

by the investigations of Dr. F. von Luschan of Berlin, on the Tachtadschy of Lycia, published in the *Archiv für Anthropologie*. This *nomen gentile* is not ethnic, but means merely "wood-choppers," or "board-makers." It is applied to a shy, secluded people, who live in the mountains, and fell and dress trees as their main business.

On measuring them, Dr. von Luschan found that they had unusually short and high skulls,—hypsi-brachycephalic,—and were of small stature, with dark hair and eyes. Comparison with some skulls from very old Lycian graves, and with part of the present population of Armenia and other portions of the region, led him to the conviction that in this type—so markedly distinct from that of the Greeks and Semites—he had before him the original of the most ancient population of the land. He considers it certain that it extended over the whole southern half of Asia Minor; north-east to the Caucasus; east to the upper Euphrates; but its northern and western limits are not yet defined. He even hints that the short, dark, brachycephalic people of central Europe may be the western extension of the type.

As to whence it came, he is not without an opinion. Not from Europe, not from Africa, not from northern Asia, not from southern Asia; all are excluded for sufficient reasons; central Asia alone is left; and somewhere in that mysterious *matrix gentium* he expects will be found the ancestral connections of this well-marked type. There, then, we should search for the linguistic analogies of the Cappadocian words quoted from Professor Tomaschek in my previous article. It would be a brilliant corroboration of a purely physical study in anthropology to discover such analogy.

Work of the Eleventh Census Among the Indians.

It is not generally known—in fact, it is pretty hard to find out—how much excellent anthropologic material is annually collected and in part published by the various departments of our central government. The army, the navy, the surgeon-general's bureau, the Smithsonian, the National Museum, and the specially-created Bureau of Ethnology, all pour forth every year quantities of valuable observations.

Nor has the Eleventh Census been behind in this good work, as is testified by the "Extra Census Bulletin," just out, on the Six Nations of New York. It is but the forerunner of a series of such Bulletins on the remnants of our aboriginal population, and is an excellent earnest of the merits of its successors.

The aim of these bulletins is to supply first-hand and accurate statements of the present social, religious, industrial, vital, and political condition of the tribes; in other words, they are ethnographic, in the right sense of the term. The general editor is Mr. Thomas Donaldson, and in this instance his collaborator is General Henry B. Carrington. A large quarto of 89 pages, well indexed, with maps and photographs, gives a most satisfactory account of the present status of the Cayugas, Mohawks, Oneidas, Onondagas, Senecas, and Tuscaroras. The action of the Census Bureau in this direction is the more welcome, as in the rapidly changing condition of the native tribes, not many censuses will have the material with which to occupy themselves in this direction.

The Extension and Study of the Nahuatl Language

If we may judge of the superiority of a language by its vitality, and by the impress it leaves on others with which it comes in contact, we must assign a high place to the Mexican or Nahuatl. It is still spoken in comparative purity

by considerably over a million people, and it has made a deep impression on the Spanish of most of the Mexican and Central American States.

For Costa Rica, this has been shown in a work issued in the present year at San José de Costa Rica, by Señor Juan Fernandez Ferraz, formerly inspector-general of education in that republic. It is entitled, "Nahuatlismos de Costa Rica," and is a neat octavo of about 150 pages, with an introduction on Nahuatl grammar of 75 pages. The alphabetical list shows that a large number of terms in the current speech of Costa Rica, which have assumed the form of Spanish words, are derived from the Mexican tongue.

A similar work for Nicaragua, written by the late Dr. C. H. Berendt, is now preparing for the press under the efficient editorship of Dr. K. Lentzner of Berlin. The Nahuas, or a colony of them, once occupied a considerable tract on Lake Nicaragua, and left the marks of their occupancy not only in interesting ruins, but on the language of their conquerors as well. It was in this Nahuatl-Spanish dialect that the comedy of Gueguence was written (published in Philadelphia, in 1883).

It is agreeable to note in this connection that the study of the Nahuatl finds zealous advocates in Mexico, among whom the names of Peñafiel, Palma, Hunt y Cortes, Altamirano, Caballero, and Rosa, hold conspicuous places.

