parent gorilla. Everybody took his own way, losing sight of each other, following the sounds, along our several radii, to the fierce centre. But the bark ceased with a yelp; the screams and howl rapidly receded, faster than we could follow. I emerged into a small open glade, where stood Ogula, M. Gacon and Hector. The dog had come upon a mother and child at the foot of a tree in a hollow, which was still warm. The mother had fled at first sight, but had returned at the screams of the child, which the dog had seized. It was just at this moment that M. Gacon and Ogula saw them. The mother slapped the dog with her hand and the dog dropped the child with a yelp of pain. Ogula allowed the precious moment to pass, fearing to kill the dog with the slugs of his musket. M. Gacon was in his rear and emerged on the scene just as the mother, who had picked up her child, disappeared. He had not a moment's time to get his rifle into position. On our way back to the boat we came to a large glade, where evidently there must have slept that very night not less than twenty gorillas. It was exasperating that we had been only a few hundred yards from that spot the afternoon before and that very morning. All our hands and faces were cut and bleeding by the fearful grass in that frantic rush, and I had hurt my knee by a fall over a log. So we rested and mended ourselves during the afternoon in the village.

"Saturday, July 20. We all rose at three A.M., and, volunteers and all, went to a new place, where on the previous day a large male gorilla had been reported. I did not like the plan, I wanted to go to yesterday morning's region; but Ogula was overpersuaded by the volunteers. Their plan was to form a line across the long point on which the animal had been heard on the previous afternoon. We entered the forest in the dark of the morning. I am not accustomed to such exhausting work before breakfast, and when, after a fruitless search, we emerged again. I was provoked to find that three old volunteers had changed their minds, had not followed us, and were resting comfortably on the sandy beach munching peanuts.

"Monday, July 22. M. Gacon went out with the hunters to a new place, where a gorilla had been heard on Sabbath, but they returned fruitless; M. Gacon had shot a flying squirrel. He went out again in the afternoon alone, but saw nothing.

"Tuesday, July 23. Ogula and Osamwamani, ashamed over our ill-success, declared I should have a gorilla that very day, and went without us before daylight to a distant place. They returned in the evening having seen many gorillas, some of which had taken refuge in high tree-tops beyond the range of their muskets. They regretted not having taken us along. We gave up the search for a gorilla. My knee was still inflamed and M. Gacon's enthusiasm waned. We could not deny that there were gorillas in abundance, but the difficulties in obtaining them were just as obvious"

During all these years from 1882 to 1889, while I was prevented from hunting myself, I had employed a hunter, Azâze, living at Orânga, about 35 or 40 miles down the river from Kângwe, promising him a good reward if he brought me a dead gorilla in good condition. To get it to me in good condition at Kângwe he would have to start immediately and pull day and night. He brought two carcasses here while I was away at Talaguga some years ago, and they were lost, there being no one here to open a skull carefully. He sent a third, a small one, just a year ago. It reached me here just as I was starting up to Talaguga. I had actually stepped into the boat and in five minutes should have started. The messenger had arrived during the night, but had taken his leisure to deliver it. I would have stopped the journey, but the carcass was then spoiled, and what I would have given a large sum for twenty-four hours earlier I threw into the river as worth nothing. His last effort was eight months ago, the week before I went on the hunt to the lake. It was a very large old male. Azâze had made a desperate effort to reach here with it safe. He arrived on a Sabbath noon. I did not go to the water-side to see it, my principles would not allow me to work on it on the Sabbath; but early Monday A.M. I got the brain out, but it was then too soft.

KANGWE MISSION STATION, OGOVE RIVER,
WEST AFRICA, October, 2, 1890.

