school-room of our own and other countries.—*Barnes' Educational Monthly*.

### SCIENCE NOTES.

*New Theory of the Nature of Water*.—M. Malche, in "Les Mondes," propounds the theory reached after numerous experiments, that water is simply hydrogen plus electricity, or oxygen minus electricity; or in other words, that normal electrified hydrogen constitutes water, and that normal diselectrified oxygen and water are precisely the same, differing only in degree of electrification.

It is the opinion of Professor A. R. Grote, expressed at the recent meeting of the Entomological Club at Saratoga, that the damage done by the employment of Paris-green is greater than that done by the potato-bug. This conclusion Professor Grote has reached after a careful study of the effects of Paris-green agriculturally employed. He has found cases of the poisoning, by this agent, of horses, cattle, sheep, poultry, and even human beings.

*New Cure for Sea-sickness*.—Dr. Laederick, of France, advocates the following plan for warding off sea-sickness by those predisposed to it:—Apply collodion with a brush in three layers on the epigastric region (over the stomach), and the neighboring parts. I also notice an Algerian journal of medicine offers advice on the same subject by M. Velasco. He says, use injections of 0.005 gr. and 0.02 gr. of morphine, and states that he has personally derived benefit from such treatment.

During an outbreak of scarlatina at Grantham, a town of Lincolnshire, England, nine tent-hospitals were set up in a field just outside the town. These tents were all lined, and had raised wooden floors, which were trenched round. A wooden building was erected to serve for wash-house, kitchen, dispensary, etc. A separate structure was put up for earth-closets. No provision was made for warming the tents, the season being mild. Patients were admitted on June 30th, and the tents were occupied during the eleven weeks following. Sixty-six patients, varying in age from eighteen months to thirty-eight years, were treated; six of the cases ended fatally.

*Science at Oxford (England)*.—It is a sign of progress to find that

the importance of science has been at length recognized at Oxford University, and that the preamble of a statute for instituting a faculty of natural science, and for conferring degrees therein, was adopted recently by Convocation by 57 to 20 votes.

*Making Sound-vibrations Visible*.—A very ingenious method of recording articulate vibrations by means of photography has just been invented. The apparatus (says *Galvani's Messenger*) consists of a steel mirror capable of oscillations on a diametrical axis, to the back of which is attached a lever connecting it with the centre of a telephone disk arranged with an ordinary mouthpiece. Whenever the disk is made to vibrate, the mirror oscillates with it, and a beam of sunlight thrown on the reflector from a heliostat describes lines of light on a suitably prepared screen. If the latter be movable at right angles to those lines of light, and carries a collodion film, the oscillation of the light is recorded on the prepared surface as a more or less complex curve having the peculiarity of the sound-wave which caused each particular motion. Another and simpler phonoidoscope is suggested by a writer in *Nature*: it may be made without the aid of any apparatus whatever, by bending the forefinger and thumb of one hand so as to form a circle, and then with the other hand drawing over the aperture a film of soap-suds. By turning the wrist, the angle made with the direction of the light may be readily adjusted; a motion of the elbow alters the distance from the mouth, and the tension of the film can be exactly regulated by moving the thumb and finger. On singing or speaking to the film when in proper tension, beautiful figures appear, which may be reflected direct from the film on a screen. The experiment is extremely curious and interesting.

*Important Discovery in Entomology*.—Mr. Gray, of Albany, has been engaged in the study of our diurnal *Lepidoptera* for many years. He has made the discovery, as published in the *Canadian Entomologist*, that our Eastern species of *Limnitis*, four in number, are not distinct. They belong to a single plastic genetic group, of which *arthemis* is the most northern, *proserpina* intermediate between *arthemis* and *ursula*, and the red *disippus* the most southern. He has collected them in vertical altitudes on hills in the Middle States and New England, and has intermediary specimens half bluish and red between the two most strikingly contrasted species of the group *ursula* and *disippus*. This discovery is the most remarkable in the group announced since the recognition of the female form of *diana* by Mr. W. H. Edwards. In general interest it far surpasses that discovery, and we expect will be more generally noticed.

### Notes and News.

#### ONTARIO.

A literary society has been formed in connection with Guelph High School.

The Toronto Public School Board has opened three night schools.

Mr. Alex. McFavish has been appointed mathematical master in the Guelph Agricultural College, in the place of Mr. Natrass, who has decided to enter the medical profession.

Miss Living, one of the teachers of the Ottawa Collegiate Institute, was presented with an address and testimonial on her resignation.

There are 1,285 pupils in attendance at the Guelph schools.

The Waterloo County Board of Examiners has decided to require all candidates in future to show some capacity for black-board work.

Sir Leonard Tilley presented the prizes to the successful pupils in Ottawa Public Schools at the close of last session.

The attendance at London Public Schools is 2,837.

There are 882 pupils in attendance at the schools of St. Thomas.

The Stratford School Board have appointed a committee to wait on Messrs. Hay and Ballantyne, M.P.P.'s, requesting them to urge on the Ontario Government the locating of a Normal School in Stratford.

The Public School Board of Listowel has given a decided approval of the question of teaching music in the public schools, by engaging Mr. B. B. Sarvis to instruct the pupils, at a salary of \$200 per annum.

In the London East schools the Anderson Gold Medal was won by Sarah Ann Dagh. The Waterman prize was awarded to Emily Dark.