Anthropology at the Columbian Exposition.

Anthropology does not appear by name at the Chicago "World's Columbian Exposition." This is to be regretted, as it is a fine opportunity lost to inform the people of the United States what this grand science is, and how its several branches stand related to each other.

It is represented, in fact, in "Department M," with a most competent chief, Professor F. W. Putnam of Cambridge. A descriptive pamphlet of this department which has just been issued announces that it includes "Ethnology, Archæology, History, Cartography, Latin-American Bureau, Collective and Isolated Exhibits,"—rather a miscellaneous stock. It is further stated that there will be a section on physical anthropology and an anthropological laboratory, which are classified as a subdivision under the section of ethnology. In spite of these defects in classification, no doubt abundant and excellent material will be provided for the student, which he can work up in his own way. A correspondent in Berlin informs me that Dr. U. Jahn, who has charge of the matter there, has prepared, among other things, a series of specimens of German houses of all varieties, to be erected at Chicago, and in one of them, the *rathhaus*, he will arrange a complete exhibition of ancient and modern German costumes, domestic utensils, home manufactures, etc. The sections at Chicago on Folk-Lore, Games, and Primitive Religions will be under the supervision of Stewart Culin Esq., of Philadelphia, who has lately been appointed General Director of the Museum of Archæology attached to the University of Pennsylvania.

NOTES AND NEWS.

VERY numerous experiments have been recorded to show that moisture is saved by cultivation. Frank E. Emery of the North Carolina Experiment Station says: "During this hot, dry weather every foot of plowed land should be kept well stirred on the surface with any tool which tends to keep it from baking. A loose, fine surface will hold down water like a wet blanket. A field kept thus may give an increase in crop over one not cultivated equal to that produced by a heavy application of fertilizers. Preservation of the soil-water thus becomes of great importance. A

blanket of fine soil on the surface during a hot, dry week can be of great value to the crop and really become the turning-point for profit if present when loss might result from its absence."

— The North Carolina Experiment Station has just published a 26-page Bulletin (No. 84) dealing with the fungous and insect enemies of garden and truck crops. The trucking interest has become one of the most important in the State. Good home gardens are not, however, so plentiful as they would be were it not for the ravages of insects and diseases. This Bulletin gives ten different formulas for compounding insecticides and fungicides, and explains the necessity for garden hygiene. The most approved forms of spraying apparatus are illustrated and described, and some trustworthy dealers in fungicidal chemicals are named. Everyone who has even a small garden is interested in the matters this Bulletin treats of. It is sent free to all residents of North Carolina, and will be sent as long as the supply lasts to residents of other States who send 6 cents in postage stamps. Address N. C. Experiment Station, Raleigh, N. C.

