The effects of the Davos climate appear to be due to—1. The rarefaction of the atmosphere; 2. Its dryness; 3. The absence of wind, partly owing to the shelter of the mountains, and partly to the uniform layer of snow spread around; 4. The large amount of sun's rays transmitted through the rarefied atmosphere, as reflected on to the village from the extensive snow-plain lying to the east of it.

THE WATERING-PLACES OF THE AUVERGNE: THE MONT DORE.

By A. RABAGLIATI, M.A., M.D.,

Honorary Surgeon to the Bradford Infirmary.

THE old district of the Auvergne (Arverni of Cæsar) contained the department of the Puy de Dôme, in which are found all the principal watering-places of this part of France, with the exception of Vichy and places like Cusset, etc., in its immediate neighbourhood. Vichy is so well known that I do not propose to describe it afresh, though I visited all the springs there, and inspected the "Establishment" and the baths. The part of the Puy de Dôme containing the springs is a volcanic country full of hills, showing often on one side basaltic columns or jagged peaks, with sharp ridges, and on the other sloping more gradually, so as to be tolerably easy of ascent from this side and almost impossible from that. Some of these mountains are between five and six thousand feet above the sea-level; while the Pic de Sancy, the highest of them, is over six thousand feet. The scenery is, therefore, very fine, being composed of varied hills and dales, rushing torrents, solitary, lofty, and imposing rocks, often showing remains of Roman or even pre-Roman times; green valleys smiling with hay or corn; the hill-sides in warm places being covered with vineyards, and responding plentifully to spade-culture; in others being planted with firs (mostly spruce), and beech-trees and hazels abounding on the roadside. In the lower parts, walnuts, chestnuts, and pollard poplars, with, of course, the acacia, common all over France, grow plentifully. Even if there were no other hygienic or sanitary attractions than those which such a varied country affords, it would probably be visited on account of its natural beauties, though the French are not so country-loving a people as the English. It is, however, to its springs that this district owes its great fame and the fortunes of its inhabitants. These springs jet out of the rocks all over the district, but most abundantly in a part of the country forming an irregular quadrilateral, and bounded on the north by a line joining Chateaufort and Rouzat; on the east, by a line passing from Rouzat through Chatelguyon, Clermont-Royat, and St. Nectaire; on the south, by a line passing through the Mont Dore from St. Nectaire to La Bourboule; and on the west, by a line joining La Bourboule and Chateaufort, and passing, in its course from north to south, through a large number of small places with one or two springs each, which have served to name the spots, such as Javel, Chateaufort, Pranat, Bourdeilles, etc. Except Clermont, not one of these places is accessible by railway (though one is in course of construction to the Mont Dore); and this no doubt adds to their charm as rustic retreats from the noise of cities and the cares of business. Many of them, if not most, were known to the Romans; such, for example, as the special subject of this letter—the Mont Dore—where, in the public "parc", any visitor may convince himself of the reality of this fact, and bring himself into much closer relation with that remarkable people, by examining the broken columns, carvings, and massive building-stones, disinterred about sixty years ago by the energy of Dr. Michel Bertrand, the recreator of the place. Still more interesting and realistic, if possible, is the appearance of some of the springs; such, for example, as that of "Rigny", at the Mont Dore, where the well is actually now in the very condition in which it was left by the Romans, not a new brick or trowel of mortar having been required to repair the well-done work which they have left us as their memorial. It is exceedingly curious, in human affairs, to note how similar conditions evoke similar necessities in life; and we are struck by the necessity felt by the Romans to get away from the noise and stir of their cities, and particularly from the toilsome energy of their employment, to quiet country watering-places, there to find, in retirement from the pressure of affairs, that rest which they found indispensable to brace them up to fresh endeavour on their return. That it was not merely city life, but labour, which necessitated these diversions, is evident from what took place in the Middle Ages, when, though cities survived, watering-places did not, the record of nearly all of them having disappeared or been forgotten, till, as in the present case, the recurrence of the old conditions raised again a demand for fresh sources of invigoration, and many of the old haunts were rediscovered. So completely do those overlook the necessities of our nature who preach of patient labour, and imagine that patient continuous labour is possible without at least one annual holi-

day and change of scene! Medical men, who can see this so plainly in the case of their patients, are particularly apt to imagine that in their own case it does not matter; and they may be found jogging on year after year, till some illness sharply reminds them of their error, too late often to profit by the instruction. But this by the way.

