cite, perhaps in part decomposed. The quartz and apparently also the glassy feldspar are bright but the hornblende, augite and mica are of course not so abundant in the dacite and are less evident. An examination with a petrographic microscope confirms the conclusion that the dust is the product of the pulverizing action of the explosive gases on the rocks through which they are escaping, and not the result of the explosive expansion of gases in a liquid lava.

That heat has recently risen in the core of Lassen Peak is evident from the fact that whereas it was once cold now it is hot and steaming. When E. E. Hayden and I were on the mountain in July, 1883, and slid down the 2,000-foot snow bank into Hat Creek on our way to Yellow Butte there was no sign of heat in the summit of Lassen Peak. The rocky summit of the peak, struck by many thunderbolts during storms and superficially fused here and there by the lightning to fulgerite, is still as it was then and the little lake is there as in 1883; but the heat and the crater are new. Mr. Rushing tells me that these new features appeared with the first eruption. But the fact that the other hot places about the mountain are not yet perceptibly hotter indicates that the rise of temperature is local and does not at least as yet affect the mountain mass. Time alone can tell what Lassen is going to do. The volcano may subside to its former quiescence. But we must not forget that it was only the top of the old Vesuvius that was blown off to make Monte Somma and the Vesuvius of to-day. Krakatoa blew up from the very base with tremendous effect. There seems no good reason at present to fear a Krakatoan outbreak at Lassen Peak, but the part of wisdom dictates a close watch.

Eruptions, as a rule, break out suddenly. Sight-seers will generally find the viewpoint from which Loomis's photographs were taken close enough if the mountain is active, but if all is quiet and the seeker after knowledge must see the crater for himself he should be sure to ascend on the windward side, and approach with caution.

SCIENTIFIC NOTES AND NEWS

SIR WILLIAM OSLER, regius professor of medicine in the University of Oxford, has been elected a foreign associate of the French Academy of Medicine.

MCMASTER UNIVERSITY, Toronto, has conferred the degree of doctor of laws on Mr. David Hooper, late economic botanist of the Botanical Survey of India.

THE honorary degree of doctor in engineering has been conferred by the Royal School of Mines, Freiberg, Saxony, on Edward Dyer Peters, Gordon McKay professor of metallurgy at Harvard University. The degree was conferred upon Professor Peters in recognition of his academic and practical services and writings on the metallurgy of copper.

SIR ST. CLAIR THOMSON has been elected an honorary fellow of the American Laryngological Association. There were only four living honorary fellows of the association—Professors Chiari, Massei, Moure and Sir Felix Semon.

THE Aeronautical Society of Great Britain has awarded its gold medal to Professor G. H. Bryan, of the University College of North Wales, for his work on aviation. The previous recipients of the gold medal of the society, which is the highest award of British scientific aeronautics, are Wilbur and Orville Wright (1909), and Octave Chanute (1910).

A CIVIL list pension of $600 has been granted Mrs. Annie Wallace, widow of Alfred Russel Wallace, in consideration of his eminent services to science and her inadequate means of support.

FROM the long list of honors conferred on King George's birthday on June 22, *Nature* selects the following as having done work for science: Sir Leonard Lyell, Bart., a nephew of Sir Charles Lyell, and formerly a professor of natural science in the University College of Wales, has been made a peer. Colonel S. G. Burrard, F.R.S., surveyor-general in India, has been appointed a K.C.S.I., and Mr. R. A. S. Redmayne, C.B., chief inspector of mines, has been promoted to the rank of K.C.B. The new knights include: Dr. J. G. Frazer, author

of "The Golden Bough"; Dr. W. P. Herringham, vice-chancellor of London University, physician to St. Bartholomew's Hospital; Dr. W. H. St. John Hope, archeologist; Dr. W. Milligan, known by his investigation into the connection of human and animal anthrax; Lieut.-Colonel Leonard Rogers, Indian Medical Service, professor of pathology, Medical College, and bacteriologist to the government, Calcutta; Dr. T. Kirke Rose, chemist and assayer to the Royal Mint; Dr. S. J. Sharkey, lecturer on medicine at St. Thomas's Hospital, and Mr. J. F. C. Snell, president-elect of the Institute of Electrical Engineers. The honor of knight bachelor has been conferred upon Dr. Douglas Mawson, the Antarctic explorer, and Professor T. P. Anderson Stuart, dean of the faculty of medicine at Sydney University. Mr. R. Meredith, director of telegraphs, India; Mr. A. Howard, imperial economic botanist at Pusa, Bengal; Major E. D. W. Greig, assistant director, Central Research Institute, Kasauli; Dr. T. Summers, late Bombay Public Works Department, and Mr. R. H. Tickell, chief engineer, Central Provinces, have received the honor of C.I.E. Dr. H. R. D. Spitta, bacteriologist to his Majesty's household, has been appointed M.V.O. (fourth class).

