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DIVONNE-LES-BAINS

IN

SPRING & AUTUMN.

Notes on its Sanatorium and Hydropathic
Establishment.

BY

DR. ROTH.

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~~Department of Hygiene and Physical Education~~
WELLESLEY COLLEGE
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1880.

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History of Physical Education
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WILLIAM STREET, TORONTO, O.N.

DIVONNE-LES-BAINS IN SPRING & AUTUMN.
NOTES ON ITS SANATORIUM & HYDROPATHIC
ESTABLISHMENT.

BY DR. ROTH.

DIVONNE is known to a limited number of English practitioners, and to a larger number of English visitors as a health resort in summer. In the course of this spring I wanted bodily and mental rest, and having known for several years, the resources of Divonne in summer, its advantages regarding the climate, the excellent water, the good cuisine, the suitable sanitary and therapeutic arrangements, I made enquiries regarding the temperature in the course of last March, and finding this satisfactory, I spent about a fortnight there in the last week of March and the first of April.

Having derived much benefit from my short stay there, I considered it my duty to make this place more known to a larger circle of my colleagues, being convinced that they will thus be able to advise many of their chronic patients to go in the spring and autumn to Divonne, where two physicians in the establishment are most willing to carry out the plans of those medical men who send their patients to this institution.

My notes are written for those who do not know Divonne or who believe that it ought to be visited only during the summer, when several hundreds of patients fill the place, and a hundred, to a hundred and fifty are sent away every year for want of room, although the proprietors of this sanatorium, besides their own numerous rooms in the establishment, hire in the summer about eighty more rooms, in fact all that are available in the village.

The distance of Divonne from London is about twenty-three hours: nine and a quarter to Paris; twelve from Paris to Geneva, or half-an-hour more from Geneva to Nyon; from Nyon to Divonne per carriage about three quarters of an hour.

Dr. Paul Vidart, son of a physician in Geneva, and father of the Dr. Vidart who is now chief physician of the establishment, was a man of much genius and energy, who thirty-four years ago, in looking out for a suitable locality for a health resort and water-cure establishment, found all the conditions suitable for such a purpose in the little unknown village of Divonne, situated on the rivulet Divonne, near the Swiss frontier, at the foot of the eastern slope of the Jura, three hundred feet above the level of the Lake of Geneva, or 1,425 feet above the level of the sea.

Dr. Vidart was not satisfied with the ordinary hydropathic treatment fashionable at that period, when the patient had to live mostly on a milk diet. Believing that the loss of tissues during hydropathic treatment is very rapid and must be quickly renewed, he prescribed a liberal, substantial and nourishing diet in order to repair the losses entailed by copious perspiration and much exercise; although stimulating food and drink are excluded, there is no objection to the moderate use of wine if the case of the patient requires it. In consequence of these views of the founder of the Divonne establishment, the food there has always been of a first-class character, and I convinced myself personally that it is still kept up to this high standard.

Dr. Vidart was the author of *Etudes pratiques sur l'Hydrotherapie*, published in 1855, and of a *Manuel d'Hydrotherapie*, for the use of the visitors at Divonne, of which a second edition was published in 1868. He attached special importance to the well known propositions of Dr. Baldou, in his *Instructions pratiques sur l'Hydrotherapie* regarding the action and reaction in hydropathic treatment, which I mention here because Baldou's book is now out of print, and because many medical men and still more laymen believe that medical treatment by water is a very simple process and can be carried out by anybody without a previous special theoretical and practical study; those who have more experience on the subject know the difficulties of applying water in its various forms, at various temperatures, in various periods of time, and how the method, temperature, and period of application depend upon the

organic tone or vital power of reaction of each patient, and which, according to Baldou, must serve as the basis for the length of time during which the bath is to be used, as well as for the degree of temperature which should be chosen.

