

**AN ACCOUNT OF THE  
SALT SPRINGS AT SALINA,  
IN ONONDAGA COUNTY,  
STATE OF NEW-YORK**

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An Account of the Salt Springs at Salina, in Onondaga County, State of New-York by Lewis C. Beck

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**LEWIS C. BECK**

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AN  
ACCOUNT  
OF THE  
SALT SPRINGS AT SALINA,  
IN  
ONONDAGA COUNTY, STATE OF NEW-YORK;  
WITH A  
Chemical Examination  
OF THE  
WATER AND OF SEVERAL VARIETIES OF SALT  
MANUFACTURED AT SALINA AND SYRACUSE.

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TO THE HONOURABLE  
**STEPHEN VAN RENSSELAER,**  
WITH  
*SENTIMENTS OF THE HIGHEST RESPECT*  
FOR  
HIS CHARACTER AND DISTINGUISHED EXERTIONS  
TO  
*Advance the Interests of Science,*  
THE  
FOLLOWING PAGES ARE INSCRIBED,  
BY  
**THE AUTHOR.**

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## AN ACCOUNT, &c.

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THE Salt Springs at Salina, whether considered as a source of revenue to the State, or of wealth to its inhabitants, are deserving of the highest consideration. It is very desirable, therefore, that we should possess the most accurate information concerning their chemical composition and their geological relations, as well as those artificial causes which affect either the quality or the quantity of the salt which they produce. Their origin should also be inquired into, with all the lights that can be afforded by experiment and observation. This indeed appears to me to be the most important object embraced in such a course of investigation. If the facts which have already come to our knowledge, are such as to lead to the belief that these springs are formed by the solution of rock salt, the State, as well as individuals, might with less risk incur the expenses attendant upon a search for this useful mineral. But if on the other hand, these facts go to disprove the existence of rock salt, all these subterraneous explorations may, at least for the present, be suspended.

It occurred to me that an examination of the Salt Springs, embracing the above objects, but more particularly their chemical composition, would prove of general interest; and the more so, as the notices of them hitherto published are so extremely imperfect and unsatisfactory. To effect this purpose I have several times visited these springs; made preliminary experiments upon the spot, and completed the analyses upon my return. I have as much as possible studied accuracy and precision, and have seldom depended upon the bare assertions of others. Much assistance, however, has been derived from the papers heretofore published, on the salt springs and manufactories of Salina, and from various reports made upon these subjects to the Legislature of our State. Among the most valuable of these are, "A memoir on the Onondaga Salt Springs, and the Salt Manufactories in the States of New-York," by the late Dr. Benjamin Dewitt.\* Manuscript reports to the Legislature by Drs. Noyes and T. Romeyn Beck :† and, "An Essay on Salt," by Dr. Jeremiah Van Rensselaer.

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\* Transactions of the Society for the promotion of Agriculture and the Arts, vol. I. p. 266.

† The communication of Dr. T. R. Beck, was made in answer to sundry queries of a committee appointed by the Legislature of 1821, of which Simeon Ford, Esq. the present superintendant of the State works at Salina, was chairman. This gentleman carries into his office, a scientific and practical knowledge of the subjects connected with the manufacture of this important article, which must be productive of very beneficial results. The answers to these queries contain a very comprehensive view of the methods of manufacture pursued in foreign countries, and many useful sug-



*Description of the Springs.*

The Salt Springs which I am about to notice, are situated in the State of New-York, at the head of Onondaga Lake, in the county of the same name, about one hundred and thirty miles west of Albany.

This lake is about six miles in length, and one mile in width, and although surrounded on every side by the strongest salt springs, its water is perfectly fresh in every part of its surface. The brine being specifically heavier than the fresh water, falls to the bottom, and can be obtained from thence by sinking a closed bottle, and then withdrawing the cork.

The borders of Onondaga Lake are usually marshy, and sometimes quite heavily timbered. At Salina, the marsh is of considerable extent, and many plants are observed to grow in it, which are also found in the salt marshes on the sea coast, and not elsewhere; as *Salicornia herbacea* L. *Salsola salsa*, *Mx.* &c. This fact appears to strengthen the opinion adopted by Decandolle and others, that vegetation is in every case the product of the joint influence of temperature, soil, and the particular composition of the moisture of the earth.\* Upon the theory of Linneus, that all plants have descended from a few parent stocks, and that they have been distributed

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gestions, the recent adoption of which has had the effect of greatly improving the quality of the Onondaga salt.

\* Elements of the philosophy of plants by Decandolle and Sprengel, p. 283.

from one point on the surface of the earth to all its parts, we should be at a loss to account for the existence of these plants in situations so remote from each other, when they do not flourish at any intermediate points.

Among the vegetable productions with which this region abounds, I noticed a rare species of *Ranunculus*, *R. cymbalaria* of Pursh, and which is characterized as follows:—*Root* perennial. *Stem* filiform, creeping, sending out roots at the joints. *Leaves* on long petioles, somewhat reniform, obtusely 5-toothed, cordate at base. *Peduncle* radical, 4 to 6 inches high, solitary, 2—5 flowered. *Flowers* pale yellow, small. *Petals* linear. *Fruit* oblong. Flowers in July.

It is in the marsh just noticed, that the most valuable salt springs are found. Those which are most strongly impregnated are at Salina, although inferior ones are quite numerous in various parts of the marsh. They issue from the black soil of which it is composed, by small orifices, and at the distance of a few feet from the surface. Reservoirs are constructed at different places near these springs for the convenience of the manufacturers; and from these, by the agency of pumps, the water is conducted through pipes to those works which are at a distance from them.

*Geological Situation.*

THE surface of the valley of the Onondaga, is several feet below the level of the adjacent plains. The first three or four feet consist of a black mud, which is very soft, and is made up for the most part of decayed vegetable matter. Below this is a stratum of earthy marl, from three to twelve feet in thickness, and containing several interesting organic relics, chiefly shells; of which I collected the following, viz.

Cyclas postumia,	Helix perspectiva, Say.
Planorbis trivolvis,	Helix tridentata,
Planorbis bicarinatus,	Helix thyroideus,
Planorbis campanulatus,	Helix abolabris,
Melania virginica,	Unio ventricosus,

together with a new species of *Paludina*, which had been previously discovered by my friend Mr. James Eights, and which will be noticed elsewhere.

A specimen of this marl yielded, upon a careful analysis, the following results in one hundred grains.

Carbonate of Lime	-	-	83	grs.
Silix	-	-	10	
Alumine	-	-	7	
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100				

Every where imbedded in the marl are to be seen nodules, masses, and even continuous strata of indurated clay, containing fragments of decayed or charred wood. It is often so