poured into the reservoir through *b* (which opens and shuts by a simple reversing movement), the central tube is reinserted, the index turned to *c*, and the whole fitted as in the figure. In cold weather the chamber should be dipped for a few seconds in hot water, and dried before being charged. Before applying the facepiece all odour of ether should be got rid of, and this can readily be done either by turning on the stopcock and forcing a little gas through the tube and facepiece, or, better, by the administrator applying the facepiece to his own face, and taking one or two deep inspirations of air.

It is an important advantage claimed for the use of etherised gas that it is almost immaterial in which position the patient is placed—upright, supine, or semi-recumbent, at the convenience of the operator. The mouth should, by preference, be propped open as for tooth extraction, but it is not essential. The administration is commenced precisely as though gas alone were being used; the ether chamber is, for the time being, ignored, and, as it is completely cut off, the odour of ether should not be perceptible to the patient. After the first five or six inspirations the ether chamber is turned sharply so that the index points to 1, two or three more respirations are permitted, and another movement to 2 is made, and so on, until all the gas inhaled passes over the ether before reaching the facepiece, that is, the index points to *F*.

If the phenomena of profound nitrous oxide anæsthesia have not by this time developed, the valves in the threeway tube may be cut off and a few respirations in and out of the bag, across the ether, may be allowed, until the subsultus, stertor, or jactitations and spasm warn us to desist. The reservoir bag should of course be kept full the whole time in order to counteract leakage, and to avoid the subjective sensation of suffocation which is sometimes complained of if the supply of gas is scanty.

Now as to the phenomena due to the use of etherised gas. In the main these are or should be simply those of gas alone, but of course in children, in bronchitic adults, and in elderly people, the first few inspirations of gas may not succeed, as they usually do, in benumbing the sensitive mucous membranes of the larynx, trachea, etc., and a certain amount of cough and laryngeal spasm may follow the first admission of ether; but this usually subsides quickly, and if not severe may be neglected.

The pulse is often, as we should expect, slightly accelerated with the influx of ether vapour, and secondarily to this acceleration the lividity is usually very marked, but as it is probably due less to asphyxia than to retardation of the blood-oxidising processes, it need not cause alarm. The conjunctivæ become as a rule markedly injected, but the dilatation of the pupil is even less constantly an indication of profound anæsthesia than is the case with nitrous oxide alone. Nor should we rely too much upon the abolition of conjunctival reflex as an indication for the commencement of the operation; it is one of the peculiarities of nitrous oxide anæsthesia that the eye reflexes are often abolished quite early, so that it is better to wait for the commencement of some other phenomena, such as twitching of the eyelids or of the extensor tendons, stertor, etc., the inhalation being continued during the performance of the operation. If the mouth is the scene of operation, the narcosis must of course be profound, in order that advantage may be taken to the fullest extent of the primary anæsthesia, but the point beyond which it is inadvisable to proceed varies vastly with each individual case.

Next as to after-effects; these, of course, vary with the amount of ether inhaled. In favourable cases no more after-disturbance is to be anticipated than with gas alone. The patient is a little longer coming round, and, may be, is somewhat staggering in gait and excitable in manner for some one or two minutes, but at the end of that time is usually quite able, as far as the anæsthetic is concerned, to get about his ordinary work. With a little more ether, and slight prolongation of the narcosis, lassitude and depression is complained of for the rest of the day. Others again may be actually sick, or suffer from headache, but these latter phenomena are, or should be, if the anæsthetic is administered with judgment, quite the exception, and we should aim at prolonging the nitrous oxide anæsthesia alone, rather than at the development of ether narcosis.

If the operation takes longer than was at first anticipated, the anæsthesia may be prolonged by removing the facepiece with every three or four respirations for the admission of a small quantity of air, the ether supply being kept full on all the time; this I believe to be a better plan than the use of more or less complicated taps for the admission of air to the apparatus itself, and not

the less so because it entails rather more vigilance on the part of the anæsthetist.

Next, as to the duration of the primary anæsthesia which it is possible to induce by this means, that is, the anæsthesia which ensues after a single application of the facepiece before the admission of any air. I find that, as a rule, it is very difficult to convey to the mind of an operating surgeon by mere figures the actual extent of the operation which it is possible to perform in a comparatively brief period. If one could induce surgeons to forget for the moment that the available anæsthesia with nitrous oxide alone is, approximately, thirty seconds, and to remember only that that brief period suffices for the extraction of two, three, or sometimes even more teeth, I feel sure that the use of this very satisfactory anæsthetic in general surgery would be greatly extended.

In the same way with etherised gas, the period of available primary anæsthesia induced by the method I have attempted to explain I have found to average 47.6 seconds (eighteen observations, longest time 77 seconds, shortest 33 seconds), but I have records of the removal of no less than ten teeth while under its influence, and of the performance of many minor operations, such as opening abscesses, scraping glands, tonsillotomy, for Meibomian cysts, sounding for stone, etc., and many other small operations of about the same duration will occur readily to most so that I hardly need to enumerate them.

