same stock. I could not obtain the numerals in Cotoname, but in Comecrudo the majority of them are borrowed from Nahuatl.

The Comecrudo Indians mentioned to me a number of extinct tribes, who lived in their vicinity, and spoke their language, or dialects closely related to it, but left no representatives at the time of my visit. These were the Casas Chiquitas, Tejones (or 'raccoons'), Pintos or Pakawás, Miákkan, Catujanos, and the Carrizos above mentioned. The Pintos and the Cotonames originally belonged to the northern or Texan side of the Rio Grande. The Miákkan belonged to the Mission de los Borregos, at the town of Mier, and spoke a language that was neither Cotoname nor Comecrudo.

Upon being informed by a French priest at Rio Grande City that a colony of Indians existed at Saltillo, the capital of Coahuila state, I resolved to visit that place. One day's ride upon the railroad brought me there from Laredo. The country between the Rio Grande and Saltillo can be irrigated only in a few places, for want of running water; but if that commodity was procured through artesian wells, or pumped by windmills to the surface, there would be no land more fertile on earth. The ground luxuriantly produces the nopal, guisache, mescal, palm-tree, and *uña de gato* (or 'cat's-claw') tree. The scenery, as soon as the mountain-ridges are reached, at Lampazas, is of extraordinary grandeur, the effect being heightened by the transparency of the southern atmosphere. Beyond the city of Monterey the railroad-track begins to wind up along the tortuous passes of the Rinconada, once held and strongly defended by the wild tribes of the Guachichile Indians; then it emerges into a wide, dry plain, in the midst of which Saltillo (literally, 'the small water-spring') is situated, surrounded upon all sides by the high mountains of the Sierra Madre. In this city of about 42,000 inhabitants, the Tlaskaltec Indians, said to count about a thousand souls, live in some of the eastern thoroughfares, and in early colonial times were allotted the whole eastern quarter of Saltillo, which was founded about A.D. 1575. Over a hundred and fifty families of these Indians were then brought to this distant place from Anahuac to defend the new colony against hostile tribes, such as the Guachichiles and Borrados, who seem to have disappeared entirely since the eighteenth century. The Indians, who now speak the Tlaskaltec language, which is almost identical with Aztec, do not number over two hundred. The language has adopted as many Mexican-Spanish terms as English has adopted words from Norman-French, or perhaps more. *La planta de mókshi* is 'sole of the foot;' *huesito de nókshi*, 'ankle-bone;' *se chorrıto de atl*, 'a cascade;' *cerca de naxkoyóme*, 'around the city.' Tlaskaltec has also lost many derivational endings from the old Nahuatl, as in *nenépil*, for *nenépilli* ('tongue').

It is quite probable that the linguistic family to which the tribes on the lower Rio Grande belong extended once to Saltillo and the rest of Coahuila, or at least to the western slope of the mountain-chain forming the Rinconada passes. But no vocabularies of these tribes are now extant, and we have to expect the concluding numbers of a publication now issued at Saltillo by Mr. Esteban Portillo, which will perhaps shed more light on this subject. The title of this book is 'Apuntes para la historia antigua de Coahuila y Texas' (Saltillo, 1886, 8°). This title is explained by the circumstance that Texas once formed a part of the local government of Coahuila, which, from the sixteenth to the eighteenth centuries, comprised a much larger extent of territory than it does now. ALBERT S. GATSCHET.

Two ethnographic maps.

LINGUISTIC FAMILIES OF THE GULF STATES.

THE annexed map represents the linguistic families of Indian dialects within the south-eastern parts of the United States of America, as far as they could be traced through actual remnants of tribes still lingering in their old haunts, or in the vicinity of these, and by historic research. As far as the smaller stocks are concerned, their areas, or the probable limits of the territories claimed by them, are shown by lines, mostly of a rounded shape, enclosing their principal settlements, which are marked by colored dots. Full ethnographic and historic particulars of these linguistic families will be found in my publication, 'A migration legend of the Creek Indians' (1884, vol. i. pp. 11–118). In the present article I restrict myself to a few remarks necessary for the understanding of the map, and begin with the family of the

Timucua. — This Floridian stock, properly called Atimuca, extended north to a line which can be indicated only approximately, and seems to have extended farther north on the Atlantic side than on the western side towards the Chatahutchi River. It is very probable that the Kalúsa and Tekesta villages at the southern cape of Florida spoke dialects of Timucua. Tribes speaking Creek and Hitchiti dialects had intruded upon the Timucua domain since 1550 (perhaps before); and from 1706 to the present time they have inhabited its whole area, under the name of Seminoles.

Kataba. — The dialects of this family, which does not properly belong to the Gulf states, must have occupied a much larger area than is indicated by the two rings on the map. But since we possess but two vocabularies, Katába proper and Woccon, these alone could be indicated in the map, for fear of infringing against historic truth.

Yuchi. — From historic documents, three areas could be made out for this people, which never appears prominently in history. Of these, the settlements on Chatahutchi and upper Flint rivers were the most recent. Other Yuchis existed between the Altamaha River and the northern border of Florida. In the Creek Nation, Indian Territory, they occupy a tract near Wialáka and Deep Creek, on the south shore of the Arkansas River.

Cheroki. — The settlements of this people were divided into Otali or Otari ('upland' or 'overhill') towns, and Elati or Erati (or 'lowland') villages, the latter in upper Georgia and Alabama. The limit between the Cheroki and the Maskóki family is marked approximatively. The land cessions made by Cheroki Indians to the United States government are given in detail in C. C. Royce's 'Map of the former territorial limits of the Cherokee Indians,' etc., issued in the 'Fifth report of the bureau of ethnology,' with his article on the same subject (pp. 123–378), now in press.

