

# BUREAU OF THE AMERICAN REPUBLICS,

WASHINGTON, U. S. A.

---

- I. Minerals and Resources of Northeastern Nicaragua.
  - Nitrate Deposits in Colombia.
  - Manganese Mines in Colombia.
  - Education in Uruguay.
- II. Coffee Industry in Haiti, Guatemala and Mexico.
  - Industrial Progress in Guatemala.
  - Railroad Development.
- III. Commercial Information.

BUREAU OF THE AMERICAN REPUBLICS,  
NO 2 LAFAYETTE SQUARE WASHINGTON, D. C., U S A.

*Director.*—CLINTON FURBISH.

*Secretary.*—FREDERIC EMORY.

While the utmost care is taken to insure accuracy in the publications of the Bureau of the American Republics, no pecuniary responsibility is assumed on account of errors or inaccuracies which may occur therein.

## PUBLICATIONS OF THE BUREAU.

Two monthly bulletins, in addition to the current issue, have been published by the Bureau of the American Republics, viz., "Coffee in America," October, 1893, and "Coal and Petroleum in Colombia," etc., November, 1893.

Of the publications of the Bureau, the following will be furnished to applicants at the prices named in the list. All orders for these publications must be addressed to "The Public Printer, Washington, D. C.," and must be accompanied with the money for same. No money will be received by the Bureau or its officers:

### PRICE LIST.

	Cents.
3. Patent and Trade-mark Laws of America.....	5
4. Money, Weights and Measures of the American Republics.....	5
6. Foreign Commerce of the American Republics.....	20
8. Import Duties of Brazil.....	10
10. Import Duties of Cuba and Puerto Rico . . . . .	15
11. Import Duties of Costa Rica.....	10
13. Commercial Directory of Brazil.....	5
14. Commercial Directory of Venezuela.....	5
15. Commercial Directory of Colombia.....	5
16. Commercial Directory of Peru.....	5
17. Commercial Directory of Chile.....	5
18. Commercial Directory of Mexico.....	15
19. Commercial Directory of Bolivia, Ecuador, Paraguay and Uruguay...	5
20. Import Duties of Nicaragua.....	10
21. Import Duties of Mexico (revised).....	15
22. Import Duties of Bolivia.....	20
23. Import Duties of Salvador... . . . .	5
24. Import Duties of Honduras.. . . .	10
25. Import Duties of Ecuador.....	5
26. Commercial Directory of the Argentine Republic.....	5

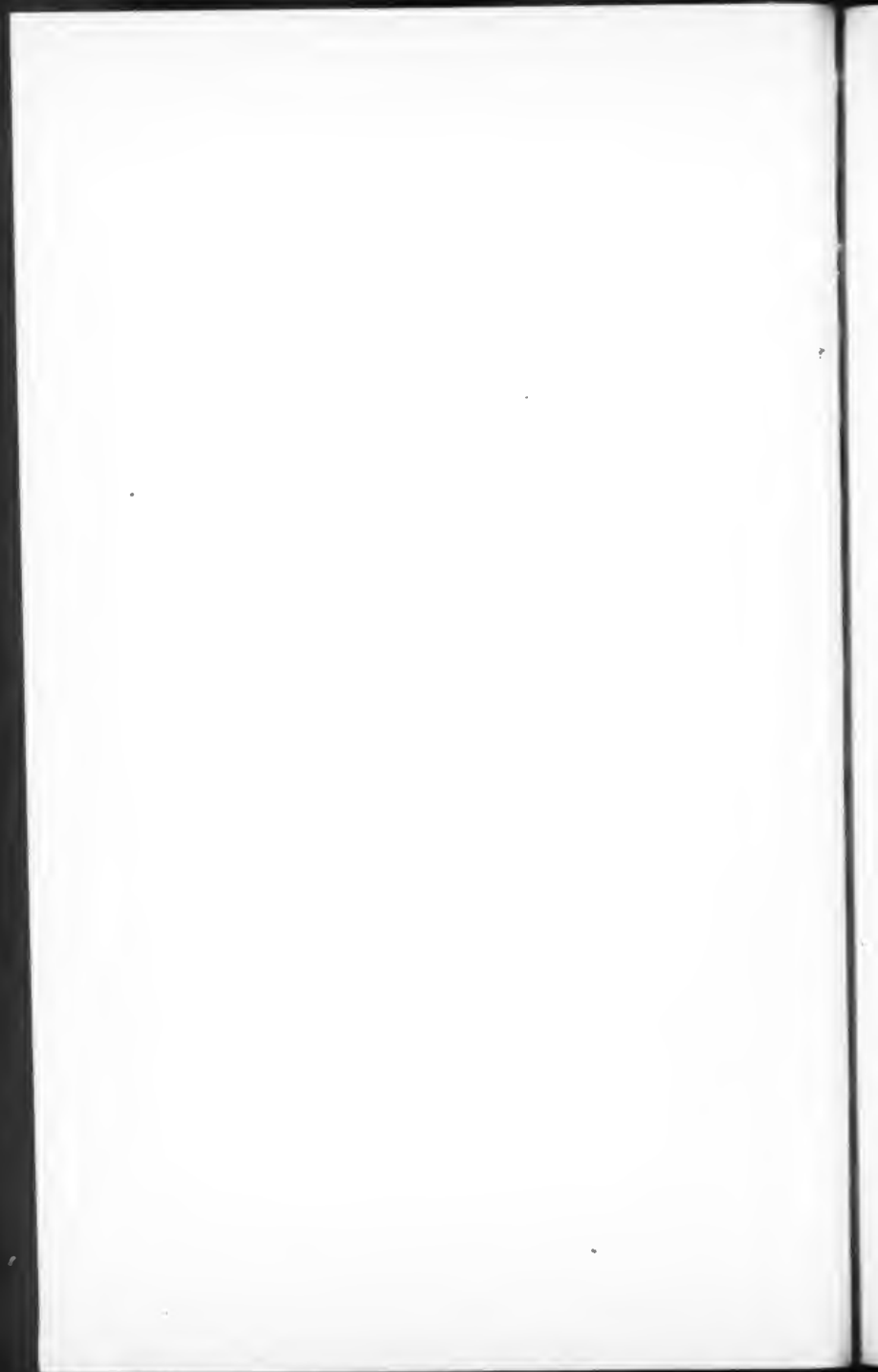
	Cent.
27. Import Duties of Colombia.....	5
29. Commercial Directory of Haiti and Santo Domingo.....	5
30. First Annual Report of the Bureau, 1891.....	10
32. Handbook of Guatemala.....	35
33. Handbook of Colombia.....	30
34. Handbook of Venezuela.....	35
36. Import Duties of Venezuela.....	5
42. Newspaper Directory of Latin America.....	5
43. Import Duties of Guatemala.....	25
44. Import Duties of the United States.....	5
45. Import Duties of Peru.....	25
46. Import Duties of Chile.....	25
47. Import Duties of Uruguay.....	25
48. Import Duties of the Argentine Republic.....	25
49. Import Duties of Haiti.....	10
50. Handbook of the American Republics, No. 3.....	50
53. Immigration and Land Laws of Latin America.....	40
55. Handbook of Bolivia.....	40
61. Handbook of Uruguay.....	50
63. How the Markets of Latin America may be Reached.....	40

## PUBLICATIONS NOT NUMBERED.

Commercial Directory of Latin America.....	40
Second Annual Report of the Bureau, 1892.....	5
Manual de las Republicas Americanas, 1891.....	50

## CONTENTS.

	PAGE.
I. Minerals and Resources of Northeastern Nicaragua.....	7
Nitrate Deposits in Colombia .....	18
Manganese Mines in Colombia. ....	22
Education in Uruguay.. ....	24
II. Coffee Industry in Haiti.....	25
Coffee Crop of Guatemala.....	27
Coffee Lands in Mexico.....	27
Industrial Progress in Guatemala.....	28
Railroad Development.....	29
III. Commercial Information:.....	32
Finances and Commerce of Chile.....	32
Customs Changes in Mexico....	35
Customs Changes in Costa Rica .....	37
Export Duties of the Argentine Republic.....	37
Products of the Island of Cuba.....	38
Miscellaneous .....	39



I.

## MINERALS AND RESOURCES OF NORTH- EASTERN NICARAGUA.

PREPARED BY J. CRAWFORD, LATE GEOLOGIST FOR THE GOVERN-  
MENT OF NICARAGUA.

