

cultivation of wheat is at present but very limited, although from the excellence of the soil and climate, and the abundance of land fit for the production of this grain, Upper California ought to be—and one day must be—the granary of all South America.

Barley is cultivated but in small quantities, no use being made of it except to feed horses; they make no malt liquor or spirits from this grain. The kind cultivated both in California and Mexico, is what is called “bigg” in Scotland, being the old variety with six rows: it produces a very small grain.—What will my northern friends think when they are informed, that oats are not known in any part of the Spanish Americas! They not only do not raise this species of grain for their own use, but not even for the use of their horses. All kinds of grain in California are threshed out at once, without stacking or housing any part of it with the straw.

In the neighbourhood of the mines and large towns in Mexico, wheat and barley straw is used as fodder for the working horses and mules, and from its dry and brittle state in those warm countries, it is, in the act of threshing, reduced to a state which more resembles chaff than straw; it is in fact like straw cut by machinery in England, and is carried to market on mules' backs, enclosed in large net bags, one on each side. Hundreds of mules are to be seen daily entering Guanajuato and

other large mining towns, with these immense globes of cut straw at their sides more resembling balloons than any thing else. In California, however, as the pastures are so abundant, and few mules or horses worked, little use is made of the straw.

The following table gives the whole produce in grain of Upper California, in the year 1831, calculated according to the localities, and in *Fanegas*:

## GRAIN.

<i>Names of the Jurisdictions, Missions and Towns.</i>	<i>Wheat.</i>	<i>Maize or Indian corn.</i>	<i>Fritol or Small Beans.</i>	<i>Barley.</i>	<i>Beans, Garbanzos, and Peas.</i>	<i>Total Fanegas.</i>
<i>Jurisdiction of S. Francisco.</i>						
PRESIDIO OF S. FRANCISCO	..233	.. 70..	40..	..	..	.. 343
Town of San José de Guadalupe	..1657	..1560	..191	..	..	.. 3408
Mission of S. Francisco Solano	..1171	.. 200	.. 24	..241	.. 24	..1660
id. of S. Rafael	.. 774	.. 130	.. 15	..388	.. 20	..1327
id. of S. Francisco	.. 670	.. 15	.. 9	..340	.. 58	..1092
id. of Santa Clara	..2400	.. 60	.. 25	..	..200	..2685
id. of S. José	..4000	..1000	..123	..1100	..418	..6641
id. of Santa Cruz	.. 160	.. 300	.. 10	..386	.. 20	.. 876
<i>Jurisdiction of Monterey.</i>						
PRESIDIO OF MONTEREY	.. 490	.. 332	.. 131	..	..	.. 953
Village of Branciforte	.. 103	.. 160	.. 80	..	..	.. 343
Mission of S. Juan Bautista	.. 840	.. 170	.. 40	..255	.. 6	..1311
id. of S. Carlos	.. 200	..	..	..215	.. 62	.. 477
id. of Na. Sa. de la Soledad	.. 538	.. 50	..	..243	.. 62	.. 893
id. of S. Antonio	.. 955	.. 115	.. 40	..568	.. 23	..1701
id. of S. Miguel	.. 599	.. 36	.. 9	.. 57	.. 33	.. 734
id. of S. Luis Obispo	.. 350	.. 60	.. 20	.. 20	..	.. 450



<i>Names of the Jurisdictions, Missions, and Towns.</i>	<i>Wheat.</i>	<i>Maize or Indian Corn.</i>	<i>Frixol or Small Beans.</i>	<i>Barley.</i>	<i>Beans Garvan- zos, and Pease.</i>	<i>Total Fanegas.</i>
<i>Jurisdiction of Sta. Barbara.</i>						
PRESIDIO OF STA. BARBARA ..	300..	90..	..	..	..	390
Mission of La Purissima ..	700..	100..	20..	56 ..	17..	893
id. of Sta Ines ..	800..	400..	20..	..	..	1220
id. of Sta Barbara ..	730..	90..	50..	336..	30..	1236
id. of Buenaventura ..	700..	200..	160..	800..	..	1860
id. of S. Fernando ..	200..	250..	40..	..	65..	555
Town of la Reyna de los Angeles..	138..	1758..	179..	..	..	2075
<i>Jurisdiction of S. Diego.</i>						
PRESIDIO OF S. DIEGO ..	140..	125..	5..	..	..	270
Mission of S. Gabriel ..	1400..	400..	13..	..	25..	1838
id. of S. Juan Capistrano ..	450..	625..	30..	..	5..	1110
id. of S. Luis Rey ..	1800..	2000..	200..	1200..	15..	5215
id. of S. Diego ..	2946..	420..	80..	1200..	..	4646
Total Fanegas	25,144	10,926	1,644	7,405	1,083	46,202

