

so that, upon the high lands of Zăcătēcăs, and San Luis Pötösî, where there are few reservoirs to supply the want of the periodical rains, the farmer does not reckon upon more than one very good year in ten: but although the ratio of increase in the intervening years does not exceed forty or fifty bushels for one sown, it is usually sufficient to supply the demand, and to prevent any dearth of provisions from being felt amongst the lower classes, to whom wheaten bread is a luxury almost unknown.

The great majority of the inhabitants of New Spain subsists almost entirely upon maize flour, made up into a sort of unfermented, doughy, but nutritious bread, called *ărēpă*, or more generally *törtillăs*, which they eat rather warmed through, than baked, with a pungent sauce, composed of chile, (a sort of capsicum) and tomatos.

The price of maize varies with the year, and the distance from the principal markets. In the capital, I have seldom known it lower than two dollars the fanega, (of 150lbs.); but it sometimes rises to three and a half, as was the case a short time before my departure from Mexico, (April 1827,) in consequence of the total failure of the crops, after the unusually dry season of 1826. In the interior, from three to four reals, (of eight to the dollar,) is the ordinary price; but in 1826, it rose to two dollars, and two and a half; to the great distress of the Indian population.

Maize may be cultivated to almost any extent in Mexico: but a great deal of the land which was devoted to this purpose before the Revolution, has been neglected since 1810, in consequence of the suspension of mining operations, which regulate the demand everywhere, except in the immediate vicinity of the great bishopricks, and the capital.

Some idea of the consumption in the mining districts may be formed by the fact, that, in Guănă-juatō alone, fourteen thousand mules were in daily use, all of which were fed on maize, straw and *zăcătě*, the maize-stalk dried, of which all animals are fond. There was a similar demand, in a more or less extended circle, around each of the other mining towns, so that the agricultural prosperity of the country depended in a great measure upon the prosperity of the mines; while the labours of the miner, on the other hand, were never carried on with such facility, or to such an extent, as when a succession of favourable years, by placing an abundant supply of agricultural produce, at moderate prices, within his reach, enabled him to augment his establishment in such a manner as to reduce even the poorer ores with profit. A great rise in the price of maize, affected the mining interests almost as much as a rise in the price of quicksilver; and, were a table drawn up of the years most productive in mineral riches, they would be found to tally exactly with those which are recorded as most abundant in the agricultural annals of the country. But

upon this subject I shall have occasion to enlarge in a subsequent part of this work. It therefore only remains for me to add here, that the districts now most abundant in maize, are the Băxïö, (which comprises the central part of the Table-land;)—the plains of Töläcä,—the Southern and Eastern parts of the valley of Mexico itself,—the state of La Pueblä, and the vicinity of Āgüas Călieñtës. It may, however, be grown wherever there is water to be obtained, and will be so, undoubtedly, as the demand increases. In some parts of the country, a variety of fermented liquors, known by the general denomination of Chicha de maiz, are prepared from maize by the Indians; they are all more or less intoxicating, as is the Pulque de maiz, or Tlaolli, which is composed of the sugary juice or syrop, extracted by pressure from the stalk. Before the conquest this syrop was condensed by the natives, and used as sugar.

CEREALIA.

UNDER this head I include Wheat and Barley, Oats being but little known: for cattle, barley is in general use, either mixed with maize, or alone.

Wheat succeeds well throughout the Table-land of Mexico. The minimum of height, at which the proper temperature may be found for bringing it to perfection, has not been ascertained; but both in the *Tierra caliente*, and on the Eastern and Western

slope of the Cordillera, experience has shown that, from, perhaps, too great a luxuriancy of vegetation, the ear will not form.

About Jalapa, (678 toises above the level of the sea) it is merely sown to be used as green forage for cattle. At Perote (530 toises higher) it seems to find its proper level, and continues from thence without interruption towards the north, where a less degree of elevation is required, in every succeeding parallel, to produce it, until, in California, it may be found in the lowest valleys. On the Table-land, want of water is the great difficulty with which the farmer has to contend: wherever the ground affords any facility for irrigation, his crops are sure to succeed, but where this is not the case, the natural fertility of the soil becomes almost a secondary consideration; as the success or failure of the crop depends, entirely, upon the timely commencement of the rainy season. In Mexico our division of the year into four separate periods, is unknown. They have no distinction but the Rainy season, (Estacion de las aguas) which commences about the end of May, and lasts four months; and the Dry season, (el Ēstïö) which comprises all the rest of the year.