During the past year, commencing August, 1892, ten months of nearly continuous exploration have been made by the author, over an area of some 10,000 to 12,000 square miles in the uninhabited wilderness and jungle that cover a large part of northeastern Nicaragua, examining the geology, mineralogy and flora, existing, in great attractiveness and variety, in that part of the country. Among the numerous interesting features and peculiarities discovered or noted that are worthy, from both a scientific and economical point of view, of a more special description than was given of them in my paper "Hydrographic Area of the Rio Wanque or Coto, Nicaragua," published in *Science*, New York City, in April, 1893, are the following:

(a). The granite uplift, exposed by erosion on the tops of oval-shaped "Cerros" or mountains, and which also form the "Cima del cerro" and longer axis of long, high, mountain ridges.

(b). The numerous montonnéd ridges and lateral and terminal moraines, in series, that evidence the former existence of a glacial epoch, which covered an area of several thousand square miles in Nicaragua with a flow of glacial ice.

(c). The erosion-sculptured "Cerros," that intervene between the granite hills and montonnéd ridges, composed of debris denuded

from both the nearby granite mountains and from mountain ranges found further to the southward.

(*d*). The reefs or lodes (many of them auriferous), and dykes (of diorite), in which auriferous quartz veins are discovered piercing the mountains and ridges parallel to the length of the series of the system; and, also, the post-pleocene leads of drifts of gravels, boulders, and gold found exposed in the banks at the sides of streams, and that appear to extend through the erosion-sculptured hills near their base; and the alluvial leads, drifts of gravels, gold, etc., found in the channels of the creeks and in strata in the lower parts of valleys.

(*e*). The composition and fertility or non-fertility of the soil and its fitness in places for the vigorous growth of certain kinds of trees or plants; also, the peculiar formation where groves of some kinds of valuable trees were found growing to large dimensions.

(*f*). The apparent geological history of the granite hills, dykes, reefs, lodes, montonnéd ridges, erosion-formed ridges, and of the leads or placer mines.

The region in northeastern Nicaragua, chosen for description in this paper as typical of a few others in that part of the country, is a wilderness unoccupied by man,\* and, although this locality is a part of Nicaragua, neither the Government nor the citizens of that country have even a vague conception of its importance and its truly great undeveloped wealth in valuable minerals and metals, timber, and agricultural lands. The centre of this chosen locality is about longitude  $85^{\circ}$  W. (from Greenwich), and latitude  $14^{\circ}$  N., and the area embraces the headwaters of "Xawawass," "Wilson," "Loccus," "Umbra," "Waspoopoo," "Moorawass," "Lang Sang," and "Daka" creeks and "Washpook" river, confluent to Rio Wanque or Coco River, and also the line of "Cerros," about sixty miles long, just south of the Washpook River.

---

\* Recently, two or three Latin Americans have, in a crude way, simulated placer mining work in one or two of the mineral localities. They appear hopeful and cheerful.



The granite masses appear to be in two parallel lines of elevation, but connected together as one mass and composed of rock of the same mineral composition, usually amphibole. Syenites (with and without quartz) and, also, protogine and plagioclase varieties, appear most numerous. The cooling has permitted the crystallization of the minerals so similarly at about the same depth from the surface in isogeothermal zone in each line of ridges as to indicate that the two exposed lines were of the same mass and lowering in temperature at the same rate. The granite has been exposed by erosion, and the hills also have been eroded deeply at many places, and the rocks have, at several places observed, become disintegrated and decomposed, in situ, to depths of from five to twenty feet. The exposed granites are in series of spurs and of ridges that extend northeasterly for about ninety miles from the Bar-Bar mountains, at the southeastern termination of the Matagalpa system of mountains, and form an angle of about  $120^{\circ}$  with the southeasterly and northeasterly direction of that mountain system which is composed largely of archaean and silurian era rocks.

The northeastern termination of these granite spurs and ridges is near to the confluence of the rivers Washpook and Wanque, at a distance of about one hundred miles west from the Caribbean Sea, on the eastern coast of Nicaragua, and about the same distance south from that sea on the northern coast of Nicaragua. The forces causing this upheaval of granite, appear to have also fissured the super-imposed and adjacent systems of rocks for many miles\*. These fissures are filled by deposition of minerals and metals from hot solutions, and are now reefs or lodes containing quartz, gold, metallic ores, and other minerals. Near the northern termination of these granite ridges, were found patches of varying size of auriferous sands, gravels, clays and boulders, detritus transported by water from the denuded granite hills, and from ranges in the Matagalpa system of mountains. These deposits of detritus increase in size north-

\* It is very difficult, frequently impossible, to trace the extent of the outcropping of lodes or reefs, and even of dykes, in this wilderness of dense growth of trees, vines and plants, and a deep soil.

wardly, until covered by the sands and mud composing the delta of the Rio Wanque. On the west, the deposits of detritus were in large quantities, and, subsequently, have been sculptured, by erosion, into hills and ridges. Also, found resting in small areas on the granite ridges, are boulders, in size, from a few pounds to over two hundred pounds each, of varieties of blueish glaucophanite or hypersthenite, and augite or trachyte like rocks that appear thickly sprinkled with pyrites, and magnetic and titanite iron ores. These were weathered toward their centres, from one to three inches, and were found to be auriferous, in some instances highly so. They differ in composition and color from the hornblende and orthoclase granite mass forming the axis and serrated ridges of the hills; also from the boulders mixed with the patches of clay, sands, gravels and boulders that are found, but to the southward, on these granite hills and ridges. This filling up of former existing valleys with the materials worn off from, in part, the granite ridges, evidences a subsidence in that locality at the time, and this evidence is supported by the existence, to the north of the granite hills, and between them and the Wanque or Coco River, of a disconnected line of limestone. On one depression of this limestone, deposits of auriferous clays, sands, gravels and boulders were found. The eroding into hills and valleys, as they at present appear, of the mass of detritus of disintegrated granites, etc., is evidence of a subsequent elevation of that entire region and the completing of one oscillation of subsidence and of re-elevation there.

The montonnéd ridges extend for about sixty miles in a series of parallel, oblong ridges, northeastwardly from near the base of the tall Bar-Bar and Peña Blanca Mountains, that at present have an altitude of over 7,000 feet above the Caribbean Sea. One of the projecting lines of moraines extends further northward, and is about ninety miles long, until it terminates at a dyke on whose sides auriferous gravels are found, in which the Rio Wanque has cut its channel at San Ramon. This system of montonnéd ridges extends to a width eastward and westward of about twenty-five miles and has, at present, an altitude above the creeks at their base of from 70 to

400 feet. They were found to be composed most generally of unstratified clays, sands, gravels and boulders. Occasionally, however, these materials are partly stratified and partly assorted.

The enclosed boulders are of various sizes from ten pounds to several tons weight, and are usually angular or subangular, becoming oblong and oval as the series of montonnéd ridges extend northward, *i. e.* towards the Wanque River, and are composed most generally of fragments of auriferous quartz, granites, syenites, hornblendic feldsparic rocks. These montonnéd ridges have been denuded and eroded by the very energetic and potent meteorological forces in this locality, until numerous large boulders have been displaced and lie on the sides and at the base of the ridges; also, numerous gullies score deeply the sides of these ridges and deep ravines or channels of the flowing creeks separate many of them from each other. These montonnéd ridges are unquestionable evidences of a glacial epoch and of a long continued glacial flow at this low parallel—only  $14^{\circ}$  north from the equator,\*—which covered quite a large part of the present narrow divide of land (containing about 48,000 square miles) between the Pacific Ocean and the Caribbean Sea. Adjoining the granite hills on the northward and north-westward, often between the montonnéd and the granite ridges, are a number of erosion-sculptured hills that have been carved out by the draining forces attending the elevation of lands at that locality and evidence that elevation, and subsequently, by meteoric forces. These hills of erosion are composed of the detritus of rocks transported by water from the southeastern ending of the Matagalpa system of mountains (a distance of seventy or eighty miles) southwest, and of materials eroded from the adjoining and nearby series of granite hills. The materials composing them have been cemented and concreted into semi-hard rocks and conglomerate masses of

---

\* At latitude  $12^{\circ} 30'$  north from the equator, similar montonnéd ridges and glacial epoch moraines were discovered on the south side of the southeastern termination of the Matagalpa system of mountain ranges, and were examined, by the author of this paper in 1890, and reported on to the British Association for the Advancement of Science; the American Association for the Advancement of Science; and, officially, to the Government of Nicaragua.

clastic rocks. The altitude above the Caribbean Sea of many of these granite ridges, erosion-formed "Cerros" and montonnéd ridges is from 1000 to 3500 feet. All are covered with a dense growth of large trees, or in some places, on the erosion-formed ridges, with a jungle of trees, bamboos, vines, and other vegetation.