The valley of the Mont Dore runs north and south from the Puy Gros, a high hill which shuts it in at the former end, to the Pic de Sancy, which forms the southern boundary. On the east, the village is protected, as by a wall, by the *plateau de l'angle*; and the valley opens out to the west, though scarcely enough to let the sun warm it sufficiently, in the direction of the *Capucin* hill. This hill is so called because of its likeness to a monk's head. It rises some 4,500 feet above the sea-level, though only about 1,000 above the village, which has, therefore, a very considerable elevation. Owing to this cause, sojourners at the Mont Dore are apt to suffer from the cold winds which come down from the hills in the mornings and evenings, and which form a source of danger not by any means to be overlooked by those who go there suffering from chest-affections. Notwithstanding this drawback, the place is generally very hot in the summer months, and the temperature is said to average 63° Fahr. in July and August. My experience was less favourable, owing to the cold and wet which prevailed all last year; and very often we had to shut ourselves up in the hotel and sit round the wood fire in the *salon*, just as in cold weather in England, or to use a *chauffrette* or foot-warmer in our bedrooms. Evidently the visitor cannot absolutely count on fine weather, though it appears, from the testimony both of residents and of visitors, that the season of 1879 has been quite exceptional, and unparalleled for wet and cold. According to M. Hertz, "the elevated region of country between 2,500 and 6,500 feet is the proper dwelling-place for the phthisical in summer", and it is for its power over phthisis and bronchitis that the Mont Dore is chiefly famous. I propose, therefore, to describe, in its practical and theoretical aspects, the treatment to which sufferers from these disorders are subjected; and perhaps the best method of doing so will be to give an account of the waters and the method of their application.

The bathing establishment is fed by four principal springs, and the water used for bottling and exportation is obtained from a fifth. These are all hot springs; but there is besides another, a cold one—Sainte Marguerite—whose water is much used as a table-drink. The chief springs are: 1. That of the Madeleine, now called the Source Bertrand, after the restorer of the place; the temperature of this spring is 113° Fahr., and the delivery 140 litres a minute; 2. The Source du Pavillon, or Saint Jean, temperature 104° to 110° Fahr.; delivery about 49 litres a minute; 3. The springs César and Caroline; the temperature about the same as the last, and delivering about 80 litres a minute; 4. Two small springs, Ramond and Rigny. The composition of these springs is thus given by Jules Lefort, 1862.

	Source de la Madeleine.	Source du Pavillon.	Source Rigny.	Source César.	Source Ramond.
	<i>Grammes.</i>	<i>Grms.</i>	<i>Grms.</i>	<i>Grms.</i>	<i>Grms.</i>
Oxygen	0.65	0.77	0.71	0.98	0.73
Nitrogen	8.64	10.45	9.25	14.22	10.01
Free carbonic acid	0.3522	0.3840	0.3644	0.5067	0.4997
Bicarbonate of soda	0.5362	0.5452	0.5375	0.5361	0.5362
" of potassium	0.0309	0.0309	0.0232	0.0212	0.0212
" of oxd. of rubidium ..	Traces	Traces	Traces	Traces	Traces
" of cesium	Traces	Traces	Traces	Traces	Traces
" of lithia	Traces	Traces	Traces	Traces	Traces
" of chalk	0.3423	0.3142	0.3092	0.3209	0.2720
" of magnesia	0.1757	0.1676	0.1628	0.1676	0.1647
" of protoxide of iron ..	0.0207	0.0235	0.0250	0.0258	0.0317
" of manganese	Traces	Traces	Traces	Traces	Traces
Chloride of sodium	0.3685	0.3630	0.3599	0.3587	0.3578
Sulphate of soda	0.0761	0.0761	0.0761	0.0761	0.0761
Arsenate of soda	0.00096	0.00096	0.00096	0.00096	0.00096
Borate of soda	Traces	Traces	Traces	Traces	Traces
Iodide and fluoride of sodium ..	Traces	Traces	Traces	Traces	Traces
Silicic acid	0.1654	0.1686	0.1653	0.1552	0.1560
Aluminium	0.0112	0.0094	0.0101	0.0083	0.0065
Bituminous organic matter ..	Traces	Traces	Traces	Traces	Traces
Totals	2.08016	2.07776	3.03546	2.26736	2.11946

I have given this table as it appears in the works of two French authorities—one of whom refers to vol. viii, 1862, of the *Annals of the Society of Hydrology*. Both have evidently copied from the same source; but, unfortunately, in neither case do the figures bear examination, as any one may see for himself on attempting to add them up. Probably there are errors in the original, and I suppose these are due to the misplacing of the decimal point; but though I have made several attempts to rectify the figures by altering the point, I have not succeeded. It is difficult to imagine how two men of eminence could copy, without question, figures so manifestly erroneous; but many men seem to lose themselves in the *terra incognita* of arithmetic. I believe the totals are correct, although the individual factors are not so.