The rain begins on the Vera Cruz coast, and spreads gradually from East to West, in the direction of the trades; but its commencement is very uncertain, and whenever the dry season is prolonged beyond the middle of June, the Cerealia, and the maize, suffer severely, unless artificial means are employed

to counteract the effects of the drought. Irrigation is, therefore, the great object of the Mexican farmer, and to attain it immense sums are expended on the principal estates, in the construction of *ácēqũias* (canals of irrigation), *prēsās* (dams, or reservoirs), and *nōrĩās* (waterwheels, roues à godet), by the aid of which a sort of balance is established between the dry and the rainy season, and the soil refreshed, when burnt up by the rays of a vertical sun. There have been instances of the dry season continuing for three whole months beyond the usual period, as in 1802, when almost all the crops throughout the country failed. In 1826 the rains did not commence till quite the end of July, and the maize was lost in consequence; but these irregularities are, fortunately, rare. Wherever a system of irrigation is established, the corn lands, (*haciendas de trigo*), are watered twice; once in January, when the young shoot appears above ground, and again in the beginning of March, when the ear is about to form; and so well is the importance of this process known, that a situation is seldom chosen for a *hacienda de trigo*, where a supply of water cannot be obtained.

The great corn lands of Mexico are those of La Pueblā, (near *Ātliscō*, *Sān Mārtin*, and *Chōlũlā*) the *Bāxĩō*, which comprises a portion of the States of *Gũanājũatō*, *Quērētārō*, *Vāllādōlĩd*, *Zācātēcās*, and *Guādālājārā*, in the vicinity of the great river of *Sāntiāgō*;—the valley of *Tēnōchtĩtlān*, or Mexico; that of *Pōanās*, in Durango; and the missions in Cali-

fornia. These are but spots of cultivation on so large a surface as that presented by the territory of New Spain; but it is supposed that the ground cleared, in the vicinity of each, is capable of producing a supply of wheat, sufficient for a population, five times as numerous as that of Mexico, at the present day.

This is partly owing to the fertility of the soil, which gives an extraordinary ratio of increase, and partly to the large consumption of maize and Bananas, in lieu of wheaten flour, in the *Tierra caliente*, and upon the whole line of coast. The difficulty of communication with the table land renders wheat an article of luxury to the inhabitants of these regions; for, strange as the assertion may appear, in the present state of the roads it would be easier, and cheaper, for towns upon the Eastern and Western coasts to draw their supplies from the United States, or California, by sea, than from the nearest corn lands on the Table land. American flour, for instance, sells for fourteen dollars per barrel, at the Havana, after paying a duty of six dollars. Each *Carga*, (or 300lbs. weight) of flour, from *Attlisco*, if sent as a mule load to Veracruz, would cost this, or more, as freight, at the present day, without allowing any thing for prime cost. Veracruz could, therefore, be supplied from Kentucky, or Ohio, at almost one half the price which flour now costs there; nor do I think that the amelioration in the internal communications of New Spain can easily be carried to such

an extent, as to prevent the Mexican land owners from being undersold in their own market by their northern neighbours, unless they are protected, (as it is called) by prohibitory laws. They have indeed, in the extraordinary fertility of their soil, and the cheapness of labour, some compensation for the difficulties of communication, with which they have to contend; but the amount of produce on good land, however much it may exceed that of Europe, is not much superior to that of the most productive districts in the United States.

Humboldt gives twenty five bushels for one, as the average annual produce of the whole of the corn lands of Mexico. In France, the maximum of the ratio of increase would be as ten to one; in England, perhaps twelve.

In the poorer parts of Germany, from five to six bushels for one is reckoned a very good crop. In Kentucky, twenty-two is, I believe, the maximum; but in Mexico, where irrigation is properly conducted, and the year good, from sixty to eighty bushels for one, have frequently been produced. At Chölülä the common ratio of increase is from thirty to forty for one. At Zělâyä, Sälämāncä, Lëön, and Sāntiägö, from thirty-five to forty, *communibus annis*. In the valley of Mexico it varies from eighteen to twenty; and even as far North as New California, from fifteen to seventeen is not at all uncommon. Humboldt affirms too, that the proportion between the seed and the produce, would

appear still greater, were it not for the quantity of grain unnecessarily employed as seed, a great part of which is choked, and lost: yet, notwithstanding this prodigious productiveness, wheat in Mexico is half as dear again as at Paris, and considerably exceeds the price which it now bears in the English market.

It is difficult to institute any exact comparison between two countries, where the measures in use are entirely dissimilar; but the following statement may give some idea of the relative value of corn in England, and New Spain.