ENGLISH AND FOREIGN WINTER RESORTS.

By CHARLES ROBERTS F.R.C.S., ETC.,
Late Assistant-Surgeon Victoria Hospital,

THE relative merits of our English winter resorts and those of the South of France and North of Italy cannot, I think, be settled in the summary manner adopted by Dr. Burney Yeo, in the JOURNAL of December 21st. If, indeed, we must accept his four propositions that the advantages of such resorts depend on (1) the amount of sunshine, (2) the warmer temperature dependent on it, and (3) the smallest number of rainy days and the greater absence of atmospheric humidity, there is no room left for criticism. But are sunshine and a very dry atmosphere the only, or, indeed the chief, requirements of the majority of invalids in the winter months? Where these conditions exist in the greatest perfection there must necessarily be a wide variation of day and night temperature from the sun's rays on the one hand, and the free radiation on the other—rapid changes which it is difficult to meet by clothing, and which can only be fully overcome by free bodily exercise.

In estimating climates we allow ourselves to be hampered by the ubiquitous bugbear phthisis, which, if the prevailing views of its pathology are correct, is a disease for hygienic rather than for climatic treatment. The subject is also too much influenced by the bodily sensations of healthy persons whose muscular system is ready to meet the wide variations of temperature, and whose minds are free to entertain the charm of new scenery and physical surroundings. If we omit phthisis, what are the diseases which require a better winter climate than London or the inland districts of our islands? Chronic rheumatism and strumous disease of children, which disable the body for active exercises; functional nervous diseases and overwork, which require an even and soothing climate, and not an exciting dry one like that of the South of France, where fairly healthy persons sleep with difficulty; liver, dysenteric, and gastric diseases, which require a narrow range of temperature, and are not benefited by a high one; and chronic pulmonary diseases (not phthisical), which also require a narrow range of temperature and which are not always benefited by a very dry temperature.

With regard to judging climates by meteorological observations, it is very misleading to trust to mean results. The same mean temperature may be derived from a very wide range and from a narrow range, and the minimum (which is the temperature which damages or kills the invalid) may be higher with a low mean than with a high one. The minima are not given in Dr. Yeo's tables, but it is quite possible that the higher mean temperature of San Remo is due to the higher maxima for an hour or two in the middle of the day (which are of little value to the invalid) than to a higher absolute temperature of the twenty-four hours. When the range is wide the mean temperature may not occur for more than a couple of hours in the twenty-four, while with a narrow

range the mean may be the same for many hours. Again, in comparing the hours of sunshine, it must be borne in mind that San Remo is seven or eight degrees south of Falmouth, and the days are considerably longer at the former than the latter place. The same months are compared, but not the same seasons. This, of course, should be all in favour of San Remo, as it is the winter months which invalids wish to escape from; but practically it is not so, as the rapid fall of temperature about sundown on all the stations on the Riviera drives the invalid indoors before sunset, and thus makes the southern day as short as the northern one, where no such changes of temperature occur. Moreover, the therapeutical value of sunshine has not yet been scientifically made out. It has an important psychical effect which of course is beneficial to invalids, but it is its frequency rather than its intensity, its quality rather than its quantity, which is beneficial.

Even the excess of rainy days, that is, days on which some rain falls (the quantity should be given) at our English stations is not such a formidable condemnation of them as at first sight appears. A rainy day is a less evil than an east wind or a mistral, which are dry winds and accountable for much of the dryness of the Riviera atmosphere (records of which ought to be given in all climatic data), and is less injurious, more tolerable to bear, and more easily surmounted by domestic arrangements at home than abroad, and it is the nature of the soil much more than the relative humidity of the atmosphere which is of importance. The humidity of Falmouth as given by Sir Edward Sieveking for the winter months, 83.6, compares favourably with that of midland England, which is 90.2, and it is no doubt still lower at our more eastern stations where the rainfall is much less than at Falmouth.

Meteorological instruments are at best rude guides to climate, and a more delicate test is to be found in the vegetation, as plants indicate not only the minimum temperature and atmospheric humidity, but also the nature of the soil. It is time moreover that this question of climates should be decided by clinical observation, rather than theoretical demonstration. A set of tables showing some useful clinical results would do more to establish the claims of places at home or abroad to the confidence of medical men than the mere opinions of advocates "fashionable" or otherwise. There is a large class of invalids who stand in need of a good winter climate, but who cannot go to the "fashionable" stations abroad on account of expense, or family or business arrangements. Children are especial sufferers in this respect, and if our own stations are not quite equal to the more distant ones, we shall do well to make the most of them, and if we must make comparisons, let it be with other parts of our own country, especially with our great smoky towns, from which invalids have most occasion to escape. If we do this we shall probably find slight differences in meteorological conditions as demonstrated by instruments, but we shall be certain of more sunshine, fresh air, and restfulness for body and mind. The Mediterranean stations are not available for more than one or two per cent. of our invalids who require good winter quarters, and we should be grateful for any additions to our much too limited list of home stations. Our much abused climate has bred up the strongest, healthiest, and most energetic races of the world, and it is only its rougher features which require to be tempered to the wants of our invalids in winter. I have visited the Mediterranean Stations from Tangier and Malaga to Corfu and Cairo in the winter months, and I do not therefore write from prejudice or ignorance, but from experience of our own winter resorts as compared with them.