Much discussion has taken place as to what is the active principle or principles of these waters. Jules Lefort and the authors of the *Dictionary of Mineral Waters* placed them amongst the mixed bicarbonated and ferruginous waters; Michel Bertrand among the slightly alkaline; but since his time most physicians tend to consider them as specially arsenical. Let us recall to mind the effects of arsenic. It seems to exert a moderating influence on the respiratory combustion. The Styrian peasants are said, on good authority, to use it for strengthening their wind. It seems to calm the thoracic movements, and renders easier the accomplishment of respiration, the necessity for which is not felt to so great a degree as usual. All these effects are experienced after a time by the Mont Dore bathers; and no doubt some of the effects are to be attributed to the fifteen-one-thousandths of a grain of arseniate of soda contained in every *litre* of the water, though, as I hope to point out immediately, I do not think that this is the sole agent in the treatment. The treatment generally lasts for three weeks, and consists of hot baths, hot douches, drinking the water, hot foot-baths, and subjecting the body after the bath and douche to a longer or shorter period of exposure to the vapour of steam in the "salle d'aspiration", obtained by boiling the same water. Let us follow out the course as the bather is recommended to take it. Owing to the large and increasing numbers of those who come to take the waters, it is generally the fate of new bathers to be compelled to rise at 3 A.M. for their baths. In the first place, they go, or are carried in sedan chairs, to the spring, where they drink a glass of the water. Then they go to the bath-rooms, which are in the same building, where they have a hot bath (from 90° to 113° Fahr.) for ten, twenty, thirty minutes, or even longer. This is very comforting, the water feeling at first sometimes just a little too hot, and causing also, sometimes, a sensation of dyspnoea; but this immediately passes off, and the patient surrenders himself to the enjoyment of the bath. The little bath-rooms are furnished with bells, by means of which an attendant can be summoned in case of necessity; otherwise the attendant returns at the appointed time at the end of the bath to remove the patient's clothes, to prevent their getting wet, and to turn on the hot douche. The water comes from this either in one stream about the thickness of the little finger, or through a rose. In either case, the force with which it descends is very considerable when turned fully on; but it can be regulated by means of a tap. The douche lasts for ten or fifteen minutes, and to most patients is very refreshing, though, if continued longer, it becomes fatiguing, and seems to induce rheumatic pains. The douche over, the patient is immediately wrapped in a hot linen dressing-gown, and the feet rolled in hot towels, and thus dried. There is no rubbing of any consequence, only sufficient to dry one. Some patients are recommended to take only the bath; others to take only the douche; while others, again, sit in a half-bath, covering the lower limbs only, while the douche is administered. Instead of this bath and douche, the foot-bath alone may be given; the patient sitting with the feet immersed in hot water for half an hour or longer, as the case may be. After this, patients are carried to the *établissement des vapeurs* across the square, for the purpose of inhaling the steam. For this, it is necessary to dress in a loose costume of thick flannel made for the purpose, as all garments become speedily saturated with the vapour. Wooden sabots are also recommended and invariably worn by the bathers, to keep the feet from the wet stone floors. The *salles d'aspiration* are three rooms about eighteen feet by thirty-six feet, which are filled with steam constantly rising from the mineral water through two funnels in each floor. Theoretically, the three rooms ought to be kept at temperatures of 73°, 77°, and 88°; but practically, especially as the morning advances and the steam more and more fills the rooms, they are somewhat hotter than this. Here patients are recommended to stay from twenty minutes to an hour, inhaling the steamy vapour from the mineral waters. They walk about, or sit on chairs provided for them, presenting a grotesque and ghostly appearance, as the outlines of the peculiar garments are dimly seen by candlelight through the thick mass of vapour that fills the rooms. It is impossible to recognise anyone at more than a yard's distance. The immediate effect of the inhalation is generally to produce free perspiration, for which the previous hot bath and douche are a good preparation. After this, patients, warmly covered with great-coats or cloaks, are carried back to the *source* for another glass of water, and thence to their hotel, where they immediately return to beds thoroughly heated by warming-pans; and, after a cup of hot coffee, try to sleep for an hour or two, according to the time at which they have been previously roused for the treatment. The hour for *déjeuner* being 10.30, this arrangement is a convenient one; and many patients prefer to remain in bed until this time, although the doctors do not order more than an hour's stay in bed. It is evident, in the absence of any cold application after the hot bath, that some such arrangement as this is necessary, in order to allow the subcutaneous muscular fibre to recover its tone,

