M. ALBERT LACROIX

AT the meeting of the Paris Academy of Sciences, held June 7, M. Albert Lacroix was elected perpetual secretary for the class of physical and natural sciences, by 37 votes against 22 cast for M. Ternier, his only opponent. This merited honor will afford the greatest satisfaction to the many friends and admirers of Professor Lacroix. Still comparatively young for a scientific man (he was born in 1863) M. Lacroix began his special career in the petrographic laboratory of the Collège de France, and soon published, in collaboration with M. Michel-Levy, a valuable study entitled: "Les mineraux des roches." His great work "La Mineralogie de la France et des ses Colonies," has just been completed, and ensures to the writer a foremost place among the mineralogists of the world. Special studies on the granites of the Pyrenees and their contact phenomena, as well as the invaluable records of his investigations when sent in 1902 by the French government as director of the mission to Martinique after the fearful disaster from the eruption of Mont Pelee, constitute additional titles to high consideration. In the course of the Martinique expedition, M. Lacroix more than once exposed his life in the interests of science, notably on one occasion when, while in the flames of the death-dealing mountain, an emission of poisonous vapor passed within a hundred feet of where he was standing, destroying everything in its passage. Fearlessly utilizing this terrifying spectacle in the interests of science, the undaunted explorer photographed the phenomena, thus preserving a unique record of the appearance. He has explained that this "burning cloud" was the result of a formidable explosion, that it might, indeed, be regarded as a sort of projectile hurled out by the mountain, half-solid, half-gaseous, of very high temperature, and which in contradistinction to most volcanic emissions of vapor, although thrown up vertically into the air, descends upon the slopes of the volcano, under the duplex influence of the initial explosion and of the force of gravity, and sweeps everything before it. Its speed often exceeds fifty meters a second, and its convolutions are so dense and closely bound together and its outlines so clearly defined that only a few meters separate the zone of total destruction from that in which nothing is harmed.

The election of M. Lacroix as a member of the Academy of Sciences in 1904 was a fitting recognition of these and other labors in his special field. In 1906 he was entrusted with another mission for the study of volcanic phenomena, Vesuvius being this time the chosen locality. At present M. Lacroix has the professorship of mineralogy in the Museum d'Histoire Naturelle, and his laboratory in that institution is a favorable resort for all French explorers who are investigating the mineral riches of France or her colonies. The unfailing courtesy and amiability of the distinguished mineralogist contribute not a little to the advantages derived from a visit to the scene of his activity.

K.

THE LASSEN ERUPTION

A REPORT forwarded to the U. S. Geological Survey, Washington, by geologist J. S. Diller reads in part as follows:

Mount Rainier and Mount Shasta, the beautiful cones so much in evidence to the traveler on the Pacific Coast north of San Francisco, are now finding an up-to-date rival in Lassen Peak, which is plainly in view from the railroad for many miles in the Sacramento Valley between Redding and Red Bluff. Lassen Peak is the southern end of the Cascade Range, and it stands between the Sierra Nevada on the southeast and the Klamath Mountains on the northwest. Its lavas erupted in past ages reach the Sacramento Valley on the one side and on the other form a part of the vast volcanic field, one of the greatest in the world that stretches far across California, Oregon, Washington and Idaho to the Yellowstone National Park.

Of all portions of the Cascade Range Lassen Peak still retains the largest remnant of its once vigorous volcanic energy. Morgan and Suppan Hot Springs and Bumpass Hell on

the south as well as Hot Springs Valley and the boiling mud-lake Tartarus on the southeast have long attracted the attention not only of Californians but to some extent of the tourists, to whom the region is growing more accessible every year. If to these already established attractions be added a frequent occurrence of the recent volcanic plays of Lassen Peak the region will take high rank among nature's wonderlands.

But what is the nature of this new activity of Lassen? Is it really volcanic? Will it soon dwindle and become wholly quiescent or on the other hand is it the precursor of a more profound eruption like that of Krakatoa? The excellent photographs that have been taken of the outburst, especially those by G. F. Milford and the series by B. F. Loomis, of Viola, taken from a point six miles northwest of Lassen Peak, leave little doubt in the mind of any one familiar with volcanic phenomena that the outburst is essentially volcanic. These photographs are strikingly similar to those taken by Johnston-Lavis showing the progress of an eruption in the Lipari Islands, whose volcanic character is well known.

The eruptions of Lassen Peak began May 30 at 5:30 P.M., with an outburst of steam which, according to Forest Supervisor W. J. Rushing, continued about 10 minutes. It formed a crater in the snow-covered summit of Lassen about 25 by 40 feet in extent and covered the encircling snow for a distance of 300 feet with a mantle of dark wet dust. Harvey Abbey, a forest ranger, visited the scene and reported the facts.

On the following day at 8 A.M., another eruption occurred and on June 8, a week later, the third and much larger outbreak took place. It lasted 30 minutes and the rolling column of dense black smoke rose to the height of 2,500 feet. Stones were hurled from the crater and the forest service outlook house, a quarter of a mile away on the tip-top of Lassen Peak, was broken by some of them. Blocks and smaller fragments accumulated about the crater to a depth of several feet. The dust and sulphurous gases carried southward by the wind were observed at Mineral, the forestry station, and the dust was noted 5 miles beyond. Forest rangers who were in the neighborhood of the summit during the eruption heard the rushing steam and the falling rocks but report no rumbling or subterranean noises, earth shocks, electrical phenomena or great heat beyond that of steam. The dust was practically cold when it fell. Considerable volumes of water were ejected probably wholly in the form of steam. The water condensing from this steam washed a gully in the snow to the adjacent lakelet which occupies what prior to this latest eruption had long been regarded as the youngest crater of the Lassen volcano. The new crater is not quite over the throat of the old but is a few hundred feet to the northwestward.

In all there have been eleven eruptions up to the date of this report—June 21. The most violent was at 9 A.M., June 14, when several over-venturesome persons were injured by falling or rolling stones. The eruption was visible from the Sacramento Valley nearly 40 miles away and created profound interest. The subsequent eruption on Friday, June 19, was of relatively small energy. Mr. Rushing reports that eruptions are generally, if not always, preceded by a complete cessation of escaping steam.

With successive eruptions the new crater is enlarging. June 20, when Mr. B. F. Loomis and I visited it, it was 400 feet long and 100 feet wide with a depth of not over 100 feet. It appears to follow a fissure running a little north of east and south of west. The escaping steam from the southwest end of the fissure is visible in the excellent photograph obtained by Mr. Loomis.

The other hot holes about Lassen Peak as far as I can learn have not increased their activity unless it is Bumpass Hell which is always fuming; but nothing like an eruption has been reported.

No definite molten products have been found in connection with the recent eruptions of Lassen Peak. The ejected dust as far as can be judged from an examination with a small pocket lens is disintegrated or pulverized da-

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