POPULAR SKETCH OF THE BATH MINERAL WATERS

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BATH MINERAL WATERS

by

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WITH LATEST ANALYSIS OF THE WATERS BY J. W. GATEHOUSE, F.I.C.

Bath:

S. W. SIMMS, BOOKSELLER, 12, GEORGE STREET.

1884.

The Heat and Solvent Power of Mineral Waters.

Sit cisterna mihi, quam vinea malo Ravennæ
cum possim multo vendere pluris aquam.

MARTIAL.

WHEN we speak of Mineral Waters—I mean, when we apply that term to the vast number of wells and springs which have the reputation of possessing therapeutic effects, extolled frequently with great exaggeration—we are apt to forget that all water, which rises from the earth in springs, is really Mineral Water, inasmuch as it holds in solution certain saline or mineral matters. Water possesses wonderful solvent powers, and as it passes through the various strata of rocks and soils, takes up and holds in solution some part of the salts, etc., of which these strata are composed. In this it is aided by a decomposition, as

a result of Time, of the chemical elements, or components of the strata through which it passes. In the case of Mineral Waters, as the term is generally understood, the amount of these constituents is very considerable, and coming, as these waters do, from great depths, they possess exceptional solvent powers by which larger quantities of salts are taken up and brought to the surface of the earth. The most important of these qualities is *heat*, another is the presence of carbonic-acid gas.

Many are the theories which have been suggested as to the origin of the heat present in so many of the Mineral Waters. Wild theories have been suggested, unsupported by true scientific basis—fermentation in the centre of the earth, subterranean conflagration of beds of coal or peat, converging stream of acids and alkalis, etc. etc.

We know that the centre of the earth is in a molten state, and that it finds relief in periodical volcanic eruptions. And it seems probable that the heat of Thermal Waters depends on this cause, coming as they do from a great depth. Besides, it has been demonstrated that the deeper we burrow into the earth the higher the temperature becomes.

It is suggested by astronomers and geologists that all planets are undergoing a process of cooling. In the first period their heat was intense, that then followed a period of initial cool-

ing, in which a crust formed, that ultimately permitted vegetation and the existence of animal life, and finally, that a further process of cooling has led to an absolute coldness, which debarred the existence of vegetable and animal life, of which the moon is a type, and to which state our earth will ultimately arrive.

Another theory is that of rapid chemical change developing heat, of which we see an analogy in the contact of caustic lime and water, and various other chemical changes well known to science.

Yet another theory seems plausible, and is certainly in accordance with the phenomena of electricity. It is well known that if a current of electricity be passed through a conducting medium, and a medium of less conductive power interrupt the current, a high degree of temperature is generated. Of this we see an example in the white heat developed in a thin platinum wire, when interposed between the poles of a galvanic machine. This we may readily believe to be the cause of heat in Thermal Waters, when we remember that enormous currents of electricity are constantly passing through our earth, to which the different strata act as conductors of varying powers as media.

Whichever theory we hold, we must regard the interior of the earth as a vast laboratory, in which prodigious quantities of saline matters are being constantly formed. These are dissolved

by the action of water, an agency which, as I have said before, is assisted by heat and carbonic acid gas, and are thrown up in almost unvarying quantities in the mineral springs scattered over the surface of the earth.

Carbonic acid, which is the result of chemical decomposition, aids materially the solvent power of water. And it is remarkable, how much more prevalent it is in the colder waters, than in those in which the solvent power is aided by heat. There are, of course, some Mineral Waters which derive their salts from strata so near the surface and so readily soluble, that neither heat nor carbonic acid is required for their solution. Of these we have instances in many of the sulphur springs, and in those containing sulphate of magnesia, etc. For the most part, the Mineral Waters of England are less rich in saline matters, as in carbonic acid and heat, than those of Germany and other parts of the world. They must not, however, be regarded on this account as of less curative value, since free dilution is now recognized as an adjunct to the therapeutic action of most saline remedies.

In England we possess only one Mineral Water which is characterised by any great height of temperature—that of Bath, which rises at a temperature of 117° to 120°. The chemical constitution of the water does not vary to any considerable extent, though it has been demonstrated by the periodical analyses, made

about the year 1874 by Captain Mackay Heriot, that the amount of iron and chlorine in combination varies somewhat.

The discovery of the Hot Springs of Bath is shrouded with that mystery and uncertainty which surrounds so many heirlooms of prehistoric times. We are told by the earliest authorities that Prince Bladud was here cured of a leprosy by the accidental discovery of the hot springs.

Legend of Prince Bladud.

Fies nobilium tu quoque fontium.

AT a period which has been variously set down between 800 and 500 years B.C.—that is to say, ever so long ago, when Lud-Hudibras was King of Britain, he had a son called Bladud. Now, because he was heir to so great a throne, it was thought right that the young prince should receive the best education possible in those days. Accordingly, he travelled to Athens, to be instructed in all the learning of the schools. But at Athens a dreadful disease—the leprosy—seized on the young prince, and he came home only to be scouted by the Court and banished by his father. Poor Bladud must then be a swine herd, and watching his charge one day on Beechen Cliff, he saw them rolling in the marshes at its foot. And those that were with broken skin, and staring flank unseemly, came forth refreshed and smooth. Thereat the prince himself bathed in the warm stream that threaded the marsh, and was healed of his leprosy. Afterwards, when he was King, he built a city on the site of his marvellous cure.