

name, family, situation in the garden, country of origin, and date of introduction; interleaved blank pages are provided for notes and additions. The author is to be complimented on the accuracy of his work.

*The Essentials of Histology, Descriptive and Practical, for the Use of Students.* By Prof. E. A. Schafer, F.R.S. Eighth edition. Pp. xi+571. (London: Longsmans, Green and Co., 1910.) Price 10s. 6d. net.

WHEN Prof. Schafer's "Essentials" made its first appearance some years ago it was at once recognised that here was the book which had long been wanted, and it has since then continued to occupy the foremost place in the estimation of both teachers and students. Every successive edition has kept the work fully up to date in regard to practical methods, descriptive letterpress, and last, but not least, illustrations. Any extended notice of such a well-known text-book is quite unnecessary; all one need say of the eighth edition is that it fully maintains the high standard of previous editions, and the author is to be congratulated on the continued and well-deserved popularity which it has obtained.

W. D. H.

*The Charm of the Road. England and Wales.* By James J. Hissey. Pp. xviii+426. (London: Macmillan and Co., Ltd., 1910.) Price 10s. net.

IN his latest book, Mr. Hissey is as successful as ever in painting the charms of travel in one's own country. The journey described in the present volume was begun without a premeditated plan; the author says:—"To us the destination was a trivial detail, left to settle itself each day; the joy of the journey was the thing, therein our pleasure lay." Certainly Mr. Hissey's gossipy description of the places and scenes they met with, and the quaint experiences they were fortunate enough to have, is more than sufficient to convince the reader that the fortunate possessor of a motor-car, a pleasant companion, and plenty of leisure, can have an excellent holiday indeed in straying from one shire to another, as fancy dictates.

The excellent photographs which illustrate this interesting travel book are good testimony to Mr. Hissey's keen eye for the beautiful and picturesque.

LETTERS TO THE EDITOR.

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Marine Microthermograms and the Influence of Icebergs on the Temperature of the Sea.

THE application of precise temperature measurements to the determination of the formation and disintegration of ice in the St. Lawrence River suggested to me the possibility of using very delicate electrical thermometers on shipboard to determine the proximity of icebergs. On account of the difficulty of the experiments, and the fact that well-known authorities on navigation (including Lord Kelvin) had reported that temperature measurements were

likely to be uncertain, except when very close to a berg it was some time before I could arrange for the necessary trials.

In the meantime I had devised a practical form of electrical microthermometer, which was given a thorough test on board the Canadian Government ice-breakers during the experiments made last winter to keep the river clear of ice above Quebec. So sensitive and precise did this instrument prove, that a uniform temperature gradient in the water of one-tenth of a degree per mile could be determined from the ship, approaching an ice field from open water, to an accuracy of a thousandth of a degree.

The interesting experiments of Prof. Otto Pettersson on the influence of ice on oceanic circulation, described in the *Geographical Journal* for 1904 and 1907, made it appear highly probable that the experiments I wished to try would prove successful. Dr. Pettersson showed that ice melting in salt water produced two cold currents, one of fresh water which flowed out on all sides over the surface of the sea, and one of salt water which sank down by the ordinary laws of convection. A third current of warmer sea water flowed in towards the ice, under the surface, and produced the melting of the ice.

Through the kindness of the Hon. L. P. Brodeur, Canadian Minister of Marine, passage was secured on the

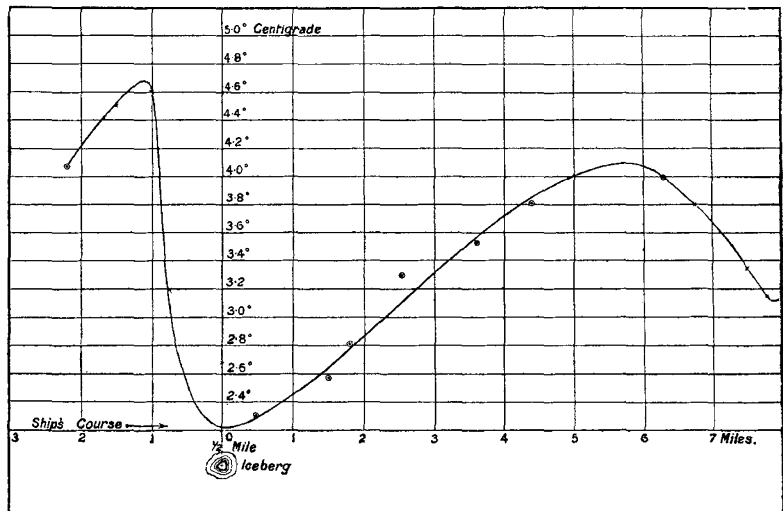


FIG. 1.—Temperature Gradient near an Iceberg.

C.G.S. Stanley for the trip to Hudsons Bay last July. As other duties prevented me from being absent from Montreal for so long a time, I was fortunate in being able to send Mr. L. V. King, who had so ably assisted me during the previous winter in ice studies, and who had gained great facility in using the microthermometer.

In addition to the ordinary wire bridge which we used in our river experiments, having a scale nearly 2 feet long for one degree, we adapted a Calendar recording mechanism to our needs, which gave us a scale of 1° C., equal to 8 inches. The automatic recorder could be switched on to the microthermometer at any time, and records accurate to one-hundredth of a degree obtained at any part of the temperature scale. They were obtained while the ship steamed at full speed through heavy seas, and were unaffected by the motion.

I venture to show two diagrams from the many Mr. King obtained, which illustrate the disturbing effect of ice on the temperature of the sea in summer. Fig. 1 shows the temperature gradient approaching and receding from a large iceberg passed within a half-mile from the ship in the open sea off the Labrador coast. The ship's course is shown relative to the iceberg. Fig. 2 shows a microthermogram of sea temperature traced directly from the charts. The proximity of ice is at once shown by a movement of the pen of the recorder off the scale, to return again to approximately the same position after the