mucosa closing the passage. This attempt must not be persisted in too long, for these patients do not bear starvation well, and the cæcum may be in a worse condition than one thinks. If operation is decided upon what shall we do?

Everyone is agreed now that primary resection of the growth with immediate restoration of the intestinal canal is bad surgery, so we need not consider that. But there has been a good deal of discussion as to whether one should explore the abdomen so as to know exactly where the growth is, and then to do what seems best, or whether one should content oneself with opening the abdomen in the right iliac fossa, and draining the cæcum. To this operation has been given the name of "blind cæcostomy." Those in favour of "blind cæcostomy" argue that the patient is saved the shock of the handling of the intestines (there may be difficulty, if distension is marked, in returning the gut to the abdomen), and that, as the cæcum will probably have to be drained in any case, it had better be done first as last. Those in favour of exploration maintain that it is not always easy to differentiate small from large intestine obstruction in its later stages, that it is better to know exactly what one has to deal with, that if the growth is low down a sigmoidostomy is much more satisfactory, and does its work better than a cæcostomy, and that sometimes in left colon growth the jejunum, which normally lies in front of it, is implicated in the growth, and is the main cause of the obstruction. (I had a case of this sort three months ago.) My own feeling is against "blind cæcostomy," among other reasons, because I do not think a cæcostomy drains the colon well if the growth is in the sigmoid, and if the growth is inoperable a permanent cæcostomy leaves the patient in a miserable condition, and once made it is not easy to close and replace by a more convenient artificial anus.

As we are discussing obstruction, I will not go into the question of the treatment

of the growth, but just ask the question, "When the enterostomy has been safely performed, how are we to decide when to proceed to the radical operation in operable growths?" While one must, of course, be influenced to some extent by the state of the growth, I am inclined to advise you not to hurry. At least three weeks will be required to allow the intestine to recover. Fortunately one does not often have to combat any grave degree of toxæmia, but the condition of the tongue will generally show that there has been some, and the tongue is the best guide in deciding on the patient's general condition. The appetite, too, often improves amazingly after the enterostomy, and the patient's condition will improve rapidly on the more generous diet he is willing to take.

SOME BASIC REMEDIES IN THE TREATMENT OF DISEASES OF THE SKIN.

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CREDULITY is common to mankind, and it was a wise physician who advised his audience to "hurry to prescribe a new remedy while it is still effective." That epigram, as I read it, does not encourage an absolute conservatism, although the implication is cynical. No man can afford to sit still, and the doctor who steadily refuses to avail himself of weapons which the advance of allied sciences have placed in his hands runs the risk of superannuation before his time. In considering a subject for this lecture, I set myself the task of giving you something practical. It occurred to me that an approach to a dermatological thesis through the fair avenues of pharma-

cology had the merit of novelty, and might even prove interesting, and whatever your criticisms I have at any rate enjoyed the compilation and satisfied my conscience. I have, as you will hear, devoted the greater part of my theme to a study of the drugs which, in some cases, for centuries have enjoyed a universal confidence and esteem, but I have not scorned to mention such modern derivations and substitutes which, on the score of cleanliness or convenience, my experience has taught me to value, and which therefore do not fall under the implied stigma of the opening quotation.

The fundamental principles of therapeutic science apply as much in dermatology as in the other and better known branches of medicine. It is not so much *what* is used as the *method* of application that counts towards success. I know very little of homœopathy, but if its basic principle is the administration of drugs in very great dilution, the precepts would in no wise conflict with those of dermato-therapy.

There is no dermatosis in which the prescription of powerful remedies or strong solutions is necessary, with the single exception of those in which a caustic effect is desired, and even in these the field is becoming increasingly limited by the introduction of electrical and other methods of local destruction.

