proportional to their absolute temperature; that is to say, if the temperature of a metal could be reduced to absolute zero, its resistance would be annihilated, and its conductivity increase to infinity. M. Wroblewski took advantage of one of the new methods of producing intense cold; namely, that by means of boiling nitrogen at the temperature of its solidification. Wires of copper about $\frac{4}{100}$ of a millimetre in diameter, covered with a double layer of silk, were taken, their conductivity being guaranteed by the makers at ninety-eight per cent of that of pure copper. With this wire M. Wroblewski wound small bobbins having a resistance at ordinary temperatures of about 3 and 20 Siemens units. As the bobbin had to be plunged in liquefied gas, M. Wroblewski began his investigation by studying the electric properties of liquid oxygen and nitrogen. He found that these substances ought to be ranked among the most perfect insulators. The resistances of the bobbins were then measured by the Wheatstone-Kirchhoff method at the temperature of boiling water, ordinary temperature, the temperature of melting ice, the temperature of boiling ethylene at atmospheric pressure (—103°C.), the critical temperature of nitrogen (—146°C.), the temperature of boiling nitrogen under atmospheric pressure (—193° C.), and a temperature nearly that of the solidification of nitrogen (—200°C. to —202°C.). The results are embodied in the following table, where t is the temperature, r the resistance in Siemens units, and a the co-efficient of variation of resistance between two consecutive temperatures: —

Bobbin I.			Bobbin II.		
t	r	a	t	r	a
+100°C.	5.174	—	+23.75°C.	19.251	0.004057
+21.4	3.934	0.004365	0	17.559	0.004263
0	3.614	0.004136	—103	9.848	0.004104
—103	2.073	0.00414	—146	6.749	0.004869
—146	1.360	0.004588	—193	2.731	0.007688
—193	0.580	0.004592	—201	1.651	—
—200	0.414	0.006562	—	—	—

These numbers seem to show that the resistance decreases much more quickly than the absolute temperature of the specimens, and approaches *nil* at a temperature not very far from that obtained by evaporating liquid nitrogen in a vacuum.

UNDERGROUND ELECTRIC-LIGHT WIRES. — Several deaths caused by shocks from electric-light wires have called attention to the dangers of the present systems of high-potential distribution, and much has been written in the daily journals about the deadly electric-light wires. The general remedy proposed is to put the wires underground, and in many cities ordinances have been passed directing that all wires shall be buried within a certain time. In the present state of things it will be impossible to obey these ordinances. There are great difficulties and expenses incident to any general system of underground distribution in our large cities. The enormous number of telephone and telegraph lines that must be put in conduits with the electric-light wires — for the scheme embraces the burying of all wires — introduces the factor of disturbance of messages from induction as well as the great difficulty of preventing leakage between the different lines, and from the lines to the ground. And in New York, where this work is being done on a large scale, the commission which directs it is composed of politicians who have no idea of the mechanical and electrical difficulties that must be met and overcome. Again: it is very much a question whether the putting of arc-light wires under ground will decrease the danger. The wires have still to be taken to the lamps, and in the branch wires there is the same possibility of accident as before. As the case now stands, then, the putting of electric wires under ground will be attended with trouble and expense, possibly with failure. It will not greatly decrease the danger of high-potential lighting, and it will greatly retard its development. At the same time an efficient underground system is much to be desired. It would be as foolish to give up all attempts in this direction as to try to accomplish it at once, without the necessary experience. The best way would seem to be a gradual putting of the wires under ground, instead of a city directing all the wires to be placed under ground by a certain time. Let them order a certain per cent each year, the localities to be determined by people who know something about the subject. In this way experience will be gained in the cheapest manner, and, if it is found practicable, the end will finally be reached without injury to the companies concerned.

NOTES AND NEWS.

THE *Athenæum* of June 30 announces the death at Brighton of Mr. Edmund Gurney. Mr. Gurney had been subject to obstinate sleeplessness, and had had recourse to opiates. It was an overdose of chloroform that led to his accidental death. Mr. Gurney's best known work was his 'Power of Sound,' a very excellent treatise, and one of permanent value. Of late years he has been oftenest before the public by his contributions to the Proceedings of the Psychic Research Society, of which he was the honorary secretary. He was the chief author of the 'Phantasms of the Living,' and the man to whom, more than to any one else, is due the great interest in psychic studies which this society has aroused. Mr. Gurney had committed himself to the telepathic hypothesis, and was busy to the last in developing that theory. However much one may differ from him in his views regarding the problems of psychic research, all must acknowledge to a great admiration for the courage and industry of the scientist venturing boldly into this psychic 'heart of Africa,' and reporting patiently and systematically his adventures in that mysterious region. His loss is a very serious one to the cause to which he had devoted so many years of his life.