This year in July I went again to another part of the same lake, Kângwe, and hired two native Bakele hunters. They saw in two days' hunting both elephants and gorillas, but failed to kill any. But some Galwa young men, knowing my errand, went out on their own account and found five gorillas, an old male, three females, and a stout grown lad. The place was in sight and gun-sound of the village where I was waiting across one of the beautiful bays of the lake. The females fled; the old male showed some fight, but fled when the lad was shot. The carcass was brought to me still warm. I had a carpenter's back-saw and a chisel, I worked with care; but in my anxiety at the last I gave an unfortunate blow or two and wounded the brain, and much of it exuded under the astringing influence of the chloride of zinc; also, I had no alcohol and had to use trade rum, and I fear that the brain has not been kept by it from decay. A few days later, I by a very, very rare chance bought two gorilla male children; they were in good condition and tamed. The servant in whose care I left them at this place, Kângwe, during a few days' absence neglected them and they were attacked by "driver" ants the night of the day before my return. One survived twelve and the other forty-eight hours. Their cries for help had been disregarded, and when I discovered them they could only moan. I combed thousands of ants off of them. That servant of mine had also neglected to feed them, and they were partly starved before the ants attacked them. The second of these I finally killed, seeing it was dying; and, working very carefully with the chisel, using no mallet, loosened the brain without injuring the membranes. I was afraid to work down toward the base of the brain, so I left it adhering and sawed away the face so as to make the mass small enough to enter the jar. I enveloped it and also the first brain in separate muslin bags so that they should not abrade each other.

That attack by driver ants was made at this house, Kângwe; and one of the little fellows, the one that I finally killed, was still living next day when I started up river by my boat to my Talaguga home, 70 miles, a four days' journey. It died at night at my first camp on a sand-bar in the river, and I did the work at midnight by torch-light. I put the brain in the chloride, and on arrival at my house three days later, put it into rum. R. H. NASSAU.

NOTES AND NEWS.

IN connection with the celebration of the fourth centenary of the discovery of America by Columbus, the Italian Botanical Society, says *Nature*, invites the attendance of botanists of all countries at a Botanical International Congress, to be held at Genoa, from the 4th to the 11th of September. In addition to the meeting for scientific purposes, there will be excursions on the shores of the Mediterranean and in the Maritime Alps; and during the same time will also take place the inauguration of the

new Botanical Institute built and presented to the University of Genoa by the munificence of Mr. Thomas Hanbury, of La Mortola, and the opening of an Exhibition of Horticulture. All communications should be addressed to Professor Penzig of the University of Genoa.

—In the Annual Report for 1892 of the Berlin branch of the German Meteorological Society, Professor G. Hellmann gives an account of his continued experiments, which are summarized in *Nature*, on the effects of exposure on rainfall records, and on the determination of the distance apart that rain-gauges should be erected in order to obtain an accurate account of the rainfall of any district. Simple as the question appears, the experiments, which have been carried on for seven years, have not sufficed to give a definite answer. Very considerable differences are found in the amounts recorded at stations comparatively close to each other. This result is partly owing to the effect of wind, especially in the case of snow. The following are the most important conclusions derived from the experiments: (1) The more a rain-gauge is exposed to the wind, under otherwise similar circumstances, the less rainfall it records, and the higher a gauge is placed above the ground, the less rain it catches, as the disturbing influence of the wind is greater than on the surface of the ground. But if protected from the wind, a gauge will give useful results in an elevated position. The usual instructions to erect the gauge as openly as possible are therefore incorrect. (2) Even in a flat country, differences of 5 per cent occur in different months, at stations a quarter of a mile apart; in stormy weather, especially during thunderstorms, the difference may amount to 100 per cent. The amounts recorded at neighboring stations agree better together in spring and autumn, and also in relatively wet years. Further experiments are needed, if possible by means of anemometers erected at the same level as the rain-gauges, to determine more accurately the effect of wind on both rainfall and snow.

