mous affections of the eyes is particularly striking when the object is to prevent the endless relapses of keratitis. Although the opinion of a considerable part of the medical profession is opposed to the use of Kreuznach waters in florid inflammations and ulcerations, nothing in my experience justifies the laying down of such a contra-indication.

In Ear Disease.—The effects obtained in diseases of the ear are less striking. Catarrh of the middle ear often leads to deep degeneration, shrivelling, adhesions of the mucous membrane, etc., which render all hope of a cure futile. Nevertheless some of the dangerous suppurations of the middle ear, whether connected with an affection of the bone or not, have actually been cured at Kreuznach.

In Bone and Joint Disease.—In speaking of affections of the joints and bones the difficulty is to define the limit beyond which a surgical operation becomes necessary. We have certainly seen several cases cured at Kreuznach in which most surgeons of the present day would have advised an operation. In other cases the removal of the bone, whether desirable or not, is impossible. On the whole I incline to the belief that it is safer, especially when the joints are involved, to operate a little too soon rather than to delay too long. This particularly applies to adults. Among the advantages of such a course we may mention that the transfer of the invalid to Kreuznach, in order to have his strumous ailments attended to after an operation, is generally attended by less difficulty. Besides, should an operation become necessary during the course of treatment, it causes a very unpleasant interruption of the cure. For the definitive and final healing of wounds and ulcerations, the waters of Kreuznach have always proved excellent. Kidney diseases, such as are associated with suppuration of the bones, I have also seen cured when attacked in the beginning, but not after having been allowed to develop fully. Though I have by no means exhausted the list of strumous diseases, nevertheless I think that the foregoing considerations will suffice to determine in each particular case the desirability of a course of the Kreuznach waters.

THE MINERAL WATERS OF BRIDES-LES-BAINS AND SALINS-MOUTIERS.

By P. DELASTRE, M.D.,

Corresponding Member of the Medical Society of Hydrology of Paris; Consulting Physician at Brides and Salins.

BRIDES is a charming little village, situated in one of the most picturesque parts of Savoy, five kilometres and a half from Moutiers, the chief town in the prefecture. The village stands at an altitude of 1,800 feet above the level of the sea. Situated in a valley, it is sheltered particularly from the east, west, and north winds; yet the pure air of surrounding mountains and glaciers of the Tarantaise is invigorating and refreshing to the most delicate constitutions. The country around is remarkable for its picturesque beauty and the variety of its scenery. Brides is accessible from Paris, in about fourteen hours, by the Lyons and Mediterranean Railway. The season is from the middle of May to October. The hotel, lodging, and bath accommodation is excellent.

The springs supply abundant water, at a temperature of 95° F.; they are alkaline, and powerfully diuretic and slightly aperient, containing, as the chief ingredients, sodium chloride, sodium sulphate, magnesium sulphate, with smaller proportions of the alkalis, carbonates, and free carbonic acid, which imparts to them a limpid and slightly sparkling character. The water presents many of the qualities of the famous Carlsbad springs, and, besides possessing valuable diuretic and aperient action, is also tonic and invigorating in debilitated constitutions. Its effects will be found to be especially serviceable in the various forms of functional derangement of the gastro-intestinal tract, especially when associated with abdominal plethora depending on chronic gastro-intestinal catarrh, and congestion of the liver or spleen with constipation. Cases of biliary colic, lithiasis, and functional derangement of the liver, the result of prolonged residence in India and other tropical countries, are almost invariably benefited by their use. In a brochure which I lately published, termed *Etudes sur les Eaux Minérales de Brides-les-Bains et Salins-Moutiers*, I have treated specially of the physiological and therapeutic properties of the various springs. Their action is remarkable in assisting to restore healthy nutrition, and particularly in favouring the elaboration of cholesterine in the liver, and also the elimination of the

products of urea and of phosphatic salts by the kidneys. Their use would seem also to favour oxygenation of the blood and the formation of hæmoglobin, at the same time diminishing the tendency to obesity in those so disposed. In gout generally, and specially in atonic cases, the effects are often remarkable. I have found diabetic patients also improve very much under treatment.

The springs of Salins-Moutiers, the natural temperature of which is about 96° F., are rich in sodium chloride, and also contain iron and arsenic. Their properties are even more marked than those of many other waters which possess a similar action, such as Kreuznach, Homburg, Mannheim, and Kissingen. The springs are less than two miles distant from those of Brides. Their use is of great value in children of rachitic or scrofulous constitution, in anæmia, chlorosis, and other debilitating conditions in women. In affections of the uterus and appendages, they are of much service. In disordered menstruation, amenorrhœa, dysmenorrhœa, and leucorrhœa, and in fibroid tumours of the uterus, with uterine engorgement, their use is attended with marked benefit. These waters are often of service in conjunction with the use of those of the neighbouring springs of Brides. Dr. Hermann Weber, in his chapter on Climate and Health-resort in the *Book of Health*, refers to Brides and Salins-Moutiers as "among the best summer health-resorts, not only for its springs, but for its delightfully salubrious air."

