

dependently,* and given to experts who could affirm for example that the chances are 19 to 1 that the homicide was committed by the defendant, and 4 to 1 that it was premeditated.

A proper application of measurement and the theory of probabilities to the affairs of daily life would add greatly to intellectual detachment and clearness of view. It would be salutary to have in mind the probable error of the newspaper one is reading. The historian could assign the probable accuracy of each event which he narrates, in the same manner as the physicist assigns a probable error to his measurements. We should know what reliance we can place on the stories we hear, and on our own memory of past events. When the relative probabilities of the various conflicting claims of business, politics and religion are expressed in simple numerical formulas, a great part of the wasted energy of life may be directed to useful ends. It is a long way to travel, but we should advance when and how we can.

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CURRENT NOTES ON ANTHROPOLOGY (XIV).

LATEST WORDS IN CRANIOLOGY.

IN the 'Monitore Zoologico Italiano,' for May last, Dr. L. Moschen presents an able sketch of the recent conflicts of opinion in craniology, and declares in favor of what he calls 'the natural method.' This is that of Prof. Sergi, already explained in this journal. Moschen shows that the method of Kollmann leads to erroneous results, and that at present no unanimity prevails as to the ethnic significance of skull forms. In this he is unfortunately most correct.

* The independently formed verdict of three jurors, if concordant, would probably have more validity than the unanimous verdict of twelve jurors in consultation. Questions of such great practical importance as this could be definitely settled by the proper psychological experiments.

Prof. Dr. Busch, of Berlin, has a carefully prepared article in the 'Verhandlungen der Deutschen Odontologischen Gesellschaft' (Bd. VII., Heft. 1), on the cranial forms in different races of men. The paper is marked by close observation and sound judgment. His conclusion is that "the cranial differences of races do not lie in particular measures, nor in the relation of the indices, but in the coincidence of certain peculiarities of the head and face which can scarcely be expressed numerically, but can be shown by accurate pictorial presentations of the different aspects of the skull." This is not far from 'the natural method.'

YUCATECAN STUDIES.

THE almost simultaneous appearance of four works, all of exceptional merit, on the archæology of Yucatan cannot fail to excite a wide interest in that country.

First may be named the fifth part of Mr. A. P. Maudslay's contributions to the 'Biologia Centrali-Americana' (London, July, 1895). It is devoted to Chichén Itzá, and contains 24 pages of text and an atlas of 25 plates. The first of these is a very carefully prepared map of Yucatan and Tabasco. Then follow views of the monuments of the site, analyses of the architectural details, and faithful copies of the inscriptions. The singular round tower, called El Caracol, is the subject of especial attention.

Next comes Mr. H. C. Mercer's 'Hill Caves of Yucatan' (Phila., Lippincott & Co.). This gives the results of very painstaking excavations in the caverns of the Sierra de Yucatan. Striking illustrations and an attractive literary style add to the high scientific value of the volume. The author's conclusions may be briefly summed up by the statement that nowhere did he discover traces of an occupation of the soil anterior to the Mayas, or of a civilization

less advanced than that we know they enjoyed at the Conquest.

Briefer is the report of Mr. Theobert Maler of his many years explorations of the ruined cities of the peninsula. It is published, with numerous photographic reproductions, in the *Globus* for October. Some of the ruins he visited have been previously unknown, and present architectural details of a higher order than any yet described.

Finally, though by no means of least importance, is an essay by Prof. W. H. Holmes, of the Columbian Museum, Chicago. It is the result of personal studies of various ruined cities last winter, and I may speak of it from a sight of the proofs. The author portrays with consummate skill the development of Mayan architecture, and solves many problems with reference to it which have hitherto remained obscure.

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CURRENT NOTES ON PHYSIOGRAPHY (XX).
THE DISTRIBUTION OF PLANTS AND ANIMALS.

THE manner in which the distribution of plants and animals should be treated in the study of physical geography is a vexed question. The preference of the writer would be to leave the actual distribution of species to botany and zoölogy, and to introduce in geographical study only such examples of distribution as shall illuminate the control exercised over plant and animal life by the forms of land and water and by the physical conditions of climate; or such other examples as shall illustrate the interdependence of plants, animals and man, in the savage state of local supply or in the civilized state of extended exchange. Classifications of plants and animals, such as appear in certain text-books on physical geography, are quite out of place; even faunal and flora areas are not, as such, proper geographical subjects, but belong in zoölogy

and botany. In a word, when a plant or animal, or the area of its occurrence, is the object of study, the discipline is biological; when the forms of land or water, or the conditions of climate which control the growth or distribution of a plant or animal is the object of study, the discipline is geographical. The great variety and number of plants and animals encouraged to grow in the luxurious belt of the equatorial rains, or the sparsity of individuals and the specialized forms and colors of plants and animals that struggle to survive in the trade wind deserts, are examples of geographical themes; the particular characteristics of these various plants and animals, and their systematic relationship to the inhabitants of other regions, are examples of biological themes.

PLANTS OF THE ALPINE REGION.

THE peculiar forms assumed by plants of the Alpine region, offering excellent material for truly geographical study as defined in the preceding note, are described entertainingly by G. Bonnier (*Les plantes de la région alpine, et leurs rapports avec le climat. Ann. de géogr., Paris, iv. 1895, 393-413*). The plants are dwarfed, the stalks are low, the leaves are close to the ground in rosettes or tufts, the roots are large in proportion to the stalks and leaves; new individuals are often propagated from runners, so that the ripening of seeds need not be depended on. Growth begins before the snow of winter entirely disappears, and during the short summer advance is made rapidly to maturity; different phases of growth being abbreviated and their succession accelerated. While accounts of these peculiar features are used to intensify the appreciation of the average temperature of the Alpine region, of the long-continued presence of its snow cover and of the brevity of its open summer, they properly belong under geography; but when they are followed