— At a meeting of the Engineers' Club of Philadelphia, April 2, Mr. W. S. Auchincloss read a paper on Yearly Tides. In this paper the author stated that he proposed to show that confined bodies of fresh water are subject to yearly tides of greater or less magnitude, depending upon the nature of the basin or upon the strata to which they are confined, and upon the effect of evaporation if in an open basin. In March, 1885, he had occasion to sink a well near Bryn Mawr, Pa. Natural anxiety as to the permanence of the supply led him to observe the depth of the water at intervals of about ten days. It soon became evident that the water was receding. In 1886 there was a gratifying rise of the surface and a total gain of 12 feet. His curiosity was aroused and he determined to study the law, if such a law existed, of this ebb and flow. These observations have been continued during the past seven years. He found that in normal years the surface of the water reaches its lowest level in December, rises until June, and descends during the autumn. An examination of the amount of the rainfall shows that while the amount of rainfall was as great or greater during the last half of the year as during the first, the level of the water in the well continually lowered. Atmospheric temperature had practically no effect, as the temperature of the water in the well is practically constant all the year round. The depth of the well prevented evaporation from its surface from having any effect. The author believes that the true cause is the result of the influences of gravity and of the sun's attraction at different seasons of the year. When the sun reaches its furthest point south of the equator, gravity exerts its maximum influence on the waters of the northern hemisphere. The waters of the earth will be drawn into the minutest crevices and the surfaces lowered, but in June they will, in a measure, be released, and, under the influence of adhesion and friction, will be held at a higher level than during any other season of the year. Data obtained from the Government records, showing the depth of water in the Great Lakes, show that there is a similar rise and fall, the range of yearly ebb and flow being from 12 to 15 inches in our northern lakes. So far as we are aware, no data exist for the small lakes. More extended research will, we believe, secure as complete a recognition of yearly tides as physical geography has always accorded to the phenomenon of daily tides. The author presented two diagrams, one of which showed the rise and fall of the water in the well covering a period of seven years, and also the northing and southing of the sun for the same period.

— In February, 1890, a grant was made by the Royal Society for the purpose of supplying the Ben Nevis Observatory with apparatus for counting the number of dust-particles in the air. Two instruments, one portable and another of larger dimensions, were made after designs by Mr. Aitken. With the latter observations may be made at any time, except when the wind, blowing from the south-west, pollutes the air above the inlet pipes with smoke from the observatory and hotel. Since February, 1891, observations have been made every third hour. Some of the results are given, and their bearing discussed, by Mr. Angus Rankin in the *Journal of the Scottish Meteor. Soc.*, Third Series, No. viii. It may be stated that a number of particles under 100 in a cubic centimeter of air is phenomenally small, and a number over 4,000 phenomenally large. The highest number was 14,400, which was counted in April, 1891. The particles are most numerous during March, April and May, when easterly and south-easterly winds are prevalent both at sea-level and on the summit of the mountain. On the other hand, when the winds on Ben Nevis blow from the north-west, north, or east, their directions diverge most from those of sea-level winds, and then the dust-particles are most scarce. Hourly observations were made only on four days, but the three-hourly means show the general trend of the daily curve. The means for the three months, March to May, show a minimum, 526, at 4 hours, and a maximum, 1,438, at 16 hours, the absolute mean for the three months being 854. The variations seem to be due to the movements of the first, or lowest, cloud stratum. In the morning this stratum lies below the summit of Ben Nevis, but towards noon rises and envelopes the top, hovers above it in the afternoon, and sinks to its original position about midnight. Several points remain to be cleared up. Apparently only the free dust-particles are counted, and few, if any, of those on which moisture has condensed to form visible fog; all the lowest values have been recorded when a thin mist enveloped the top. These observations will be of great service in the study of clouds—their forms, heights, and motions. The bearing of dust on the humidity of the air is also an important point; at present the humidity of the Ben Nevis atmosphere is very little understood.