Were the valuable properties of these springs more widely known, as well as the natural charms of the district in which they are situated, I feel sure they would be largely taken advantage of.

OBSERVATIONS ON THE USE OF THE EFFERVESCING CHALYBEATE WATER OF STRATHPEFFER SPA.

By FORTESCUE FOX, M.D. LOND.,
Strathpeffer.

STRATHPEFFER in Scotland and Harrogate in England are so commonly associated with sulphur treatment, that it may not be out of place to recall the fact that iron waters, of greater or less value, are almost invariably found in the neighbourhood of sulphuretted springs. At the first-named spa there is, for example, a chalybeate spring to which attention has been lately directed on account of its unusual character. It has been conveyed to the pump-room, where it issues as a water, richly carbonated or aerated in the summer months. Here it is drunk, hot or cold, in a state of cloudy effervescence.

Thus it is usually possible at sulphur spas not only by the use of iron to supplement with advantage the alterative effects of sulphur, but also in an entirely different class of cases to provide a treatment founded on the tonic waters alone. The object of the present observations is to illustrate this latter or primary use of the effervescing chalybeate at Strathpeffer. The cases which appear to have benefited the most by its use tend to fall, on the review of four years, into the following groups, examples of which are appended.

Group I.—Debilitated men of advancing age, with (probably or certainly) renal and vascular lesions, with or without gout.

CASE I.—A gentleman, aged 71, had lost health rapidly during the past twelve months. There was no obvious disease in any organ. The pulse was small and weak; urine normal. He was very anæmic and rather sallow, showing some œdema of the face and hands. The chalybeate was commenced in small doses, and afterwards increased to 60 ounces daily. Under this treatment, with judicious dieting, strength and colour returned in a very remarkable manner. This gentleman died in the following year.

CASE II.—A lawyer, aged 54, suffered from overwork and worry, under which he completely broke down. He had two passing attacks of aphasia, which led to the discovery of albuminuria, after which he was laid by and put upon a milk diet. He arrived at Strathpeffer a few weeks later, complaining much of headache, poor sleep, and great nervousness and lassitude. The chalybeate was persevered in for five weeks, given always in small doses, at short intervals, before breakfast and again at noon, and altogether with the best results. The only remaining symptom was a urine faintly albuminous, but the specific gravity had increased from 1013 to 1018 (or, on the average of 58 ounces in twenty-four hours, 1017).

CASE III.—A gentleman, aged 57, stated (in 1885) that he had

suffered from gout in the feet for about four years. In that year he took for four weeks the strongest sulphur water and baths. The following season (1886) he returned, having had two very slight attacks of gout during the spring. The general condition was, however, changed for the worse. He was anæmic and languid; the urine was very albuminous, although the skin still acted freely. After a few days of sulphur treatment the chalybeate was resorted to with benefit. The next year (1887) he reported himself as moderately well, but he had had several gouty attacks in the feet and knees. One of these had been "brought on by a course of steel." The effervescing chalybeate was taken for three weeks, and he left the spa without gouty symptoms, and much better in every respect, and able to walk several miles at a stretch. The urine remained faintly albuminous.

It is thus evident that a sparkling iron water of moderate strength (a third of a grain to the pint) may be useful in gouty cases; or, rather, it may be proper to disregard the gout and treat in this manner the more serious maladies to which it has given rise. But whether gouty or otherwise, a condition exists of premature senility of the tissues, with anæmia (perhaps hydræmia), and often with signs of renal failure, in which carbonate of iron, freely diluted, is beneficial. And thus if Leamington, with its saline chalybeate, is excellent in the anæmia of the young, so no less Strathpeffer, with its effervescing carbonated chalybeate, may be regarded as congenial to the anæmia with debility of the aged.

Group II.—Dyspepsia in middle life, due to nervous prostration or overwork.

CASE IV.—A lady of nearly 60, after severe domestic trial, began to complain of "rheumatic" pains, indigestion, and loss of strength and colour. She was recommended spinal douches and the chalybeate water, taken hot at noon. The quantity was soon increased to about forty ounces daily, divided into small doses. After a fortnight she left the spa, not without much improvement in health. In this class of cases the peculiarly stimulating effect of effervescing waters is often noticed, exhilaration and even giddiness following their use by delicate stomachs.

Group III.—Chronic malarial affections.

CASE V.—A lady, aged about 45, after much mental strain and bodily illness (dysentery and "fevers") in tropical South America, returned home in ailing health, subject to recurring "internal chills," diarrhoea, and general weakness. She was stout, very anæmic, nervous, with frequent indigestion, headaches, and flying pains. For nearly four weeks this lady took the chalybeate, usually hot, and latterly to the extent of forty-five ounces daily. With this were combined occasional douches, sulphur baths, and massage, which no doubt contributed to a striking improvement in nervous, muscular, and digestive tone. For cases of this kind a very prolonged use of the water is to be recommended, repeated from year to year, where benefit has been once derived.

The pure or carbonated chalybeates, more especially those of a light and digestible quality, will probably be accorded a wider therapeutic range when they have been systematically put to the test. That the iron is actually absorbed would seem to be certain not only from the fact that the evacuations are hardly ever discoloured, but also from the rapid and obvious tonic effects in many instances.