The principle is well illustrated in the treatment of acute eczema. The number of remedies recommended is commensurate with the absence of any specific, and I would go so far as to say that there is probably no pharmacological substance which, provided that it is dissolved in the correct proportions and applied in a rational and regular manner, will fail to give relief. It may surprise some of you to know, for instance, that even chrysarobin, one of the most active irritants in dermatological use, can be applied with effect, if suitably diluted, in the violent stages of weeping eczema, and that resorcin in a $\frac{1}{2}$ per cent. aqueous solution is the equivalent

on the Continent of our favourite lotio plumbi, B.P., and in anal and perineal dermatitis frequently more effective.

In the more chronic inflammations the same principles hold good, and if the application contains too large a percentage of the active constituent, a chronic or subacute dermatitis can be suddenly converted into an acute stage. This *contretemps* occurs in about 50 per cent. of all hospital out-patients, who have only to read an advertisement to believe and act upon it. Further, to a consideration of dosage we have to discuss the technique of application, and the importance of properly preparing the skin lesions for the reception of a selected remedy. It is surprising how frequently the affected limb or other part is swathed in lint, over which sometimes a strip of oiled silk and a more or less thick layer of cotton-wool is firmly bandaged. Apart from the discomfort which such a procedure inflicts, it is sometimes forgotten that heat and moisture are the most important aids to the growth of bacteria, and that a dressing such as has been detailed above is really nothing better than an incubator—hot, moist from perspiration, and dark, with the added factor of friction to ensure the spread of bacteria over as wide an area as possible. I have seen more than once a single discharging boil with a constellation of small satellites exactly demarcated by the outline of a square piece of boracic lint left *in situ* for twenty-four hours! The best way to avoid the tragedy of such mishaps is to discard lint and oiled silk and cotton-wool altogether, and to substitute a single layer of old linen, or plain white gauze or butter-muslin, and as few turns of an open web bandage as possible. When lotions are being used it is essential to instruct the patient or his nurse that they *must be constantly renewed*, so that the dressing does not get the chance of adhering to the oozing surface. Oily liniments and ointments and pastes are not so liable to stick, and require replacement only twice or three times daily.

If scabs and crusts are present, or if there is much offensive discharge I would refer you to Norman Walker's not infrequently forgotten recommendation of the starch poultice. I would only add to that excellent dissertation the reminder that a starch poultice has an inevitable tendency to "set," and that it should be renewed every hour and not left on for twenty-four, or its great value will not be appreciated. Remember, too, that almost any drug can be incorporated in a starch poultice, and that boric acid adds greatly to its soothing properties, and black-wash to its antiseptic.

But we must not occupy too much of our time with these aspects of the general therapy of skin diseases. Our object to-day is a consideration of the pharmacology of a few of the simple and best known drugs in almost daily use among dermatologists, which continue to uphold their long-lived reputations and to withstand the regular onslaughts of time and the advertisements of chemical combines.

I would remind you that the mode or vehicle of application of any given drug is more important in dermatology than it is in general medicine, and that the same substance may act more or less violently on the skin according to whether it is incorporated in a lotion, a cream, a paste or a plaster.

One of the oldest and most valuable substances in skin pharmacy is *sulphur*, and it will afford an admirable starting point for our discussion. It was in use at the time of Hippocrates (400 B.C.), and was frequently prescribed in the Middle Ages for every sort of skin disease. It is used freely in dermatological practice at the present day, and is of the greatest value in seborrhœa and scabies. The mode of action is highly complex in the former condition, but the underlying feature always is the production of H_2S , whether applied locally or given by the mouth. Other products of protein interaction with sulphur are the alkaline sulphides, and both these and H_2S are keratolytic if at all concentrated, that is to say, they tend to

dissolve the keratin of the corneous layer, and you will remember that calcium and barium sulphide in the strength of about 1 part to 2 or 3 of a paste of starch and zinc oxide, are in daily use as depilatories, the keratolytic action of which is directly responsible for the dermatitis which occasionally results.

