is in harmony with the principle of abstinence from sugar and from all other articles of food which are convertible into glucose after ingestion, and of such a formulated dietary I have been accustomed to give a printed copy to a patient in a suitable case. My dietary rules in diabetes, as now modified, by Mossé's permission of potatoes, and by the developments I have devised of potato-made bread, biscuits, and cakes, prepared in the ways I have here described, would read:

May Eat.—Butcher's meat of all kinds, excepting liver. Pork, ham, bacon, poultry, game, potatoes steamed in their "skins." Fish, oysters, crabs, lobsters. Animal soups, not thickened, excepting by potatoes. Mutton broth, beef-tea. Bran and potato bread or biscuits, potato cakes, eggs, cream, butter, cheese, greens, watercress, mustard and cress, lettuce, mushrooms, nuts; jelly or custard, unsweetened.

May not Eat.—Any bread or biscuits but those made of bran and potato. Sugar, asparagus, broccoli, cauliflower, carrots, parsnips, French beans, peas, turnips, arrowroot, macaroni, rice, sago, tapioca, vermicelli, pastry, excepting potato cakes; puddings; fruit, fresh and preserved.

May Drink.—Water, tea, coffee, soda-water, claret, hock, spirits and water, unsweetened; bitter ale, very sparingly; milk, very sparingly.

May not Drink.—Cocoa, chocolate, champagne, porter, stout, home-made wines, liqueurs, cider, sweet wines, ale.

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RECURRENT FEVER ASSOCIATED WITH SPIRILLA IN THE BLOOD IN A PATIENT FROM GIBRALTAR.

By SIR PATRICK MANSON, K.C.M.G., F.R.S.

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THERE is a tendency with most of us when we come across an anomalous case to square diagnosis with some recognized type of disease rather than to search out and see if the case be not something altogether new. Thus it was that formerly the specific and distinct disease now generally designated Malta fever was put down either as malaria or as typhoid, and thus it is that at the present day, when we come across an anomalous case of fever from the Mediterranean we are prone to diagnose it Malta fever. I believe that in at least a proportion of these cases this diagnosis is wrong.

The accidental discovery recently of an unlooked-for organism in such a case has impressed this on me. I publish the case in the hope that others, as opportunity offers, may be induced to follow up the hint it conveys and endeavour to ascertain whether or not, under the term Malta fever, sometimes we may be ascribing to *micrococcus melitensis* a fever produced by the organism I refer to, or perhaps by some other germ.

The following condensed account of the case is from notes kindly supplied to me by Dr. Macwhirter Dunbar.

A married lady, aged 30, with one child, had resided at Gibraltar for three years and enjoyed good health. After a short visit to England last summer she returned to Gibraltar on September 29th. She states that she had a bad bite, ascribed to a mosquito, on the cheek on October 18th. The bite inflamed, and on October 20th she had a rigor, followed by fever, 104° F.; after profuse sweating the fever terminated on October 24th. The catamenia, due on October 19th, did not appear. On November 3rd there was a recurrence of the fever, which lasted three days, the temperature again rising to 104° on November 4th. She went to Algeiras for change on November 10th, and whilst there had a recurrence of fever on November 11th, the attack again lasting three days. She returned to Gibraltar on November 14th and came to London on November 21st. She was seen by Dr. Macwhirter Dunbar on November 22nd. As the case had been regarded as malarial and quinine given during the attacks, this treatment was continued. Whilst under Dr. Dunbar's care she has had five recurrences of the fever, each, except that of January 11th, which was very mild, being ushered in by rigor and terminated by profuse sweating. The attacks occurred on November 24th, December 4th, December 15th, December 29th, and January 11th. They gradually diminished in severity. In the intervals she was quite well. There has been no recurrence since January 14th, although on January 24th there was evidence in headache, anorexia, and general aching of an attack threatening. There was no return of the catamenia, and she miscarried on December 13th.

I was asked to see her on December 18th. The attack of December 15th had just subsided, and she was quite free from fever. The blood films I prepared on that occasion showed neither malarial parasites nor other organism. As she had been taking quinine the negative result of the microscopic examination could not be regarded as excluding malaria. The quinine was stopped, and instructions given to forward blood films prepared during the height of the attack,

should one recur. Fever recurred on December 29th, and out of six films, taken at different times, four contained spirilla; there were no malarial parasites. Films prepared the day after the abortive attack (maximum temperature, 100°) on January 11th showed no parasites. The blood was examined by Dr. Harold Spitta for Malta fever and for pyogenic organisms with negative results.

I have no doubt that this case was one of spirillum infection, but whether the spirillum was that of ordinary relapsing fever, that is spirillum obermeyer, I am not prepared to say. I am inclined to think both on clinical and morphological grounds that it was different. According to Carter, Löwenthal, and others, fourth and fifth relapses in ordinary relapsing fever are exceedingly rare, and no mention is made by these authors of such an occurrence as six or seven relapses. In this case there were seven relapses at intervals of fourteen, eight, ten, eleven, fourteen, and thirteen days respectively.