and, by closing the pores, to prevent persons from taking cold. Accordingly, the medical men lay great stress upon this adjunct to the treatment; and it is a curious fact that the most delicate persons, exceedingly susceptible to cold at home, seem never to take cold under this *régime*. Not only so; it seems to enable them to bear the outside cold much better for the rest of the day, much in the same way, probably, as persons who have returned to England after residence in a hot climate feel the cold of the first winter much less than they do subsequent ones, or than they expected.

The establishment is now in the possession and under the management of the *arrondissement*; and, as might be expected, the arrangements are very orderly and methodical. The poor have not been forgotten. On the ground-floor are large baths called "piscines", capable of receiving a dozen or more patients at once. The patients in the hospital may be admitted gratis on presenting an order from one of the doctors, and others pay small amounts in proportion to their means. In addition to chest-affections in general, great attention has been paid to the treatment of diseases of the mucous membrane of the nose, pharynx, and Eustachian tubes. The little instruments for the administration of the naso-pharyngeal douche are well worthy of notice, affording as they do a far more effective means than the ordinary syringe supplies of douching the whole naso-pharyngeal tract. The instruments are very simple, and consist of a bone or ivory or amber nose-piece, which is inserted into either nostril, the open end being directed slightly upwards as well as backwards. The douche is let on or off by means of a small valve worked by the thumb, and the flow of water is obtained by hydraulic pressure in the ordinary way. The tap either allows or stops the flow at will; and the arrangement is such as could easily be adapted to being worked by an India-rubber syringe, failing the proper disposition of cisterns containing the mineral water, such as exists at the Mont Dore. On being directed into the nostril upwards and backwards as described, the mineral water impinges obliquely upon the upper part of the posterior wall, and is thus driven gently into the opposite nostril, through the open mouth of which it thus escapes. After a little practice, therefore, the patient can irrigate the whole of the nasal and upper part of the pharyngeal mucous membrane by a stream of mineral water inserted into one nostril, and emerging, after having performed the circuit, from the other. I saw patients so acting on themselves, and, after a few seconds' trial, was able to manage it for myself. How useful such a method must be for treating all thickenings of this part of the mucous membrane, *ozænas*, chronic inflammation of the Eustachian tubes, etc., may easily be imagined.

Another point to which attention has been given at the Mont Dore (and which, as well as all the other arrangements, I was able thoroughly to inspect, through the courtesy of Dr. Colladon, who spared neither time nor trouble to enable me to see and understand everything) is what is there called "*pulverisation*". This process consists of dividing the jet of mineral water into a very fine spray or powder, so to say, which can in this form be inhaled, and so carried by the air well into the larynx and bronchial tubes. The *pulverisation* is effected by causing a jet of water to impinge forcibly on the back of a little metal plate. By this means, it is broken up into a very fine spray; and it appears certain, from a discussion that took place in Paris at the Academy of Medicine, and in which a large number of eminent men took part, that this very finely divided jet of spray actually enters the lungs and acts on the mucous membrane.

Physiological Effects of the Waters.—When drunk, the waters cause first a slight feeling of warmth at the stomach; and, if taken in moderate quantities (three or four glasses a day), they usually cause constipation, more or less pronounced. In large quantity, they may induce diarrhoea as a primary effect, to be followed, according to the general law of organic action, by subsequent constipation. The appetite is increased, or at least not diminished. Whether in consequence of the diet, which was very deficient in vegetables owing to the bad season, or as a consequence of the treatment in general, I cannot say, but I found the digestion rather upset. There is almost always induced a great and continual thirst, very difficult to satisfy; and I thought that the large quantities of fluid, taken on this account, to some extent accounted for the derangement of digestion and the feeling of weight at the stomach which I experienced. The doctors recommend water with a small proportion of coffee (a tablespoonful or two in the tumblerful), for the purpose of overcoming the thirst, and this acts fairly well, though nothing seems able quite to relieve one from this discomfort. For the constipation, the remedy recommended was one new to me, but which was effectual, and deserves to be more widely known. It consists of an infusion in cold fresh water of whole linseed. The seeds are set to macerate over night, and the liquor, which is of a thick glairy consistence, almost like uncooked white of egg, is added in about equal quantity to the *vin ordinaire* taken at breakfast. The effects are satis-

