

THE ISTLE FIBER OF MEXICO.

By CHARLES RICHARDS DODGE.

A FIBER ranking second in commercial importance among the fibers of Mexico—the henequen of Yucatan always standing first—is the “Istle,” “Ixtle” or “Tampico” of commerce, which is produced in large quantities from uncultivated plants that cover vast areas in the eastern and northern portions of the country.

Its chief use in the United States is for the manufacture of brushes, being a substitute for animal bristles, though it admits of other uses. In Mexico it is used alone, or with other fibers, in the manufacture of bagging, pouches, to a limited extent for cordage, for girdles for pack animals and for other local uses. About 90 per cent of the Tampico fiber is derived from a species of the family *Amaryllidaceae*, known to botanists as *Agave heteracantha* (Fig. 1), a small aloe-leaved plant rarely attaining more than a height of two feet, though often growing larger

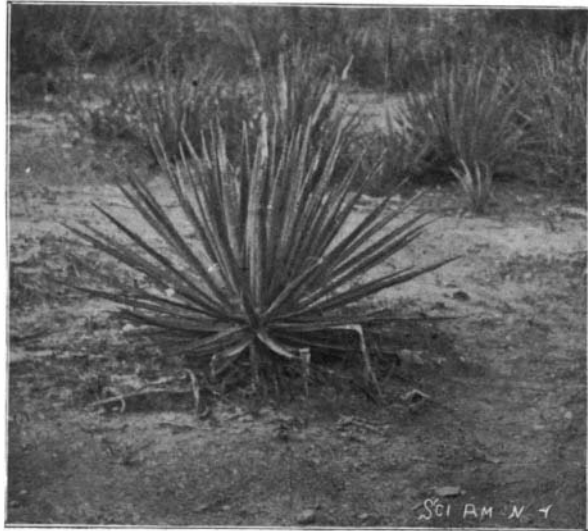


FIG. 1.—ISTLE PLANT.

in the mountains, and always smaller on the more arid levels.

The plants produce themselves by millions over the plains or plateaus, and up the mountain sides, of the States of San Luis Potosi, Tamaulipas, Nueva Leon, Chihuahua, Coahuila and to an extent in adjacent States, also reaching over the border into Texas. The chief centers of the industry are the towns of San Luis Potosi, Saltillo, Victoria, Jaumave, Tula, Monterey, Matamoras to an extent, and Tampico, the latter being the Gulf shipping port, from which the commercial name of the fiber is derived. At the present time the United States imports annually about 6,000 tons of the fiber at the value of \$72 per ton, these figures representing only a portion of the fiber exported from Mexico, other countries taking a large supply, while the native demand is considerable. Undoubtedly the present demand in the United States would be largely increased, were the fiber experi-

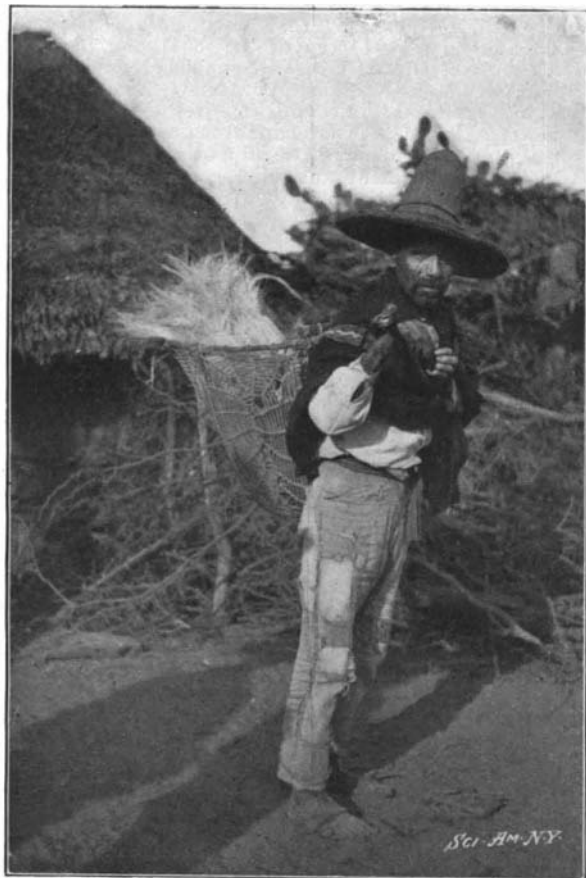


FIG. 2.—NATIVE WITH BASKET OF CLEANED FIBER.

mented with for other uses than as brush material, and the demand could be readily met as the supply of raw material is almost limitless.