This keratolysis is doubtless the mode of its action as an antiscabetic remedy. It must, in order to deal with successive broods of acari, be applied to the skin on three following days, and it is further worthy of note that the ung. sulphuris of the B.P. is rather on the strong side (1 part in 9 of benzoated lard), and that an ointment of half this strength is equally effective and not so prone to cause keratolysis, i.e., sulphur dermatitis—a very common complication during the war. The well-known firm of Bayer have solved the problem of complications by the introduction of mitigal, an organic sulphur compound in oil which is highly efficient, and has never caused dermatitis in my practice in two years' trial (dimethyldiphenyl-disulphide).

According to Unna, sulphur in weak concentration is keratoplastic and acts as a reducing agent. Under such a heading its most frequent indication is seborrhœa of the scalp, and here we generally prescribe it in ointment form, in combination with salicylic acid, $\bar{a}\bar{a}$. 1 to 2 per cent. For acne of the face it is best applied in calamine lotion and in the same strength, with or without glycerine or spirit. In the extreme indurated types of acne, in which an exfoliating action is required, Lassar devised the following paste, which is thickly applied night and morning, and obviously implies patient treatment:—

Rx	β -Naphthol...	...	...	5'0
	Sulph. ppt. ...	...	...	25'0
	Lanolin }	...	...	$\bar{a}\bar{a}$ 10'0
	Soft soap }	...	...	
	M. ft. pasta.			

In ordinary Lassar's paste sulphur can be used in 1 to 3 per cent. concentrations for

the treatment of seborrhœic dermatitis, after the acute manifestations of this protean disease have been allayed by lotions. Sulphur baths, which are erroneously prescribed for scabies (because the acarine ova are obviously ignored by this procedure alone) are useful in furunculosis, and also in pruritus of the milder types. Sulphurated potash is used for this purpose in a strength of about 1 dr. to the gallon, and the mineral waters of Harrogate, Aix la Chapelle, Loeche, Schinznach, Helouan, Aix les Bains, and a host of other spas, contain the element mostly in a form appropriate to a prolonged and repeated contact with the skin. A beneficent action is also claimed for the oral administration of sulphur, especially by the promoters of spa treatment. I have never convinced myself that it acts in any other way than as a mild laxative, than which there are many less irritating and more pleasant varieties, both natural and manufactured.

SIDE EFFECTS AND CONTRA-INDICATIONS.

Sulphur dermatitis has already been referred to. The unpleasant odour of H_2S can be generated in the skin of persons to whom the drug has been given in large doses by the mouth. Precipitated sulphur is more active in this respect than *S. depuratum*, or the flowers of sulphur. Remember that sulphur and lead are incompatible, and that with potassium permanganate and chlorate explosive mixtures may result.

Tar has been used at least as long as sulphur in the treatment of skin diseases. Celsus valued it for eczema at the beginning of the Christian era, and Galen recommended it for loss of hair and diseases of the nails as early as A.D. 200. It appears to have been neglected in the Middle Ages, and we owe its re-introduction to Hebra.

There are two main sources of supply: coal and wood. The former variety, probably owing to the natural and artificial processes it has undergone, is less active, i.e., less irritating to the skin, and it is always advisable, when the application of tar

is contemplated, to begin with one or other of the numerous coal-tar derivatives rather than to risk the application of oil of cade (juniper) or pine.

Now crude coal tar, among the host of complex compounds that can be distilled from it at various temperatures, contains carbolic acid, cresol, naphthol, xylol, certain pyredin bases, pyrogallol, and other less known irritating substances. It is fortunate that the majority of them are soluble in water, so that washed coal tar, the *pix carbonis* prep. (B.P.) is, from the standpoint of pharmacology, a relatively standard product. As such alone, or mixed with an equal quantity of collodion flexile (B.P.), it makes an excellent paint for certain types of irritable weeping or dry dermatitis. The great contra-indication to its application is the presence of sepsis, and every trace of this must be eliminated before success can be hoped for. It is also useful in psoriasis, and most authorities recommend that tar in some form or other should always follow treatment by other methods such as chrysarobin, the eradicating effects of which are thereby prolonged.

