

and invented by him, he could determine the velocity of currents irrespective of their direction. This instrument showed him that in the Bosphorus and Dardanelles the velocity decreased from a little below the surface, became 0 at a certain depth, and then increased again. As the surface current is from the Black Sea to the Sea of Marmora, and from the latter to the Mediterranean, the lower currents must be in the opposite direction; i.e., bringing the salter and warmer water of the Mediterranean to the Black Sea. This was also proved by determinations of specific gravity of the water, which considerably increased once the lower current was reached: for example, five miles from the Black Sea, in the Bosphorus, at 20 fathoms depth, the specific gravity was 1.0146; at 23 fathoms, 1.0225. In the Black Sea, in the vicinity of the Bosphorus, he found water with a temperature above 11° C., even at the depth of 140 fathoms; and 10.5° at 260 fathoms. The observations of Professor Lapschine off the east coast of the Black Sea (latitude 43° – $44\frac{1}{2}^{\circ}$) give a temperature of 10° at 200 fathoms, and 8° at 490 fathoms.

O. E.

St. Petersburg, Sept. 25.

NOTES AND NEWS.

THE *Alert* returned to Halifax Oct. 10, after an absence of nearly four months. This was the final trip of the *Alert* to the Hudson's Bay region, all the observing stations being dismantled, and the observers, their instruments, and other property brought back to Halifax. She sailed from Halifax on June 24, and proceeded direct to Nachvak station. On arrival off the station, the ice was so thick that the steamer could not get in to the coast. She then pushed on to the entrance to the straits, and, after encountering much trouble from ice, a clear entrance was found near the north side. No ice was encountered again until North Bluff was reached, and in making from that point to Diggs seven or eight days were occupied. At Diggs the *Alert* remained a couple of days, making repairs and receiving a general overhauling. During this time the propeller, from which a blade had been lost in the ice, was fixed. On the fourth day the expedition was continued to Churchill, that point being reached at the end of July. Churchill harbor was surveyed, and was found to be a splendid harboring-place, with not less than twenty-four feet of water at dead low spring tide. York Factory was reached two days after leaving Churchill, the length of the trip being occasioned by delays by a thick fog. Here a reconnaissance survey was made of the estuary of the Nelson River. The

water was so shoal at such a distance from land, that a vessel could be in only five fathoms of water, and at the same time land could not be sighted from her deck. The roadstead affords a very unsafe anchorage, and the channel of the river is narrow and tortuous. From this place the steamer returned to Churchill, and then proceeded over to the west coast of the bay and Marble Mountain, arriving at the latter place in the middle of August. After observations on the west side of the bay and island, a determination was made of the position of Cape Southampton, and it was found that the cape is placed on the charts six or seven miles too far south and east. On arriving back at Diggs Island, an inner channel, apparently affording a mode of access clear through to the bay, was discovered. From Diggs Island the *Alert* went to Nottingham, and thence to North Bluff and Stupart's Bay. At the latter a party was sent to make a general observation of Prince of Wales Sound. Observer Payne, who was stationed here, reported finding some relics of very ancient guns. There were four altogether, two of them about the size of nine-pounders of the present day, the other two the size of the four or six pounders. They are of cast iron which is covered with rust; and so old are they, that the year-marks have rusted out, and it is impossible to estimate their age. The two smaller guns were brought home, the others being left behind. Inquiries concerning the guns were made among the Eskimo, but they could tell nothing whatever about them. They were undoubtedly some of the very earliest attempts at cast-iron ordnance. The steamer left Stupart's Bay in the middle of September for Port Burwell. On the way north from Port Burwell, soundings were taken, and the water to the east and south of Cape Chidley found to be very shoal. One bank, where there is less than one hundred fathoms all over it, extends seventy-five miles into the sea; while in the centre of the straits, between the Buttons and Cape Best, there is a depth of over two hundred and fifty fathoms. Returning to Nachvak, the station that could not be reached before, the observers were taken on board, and the *Alert* was headed homeward. The returned observers are all in excellent health, and all save one fared excellently during their exile. At most places game of various kinds was so plentiful that the men rarely tasted the salted or preserved beef.