Morphologically the spirillum differed from spirillum obermeyer as usually represented; for whereas this well-known organism exhibits many short and abrupt flexures, the curves of the parasite I describe were few and graceful (see photograph by Dr. H. Spitta).

I would not insist too much on these points, but I consider that the case justifies further inquiry into the etiology of the Mediterranean fevers. Especially would I urge careful microscopic examination of blood in all cases in which the Widal test is negative or doubtful.

I must warn investigators that the spirillum is not easily found; possibly the paucity in this instance was owing to the fact that the infection was nearly exhausted; had the examinations been made during the earlier paroxysms, especially during the first, they might have been found in greater profusion. As stated, in four only out of the six preparations examined were spirilla found, and these contained only some three or four on each slide.

VERONAL: A NEW HYPNOTIC.

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VERONAL, di-ethyl-malonyl-urea, was introduced by Fischer and von Mering¹ as the result of a systematic investigation into the hypnotic properties of certain urea derivatives containing "ethyl" groups. It is a colourless, crystalline body, sparingly soluble in cold water, readily soluble in hot water. It has a bitter taste, but no smell. It is most conveniently given in the form of "tablets," or in the form of chocolate tablets (prepared by E. Merck), which can be dissolved in hot milk. Both the "tablets" and the chocolate tablets contain half a gram each (7½ gr.) of veronal.

It has already been used in a large number of cases of insomnia, and the results have been published in the case of more than a thousand patients, and in a great variety of diseases, including pure insomnia; various diseases, functional and organic, of the central nervous system; acute febrile conditions; diseases of the heart, lungs, kidneys, and liver, even in their most advanced stages.

The doses used range from 0.25 gram (3½ gr.) to 3.5 grams (53 gr.). In most cases a dose of 0.5 gram (7½ gr.) has sufficed

to produce sleep within an hour, lasting, with perhaps one or two brief interruptions, seven or eight hours. The sleep is indistinguishable from natural sleep, and the patient awakes feeling refreshed, frequently speaking with enthusiasm.²

The patients never complained of any unpleasant after-effects when given in this dose. In some cases even smaller doses—0.25 or 0.3 gram (4 or 5 gr.)—were found to suffice to give the patient eight hours' sleep. This was the case in weak women suffering from heart disease with failing compensation, advanced phthisis, and diabetes mellitus respectively.³ Again, in many cases where a patient had previously received 0.5 gram veronal, it was found possible to reduce the dose to one-half after a few days.⁴

Larger doses—1 gram (15 gr.)—were required in some cases where there was actual physical discomfort or difficulty. In these cases veronal proved equally reliable, and equally free from objection. The patients woke refreshed, and frequently with improved appetite. There were never complaints of headache or nausea, although one or two patients felt slight giddiness, lasting not more than ten minutes.

Still larger doses up to 3.5 grams (the latter in strong men only)⁵ were used with good effect in certain cases of severe mental excitement—delirium tremens, general paralysis, and epilepsy. These large doses were usually followed by continued sleepiness on the following day; but this was, on the whole, an effect to be desired. In the case of epilepsy veronal induces sleep, but has no power of controlling the fits. The only cases in which veronal failed were cases of severe pain, such as occurred in acute rheumatism and in severe sciatica. In such cases morphine is to be preferred.

Occasionally, when the dose used is not a large one, and when there is pain or excitement, the patient may not fall asleep for three or four hours after taking veronal. The following two cases, under my own observation, illustrate this, and illustrate also the way in which a single dose of veronal frequently gives a patient two or more successive nights of good sleep.

N. G., 37, an engineer, subject to "migraine," took 1 gram of veronal at 8 p.m. one night while suffering from a very severe headache. He fell asleep at 12, and slept soundly till 8.30, when he was called. He woke free from headache, was able to attend to his usual duties during the day and did not feel sleepy. The following night he slept very well, far better than he is accustomed to sleep. About a fortnight later he took 0.5 gram of veronal (one tablet) at 8 p.m. while suffering from a severe headache. He again slept from 12 till he was called at 8.30, and woke refreshed and free from headache. He again slept well the following night.

Mrs. C., 60, a hotel manageress, was suffering from gastro-enteritis the result of "tippling." Vomiting and diarrhoea were very frequent; the heart was dilated, beating irregularly, the impulse weak and flapping, the apex beat in the fifth space $\frac{1}{2}$ in. external to the nipple line. She had not slept at all for three days, and not well for weeks. After a few doses of bismuth with carminatives, the vomiting and diarrhoea were diminished. At 8 p.m. on the first day of treatment she took 0.5 gram of veronal. She fell asleep about 12.30 and slept four or five hours, with a few brief intervals of wakefulness, during which she used the commode. She woke feeling a little stronger, considerably refreshed, and with some returning desire for food. The heart's impulse was less flapping. The vomiting had ceased. The following night she slept six hours and was then convalescent. The heart's apex was $\frac{1}{2}$ in. internal to the nipple line, the beats regular and fairly strong.