An interesting feature in relation to the production of this fiber is the fact that every pound of the commercial and local supply is extracted by native Indian hand labor, its production, in the aggregate, serving to maintain an army of these simple, hard-working people as well as their families. It may be stated that the average amount earned by a native for a day's

labor is about 37 cents Mexican silver, or about 16 cents reduced to gold value.

My principal investigations relating to this industry were made near one of its chief centers, Jaumave, at the hacienda Las Pilas, owned by the brothers Zorilla, the farm covering about ten miles square in territory, although I traveled through a considerable portion of the entire Istle region. A study of the social economy of many of these Mexican haciendas reminds one of the old feudal system of Europe, where the castles of



FIG. 3.—ISTLE KNIFE.

the barons were surrounded by the rude homes of the vassals, who contributed their brawn in toil, or their zeal in arms to the feudal lords of creation who ruled the land.

Around the hacienda buildings proper, which are often inclosed by high walls, are clustered the palm-thatched huts of the natives, dotting the hills and levels in every direction. In the main building, usually a low adobe structure, wall high, is the office of the farm where is prominently seen the rude desk, and the scales for weighing, as well as an array of arms, saddles and trappings on pegs in the wall, and other objects of like utility. In the next room is the store where the peon, after being credited in the office with the value of the product of his toil, goes to purchase supplies of corn, beans, sugar, coffee, meat, fabrics for his rough clothing, zarapes, sombreros and other necessities of life, these things being charged against his account—all working for and dependent upon the wealthy owners.

Fig. 2 shows a native returning toward evening with the result of his day's labor carried in one of the curiously wrought basket-like receptacles with which all are provided. Starting away from his hut in the morning, after a breakfast of tortillas, frijoles and black, muddy coffee, or sometimes without the coffee, he wanders away into the brush, often going several miles to find a locality where the “lechuguilla” plants



FIG. 4.—CLEANING ISTLE FIBER.

are found most thickly. His first work is to gather the material from which the fiber is to be extracted. Past writers have said that this material was derived from the “leaves” (presumably the free or opened leaves) of the plant, but such is not the case, as only the *cogolla*, or central spike of unopened leaves, is taken. This part of the plant gives a fiber of superb color, with other good qualities, and is readily extracted, while the old, or side leaves, give a harsher, dirtier looking fiber, and are much more difficult to clean.

Armed with a slender rod, about the length of a broom handle, terminating at the lower end in a steel ring about an inch and a half in diameter, the native selects a plant, drops the ring over the *cogolla*, or central leaf spike, settles it well down into the cluster of opened leaves, and with a dextrous jerk breaks off the *cogolla* at the point of intersection with the plant. In half an hour or more his basket is filled with these *cogollas* and he retires to the shade of a bush, where the real work of the day commences. First, he produces a narrow, knife-like instrument of iron, quite thick but with a smooth, blunt edge; it is about a foot

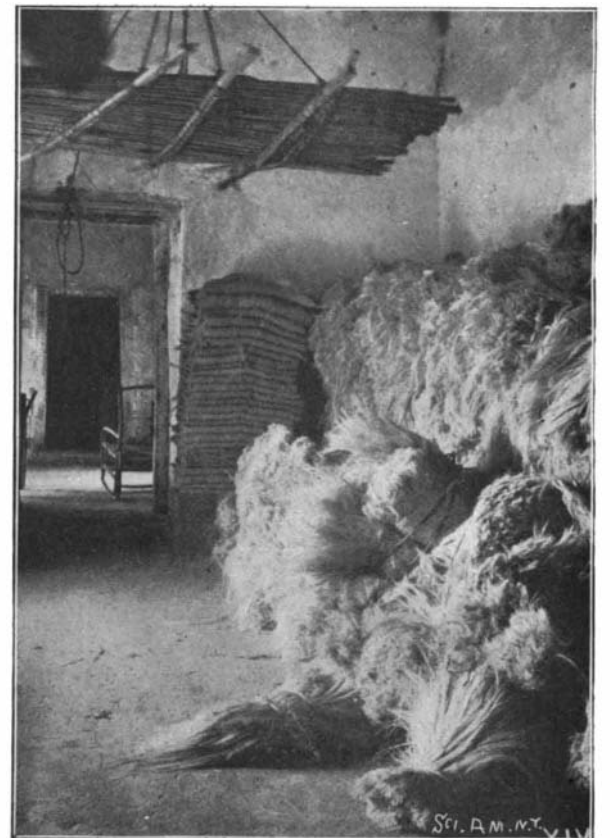


FIG. 5.—STOREROOM IN HACIENDA.