The reefs or lodes strike east of north and west of south, parallel to the long axis of the ridges and mountains, and those discovered usually dip at an angle of  $120^{\circ}$  south. They are from six to thirty inches wide and usually appear to be rich in gold and in metallic sulphides and arsenides. The reefs at the granite ridges are parallel with those ridges and formed at the contact between the granite and superimposed rocks (though some appeared to be in the granite) as principal lodes from which extend, at various angles, into the adjacent erosion-carved "Cerros," many fissures containing the oxide of metals, gold, sulphides, &c. Some few of the fissures appear to continue northwardly into montonnéd ridges, but this was not verified because of the deep soil and dense undergrowth that cover the surface of the hills and valleys at that locality. The reefs parallel with the granite ridges extend southwestwardly to near the Bar-Bar Mountains, where they appear to form an obtuse angle with the auriferous reefs or lodes that extend, (S. E. and N. W. across Nicaragua) along the foot hills of the Matagalpa system of mountains, from the Caribbean Sea to the Pacific Ocean. In the granite hills, were discovered two large deposits of iron ores (limonite and hematite) and one deposit of manganese ore (the black di-oxide-pyrolusite); also, graphite and some tin sulphide (stannite) whether in paying quantities or not, *i. e.*, profitable to mining, has not been determined satisfactorily, because they were found but recently (this year, 1893) in an uninhabited wilderness. They are, however, in a thoroughly mineralized locality. The auriferous reefs are of the "dioritic-gold-evolved-era" (as classified by David Forbes, F. R. S., in his paper "On the Geological Epoch at which Gold has made its appearance in the Crust of the Earth")<sup>\*</sup> and appear at the surface often where many greenstone rocks were discovered.

\* See London Geological Magazine, 111, p. 385-7.

The auriferous placer deposits or leads of clays, gravels, sands, gold and boulders are of different geological epochs, viz: The strata of partly cemented auriferous drifts of sands, gravels, &c., exposed in patches, small to several acres, at the sides near the base of the erosion-formed hills, and appearing to pass through those hills, and also found in the upper valleys at varying depths beneath the surface, and at many places exposed in the banks along the sides of the creeks. These leads of gravel drifts are from eight to twenty inches thick, and although few masses of gold, visible to the unaided eye, were observed in them, yet when washed out from a pan, there were frequently left in the pan, particles, grains, and small nodules of gold or occasionally laminated small masses of gold, that were angular, subangular and oval in form. These are "alluvial drifts" or gravel beds formed during the latter part, I am inclined to believe, of the champlain epoch usually containing only a small per cent. of subangular and partly rounded quartz. The gold found in them is in rather coarse grains and particles, as described, and is evidently derived from three sources:

(a.) The auriferous reefs that traverse that part of the country.

(b.) The deeply disintegrated granite masses.

(c.) And the disrupted masses of quartz, pyrites, &c., that once were enclosed in the montonnéd ridges and subsequently eroded therefrom. The gold is believed to be in quantity sufficient to be profitable to mining operations, especially because the mining could be done economically by water which is convenient, abundant, and has a rapid fall or descent in the nearby creeks.

The alluvial beds of auriferous clays, sands, gravels, and small boulders that are found in the beds of some of the gulches and in the channels of some of the present system of creeks, are often partly cemented by hydrous oxide of iron, in some places, and by silica at other localities. These deposits were commenced, I am persuaded, during the terrace epoch, and, in some places, are apparently quite rich in gold of rough, semi-angular pieces, and in rounded particles. Some of the particles of gold in the small creeks, or nearly dry gulches, appear so angular and undisturbed at their edges, as to

impress one with the opinion that they have been increased in size where they are discovered by additions from passing solutions containing gold. The chief sources, however, of the gold found in these creeks are the same as those named under the head of reefs or lodes, with additions of gold from the older leads, above described, found in the upper, and apparently passing through the erosion-formed hills, and from accretions of gold deposited from passing auriferous solutions. The bedrock, in some of the creeks, is an iron-cemented arenaceous-argillite resting on a bed of partly cemented boulders, sands and clays, which appear, at one place discovered, and, probably, in the entire locality, to rest on strata of auriferous conglomerates or breccia, and this on an auriferous gravel superimposed on a bedrock of metamorphosed shale or slate.

*Geological History.* I found several obstacles to prevent, at present, that careful examination necessary to determine the geological epochs. The questions unanswered are: When these granite ridges were upheaved and when, thereafter, they were exposed by the denudation of superimposed strata? During what epoch did the regional elevation occur and when were the erosion-sculptured hills in that region found? From what rocks, or sources, came the gold found now in the reefs, or lodes, traversing, longitudinally, the mountains and ridges? One obstacle is that no ravines nor cañons were discovered that exposed deeply enough the strata towards the centre of the mountains or ridges.

Other obstacles are the very deep disintegration, in situ, of the exposed rocks and the deep soil covering the surface, and also the dense vegetation, frequently a jungle difficult to cut a pathway through, covering in matted masses even the nearly perpendicular sides of ravines. But, tentatively, and from the clearest examinations I could make, I gather the following geological history of this locality:

1st. The granite in the hills and ridges was forced up through the jurassic period and later rocks, and it upturned to nearly vertical the superimposed strata, in some of which were discovered moulds of silica (lined with small crystals of quartz), like the "Trigonia Con-

rade"; also others like moulds of "Yancredia Warreniana." The fissures, also the dykes of diorite, appear to have resulted from disturbances occurring in epochs post-oolitic but not extending later than the cretaceous, this being the latest known or generally recognized time or period during which gold has been conveyed in large quantities, or percentages, as a constituent, in granite and diorite, up to the earth's crust. These auriferous granites and diorites are certainly abundant in this region, and are not palaeozoic nor cenozoic rocks.

The gold in the reefs or lodes has been dissolved from the granites and diorite rocks by hot mineralized waters, and deposited therefrom into the fissures or reefs, on cooling or on deoxidation of the solutions, either enclosed in pyrites or as free gold.

The gold in the placer mines, drifts or leads appears to have been derived almost entirely from the disintegrated and denuded granites forming the mountains and from the reefs in the mountains. A small percentage of the alluvial gold is, however, from the small areas or patches of auriferous quartz, eroded from the montonnéd ridges; also, a small percentage of gold has been deposited from passing alkaline waters that contained gold in solution.\* The patches of auriferous quartz found generally at the base of the montonnéd ridges, as if eroded from them, appear to have been transported (with the other materials composing the montonnéd ridges) from auriferous reefs in the ridges forming the southeastern part of the Matagalpa system of mountains. The boulders of blueish-colored rocks, auriferous and containing a large percentage of pyrites, found quite frequently in that region, are usually some variety of the soda-bearing hornblende rocks like glaucophanite; although blueish trachytes, also blueish hypersthene boulders, some of them auriferous

\* Gold being invariably found in the granite series of rocks, especially those of palaeozoic and mesozoic eras and early tertiary period, should, I am inclined to believe, influence us to recognize the gold as a constituent, not merely an accessory mineral in the rock.

The fact of the existence of gold in rocks of the granite series appears to give support to the theory of the successional deposition of the elements in the earth—those of greatest specific gravity being nearest to the earth's center. Platinum, gold and iron appear to have been brought to the crust of the earth in every upheaval of granite masses.

(probably all of them), were discovered. Some of the very interesting observations noted were :

(a). The altitude above the Caribbean Sea (aneroid readings) of several of the hills and ridges in the region herein described is from 1000 to 3600 feet; consequently, the flow of water to the Carribbean Sea, only 90 or 100 miles distant, is very rapid; there being no swamps except those of brackish water in the delta of the rivers. This rapid descent of water from the mountains over numerous rapids, cascades, and falls in the creeks and rivers, offers many places where great water power or pressure could be had to move machinery for sawing logs, defibrating plants, mining, &c.

(b). The region, excepting the clay surfaced montonnéd ridges, is covered from two to twelve or more feet deep with a very fertile soil, composed in large percentage of partly decomposed vegetable matter (nitrogenous) and potash, and other alkaloids, and alkaline earths from the alkali-containing rocks-granite, feldspar, &c. Consequently, they are excellent agricultural lands for corn, potatoes, coffee, tobacco, almonds, &c., on the sides of the hills and ridges; and for sugar cane, plantains, bananas, cacao, &c., in the valleys.