— Dr. Arthur MacDonald, specialist in education as related to criminal and abnormal classes, United States Bureau of Education, Washington, D. C., has been appointed official representative of the United States to attend the international congress for experimental psychology at London and also the international congress upon criminology at Brussels. The congress at Brussels will consider crime in its relation to biology and sociology. The congress is extremely cosmopolitan not only as to nationalities, but in the different departments of knowledge which it includes. The criminal must be studied as a member of the race, and this gives rise to the new science of criminal anthropology, or, in short, criminology. Here such questions will be discussed as to whether there is a criminal type distinguished by shape of cranium and face, anatomy of ears and nose, size of orbits and length of jaws. Another important question under this head is whether the criminal is born so or becomes so from his surroundings. In this division of the programme are the names of the celebrated Cesare Lombroso, professor of legal medicine at Turin, and Dr. Brovardel, president of the medical faculty at Paris, and Professor Ferri, senator at Rome. But the criminal must be studied psychologically, that is, as to the nature of his mind and will, and their relation to insanity and moral insanity. Among those who will speak in the congress on this phase of criminality are Dr. Magnan, chief physician of the Saint Ann Insane Asylum of Paris; Dr. Benedikt, the celebrated craniologist at the University of Vienna; and the brilliant French writer and legalist, Judge Tarde. Another and very important side of the criminal is included under the head of Criminal Sociology. This takes up crime in history and politics, the influence of profession and trade on criminality and their bearing in the determination of penalty. But there is a practical as well as a scientific point of view in the study of the criminal. This will be considered in the congress under the title of "Legal and Administrative Applications of Criminal Anthropology." Thus Dr. Alimena of Naples will discuss what measures are applicable to incorrigible criminals. Then there are the general and fundamental principles of the school of criminal anthropology, which will be considered by Dimtri Drill of Moscow. Dr. Manouvrier, professor in the School of Anthropology at Paris, is to read a paper on the "Innateness and Heredity of Crime;" Dr. Bruxelles on "The Functional Causes of Crime;" Dr. Sernal on "Suicide and Insanity in Criminals." The distinguished Lacasagne, professor at the University of Lyons, will speak on "The Primordial Sentiments in Criminals." and Dr. Fioretti of Naples on "The Applications of Anthropology to Civil Law." Thus it will be seen that not only specialists in criminology, but those in medicine, insanity, law, psychology, anthropology, and sociology, all will consider the criminal from their respective points of view. The congress for experimental psychology represents the precedent tendency of applying scientific methods to study the relation between mind and body, or mind and brain, subjects which are of as much interest and importance in the case of criminals as of normal men. This is illustrated by the new psycho-physical instrument called the plethysmograph, which indicates the least increase of blood in the arteries of the arm. Thus it has been

found, that when the sentence of the judge is read before the criminal, there is a decrease in the flow of blood in the arm, but the sight of a glass of wine increases the flow; when, for example, it is required to multiply nine times seventy-three an increase in blood-flow is the result. The flow is little affected in a brutal murderer or born criminal, when a pistol is shown to him, whereas in the normal man the plethysmograph indicates a decided effect. The importance of this new instrument lies in this, that involuntary testimony is given as to the nervous and physical nature of the criminal. It is often unknown to him, and in spite of himself. Dr. MacDonald, after attending these congresses, will visit and study a few of the principal prisons and charitable institutions in England, France, Germany, Belgium, Switzerland, Austria, and Italy. A work of Dr. MacDonald's, entitled "Criminology," will soon be published by Funk & Wagnalls of New York. It is dedicated to Professor Lombroso, who writes the introduction and who himself is the founder of the new science.

— A society which may have opportunities of doing much valuable work has been formed in Wellington, New Zealand, as we learn from *Nature*. It is called the Polynesian Society, "Polynesia" being intended to include Australia, New Zealand, Melanesia, Micronesia, and Malaysia, as well as Polynesia proper. The president is Mr. H. G. Seth-Smith, chief judge of the native land court, while the Queen of Hawaii is patron. There has just appeared the first number of the society's *Journal*, in which there are papers on the races of the Philippines, by Elsdon Best; Maori deities, by W. L. Gudgeon; the Tahitian "Hymn of Creation," by S. P. Smith; Futuna, or Horne Island, and its people, by S. P. Smith; Polynesian causatives, by E. T.; and the Polynesian bow, by E. Tregear. There is also a paper giving the genealogy of one of the chieftainesses of Rarotonga, by a native of Rarotonga. The original was written in 1857, and is printed in the *Journal*, with a translation by Mr. Henry Nicholas, and notes by the editors. The editors are of opinion that the paper "apparently supports by direct traditional testimony the theory propounded by Hale, and subsequently advocated by Fornander, of the occupation of the Fiji Group by the Polynesian race, and of their later migration eastward to Samoa and the Society Group."