Taking the Fanega at  $2\frac{1}{2}$  English bushels, the harvest in 1831 will be as follows:—

	<i>Quarters.</i>
Wheat .....	7857 $\frac{1}{2}$
Maiz .....	3414 $\frac{1}{2}$
Frixol .....	514
Barley .....	2314
Beans, Garvanzos, and Pease.....	338
Total Quarters .....	14438

Now, reckoning the following as the average price of grain in California at the present time, viz. wheat and barley 2 dollars the fanega, or £1. 5s. the English quarter, and maize at  $1\frac{1}{2}$  dollars, or £1. per

quarter, the following will be the value of the produce in English money:—

	<i>£.</i>	<i>s.</i>	<i>d.</i>
Wheat .....	9822	17	6
Maize .....	4268	0	0
Barley .....	2314	0	0
Pease and Beans reckoned as Barley	852...	0	0

Total, £17256 17 6

The quantity of wheat produced, it will be perceived, is much greater than any of the other sorts of grain, which is the reverse of what takes place in the other Mexican states, wheat bearing a small proportion to maize, which latter is the staple bread corn.

The mills for grinding flour in Upper California are but few, and of the most primitive construction; but none better are to be found in the other parts of Spanish America, not even in Chili where wheat abounds. These mills consist of an upright axle, to the lower end of which is fixed a horizontal water-wheel placed under the building, and to the upper end the mill-stone; and as there is no intermediate machinery to increase the velocity, it is evident, that the mill-stone can make only the same number of revolutions as the water-wheel; this makes it necessary that the wheel should be of very small diameter, otherwise no power of water thrown upon it could make it go at a rate sufficient to give the mill-stone the requisite velocity. It is therefore made of very small dimensions and con-



structed in the following manner. A set of what is called *cucharas* (spoons) are stuck into the periphery of the wheel, which serve in place of float boards; they are made of pieces of timber in something of the shape of spoons, the handles being inserted into mortices on the edge of the wheel, and the bowls of the spoons made to receive the water, which spouts on them laterly and forces round the small wheel with nearly the whole velocity of the water which impinges upon it. I never knew of the existence of a mill of this construction till I saw one in South America, but I since find that Sir Walter Scott in his *Pirate* describes a similar one as having been in use in the Shetland Islands. This mill is erected at very small expense, but it is no small boast for a mission in California to have one of them, and I believe there are only three in all the country.

That most useful plant, the potatoe, thrives well in California, but the people in this as in every other Spanish country, do not make this root a staple article of subsistence, nor is it used as a substitute for bread. When potatoes are brought to the table in Spanish countries they are made up into a dish to be eaten alone: they are however now much more cultivated than before the introduction of strangers, who use them as in Europe, and who will, in time, shew the inhabitants their value.

Of green vegetables for the table, the peasantry

and all those who live in the country, make little or no use. It is a remarkable fact, that in all parts of Spanish America no such things are to be seen in the gardens of the peasants, nor even in those of the proprietors of estates, as cabbages or greens of any kind: only in the vicinity of large towns are to be found cabbage gardens. In California it may be said that before the admission of foreign settlers, neither the potatoe nor green vegetables were cultivated as articles of food.

No such thing as the cultivation of turnips in the large way, or for the food of cattle, is at all known. They have a small white kind for the table, but its flavour is insipid, and as well as other green vegetables is but little used.

The cultivation of hemp was formerly carried to some considerable extent, and furnished a supply of this article to the arsenal of San Blas: its produce was abundant and of very excellent quality. Its cultivation, however, was discontinued soon after the withdrawing of the Spanish squadron from San Blas, and has not again been renewed; but in the hands of industrious settlers this undoubtedly would be a source of great profit.