Dr. Baldou's 1st proposition is the expression of the various factors by a definite number, thus—

| | | | | | | |
|--|-----|-----|-----|-----|-----|----|
| The vital power of reaction of an individual might be represented by | ... | ... | ... | ... | ... | 10 |
| The temperature of the water by | ... | ... | ... | ... | ... | 10 |
| The duration, that is the length of time during which the bath is used, by | ... | ... | ... | ... | ... | 10 |

2nd proposition—

| | | | | | | |
|---|-----|-----|-----|-----|-----|----|
| If the vital power is diminished by two degrees, it will be | ... | ... | ... | ... | ... | 8 |
| The temperature of the water must be raised by 2° , and it will be | ... | ... | ... | ... | ... | 12 |
| And the duration of the bath must be shortened by 2° , and will be | ... | ... | ... | ... | ... | 8 |
| Or, if the vital power is | ... | ... | ... | ... | ... | 8 |
| And the temperature of the water | ... | ... | ... | ... | ... | 14 |
| The duration of the bath will be | ... | ... | ... | ... | ... | 10 |
| Or, the vital power being | ... | ... | ... | ... | ... | 8 |
| And the temperature | ... | ... | ... | ... | ... | 10 |
| The duration of the bath will be | ... | ... | ... | ... | ... | 6 |

3rd proposition—

| | | | | | | |
|---|-----|-----|-----|-----|-----|----|
| If the vital power of reaction is increased to | ... | ... | ... | ... | ... | 12 |
| And the temperature of the water diminished to | ... | ... | ... | ... | ... | 8 |
| The duration of the bath might be | ... | ... | ... | ... | ... | 12 |
| Or the three factors can be changed as in the second proposition. | | | | | | |

Thus we find a direct relation between the vital power and the duration of the bath, and an inverse relation between the vital power and the temperature of the bath, or a direct relation between the vital reacting power and the duration and temperature of the bath.

The importance of Dr. Baldou's propositions is easily understood by those who know that the cure of a patient under the water treatment depends on his powers of reaction, and that the means applied must be subservient to and dependent upon the various degrees of the vital reacting power of the patient.

In Divonne the treatment is based on these conditions, and the managing physician has, besides his own experience in treating yearly several hundred patients, the benefit of the experience of his father, with whom he was associated.

Besides the rivulet Divonne—a name derived from the Celtic *Di* and *Vonne*, meaning *springs of God*—which rushes with a loud noise through the establishment, there are three sources of the best drinking water. One of these sources is called *Emma*, in honour of the widow of the late and mother of the present doctor, a lady who for the last thirty-three years has contributed, and is still trying, to make the visitors to Divonne as comfortable as possible, to unite them in one family. It is she who, with her late husband, has transformed a hilly vineyard into a splendid park, and with the exception of two old trees, has personally superintended the plantation of all the trees, shrubs, and flowers which adorn the pleasure grounds surrounding a large building called the Villa, from which not only a great part of the valley of the Lemman with the Lake of Geneva, but also the high snow-capped chain of Mont Blanc, with the numerous hills and mountains in front of this chain, are seen to perfection as often as there is a clear day. The villa is connected by a glass-covered passage with all the other buildings of the establishment, with the warm—cold—vapour and swimming baths, with the billiard room, ladies' saloon, dining—reading—and smoking rooms, the library of 7,000 volumes, and the theatre. The founder of the establishment considered it of the greatest importance that the patients should have plenty of amusement; thus a theatrical performance is given during the season at least once a week; the visitors are both actors and public; a first class quartett is also engaged during the three months of the principal season, who give a concert five times a week, which is often prolonged by the performance of amateurs, who are frequently found among the visitors; those who are fond of dancing have also frequent opportunities of so enjoying themselves in the large saloon of the Villa.

My intention has been to say something of the three sources which rise in the grounds at the bottom of three basins, of which the largest containing about 161 square metres, is on the right bank of the rivulet, and provides the swimming bath, into which the constantly changing water rushes in large quantities.

The second source has a surface of 117 square metres, and the third is the smallest. They are surrounded by trees, and the bottom of the sources is formed of a mud consisting of very fine sand and decayed vegetable substances;

the water rises in innumerable little streams, and at the rate of 60,000 litres per minute in the larger sources.