Dr. Erwin Baur, director of the Institut für Vererbungsforschung of the Königlichen Landwirtschaftlichen Hochschule in Berlin, has been appointed Carl Schurz memorial professor in the University of Wisconsin for the first semester of 1914–15. Dr. Baur will take up his residence in the university about the first of November, and will remain until the end of the semester.

Professor F. E. Austin, during the past six years head of the department of electrical engineering at Norwich University, has resigned to engage in engineering education extension work and the publication of several engineering books. During the present summer Professor Austin has charge of special classes in electrical engineering at the Thayer School of Engineering, Dartmouth College.

The disastrous fire at Salem, Mass., spared the Peabody Museum and the Essex Institute. The house of Dr. E. S. Morse, with its valuable papers, drawings, books and collections, also narrowly escaped.

Sir David Gill left the Royal Astronomical Society of London the sum of £250 to be employed by the council of the society in aid of astronomical research in grateful remembrance of the like sum paid out of the funds of the society in aid of his expedition to Ascension in 1876. He expressed the wish that the sum be devoted to some expenditure of a similar character, or to complete some work, such as the computation of new tables of the satellites of Jupiter.

Sir James Key Caird, of Dundee, has given $120,000 toward the expenses of the Shackleton Antarctic expedition.

M. Ole Olsen has offered to place at the disposal of M. Knud Rasmussen, the Arctic explorer, sufficient funds (about $75,000) for the fitting out of a North Pole expedition. The expedition, which will take provisions for two years, will be provided with all modern appliances and will be accompanied by staffs of scientists. The base will be at Cape York, in Greenland.

The Astronomical and Astrophysical Society will meet at Northwestern University, Evanston, Illinois, August 25–28.

An International Congress of School Hygiene will be held at Brussels in 1915, under the presidency of M. Corman, director-general of the ministry of public instruction, and Dr. Demoor, rector of the University of Brussels.

According to a resolution of the international executive committee chosen at the last congress in Paris, the Fifth International Congress of Genetics will be held in Berlin in 1916. The committee consists of representatives of the various German agricultural and horticultural societies. Wirkl. Geheim. Dr. Thiel is chairman. The congress will convene during the first week in September, 1916. The address of the subcommittee in charge of preliminary arrangements, Professors von Rümker

and Baur, is Berlin N. 4, Invalidenstr. 42, Kgl. Landwirtsch. Hochschule.

AT a meeting of the American College of Surgeons held in Philadelphia under the presidency of Dr. J. M. T. Finney, of Baltimore, on June 22, attended by eight hundred members, over $100,000 was subscribed toward an endowment fund for the establishment in Washington, D. C., of a permanent home for the institution. One thousand one hundred fellowships were conferred, bringing the total membership up to over three thousand.

THE advisory committee of the Tropical Diseases Research Fund (British Colonial Office) has granted £100 as a stipend for a helminthologist to conduct research work in the Quick Laboratory, University of Cambridge, and has contributed £300 with which to send Mr. E. Hindle, B.A., on an expedition to East Africa. Sir Dorabji J. Tata has contributed £250, and Mr. P. A. Molteno and Mrs. Molteno £400, towards the research work at the Quick Laboratory.

A COOPERATIVE fire agreement which has been entered into between the U. S. Department of Agriculture and the state of Michigan provides for an expenditure by the government of not to exceed $5,000 a year toward meeting the expenses of forest fire protection in Michigan. This form of cooperation between the government and the state is made possible by a law which congress passed in 1911, and which has already been taken advantage of by the states of Maine, New Hampshire, Vermont, Massachusetts, Connecticut, New York, New Jersey, Maryland, West Virginia, Kentucky, Wisconsin, Minnesota, South Dakota, Montana, Idaho, Washington and Oregon. The law, besides providing for the purchase by the government of lands on the headwaters of navigable rivers for the purpose of creating national forests to protect these rivers, appropriated $200,000 which the secretary of agriculture might expend to protect similar lands in state or private ownership from fire, in cooperation with the states. It was provided in the law that the federal expenditures in any state should not exceed the amount spent by the state itself in the cooperative work. Provision for continuance of the work in the fiscal year which began July 1 has been made by an appropriation of $100,000 for the year. The original appropriation of $200,000 was available until expended, and with a supplementary $75,000 has carried the work to the present time.

