Stewart (F. E.)

THE WATERS x x x

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x The Glen Springs, x

WATKINS, N. Y.

Read in the Section on Materia Medica and Pharmacy, at the Forty-fourth Annual Meeting of the American Medical Association, by

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IT has long been our habit as physicians to send our patients to the healing waters of Europe for health and recreation. When it is considered that there are nearly a thousand mineral springs in the United States of America, many of them fully equal to any that may be found abroad, this fact seems anomalous. One feels like saying with Naaman, the Syrian, "Are not Abana and Pharphar, rivers of Damascus, better than all the waters of Israel? May I not wash in them and be clean?" While it is true that the Spas of Europe, being older, are, as a rule, better equipped with establishments where the waters may be used under the direction of physicians specially trained in their administration, there are similar places in the United States, and I believe in developing the resources of our country. Advantages may be given to our patients in America similar to those found in Europe at a figure within the means of the ordinary American citizen. But we must study the subjects of balneology, climatology, hydrotherapy, etc., that we may send our patients to American Spas where the correct principles of treatment are carefully carried out.

Dr. Titus Munson Coan of New York City, who has made the subject of the mineral springs of the United States a special study, says in his paper on "American Mineral Waters with some remarks on American Climates," read before the Ninth International Medical Congress: "There are about six hundred mineral springs in the United States now utilized as places of resort. At few of these, in-

deed, are there fine hotels; at fewer still are there regular establishments. But the constant process of natural selection, swifter among us than elsewhere, will cause rapid progress in all that relates to balneology among us. Of all the communities of the world, that of the United States is the one for which the restful influence of spring treatment are indicated."

And how are we to realize this development of American Mineral Spas, except through the efforts of the medical profession? Institutions should be established at the mineral springs in convenient parts of the country from Maine to Florida, and from the Atlantic to the Pacific. Such establishments should be put in charge of competent physicians for their development. But they can never reach the high standing desirable until the medical profession, as a whole, educates itself to know and demand the higher class of facilities.

Quoting again from Dr. Coan's paper: "And what data have we for the survey of this vast territory from the balneographic point of view? We have the various surveys, whether made by States or by the general Government. A considerable number of monographs by different geologists and physicians and medical societies, notably the American Medical Association, and a lesser number of general treatises. We have, as yet, little to show that will compare with the learned works of Trousseau, Durard-Fardel, Braun, Hellft-Thilenius, Rotureau and Leitchtenstein. Dr.

Walton has produced an excellent manual, one that may be called a pioneer work in this direction, though it is necessarily incomplete from the lack of sufficient data. These, however, are now being developed on every hand, and particularly by the United States Geological Survey, to whose publications the student of American mineral waters is under great obligations, and especially to Dr. Albert C. Peale's recent monograph, 'Lists and Analyses of the Mineral Springs of the United States,' published as Bulletin 32 of the Geological Survey, a work which must be consulted for the fullest data yet available in the matter of analyses, of which 850 are given."

In the light of such facts as these, no apology is necessary for bringing to your notice the waters of several mineral springs in Central New York, near Watkins Glen, which hitherto have not been mentioned in literature.

The existence of a mineral spring on the hillside near Watkins Glen, New York, has long been known to the residents of the town, who have for many years ascribed to it marvelous healing powers. The spring is on the site of an ancient "deer-lick," and was known to the Seneca Indians, who had erected a log curbing around it, the remains of which were found during subsequent excavations. The waters closely resemble those of the European Spas, Kreugnach, Hall, Duerkheim and Krankenheit. Professor Chandler's analysis of this spring shows it to contain chloride of sodium and of potas-

sium, the bromide and iodide of sodium, the bicarbonates of ammonium, iron, calcium and magnesium, with traces of other mineral salts, among them bicarbonate of lithium.

The waters of the Deer-lick Spring are clear and limpid, without odor, and with a slightly astringent, mildly saline taste.