The Carga, or mule load, which is the usual mode of selling the more bulky agricultural produce, weighs twelve Arrobas, or three hundred pounds, which, taking the English bushel at sixty pounds, are equivalent to five bushels English measure. The price of the Carga, I have found to vary but little; for, as the consumption of wheaten flour is confined almost entirely to the towns, where the demand can be pretty correctly ascertained, a sufficient supply is raised, in the vicinity of each, to meet that demand, and no more. Thus, there is neither much competition, nor any great fluctuation in the value of the article when brought into the market.

The Carga fetches, almost uniformly, from Mexico to Dürängö, from thirteen, to sixteen dollars, according to the year; which, taking the dollar at four shillings, and the Carga, (as stated) at five

bushels, gives 10s. 4 $\frac{3}{4}$ d. or 12s. 9 $\frac{1}{2}$ d. as the price of the bushel, which is now selling here at seven shillings. This is the more remarkable, as it is not the case in any other part of South America. The best Chilian corn, for instance, sells upon the spot for 3 $\frac{1}{3}$ reales de plata, the fanega, or seven reals per carga.

The carriage to the coast, (near which it is usually grown,) and freight to Lima, which is the great market on the Pacific side, are estimated at three reals more; and, at Lima itself, it sells for twenty-four reals, (three dollars,) or about twelve shillings English money; while in Mexico the average price is nearly five times as much. But in New Spain, the want of roads, and the consequent difficulty of intercourse between the corn growing States, excludes from competition, in each market, all those who are situated beyond a very circumscribed circle in its immediate vicinity; and thus maintains a sort of factitious price, for an article, the intrinsic value of which ought not to bear any sort of proportion to that which it now possesses, from the abundance in which it is already produced, and the facility with which its cultivation might be carried to almost any extent.

Whether the obstacles can be overcome, which have given it this factitious value, and to what extent they will be so, are questions which time, and the good sense of the Mexican people, must decide; but the contents of this chapter will prove

that a very great change must take place in the interior of the country, before any idea of exportation can reasonably be entertained, if, indeed, it be found practicable at last, of which, as I have stated in the first chapter, I entertain great doubts.

THE BANANA.

Platano-Musa.

The Banana is to the inhabitants of the *Tierra caliente*, what maize is to those of the Table-land: it furnishes them with the principal article of their daily food, and has the merit likewise of producing more nutritious substance in a less space, and with less trouble, than any other known plant. Humboldt calculates that one acre of ground, planted with the Platano Arton, is sufficient to support fifty men; while an acre of wheat, *communibus annis*, would barely supply the wants of three. Its cultivation requires but little attention: the suckers once planted, nature does the rest. In ten or eleven months the fruit comes to maturity; the old stalks must then be cut away, with the exception of the leading sprout, (pimpollo,) which bears fruit about three months after the mother plant; and if the earth about the stems be loosened once or twice in the year, a Plătănăr may be kept in full produce without any farther exertion. The fruit is used either fresh, or sliced, and partially dried in the sun, when it is called Platano Pasado. It requires a mean temperature of 24° of the centi-

grade, (19 of Reaumur or 75 of Fahrenheit,) to bring it to perfection.

CASSAVA BREAD.

Pain de Manioe.

This bread, which is prepared from the root of the Yuca amarga, (*Jatropha manihot*), is more in use on the Western, than the Eastern coasts of Mexico: on both sides it is peculiar to the *Tierra caliente*. The root which yields the flour, (which is afterwards made up into thin, brittle cakes,) is a deadly poison in its raw state; but it loses its deleterious qualities when rasped, and pressed in a bag called *cibucán*, during which process the juice exudes, until nothing but a farinaceous pulp remains.

The consumption of Cassava bread in Mexico is not considerable, nor at all likely to increase.

RICE

Is but little cultivated, and not very generally known.

OLIVES.

The first Olive plantation known in Mexico, was that belonging to the Archbishop, at *Tacubāya*, near the Capital; but, during the Revolution, a great number of Olive trees were planted, both in the Provinces, and immediately about Mexico, all of which are now flourishing. The oil which they yield is as pure as the finest French or Italian oils, and as the climate is particularly favourable to the

growth of the tree, there is reason to suppose that the quantity of oil produced will soon render importation unnecessary. Before 1810, the cultivation of the olive was prohibited, as it was apprehended that it might interfere with the interests of the mother country.

THE VINE.

The vine was likewise a forbidden fruit before the Revolution, although the soil of Mexico is so well adapted to it, that it flourishes naturally in Texas, (which is overrun with wild vines,) and has succeeded as far North as Parras, the only spot where, under the old system, wine was allowed to be made, in consequence (I suppose) of the difficulty of supplying it from the Capital. In the centre of the country, vineyards were destroyed wherever an attempt was made to carry the cultivation to any extent.