— The second annual meeting of The Mechanical Engineering Teachers' Association will be held at Rochester, N. Y., beginning Aug. 18, 1893. This place and time of meeting is chosen as coincident with that of the American Association for the Advancement of Science in order to accommodate those who will wish to attend both meetings, and who may not be able to do so if at different times and places. The object of this association perhaps is best stated in Art. II. of its Rules, viz.: "To determine upon, and to secure by co-operation, the best courses of study, and the general adoption of methods of instruction, leading to the highest efficiency of schools of mechanical engineering." The meeting last year was largely occupied with the organization of the association, so that comparatively little time could be devoted to the consideration of courses, methods, or appliances, either by reading of papers or discussion. But it is hoped that the Rochester meeting of this year will be productive of great good in crystallizing the views of the now quite large body of professors and teachers into such tangible and acceptable matters of opinion as to form a working basis for all. The following points are suggested as of importance for study by way of preparation for good work at the meeting, either in the presentation of papers, topical or general discussion, viz.: What subjects should be embraced in the course of mechanical engineering leading to graduation? Should any of them be optional? Should there be a post-graduate course, and if so in what should it consist? What should be the degrees for the above, and what the studies? Should there be included one or two modern foreign languages? What engineering studies should be included? What amount of mechanical laboratory should there be included? What subjects should be included in the mechanical laboratory? How much practice with the object of mechanical and manual training? How much fine mechanical practice such as scraping of surface plates, grinding of standards, etc.? Should the construction of articles of manufacture be attempted at the school laboratory? What testing should be at-

tempted? Should any part of the laboratory practice be classified as shop work, and so named, unless articles are made for sale? Should anything be introduced that should be called "shop work?" Should that portion of the laboratory embracing the manual element be classified as "shop," "school shop," "work shop," etc., or elementary mechanical laboratory? Should the more advanced portion embracing testing of various kinds be classified in such way as advanced mechanical laboratory, testing laboratory, etc.? It is further suggested that particular attention be given to the number of hours devoted to a subject, and the ground covered; the method of instruction, i.e., whether by lecture, recitation or practice, separately or combined. The address of the secretary is, A. J. Wiechardt, South Bethlehem, Pa.

—The North Carolina Experiment Station has distributed a large quantity of broom-corn seed and instructions as to its cultivation to allancemen and others, with a view to establishing it among the profitable crops in places well adapted for its best development. Close planting on fairly rich land is required for a good crop of brush fitted for making fine brooms. In order to better assist those who desire to learn all they can of this crop, and that all may have the benefit of as much information as possible on the subject of growing broom-corn and making brooms, the Experiment Station will engage to supply as many as wish a copy of "Broom-Corn and Brooms," a small book published by Orange Judd Co. of New York, at the wholesale price, with the postage added. The usual price is 50 cents. Send 30 cents in silver or stamps to the Experiment Station at Raleigh, if you wish a copy of this little book.

—A paper upon the oxidation of nitrogen by means of electric sparks is contributed, by Dr. V. Lepel, to the current number of the *Annalen der Physik und Chemie*. It is well known that small quantities of nitric and nitrous acids and their ammonium salts are produced during the passage of high-tension electrical discharges through moist air. Dr. V. Lepel's experiments, according to *Nature*, have been conducted with the view of obtaining more precise information concerning the nature of the chemical reactions which occur, and the experimental conditions most favorable for increasing the amount of combination. The first action of the spark discharge appears to be the production of nitric oxide, which is immediately converted by the oxygen present into nitrogen peroxide. The latter then reacts with the aqueous vapor present, forming nitric acid and liberating nitric oxide in accordance with the well-known equation $3\text{NO}_2 + \text{H}_2\text{O} = 2\text{HNO}_3 + \text{NO}$. It has been found, however, that the continued passage of sparks through the same quantity of moist air does not result, as might at first sight be expected, in the conversion of more and more of the atmospheric gases into oxidized products. For the passage of sparks through the gaseous oxides of nitrogen first formed results in their decomposition again into their elementary constituents. If, for instance, spark discharges are passing at the rate of one per second, the whole of the nitrogen peroxide molecules have not time to react with the water molecules to form nitric acid, before the passage of the next spark, and hence some of them suffer decomposition; indeed, it is probable that a number of the nitric oxide molecules first formed have not even time to combine with oxygen to form the peroxide before the passage of the next discharge, which brings about their dissociation. Hence it is, that, in a closed space, a limit is soon reached beyond which there is no further increase in the amount of nitric acid. For this reason the yield of nitric acid has hitherto been very small. Dr. V. Lepel has made experiments, therefore, with a slowly-moving atmosphere, and under different conditions of pressure, and with various types of spark discharge, with the result that he has already increased the amount of combination to 10 per cent of the total amount of air employed. The air is exposed under increased pressure to a series of parallel spark discharges in the same tube. The change of atmosphere is not made continuously, but intermittently, and the gases are expelled from the discharge tube into a large absorption vessel, in which the products are absorbed in a solution of water, or of a caustic alkali. Detailed accounts are given in the memoir of the efficacy of the various forms of high-tension discharge, and Dr. V. Lepel is now experimenting with