Some of the mountain lands are admirable for coffee, and in the upper valley lands, indigenous cacao (*Theobroma*) trees of good varieties are numerous.

(c). The climate is warm but not uncomfortable; no lagoons nor swamps in the hilly region.

(d). On the mountain ridges, grow forests of large trees, among which mahogany, cedar, rosewood, sapote (*Ulva Sylvestre*) iron-wood, guanacaste and nispero, appear to be the most numerous.

The Tuno trees\* are also numerous and of large size, and young,

\* The Tuno tree exudes freely, when scarified, a milky juice appearing like the milk or sap that flows from lacerations in an India rubber tree, but concreting into a gum-like guttapercha. The inner bark is a texture of strong interwoven fibres and can be removed from the tree in pieces as wide as the circumference of the tree (from 3 to 6 or 6½ feet) and 20 to 40 feet long. The Soomoos and Sambos use this bark as bed clothing and as clothing for their bodies. They prepare the bark for these purposes after removing it from the tree by wetting in water and softening by beating it with sticks when it becomes soft and remains very strong.



vigorous-growing India rubber trees (*Syphonia Elasticus*) are very abundant, while in shaded, moist places, the surfaces of disintegrating rocks are frequently covered with a beautiful velvet vine of Nicaragua (first discovered about 1856, in Nicaragua) having its exteriorly pure white, trumpet-shaped, velvety flower, tinted with various clear colors of purple, golden, pink, etc. Orchids in great variety are numerous. Ferns of all sizes, up to trees twenty feet high, are abundant. This wilderness contains much undeveloped wealth in its export varieties of trees, medicinal and fibrous plants, its undeveloped minerals and metals, and its very fertile agricultural lands, and has much to interest scientists, especially naturalists.

J. CRAWFORD.

WANQUE OR COCO RIVER, AT SAN RAMON, NICARAGUA,

July 30, 1893.

NOTE.—It is worthy of note in reference to the northeastern coast line of Nicaragua.

(a). The northeastern coast of Nicaragua, adjacent to the mouth of Coco River at Cape Gracias, is subsiding, resulting in the gradual filling up with silt, mud, etc., conveyed through a natural canal, from the Coco or Wanque, of the lagoon, a few miles south from the mouth of the river, on the margin of which the small village of "Cabo Gracias" is situated; also, resulting in deepening the channel from the river to the sea.

(b). The long, low ridge of fragments of white quartz rocks, that have been transported by floods down the river and deposited on the southeastern side of its channel into the sea, appear, now, to form a protection to the channel against the sands that, heretofore, were moved into, and partly filled up that channel, by storms coming from the east and southeast.

J. CRAWFORD.

LEON, NICARAGUA, October 10, 1893.

## NITRATE DEPOSITS IN COLOMBIA.

PREPARED BY C. F. Z. CARACRISTI, C. E.

I have the honor to submit, for the use of the Bureau of the American Republics, the following report on the nitrate beds of the Val du Par, lying between the spur mountains of the Sierra Nevada de Santa Marta, in the Department of Magdalena, Republic of Colombia, South America.

The nitrate beds of Chile and Peru have, for a number of years, been coveted as properties of vast value, and have added, not only to the wealth of the operators, but to that of the country in which they are found. "Potassium nitre" is found in caves mixed with the stalagmitic formations that cover the walls and floor, and in this form, was much sought for in the earlier days of American civilization. It was used then, as now, in the manufacture of gun powder, and formed quite an industry, which has since disappeared; yet in India, where labor is cheap, the collection of sedimentary "saltpetre" continues. In the same country, it is also obtained in large quantities, for exportation, by the evaporation of nitrogeous water collected from "seeps," after the same manner as salt is produced.

The nitre produced in Chile, however, differs from the sedimentary nitrate, and is known in mineralogy as "Nitrotine," or soda-nitre, and its component parts are nitrogen pentoxide 61.891 per cent, sodium (soda) 38.109 per cent. = 100 per cent. It somewhat resembles nitre (saltpetre), but more readily deliquesces and burns on coals with a yellow flame.

In the district of Tarapaca, a Peruvian province now occupied by Chile, it is found in the dry *pampas* extending over forty-five leagues. Here, it is mixed with sodium bichloride (common salt), magnesium carbonat and shells of very recent origin. This nitrotine is converted into regular nitre, or saltpetre, by the displacement of the sodium and the addition of the required amount of potassium. It is

also found and worked in the great desert of Acatama, Chile ; but in these regions, it is found as an incrustation in the earth of decomposed porphyritic rock, and was doubtlessly of feldsparic and calcium origin. No shells are present, and no sign of sedimentary action is here visible. These beds have, of late years, attracted great attention, although they lie at a considerable distance from transportation. Nitrate is used largely in the industrial arts, is a splendid fertilizing medium and is the base of nearly all known explosives, because the nitrogen pentoxide stands in mutual repulsion with all other substances. And while its atoms will readily combine with atoms of other bases, the least chemical convulsion will instantaneously bring about a separation of the two or more bases and produce explosion. It is the explosive base of gun powder, gun cotton, nitro-glycerine, Americanite, giant powder, etc., etc.

This prelude was deemed necessary to show the importance and value of the product. The nitrate deposits I discovered in Colombia are of a nature identical with those of Chile, and I have but little doubt that thorough exploration would show the deposits to be almost as extensive as those of that country. My own investigation showed the existence of about thirty miles square of nitrate beds, having a thickness of from one to ten feet.

The stratum carrying this nitre is a bed of slaty gypsum (calcium sulphate), in which are embedded large quantities of shells (calcium carbonet), iron oxide, salt and magnesia. The vein lies at a depth of from eight to twenty feet below the surface and rests upon the carboniferous sandstone of the region. It is very evident that the deposit is of recent date, and that the nitrate was produced by the chemical reaction of vegetable and other substances operating on the lime in its various forms. The only visible difference between the nitrate of Colombia and Chile is that the nitrification has, in part, been produced by the phenomenal functions of the microscopic plant which is closely allied to the "bacteria" so common to the cave and Indian nitre.

I would estimate the visible supply at over 7,372,800,000 tons of nitrate material, assaying from 1 to 13.50 per cent. nitrate.

The carboniferous sandstone has prevented the filtration of the nitre, and the gypsum has, in part, been a protection to the substance. The nitre itself is of a yellowish or light brown color and is found in crustations between the slaty layers of calcium sulphate. In its purer state, it is of a white color, translucent, micaceous and arborescent, and sometimes transparent, and having a hardness of 1.96; gravity 2.01. When crystals are found, the analysis is:

Nitrate of Soda.....	23.90	per cent.
Chloride of Soda.....	34.05	"
Sulphate of Calcium .....	8.46	"
Sulphate of Alumina.....	3.41	"
Magnesia .....	trace.	
Insoluble Silica.....	24.68	"
Water.....	5.50	"
Total.....	100.000	"

But the average deposit, taking the vein as it comes without picking or other separation, would give the following average, which I consider very promising from a commercial standpoint:

Nitre .....	11.406	per cent.
Calcium Carbonet.....	32.516	"
Calcium Sulphate .....	20.121	"
Silica .....	32.412	"
Calcium Phosphate .....	2.500	"
Ferro-oxide.....	.025	"
Vegetable Matter and Salt.....	1.020	"
Total.....	100.000	"

The above shows plainly that the deposit is, in its crude state, a fertilizer of the best quality. The calcium phosphate is fossilized bone. I must also note that large quantities of iron pyrites are to be found in the archaic formation of the adjacent mountain, which give over 42 per cent. sulphur and which would make the manufacture of fertilizer in the region a great industry.

The manufacture of nitric acid could also be made an industry of importance and profit.

The deposits lie at a distance of about sixty-five miles from the city of San Juan de la Cienaga and are, in part, on the waters of San Sebastian River, which flows into the great sea level lake of

"Cienaga Grande." Navigating communication could be established with the nitrate beds by conducting the waters of the Aracataca River into the San Sebastian. This work would cost not in excess of \$5,000, as a canyon already exists connecting the two rivers. By this work, a draft of about six feet could be carried from the falls of San Sebastian River to Pueblo Viejo, from which point navigation communications already exist to Barranquilla and Santa Marta. When the Santa Marta R. R. shall be completed to the village of Fundacion, the nitre beds will be only half a mile from the road. The road is now in running order from Santa Marta to Rio Frio, and about six miles are graded beyond Rio Frio in the direction of Rio Savilla. This leaves about thirty-five miles of road still to be built at a cost of \$105,000, to which amount the Colombian government, according to its original contract with Senor Don Manuel J. de Mier and his successors, is to contribute about \$30,000.