A slight antipyrin-like rash has been observed for a short time in one or two cases.

No remote after-effects of any kind have been observed to follow the use of veronal. It has no action on the cardiac or respiratory centres, does not appreciably influence the blood pressure, and is without action on the liver and kidneys. The urine remains normal, free from albumen and blood pigment. Veronal is not a diuretic, as its chemical relationship to urea might suggest.

To this immunity from bad effects on the vital organs is due the great importance of veronal. For it can be given without hesitation and with excellent results in cases of severe heart disease with failing compensation, in cases of phthisis early or advanced, in other pulmonary diseases, and in kidney disease.

As regards the induction of a "veronal habit" Lilienfeld and others have never found it necessary to increase the dose; indeed in most cases it has been possible to reduce the dose after a few days, and frequently a single moderate dose of 0.5 gram ($\frac{7}{8}$ gr.) has sufficed to procure for the patient a succession of four or five nights of good sleep. Berent,⁶ however, found it necessary in some cases to increase the dose after a few days, or to substitute some other hypnotic, such as trional, for a few days. To conclude, it seems clear that veronal is proving to be a useful means of procuring sleep.

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ON THE USE OF OXYGEN GAS IN DISTENDING THE BLADDER FOR CYSTOSCOPY.

BEING A PART OF A LECTURE TO THE SURGERY CLASS IN ST. MUNGO'S COLLEGE, GLASGOW.

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IN diseases of the bladder and kidneys it is often expedient to get a view of the interior of the bladder with the object of ascertaining either its condition or contents, or seeing what flows from the mouths of the ureters. In my student days—not so many years ago—this was not practicable, at least we had no means of doing so, there being no cystoscope, but since then, with the development of science, and especially in the way of electric instruments, we have now at our call an instrument which, when carefully used under favourable circumstances, will give you a very good view of the vesical cavity.

To enable you to use the cystoscope you must distend the bladder in order to separate its walls; for this purpose it has been the custom to inject a transparent solution such as carbolic, boracic, or sterilized water, and their use had many advantages, but, like everything else, they have their disadvantages.

One of the advantages in using a solution is that it disseminates the heat that comes from the bright glare of the electric lamp when in the bladder, and thus saves the mucous membrane from being injured; but, unfortunately, the fluid medium allows of blood, pus, or urinary deposits which may come down the ureters to mix with it and render the medium opaque, and thus obscure the view.

Last June in Berlin I saw a cystoscope used which had what is known as a "cold lamp" fitted to it; these lamps are of peculiar construction, and give an astonishing light with little or no heat, and it struck me that if I had "cold lamps" on my cystoscopes I would discard the fluid medium and inflate the bladder with air. As soon, therefore, as I was able to procure these lamps I experimented with gases, passing them through sterile solution to purify them before introducing them into the bladder, and I am now pleased to say I can get a much better view by using oxygen gas than by any of the many media I have tried.

You saw me yesterday morning in the operating theatre in the Royal Infirmary employing, instead of boracic solution, oxygen gas to inflate a patient's bladder who had no anaesthetic either local or general, and who suffered no pain or inconvenience during the cystoscopy, and some of you had a view of the interior and saw plainly the wall with its mucous membrane and capillaries. I first drained the viscus through a soft worm catheter; from the character of the urine it was unnecessary to wash out the bladder. I had beside me a small rubber gas-bag, containing the amount of oxygen I wished to use, fitted with a vulcanite cock which fitted into the mouth of the catheter. The amount of oxygen in the gas-bag gave me an idea what the size of the bladder would be when it is distended, allowing, of course, a little for the expansion of the gas when in the warm viscus. I slowly and carefully pressed the oxygen from the gas-bag, and then withdrawing the catheter, I introduced the cystoscope.

The advantages in using oxygen gas as a means of inflating the bladder over solutions for cystoscopy are obvious. In cases where you want to be free from the invasion of pus or blood, to ascertain the conditions of the ureters, and where bleeding tumours are suspected I have found this method of advantage. I use oxygen in preference to any other gas because I have found it in cases of enlarged prostate with a quantity of foul residual urine containing muco-pus, to ameliorate the accompanying cystitis, and to have a clarifying effect on the urine. Its use must be practised with great caution. The patient must be warm and comfortable when the operation is proceeded with; the gas must be pure, and be caused to enter the bladder slowly and with great care, and if cystitis exists it will be necessary to use a local anaesthetic. The oxygen can be left in the bladder without any evil effects, and often to the patient's advantage.