Several years ago certain parties were boring in the hillside not far from the Deer-lick Spring, hoping to discover natural gas. Seventeen hundred feet below the surface the tool struck a layer of strong brine. This brine was found to contain upon analysis a large proportion of calcium chloride, thus unfitting it for the manufacture of salt for commercial purposes, and the well yielding neither gas nor brine fit for manufacturing purposes, was abandoned. The waters, however, resemble the celebrated brines of Kreugnach, Rheims and Nauheim, and are now being used for medical purposes.

According to Professor S. A. Lattimore of the University of Rochester, this brine, which has a specific gravity of 1133, each gallon yielding 1.62 pounds of salt, contains per gallon 3,499.08 grains of calcium chloride, 6,368.33 grains of sodium chloride, and 635.67 grains of magnesium chloride, with traces of the iodide and bromide of sodium, iron and alumina. He says it differs from all brines that he has hitherto analysed, and from nearly all those whose composition has been reported, on account of the total absence of calcium

sulphite (gypsum) which is almost invariably present in brine everywhere. No other sulphates are present in this brine, and he says: "The very large percentage of lime (calcium) in the form of chloride is equally exceptional in my experience." The name, Neptune, has been given to this spring.

Two other mineral springs are found in this locality. One of them is a delightful table water, and has been named Salubria, to perpetuate the ancient name of Watkins, which it bore before Dr. Watkins purchased the real estate in the neighborhood and gave the town its present name. The other spring contains iron, and has received the name, Vulcan.

Salubria water contains in each sixteen fluid ounces 196.28 grains sodium chloride, 19.68 grains calcium carbonate, .05 grains magnesium carbonate. It is therefore a saline calcic water. In composition it resembles in some respects the waters of Vichy, Tachingen and Bilin, but it is more closely related to the waters of Kissingen, Homburg, Wies-Baden, Baden-Baden, Mondorf, Constatt and Sodan. It also resembles the waters of Saratoga. The taste of the water is quite similar to Kissingen. When artificially charged and bottled in the same manner as similar waters elsewhere, it compares favorably with those now on the market.

Professor Lattimore's analysis shows the Vulcan Spring to contain in each sixteen fluid ounces calcium carbonate 29.80, magnesium carbonate 11.37, iron carbonate 1.87, sodium chloride

149.05. The water also contains much carbonic acid gas. By consulting the comparative table it will be observed that this water stands midway between the Pandur and Maxbrunner waters of Kissingen in regard to the amount of chloride of sodium present; that in regard to the amount of iron the Kissingen, Ragoczi, contains in each sixteen fluid ounces, 1.92 grains; the Pandur 1.62, while the Maxbrunner contains no iron at all. It is evident, therefore, that the Vulcan water possesses the great advantage of being more mildly saline than either of the waters of Kissingen containing iron.

The site of these springs is a beautiful spot on the shores of Seneca Lake, west of the village of Watkins, and about ten minutes' walk from the famous Watkins Glen. The altitude of the spot is about three hundred feet above the surface of the lake, and seven hundred and thirty feet above sea level. The hotels in the village are good, and well patronized in the summer time. The Sanitarium situated near the springs was established by representative physicians, and is an assured success as a sanitarium doing scientific work, and an attractive summer resting place, with bathing facilities, massage, electric treatments, etc.

THERAPY:—The medicinal value of these waters is the same as that of similar waters in other parts of the world. The water of the Deer-lick Spring, therefore, is tonic and alterative, diuretic and mildly aperient. The use of waters of this class

results in an improvement of the appetite and digestive processes. Tissue metabolism is promoted, and the red globules of the blood increased. This being the physiologic effect of their administration they are recommended by all authorities in the treatment of anemia, chlorosis, hysteria, neurasthenia, chronic diseases of the kidneys, glycosuria and diabetes, and in various diseases peculiar to women, such as chronic endometritis, dysmenorrhea, amenorrhea, etc.