factory after the use of about half a tumblerful in this form twice a day. The mixture is not unpleasant, though it sometimes causes a little griping. As a remedy, it is, of course, superior to ordinary purgatives, which should never be used to combat chronic or recurring constipation; but it seems to me to share some of the objections to be charged against these, and to act somewhat after the same fashion. Both I think much inferior to a remedy whose use I have not seen anywhere recommended, but which I have used now for some years with the most excellent results; and without any drawback of any kind. This is simply the whole grain of wheat, taken after the grain has been thrashed, but before it goes to the miller to be ground. The grain has a light brown colour, due to the thin covering which surrounds the white glutinous and farinaceous matter inside. It is put into a pan with just as much water as will cover it, and must be slowly boiled till the covering bursts and shows the white inside, in much the same way as occurs in cooking a potato. This generally happens in from two to three hours, but sometimes requires four. The best wheat should be used, as inferior sorts sometimes cause a little griping. After boiling, the cook may serve it in whatever way is most palatable. It is not bad, though a little insipid if taken quite plain; but it can be used with white sauce as a side-dish at luncheon or dinner, or both, and it is also very palatable if served with savoury sauce, or it may be made into puddings if preferred. In any form, it is quite curative of simple constipation, due to atony of the intestine, large or small; while it has the advantage of being at the same time a wholesome food, which has sometimes, in my hands, not only cured the constipation for which it was recommended, but also put an end to the heart-burn which is a frequent precursor of chronic rheumatism in persons of that diathesis. The *modus operandi* evidently is that of acting as a gentle excitator of the intestinal peristaltic action, much in the same way as brown bread—to which, however, it is much superior.

Perhaps the most marked effect of these waters is, however, that on the skin. The slightest exertion induces free perspiration, and, even without any exertion, the patient finds himself covered with sweat. For this reason, bathers are recommended not to take long walks or rides, as the cold winds from the mountains, sweeping down on persons whose skin is acting freely, may induce dangerous chills. I was never quite certain that the free sweating I experienced was not partly due to the hot baths and subsequent exposure to the hot steam of the "salle d'aspiration", as much as to the drinking of the water. As I never took more than three glasses a day, and generally only two, I think this must have been so. At least I imagine that if, in England for example, a person were subjected to a hot bath (say of sea-water) for ten or fifteen minutes, then to a douche of the same for a similar length of time, and were then sent to inhale steam for forty or fifty minutes, he would probably find himself in a day or two suffering from enfeeblement and sweatings, much as the bathers do at the Mont Dore. The feebleness is also very characteristic, and, while the treatment lasts, patients find themselves disinclined for exertion, and unable to walk or climb as they are accustomed. The heart's action seems to be enfeebled for the time being, as is also the muscular energy in general. After getting into bed from the "salle d'aspiration", the patient, who is recommended to sleep for an hour if he can, often finds himself unable to do so, owing to a feeling of excitement of the brain, coupled with a sensation of throbbing or thumping in the head, as if the heart was acting very forcibly, which no doubt is the case. Physiologically speaking, I have no doubt that the baths first excite and then diminish the heart's action, for which reason one thoroughly agrees with the first recommendation of the doctors, who say that patients suffering from affections of the heart ought not to go to the Mont Dore.

Therapeutic Effects of the Treatment.—The waters of the Mont Dore are said to be specially useful in two classes of cases: 1. In affections of the respiratory organs; 2. In affections of a rheumatic nature. There can, I think, be no doubt that the treatment there pursued has been beneficial, year by year, to a large and increasing number of persons. To begin with the rheumatic cases, we should expect satisfactory results to rheumatic affections from waters containing a considerable amount of alkaline compounds. Of course, in all places of this kind, it must not be forgotten that, in addition to all the direct effects of treatment such as patients might have at their own homes, there are to be considered the adjuncts of perfect leisure, ease of mind, fresh air, and change of scene and diet. In the case of the Mont Dore, there are to be added a dry, sandy, and gravelly soil, very suitable both for rheumatic patients and those suffering from chest affections; and also the invigoration caused by mountains whose appearance is continually changing under the influence of sunshine and cloud and storm, and which give to the air coming down from them the same bracing character that is found in that of the Scotch Highlands or, still better, in Switzerland. Speaking generally, these natural agents have so beneficial an influence that many patients would recover, or at least much improve, under them, even if