— The papers entered to be read at the April meeting of the National Academy of Sciences were as follows: An American Maar, by G. K. Gilbert; The Form and Efficiency of the Iced Bar Base Apparatus of the United States Coast and Geodetic Survey, by R. S. Woodward (introduced by T. C. Mendenhall); On Atmospheric Radiation of Heat in Meteorology, by C. Abbe; On the Deflecting Forces that Produce the Diurnal Variation of the Normal Terrestrial Magnetic Field, by F. H. Bigelow (introduced by C. Abbe); Abstract of Results from the United States Coast and Geodetic Survey Magnetic Observatory at Los Angeles, Cal., 1882–1889, Part III., Differential Measures of the Horizontal Component of the Magnetic Force, by C. A. Schott; On the Anatomy and Systematic Position of the Mecoptera, by A. S. Packard; On the Laws of the Variation of Latitude, by S. C. Chandler; On the Causes of Variations of Period in the Variable Stars, by S. C. Chandler; On the Force of Gravity at Washington, by T. C. Mendenhall; On the Recent Variations of Latitude at Washington, by T. C. Mendenhall; On the Acoustic Properties of Aluminum, with Experimental Illustrations, by A. M. Mayer; Disruption of the Silver Haloid Molecule by Mechanical Force, by M. Carey Lea (introduced by G. F. Barker); On the Homologies of the Cranial Arches of the Reptilia, by E. D. Cope; On the Osteology of the Genus Anniella, by E. D. Cope; The Astronomical, Geodetic, and Electric Consequences of Tidal Strains within an Elastic Terrestrial Spheroid, by C. Abbe; Asiatic Influences in Europe, by E. S. Morse; Exhibition of Chladni's Acoustic Figures Transferred to Paper without Distortion, by A. M. Mayer; On Electrical Discharges Through Poor Vacua, and on Coronoidal Discharges, by M. I. Pupin (introduced by T. C. Mendenhall); Biographical Memoir of William

Ferrel, by C. Abbe; A Definition of Institutions, by J. W. Powell; Biographical Memoir of J. Homer Lane, by C. Abbe; The Partition of the North American Realm, by Theodore Gill; Exhibition of Teeth of a Gigantic Bear, Probably an Extinct Species, Found in Ancient Mounds in Ohio, by F. W. Putnam; A Means of Measuring the Difference Between the Tidal Change in the Direction of the Plumb Line and the Tidal Deflection of the Earth's Crust, A Posthumous Paper by J. Homer Lane, read by C. Abbe.

— Mr. Timothy Hopkins has made provision for the endowment and maintenance of the seaside laboratory at Pacific Grove, recently established under the auspices of the Leland Stanford Junior University. It is intended to make this a place for original investigation of the habits, life-history, structure and development of marine animals and plants and to carry on work here similar to that which is done at the acquarium at Naples. The Hopkins Laboratory will be under the general direction of Professors Gilbert, Jenkins, and Campbell. It will be open during the summer vacation, and its facilities will be at the disposal of persons wishing to carry on original investigations in biology, as well as of students and teachers interested in that line of subjects. It will be fully provided with aquaria, while microscopes, microtomes and other instruments necessary for investigations will be taken from the laboratories of the University.

— At a meeting of the Epidemiological Society (*Lancet*, Feb. 29, 1892) Dr. Pringle quoted a remarkable passage from an ancient Hindu work, which showed that true vaccination was known and practised in India centuries before the birth of Jenner: "The small-pox produced *from the udder of the cow* will be of the same mild nature as the original disease. . . . The pock should be of a good color, filled with a *clear* liquid, and surrounded by a circle of red. . . . There will be only slight fever of one, two, or three days, but no fear need be entertained of small-pox so long as life endures." Pasteur's attenuation of virus by successive cultures has been applied in India for hundreds of years to inoculations with variolous lymph, which the document in question directed to be taken from "the most favorable cases," and he has seen series of such selected inoculations in which there was no general eruption, and the local phenomena were scarcely distinguishable from those of vaccination.