FACTS AND FIGURES IN CONNECTION WITH THE CLIMATE OF CALIFORNIA.

By JAMES H. PARKINSON, L.R.C.S.I.,
Sacramento, California.

IN beauty and grandeur of scenery California is unsurpassed, and there is good railroad communication throughout the State; the hotel accommodation is quite equal to that which people who travel are wont to find away from home. Those who wish to reside permanently will find many places which will perfectly meet the needs of everyday life.

There is, perhaps, no other region where one can travel for hundreds of miles in so equable a climate as that of the Sacramento and San Joaquin valleys. From Red Bluff in the north to Sumner in the south is 400 miles, and throughout that expanse of country what is true of one portion holds good for all. Northward and southward the surface is more broken, and the climate of different localities varies with the situation.

In order that some idea may be obtained of the relative position

of stations in the following tables, I append the latitude, longitude, and height above sea-level of seven towns in the State.¹

TABLE I.

Stations.	Latitude.	Longitude.	Above Sea-level.
Los Angeles	34° 04' N.	118° 14' W.	334 feet
Oakland	37° 48' N.	122° 17' W.	25 "
Red Bluff	40° 11' N.	122° 15' W.	307 "
Sacramento	38° 35' N.	121° 30' W.	35 "
San Francisco	37° 48' N.	122° 25' W.	60 "
Santa Barbara	34° 25' N.	119° 42' W.	30 "
San Diego	32° 44' N.	117° 10' W.	40 "

The comparative temperatures are well shown in the following table. Those for Europe are taken from Dr. J. H. Bennet's work, *Winter and Spring on the Shores of the Mediterranean*. The temperatures for California are from the Signal Service records and some independent observers, and represent an average of from seven to ten years.

TABLE II.

	Average winter Temp.	Average spring Temp.	Average summer Temp.	Average fall Temp.	Average annual Temp.	Highest Temp.	Lowest Temp.	Above Sea-level.
	°	°	°	°	°	°	°	Feet.
Florence	44.3	56.0	74.0	60.7	58.8	*	*	—
Mentone	49.0	58.3	73.9	62.5	60.9	85	23	—
San Remo	48.9	57.3	72.4	61.9	60.1	85	25	—
Nice	47.8	56.2	72.3	61.6	59.5	*	*	—
Cannes	49.6	57.4	73.0	61.0	60.2	85	20	—
San Diego	54.6	58.1	66.8	62.6	60.5	101	32	40
Los Angeles	53.6	58.4	67.8	62.7	60.6	112	28	334
Santa Barbara	54.3	59.4	67.7	63.1	61.0	102	31	30
Santa Cruz	51.8	57.7	62.2	59.6	57.8	98	30	25
Monterey	50.9	56.7	61.6	57.1	56.6	90	25	42
San Francisco	51.3	54.6	58.5	58.2	55.7	95	33	60
Sacramento	48.3	59.5	71.7	61.5	60.2	106	19	35
Oroville	52.9	64.5	78.8	64.3	65.1	102	29	205
Red Bluff	46.8	59.8	79.7	63.2	62.4	110	19	307
Auburn	46.2	56.4	74.3	61.7	59.7	106	18	1,363

* No Record.

It will be seen that the average winter temperatures, except that of Sacramento, are much higher in California. The spring temperatures are about the same in both places. In the summer temperatures California is several degrees cooler, while again in the autumn the temperatures equalise.

In connection with the highest temperature columns it may be stated generally that such elevations are exceptional. High temperatures in California are not oppressive. During the summer months, when harvesting is in active progress, men and animals work throughout the long days under the cloudless skies, with the thermometer at 110° or 120° (in the sun), yet sunstroke is almost unknown. I do not think that this peculiarity has been satisfactorily explained. Many ascribe it to the dryness of the atmosphere, and there would seem to be a foundation for this belief in the history of cases which have occurred in Sacramento.

For the invalid or convalescent a fact of great importance is the universal prevalence of cool nights. During the afternoon the south breeze commences to blow, and very soon the air is pleasantly cool. This breeze arrives at different hours, according to locality: in the coast towns, early in the afternoon; at Los Angeles, about 3 P.M.; at Sacramento, usually about 5 P.M., and continues to blow during the night. It is but rarely, in an ordinary well-ventilated room, that bedclothes can be dispensed with; in fact, during a constant residence of almost five years in this city I can remember just four occasions that I slept without cover.

Table No. III gives some idea of the number of fine days which can be relied on. The figures indicating the days on which rain fell for five of the stations were not at hand. Clear, fair, and cloudy days are estimated on the Signal Service basis, a clear day being one on which cloudiness is three or less in a scale of 10. Sacramento, with 240 clear days, leads every town in the United States at which an observer for the Signal Corps is stationed. I regret that the number of days on which rain fell is not given for all stations, as this is a matter of considerable importance for the invalid.

¹ I am indebted to Sergeant James A. Barwick, the Signal Corps observer at Sacramento, for compiling the tables contained in this article.