As late as 1802, a general order to this effect was issued, which was acted upon at *Dōlōrēs*, (the curacy of the first insurgent chief, *Hidalgo*,) in 1805.

There is little doubt, however, that the vine will flourish, and that wine may be made, in almost every part of Mexico; whatever be its quality, it cannot well be worse than the coarse Catalonian vintages, with which the country has been hitherto supplied; while on the balance of trade it would have a considerable effect, the sum averaged by wines imported, before the Revolution, being not less

than 700,000 dollars per annum. The attention of the landed proprietors is already turned to the subject, but much time must elapse before any change can be effected; and as the French have, in the mean time, possession of the market, it is probable that they will find it to be their interest to keep it so well, and so cheaply supplied, that the project of growing wines for home consumption will be abandoned, before the attempt has been seriously made.

CHILE, OR CAPSICUM.

Whole estates are devoted, on the Table-land, to the cultivation of this most powerful stimulant, and few are more productive, as it constitutes one of the necessaries of life with the Indian, and Mestizo, population, and is used in very large quantities at the tables of the Creoles of all ranks. Its pungency is so great, that, amongst the uninitiated, it produces absolute excoriation; but the palate becomes accustomed to it by degrees, and habit renders it indispensable. It is used by the lower classes as a seasoning to the insipid tortilla, and the two together furnish a meal, which they would not exchange for an allowance of meat, and wheaten bread.

In addition to the vegetable productions already enumerated, Mexico possesses the potatoe, which is found in great abundance on every part of the Table-land; the yam, which is confined to Tierra caliente; Tomates, (Tomatl,) with every variety of garden

plants and vegetables; apples, peaches and pears, and most European fruits; together with pines, guavas, chirimoyas, oranges and lemons, pistachio-nuts, melons, and all the usual productions of the tropics. It likewise has the

MAGUEY—(*Metl—Agave Americana.*)

A species of Ananas, or Aloe, from which is drawn the favourite beverage of the lower classes in the central part of the Table-land, a spirituous liquor called Octli, or Pulque.

It is in the States of La Pueblă, Mēxicō, Guănă-juatō, and a small portion of Vălladōlid, that the principal plantations of Măgūey are found; the most celebrated are those in the vicinity of Chōlūlă, and in the Llanos de Āpăm, between the towns of Hūāmāntlă, Tlăscălă, Āpăm, and the Capital: the valley of Tōlūcă is likewise famous for its Pūlquē; which is drawn from the extensive Maguey grounds in the vicinity of Lērmă: but in general, although the plant is found wild in every part of Mexico, no attempt to extract Pulque from it, is made, except in the districts which are within reach of the two great towns of La Pueblă, and Mexico; where, amongst the lower classes of the inhabitants, the consumption is enormous. Before the Revolution, the revenue derived from a very small municipal duty exacted on the Pulque, at the gates of these towns, averaged 600,000 dollars, and amounted, in 1793, to 817,739 dollars, about 170,000*l.* sterling.

Pūlquē is so little known in Europe, that some account of the process, by which it is made, may be acceptable.

The Maguey, or Aloe, from which it is extracted, differs but little, (if at all) in appearance, from those which abound in the South of Spain, and which are known, though of a much smaller size, in England. Its growth is slow, but when arrived at maturity, its leaves are usually from five to eight feet in length, although some considerably exceed these dimensions.

In the plantations, the plants are arranged in lines, with an interval of three yards between each. If the soil be good, they require no attention on the part of the proprietor until the period of flowering arrives, at which time the plant first commences to be productive. This period is very uncertain; ten years, however, may be taken as a fair average, for, in a plantation of one thousand Aloes, it is calculated that one hundred are in flower every year. The Indians, acquainted with the plant, know, by certain signs, almost the very hour at which the stem, or central shoot, which is destined to produce the flower, is about to appear, and they anticipate it, by making a deep incision, and extracting the whole heart, or central portion of the stem, (*el cōrāzōn*,) as a surgeon would take an arm out of the socket, leaving nothing but the thick outside rind, which forms a natural basin, or well, about two feet in depth, and one-and-a-half in