— In a paper, in the April number of the *Botanical Gazette*, on "Some Fungi Common to Wild and Cultivated Plants," Byron D. Halsted, Rutgers College, New Brunswick, N.J., says: "It has been shown by means of a long series of examples that the evil influences of wild plants may act at long range. It is not necessary that their roots and those of the cultivated plants should cross each other's paths in the soil or that their branches should interlock and overshadow one another in a deadly embrace. There is a more subtle bad influence than gross thieving or clutching by the throat. It is more in the nature of a poison that is sent out upon the air to be breathed in by the innocent wherever they may unwittingly meet the unseen but deadly germs. Crowding of plants is bad, rank growth of weeds is worse, but the most fatal of all influences is that unseen group that steal away the health of the plants which lack nothing for room and enjoy high and thorough culture. After all it is the host of enemies that swarm from the plants outside the garden fence that try the patience of the husbandman. He has learned the methods of remedying the others, but the floating spores defy his keenest eyesight to discern and baffle his ingenuity to combat. The ways of the fungi are, however, being slowly and laboriously revealed by the microscope and conquered by the spraying pump. The former assists the latter, which as yet blindly fires effective "small shot" into the enemies' ranks. Proper seeding, fertilizing, and weeding will do much to assist in warding off the deleterious influences of fungous enemies; for healthy plants, while not proof against their attacks, are less liable to be overcome by them. Let therefore everything be done that is possible before the last resort comes and then the fungicide will have the greatest effect and yield the most returns. If so much of the smut, rust, mildew, mold, rot, and blight of our cultivated plants is propagated by the wild plants hard by, it may be wise for every crop-grower to pay attention to what is thriving outside his garden wall. He cannot build it high enough to shut out the spores, but he can do much to diminish the number of these spores. Having done this, he can take up the spraying pump with a brighter hope of future success. There was a carcass, so to speak, in the pasture and he went out and buried it. Fungi are the basis of contagion and they infect at long range by means of their myriads of invisible spores. To learn of their ways and find better methods of resisting them make the burden of many a station botanist's labor to-day."

— At the Washington meeting, Thursday, April 21, of the National Academy of Sciences Dr. Karl Barus, Professor Samuel F. Emmons and Mr. M. Carey Lea were elected members of the academy. Dr. Barus is connected with the United States geological survey, and is well known as a physicist. Professor Emmons is also connected with the geological survey and is a geologist. Mr. Lea is a Philadelphian, and is famous as a photographic chemist. The academy elected four foreign associate members. They were Professor Hugo Gylden of Upsala, Sweden; Professor Carl Weierstross of Berlin, Germany; Professor August Kekule of Bonn, Germany; and Professor E. Du Bois Reymond of Berlin, Germany.

— "On the Track of Columbus," a paper by Horatio J. Perry, is one of the features of the May *New England Magazine*.

— Professor N. S. Shaler, whose articles in *Scribner's*, on "The Surface of the Earth" and "Nature and Man in America," have done so much to make clear the practical features of geology and geography, begins in the May number of that periodical a group of four articles on Sea and Land, in which he will discuss Sea-Beaches, The Depths of the Sea, and Icebergs.

—Some time ago *Public Opinion*, the eclectic journal of Washington and New York, offered $300 in cash prizes for the best three essays on the question "What, if any, changes in existing plans are necessary to secure an equitable distribution of the burden of taxation for the support of the National, State, and Municipal Governments?" The competition has attracted much interest, and the committee, consisting of Hon. Josiah P. Quincy of Boston, Hon. Jno. A. Price, Chairman National Board of Trade, and Mr. W. H. Page, Editor of *The Forum*, have just awarded the first prize to Mr. Walter E. Weyl of Philadelphia; the second to Mr. Robert Luce, editor of *The Writer*, Boston; and the third to Mr. Bolton Hall of New York. The successful essays will be published in *Public Opinion* of April 23.

— "French Schools through American Eyes" is a report to the New York State Department of Public Instruction by J. Russell Parsons, Jr., the same gentleman who not long ago made a similar report on the German schools. Mr. Parsons remarks in his preface that "the belief that everything American is perfect constitutes a false form of patriotism which seems to be growing in this country;" but he maintains that in educational matters we have much to learn from foreigners. France, he thinks, has during the past twenty years made great advances in primary education, and now has some of the best public schools in the world. These schools he describes at considerable length, treating of their legal status and obligations, their organization, the method of selecting teachers, the methods of inspection, the courses of study, and many other aspects of the complex subject. His liberal use of statistics and the dryness of style characteristic of government publications make his book rather dull reading except to those especially interested in its theme; but to such persons it will convey much useful information. The most interesting part of it to the general reader is that which describes the courses of study in the various schools. The object sought by the French authorities is to teach those subjects that every person ought to know and to teach them in the most thorough manner possible. Moral education, too, receives special attention, and is so conducted as not to interfere in any way with the religious beliefs of either the children or their parents. Mr. Parsons gives tables showing the courses of instruction in several of the schools, which, however, we have not space to summarize. The book is published by C. W. Bardeen of Syracuse, N.Y.