It is quite obvious that the development of the nitrate industry on the Atlantic coast of South America would mean a great saving in the cost of transportation of the article to both Europe and North America, and the American farmer who has to buy fertilizers would be highly benefited by the advantages offered by the nitre beds of Colombia. The reduction of the cost of fertilizer has been a question of great moment to the American farmer—so much so that in nearly all the agricultural states, legislation has been enacted, having in view the reduction of cost and the assurance of the purity of fertilizing compounds.

Investigation, made by state and federal authorities, has proved the fact beyond dispute that the agricultural possibilities of certain localities of the United States are largely restricted and governed by the cost and power of the fertilizer offered for sale. It is, therefore, obvious that the reduction of the cost of nitre and other alien fertilizing substances would redound to the great advantage of the American farmer, with whom the question of cheap fertilizer is one of too much importance to be over estimated.

The cost of producing and delivering one ton of caliché, or crude nitre, at Pueblo Viejo would be about \$2.50, and the cost of ship-

ment to the United States would be \$3.80, delivered in New York, making a total of \$6.30. This estimate is on the material in its crude state, and as it would take eleven tons of caliché to produce one ton of nitrate of soda, at a cost of \$69.30, and the present market value would be only \$50.00, it is evident that it would be necessary to separate the nitre before shipping. I estimate the cost of separation, mining and transportation to New York City at from \$8.31 to \$11.00 per ton. Then, besides the nitrate of sodium, we would have calcium phosphate (land plaster), an excellent fertilizer, 4,600 lbs., calcium phosphate 550 lbs., sodium bichloride (common salt), and vegetable matter 220 lbs. The above would be the residuum or bye-products remaining after the refining process of the caliché has been gone through with. Or, to put it more plainly, we would have 7,370 lbs. of fertilizing substances out of a possible 22,000 lbs., and of the residuum remaining, one-half would be calcium carbonet (ordinary lime).

In conclusion, I beg to state that I have every reason to believe that franchises, or grants, will be given by the Colombian Government to any responsible individual or corporation that might guarantee to work the nitrate beds of that country.

#### MANGANESE MINES IN COLOMBIA.

In a letter to Mr. C. F. Z. Caracristi, Consulting Engineer, Mr. Eduardo J. Chibas, Superintendent of the Caribbean Manganese Company, writes :

“I take pleasure in complying with your request by forwarding you some general information with respect to the Colombian Manganese Mines. The principal manganese deposits are found about forty-five miles N. E. of Colon, going towards the San Blas point, in the Department of Panama. They were first examined in November, 1891, when I was sent down, in the joint interest of the Carnegies, of Pittsburg, and the Illinois Steel Company, of Chicago, to investigate and report on that mineral region. My examination revealed

that the most important deposits are those known as the "Nispero" and "Soledad" claims, which are adjoining each other, and which, in reality, form only one and the same large deposit. This ore belt extends from N. N. E. to S. S. W., and covers an area of about half a mile in length by a quarter of a mile in width. It starts near the foot of the Nispero mountain, about two hundred feet above sea level, ascends along its flank, crosses the backbone of the same mountain at seven hundred feet above sea level, and descends the other side until it reaches an elevation of three hundred feet above sea level. The ore is found in the shape of boulders imbedded in clay and distributed along the ore belt. These boulders vary in weight from fractions of a ton to fifty, one hundred, three hundred and four hundred tons, and, sometimes, they are associated with jasper. The average analysis of the samples commercially selected have given the following result:

Manganese, from 49.6 to 57.02 per cent.

Phosphorus, from 0.04 to 0.06 per cent.

Iron, from 1.71 to 3.29 per cent.

Silica, from 1.06 to 7.86 per cent.

"A company composed of Baltimore capitalists was organized to develop those mines, and a railroad from Viento Frio, on the coast, to the Nispero deposits has already been located and is now in progress of construction. The line is six and a half miles long, with steep grades and sharp curves.

"There are many other manganese deposits in that neighborhood, but as they are almost completely underground and with very few surface indications, their commercial value has not yet been ascertained; but strong probabilities seem to indicate that thorough prospecting with a steam drill will reveal some valuable ore bodies."

### EDUCATION IN URUGUAY.

The Bureau of the American Republics has received from Mr. Alberto Gomez Ruano, Director of the Pedagogic Museum and Library of Montevideo, Uruguay, a collection of views of that institution. In a letter accompanying them, Mr. Ruano says :

The Pedagogic Museum and Library of Montevideo is a National Institution, created and sustained by the Government of Uruguay for the purpose of demonstrating the advancement of the said country in the branches of education and public instruction, and also to show the advancement made by other nations.

The Pedagogic Museum and Library is a permanent exposition, of free entry, open to the public every day from 8 A. M. to 6 P. M., where are exhibited all kinds of school material adopted by the authorities entrusted with the education and instruction of Uruguay, as well as all kinds of objects and publications used in the schools, which have been contributed by the manufacturers, editors and governments of those nations which are at the head of the educational procession.

Foreign merchants, manufacturers of school desks and other kinds of school furniture, as well as publishers of maps, plates, books, etc., may send to the Museum collections of samples, together with their catalogues, and the Director is bound to exhibit them to the public and recommend them to the school authorities, and also to the directors of educational establishments and merchants of Uruguay, it being his duty, not only to do all this gratuitously, but to keep up the correspondence and give all the information asked of him whenever necessary, in accordance with the object of the Museum.

This, as you will understand, is very useful and advantageous to the manufacturing and commercial interests of the United States of North America and the republics of the River Plate.



## II.

### COFFEE INDUSTRY IN HAITI.\*

A New York importing firm furnishes the following statement as to the coffee industry in Haiti: The coffee plant was introduced into Haiti in 1727 by French colonists. It is said to have been brought directly from Arabia, and Haitian coffee has well preserved, when properly prepared, the exquisite aroma and flavor of the Mocha coffee.

The climate and soil of Haiti are exceedingly favorable to coffee culture, the country being very hilly and mountainous. The production increased rapidly during the French occupation, the exports of coffee reaching—

In 1755,	-	-	-	-	-	7,000,000 pounds.
1767,	-	-	-	-	-	15,600,000 "
1776,	-	-	-	-	-	32,200,000 "
1785,	-	-	-	-	-	57,400,000 "
1789,	-	-	-	-	-	76,900,000 "

Since the independence of the country, in 1803, coffee culture has greatly suffered by the frequently recurring revolutions. In fact, it may be doubted whether any coffee plantations, as they exist in other coffee-producing countries, have since then been cultivated from virgin soil. The inhabitants simply took possession of the highly-cultivated plantations abandoned by the French colonists, and coffee growing wild is found to a large extent all over the country.

\*For general review of Coffee Industry in America see Bureau Bulletin, October, 1893.

The exports of coffee from 1820 to 1830 dwindled to about 23,000,000 pounds a year average. Since then, a gradual increase has again taken place, and the statistics show an export—

In 1890,	-	-	-	-	-	56,700,000 pounds.
1891,	-	-	-	-	-	79,400,000 "
1892,	-	-	-	-	-	67,800,000 "

The preparation of coffee for market is of the most primitive kind. The berries are dried on the ground, and the outer skins are removed by beating in wooden or stone mortars. The transportation of coffee from the interior to the seaports is done in small quantities, carried by donkeys or the small Haitian horses, and it takes sometimes two days to make a trip, the roads being very bad and railroads being unknown in that country.

The Haitian Constitution prohibits selling land to aliens, and for this reason no large coffee plantation exists in Haiti, the inhabitants being too indolent, or not having the means to cultivate them.

Some twelve years ago the Haitian Government granted to the Messrs. Simmonds, Frenchmen, the privilege of erecting coffee machinery at the port of Petit Goâve, where the berries have since been properly prepared by the most improved machinery, as it is done in Brazil. It is stated that large profits have been realized therefrom, and the same gentlemen have, since then, erected additional plants at different towns.

About three years ago, an American Company, the Usine Centrale, at Petite Rivière de Nippes, also obtained the privilege of establishing a plant for the proper preparation of coffee by machinery, and it is doing well; but, unluckily, all these fine coffees are now being shipped to Europe, in consequence of the discriminating duty placed on Haitian coffee by the U.S. Government.

No doubt, there is an extensive field for the culture of coffee in Haiti as soon as the country devotes its energies more closely to the improvement of its internal affairs.