Like the waters of the celebrated Spas of Kissengen, Homburg, Wies-Baden, etc., which it resembles in many respects, the water of the Salubria Spring is a stimulant to the mucous surfaces generally, especially to that of the stomach and bowels. This class of waters, according to the leading authorities, when taken into the stomach disolves the mucus, and by increasing the secretion of gastric juice and bile, promotes the absorption of food. This is probably enhanced by the well-known property of sodium chloride upon osmosis. In large doses these waters are purgative. They aid tissue building by increasing both constructive and destructive metamorphosis. They are used extensively in Europe in the treatment of catarrhal processes, especially of the stomach and bowels, also in chronic inflammation of the pharynx, stomach, duodenum and bile ducts, in constipation, in congestive affections of the abdominal and pelvic organs, chronic endometritis, hepatic and splenic congestion, chronic inflammatory diseases of the

respiratory tract, obesity, scrofula, gout, rheumatism and neuralgia.

The Vulcan water of the Glen Springs, as already pointed out, belongs to the same class of mineral waters as those of the Kissingen Spa. Like the Kissingen, it is somewhat alterative, diuretic, tonic, and mildly aperient. In gout this class of water proves useful by exciting the secretion of the intestines, kidneys and the skin thereby reducing the habitual plethora, eliminating the gouty poison, and promoting a healthy tissue metabolism. They have been highly recommended in scrofula (though the iodo-bromated waters such as the Deer-lick are preferable,) in chronic catarrh of the stomach, abuse of alcoholic stimulants, deficient secretion of gastric juice, congested liver from sedentary habits, calculus and catarrh of the bladder, and externally in various swellings of the glandular organs.

For external use, however, the Neptune brine is preferable. Like the chloride of calcium brine of Kreugnach, so celebrated for its healing virtues, this water has a place in the treatment of a certain class of diseases. The baths given at the European Spas of Kreugnach, Rehms and Nauheim * are of various kinds, and known respectively as ordinary baths, wave baths, froth baths, graduated brine baths, and baths with the addition of mother lye. The latter has great popularity. By comparing the analysis of the Neptune water with that of the graduated brines of the European Spas,

it will be found that the American water does not require concentration to make it fully equal to the best of them.

Brines are graduated at the European Spas by letting the water run down great scaffoldings of thorns whereby it is concentrated by evaporating from the extensive surfaces thus exposed to the air. When the evaporation has been repeated several times, and the brines are concentrated to such a degree that they contain from 180 to 140 grains of salines to the pint, they are in many places boiled, in order that those salines which are not easily soluble, such as choloride of calcium, silica, carbonate of lime, carbonate of magnesia, alumina, iron and manganese may be precipitated, and removed from the liquid. That which remains after several weeks boiling is called "Mother lye." This is half salt and half water, containing from 2,000 to 4,000 grains of salines to the pint. Its chief solid constituents are chloride of calcium, magnesium and potassium, and bromide and iodide of sodium and magnesium. The water of the Dead Sea will serve as an illustration of Mother Lye. There is no visible outlet to the great basin of saline water, and the waters, concentrated by evaporation in the sun, precipitate the more insoluble salines, and hold those which are more soluble in solution. The most celebrated mother lyes in Europe are those prepaired at Kreugnach, Halle, Volterra and Durcheim. The quantity generally added to baths varies from two to thirty quarts. By a fourth con-

centration, crystalization ensues, and the hard substance finally remaining is known as "Mother Lye Salt." This contains a certain proportion of water, and is very hygroscopic, so that when exposed to the air, it soon becomes liquid again.

Arrangements have been made at Watkins for evaporating the Neptune brine for the purpose of preparing salt for giving what are known as salt-rubs. As will be seen, however, the water does not require concentration, but dilution, for use in bathing. Indeed, for some purposes, especially in treating uterine troubles by irrigation, great dilution is required at first, to be gradually employed in stronger solution if required.

*Since this article was written the wonderful results obtained by the Drs Schott with the waters of Nauheim have been brought prominently before the medical profession. As the analysis of the Neptune Spring corresponds almost identically with that of Spring No. 12 of Nauheim. The Glen Springs are able to adminster the Schott or Nauheim Baths and Resistance Movements in a manner second only to that of Nauheim. For further particulars and illustrated book address,

WM. E. LEFFINGWELL, Manager,
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