the discharge from a Töpler influence machine with sixty-six rotating plates. Of particular interest are his remarks concerning the probable effect of the high-voltage discharges of which we have lately heard so much. He considers it not improbable that by their aid a new mode of producing nitric acid from the atmospheric gases on the large scale may be introduced, rendering us altogether independent of the natural nitrates as a source of nitric acid.

—According to the *Pioneer Mail* of June 8, the residents of Howrah have been finding lately that jackals are animals of anything but an attractive temper. In some cases they have come right up to the bungalows in search of prey. A little girl, aged about five years, was playing in a verandah, when a jackal suddenly rushed on her, and was dragging her away, when she was rescued. She was severely bitten. Three natives, while walking along the Kooroot Road, were attacked by a jackal, which was only driven off after a stubborn fight; and a tale is told of two women, while standing near a tank, being attacked and bitten. So serious has the state of matters become that the public propose to submit a memorial to the district magistrate praying for the adoption of measures for the destruction of these pests.

—C. Creighton, in a letter to *Nature*, June 30, on the immunity of the African negro from yellow fever, says: "This point, interesting to anthropologists, is raised anew by a writer on the history of epidemics (*Nature* June 16), who asks whether the alleged protection is supported by all recent authorities. Recent authorities are not so well placed for judging of this matter as the earlier; for the reason that immunity is not alleged except for the African negro of pure blood or unchanged racial characters, and that these conditions of the problem have been much less frequently satisfied in the yellow fever harbors of the western hemisphere since the African slave trade ceased. However, there was a good opportunity in 1866, during the disastrous yellow fever among the French troops of the Mexican expedition when they lay at Vera Cruz. Among them was a regiment of Nubians, who had been enlisted for the expedition by permission of the Khedive: that regiment had not a single case of yellow fever all through the epidemic. The African negro regiment brought over from the French colonies of Martinique and Guadeloupe had two or three cases, with, I think, one death. The rest of the troops, including Frenchmen, Arabs from Algeria, native Mexicans and Creoles, had no immunity whatever, but, on the other hand, a most disastrous fatality. The medical officers of the French service have recorded the facts principally in the *Archives de Médecine Navale*, their conclusion as to racial immunity being the same that has passed current among the earlier authorities as a truth of high general value (admitting, of course, of exceptions in special circumstances), and a truth that has never, so far as I know, been formally controverted by anyone, although other points concerning yellow fever have been the subject of as obstinate controversy as those touching small-pox itself. The experiences of the French at Gorée, a town with ten times as many negroes as whites, exactly confirmed those of Vera Cruz in the same year (*Arch. de Méd. nav.*, ix., 343). The immunity of the African negro from yellow fever has become a paragraph in some anthropological text-books. It is from the anthropologists, and not from medical authorities, that Darwin cites the fact in his "Descent of Man," adding an original theory of the immunity, which he was unable to establish after much inquiry. His theory, I need hardly say, was not that "negroes in infancy may have passed through some disease too slight to be recognized as yellow fever,"—whatever that may mean—"but which seems to confer immunity." The theory, however, is another story, or "another volume," as the writer just cited is pleased to suggest; and as for the historical fact of immunity, no one denies it, unless it be Dr. Pye Smith in his recent Lumleian lectures (*Lancet*, April 23, 1892, p. 901), who gives no reasons. It is unfortunate that the anthropologists (Darwin among them) should have introduced one element of dubiety in placing mulattoes on the same footing, in respect of immunity, as negroes of pure descent, and another in mixing up malarial or climatic fevers with yellow fever."