— Trübner & Co. announce for the coming season, 'Luck or cunning,' as the main means of organic modification,' by Samuel Butler; 'The life and works of Giordano Bruno;' 'The prehistory of the north,' by the late J. J. A. Worsaae (translated, with a brief memoir of the author, by

H. F. Morland Simpson); 'Sources of the Etruscan and Basque languages,' by Robert Ellis; 'Greeko-Slavonic literature, and its relation to the folk-lore of Europe during the middle ages,' by M. Gaster; 'Garibaldi, recollections of his public and private life,' by Elpis Melena (translated from the German by Charles Edwardes); 'Air analysis,' by J. A. Wanklyn and W. J. Cooper; 'For happiness,' by Alexander Calder; 'The Indian empire, its people, history, and products,' by W. W. Hunter; 'Miscellaneous essays on subjects connected with the Malay peninsula and the Indian Archipelago,' edited by R. Rost; 'Manava-dharma-castra, the code of manu,' by J. Jolly; 'The life of Hsien Tsiang,' by the Shamans Hwui Li and Yen-Tsung, with a preface containing an account of the works of I-Tsing by Samuel Bael; 'A sketch of the modern languages of Oceanica,' by R. N. Cust; 'Phantasms of the living,' by Edmund Gurney, Frederick W. H. Myers, and Frank Podmore; 'Al Beruni's India,' and translation of the above into English, by Edward Sachau; 'The social history of the races of mankind,' by A. Feathermann; 'A dictionary of the Targumin, the Talmud Babli and Yerushalmi, and the Midrashic literature,' compiled by M. Jastrow; 'Dictionary of the Kongo language as spoken at San Salvador, the old capital of Congo,' with an introduction by R. N. Cust, and 'A grammar of the Kongo language,' by W. Holman Bentley; 'South-African butterflies,' by Roland Trimen; 'Reports of the archaeological survey of southern India,' by James Burgess; 'The imperial gazetteer of India,' by W. W. Hunter; 'Shall Russian treachery win the day?' by James Samuelson; 'Shropshire folk-lore,' edited by Charlotte Sophia Burne, from the collections of Georgina F. Jackson; 'Language, as illustrated by Bible translation,' by Robert Needham Cust; 'The church and the stage,' by William Henry Hudson; 'A condensed Russian grammar,' by F. Freeth; 'A B C dictionary to the United States, Canada, and Mexico,' by B. Bradshaw; 'Dorn's code for commercial telegrams,' compiled by Felix Dorn; 'A Romanised Japanese reader,' by Basil Hall Chamberlain; 'The Sinhalese hand-book in Roman characters,' by C. Alwis; 'The tropical agriculturist,' compiled by A. M. and J. Ferguson; 'Indian poetry,' by Edwin Arnold; 'Colloquial Portuguese, or, The words and phrases of everyday life,' by Alexander J. D. O'Orsey; 'Elementary bandaging and surgical dressing,' by Walter Pye.

— Messrs. Ticknor & Company announce for publication on Wednesday, Oct. 13, 1886, 'Self-consciousness of noted persons,' by Hon. J. S. Morrill. The senator from Vermont has in this

work condensed the fruits of years of research in an unfamiliar field. A small edition was privately printed some time since, and met with such praise, that Senator Morrill has since revised it for publication. They also announce 'The Virginia campaign of General Pope in 1862,' being vol. ii. of papers read before the Military historical society of Massachusetts; and 'The house at High Bridge,' by Edgar Fawcett.

— From the Cambridge University press the following new publications are announced: 'A history of the theory of elasticity and of the strength of materials, from Galilei to the present time,' vol. i. ('Galilei to Saint-Venant, 1639-1850'), by the late I. Todhunter, edited and completed by Karl Pearson; 'Lectures on the physiology of plants,' by S. H. Vines; 'Travels in northern Arabia in 1876 and 1877,' by Charles M. Doughty (with illustrations); 'The scientific papers of the late Prof. J. Clerk Maxwell,' edited by W. D. Niven.

— Three persons in one family were poisoned in Brooklyn last week by eating unwholesome cheese. It is reported that cheese obtained from the same factory has caused sickness in two other Brooklyn families. The matter is now being investigated by the board of health.

— Another death occurred recently in a Brooklyn dentist's office while ether was being administered. The dentist has been brought to court, and the case will be judicially investigated next week.

— The New York state board of health has found two samples of cream-of-tartar adulterated with oxalic acid. The entire stock of the article has been seized in both the stores where the samples were found, and, if the manufacturers can be found, they will be prosecuted.

— *Nature* states that the International geodetic conference will assemble in Berlin on Oct. 20. Its principal business will be to deliberate on the best method of executing the resolutions arrived at at Rome and Washington in 1883 and 1884, respecting the actual measurement of a degree on the earth's surface, and likewise in reference to a scientific survey of the European continent. The adoption by all nations, of Greenwich as the first meridian, in accordance with the decision taken at Washington, is to be strictly enforced in practice. The introduction of international normal time, on the other hand, has had to be postponed, owing to insuperable practical difficulties connected with ordinary business life. In order to promote the project of any international survey of the entire globe, it is proposed to establish a central geodetic office in Berlin.