their ailments had not been diagnosed, and if no medical man had ordered them to any given place. Let us allow, however, in accordance with the weight of medical opinion, that the 30 or 40 grains of mineral matter in each litre of the waters drunk or bathed in have therapeutic influence as resolvent, diuretic, diaphoretic, alterative, and tonic agents; let us admit that the alkaline salts and the traces of lithia, calcium rubidium, etc., combat the rheumatic diathesis, and that the arseniate of soda and the bicarbonate of the protoxide of iron brace up the altered rheumatic patient,—after all these have been duly considered, the question remains: Are these the only factors in the cure, or is there anything else to be taken into account? We may even admit that the combination of these constituents, in a natural water, has an effect much more powerful and emphatic than we could hope to obtain by the administration of the ingredients in an artificial solution. Natural *serum sanguinis*, for example, has properties which no artificial imitation, however close, has ever yet succeeded in attaining, or may be hoped to attain. I cannot help thinking, however, after allowance has been made for all arguments of this kind, that part of the secret of the cure, even in rheumatic cases, is due to the *form* of the application as much as to its nature; while in chest-affections, I am sure this is so. In the case of rheumatism, there can be little doubt that the free carbonic acid acts as a calmate of the accompanying pain. At other places (Saint Nectaire, for instance), baths of carbonic acid gas are given to relieve neuralgic pains, and particularly sciatica, before patients can bear baths of mineral water. But, in addition to this, I think the *hot* baths and *hot* douches must exert an influence much more powerful than could be hoped for from *cold* applications of the same ingredients. In chest-affections, there can be no doubt that this is the case—the hot baths and douches there acting as large fomentations would, and soothing all irritation; while they cause a feeling of weakness and increase the action of the skin, just as hot poultices would do. In the "salle d'aspiration", the patient may be looked upon as being enveloped in poultices all over, and as having similar applications all along the interior of his inflamed mucous membranes as well, since the steam penetrates all the inner part of the breathing organs, and acts as a calmate agent, soothing all the irritation and reducing the thickening there. We are not, therefore, surprised to hear the unanimous verdict, both of doctors and patients, as to the benefit the bathers experience in all forms of bronchitis, and in those cases of chronic recurrent pneumonia that so often end in softening of the lungs with deposition of tubercle, night-sweats, diarrhoea, and death. As to the effects in tubercular consumption, I beg to refer the reader who may wish to know what has been done at the Mont Dore, to the work of the late Dr. Boudant, published (1877) after an experience of twenty years had enabled him to state authoritatively what the powers of the waters were. Dr. Boudant was well acquainted with the progress of medicine, from the time of Laennec, both in France and in Germany. As might have been expected, he supported the views of the French pathologists, rather than those held on the other side of the Rhine; but his remarks are all fair and judicial. There is not space here for much quotation; but the following passages indicate his opinions. After remarking upon the terrible character of pulmonary consumption, and the folly of those medical men who have mistaken accidental cures for examples of a general law, he says: "Nevertheless, the waters of Mont Dore may moderate and relieve the affection, and occasionally cure it, if it is accidental and of slow and sluggish progress, and if circumscribed and in its initial stage. Finally, in certain cases, our treatment contributes to the cicatrization of larger or smaller vomicae, by means of the water drunk and used for inhalation. This last means is a true topical treatment, comparable with the dressing of a wound, and whose phases of cicatrization it is extremely curious, as well as interesting, to follow. In certain circumstances, this process takes place even rapidly, either by the approximation of the sides of the cavities with occlusion of them, or by cicatrices at the free surfaces, or by depressions more or less excavated. Frequently, when the cavities are closed, the lung sinks, and flattening may be observed at one or more points of the chest-wall, particularly at the upper part, at the subclavicular region."

This writer then proceeds to remark upon phthisis in general, and sums up his remarks in the following conclusions.

1. There are two kinds of pulmonary phthisis—the tubercular and the pneumonic.

2. The latter are caseous, by infiltration grey gelatinous purulent, and finally ulcerative. They are less grave, less frequent, more susceptible of cure than the former, and almost always unaccompanied by hæmoptysis.