— A. C. McClurg & Co. have just issued the first two volumes of the proposed series of The Great French Writers. The publication of this series has been delayed by the fact that the publishers were disappointed with the translations brought out in England, and therefore undertook the expense of entirely new translations. —— A careful and very valuable bibliography of the works of Sir Isaac Newton, with a list of books illustrating his life and works, by G. J. Gray, has just been issued by Messrs. Macmillan and Bowes, Cambridge. The bibliography is divided into ten sections: (1) collected editions of works; (2) the 'Principia;' (3) 'Optics;' (4) 'Fluxions;' (5) 'Arithmetica Universalis;' (6) minor works; (7) theological and miscellaneous works; (8) works edited by Newton; (9) memoirs, etc.; (10) index. —— A new edition of the late Professor Humpidge's translation of Dr. Hermann Kolbe's 'Short Text-Book of Inorganic Chemistry' (Longman's) has been issued. The greater part of this edition was prepared by Dr. Humpidge last summer. Being unable, owing to failing health, to complete the task of revision, he asked Prof. D. E. Jones of the University College, Aberystwith, to undertake it, and to see the book through the press. —— Mr. Leland will shortly send to the printer his work on 'Americanisms,' which will follow on the 'Dictionary of Slang, Jargon, and Cant,' now in the press. It will contain much folk-lore in the form of proverbs, songs, and popular phrases, and also the etymology and history of the words, as far as they could be traced. The work will include an account of American dialects, such as Pennsylvanian Dutch, Chinook, Creole, and Gumbo. —— Nearly the whole edition of Mr. George Seilhamer's 'History of the American Theatre: Before the Revolution,' has been placed; a second volume, 'During the Revolution and After,' is in press, and will be ready in the autumn. Both volumes are published through the Globe Printing-House, Philadelphia. —— Kegan Paul, Trench, & Co. have made arrangements for the publication of a set of half-crown books to be entitled 'English Actors: Ten Biographies.' The series will be under the general editorship of Mr. William Archer, and will include lives of Betterton, Cibber, Macklin, Garrick, the Dibdins, the Kembles, Elliston, the Keans, the Matthews, and Macready. Mr. Joseph Knight will deal with Garrick, Mr. R. W. Lowe with Betterton, Mr. E. R. Dibdin with the author of 'Tom Bowling,' and the editor himself with the Keans. The subjects have been selected so as to cover as completely as possible the whole field of English acting from the Restoration to our own time. —— Mr. W. J. Linton, one of the leading authorities on wood-engravings of the day, has issued a prospectus, with specimen

pages, of his great work now in press in London, entitled 'Masters of Wood-Engraving.' Ticknor & Co. have been chosen to receive subscriptions for this great work in this country. —— William Gibson, jun., New York, has just issued 'Some Details of Water-Works Construction,' by William R. Billings. —— The Truth Seeker Company has just published 'The Order of Creation, the Conflict between Genesis and Geology, a Controversy between the Hon. W. E. Gladstone, Prof. Max Müller, Prof. T. H. Huxley, M. Réville, and Mrs. E. Lynn Linton;' 'Rome or Reason, a Memoir of Christian and Extra-Christian Experience,' by Nathaniel Ramsay Waters; 'The Bible of Nature, or, The Principles of Secularism,' by Felix L. Oswald; 'Try-Square, or, The Church of Practical Religion,' by Reporter; and new editions of 'The Secret of the East, or, The Origin of the Christian Religion, and the Significance of its Rise and Decline,' by Oswald, and of Winwood Reade's 'The Martyrdom of Man.'—— *Scribner's Magazine* for August will contain another of Prof. N. S. Shaler's notable articles on the surface of the earth, entitled 'Rivers and Valleys,' fully illustrated with views of some of the most picturesque scenery in this country, and dealing in a very practical way with the problems presented by the Mississippi and Ohio River floods.

— A philosophical society has been formed at the University of Vienna under the leadership of Professor Zimmermann and Professor Meynert. Professor Höffler has been elected president. The object of the society is to bring before specialists of all classes general scientific problems having a philosophical import.

— At a recent meeting of the French Physical Society Sir William Thomson was present, and stated, that, according to his determinations, the rate of diffusion of electricity was a hundred and ten times as rapid as that of heat in the best conductors.

— The night movements of the Russian troops have recently been rendered difficult by the number of soldiers attacked with hemeralopia (night-blindness). It is well known that this affection is due generally to a lack of proper food. Meissner saw in Podolia an epidemic of this disease produced during a religious excitement, when bread was the principal article of diet, which disappeared when animal food was again taken.

— The date of meeting of the American Society of Microscopists at Columbus, O., has been changed to Aug. 21 instead of Aug. 14; this on account of change of date for the American Association meeting.