The water while rising, emits very large quantities of gas in all parts of the bottom of the sources; in the course of a few minutes, several litres of gas can be collected. As soon as the mud is disturbed by putting a stick into it, the quantity of air bubbles is considerably increased for a short time; the development of a more copious quantity of gas, which sometimes lasts for several days and which does not depend upon the variation of atmospheric pressure, cannot at present be accounted for. After heavy rains more gas is developed; the water is clear, fresh, and tastes very agreeably. Its temperature scarcely varies during the different seasons, and in November, 1861, during a frost of 3 to 4 degrees under freezing point, the water had a temperature of 6.25 Centigrade, corresponding to 42.8 Fahrenheit. If the water is left exposed to the air for a longer time in an open glass, some atoms of "glairine" are deposited. I was told that lately a sealed bottle containing the Divonne water was opened after a year, and when compared with the fresh water in another bottle, no difference in taste or appearance could be observed after both bottles had been placed in water of the same temperature.

Besides the free carbonic acid, traces of nitric and phosphoric acids, of chloride of iron, and of oxide of manganese, are found in the water.

The organic substance, found after a complete evaporation forms a yellow layer on the walls of the vessel, and consists mostly of apocrenic acid mixed with traces of crenic acid. The mud at the bottom of the sources consists of fine sand and organic substances, and has a greyish yellow colour, which is changed into red when exposed to the air for some time; the sand is a mixture of silicious particles with carbonate of lime, a small quantity of carbonate of magnesium, and oxide of iron; the organic parts of the mud—treated with potash—contain a large quantity of apocrenic acid and nitrogenised "glairine," which is insoluble in water, while it is very easily soluble in alcohol.

THE QUANTITATIVE ANALYSIS OF THE GAS WHICH ESCAPES PER 1,000 PARTS, IS—

| | | | | | |
|---------------|-----|-----|-----|-----|--------|
| Carbonic acid | ... | ... | ... | ... | 28 |
| Oxygen | ... | ... | ... | ... | 162.5 |
| Nitrogen... | ... | ... | ... | ... | 809.5 |
| | | | | | 1000.0 |

1,000 GRAMMES OF WATER CONTAIN THE FOLLOWING—

1. *Dissolved Gases.*

| | |
|----------------------|-------------------------------|
| Carbonic acid | traces |
| Oxygen... .. | one cubic centimetre=0,001432 |
| Nitrogen | 5 cubic centimetres=0,006339 |
| | 0,007771 |

2. *Dissolved Salts.*

| | |
|------------------------------|----------|
| Bicarbonate of lime | 0,225560 |
| ,, of magnesia | 0,021590 |
| Phosphate of lime } | traces |
| Nitrate of lime } | traces |
| Chloride of potassium | 0,000670 |
| Chloride of sodium | 0,000687 |
| Silica... .. | 0,001965 |
| Alumina | |
| Oxide of iron } | 0,008395 |
| Oxide of manganese } | 0,008395 |

3. *Dissolved Organic Substances.*

| | |
|-----------------------|----------|
| Glairine | 0,001360 |
| Crenic acid | traces |
| Apocrenic acid | 0,019040 |

As exercise is absolutely necessary in order to produce the desired reaction after the bath, the patients walk during a rainy day in the glass-covered passages or visit the gymnasium, which has lately been re-built, where a teacher of gymnastics and fencing is engaged in giving a course of systematised gymnastics to men and women, young and adult patients; manipulations are used for those who are unable to take any other exercise, or when specially prescribed by the physician. Long walks are not only taken in the park of the establishment but also the villages in the neighbourhood, and to the Mont de Mussy which belongs to the Jura range, to the beautiful source of the Divonne, which is in the immediate neighbourhood of the establishment, and where towards the end of last March I saw the ground covered with beautiful primroses, anemones, and *pervenches* (blue periwinkles), with their pretty leaves; the whole looked like a large carpet. Similar natural carpets I have seen in other parts of the neighbourhood of Divonne. Longer pedestrian excursions or drives are made to Geneva, Nyon, Coppet, Gex and other places of interest. In all

directions the scenery is very fine, and at every slight ascent, the Lake of Geneva with the mountains that encircle it, and the ever admired chain of Mont Blanc add to the beauty of the landscape.

