four meters being the measured increase from August 21 to 31. The eruption of September 2 caused a loss of thirty meters, and the succeeding five days saw thirteen meters of this regained; a gain, however, which was only temporary, fifteen meters being lost upon the following day. During the remainder of the month there was an irregular increase of thirty-one meters, with a loss between the 15th and 18th of five meters. The total increase in height of the dome for the six weeks ending the first of October was about one hundred and twenty-seven meters.

The great spine which was such a wonderful part of the mountain from November, 1902, to June, 1903, had practically disappeared early in August when the main mass of the cone, or the 'dome' as it may well be called, began to rise so rapidly. The first spine rose from the northeastern quarter of the new cone. On September 8, after four days in constant cloud, the summit appeared and it was seen that the dome culminated in a sharp tooth or spine rising from its northwestern portion. Within a week this new spine was pushed up twenty meters, but an eruption on September 17 destroyed it. At the end of the month (September) the highest part of the dome was at the south.

During about six weeks in August and September the activity of the volcano was so great as to cause serious fears of the recurrence of great eruptions, and several warnings were sent out by the geological commission to the inhabitants of the northern and northeastern parts of the island of Martinique. On September 12, at 2 P.M., there was an eruption, the dust cloud of which covered the Lac des Palmistes and rapidly descended the eastern slopes of the mountain toward the village of Morne Balai to the altitude of about seven hundred meters; that is to say, it reached the limit of the zone devastated by the eruptions of May, 1902. A week later three such clouds followed one another in quick succession nearly to the same extent. On September 16 an eruption cloud rose vertically to the extraordinary altitude of 7,000 meters. During the latter part of September, however, the activity diminished again, and is recorded as being very feeble on September 30. The bulletins from October 1 to 19, the date of the latest received, indicate only feeble activity of the volcano, with occasional persistent luminosity of the dome. The seismographs which were installed in the observatory at Morne des Cadets in the fall of 1902 had recorded no earth tremor by April 1. Light earthquake shocks made their imprint on these instruments on July 23 and August 28, and others have been noted by the observers at Assier.

Edmund Otis Hovey.

American Museum of Natural History,
November 3, 1903.

*THE HUXLEY MEMORIAL LECTURE.**

The fourth annual Huxley memorial lecture of the Anthropological Institute was delivered in the lecture theater of Burlington House by Professor Karl Pearson, F.R.S. The president of the institute, Mr. H. Balfour, occupied the chair.

The lecturer's subject was 'The Inheritance in Man of Moral and Mental Characters,' a subject to which he has devoted many years of close and constant study, and the importance of which, as he observed, from a national point of view can hardly be exaggerated. It was a question of vital importance, he observed, as to how far mental and moral characters were inherited as compared with physical characters. Few denied the inheritance of physique in man, as in animals, but few too applied the results of such acceptance to their own conduct in life. We were agreed that good homes and good schools were essential to national prosperity, but were apt to overlook the possibility that the home standard was itself a product of parental stock, and that the relative gain from education depended to a surprising degree on the raw material. Since the publication of Francis Galton's epoch-making books it was impossible to deny *in toto* the inheritance of mental characters. But it was necessary to go a stage further and ask for an exact quantitative measure of the inheritance of such characters and a comparison of such measure with its value for the physical characters. Accordingly he had some six or seven years ago set

* From the London *Times*.

