Tomah, at Hayward, and on the other reservations (Carter School, etc.). Beside these there are many large high schools which need maps, some of them at places listed above, others at various cities.

Of course topographic maps are quite as important for the smaller cities and villages and for the country schools as for the places listed above. Wisconsin ought not to lag behind Ohio, New York, West Virginia, or any other state, or behind England, France, Germany, or Italy, all of which are completely mapped, in providing topographic maps for educational use.

In addition to the very necessary local use of topographic maps of the home area, it is desirable that students in one region should use the maps of other parts of the state. Pupils in the Milwaukee, Racine, Madison, Superior, and other high schools ought to have a chance to study topographic maps of the vicinity of La Crosse, Eau Claire or Ashland, where there are no maps as yet. Students in the country schools need them even more. College students at Beloit, Ripon, Milton, Carroll, Watertown, Marquette and Milwaukee-Downer, and normal-school students at Platteville, Whitewater, Milwaukee and Superior, where there are topographic maps, need maps of the other four fifths of Wisconsin where there are none.

At the University of Wisconsin we need not only the completed topographic sheets of the adjacent country, which our students now use extensively in laboratory work and field study, but maps of all other parts of the state, for our students come from everywhere in the state, they go back to all parts of the state to work or to teach, and we can not adequately study other parts of Wisconsin without maps of these decidedly different areas. The same thing applies to the other colleges, to all the normal schools, the large high schools, the country schools and the educational system generally. The State Geological Survey is considering a plan of publishing and distributing lists of topographic maps for schools of varied size and situation, with simple, comprehensive directions for their use in classes; this can not be done effectually until much more of Wisconsin is covered by topographic maps.

Very truly yours,

LAWRENCE MARTIN

WINTER ACTIVITY OF THE BROWN BAT, VESPERTILIO FUSCUS (BEAUVOIS), AT BROOKLYN, N. Y.

THE sporadic appearance of *Vespertilio fuscus* on mild winter evenings, in the latitude of New York, is a well-known phenomenon,[1] but the following account describes altogether extraordinary behavior on the part of a bat of this species.

A few minutes after five o'clock P.M., on February 14, 1917, Mr. George P. Engelhardt, of the Brooklyn Museum, and the writer entered the Brooklyn Botanic Garden with the purpose of finding a mocking-bird that had been observed to be wintering in the section of the grounds devoted to a Japanese garden. While we were hunting through a copse of evergreens bordering the small frozen lake, we were astonished to see a bat flying above the ice. The creature made several trips back and forth, over a distance of seventy or eighty yards, passing so close to us that we had no difficulty in recognizing the species. It circled about just as though it were pursuing insects over the water on a summer evening, except that its flight was slow and obviously labored, and we expected to see it drop at any moment. Presently it fluttered westward, beyond the end of the lake, and seemed to descend on a grassy meadow. We hastened in that direction, searching the ground, but, as we saw no more of the bat, Mr. Engelhardt left the Garden.

I then walked to the Botanical Laboratory in order to note the temperature, which was 30° F. The afternoon had been cloudy, and the setting sun shone only as a red ball through the calm, chilly, misty air. It is worth remarking that the first slight thaw after a protracted period of severely cold weather had occurred on this date. On the morning of the previous day, February 13, the thermometer had registered +3° F., in this part of Brooklyn.

Returning to the edge of the lake at 5:25 P.M., I saw the bat again, and ran after it, but soon lost sight of it. Then, as I approached the outlet of the lake, I spied it on a sheet of thin ice almost surounded by the running water of the brook, three feet above a small waterfall. While I stood quietly within ten feet of it, the bat crawled rapidly about the ice, lapping it with its tongue. Next it

[1] Murphy and Nichols, *Sci. Bull. Brooklyn Inst. Mus.*, Vol II., No. 1, 1913, p. 7.

moved towards the margin, paused an instant, then deliberately plunged into the water. It swam strongly across the current, keeping its head, wrists, widely spread feet, and the tip of its tail above the surface, and making sculling strokes with its phalangeal membranes, which hung straight downward. The greater part of its back, and its interfemoral skin, except near the tip of the tail, were submerged. After reaching the ice a yard across the open stream, it turned and swam back, and attempted to clamber out at the point where it had entered. Like King Robert Bruce's spider, it made six vain trials but on the seventh it succeeded. It then shook itself in quadrupedal fashion, crawled across the ice to a nook beneath an overhanging rock, and lay still. I continued to watch it for five minutes, and was tempted to leave it until morning; but, realizing that it would soon be frozen to the spot, I picked it up.

In my hand it seemed perfectly active, at first struggling and biting characteristically, and giving vent to infinitesimal squeaks and to explosive puffs like the sound of a tiny one-cylinder engine. At times it would shake its head with a rapid vibration and snort loudly. Within a few moments it began to lick its membranes, comb its snout, ears and body with its long-clawed feet, then to clean the claws with its teeth, and, in short, to go through all the elaborate preening movements which make bats so extremely kitten-like. From time to time I noticed an evanescent, skunkish odor, which seemed as though it might be due to some periodical, perhaps defensive, glandular exudation. Its wet fur dried surprisingly quickly under the influences of the violent combing, and the high temperature that the animal soon developed by means of respirations at the rate of about 145 per minute.

The bat was an old female, with teeth worn down to a condition similar to that already described by Murphy and Nichols (*l. c.*, p. 8). Although it could have eaten no food for three months or more, it passed feces which proved to be composed principally of its own fur.

Probably the most noteworthy point about the whole incident is the record of an unwounded bat, certainly in full control of its bodily coordination, swimming in the icy water of a stream, apparently with intent.

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DR. HOBBS ON THE HISTORY OF SCIENCE

To the Editor of Science: Touching the address of Professor William H. Hobbs to the Michigan Academy of Science, printed in Science (issue of May 11, 1917), I wish to point out:

1. That it is not customary among historians and students of history to consider the thousand years following the Hun invasions the "dark ages," or, as Professor Hobbs calls them, a "thousand years of stagnation" (p. 443) or "centuries of intellectual stagnation" (p. 442). No period which includes the thirteenth century can fairly be so described.

2. That Galileo never was tortured by the Inquisition (p. 443) and that the only "imprisonment" he suffered was in the homes of his friends.

3. That Giordano Bruno was burned for denying the divinity of Christ—not for advocating the Copernican doctrine.

4. That what Mr. Huxley termed "that chaff about the ego and the non-ego, about noumena and phenomena and all the rest of it, etc.," are not *mere* "metaphysical abstractions" in the sense that any thinking man can dispense with them. A thorough grounding in metaphysics (and logic) would be a very good start for a career in "science"; one does not know either intuitively and both are necessary for clear thinking and sound generalizing.

Thomas F. Woodlock
Mount Vernon, N. Y.

SCIENTIFIC BOOKS

Manual of Psychiatry. Fourth edition. Revised and enlarged. By J. Rouges De Fursac, M.D., and A. J. Rosanoff, M.D. New York: John Wiley & Sons, Inc. London: Chapman & Hall, Limited. 1916. 8vo. Pp. 522.

Brevity, clearness of diction and simplicity of presentation with a sufficiently small num-