As I write for my colleagues I must add that besides the usual local and general applications of cold water, there are special rooms for all kinds of douches of every power, and an apparatus for aqua-puncture, where a very small streamlet of water under the pressure of 5 to 7 atmospheres is applied, especially in lumbago, sciatica and other chronic neuralgic affections. Several years ago, when calling on old Matthieu, the well known instrument-maker at Paris, in order to enquire into the latest surgical and orthopædic instruments, he showed me a kind of small pump used for aqua-puncture. This term is used to express the making of a puncture in the skin by a thread of water under a high pressure. As I was desirous of knowing the effects of this operation, the back of my hand was submitted to a single puncture made in less than half a second; immediately afterwards I felt a pricking burning pain, and observed the skin raised to a small cone, at the top of which was a very small hole caused by the passage of the thread of water; the swelling and slight burning pain lasted for several days, and more than a fortnight passed before the pierced place was perfectly healed and smooth. A French physician has written a pamphlet on the aqua-puncture, which is a perfect substitute for the old acu-puncture, the operation with the needle which has been used as a revulsion in many chronic pains. With the instrument in Divonne, several punctures can be made at the same time, either in a longitudinal or transverse direction. Russian—hot air—electric baths, hot air with turpentine or tar vapour, hydroferous baths with any medicinal substance, and in special cases ferruginous alkaline or sulphurous baths are also employed. Whey, goat's and ass's milk, as well as the grape cure, are comprised in the means used in the establishment. Fishing and shooting in the neighbourhood are free, and those fond of grand and extensive views can satisfy their wishes by a visit to the Faucille, to Mont Dole, or the top of Mont Mussy.

At the head of the administration of the establishment is Mr. A. Vidart, the highly respected Mayor of Divonne, who devotes much time and work to this honorary office, thus contributing to the well-being of the whole

community. There is a Protestant, as well as a Catholic, church, a telegraph and post office, while letters are delivered and sent away twice daily, a post omnibus runs twice daily to Nyon, the nearest railway station, which is only at half-an-hour's railway distance from Geneva; the terms are moderate and prospectuses can be had by applying to the manager.

During my short stay, I made some very nice excursions to Prangins, the villa of Prince Napoleon, on the Lake of Geneva; a visit to the house and grounds is permitted by tickets from the agent at Nyon. From the terrace the view is splendid; although I went to Copssall I had no time to visit the chateau where Madame de Stael lived. Near Nyon I visited *La Môtairie*, a private asylum for the insane, built by a society in extensive grounds surrounding the principal building. Dr. Rist, the present physician, was so kind as to show me all the arrangements for the comfort of the patients, who, under his own and his wife's superintendence, live as members of the family. The doctor speaks also English, and having travelled for the purpose of seeing all belonging to his speciality, I found all the latest improvements used in the treatment of the mentally afflicted, including baths and gymnastics; the scientific application of movements for the treatment of certain forms of insanity has not yet been introduced here.

These notes are already more copious than I intended, but I wish particularly to mention to my colleagues what a suitable place Divonne is, in spring and autumn for many chronic diseases. It struck me as an excellent place for dipsomaniacs of both sexes, because all the officials of the establishment contribute in such a case to prevent patients from indulging in their favourite passions. Hypochondriacs, if the disease is not too inveterate, or caused by abdominal complaints, all kinds of chronic, rheumatic, arthritic, and neuralgic, hysterical, chlorotic, catarrhal complaints, diseases of the uropoethic system, scrofula, varices, secondary and tertiary syphilitic affections, and various uterine diseases, can safely be sent to Divonne in the spring and autumn.

Chest complaints of any kind should only be sent there during the summer.

