CURRENT NOTES ON ANTHROPOLOGY.

AMERICAN LINGUISTICS.

Students of the ethnography of the Northwest Coast will welcome the 'Haida Grammar,' written by the Rev. C. Harrison and edited by Dr. A. F. Chamberlain. It is published in the Transactions of the Royal Society of Canada (Second Series, Vol. I.), and covers 108 octavo pages. It is based on the scheme of grammars of Aryan tongues, the same grammatical categories being applied to the Haida. While this offers no special difficulty to one versed in the morphology of American idioms, it certainly presents such tongues under false analogies, which have often misled tyros in their study. It would have been better if the highly competent editor had taken the material and recast it in the form now required by linguistic science.

Dr. Paul Ehrenreich has added another to his valuable studies of Brazilian languages by publishing in the *Bastian Festschrift* several old vocabularies and a list of phrases of the tongue of the Botocudos. The analysis of them and the grammatical remarks which he adds give largely increased value to these fragments. His paper is entitled 'Ein Beitrag zur Charakteristik der Botocudischen Sprache.'

PRIMITIVE PSYCHOLOGY.

To the primitive man, as we know him, the sense of individual power, that which metaphysicians call 'free will,' was very present. The strong, the mighty, was what excited his admiration above all else. His ideal was the man who could do what he wished or willed to do. The savage acknowledges no theoretic limit to the will any more than does the religious enthusiast. It can move mountains and consume rivers. It can act at indefinite distances and its force is measureless. In the religion of ancient Egypt the highest gods could be made to serve the will of a man, did he but use the proper formula of command.

An interesting study of these aspects of savage psychology was read by Miss Alice C. Fletcher before the American Association. It is entitled 'Notes of certain beliefs concerning will power among the Siouan Tribes.' The author sets forth the strong sense of personality characteristic of the tribe and its language, though by no means confined to them, analyzes a series of terms employed to express the exercise of the power of volition, and explains a number of curious rites and customs which have sprung from the beliefs held by the Siouan gentes on this subject.

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CURRENT NOTES ON METEOROLOGY.

A TORNADO IN ARGENTINA.

A large quarto of 556 pages is Vol. X (for 1891) of the *Anales de la Oficina Meteorologica Argentina* (Buenos Aires, 1896). It contains annual summaries for the principal stations and a general account of the year's work by the director, W. G. Davis. The most notable meteorological phenomenon of the year was a tornado, which occurred on November 13th, at Arroyo-Seco, situated on the railroad from Buenos Aires to Rosario, 19 miles from Rosario. Ten persons were killed, and more than 80 wounded, and of 50 or 60 houses in the town only 5 were left intact. The atmospheric conditions preceding the tornado, its progression and its destructive force, all resembled the similar features familiar here in the United States in connection with our own tornadoes. The day had been very hot, and just before the occurrence of the tornado the air was suffocating. The movement was from southwest to northeast. One freight car, weighing over 30,000 pounds, was carried a distance of 98 feet from the railroad track. Calculations as to the force of the wind,

based on all available data, give a maximum pressure of 125 pounds per square foot. The direction of the whirl is stated to have been from *right* to *left*. As this tornado occurred in the southern hemisphere we should have expected a movement from *left* to *right*. Perhaps this whirl is described as if it were looked at from the outside, and not, as we are accustomed to describe our whirls, as if we stood at the center and looked out at the circulating winds. If the former is the case, then the *right* to *left* in the published account would mean *left* to *right* from our point of view, and the Arroyo-Seco tornado would follow the general rule. Or, it may be that this tornado was one of the very rare exceptions and really whirled in the northern hemisphere fashion, instead of following the fashion of its own hemisphere.

A view of the damage done by this tornado was published in Vol. X. of the *American Meteorological Journal* (opp. p. 350), and is interesting from the fact that the original view is probably the only photograph of a southern hemisphere tornado ever taken.

ATMOSPHERIC DUST OBSERVATIONS.

ONE of the many interesting branches of the new meteorology is the study of the number of dust particles in the atmosphere, and of their effect in causing the condensation of water vapor in clouds, fog, rain or snow. Aitken's papers in this connection, published in the Proceedings of the Royal Society of Edinburgh, have made this subject more or less familiar to all scientific men, but comparatively little use has as yet been made of his Dust Counter by others than the inventor, although much important work can undoubtedly be done along the lines suggested and followed by him. In a recent paper on *Atmospheric Dust Observations from Various Parts of the World* (Quart. Journ. Roy. Met. Soc., July, 1896), Fridlander gives many interesting results obtained by him with an Aitken Pocket Dust Counter during a voyage around the world. Space permits mention of only a few of the most striking facts. The average number of dust particles per cu. cm. of air over the Pacific Ocean during eight days was 540, while, when the vessel was about 350 miles from Auckland, the number rose to 1229, and when about 15 miles from the Great Barrier Island it was 1972. The average dustiness of the Pacific was 613, and that of the North Island of New Zealand, together with the polluted area outside of it, 1336.