in length, the point being turned up and rather sharp (Fig. 3). Leveling off a spot of ground, always at the base of some woody growth, he inserts the point end of the knife into a hole worked in the bark, sometimes of the very bush which shelters him, but always near the root. The insertion of the knife point gives him leverage for its subsequent manipulation in the operation of scraping the leaf to clean the fiber. Upon the ground, under the knife, and placed transversely to it, is placed a billet of wood a foot or fifteen inches long, and three or four wide, with a smooth face, which serves as a kind of “bed plate,” or resistant surface, upon which the leaf can be manipulated in the operation of scraping. Selecting a *cogolla*, he rapidly separates the unopened leaves of which it is made up, throwing away the shorter or embryo leaves found in its center. Grasping one of these detached leaves in the left hand and the knife handle in the right, the leaf is held flat upon the block of wood, while, with the pointed end of the knife firmly fixed into the trunk of the bush—to enable him to gain a purchase for leverage—he draws or jerks the leaf toward him, at the same time throwing his weight down upon the knife, which, swinging around on its point, is moved away from him. Two or three repetitions of this movement, on either side of the leaf, scrapes away all of the epidermis and pulp, leaving the glistening yellowish fiber. The leaf is then dextrously reversed, the clean fiber being wrapped around a bit of wood or a piece of corn cob (to enable him to hold it), and again grasping firmly in the left hand, the uncleaned end goes through the operation previously described, and the wisp of fiber is laid on the pile (Fig. 4). So the monotonous work goes on through the long day until the requisite quantity for a proper day's work



FIG. 6.—FIBER-LADEN BURROS.

has been produced. The fiber is taken to his hut and spread out in the sun to dry, after which it is bound in bundles, five inches or less in diameter at the butt, when it is ready to turn in at the hacienda for weighing and credit.

Nothing further is done to the fiber, save to store it in a special room (Fig. 5), no attempt being made even at sorting. When a sufficient supply has accumulated for transportation, the small bundles are made up into larger bundles, weighing 75 pounds, bound with stout ropes, and on a given day a pack

train of burros is started on the fifty-mile journey over the mountains to Victoria, each little animal carrying two or more bundles (Fig. 6). The account of this journey over the mountains would make an interesting chapter, but it is not essential to the present story.

Arriving at Victoria, the fiber goes to the warehouses, where there is some attempt at grading as to quality, but rarely ever as to length, packed in bales of 240 pounds, wrapped with bagging made from the same fiber, and stenciled for shipment. The bales are then sent to Tampico by rail and are subsequently shipped by water to the markets of the world.

Tampico fiber is harsh, stiff and very resistant, but pliable, of a whitish yellow tint, and of various lengths from one to two feet, fifteen to eighteen inches being the average. I have seen superb samples from the mountains back of Jaumave that would measure thirty inches, and if a sufficient supply could be secured to warrant the hacienda owners in sorting the fiber as to length, it would find a ready market for cordage purposes to be used with other fibers, its pliancy and resistance being marked qualities. The native name "*lechuguilla*," is universally employed in Mexico, applying to both plant and fiber, though this name, and "Istle" as well, is given to other plants of this family found in other portions of Mexico, usually with a qualifying adjective. An allied form is the *lechuguilla maguay* of Southern California, which yields even a coarser fiber. It was machine-extracted by me, experimentally, some years ago, but the fiber did not find favor in the eastern market.

At San Luis Potosi, in the works of a leading company, I saw the operation of weaving the Istle fiber into bagging, the rude loom and the operator being shown in the accompanying picture (Fig. 7). At the same place I also witnessed the spinning of the small cordage, or yarn, by hand, our illustration (Fig. 8) showing the spinners, who walk backward across the long court while the yarn is being spun.

A machine has recently been invented to clean the *cogolla* of the true *lechuguilla*, or Istle, but it is still under experiment. The use of machinery would revolutionize the business, but it would be a sad day for

at the bottom of the water, and on the plate, submerging it, put the bouquet, which is maintained in an upright position by a weighted base previously attached

fully wiping the exterior, but leaving on the plate, around the base of the bell glass, a little provision of water, which prevents the entrance of air. The flow-



FIG. 8.—SPINNING ISTLE YARN BY HAND.

to it. This being done, the flowers are covered with a bell glass, the rim of which ought to fit exactly to the flat part of the plate; the bell glass should be entirely

ers in this condition will be preserved in all their freshness for several weeks, and their beauty is increased by a great number of bubbles of gas produced by the respiration of the leaves, and which attach themselves to the petals, appearing like pearls." Of course this prevents the odor of the flowers being perceived; but invalids or others who cannot have them frequently renewed may prefer long continuance of sight at the sacrifice of fragrance.

