Chemical analysis of Louisiana rock salt, and certificates of packers.

from the author?

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CHEMICAL ANALYSIS

OF

LOUISIANA ROCK SALT,

AND

CERTIFICATES OF PACKERS.

NEW ORLEANS:
Picayune Office Print, 66 Camp Street.
1869.

We call the attention of Merchants and Packers to the following conclusive evidence of the superiority of the

LOUISIANA ROCK SALT,

for which we are now prepared to receive orders. For particulars as to price and transportation, apply to

PRICE, HINE & TUPPER,

GEN'L AGENTS,

26 Carondelet Street, New Orleans.

The Louisiana Rock Salt is now being mined and prepared for market by Messrs. Chouteau & Price, under a lease from Hon. D. D. Avery, the owner of Petite Anse Island.

The Island of Petite Anse is situated in Southern Louisiana, on the Bayou Petite Anse, at a point 6 miles from the North shore of Vermillion Bay, (an arm of the Gulf of Mexico,) 160 miles West of the South West Pass of the Mississippi River. From the mouth of the Petite Anse Bayou to the S.W. Pass of Vermillion Bay, (its entrance from the Gulf,) is 15 miles, within which is an excellent land locked harbor where vessels drawing 8 feet may discharge and receive cargo at all seasons in perfect security.

Nine miles North, (inland,) from the Salt Island, is the flourishing and rapidly improving town of New Iberia, situated on the left bank of the Bayou Teche, which is a fine stream, navigable at all seasons for vessels of 150 to 200 tons burden. New Iberia is in daily communication with the City of New Orleans via Brashear City 65 miles and 145 miles respectively. Transit is by steamers to the latter, and thence by the Morgan Louisiana and Texas Railroad.

ST. LOUIS, June 28, 1569.

CHAS. P. CHOUTEAU, Esq., St. Louis, Mo.

Dear Sir:

Excuse that I have not sooner reported on the comparative solubility of the Louisiana Rock, the Turks' Island and Liverpool Coarse and Dairy Salts, but having been prevented to attend to the observations of the first set of experiments on the very day when the solution of the Salts were completed, I have been obliged to commence another series of experiments, at 7 A. M., June 14th.

It was considered advisable to reduce part of the Rock Salt from Louisiana to the same degree of fineness, the Liverpool Coarse and Dairy possess, in order

to give it the same advantage in dissolving; but as trituration flattens the crystals and makes them adhere closer one to the other, they actually present less surface to a solving agent than those Salts which have been produced in smaller crystals by evaporation and must dissolve much slower.

According to Paggute, 100 parts of water dissolves 36.13 parts of Salt at a temperature of 77o F., and I added accordingly in bottles of one and three-fourths inches diameter to one part of Salt of the six different specimens, (two specimens had been made by trituration from the Rock Salt to resemble the Liverpool Coarse and Dairy Salt,) three parts of distilled water and left undistured until their complete solution was effected.

The Turks' Island, Liverpool Coarse, and Dairy Salt, which had not been dissolved at 10 o'clock, P. M., on the 18th, had formed a complete solution at 7 P. M., the next day; at noon of the same day the Louisiana Rock Salt in its original state had united with the solvent and at 4 P. M., the two finer grades also. It took therefore five days to dissolve one-half ounce of Turks' Island, Liverpool Coarse and Dairy Salt, in the ounce and a half of water and only five hours more to dissolve the same quantity of Louisiana Rock Salt of original size. The temperature ranged these days from 70–88o F., solutions being prepared from equal quantities of the different specimens in equal measures of distilled water, their specific gravity was determined at a temperature of 76o F., with the following results:

	Specific gravity.	Beam. rep'ts.	Pure Salt.
Louisiana Rock Salt,	1.188	23	25
Liverpool Coarse,...	1.181	22	23.6
Do. Dairy,....	1.175	21½	23
Turks' Island, ...	1.170	21	22.5

This result was partly indicated by the state of the solutions, for while the Louisiana yielded one almost free from sediment, there was a considerable one in each of the other solutions.