diameter. Into this the sap, which Nature intended for the support of the gigantic central shoot, is continually oozing, in such quantities, that it is found necessary to remove it twice, and even three times in the day. In order to facilitate this operation, the leaves on one side are cut away, so as to admit of a free approach: an Indian then inserts a long gourd, (called *ācōjōtē*,) the thinner end of which is terminated by a horn, while, at the opposite extremity, a small square hole is left, to which he applies his lips, and extracts the sap by suction. This sap, before it ferments, is called *Aguamiel*, (honey-water,) and merits the appellation, as it has a very sweet taste, and none of that disagreeable smell, which is afterwards so offensive. From the plant, a small portion of it is transferred to a building prepared for the purpose, where it is allowed to ferment for ten or fifteen days, when it becomes what is termed *Mādrē Pūlquē*, (the mother of Pulque,) which is distributed, in very small quantities, amongst the different skins, or troughs, intended for the daily reception of the *Águāmiel*. Upon this it acts as a sort of leaven; fermentation is excited instantly, and in twenty-four hours it becomes Pulque in the very best state for drinking: the quantity drawn off each day is replaced by a fresh supply of *Aguamiel*, so that the process may continue during the whole year without interruption, and is limited only by the extent of the plantation. A good Maguey yields from eight to fifteen quartillos, (pints,) of

Āguāmiēl in a day, the value of which may be taken at about a real, (sixpence); and this supply of sap continues during two, and often three months. The plant, therefore, when about to flower, is worth ten dollars to the farmer; although, in the transfer of an estate, the Magueyes de corte, (ready for cutting,) are seldom valued, one with another, at more than five. But, in this estimate, an allowance is made for the failure of some, which is unavoidable, as the operation of extracting the cōrāzōn, if performed either too soon, or too late, is equally unsuccessful, and destroys the plant altogether. The cultivation of the Maguey, where a market is at hand, has many advantages, as it is a plant, which, though it succeeds best in a good soil, is not easily affected either by heat or cold, and requires little or no water. It is propagated, too, with great facility; for, although the mother-plant withers away as soon as the sap is exhausted, it is replaced by a multitude of suckers, which spring from the old root, and grow well when transplanted. There is only one drawback, the time that must elapse before a new plantation can be rendered at all productive, and the uncertainty with regard to the time of flowering, which varies from eight to eighteen years. But the Maguey grounds, when once established, are of great value, many producing a revenue of ten and twelve thousand dollars per annum.

The natives ascribe to Pulque as many good qualities as whiskey is said to possess in Scotland.

They call it stomachic, a great promoter of digestion and sleep, and an excellent remedy in many diseases. It requires a knowledge of all these good qualities to reconcile the stranger to that smell of sour milk, or slightly tainted meat, by which the young Pulque drinker is usually disgusted; but if this can be surmounted, Pulque will be found both a refreshing, and a wholesome beverage; for its intoxicating qualities are very slight, and as it is drunk always in a state of fermentation, it possesses, even in the hottest weather, an agreeable coolness. It is found, too, where water is not to be obtained; and even the most fastidious, when travelling under a vertical sun, are then forced to admit its merits.

It is only to be met with in perfection near the places where it is grown, as it is conveyed to the great towns in skins, on asses: a tedious process, in the course of which the smell increases, while the freshness of the liquor is lost.

A strong sort of brandy, called Mēxīcāl, or aguardiente de Maguey, is likewise prepared from the aloe, of which there is a great consumption in the country. Nor is the utility of the plant confined to this; the Aztecs prepared from its leaves the paper on which their hieroglyphics were written, pieces of which, of various thickness, may be found at the present day; and the more fibrous parts supply the country with pita, a strong thread, or twine, which is made up into ropes, and used not only in the mines, but on the Western coast, as cordage for

vessels. It is not so pliable as hemp, and is more liable to be affected by the weather; but it is extremely tough, and durable, and consequently of very general utility. The annexed plate contains an Aloe in full produce, with the leaves cut, the central cup displayed, and the skin, gourd, and scraper, used in extracting the sap.

COLONIAL PRODUCE.

I come now to those productions, which are termed in Europe "Colonial produce," as being, usually, the growth of Colonies founded by the nations of the Old World in the warmer regions of the New, and supplying the parent States with those articles of luxury, or necessity, which the climate of Europe is not calculated to produce.

In Mexico they comprehend sugar, coffee, tobacco, indigo, chocolate, and cotton, besides vanilla and cochineal, of which Nature seems to have given to New Spain the almost exclusive possession. I shall begin with sugar, as being the only article of general consumption in Europe, the exportation of which, before the Revolution, was carried to any extent.

SUGAR.

Humboldt has endeavoured to fix the maximum of height at which the cane in Mexico may be cultivated; and to his scientific disquisitions I must refer such of my readers as are inclined to view