A MODERN TOUCHSTONE.

EVER since the immortal Touchstone classified for the benefit of posterity, the degrees of mendacious and impudent repartee, we have been familiar with the "retort courteous." To the everlasting joy of Billingsgate, an industrious German philologist, Herr Schuch, has mapped out for its benefit the extensive ramifications of the retort courteous. In other words, Herr Schuch has compiled a list of 2,500 insulting expressions, which if not always courteous, are at least appropriate. With true Teutonic patience and scientific care, Herr Schuch first of all divides his retorts into five fundamental classes, corresponding to the different kinds of persons who are to be insulted. Thus we have insults for men, insults for women, insults applicable to either sex, insults for children and collective insults for syndicates, groups and corporations. Once upon a time it was said that corporations being but artificial persons had neither bodies to be kicked nor souls to be damned. But if Herr Schuch is to be relied upon they may at least be bombarded with scathing insults. The immense possibilities of the "Schimpfwoerter Lexicon," which is the title in which Herr Schuch's book rejoices, are obvious. If a man should be insulted at any time, he has but to pull the lexicon out of his pocket, turn to the particular heading under which persons of his opponent's stamp are catalogued, select the appropriate word and probably outdo his reviler. From the legal standpoint, the lexicon certainly must commend itself to everyone who wishes to insult without incurring an action for slander. It would be perfectly safe and effective to turn to the lexicon, pick out some particularly choice insult, and refer one's enemy to the particular page and line on which it may be found.

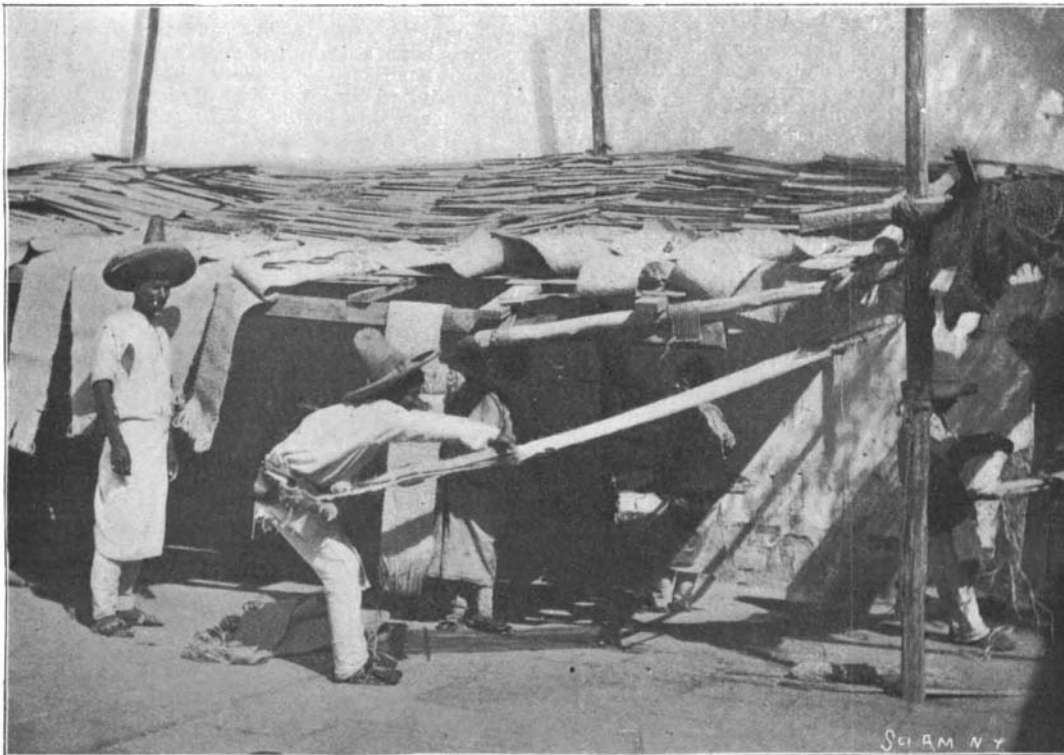


FIG. 7.—WEAVING ISTLE BAGGING BY HAND.

the peons of eastern Mexico when they become extensively used. While this is one of the most interesting fiber plants of Mexico, they are all interesting, and their numbers are legion.