Long-continued application of tar or its derivatives, or the inunction in an ointment base to wide areas, may be injurious by producing "tar dermatitis," or by absorption of phenol or cresol impurities affecting the kidneys. An occasional examination of the urine for albumin and casts should not be neglected in such cases.

There is scarcely a dermatosis in which in correct dosage and at the proper stage the exhibition of tar is not helpful. Its anti-pruritic properties in a 1 to 2 per cent. solution of liquor carbonis detergens, with or without lead, in the acute stages of eczema are well known, and coal-tar soaps are justly praised for their mild antiseptic and stimulating effects. It would be possible to give a course of lectures on coal-tar derivatives in medical use. From the point of view of our thesis it must suffice to mention the alcoholic extract known as liquor carbonis

detergens (Wright), and the *L. picis carbonis* (B.P.), which resembles it, anthrasol and liantral, any of which can be dissolved and applied in lotion, liniment, or ointment bases, from 1 to 5 per cent., according to the tolerance of the individual case. If there is any doubt of that tolerance it is a wise plan to begin treatment with ichthyol, derived by distillation from a bituminous shale deposit found in the Tyrol. This substance may, for our purposes, be classed with the tar products. The original ichthyol is far superior to the substitutes introduced during the war, and can be used even when sepsis is present. It is a good dressing for boils, and is frequently applied in strong concentration for erysipelas. In Lassar's paste, 2 to 5 per cent., I have found it useful for varicose dermatitis of the legs, and also in trade eczemas in which, as a rule, tar applications are not well tolerated.

The wood tars comprise those derived from beech, juniper and pine. Their constituents include the guaiacols, creosoles and their homologues, and acetic acid. *Oleum cadī* (juniper) is the one chiefly prescribed in England, but the use of wood tars is limited and need not detain us here. Before leaving the subject of tar I should like to add a word about pyrogallol, which is a by-product of its distillation. Its strong reducing powers render it a valuable caustic, and in the treatment of lupus vulgaris (1 dr. ad 1 oz. vaseline) it still numbers adherents. The mono-acetate known as eugallol is useful in psoriasis (up to 10 per cent. in a paste or ointment), while the tri-acetate lenigallol, has done good service in my hands in $\frac{1}{2}$ to 2 per cent. cream or paste base in intractable cases of eczema, especially when a mycotic cause, as in eczematoid ringworm of the extremities, was underlying. The inclusion of resorcin in this series is justified by its derivation from benzole, a complex synthetic process. I have found it occasionally of the greatest value in intractable cases of weeping dermatitis of the perineum and anal regions, when the usual remedies have failed to give relief.

For this purpose it is dissolved in water, $\frac{1}{2}$ to 1 per cent., and frequently renewed. In stronger concentrations, in an ointment base, the drug is occasionally used as an exfoliating agent in rosacea, and even as a caustic for venereal warts, 50 to 80 per cent. in vaseline. As a hair tonic it is best prescribed as euresol, the mono-acetate, which is stated not to discolour fair hair, as resorcin is apt to do.

All these tar derivatives, and for that matter tar itself, are absorbed by the skin and may produce toxic manifestations referable to blood destruction and damage to the renal tubules. Fatal issues from uræmia have been reported, and pyrogallol, which is the most toxic of the series, should never be applied to large areas, as has been done for psoriasis in the early days of its introduction. The dangers of carbolic acid absorption are well recognized, and it should be remembered that these derivatives are obtained from the same source and, although less poisonous, can exhibit toxic manifestations which bear a close resemblance to those produced by phenol. A close watch should be kept on the urine of all cases in which, as in psoriasis, large areas have to be treated simultaneously, and it should not be forgotten that pyrogallol used in excess, or in patients with an idiosyncrasy to the tar groups, may produce exfoliative dermatitis as severe as that seen after chrysarobin.