— At the last meeting of the New York Microscopical Society, Mr. George F. Kunz exhibited sand containing monazite, a phosphate of cerium, lanthanum, and didynium, and from 0 per cent to 17 per cent of thoria, from Brindletown, Burke County, N.C., and monazite sand from Caravalhas, Brazil, stating that the demand for these minerals had greatly increased of late, owing to the rare earths zirconia, thoria, glucina, etc., which they contain, and which are now used for the mantle or hood of the new incandescent gas-burner invented by Dr. Carl Auer, now 'Von Welsbach.' This increased consumption has led to a search by the collectors and dealers in minerals in England, Germany, France, Russia, Norway, and Brazil, and more especially in the United States; and so thorough has the search been, that the prices of minerals which were considered rare a short time ago, are now quoted at one-tenth to one-hundredth of former figures. The minerals containing these rare earths are lanthanite, sipylite, tysonite, uranothorite, orangite, thorite, clevite, monazite, beryl, yttrotantalite, alvite, erdmannite, cerite, xenotime, fergusonite, æschynite, allanite, zircon, eudialyte, euxenite, samarskite, gadolinite, and bodenite. Of these, beryl, cerite, monazite, allanite, and zircon have been obtained in large quantities. Sipylite, orangite, and thorite are especially sought for. Monazite has been found at the following localities: Villeneuve, Ottawa County, Canada (a crystal of fourteen pounds and a half); Alexander County, N.C., at Milholland's Mill; Amelia County, Va. (in twenty-pound lump); Norwich, Conn.; Ural Mountains; Mount Sorel (var. turnerite), Tavetch (var. turnerite), and Binnenthal, Switzerland; River Sanarka, Southern Ural; Arendal, Norway. At these localities the occurrence is of mineralogical interest only. At the North Carolina, Georgia, and Brazilian localities it can be obtained in quantity for commercial use. In the North Carolina gold gravels of Rutherford, Polk, Burke, McDowell, and Mecklenburg Counties, monazite is found in considerable quantities in small brown or greenish or yellowish brown monoclinic crystals associated with chromite, garnet, zircon, anatase, corundum, menaccanite, xenotime, fergusonite, epidote, columbite, samarskite, and other minerals. With these associations have been found several of the North Carolina diamonds; and at the Glade Mine, Georgia, diamonds have been found with the monazite, which exists in some abundance also. These localities will furnish tons of monazite within the next twelve months. The Brazilian monazite is found at Caravalhas, Bahia, where its existence was made known about eight years ago by Dr. Orville A. Derby, geologist of Brazil. It occurs in large quantities as a beach-sand, almost free from other minerals, as if concentrated. As it occurs on the coast, it can easily be shipped to any point where it is wanted, and a number of tons have been sent to the United States. The best North Carolina zircon locality is on the old Meredith Freeman estate, Green River, Henderson County, N.C., which was leased for twenty-five years in the hands of Gen. T. L. Clingman of that State, who, as early as 1869, mined one thousand pounds of it, and during that whole period never lost faith in the incandescent properties of zirconia; but when the time of its adoption actually came, through some legal difficulties the general had forfeited his leases, and hence failed to reap his reward. In Henderson County, N.C., and in Anderson County, S.C., zircon is found in large quantities loose in the soil, as the result of the decomposition of a felspathic rock. The crystals are generally remarkable for their perfection, being distinctive of each locality, weighing occasionally several ounces. The recent demand has also brought to light the existence of enormous quantities of zircon in the Ural Mountains and in Norway. Although in Canada, in Renfrew and adjoining counties, enormous crystals have been found up to fifteen pounds each, yet they are so isolated, that it would be impossible to obtain a supply there. The new demand has brought together more than twenty-five tons of zircon, ten tons of monazite, six tons of cerite, thousands of pounds of samarskite, and tons of allanite and other minerals. As a consequence, zircon is now offered at less than ten cents a pound, monazite at twenty-five cents, and samarskite at fifty cents.

— While Australia is complaining of rabbits, Russia is invaded by the marmots. In certain provinces in Odessa it has been proposed to try Pasteur's system of inoculating them with chicken-cholera, but the administrative authorities have not given the scheme their approval.

LETTERS TO THE EDITOR.

Negro Dialect.

A WRITER in the *North American Review* for June, 1888, mentions certain words in use among the negroes of the Southern States, and inquires after their origin. The words are *buccra* ('white man'), *goober* ('peanut'), *brottus* (used in Georgia in requests for small presents, as, 'What are you going to give for *brottus?*'), and *lagniappe* (used in New Orleans in somewhat the same sense as *brottus*).

With regard to *lagniappe*, there seems to be no good cause to dispute the derivation from the Spanish given by Mr. George W. Cable. He says, "The pleasant institution of *ñapa*, the petty gratuity added by the retailer to any thing bought, grew the pleasanter, drawn out into the Gallicized *lagnappe*" (*The Creoles of Louisiana*, London, 1885, p. 114). The derivation of *brottus* may be similar to that of *lagniappe*, from the English perhaps, but one cannot speak with certainty.

The word *goober* ('peanut') is, I think, of African origin. In Haussa (a West African tongue), *guja* is 'ground-nut.' The following passage, however, from a rare and interesting work of the beginning of the eighteenth century, goes far, I hope, to settle the matter.

In the English translation of Bosman's account of Guinea we read, "Here is also another sort called *Gobbe-Gobbes*, which grow