himself that problem, which really resolved itself into three separate investigations—namely, a sufficiently wide inquiry into the actual values of inheritance of the physical characters in man, and this was carried out by the measurement of upwards of 1,000 families; a comparison of the inheritance of the physical characters in man with that of the physical characters in other forms of life; and an inquiry into the inheritance of the mental and moral characters in man. In respect of this last set of investigations children were taken in schools of different sorts all over the country, and the opinions of teachers were asked upon the characters of their pupils in respect of the physical, mental and moral resemblances between brother and brother, sister and sister, and brother and sister. Six thousand circulars were thus sent out to about 200 schools. In respect of physical characters the data included the cephalic index—*i. e.*, ratio of the length to the breadth of the head, the span, color of eye and hair, curliness of hair, athletic power and health. In respect of all these the measure of the fraternal resemblance, indicated by the well-known regression line, was as two to one—that is to say, that if one of the pair exceeded the mean by a certain amount, the other of the pair tended to exceed the mean by half that amount; and similarly in respect of defect from the mean. This was always true for all the physical characters yet worked out in man. Now, seeing there was this surprising uniformity in the inheritance of the measurable physical characters, could these results be extended to psychical characters? Could we—that was the whole problem—get a corresponding regression line of two to one in steepness or slope in respect of mental and moral characters. A very large number of observations made on 1,918 pairs of brothers as to vivacity, assertiveness, introspection, popularity, conscientiousness, temper, probity, handwriting and general ability showed that while the line of regression was one to two or 50 to 100 in respect of physical characters, the smaller number was represented in respect of mental and moral characters by 51; while in respect of a large number of pairs of sisters it was 52, and these two numbers tended to approximate to 50 with an allowance for probable error. Hence there could be small doubt that intelligence or ability followed precisely the same laws of inheritance as general health, and both followed the same laws as cephalic index or any other physical character. There was a true line of regression in each case (.5 or 1 to 2), and it could safely be said that general health in the community was inherited in precisely the same manner as head-measurements or body-lengths. What results followed therefrom? By assuming our normal distribution for the psychical characters, there was found, in addition to self-consistent results, the same degree of resemblance between physical and psychical characters; and that sameness involved something additional—namely, a like inheritance from parents. We inherited our parents' tempers, conscientiousness, shyness and ability, even as we inherited their stature, forearm and span. Again, within broad lines, physical characters were inherited at the same rate in man and the lower forms of life. The irresistible conclusion was that if man's physical characters were inherited even as those of the horse, the greyhound or the water-flea, what reason was there for demanding a special evolution for man's mental and moral side? If the relation of the psychical characters to the physical characters was established, what was its lesson? Simply that geniality and probity and ability might be fostered by home environment and by provision of good schools and well-equipped institutions for research, but that their origin, like health and muscle, was deeper down than those things. They were bred and not created. It was the stock itself that made its home environment, and the education was of small service unless it were applied to an intelligent race of men. Our traders had declared that we were no match for Germans and Americans. There did seem to be a want of intelligence to-day in the British merchant, workman or professional man. The remedy was not in adopting foreign methods of instruction or in the spread of technical education. The reason of the result was that the mentally better stock in the

nation was not reproducing itself at the same rate as of old; the less able and the less energetic were more fertile than the better stocks. No scheme of wider or more thorough education would bring up in the scale of intelligence hereditary weakness to the level of hereditary strength. The only remedy, if one were possible at all, was to alter the relative fertility of the good and bad stocks in the community. Grave changes had taken place in relative fertility during the last forty years. He ventured to think that we now stood at the beginning of an epoch that would be marked by a great dearth of ability. We had failed to realize that the psychical characters—the backbone of a state in the modern struggle of nations—were not manufactured by home and school and college; they were bred in the bone, and for the last forty years the intellectual classes of the nation, enervated by wealth or by love of pleasure, or by following an erroneous standard of life, had ceased to give us in due proportion the men wanted to carry on the ever-growing work of our empire, to battle in the fore rank of the ever-intensified struggle of nations. The remedy lay first in getting the intellectual section of our nation to realize that intelligence could be aided and be trained, but that no training or education could create it. It must be bred; that was the broad result flowing from the equality in inheritance of the psychical and the physical characters in man, and that result constituted a problem for statecraft to deal with.

SCIENTIFIC NOTES AND NEWS.

President Schurman, of Cornell University, has proposed the erection of a new building for Sibley College, in memory of the late Professor Thurston, to be known as Thurston Hall. The students of Sibley College have voted to erect a bronze memorial tablet in honor of Professor Thurston.

Dr. C. S. Sherrington, professor of physiology at Liverpool University, will give the second series of Silliman lectures at Yale University.

Professor H. S. Jacoby, of Cornell University, is spending the present term in the practical study of the bridges of the chief railroads of the United States and Canada.

Professor J. Culver Hartzell, of the Illinois Wesleyan University, is in Munich, having been given leave of absence for eighteen months. He is studying the upper devonian of Europe. The past seven months he has spent in Germany, and the next five months will be spent in Italy and Switzerland.

We learn from Bulletin No. 4 of the Bureau of Agriculture of the Philippine Islands that Dr. Janet Perkins has been authorized by the Carnegie Institution to work on the Philippine flora at the Botanical Garden in Berlin.

Dr. Llewellys F. Barker, professor of anatomy in the University of Chicago, sailed for Europe on November 7.

Professor E. W. Scripture, of Yale University, is in Munich carrying on researches on the analysis of speech by means of gramophone records, under the auspices of the Carnegie Institution.

Professor H. S. Hele-Shaw, who holds the chair of engineering at Liverpool University, has been appointed, through the Colonial Office, to organize technical education in the Transvaal and the Orange River Colony. The appointment is not a permanent one, and Professor Hele-Shaw has been granted leave of absence by the university council until September next.

The committee of the National Physical Laboratory has appointed Mr. W. A. Caspari to the post of junior assistant in the chemical department.

We learn from *Nature* that Mr. G. Marconi, in company with Captain H. B. Jackson, has gone to Gibraltar to carry out further experiments in wireless telegraphy for the Admiralty. It is hoped to be able to open communication with Gibraltar before losing touch with Portsmouth.

Baron E. Nordenskiold has arranged to make a zoological and anthropological expedition to the frontiers of Peru and Bolivia. The expedition will start from Stockholm at the end of December or the beginning of January.

While students of the Agricultural College