3 and 4. A differential diagnosis can be generally made between these two kinds; but, in diagnosing tubercular phthisis, it is almost more important to take account of the circumstances, corroborative, hereditary, and organic appertaining to the case, than of the signs furnished by inspection, auscultation, percussion, etc.

5 and 6. There is no specific remedy for tuberculosis. Good is obtained by attention, for the most part, to hygienic rules.

7. The study of diathesis and of circumstances, hereditary or acquired, in the constitution, is of the utmost importance.

8. Once tuberculosis or granular degeneration have been set up, it is most important to observe their presence in the lung whose tissue they congest or inflame in a manner quite peculiar. Attention should then be directed to such symptoms as hæmoptysis, more or less frequent and copious, to cough, etc.

9. Medical aid should be directed to favouring the tolerance or evacuation, and then the cicatrization of cavities, since therapeutics do not directly attack tuberculosis.

10. For centuries certain mineral waters have been found useful in this affection. Among them are the Mont Dore, Bonnes, and Cauterets.

11. When these waters do not cure, they have at least the advantage of calming the cough, checking the evening fever, arresting sweats, etc.

12. Finally, it is important to delay the progress of this affection and to enable the patient to arrive at that period of life where the functions come into definite equilibrium.

As an example of the care with which Dr. Bertrand preserved accounts of his cases, and of the effects of the treatment, I take this case, entitled by him Observation 68.

Tubercular Phthisis of the Upper Part of Both Lungs. Slight Hæmoptysis on Three Different Occasions. Marked Oppression in Going up Stairs or Walking up Hill; Wandering Pains in the Chest. Treatment in 1859. Apparent Cure. Return in 1861 and 1862. Permanent Cure thereafter. At different times, two other Courses of the Waters as Preventatives.—In 1859 Madame P., of Paris during the winter and of Berry in summer, 32 years of age, with four children, of delicate organisation, nervous, rather lymphatic, regular, was attacked, two years before, by an illness, which left a tracheo-bronchitis aggravated by cold and damp, so as to induce bloody expectoration and fugitive pains in the chest. As she daily became thinner as a consequence of mal-nutrition, her medical adviser sent her to the Mont Dore, in the hope of arresting a phthisis which announced its approach by rapid steps, with dry, crackling sounds at certain points of the lungs, and moist at others.

From the first examination, the diagnosis of this grave malady was not doubtful, the stethoscopic sounds above mentioned were manifest, and, in addition, the respiration was short, harsh, with much prolonged expiration and remarkable subscapular dulness, and here and there diffused pectoriloquy: all these symptoms were more marked on the right than the left side. On the other hand, the appearance, the general bearing, and the difficulty of respiration, all denoted a real disease of the lungs, at the same time that a slight dry cough followed, seldom by muco-purulent expectoration, and night sweats preceded generally by a slight evening pyrexia, with hæmoptysis to the extent of half a glassful of blood, eight days before her departure for the Mont Dore, which hurried her departure, all tended to confirm the diagnosis.

Treatment.—This consisted of three half glasses of mineral water mixed with milk (in some cases, where the water is not well borne alone, it is well to mix it with milk), demi-baths at the César spring at 93° F., inhalations for half an hour. She was directed to have the regimen of the hotel, the digestive organs showing no evidence of being out of order; to walk in the fir plantations when the sun was shining, and to talk as little as possible. About the eighth day, menstruation coming on, she was directed to omit the demi-bath, have four half-glasses of mineral water without milk, and inhalation for forty minutes; as soon as the menses ceased, to recommence the demi-baths; a certain amount of sanguinolent expectoration making its appearance, the red colour of the sputum disappeared. Four days later she was ordered to have inhalation in the small room for twenty minutes, and forty-eight hours afterwards inhalation in the large room, and to have four glasses of the water. Madame P. found herself improving, and continued the treatment till the twenty-first day. She went away in the best possible condition: auscultation was, so to say, normal, percussion the same, and the whole appearance denoted health.