THE most notable progress yet recorded in the chemical treatment of timber to prevent decay was made in 1913, according to a report recently issued by the American Wood Preservers' Association in cooperation with the forest service of the department of agriculture. The report states that 93 wood-preserving plants in 1913 consumed over 108 million gallons of creosote oil, 26 million pounds of dry zinc chloride, and nearly 4 million gallons of other liquid preservatives. With these the plants treated over 153 million cubic feet of timber, or about 23 per cent. more than in 1912. The output from additional plants unrecorded would increase the totals given. Impregnation of wood with oils and chemicals to increase its resistance to decay and insect attack, the report goes on to say, is an industry which has become important in the United States only in recent years. In Great Britain and most of the European countries practically every wooden cross-tie and telephone or telegraph pole receives preservative treatment. In the United States less than 30 per cent. of the 135 million cross-ties annually consumed are treated, and the proper treatment of an annual consumption of 4 million poles may be said to have scarcely commenced. Real progress in the United States dates from 1832, when the Kyanizing process, using bichlorides of mercury, was developed. In 1837 two other processes were introduced, the Burnett process using zinc chloride, and the Bethel process using coal tar creosote. These last processes are very largely in use to-day. The idea of timber preservation at first made very slow growth in this country, on account of the large supply of cheap and durable timbers and the general disregard shown toward economy in the use of natural resources. In 1885 there were only three pressure plants

in the United States; and in 1895 only 15. Since then, however, the industry has grown rapidly; in 1913 there were 117 plants.

Professor Charles E. Porter, occupying the chair of general zoology and applied entomology and director of the recently established museum and laboratory of economic zoology at the National Agricultural Institute of Santiago, Chili, has undertaken the publication of a new scientific journal under the title "Anales de Zoologia Aplicada." This journal is to be especially devoted to original studies on species beneficial to and parasitic on man, domesticated animals and cultivated plants in America. The "Revista Chilena de Historia Natural," edited by Professor Porter, is being continued, but only for systematic papers. The "Anales de Zoologia Aplicada" will be published quarterly, illustrated with text figures and when necessary with plain or colored plates. It will accept original contributions on American parasites.

"Art and Archeology" is the title of a new non-technical illustrated magazine published by the Archeological Institute of America, the first number of which bears the date of July, 1914. During the present year four numbers will be issued, but commencing with 1915 the magazine will appear monthly. Its fifty pages are devoted to articles covering a considerable range, and to minor notes and brief book reviews. The editorial staff consists of: General Editor, David Moore Robinson, Johns Hopkins University; Advisory Editor, Allan Marquand, Princeton University; Art Editor, William H. Holmes, Smithsonian Institution; Associate Editor, Ralph Van Deman Magoffin, Johns Hopkins University; Contributing Editors, H. Rushton Fairclough, Stanford University, Charles H. Weller, University of Iowa, Albert T. Clay, Yale University, Frederick W. Hodge, Smithsonian Institution, Charles T. Currelly, Royal Ontario Museum, George H. Edgell, Harvard University; Managing Editor, Mitchell Carroll, General Secretary, Archeological Institute of America, The Octagon, Washington, D. C.

A group representing a number of deep-sea luminous fishes has been completed in the American Museum of Natural History and opened to the public. It represents ten species of fishes found in the depths of the sea, half a mile or more from the surface. Some of the fishes are provided with rows of luminous organs or with headlights, while others have a light at the end of a tentacle with which to attract their prey. The group is illuminated by electricity in such a way that the fishes may be viewed first as synoptic specimens in a case and secondly, as if they were living fishes swimming in the darkness of the deep sea, lighted by their own luminous or phosphorescent organs.

