

cent millstone grit, so that geologically it closely resembles Harrogate; both are situated on the margins of the millstone grit, the one being on the northern edge of the Yorkshire coal basin, the other at the southern edge of the Durham coalfields; they are thirty miles apart. Gillsland in Cumberland, on the northwestern extremity of the same stretch of raised gritstone, has also sulphur and chalybeate springs. The station of Dinsdale is the next south of Darlington on the Great Northern and Northeastern Railways.

Modern medicine has done much to confirm and explain the confidence expressed by a long series of sufferers in the remedial effects of the natural sulphur waters. Benefit results from their use in certain stages of convalescence, in most rheumatic accidents, in some constitutional disorders, in many local troubles and diseases, of the skin and glandular system, in various nervous affections, and in the numerous chronic disturbances of nutrition that interfere so much with health and comfort. Sulphur medicinally acts in three ways, whether used generally or locally; first, as a stimulant or excitant; second, as an alterative or sedative; third, as a germicide or antiseptic. The first of these effects is seen with crude sulphur when used internally as an aperient, or externally in the ointment as a rubefacient; neither of these actions result from the use of sulphurous waters, nor are they such as are desired by the visitors to sulphur baths. The alterative effects, under the second head, are chiefly sought; these vary from slight excitement to a notable soothing influence on the vessels and nerves, hence the relief of irritability of the surface of the body produced by the mild sulphur baths in certain skin diseases. Sulphur sprinkled on flannel for sciatica, and worn closely to the limb, may act in this way; so also the sulphide of carbon vapor as applied, for the relief of tic or migraine, by a late Harrogate physician. Sulphur given with aperients has little general effect; continued small doses of the confection may have some action of this kind, but none is noticed after the occasional use of the compound liquorice powder. In the stomach sulphur is not acted on by the acid gastric

secretions; in the alkaline media of the intestines sulphurets are formed and absorption commences. When first absorbed it is arrested in the liver, and finally expelled after more than one round in the hepatic circulation and the formation of some sulphuretted hydrogen while in contact with carbonic acid in the venous blood. Small doses excite less the activity of the liver, and by frequent repetition more readily pass through the vena cava to the pulmonary circulation. The sulphurets now meet with oxygen and are changed into sulphites and hyposulphites, and thus permeate to the other glandular organs and the skin, and penetrate to the muscles and fibrous tissues. In this way some of the special curative effects in chronic rheumatism may be wrought. Some of the antiseptic properties may be concerned in the alterative effects of sulphur, as in the use of sulphide of calcium in checking the tendency to boils or the effect of the hyposulphites in fermentative dyspepsias. Mialhe has observed that any alkaline sulphuret brought to the surface of the skin gives off sulphydric vapour under the action of its acid secretions, but that the hyposulphites acted on in the same way set free sulphurous acid with some deposit of sulphur, and, in time, possible discolouration of the skin. The most active antiferments of sulphur are thus found in the tissues, just as salicylic acid is always formed when salicine is given; and seeing the controlling power of this agent in rheumatic fever, some action of the same kind may be due to sulphur. Or it may act so as to modify the chemical metabolism of waste matters in the body, and so favour elimination.

In all acute disease, beyond the impaired activity of excretory organs, there is disturbed chemical evolution of the products of denutrition which delay restoration of health. These two factors are also concerned in chronic and subacute diseases in varying degrees and combinations. Thus in gout, while renal changes often check the elimination of urea, there is always incomplete evolution of waste matters, and that imperfect combustion of the results of disassimilation that lead to uric