Flax has also been tried, and proves congenial to the soil and climate; but from the total want of machinery for dressing it, and industry to manufacture it, nothing has been done except merely by way of trial.



The vine thrives in California in an extraordinary degree. It is cultivated already to a very considerable degree, and might be extended almost without limits: wine is now made of tolerably good quality, and some even very excellent. Nothing is wanting but intelligent persons, to make wine of superior quality, and which would find a ready market in Mexico and the neighbouring countries where the vine does not grow.

The quantity of wine and brandy consumed in those countries is immense; all of which could be supplied from California at a price infinitely less than what is now paid for that brought from Europe. Raisins also, the produce of the vine, are articles of considerable consumption, so that this branch of industry would be a source of great riches to an enterprising and industrious people, but at present, instead of exporting either wine or brandy, they have to purchase them for their own use.

The olive is also produced in very great perfection; and when well prepared is not inferior to that of France; and the oil would be equally good if expressed and preserved with care. These are articles of great consumption among a Spanish population, and would be of much importance as exports to the neighbouring republics.

Pasturage, however, is the principal object pur-

sued in California as well as in all the Spanish settlements of America. The immense tracts of country possessed by them in proportion to the population, added to the indolent and unenterprising habits of this race of men, renders the pastoral state the most congenial to their situation and disposition. Few men and little labour are required to take care of herds of cattle, which naturally increase rapidly in the vast plains abounding with rich pastures; whereas, to raise grain, great labour and a numerous population are required. The pastures of Upper California are most abundant, and the domestic animals have increased amazingly.

The following table gives the total number of cattle, of all descriptions, in the year 1831.

## DOMESTIC CATTLE.

<i>Names of the Jurisdictions, Missions, and Towns.</i>	<i>Black Cattle.</i>	<i>Horses.</i>	<i>Mules.</i>	<i>Asses.</i>	<i>Sheep.</i>	<i>Goats.</i>	<i>Swine.</i>
<i>Jurisdiction of S. Francisco.</i>							
PRESIDIO OF S. FRANCISCO	5610.	470.	40.	„	„	„	„
Town of San José de Guadalupe.	4443.	2386.	134.	„	„	„	„
Mission of S. Francisco Solano	2500.	725.	4.	„	5000.	„	50
id. of S. Rafael	1200.	450.	1.	„	2000.	„	17
id. of S. Francisco	4200.	1239.	18.	„	3000.	„	„
id. of Santa Clara	9000.	780.	38.	„	7000.	„	„
id. of S. José	12000.	1300.	40.	„	13000.	„	40
id. of Santa Cruz	3500.	940.	82.	„	5403.	„	„
<i>Jurisdiction of Monterey.</i>							
PRESIDIO OF MONTEREY	5641.	3310.	70.	„	„	„	„
Village of Branciforte	1000.	1000	3.	„	„	„	„



<i>Names of the Jurisdictions, Missions, and Towns.</i>	<i>Black Cattle.</i>	<i>Horses.</i>	<i>Mules.</i>	<i>Asses.</i>	<i>Sheep.</i>	<i>Goats.</i>	<i>Swine.</i>
Mission of S. Juan Bautista	7070.	401.	6.	1.	7017.	„	17
id. of S. Carlos	2050.	470.	8.	„	4400.	55.	„
id. of Na. Sa. de la Soledad	6599.	1070.	50.	1.	6358.	„	„
id. of S. Antonio	5000.	1060.	80.	2	10000.	55.	60
id. of S. Miguel	3762.	950.	106.	28.	8999.	15.	60
id. of S. Luis Obispo	2000.	800.	200.	50.	1200.	„	24
<i>Jurisdiction of Sta. Barbara.</i>							
PRESIDIO OF STA. BARBARA	7900.	1300.	220.	„	„	„	„
Mission of La Purissima	10500.	1000.	160.	4.	7000.	30.	62
id. of Sta. Ines	7800.	320.	112.	„	2200.	„	50
id. of Sta. Barbara	2600.	511.	150.	2.	3300.	37.	63
id. of Buenaventura	4000.	300.	60.	„	3100.	30.	8
id. of S. Fernando	6000.	300.	60.	3.	3000.	„	„
Town of la Reyna de los Angeles	38624.	5208.	520.	„	„	„	„
<i>Jurisdiction of S. Diego.</i>							
PRESIDIO OF S. DIEGO	608.	625.	150.	58.	„	„	„
Mission of S. Gabriel	20500.	1700.	120.	4.	13554.	76.	98
id. of S. Juan Capistrano	10900.	290.	30.	5.	4800.	50.	40
id. of S. Luis Rey	26000.	2100.	250.	5.	25500.	1200.	250
id. of S. Diego	6220.	1196.	132.	14.	17624.	325.	„
Total	216727	32201	2844	177	153455	1873	839

