kidneys; whereas glucose can be destroyed in certain proportions.

3. Cane-sugar would be beneficial to a certain extent; as when taken into the intestine it is in part least transformed into glucose; but if given in too large proportions to be thus converted, the disease would be probably aggravated by the presence in the blood, and subsequent excretion by the kidneys, of the former variety of sugar.

4. The glucose should be given in moderate quantities at a time, and frequently, rather than in large quantities at long intervals; because, when much sugar is taken fast, it is absorbed too quickly to admit of its complete destruction in the liver, and it passes into the general circulation, whence it is eliminated in the urine.

TOPOGRAPHY AND CLIMATE OF LLANDUDNO,
NORTH WALES.

By T. C. RODEN, F.R.C.S.

LLANDUDNO, as the guide-books inform us, stands on an arm of land about four miles in length, jutting out towards the west from the mainland of North Wales at Conway. This little peninsula is terminated by a huge limestone rock, seven miles in circumference, and 750 feet in height—the Great Orme's Head and the Llandudno Bay on the south side of which the town is built. About a couple of miles in front—that is, to the south—runs a chain of hills from the Little Orme's Head on the south to the Conway and Llandudno bay on the north west; while a beautiful semicircular sweep of sand and shingle between the two Ormes encloses the waters of Llandudno bay. It is chiefly this peculiar formation of the locality which impresses it with distinctive qualities, beneficial to particular classes of invalids; while the general mildness, dryness, and salubrity of the air render it an agreeable place of resort to all. From the experience of a residence of three years, I am enabled to designate the climate as mild, yet bracing, and remarkably free from humidity.

It is generally supposed by strangers that the coast of North Wales is cold and bleak; and many who visit this spot find it difficult to account for the opposite state of the case with regard to Llandudno. The shelter afforded by the Great Orme's Head from the north and north-east winds, together with the peninsular form of the site, afford the true explanation of the fact; for, being embraced on three sides by the sea, the temperature becomes more equalized. In winter, the water being warmer than the air, imparts a portion of its caloric to the atmosphere; while in summer the phenomena are reversed. The Gulf Stream, too, passing the south coast of Ireland, probably production of the result.

These circumstances will make intelligible the quality of mildness, which is most striking in the winter months; so much so is this the case, that there are few points on the British coast better fitted for the residence of invalids than this. The thermometer fully bears out this statement; for my observations of it, noted regularly during two years, prove that the temperature is milder by 10° or 15° in severe weather, than in anyinnitus of similar classes in England; and which I have examined it, it never failed with me to exceed 65°.
It appears essence of pennroyal was sent for, but the druggist's apprentice, by mistake, put in the bottle essence of bitter almonds. By a most fortunate accident, a portion of this was spilled in mixing it with warm water and sugar. Two or three drachms were swallowed, which, as made here (one drachm in the ounce), would be equivalent to fifteen or twenty drops of the essential oil, seventeenth drops of which have been known to kill a person in half an hour.

My object in recording this case is twofold: 1. To prove the great danger there is in retailing so deadly a poison, especially in a careless manner; and 2. To show the value of cold affliction; recovery, I cannot but think, in this instance, being mainly attributable to it.

Reviews and Notices.


This essay of Dr. Richardson affords an instructive lesson, as well as encouragement, to all who are engaged in investigating the phenomena of Nature; instruction as to the manner in which all investigations must be carried out; and encouragement in the success which has attended a patient inquiry conducted on the principles of inductive philosophy. Not that the author has by any means exhausted his subject—far from even attempting such a task, he has left much to be worked out by physiologists who labour in the same spirit with himself; but this he has done—he has placed our positive knowledge of the essential cause of the coagulation of the blood on a basis so firm, that it must be the groundwork of future inquiries into the various changes undergone by the circulating fluid.

The essay on the Cause of the Coagulation of the Blood consists of eight chapters.

Chapter I contains Historical Memoranda on the Supposed Causes of Coagulation of the Blood. The phenomenon is here shown to have been supposed, by the philosophers of ancient Greece, to be connected with the presence of a "network or fibre" in the blood. By a most fortunate accident, a portion of this is spilled in mixing it with warm water and sugar. Two or three drachms were swallowed, which, as made here (one drachm in the ounce), would be equivalent to fifteen or twenty drops of the essential oil, seventeenth drops of which have been known to kill a person in half an hour.