CHRYSAROBIN.

Under the name of Goa powder, chrysarobin was first introduced to medicine from that Portuguese colony in 1864. The impure substances are found in the cavities of a tree called *Andira araroba*, which has since been transplanted and grows freely in Brazil, from which, since the war, most of our stocks are derived. The yellow powder rapidly absorbs oxygen from the atmosphere and turns brown. It is washed with benzol or chloroform, and is said to contain 90 per cent. chrysarobin after this treatment. It is insoluble in water, but

dissolves in chloroform, benzol, carbon bisulphide, and to some extent in ether.

The main indication for the use of chrysarobin is psoriasis, and in this disease it comes nearer to being a specific than any other remedy as yet recommended. *The drug must never be used in acute or spreading cases.* Its application requires very careful control. It must never be applied to the face, for fear of producing a conjunctivitis, and even damage to the iris. The patient whose hands are affected must be warned against rubbing his eyes. Gloves should be worn at night in such cases.

A considerable experience of the use of this drug in psoriasis has convinced me that the patient who selects to be so treated should be put to bed and inuncted once daily until the whole body (head and neck excepted) has assumed the characteristic reddish-violet inflammatory reaction. This usually takes from ten to fifteen days, and is accompanied by variable degrees of discomfort, owing to itching and soreness. Both these symptoms are reduced by decubitus and abstention from baths during that period. The patches of psoriasis involute completely at this stage, and their former areas are outlined in white, and are in marked contrast to the reddish-violet pigmentation of the normal skin. The treatment should not be regarded as complete until the white patches are just beginning to assume an erythematous reaction. The inunctions should then be remitted, and a tar derivative, e.g., ol. cadi, in 1 to 5 per cent. concentration in Lassar's paste, well rubbed in for a few days. It is believed that this procedure lengthens the ensuing period of immunity which, in several bad cases I was called upon to treat in 1927, still persists.

The concentration of chrysarobin, in the simple vaseline base we use as our vehicle, should be weak for the first three days, or until we have ascertained the patient's tolerance. I usually begin with a 3 per cent. and gradually work up to 5 or 6 per cent.

dose, but I know of a man who inuncts himself annually and from the start with an ointment containing a drachm to the ounce, i.e., about 12 per cent., without any demonstrable damage to his skin or renal function. This procedure implies risks which are not justified by any circumstances, and I should not be surprised to learn one day that this hero had overstimulated his case into one of acute exfoliative dermatitis, or had succumbed to acute nephritis of chemical origin. As usually employed in general practice, chrysarobin is not of much value. The occasional and irregular anointing of isolated patches with a chrysarobin paint, or its occlusion under one of the Beiersdorf chrysarobin or anthrarobin plasters, has little to recommend it, and its reputation as an anti-psoriatic would not be very high if these were the only means of utilizing it.

In very weak concentration, chrysarobin and its derivatives will sometimes be found effective in clearing up the chronic forms of seborrhœic dermatitis. I use a $\frac{1}{4}$ to $\frac{1}{2}$ per cent. combination with Lassar's paste for the purpose. The drug can also be applied in intractable cases of tinea of the extremities. Care must be taken to exclude the acute varieties, especially when in the vesicular stage, from such an indication. In my hands a 1 to 3 per cent. paint in tinct. benzoin has proved the most effective means of employing it. Quite recently chrysarobin has been given by the mouth and even intravenously for psoriasis, with benefit. I have had no opportunity so far of testing its efficacy thus administered. I have used three derivatives of chrysarobin, for which it is claimed that they are as effective as the original without being at the same time so dirty or destructive to clothing, &c. They are anthrarobin, neorobin and cignolin. I did not find that the claims put forward for the substitutes were proved, and I consider that chrysarobin, properly used and controlled, is one of the most valuable drugs ever introduced into the dermatological pharmacopœia.