Arkansas, properly called *Ugáxpa* (or 'downstream') tribe, speaks a dialect of the great Dakotan or Sioux family. The subdivisions of this tribe now live in the north-eastern angle of the Indian Territory. The Biloxi, formerly on the Gulf coast, state

of Mississippi, speak a dialect of the same Dakotan stock. Some of their remnants I met in November, 1886, on Indian Creek, near Lecompte, La.

Maskóki. — This family is the largest of all represented upon the map, and from the sixteenth to the eighteenth century extended even east of the Savannah River (Yámassi tribe). The Yuchi were surrounded on all sides by the Maskóki tribes, and one of these, the Seminoles, settled in Florida in the former domain of the Timucua, and west of it, where formerly the Apalaches lived. The upper and lower Creeks held the central parts of the area; and the Cha'hta, in three subdivisions, the western parts. The Biloxi, on the coast, belong to the Dakota stock. The majority of the Maskóki tribes now live in the eastern parts of the Indian Territory, within the area marked with red lines in the north-western corner of the map.

Taensa. — The historic Taensa people were settled at two places. From their earlier settlements on the Mississippi River, west side, between Vicksburg and Natchez City, they removed to Mobile Bay, threatened by an attack from the Chicasa Indians, early in the eighteenth century. In 1762 they went to Louisiana with the Alibamus, and are mentioned there, on Bayou Boeuf, as late as 1812, by the Rev. Mr. Schermerhorn (*Mass. hist coll.*).

Naktche. — This family were the leading people in the confederacy of Theloël, on St. Catherine Creek, near Natchez City, Miss. Since the war of 1730 they have lived scattered in various countries.

Tonika, or, as they call themselves, *Túnixka*, a people once residing at different places near the lower Mississippi River: 1°, on the lower Yazoo River; 2°, on the east shore of the Mississippi River, near the Red River junction; 3°, in Avoyelles parish, south of the lower Red River, Louisiana. I studied this vocalic language, new to science, in November, 1886, and found it to be independent of all other North American families.

Adâ-i. — A small people once living between Sabine River and Natchitoches, La., which is still remembered as belonging to the Caddo confederacy.

Caddo of north-western Louisiana, and the Assinai or Cenis of middle Texas, spoke dialects closely related to each other, and, with six or seven other tribes, formed a confederacy, the remnants of which now live near Washita River, on the Kiowa, Apache, and Comanche reservation, Indian Territory.

Shetimasha. — The few Indians of this family still live at one of their old seats, at Charenton, St. Mary's parish, La., while others are farther north on Plaquemine Bayou.

Atákapa. — This language seems to have had a pretty extensive area in earlier centuries, for Dr. Sibley stated in 1805 that the Karánkawa Indians of the middle Texan coast spoke Atákapa, besides their own language. At present only two dialects are known, both in south-western Louisiana.

Karánkawa. — A people of the Texan coast, and settled there until the middle of the nineteenth century. Of their language, only twenty-five terms are known, published in *Globus*, a geographic magazine of Braunschweig, 1886 (pp. 123–125, vol. xlix.). The classing of this language as a separate family is only provisional.

TOWN-MAP OF THE OLD CREEK COUNTRY.

The numerous towns marked on this map from authentic documents subdivide themselves into towns of the Upper Creeks on Coosa and Tallapoosa rivers, and of the Lower Creeks on Chatahutchi and Flint rivers. The Koassáti and Alibamu towns lay on Alabama River, below the Coosa-Tallapoosa junction. Witúmka, at the Coosa Falls, which was an Alibamu town, made an exception, being on Coosa River. On Chatahutchi River the upper towns spoke Creek; the lower ones, from Chiaha downward, spoke Hitchiti; Yuchi and its colonies on Flint River spoke Yuchi.

Many Creek towns mentioned in history could not be inserted here, because their location is not known with accuracy, like Tallipsehogy, Chunúnagi, Chatoksofki, Koha-mutki-kátska, etc. Others had to be omitted for want of space in crowded parts of the map.

The towns are described in my publication above mentioned (pp. 124–151). Names still used at present are written in capitals on the map. All names of this and the preceding map are spelled according to my phonetic system of alphabetic writing.

ALBERT S. GATSCHET.

Specific variations in the skeletons of vertebrates.

When I speak of the specific variations as they occur in the skeletons of vertebrates, I refer to those appreciable differences in form which we find to exist when we come to compare any two skeletons of the same species, or, as for that matter, a series of skeletons of the same species. As in every thing else, as we are well aware, no two skeletons, even of the same species, are exactly alike; but I have reason to believe that it is not generally appreciated how great this degree of difference may be sometimes. It has always been one of the chief drawbacks to the study of human craniology, that the skulls in *homo*, representing the same race, have frequently been found to be so thoroughly unlike, both in measurement and in general characteristics. We would come across skulls of Caucasians, with wonderfully low cranial capacities, a small facial angle, and, indeed, having perhaps many of the racial characters as they might occur in the skull of a Malay. It will be my object in the present letter to show that these differences are quite as marked among the species that go to make up the classes below man, as they are among the skeletons of the same species of men; and I will also present a number of examples chosen from the lower vertebrates to illustrate this point.

People who have given no special thought to this matter are led to believe that when they have carefully described the skeleton of any vertebrate, such a description will answer for the skeleton of that species for all time, provided specimens of the same age and habitat be chosen for comparison, and the original description was accurately recorded. Such persons have often amused me by the great stress they lay upon the numerous measurements they make, and the extraordinary pains they take to have them of hair-splitting accuracy for the skull or other parts of any skeleton they may be describing. These measurements, of course, are of very great importance, but we must bear in mind always that they are really but fractions of some standard which we should aim to eventually obtain in every case; by this I mean a standard obtained, say, by taking the