TOXICOLOGICAL MEMORANDA.

TOXIC EFFECTS OF ATROPINE DROPS.

ONE or two letters on this subject have recently appeared in the JOURNAL. Cases of atropine delirium similar to the one related by Dr. Tyson are not very uncommon in ophthalmic practice. Children are most liable to suffer in this way, but occasionally the same symptoms result in the adult from the use of atropine drops. As Dr. Chaldecott indicates in the JOURNAL of November 9th, the poisoning is due, not to the atropine really necessary for the eye, but to the excess which runs down the lachrymal duct into the throat.

My object in writing now is to draw attention to the fact that these alarming results can, in my experience, be entirely prevented by using atropine in the form of ointment whenever it has

to be applied repeatedly to the eye. Atropine (not the sulphate) is, I understand, soluble in warm vaseline, so that an ointment of any ordinary strength (say four grains to the ounce) can be readily prepared. A small piece of such an ointment introduced inside the lower lid on the tip of a camel-hair pencil will act on the eye quite as powerfully as an aqueous solution of the same strength. For the past two or three years I have always ordered atropine in this form, and have not met with a single instance of atropine poisoning following.

I need hardly say that, for ordinary purposes of ophthalmoscopic examination, atropine or homatropine drops are preferable to ointment, since the drops of oil from the latter keep floating over the surface of the cornea for a considerable time, and prevent a good view of the fundus. It is in cases where the alkaloid has to be used repeatedly that I should recommend an ointment in preference to an aqueous solution of atropine.

Queen Anne Street.

R. MARCUS GUNN.

PATHOLOGICAL MEMORANDA.

DUODENAL ULCER AFTER A BURN.

FROM the records of a great many cases of this lesion, it appears that:—1. It may occur three or four days after a burn or scald, or may be delayed for many weeks. 2. In two cases it followed not a burn but a frost-bite. 3. In only one case (P. Hewett) is it recorded that the raw surface of the burn took on an unhealthy action at the time when symptoms of duodenal ulceration were first observed. 4. Not one case showed true pyæmic abscesses elsewhere: nor, in most of the cases, is there any record of marked signs during life of pyæmia or septicæmia: nor are there other lesions found *post mortem*: the duodenum suffers alone.

Many theories have been suggested as to the causes of this lesion: that it is due to an "acute oligocythæmia"; to dissolution of the red blood corpuscles; to the administration of ardent spirits immediately after the burn; to septic infection, aided perhaps by self-digestion; to embolism. But the experiments of Brown-Séquard, who found that section of the lumbar cord, or of the sciatic and anterior crural nerves, prevented congestion and ecchymoses of the viscera, in dogs whose lower extremities had been burned, show that the nervous system is concerned in the production of this lesion. The frequent occurrence of invagination in burnt children, and the case of sudden acute tympanites after a burn, recorded by Dr. Gibb, point in the same direction.

Perhaps this congestion or ulceration of the duodenum after a burn is in some cases akin to the congestion and suppuration of the parotid in injury or disease of the pelvic or abdominal viscera; a lesion which may be associated with septic infection, but is associated also with reflex nerve influences, and is a solitary focus of inflammation in nine cases out of ten. The duodenum lies closer than any other part of the intestines to the great sympathetic plexuses: it is not fanciful to suppose that the first step toward ulceration is made by some alteration or suppression of its secretions, brought about by the influence of the nervous system.

Wimpole Street, W.

STEPHEN PAGET.

TERATOLOGICAL MEMORANDA.

FŒTUS, WITH DUPLICITY OF RIGHT LOWER EXTREMITY: ARM PRESENTATION.

THE following case was attended by me on the night of the 10th July, 1880:—

M. B., a poor laundress, of Labbar, Malta, 32 years of age, being at the end of her second pregnancy, after a good day's work, on July 10th, came home, and shortly afterwards labour pains began. The midwife of the district was called in, and attended her for nearly two hours, during which time the pains became severe, and the membranes were ruptured. On examination the midwife discovered a preternatural labour, and asked for a medical man. I was called at about 10.30 p.m., and found the pains severe, the general state of the woman satisfactory, and the fetus in the second anterior dorsal position, with protrusion of the left arm. There was moderate hæmorrhage, and the os uteri not fully dilated. When it became more dilated I performed, without difficulty, the turning of the child.

I brought out a large female child with three legs, the super-