

gists and land surveyors. The proposed act calls for the registration of all members of these professions who practise their profession in the state of Wisconsin. It is understood, however, that only those persons whose practise of their profession involves the public health and safety will be affected by this law. In order to receive a certificate of registration an engineer or chemist must present evidence that he is fully qualified to practise his profession, and that he is of good character and repute, that he is at least twenty-five years of age and that he is a citizen of either the United States or Canada. The following—under the provisions of the proposed act—will be considered as evidence of the professional qualifications: 1. Ten or more years of active engagement in the profession. 2. Graduation, after a course of not less than four years, in chemistry, from a reputable college, and an additional four years of active engagement in the profession. The act provides for a board to apply the provisions of the act, for penalties in case of presentation of fraudulent evidence to obtain a certificate, and for penalties for those who practise fraud or deception in the practise of their profession.

UNIVERSITY AND EDUCATIONAL NEWS

By the will of Daniel Baugh a legacy of \$150,000 has been left to the Jefferson Medical College of Philadelphia, to be used for the salary of the professor of anatomy and director of the Daniel Baugh Institute of Anatomy and Biology. J. Parsons Schaeffer, M.D., Ph.D., is the present occupant of these positions. Mr. Baugh was a trustee of the Jefferson Medical College and made generous gifts to it, including an institute of anatomy.

The graduate school of Yale University has been authorized to confer the degree of doctor of philosophy for work in clinical medicine, and in pharmacology and toxicology.

The University of Alabama, cooperating with the U. S. Interdepartmental Social Hygiene Board, has established a department of hygiene, with Dr. Hiram Byrd as director.

DR. ELIOT BLACKWELDER, of Denver, Colo., formerly associate professor of geology in the University of Wisconsin, has been appointed lecturer on geology at Harvard University.

DR. E. W. SCRIPTURE, formerly of Yale University and the medical school of Columbia University, has been appointed to the faculty of the University of Hamburg for the summer semester, where he will lecture on English philology and experimental phonetics.

DISCUSSION AND CORRESPONDENCE THE PREGLACIAL OUTLET OF LAKE ERIE

Two or three months ago an item went the rounds of the newspapers to the effect that in digging for the locks on the new Welland Canal, at Thorold, ten or twelve miles west of Niagara Falls, the workmen had uncovered evidence of the existence there of the long-looked-for preglacial outlet from Lake Erie into Lake Ontario. Partly for the sake of verifying this, I chose to spend my vacation at St. Catharines, two or three miles north of Thorold. Thorold is on the brink of the escarpment of Niagara limestone overlooking the Ontario basin and 330 feet above the surface of the lake. St. Catharines is at the base of the escarpment, nearly down to the level of the lake. At Thorold, as well as at various other places along the escarpment, there is a slight incision made by a small stream which poured over the escarpment in preglacial times. But it does not extend far. What was shown in the excavation for the Welland Canal was simply the edge of the escarpment where it had been rounded off by glacial action without lowering it to any extent. It is interesting and important to note that the movement of ice was here from north to south, almost at right angles to the escarpment. The workmen reported that at a low level just north of the escarpment a great quantity of bowlders was found, which would seem to be something of the nature of a moraine. As the ice met and overcame the edge of the escarpment it was occasionally deflected into a minor incision, but after it mounted the escarpment a long level sur-

face rock was exposed with beautiful parallel striation running north and south. The exposure, therefore, had nothing to do with the preglacial outlet, but it gave emphatic evidence that the ice movement was not in the direction of the axis of the lakes but directly across it, and hence could not be a means of eroding the lake basin.

The actual preglacial outlet of Lake Erie, however, emerges from the escarpment about three miles southwest of St. Catharines. This was discovered by Dr. J. W. Spencer and the evidence presented in great detail in his report published by the Canadian Survey in 1907, on "The Evolution of the Falls of Niagara," a volume of 500 pages in which the facts relating to Niagara Falls and the glacial phenomena of the peninsula between the lakes are presented with great fullness and accuracy. I could do little more than follow in Dr. Spencer's footsteps with this book in hand, to test the evidence. The results of Spencer's investigations are very impressive as one goes over the field. At the point mentioned there is an embayment in the escarpment, two miles wide at the level of the Niagara limestone; and lower down at the level of the Clinton limestone or Medina sandstone, the gorge is a mile wide filled with glacial debris which has been penetrated by wells to a considerable distance below the level of Lake Ontario. The glacial filling in the gorge, which originally rose to the surface, has been much eroded by Twelve Mile Creek and its tributaries which penetrate it, giving rise to a region known as the "short hills."

Three or four miles above the mouth of the gorge the line of the outlet is covered by a remarkable deposit of superficial glacial debris known as Font Hill which is something like an immense drumlin or kame and rises at its summit 300 feet above the level of the Niagara escarpment and extends in a northeast-southwest direction between three and four miles, being at its widest point about a mile wide. The material shows stratification on the sides, such as appears in eskers. This accumulation is unique, and rises up like a mountain peak out of the level plain which extends all

the way north to the Lake Erie basin. I will say nothing further about the theory of its origin at present; but will reserve what I have to say upon it for some future occasion when I may consider it in connection with some other unique glacial accumulations of that character in that region, notably, Berrymans Hill, about a mile west of Niagara Falls.

North of Font Hill, as has been said, there extends a level plain to Lake Erie and only fifteen or twenty feet above it. In this plain all preglacial channels are obliterated by the glacial deposits which form the surface; but Dr. Spencer had collected the record of wells all over the region, which show clearly that there is a continuous buried channel, about 200 feet deep, which emerges from Lake Erie just east of Lowbanks, about half way between the mouth of Grand River and the head of the Welland Canal at Port Colborne. There is, therefore, no doubt left that this "Eriean channel," as Dr. Spencer calls it, which emerges from the Niagara escarpment near St. Catharines is the real preglacial outlet to Lake Erie.

Dr. Spencer's investigations concerning the tributaries of this Eriean channel are also of special interest, and it was the facts, revealed by the well borings, concerning these that led to the real discovery. Chippewa River, which enters the Niagara just above the falls, rises twelve or fifteen miles west of the Eriean channel; but before it reaches the Niagara it crosses a buried channel which well borings show slopes from the Niagara River southwestward until it merges into the Eriean channel. Numerous other tributaries are found to do the same. Mr. Spencer's investigations deserve to be more widely disseminated to forestall the publishing of such items as that referred to at the beginning of this communication.

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RELATIVITY AND ESTIMATES OF STAR DIAMETERS

TO THE EDITOR OF SCIENCE: In reducing the measurements of the diameter of Betelgeuse