Haiti has excellent facilities for exporting coffee at eleven ports, of which Port au Prince, Jacmel, Cape Haitien and Gonaïves are the principal ones.

The coffee culture in Santo Domingo, the eastern part of the island, is comparatively insignificant as yet, producing about 500,000 pounds a year. The product was—

In 1875,	- - - - -	240,000 pounds.
1876,	- - - - -	150,000 "
1877,	- - - - -	732,000 "
1878,	- - - - -	118,000 "
1879,	- - - - -	554,000 "
1880,	- - - - -	840,000 "
1881,	- - - - -	1,289,000 "
1882,	- - - - -	492,000 "
1883,	- - - - -	345,000 "

#### COFFEE CROP OF GUATEMALA.

The coffee crop of Guatemala for 1893 will not be so abundant as was anticipated. There has been an extraordinary rainfall since the early part of last April, and in some districts, the coffee berry shows signs of shrivelling, as the result of excessive moisture and insufficient sunshine. It is estimated, however, that the crop will reach 55,000,000 pounds, a slight excess over last year's production. The want of sufficient labor has interfered materially with the development of the coffee industry in Guatemala. A trial of Japanese laborers is about to be made. The Gilbert Islanders, imported last year, have not proved a success.

#### COFFEE LANDS IN MEXICO.

Land in the districts of Cuicatlan and Teotitlán del Camino, State of Oaxaca, Mexico, suitable to the cultivation of coffee and other export articles, has been greatly developed. It is predicted that the extensive zone comprising these districts will shortly attain great agricultural prosperity, as the persons at the head of the principal undertakings are thought to be energetic and capable.

**INDUSTRIAL PROGRESS IN GUATEMALA.**

Recent information indicates that affairs in Guatemala are steadily improving. The financial obligations of the Government are being met with the utmost regularity. During the month of September, 1893, \$80,000 of the bonds of the Internal Debt, which amounts to \$1,600,000, and \$60,000 of the Floating Debt, for \$3,000,000, with \$8,800 of a loan for constructing aqueducts in the capital, were redeemed. Besides this, the Government remitted \$78,750 to London for the service of the Foreign Debt; \$82,000 of Treasury bills were paid off, and \$253,000 paid on account of arrears of salaries of employes. "When account is taken of the fact that Guatemala, like the rest of the world, has been suffering from a commercial crisis and the depreciation of silver," says the South American Journal, "these facts appear to be highly creditable to those responsible for the management of its finances."

Some important industries are being developed in the country. The manufacture of cotton cloth has been established with most satisfactory results, and some paper mills, recently opened, have been so successful that it is hoped that all the ordinary classes of paper used will soon be supplied from home manufacture. Brick and tile works are numerous, but can only produce the common classes of materials. Attempts, more or less successful, have also been made to establish factories for carriage building, wool weaving and tanneries. The great trade of the country will, however, for many years to come, be the exportation of produce.

Guatemala coffee is well known in every market, but, principally in that of the United States, and many other tropical plants are cultivated on an extensive scale, such as sugar and tobacco. But the resources of the country in raw materials, textile and medicinal plants, mines and timber have scarcely been touched as yet, and all that is wanting to derive a large revenue from this source is assured peace and increased immigration. Trade has recently shown symptoms of steady increase. In 1892, 157 steamers and 14 sailing ships entered the port of San José, 151

steamers and 12 sailing ships entered the port of Champerico, and 55 steamers and 7 sailing ships entered the port of Ocos. This shows a trade of considerable magnitude, and the figures for this year will be much higher. The larger number of these vessels bear the United States flag.

### RAILROAD DEVELOPMENT.

To complete the Transandine Railway, which would give uninterrupted communication between points in Chile and Buenos Aires, the capital of the Argentine Republic, it is necessary to build only 33 kilometers (20½ miles), as trains can now run over 1,189 kilometers out of a total of 1,222 miles. The Argentine section will be completed during the current year as far as Puente del Inca, so that in 1894 there will remain to be constructed 15 kilometers, including two tunnels at the summit. Work on this remnant of the Argentine section will be commenced as soon as the line on the Chilean side is sufficiently far advanced to permit the work being prosecuted in such a manner that the two sections—the Argentine and the Chilean—shall be finished at the same time. Thus, the only obstacle to the completion of the road has been the lack of satisfactory arrangements for constructing the Chilean section. The contractors, John and Matthew Clark, having found it impossible to raise money for this link under the guarantee of the Chilean Government, asked the Chilean Congress to increase the guarantee from 4 to 5 per cent., and this having been done, it is said there will be no difficulty in completing the road.

The Chilean Congress has granted a concession for a railway to connect the Southern Line of Chile with the Argentine Great Western at La Paz. The road will be mostly in Argentine territory, namely, 175 miles from La Paz to the Andine pass of Tinquiririca and 75 miles further to a point on the main trunk Southern Railway, between San Fernando and Curico. The road is expected to be of special use for the valuable cattle trade across the southern passes of the Andes into Chile.

From a report by Mr. C. C. Mallet, British Consul at Panama, it appears that steady progress is being made in the construction of the important railway from Cartagena to Calamar, on the Magdalena River, in Colombia. The concession for this road was obtained in 1889 by Mr. S. B. McConnico, representing some American capitalists. The funds for the enterprise were raised in the United States, but work was delayed for nearly three years because of the difficulty experienced in securing an amount sufficient to complete the road. Construction was commenced in June, 1892, and one year later, June 15, 1893, the first section of the railway from Cartagena to Turbaco, a distance of 14 miles, was formally opened. The next section to Arjona, 8 miles, was to have been opened in October, and it is expected that the road will be completed to Calamar by June, 1894. At the time of Consul Mallet's report, in September last, 1,800 men were at work on the road. The road is being built with care and is equipped with the best American cars and locomotives. The distance from Cartagena to Calamar is 65 miles. Most of the land adjacent to the line is suitable for fruit culture and cacao. The trade from the upper Magdalena, a large part of which, it is hoped, will be diverted to the port of Cartagena, is expected to give the road substantial profits. The completion of the line will, it is predicted, result in an active competition between Cartagena and Barranquilla which, hitherto, has had superior advantages, owing to its ready means of access by the Magdalena River to important agricultural, mining and commercial regions.

Work to complete the unfinished gap on the Tehuantepec Railroad, Mexico, about 60 kilometers (37.28 miles), is being arranged for by Mr. Chandos Stanhope. It is expected that work on this road across the Isthmus will soon be resumed, and efforts will be made to complete it by the month of May, before the rainy season sets in.

A concession has been granted to Ignacio Cevallos for the construction of a railroad from the city of Mexico to Chapultepec, Tacubaya, Dolores Cemetery, Molino de Valdes, Molino de Belem

and Santa Fé, terminating in Las Cruces, at a point on the boundary line of the Federal District, with the privilege of building a branch to El Desierto. The track is to be narrow gauge.

The Mexican Government has granted a concession to Mr. Francis Harold Woodhouse for the construction of a railroad from a point on the line of the Mexican (Vera Cruz) Railway, between the stations of Guadalajara and Apizaco, to the Iron Works to be established in the municipality of Zacatlan (Puebla), passing by the towns of Chignahuapan and Zacatlan. The line may be continued to strike the Interoceanic Railway.

**COMMERCIAL INFORMATION.****FINANCES AND COMMERCE OF CHILE.**

The report of Mr. Lewis Joel, British Consul-General at Valparaiso, Chile, giving an account of the trade and commerce in that consular district, has been published. In his introductory observations, Mr. Joel says:

The civil war which was inaugurated on January 7, 1891, and terminated with the battle of the Heights of Valparaiso, on August 28, 1891, and the subsequent abdication of the Dictator Balmaceda, placed the entire country under the jurisdiction of the victorious constitutional party. The establishment of the new regime was looked upon by the mercantile community as an augury of coming prosperity, and a largely augmented trade, in the near future, was considered assured. Large orders for merchandise of all kinds were consequently sent to Europe, and the first ten months of the year saw the fulfillment of these expectations. Then, a reaction set in, brought about by an overstocked market, in consequence of the continued ordering of merchandise from Europe after the wants of the market had been supplied. The depreciation of the paper currency, and the violent fluctuations in exchange on Europe, were no doubt contributory causes to the decline in trade during the last two months of 1892.

The purchase power of the paper dollar in payment of bills of exchange on Europe was, in January, 1891, 2s. During the civil war, it fell, at one time, as low as 1s. 3d., but at the termination of the war, it stood at 1s. 4½d. Then, a better feeling prevailed, and from then to the end of the year, the value fluctuated between 1s.