I expected to see this lady again the next year, as we had agreed; but having become pregnant in the meantime, she could not come. She was delivered during the thermal season of 1860 of twins, and was unable to return till the season of 1861, in a state worse than on the previous occasion: the face yellow, pale, emaciation general, cough severe, expectoration muco-purulent, and often bloody; sibilus, rhonchus, and mucous râles at the right apex; gurgling, pectoriloquy, vocal resonance, dulness, respiration short, slow fever; in fine, tuberculosis passed from the second to the third stage, with small cavities. Treatment was recommenced as on the former occasion, but it overexcited the patient, the chest being irritated, the sputa reddened, and on the sixteenth day half a glassful of blood was expectorated in the morning

on waking: then fever followed, in consequence of which treatment had to be suspended and replaced by syrup of the phosphate of iron, four cuppings over the chest, and pediluvia. After some days the acute symptoms disappeared, when warm pediluvia, and two half glasses of water with milk, were ordered. The health appeared to be returning, when the pediluvia were replaced by demi-baths, so as to produce a revulsion, and she was ordered 20 minutes of the water pulverised. Five days later she had four half glasses of water with syrup of gum: by little and little the water was taken pure, the cough became quieted, and there was no more blood in the sputa, which became less abundant and more frothy: the appearance improved, and the respiration became easier. In brief, Madame P. continued the treatment which did her much good, and she left on the 25th day in good condition. The following season she was scarcely recognisable, so much had she improved: she had no cough, no sanguinolent expectoration, her only trouble being some remaining difficulty of breathing when walking quickly or going up hill; auscultation was good. I considered Madame P. as cured; still she followed the treatment, to which she returned again on two subsequent occasions. At the time of writing, Dr. Boudant says of her: "To-day, without being robust, the health remains good, and I have no doubt that Madame P. may attain advanced life with care".

This is by no means the only case that might have been chosen in which the Mont Dore course has been useful in phthisis. Observations 69, 70, 71, 72, etc., give other examples, whose fidelity to truth I am the more ready to credit that I saw several cases improving during my stay at the place. These observations, as also the whole book, attest the painstaking carefulness of Dr. Boudant, who also describes cases of leucorrhœa and uterine catarrh cured by the course at the Mont Dore.

To sum up: the course is suitable for the treatment of affections of the tonsils, pharynx, and uvula, for coryza and ozæna, for inflammation of the Eustachian tubes spreading to the middle ear and causing deafness; for chronic tracheitis and bronchitis; for phthisical affections in general, even when accompanied by hæmoptysis (though here much depends on the experience and skill of the medical attendant, since over-excitation might induce this condition), for chronic pneumonia and pleurisy; for asthma; for articular, but especially for muscular rheumatism; and for some forms of dyspepsia and uterine catarrh.

It only remains for me to add a word or two about the diet and general regimen. Dr. Boudant's opinion was that in general patients eat too much when undergoing the treatment, under the temptation of good cooking and the diversity of dishes for which the hotels are famous. He recommends merely a moderate allowance of meat, with a free supply of fruits. Strawberries, cherries, plums, and apricots are abundant in ordinary seasons, and may be freely taken; but pastry should be avoided. I have already mentioned weak coffee as a means of quenching thirst; and, as a rule, coffee in stronger solutions is not forbidden, nor is the thin *vin ordinaire* of the country. It is well to go straight on with the treatment when it has once begun. For this reason, women should try to arrange so that it is not necessary to intermit it on account of the menses; but should these appear, the rule is to intermit the baths, but not the drinking of the water, nor the *salle d'aspiration*, which are continued as before.

NOTE ON OÖPHORECTOMY.

BY LAWSON TAIT, F.R.C.S.

THE discussion, which I have just read in the Section of Obstetrics and Diseases of Women of the American Medical Association, on June 1st, shows conclusively that this operation is accepted amongst our transatlantic brethren, as not only one that is to be justified, but one that is to be welcomed as an immense addition to our power of relieving suffering women. In this country, it has not yet achieved such a position; and, therefore, every one engaged in its practice is bound fully to disclose his experience, and not to publish only successful operations.

To establish this operation, unlike many others, two steps are required. The first is to show that its immediate results are sufficiently free from danger to justify its performance merely as a matter of risk. The second is to show, by its more remote results, that it does really confer upon the sufferers the relief which theoretically it promises. I therefore propose to give here a skeleton history of all the cases I have performed since the revival of the operation. Full particulars will be given for each case in future communications which I hope to make to the JOURNAL. Meantime, the following experience—larger, I think, than that of any other operator but Professor Hegar—will, I think, be enough to show that the operation is far more free from risk than many others long since accepted, and which have had, in my opinion, far less satisfactory results in the way of permanent relief.