A little more than 33,000 acres in the White Mountains have been approved for purchase by the government at a meeting of the national forest reservation commission. These areas are in two separate tracts, both in Grafton county, New Hampshire, the larger containing 31,100 acres on the watershed of the Pemigewasset River, a tributary to the Merrimac. The tract comes within a mile of North Woodstock on the Boston and Maine railroad, and several good roads lead through it. The land is between 700 and 4,300 feet in elevation, and in the lower valleys are a number of abandoned farms now grown up to trees. Most of the conifers have been cut to make paper pulp, but there are good stands of beech, birch and maple of considerable value. With fire kept out there is said to be excellent promise of a new stand of spruce. The price agreed upon by the government is $4.62 an acre including both land and timber. The smaller purchase consists of several areas lying on the watersheds of Little River and Gale River, both tributaries of the Connecticut. These lands cover 2,000 acres and are contiguous to lands already approved for purchase; hence they go far toward giving the government a solid body of land in this locality. The price for the 2,000 acres, land and timber, is $4.00 an acre. The tract is in the locality of the noted Franconia Range and is readily accessible from two railroad stations, Bethlehem and Twin Mountain. The forest has been cut over and consists chiefly of the northern hardwoods, though some spruce remains from the

original stand. At the same time that these White Mountain areas were approved, the commission also approved the purchase of the Pisgah Forest in North Carolina, from the George W. Vanderbilt estate. These tracts bring the total eastern forests up to 1,077,000 acres.

THE production of anthracite coal again broke the record in 1913, exceeding the highest previous output by nearly 1,000,000 tons, according to figures compiled by E. W. Parker, coal statistician of the United States Geological Survey. Including the coal recovered from old culm banks and a small quantity dredged from Susquehanna River, the production of anthracite for the year was 81,718,680 long tons, valued at $195,181,127, compared with 75,322,855 tons valued at $177,622,626 for 1912. This is an increase of over 6,000,000 tons in quantity and more than $17,500,000 in value. The previous highest record was 80,771,488 long tons, in 1910. Anthracite miners and operators are now working under an agreement extending over a period of four years from April 1, 1912; there were consequently no serious interruptions to mining operations by labor troubles in 1913 and industrial peace is assured in the anthracite region until 1916. As the use of anthracite coal as a manufacturing fuel has been practically eliminated, its production is not affected by trade conditions to the same extent as that of bituminous coal. The increase in the use of artificial gas and of coke for domestic purposes will, in Mr. Parker's estimation, probably keep pace with the increase of population in the markets supplied by anthracite, and there is little probability that anthracite production will show any marked increase in the future. Another record in addition to that of tonnage was established in the anthracite region in 1913. The average working time for men, 257 days, exceeded anything in the history of the industry, the nearest approach being in 1911, when an average of 246 working days was recorded. In 1912 the average was 231 working days. The average number of men employed in 1913 was 175,745. Reports to the Bureau of Mines show that there were 618 fatal accidents.

UNIVERSITY AND EDUCATIONAL NEWS

THE East London College (University of London) has received from the Drapers' Company about $75,000 to defray the cost of the erection and equipment of the new chemical laboratories of the college.

DR. HERBERT STANLEY BIRKETT, a specialist in diseases of the nose, throat and ear, has been appointed dean of the medical school of McGill University.

AT Vassar College the following appointments have been made: Aaron L. Treadwell, title changed from professor of biology to professor of zoology; Cora J. Beckwith, Ph.D. (Columbia, '14), promoted from instructor to assistant professor of zoology; Emmeline Moore, Ph.D. (Cornell, '14), instructor in botany, vice Assistant Professor W. J. Robinson, who becomes dean of the Women's Affiliated Colleges of Delaware; Elizabeth Cutter (Vassar, '11), Hazel Schmall (Colorado, '13), and Celia Jordan (Vassar, '14), have been appointed assistants in biology.

DR. H. E. EWING, Ph.D. (Cornell, '11), and Assistant Professor V. I. Safro, B.S.A. and postgraduate (Cornell, '09), have resigned from the Oregon Agricultural College, department of entomology. The present organization of the department is as follows: H. F. Wilson, M.S. (Oregon Agr. Col., '13), entomologist; A. L. Lovett, B.S. (Okla. Agr. Col., '10) and G. F. Moznette, B.S. (Oregon Agr. Col., '14), assistant entomologists.

DR. F. R. MILLER, of the department of physiology, McGill University, has been appointed professor of physiology in the Western University, London, Canada.

MR. IELSON C. DALE, of the graduate college of Princeton University, has been appointed associate professor of geology at Hamilton College.

FOLLOWING the retirement of Professor J. M. Thomson, Professor H. Jackson has been appointed head of the chemical department at King's College, with the title of Daniel professor of chemistry in the University of London.