If we compare the time necessary to dissolve the Salts, with the specific gravity of the brines, we find that though the Louisiana Rock Salt used 4 per cent. more time for its entire solution in water at perfect rest, than the other Salts, yet it yields within this time a brine of much greater strength which contains 1-4 per cent. more of pure salt than that of Liverpool, Coarse, or if compared among themselves, 5 per cent. more than this, and even 10 per cent. more than Turks' Island Salt. The conclusion is obvious now that Louisiana Salt requires more time for its solution than the others, *only on account of its superior quality and that under like conditions it will yield a much stronger Brine than any of them.*

Respectfully yours,

E. SANDER,
Chemist.

Office of Henry Ames & Co.,
Beef and Pork Packers, 1001 Main st.
ST. LOUIS, June 23, 1869.

C. P. CHOUTEAU, Esq., St. Louis.

Dear Sir:

We take great pleasure in recommending the Louisiana Rock Salt for the purpose of curing and salting Meats, our experiments with it have been entirely satisfactory. We have found it a very pure, strong Salt, in our opinion superior to any foreign Salt we have used for these purposes.

Respectfully,
HENRY AMES & CO.

Office of John J Roe & Co.,
Packers and Porvision Merchants,
Convent Street, Second to Third.

ST. LOUIS, Mo., June 16, 1869.

This is to certify, that we have used the Louisiana Rock Salt, and have no hesitation in saying it is equal to any foreign Salt for packing purposes. It is a pure, strong Salt, with scarcely a trace of foregn matter in it.

JOHN J. ROE & CO.

CHEMICAL EXAMINATION.

— OF —

Louisiana Rock Salt and of Turk's Island Salt, with Critical Comparisons with other Varieties of Salt from Various Countries, by Joseph Jones, M. D., Professor of Chemistry Medical Department University of Louisiana.

(Read before and published by authority of the New Orleans Academy of Sciences.)

LOUISIANA ROCK SALT.

Louisiana Rock Salt presents the form, appearance and optical properties of pure cloride of sodium. The large crystaline masses, are so perfectly transparent and free from all extraneous matter and are so uniform in their structure and density, that they would be suited in all respects for the most delicate philosophical experiments upon the transmission of heat through different media. The entire mass of the samples selected was made up of crystals and fragments of crystals, derived from the cube, the primitive form of chloride of sodium. The crystals present a foliated texture and distinct cleavage; they feel when rubbed in the hand dry, and left no impression of moisture or of saline matter.

The sample of Louisiana rock salt submitted to analysis, as well as the large solid masses, weighing several tons, are the purest and finest samples of rock salt that have ever come under my observation.

100 grains of Louisiana rock salt yield upon analysis;

Chloride of sodium (common salt)	99.617
Sulphate of lime	0.318
Sulphate of magnesia	0.062
Moisture [dried at 300°]	0.093

It will be observed from this analysis that the Louisiana rock salt contains less than one-half of one per oent. (0.473) of those substances which may be considered as foreign, viz: moisture, and sulphates of lime and magnesia; and which are found in greater or less quantities, according to their purity, in almost all samples of salt.

The absence of both chloride of calcium and chloride of magnesinm is important, as these salts absorb moisture readily from the atmosphere, and when existing to even a limited extent in salt, impairs more or less its value, by rendering it more hygroscopic. Meats cured with salt abounding in the chloride of calcium are more prone to absorb moisture from the atmosphere.

TURKS' ISLAND SALT.

The sample of Turks' Island salt submitted to my examination presented a less uniform appearance; some of the crystals being semi-transparent, whilst others were opaque. The differences were due rather to physical than chemical properties.

100 grains of Turks' Island salt was found upon analysis to contain:

Chloride of sodium	98.880
Sulphate of lime	0.569
Sulphate of magnesia	0.185
Moisture	0.341
Insoluble matters (sand, etc.)	0.040

It will be seen from this analysis that the Turks' Island salt, although excellent in quality and yielding a large portion of chloride of sodium, at the same time is somewhat inferior to the Louisiana rock salt. The Turks' Island salt yields a little over one per cent. (1.12) of foreign matters, which add nothing to its antiseptic properties: whilst the Louisiana rock salt yields less that one-half of one per cent.