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The Cause of the Coagulation of the Blood.

Chapter II contains a critical examination of the theories already enumerated. That fibrine is essential to the process of coagulation, is sufficiently established both by positive and by negative evidence; and hence, in the words of the author, "whatever may solve the problem of the cause of the aggregation of the fibrine, solves at the same time, of necessity, the cause of the phenomenon altogether—at least, as far as we can at present foresee." This supposition we shall see to be quite correct, before arriving at the end of the book.

In searching whether any among the theories will sufficiently explain the cause of coagulation, Dr. Richardson first examines the observations made on the effects of temperature. Increase of temperature favours coagulation; decrease retards or even prevents it. Yet the effects of temperature, in common with those of exposure to the air, afford no satisfactory explanation of the phenomenon; while at the same time they agree with any hypothesis which may ascribe coagulation to the evolution of gas from the blood.

The theory of rest as the cause of coagulation, while it is supported by such facts as the formation of fibrinous connections when the circulation is impeded, and the suspension of coagulation by agitation of the blood in a closed vessel, is yet negatived by several strong objections, especially that derived from the fact brought out by Hewson—that blood retained in a state of rest within a vein coagulates very slowly.

On the supposed connexion of the vital force with coagulation, we quote some passages from the author's comments—warning some of our readers, however, that they are likely to find something here which may shock their generation. But, after all, we are very much inclined to agree with the author in his criticism of the vital force hypothesis, which it would be scarcely inappropriate to call the physiogical "refuge for the desitute."

"If writers", says Dr. Richardson, "who speak of a vital force, could define what they mean by the term, or could even agree to a kind of hypothesis, no one might be able to treat more satisfactorily of this hypothesis. Or, if, in using the term 'vital principle or force', they would rest content to let it lie and express, the aggregate of all the phenomena observed in the living body; or if they would only use the term to explain any operation, whether chemical or physical, which occurs in the body, simply because it does occur in it; if these definitions were admitted, there would be few difficulties in the way. But so far is this from being the case, that we find even those who speak of the vital principle in connection with coagulation, assigning to it two distinct and directly opposite functions. Mr. Hunter believes the vital principle, i.e., its presence, to be the cause of coagulation; for he compares the change that occurs in the blood removed from the body, to certain transformations or changes which occur to it in the body during life. On the opposite principle, the older physiologists thought that the living blood was retained in a state of fluidity by the presence of the vital force, and that the act of coagulation, in blood at rest, arose purely from the loss of the vitality which ensued upon its removal from the living structures.... Whenever a very hard and peculiar problem relating to organised structures has to be solved, writers are apt, in a dilemma, to beg the question by referring the cause of the phenomenon to the 'vital principle' as an entity, or ruling force, which, being vital, is open to any definition, or to none. It is clear, however, that to bring a problem to such an ultimate as this, is merely equivalent to saying that nothing is or can be known about it...."

"In relation to coagulation of the blood, the vital hypothesis is entirely disproved; nay, it would never have been advanced but for the coincidence that the phenomenon occurs in blood newly drawn, and without much interference. ... Hewson, Hunter, John Davy, and others, have frozen blood, and have kept it, thus frozen, from coagulating. They have then thawed the frozen mass, and the fluid has then been preserved. Does the coagulation of blood that has been frozen (and even frozen and thawed three times successively) depend on the presence of vitality, or on the loss of vitality?" (pp. 45-8.)

In commenting on the chemical theories, Dr. Richardson shows that no conclusion can be drawn from the observations made by Blake and other experimentalists, who added to blood a number of substances either altogether foreign to it, or, if existing in it, in quantities far removed from the natural standard. The most practical points which have been brought out by chemical experiment on coagulation are the following: which, after all, do not help us more than a short way (if at all) out of our difficulty.

1. The alkalies, potash and soda, dissolve fibrine, and, added to newly drawn blood, hold it fluid. 2. Several salts, such as the chlorides of potassium, sodium, and ammonium, added in free quantities to blood, sustain fluidity. 3. The evidence in favour of the extraction of carbonic acid from...