The clearing effects produced by fog are plainly seen in the following summary, based on many tests made on the Atlantic, the Pacific and the Mediterranean:

No. of particles per cu. cm.	Condition of air.
2000	Foggy at intervals.
3000	Thick fog.
420	Half hour after clearing of fog.
3120	Thick fog.
280	Clear region just beyond fog.
1550	Region farther out of fog.

The lowest figures obtained by the author, 210, were found on the Indian Ocean after much rain, and on another occasion the number of dust particles at 10.30 a. m. was 331, while at 11 a. m., after a shower, it was 280. The purifying effects of rain are thus clearly seen.

It is a cause for regret that there is not a large number of investigators in the United States working on this interesting subject of atmospheric dust. So far as we know, there are but two of Aitken's dust counters in this country.

RECENT KITE-FLYING AT BLUE HILL OBSERVATORY.

THE exploration of the free air by means of self-recording instruments elevated by kites has been greatly advanced during the present summer through the work done at Blue Hill Observatory, 640 feet above sea level, near Boston. The kites used are the

Eddy, or tailless, and the Hargrave, or box kites, and the instrument sent up with them is the aluminum baro-hygro-thermograph, constructed for Mr. Rotch, proprietor of the observatory, by Richard *freres*, of Paris. The altitudes reached are determined in three distinct ways: by theodolites, by the angle and length of the kite-line, and by the pressure as recorded by the barograph. During the summer of 1895 the maximum altitude reached by the instrument in the kite-flying at Blue Hill was 2,500 ft. above sea level, but this has been far exceeded during the present year, the height of one mile having been passed on six occasions. On July 20th a height of 6,596 feet above sea level was reached. At a short distance above the earth a cloud was encountered, in which the relative humidity rose to 100%, while after a further ascent of about 2,500 feet, which must have been the thickness of the cloud, the air was found to be much drier.

All kite-flying records were broken on August 1st, when the recording instrument was raised to a height of 7,333 feet above sea level, or considerably over a mile above the general level of the country. Five Eddy kites were used. The temperature at the maximum altitude was 20° less than at the observatory, and the records of the relative humidity aloft showed variations of from 30% to 80%.

Scientific kite-flying, although one of the very newest developments of meteorology, has now passed the experimental stage, and the results obtained from these investigations at Blue Hill are attracting attention the world over.

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SCIENTIFIC NOTES AND NEWS.

A BRITISH NATIONAL PHYSICAL LABORATORY.

At the recent meeting of the British Association Sir Douglas Galton read the report of the committee on the establishment of a national physical laboratory. This report enumerated the present facilities afforded by the government, by educational establishments and by private societies, for aiding research in Great Britain. These sources are chiefly the £4,000 per annum given by the government for research purposes and administered by the Royal Society; the Royal Society donation fund, derived from its surplus income; the contributions made to research by the British Association; the investigations carried on at the Royal Institution, which afford magnificent examples of private munificence in aiding science; the City and Guilds of London Institute; the Royal Commission of the 1851 Exhibition, which devotes £6,000 a year to research scholarships; research committees of various scientific societies; the Clarendon Laboratory at Oxford and the Cavendish Laboratory at Cambridge; the laboratories at Edinburgh, Glasgow and Aberdeen; the Victoria University and the larger colleges not yet incorporated into universities. There were, however, investigations of particular types which lay outside the range of effort possible either to an individual or to a great teaching institution. These were (1) observations of natural phenomena, the study of which must be prolonged through periods of time longer than the average duration of life; (2) testing and verification of physical instruments and preservation of standards; (3) the systematic and accurate determination of physical constants and numerical data which may be useful either for scientific or industrial purposes. A laboratory for such purposes would aid and not compete with laboratories for more general physical research, and if England was to keep pace with other countries it was essential that it should be started and maintained by government. After detailing the functions and management of the proposed new institution on lines similar to those of the very successful German Reichsanstalt, the report recommended that government should be asked to vote a sum of £20,000 to £25,000 for building and an annual grant of £3,000 for maintaining such a national laboratory. An appendix gave the cost and annual expenses of the German institution, which amounted to £200,000 and £15,000 respectively.