RESULT OF THE COMPARISON OF THE CHEMICAL COMPOSITION OF LOUISIANA ROCK SALT WITH THAT OF TURKS' ISLAND.

From this comparison we conclude:

1. The Louisiana rock salt may be considered as essentially pure chloride of sodium.

2. The Louisiana rock salt is superior in appearance and in physical properties to the Turks' Island.

3. The Louisiana salt contains less moisture and less adventitious matters than the Turks' Island salt.

4. The Louisiana salt contains nothing injurious whatever to meat, and is essentially and eminently adapted for all the uses to which this valuable mineral is applied in the preparation of food, or in the arts of agriculture.

It remains that a comparison should be instituted between the Louisiana rock salt and that of various other localities.

The following tables* present the composition of salt derived from different parts of the earth, and from sea water and brine springs:

* Tables see 5th page.

It will be observed that in the vast majority of the preceding analyses the salt was first dried at 212°, and the amount of moisture is not stated. The neglect on the part of the various chemists to state the amount of moisture of course renders the analysis of the salt apparently somewhat better than it otherwise would have been. Notwithstanding that, the most favorable conditions are on the side of the analyses of the salt from various countries, quoted in the tables; it will be found upon comparison that the Louisiana rock salt is of equal purity with the best samples of rock salt in the world, and is far superior to the commercial salt obtained from sea water and brine springs.

From the immense and inexhaustible deposits of Louisiana rock salt it must become a most important article of commerce and exchange throughout the Mississippi Valley.

JOSEPH JONES, M. D.,

Nos. 3 and 5, Medical Department, University of Louisiana, New Orleans.

August 11, 1869.

ANALYSI

Origin of Salt. Name of Chemist.	
Louisiana Rock Salt. Joseph Jones, M. D	Moistu
Turks' Island Salt. Joseph Jones, M. D	
Sal-gem of vic, { white	Amoun
Sal-gem of vic, { red	..
Crushed Cheshire Salt 66	..
Salt Springs, Schönbeck, Westphalia	..
.. Moutiers { des Cordes	..
.. Moutiers { boliers	..
.. Chateau Salin's	..
.. White of Sulz	..
.. Ludwigshall, middle grained	..
.. Koenigsborn, Westphalia	..
Sea Salt, half white	..
Sea Salt, of Saint Malo	..
Common Scottish Salt	..
Lymington, common (Henry)	..
Lymington, cat (Henry)	..
Cheshire, stoved	..
Rock Salt from Wieliczka, white variety (specimen selected for its purity by Bischof)	Dried a
Wielicka (Hrdina)	Dried a
Rock Salt from Berchtesgaden, fibrous varietv Bischof)	Dried a
.. .. yellow	Dried a

ALALYSIS OF S

Origin of Salt. Name of Chemist.	Remarks.
Rock salt from Hall, in the Tyrol, (Gustav. Bischof.)	Dried at 212°.
Rock salt—crackling salt from Hallstadt, in Austria, (Bischof,)	Dried at 212°.
Rock salt from Schwäbisch Hall, (Bischof,)	
Pure rock salt from Wilhelmsglück at Schwäbisch Hall, (Fehling,)	
Rock salt from Wilhelmsglück, at Schwäbisch Hall, (Fehling,)	
Do.	
Rock salt, from Vic, (Berthier.)	
Rock salt from Djehel Melah' in Algeria, (Fournet,)	After deduction of 6.6 silica and 0.4 water.
Rock salt from Ouled Kebbah, in Algeria, (Fournet,)	After deduction of silica and water.
Do.	.. .. ..
Do.	.. .. ..
Rock salt from Holston, in Virginia, (C. B. Hayden,)	
Commercial sea salt, Venice, (Schrötter & Pohl,)	
Do. .. Trapani, Sicily	
Salt deposited in bottom of Elton Lake, (Göbel.)	
Sea salt from St. Ubes, in Portugal, (Berthier,)	
Do.	
Do.