In addition to the above there are a great number running wild, particularly mares, which they hunt and kill in order to prevent their eating up the pasture from the useful cattle.

From this immense number of domestic animals little advantage is obtained beyond the value of the hides and fat. The management of the dairy is totally unknown. There is hardly any such thing in use as butter or cheese, and what little is made

is of the very worst description. It will no doubt appear strange when I assert, that the art of making butter and cheese, is unknown in all the Americas inhabited by the Spaniards and their descendents, yet as far as my own experience goes, as well as my information, this is in reality the case; for although something under the name of butter and cheese is generally to be found, yet they are made in a way entirely different from that practised in the north of Europe, and certainly have but little resemblance to those so much esteemed aliments as there prepared. Both the butter and cheese, particularly the former, are execrable compounds of sour coagulated milk and its cream mixed together, the butter being made of the cream or top of the milk mixed with a large proportion of the sour coagulated part, and beat up together by the hand, and without a churn, till something of the consistency of butter is produced: it is of a dirty grey colour and of a very disagreeable flavour, which in a short time is rendered still worse by its tendency to get rancid, in which state it is almost always found before it arrives at the place of sale, and is of course intolerable to palates used to that of a better sort. The cheese is made of the remainder of the sour milk, or sometimes of the whole milk and cream; in either case it is made up in small moulds containing about half a pound, and undergoes no



pressure except by the hand; it is always mixed with a large proportion of salt, and is of a soft crumbling consistency.

There is another sort of cheese or something resembling it, made of sweet milk coagulated with rennet: it is made in thin cakes which they form by pressing the curds between the hands till they are freed of the whey, and then left to dry: this is called *panela* and is much better than the sour composition: it is used as a luxury and sent about as presents.

In some parts of Lower California situated on the gulf, and in the northern parts of Sonora and New Mexico, real cheese is made and some of it of very good quality. This, however, is only an exception to the general observation, and proves that there is nothing to prevent good cheese from being made in those countries. How this art has been introduced into such remote corners of the Spanish possessions as lower California and New Spain, whilst unknown in the others, I am unable to ascertain.\*

It is truly incredible that from such an immense number of cows as is contained in Upper California

\* Good butter has also been made and continues to be so, though in small quantities (and I believe confined to one dairy) in the neighbourhood of the city of Mexico. This practice was introduced by a stranger since the revolution—but I understand the consumption is chiefly confined to foreigners, and the price very high.

no attempt should be made to reap advantage from their milk. The produce of the dairy has always been an object of consideration and profit in all ages and in all countries. It seems however, that even in old Spain at the present day, this branch of husbandry is much neglected, and it is well known that Cadiz and other maritime towns have always been supplied with butter and cheese from Holland and Ireland. A Mexican gentleman who was lately at Madrid informs me, that no butter is used in that city except as a rarity, and that if it be wanted it must be ordered before-hand and paid for at a high rate.

It is doubted whether the ancients knew the art of making butter and cheese, such as are used in our time. Articles of food under these names were known, but authors doubt if they were at all of the same character as our modern aliments of the same name. I am strongly inclined to favour those who argue against true butter and cheese being known in antiquity, and this solely from the example of the Spaniards; for, as I have before said, they must be taken as great authorities in whatever relates to ancient customs. They have preserved them not in books, but in practice, in much greater purity than any other of the European nations. The Hebrew word which is taken to mean butter, I find is interpreted by some to signify