—Prof. William Ferrel, recently connected with the signal service, has resigned his position, and removed to Kansas City, Mo.

—It is proposed to hold a meeting of the various scientific societies in Australia and New Zealand in 1888 (the one hundredth anniversary of the foundation of those colonies) upon the lines of the British association meetings, and to form an Australian association for the advancement of science with similar aims and objects. There are some twenty scientific societies in the Australasian colonies, and the number of members is between twenty-five hundred and three thousand. The sections proposed are, A, astronomy, mathematics, physics, and mechanics; B, chemistry and mineralogy; C, geology and paleontology; D, biology; E, geography; F, economic and social science and statistics; G, anthropology; H, medical and sanitary science; I, literature and the fine arts; J, architecture and engineering. In addition to the general and sectional meetings for reading and discussing papers, etc., it is proposed that excursions should be organized to various places of interest, such as the various mining districts, the Jenolan, Wambeyan, and other caves, the Blue Mountains, and similar places of interest to geologists and others. A preliminary circular signed by A. Liversidge of the University of Sydney has been issued.

—The September number of the *Political science quarterly* is largely devoted to economics. Prof. Henry C. Adams of Cornell has a learned article on 'American war financiering,' in which he criticises, from a theoretical stand-point, Secretaries Gallatin, Dallas, and Chase. Hon. Alfred E. Lee writes very clearly and strongly concerning 'Bimetallism in the United States,' showing in a way that even 'cheap money' advocates should be able to understand the real status and effect of our silver coinage. Prof. Richmond M. Smith of Columbia, who described the state bureaus of labor statistics in an earlier number of the *Quarterly*, now reviews favorably the first annual report of the national commissioner of labor. Dr. Bowen continues his interesting account of the conflict in Egypt, and Dr. C. B. Spahr discusses the 'Taxation of labor.' The department of book reviews is unusually full; and the notices of Gneist's 'Das Englische parlament' by Mr. Goodnow, of von Treitschke's 'Deutsche geschichte im neunzehnten jahrhundert' by Prof. Munroe Smith, and of a group of books on constitutional law by Professor Burgess, are of more than passing value.

—Dr. Shakespeare of Philadelphia has just returned from Europe, where for a year he has been

investigating cholera. He has studied the disease in Spain, France, and Italy. During his absence, he also visited India to observe the disease in its home. As Dr. Shakespeare was sent out by the President, his report will be made to him, and forwarded to congress at its next session. From the little that we have been able to learn of Dr. Shakespeare's opinions, we infer that he agrees in the main with Koch and his German collaborators, and that he regards the comma bacillus as a diagnostic sign of the existence of cholera.

—The next meeting of the National academy of sciences will be held in Boston at the Institute of technology, to begin Tuesday, Nov. 9, at noon.

LETTERS TO THE EDITOR.

**.*Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.*

Education and the cost of living.

I AM glad that your timely comment on education and the cost of living (*Science*, viii. 313) seconds the proposed abolition of tuition-fees at Columbia college, in the case of graduate students, as 'a step in the right direction,'—one which 'we trust . . . will be taken, . . . and followed by other institutions.' It is but just to add, that Cornell, possibly first and alone among our great universities, has the honor of having already taken this step, 'lo, these many years;' that even in her days of poverty, as now in her prosperity, her library, laboratories, and lecture-rooms have been open to all college graduates who would make good use of them; and there has been no charge except for breakage and for supplies consumed.

But the Cornell experience apparently confirms your thought, that "more efficient and advantageous . . . is the foundation of numerous graduate scholarships and fellowships." We have had here such fellowships for more than two years; and, though there are only eight, their effect in raising the standard of both graduate and undergraduate work is, I think, quite marked.

If the proper business of a university be to improve the community's intellectual and educational ideals by developing in young people that have already some general culture the power of independent, well-directed investigation, of course the presence of earnest graduate students can hardly be too much encouraged.

J. E. OLIVER.

Cornell university, Oct. 11.

The genesis of the diamond.

I send you the following abstract of a paper read by me at the Birmingham meeting of the British association for the advancement of science, September, 1886, in the hope that it may interest your readers.

The discovery of diamonds at Kimberley, South Africa, has proved to be a matter, not only of commercial, but of much geological interest. The conditions under which diamonds here occur are unlike those of any other known locality, and are worthy of special attention.

The first diamond found in South Africa was in 1867, when a large diamond was picked out of a lot