6d. and 1s. 8d. The value of the dollar at the commencement of the year 1892 was 1s. 7½d., and at the close of the year, after serious fluctuations, it was quoted at 1s. 5d.

The Government which had recently acceded to power had to encounter the great difficulty of the payment of the cost of the civil war. The expenditure of the Government of Balmaceda, on account of the war, was about \$72,000,000, and that of the Constitutional Party about \$30,000,000. The total sum had to be provided for.

The financial policy of the Government of President Montt, continues Mr. Joel, is to resume specie payments on July 1st, 1896, by the coinage of gold and silver coin of the value of 2s. to the dollar. English and Australian sovereigns to pass current as ten such dollars. The date given above for the redemption of the paper currency may be anticipated by six months, if the average rate of exchange during the previous six months shall not have been below 1s. 10d. to the dollar. This contingency is extremely problematical, as the value of the paper dollar has continued to decline since the publication of this law.

If ho'lders of paper currency, at the date of this proposed resumption of specie payments, decline to convert their paper currency at that rate, they will, by waiting till December 31st, 1899, be entitled to convert at the equivalent value of the silver dollars of twenty-five grams, nine-tenths fine, identical with the silver dollar in circulation when the original issue of the paper dollar was made, which, at that time, had a value of 3s. 2d., but the serious decline in the value of silver since then would render doubtful the value of the silver dollar on December 31, 1899, so that it is very probable that the holders of paper currency will elect to convert on the gold base of 2s. to the dollar, rather than wait till December, 1899, for a doubtful increase in the value of the paper dollar at that date. From January 1, 1897, the paper currency will cease to be a legal tender.

Mr. Joel gives the following summary of Chilean commerce:

## IMPORTS.

Valparaiso is the commercial centre from which a large portion of the merchandise imported is distributed to the ports on the coast and the towns in the interior. The principal British imports are: printed, white, and unbleached cotton goods, woollen manufactures, carpets, hardware, rails and railroad iron, coal, bags for grain and minerals, candles, tea, boots and shoes, beer, spirits, etc. The total value of the imports of the Republic for the year 1892 was £12,350,491, as compared with £10,083,416 in 1891, and with £10,749,106 in 1890.

The imports at the port of Valparaiso during 1892 were of the value of £8,474,855 as compared with £6,477,960 in 1891, and £7,412,327 in 1890.

In consequence of the custom-house statistics, in detail, not having been published, Mr. Joel was unable to give a statement of the quantities and values of each particular article, except as regards coal, for which a tabulated statement is annexed to his report.

## EXPORTS.

The total value of the exports from all ports in the Republic in 1892 was £10,165,797, as compared with £10,402,786 in 1891, and £10,828,635 in 1890. These figures show that there was an excess of imports over exports in 1892 to the amount of £2,245,694 as compared with an excess of £319,370 in 1891 and of £79,529 in 1890.

The cultivation and export of cereals, especially wheat, in the southern part of Chile, is a most important and increasing industry. Comparatively large as the production is at present, in view of the area eligible for cultivation, it could be considerably increased by the use of modern agricultural machinery and appliances. Talcahuano is the principal port of shipment, and, except in winter, when northers prevail, which is unfortunately the wheat shipping season, it is an excellent and safe port of embarkation. The quantity of wheat exported in 1890, according to official figures, was

28,521 tons of the value of £185,386; in 1891, the quantity had increased to 175,244 tons of the value of £1,216,738, but it declined to 143,506 tons of the value of £858,036 in 1892. The decreased export in 1892, as compared with the preceding year, was not caused by a lesser area under cultivation, nor by a lesser yield, but was consequent on the unfavorable weather at harvest time, which rendered much of the grain unfit for shipment.

The increase in the quantity of barley exported is in about the same ratio as wheat for the years under review. In 1890, it was 5,961 tons of the value of £35,769, and this rose to 13,364 tons of the value of £65,383 in 1891, and, in 1892, it was 12,944 tons of the value of £72,670. The barley produced is almost exclusively shipped to ports in Atacama and Tarapaca, where it is used as fodder for animals in the mining and nitrate districts. It is only when there is an unmanageable excess in the production of this cereal that it is exported to Europe, although there is always a small quantity of the variety called Chevalier barley shipped to Great Britain, which is used by maltsters.

"Although," says Mr. Joel, "the year 1892 closed, as I have before stated, with a marked depression in trade, I believe that this depression is temporary, and that when the overstocked market is relieved, trade will improve. The country is sound and its resources are great, but the effects of the Civil War are still seriously felt by the mercantile community."

#### CUSTOMS CHANGES IN MEXICO.

The Bureau of the American Republics is informed of certain modifications in the customs tariff of Mexico. According to Article 7 of the Customs Tariff Law, the custom-houses have been turning over every month, to the municipalities of the towns where they are situated,  $1\frac{1}{4}$  per cent. of the import duties collected by them. The Government has now issued a law requiring importers, on and after January 1st, 1894, to pay by way of municipal duty,  $1\frac{1}{4}$  per cent. on, and in addition to, the regular import duties. This is equivalent

to an augmentation of the present import duties by  $1\frac{1}{4}$  per cent. In the Free Zone, the municipal duty of  $1\frac{1}{4}$  per cent. is to be estimated and collected on the full amount of import duties and not on the ten per cent. of said duties payable on goods introduced for consumption in said Zone.

The Secretary of the Treasury of Mexico has sent to Congress a bill abolishing the reduction of 2, 4 and 8 per cent. of the regular import duties on merchandise imported in Mexican vessels. These reductions were enacted in December, 1883, to encourage the growth of a national merchant marine. It is stated that they failed entirely to bring about the desired result, and tended to produce retaliatory measures on the part of foreign governments. The Secretary of the Treasury says the Executive is studying other means to encourage the foreign commerce of the country and the creation of a merchant marine.

The President of Mexico has issued a decree modifying Section III, of Article 78 of the Tariff Law, which authorized Mexican consuls abroad to charge four dollars for the certification of each set of consular invoices.

After January 1st, 1894, this fee is to be payable according to the following scale—

If the declared value does not exceed \$100 .....	\$1
If it exceeds \$100 but not \$1,000.....	4
For each additional \$500 or fraction of that sum.....	1

Consuls are instructed to exact an oath from shippers, as to the correctness of invoice values declared by them.

The Secretary of the Treasury of Mexico has sent to Congress a bill unifying a tax on the exportation of construction and cabinet woods, and creating a tax on the exportation of dye woods. The former tax is to be \$1.50 per cubic meter of the ship's carrying capacity, or if the ship does not leave port fully loaded, \$1.50 per cubic meter of timber shipped. The export tax on dye woods is to be \$1 per cubic meter.

The President of Mexico has signed the new bill passed by Congress, taxing the domestic production of yarns and cotton goods

woven by machinery not moved by hand power, and it will go into effect January 1, 1894. The tax will be paid by the purchasers at first hand, and the minimum amount which it must produce each year is \$800,000. This is 5 per cent. on \$16,000,000, the assumed amount of the total sales at wholesale by the factories annually. The purchasers must furnish the special stamps that will be used in each transaction. A commission will be appointed to determine the quota to be assigned against each factory in the republic, and the first assessment will be made this month for January and February payments. Every two months the amount of stamps used at each factory will be figured up, and if the factory has not purchased its quota for that period, it must immediately proceed so to do.

---

#### CUSTOMS CHANGES IN COSTA RICA.

The following changes in the tariff of Costa Rica, relating to wines, spirits, etc., are announced :

Brandy, whisky, Geneva and other liquors of which the import is legal in barrels, which formerly paid eighty cents per kilog., now pay one dollar and five cents per kilog. ; the same in any other form of package which formerly paid sixty cents per kilog., now pay eighty cents.

Liquors in barrels or demijolins, former duty sixty cents per kilog. ; present duty one dollar and five cents per kilog. ; the same in any other package, former duty forty-five cents per kilog. ; present duty eighty cents per kilog.

Champagne in any form of package, former duty ninety cents per kilog. ; present duty, one dollar and five cents per kilog.