Those interested in the history of Divonne and its neighbourhood (which belongs to the free zone, that is,

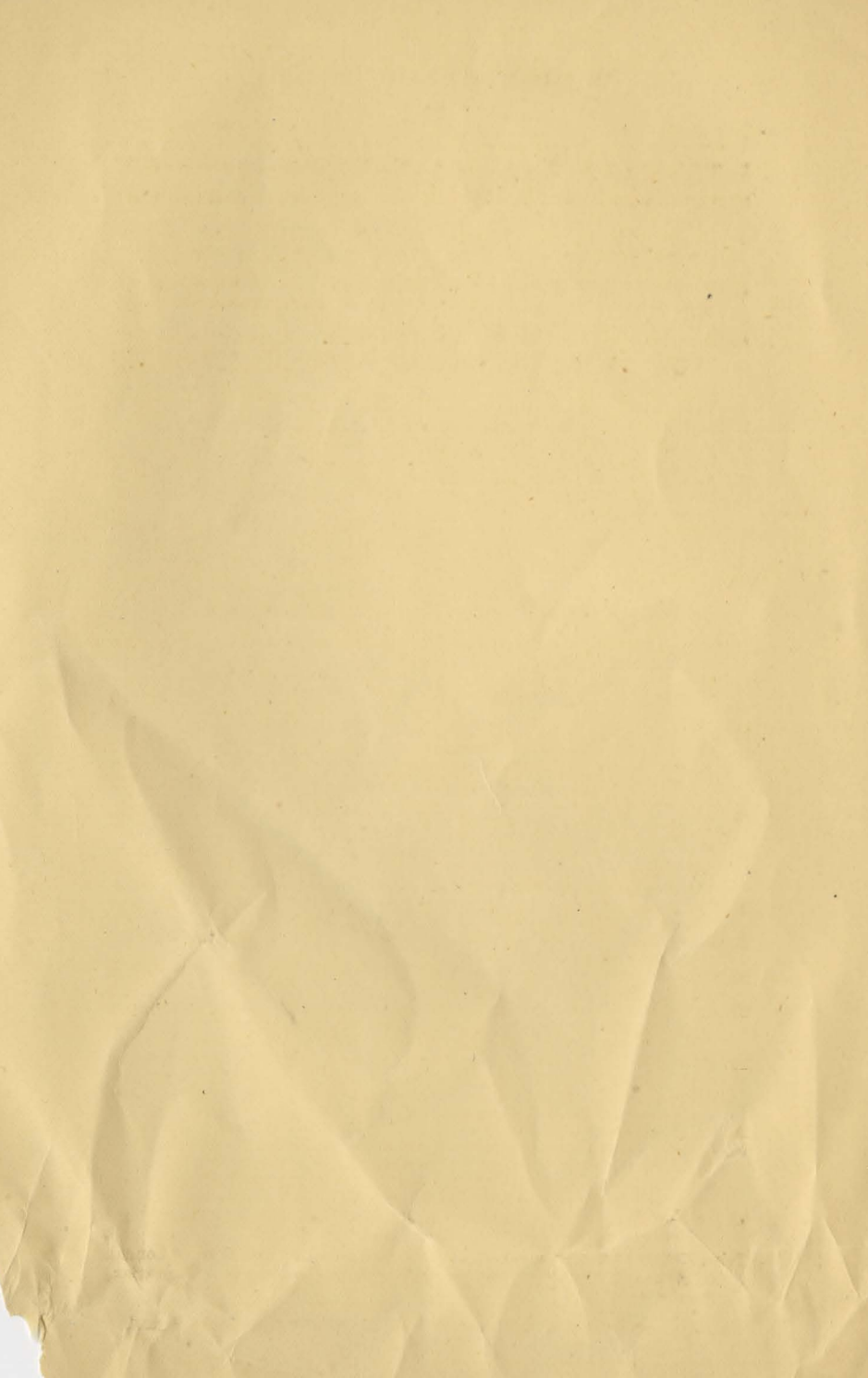
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