VITALITY OF DISEASE GERMS.

GAFFKY (Zeit. f. Hyg. u. Infect.) finds that microbes retain their vitality much longer in dimly lighted than in sunny rooms. This may be one reason why disease germs flourish better in winter than in summer, owing to the lesser hours of sunlight. He points out that influenza epidemics have never occurred in Germany except when the weather has been long cloudy. The vitality is also directly proportional to the size of the particle of dust or moisture. The germ dies more rapidly the finer the particles. In his tests with droplets such as are expelled in speaking, sneezing or coughing, he found that the bacillus prodigiosus and the typhoid bacillus retained their vitality 24 hours in daylight; the diphtheria bacillus 24 to 48 hours in daylight and 5 days in a cellar; the tubercle bacillus 5 days in daylight and 22 days in a cellar; the fowl cholera bacillus 10 hours in daylight and 24 hours in the cellar; the staphylococcus pyogenes aureus 8 to 10 days in daylight and 35 days in the cellar; the streptococcus longus 10 days in daylight and 38 days in the cellar, and anthrax spores 10 weeks in daylight, and at least 3 months in the cellar.

TO PRESERVE CUT FLOWERS.

ACCORDING to Health, cut flowers may be kept fresh for weeks, by the following method: "A vessel of water is required large enough to allow the submersion in it of a plate or dish holding the bouquet to be preserved, and a bell glass to cover the flowers. The dish or plate should contain no moss or other material; the water should be limpid and quite pure. Place the plate

filled with water, and without the least air bubble. Then all are raised together, plate, bouquet, and bell glass filled with water, and placed on a table, care-

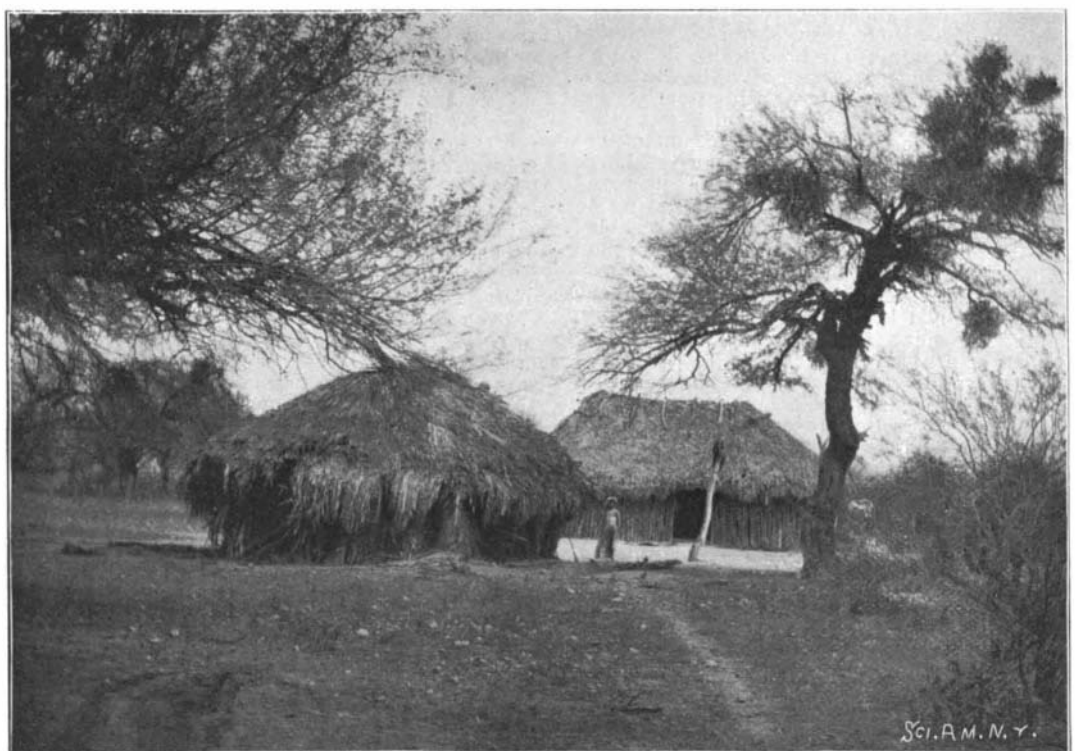


FIG. 9.—NATIVE INDIAN HUTS IN ISTLE REGION OF MEXICO.