---

#### EXPORT DUTIES, ARGENTINE REPUBLIC.

The export duties of the Argentine Republic, for 1894, have been based upon the following schedule prepared by the Permanent Committee of Valuation. The values are in gold, and the quantities per 100 kilogs (220.46 pounds) unless otherwise stated :

Oil, fish, \$8; oil, bones, \$12; horns, cattle, 1,000 kilos, \$60; horns, sheep, 1,000 kilos, \$10; meat, salted and jerked, \$9; bone-ash, 1,000 kilos, \$16; hair, \$38; hides, calves', salted, \$12; hides, calves', dry, \$27; hides, sheep and lamb, \$20; hides, sheep, salted, \$18; hides, deer, \$35; hides, goat, \$60; hides, kid, \$160; hides, carpincho, \$56; hides, nutria or hare, \$120; hides, vicuña, \$200; hides, ostrich, \$100; hides, chinchilla, \$400; hide trimmings, horned cattle and sheep, \$2.50; oil, horse, \$12; bones, 1,000 kilos, \$12; wool, \$23; tongues, \$20; ostrich feathers, \$120; ostrich stomach, peptona, per kilo, 80 cents; tallow, melted down, \$12; tallow, raw, \$8.

### PRODUCTS OF THE ISLAND OF CUBA.

According to statements lately compiled and published by the Chamber of Commerce of Havana, the public wealth in the Island of Cuba may be estimated on an average and in round numbers, as follows:

There are on the island 90,960 sugar and tobacco plantations, and cattle breeding and fruit and vegetable growing farms, whose total value is estimated at \$325,000,000, and whose yearly production is worth about \$100,000,000. The number of cattle aggregates 3,730,858, belonging to the following classes: Horses, 531,416; mules, 431,309; asses, 1,869; cows, bulls and oxen, 2,485,766; goats, 9,830; hogs, 570,194; sheep, 78,493.

#### YEARLY EXPORTS.

Sugar, molasses, coffee, green fruits and other vegetable products .....	\$85,000,000
Cattle .....	1,000,000
Mineral ores ..	3,500,000
Sundries.....	500,000
	<hr/>
	\$90,000,000

## YEARLY IMPORTS.

From the United States.....	\$16,250,000
“ England.....	13,000,000
“ Spain.....	10,500,000
“ France.....	2,250,000
“ Belgium.....	1,000,000
“ Germany.....	750,000
	\$43,750,000
Excess of exports.....	\$16,250,000

## MISCELLANEOUS.

The principal export firms in Buenos Aires, in connection with the soladero owners in the Republic of Uruguay, have made an arrangement whereby all sales and purchases are to be made upon the metric-decimal system, to come into force from November 1st, 1893, in the following form:

1. All salt hides, tallow, grease, and jerked beef will be sold per 100 kilos; bone-ash and bones per 1,000 kilos, and horns per 1,000.
2. Allowance in weight for salt hides, which has formerly been in existence, has been cancelled.
3. The allowance in weight for hides has been fixed at two kilos.

The Government of Chile has resolved to promote the establishment of a national line of steamers between Chile and Europe, calling at the river Plate and Brazilian ports. With this object in view, it is calling for proposals for a mail service in Chilean steamers owned by a Chilean company, with a capital of not less than \$4,000,000. The service is to be monthly, outwards and inwards, and is to be performed by six steamers of not less than 4,000 tons each, and of a speed not less than fifteen miles per hour. The contract will be for five years, subject to the approval of Congress.

A company has been organized, under the name of the West Indies Chemical Works, Limited, for preparing dyes from vegetable substances found on the Island of Jamaica. Patents have been obtained for a new dye from cashaw, which grows in abundance on

the south side of the Island. For the present, however, the company will confine itself to logwood. Other efforts for developing industries in Jamaica are reported. Experiments with sisal hemp are being made in certain localities. Better methods of handling cacao and coffee, and further development of the manufacture of preserves and of the bee industry, are urged.

The cultivation of the cocoa-nut palm on the Isthmus of Tehmantepec and in the State of Chiapas, Mexico, is receiving a strong impulse from the establishment of agencies there for the purchase of cocoa-nuts for the American market.

The first agricultural show ever held in Mexico took place at the village of Coyoacan, near the city of Mexico, on the last three days of October. The display of thoroughbred cattle is taken as gratifying evidence of the interest felt by Mexican agriculturists in introducing improved breeds. It is hoped that the show will be the forerunner of many others.

The importers of agricultural machinery for the coming harvest in Argentina appear to be preparing for an extraordinary demand. Some of the largest importers had, it seems, just returned from the United States and England, and consignments of reapers and threshers were following them in great number. The Finance Minister was, in consequence, being deluged with applications for their admission free of duty. This concession had, within a period of only two days, been granted on more than 600 machines.

A syndicate has petitioned the government of the Argentine Republic to permit it to construct a commercial dock at Bahia Blanca, which would give access to the largest vessels, and would be fitted up with the latest appliances for loading and unloading. The site for the proposed dock is Puerto Belgrano, at the entry to the Atlantic Ocean, where there is a depth of from 32.9 to 65.6 feet, and where, it is claimed, sand banks cannot form. The cost of the work is estimated at \$4,000,000. Bahia Blanca is fast becoming an important port of export.



The owners of onyx quarries in the State of Oaxaca, Mexico, are discussing the forming of a syndicate backed by a New York firm for developing their properties.

Information has been received of a trial shipment of a car load of Mexican sugar on the 3d of November from Monterey to St. Louis, Mo., via Tampico and New York. If satisfactory results are obtained, heavy consignments will follow. This season's surplus sugar crop tributary to the Mexican and Monterey Gulf Railroad is estimated at 30,000,000 pounds.

The growth of the Bolivian city, Sucre, has been seriously impeded by the want of an abundant and constant supply of water; but this obstacle has at last been removed by the completion of an aqueduct more than sixteen miles in length. This aqueduct has eight tunnels, the longest of which is 1,456 yards in length, and seven bridges. It is the work of a French engineer, and the pipes used in its construction were imported from France.

The Chamber of Deputies of Peru have approved several clauses of the monetary project. The export duty on silver bars has been abolished, and duties are now payable twenty-five per cent. in gold. After April 1, only Peruvian silver coin will be legal tender throughout the Republic. It is also announced that the Senate has authorized the Government to issue a loan of 1,000,000 silver soles, guaranteed by the excise duties, the tax on opium, and 40,000 tons of guano from the islands of Chincha. The port authorities call attention to a great decrease in the depth of water in ports on the coast, probably owing, it is thought, to a volcanic upheaval.

Matters are looking better in Venezuela and the country is settling down to a tranquil development of its great natural resources. During the past year, the Treasury receipts show an increase of quite 45 per cent., and this is attributable in a very large measure to augmented trade.

By law of May 29th, 1893, the Mexican Government was authorized to contract abroad a loan of £2,500,000 for the purpose of enabling it to pay off a certain portion of the floating debt, to recover control of the mints, etc. Congress has now increased the

authorization by £500,000, making £3,000,000 in all, and whereas the former law stipulated that the new loan should not be contracted on less favorable terms than the issues of 1888 and 1890, the Government is now authorized to accept the most advantageous offer that may be made. The proceeds of the loan are to be applied to indemnifying the lessees of the mints for the termination of their contracts and to completing the Tehuantepec Railway.

The Government of Salvador is proceeding with the work of placing its currency on a gold basis. As announced in a bulletin of the Bureau of the American Republics issued May 22, 1893, a decree was promulgated for the payment of customs duties in gold, U. S. gold coin being given the preference by a premium of 4 per cent. as against 1 per cent. premium for British, Spanish and Mexican coins, French coins, and those of every nation of the Latin-American Union, are taken at par, and German coins at one per cent. discount. The decree made the process of converting the customs payments into gold a gradual one, but it is expected that very soon the entire customs revenue will be collected in that metal.

By a convention signed at Bogotá, May 30, 1892, and promulgated by the President of France, on the 25th of October, 1893, the Republics of Colombia and France guarantee to each other all the right of commerce, navigation, transit and tariff that are granted by each to the most favored nation. It is provided in the treaty that its terms shall remain in force until the expiration of one year from a declaration by either party of the intention to withdraw.

Advices from Buenos Aires state that a representative of a strong syndicate in Havana has arrived in that city with a view to acquiring a large tract of land in Misiones, Argentine Republic, for the cultivation of tobacco. The capital of the syndicate is stated to be \$1,000,000 gold.

A new process for extracting gold is about to be applied to the gold fields of Chile, it being claimed that there are still large quantities of gold which may be easily recovered from almost numberless old fields that have been ineffectively worked.

r  
f  
e  
. .  
s  
. .  
. .  
e  
o  
e  
  
d  
e-  
nt  
h  
ns  
a-  
  
ng  
ng  
a-  
be  
  
he  
ge  
er-