SALICYLIC ACID.

The chief dermatological function of this drug is keratolytic. It has a relatively simple formula, a benzene ring with OH and COOH radicles attached, and it was first presented to medicine by Kolbe as a pure substance in 1874, although it had long been known and valued by herbalists in the crude juices of the sweet birch, and as oil of wintergreen.

The macerating, keratolytic action of local applications indicates its use in any cutaneous condition in which hyperkeratosis is a feature. Thus, warts and corns may be softened, and the former even eradicated, by plasters or paints containing it. It is often of great value, before excochleation with a sharp spoon, as a preparatory and macerating application in lupus and lupus verrucosus. In my experience most of the plasters and applications compounded for these purposes are much too weak, and I have never seen any harm from 40 per cent. and even 50 per cent. concentrations, whether combined with other drugs such as creosote or not.

It is often compounded with tar and chrysarobin in the treatment of psoriasis, and with sulphur is a favourite remedy for acne, either in aqueous or ointment base. It is sparingly soluble in water (only about 1 in 500), so that unless the watery solutions contain calamine or zinc it should be dissolved in spirit, as e.g., in hair lotions, in which it helps to control and diminish the formation of dandruff. Unless I require a keratolytic action I do not use salicylic acid in greater concentration than 3 per cent. as an antiseptic and adjuvant to other drugs in the prescription.

This is not the place to discuss the indications and action of salicylic acid by the mouth, but there is one very definite and very frequently successful indication, viz., in all cases of erythema multiforme, and preferably as salicin, up to 40 or 50 gr. a day. In my experience there is no other medicine, taken by the mouth, which so consistently

relieves a dermatological condition, provided the diagnosis is correct. The phenyl-ester of salicylic acid, salol, used to be much in vogue as an intestinal antiseptic, but is nowadays replaced by such remedies as kaolin, which aim at absorption of toxins, or by attempts to alter the bacterial flora by administrations of lactodextrin or the emulsions of *B. acidophilus* and the lactic acid bacilli.

It is worth remembering that idiosyncrasy to salicylic acid and also to its derivative, the universally used aspirin (acetyl-salicylic acid) is occasionally met with, and may give rise to alarming symptoms such as sweating, vomiting, diarrhoea, cardiac weakness, nephritis, and erythematous rashes associated with oedema, especially of the eyelids. Bicarbonate of soda in large doses *per os* is recommended as an antidote. Dermatitis at the mouth angles is sometimes attributable to tooth and mouth preparations containing the drug.

CALCIUM.

Since Almroth Wright published his experimental investigations in 1896, calcium preparations have been used for most conditions in which a diminished coagulation value of the blood was suspected. Urticaria and chilblains were regarded as the chief dermatological indications, and the administration of the various calcium salts has been somewhat overdone, and has given rise to a certain amount of therapeutic disappointment in consequence.

The only local preparation in general use is the liquor calcis, which is derived from CaO by the addition of water (CaOH₂). The action is soothing and astringent, and when mixed with olive oil is still a favourite application in burns (Carron).

Modern therapy gives it an important place. It is claimed that it reduces inflammation, and can even prevent or diminish the normal inflammatory response in animals previously treated with it. This action is thought to be due to a reduction of the

endothelial permeability for blood serum. Additionally, there is a pronounced narcotic or soothing action on the whole sympathetic or vegetative nervous system. This has not received the attention it deserves in this country, but in Germany the treatment by intravenous injections of calcium salts has long been practised, and has been found of very real utility in urticarial conditions of all kinds, notably angioneurotic oedema (*u. gigans*), strophulus, and even purpura. The addition of bromide to such injections has been found to intensify and prolong their action, which lasts only about twenty-four hours as a rule.

In this way the physician can make certain that the calcium really reaches the circulation, a desideratum which is by no means assured when the salt, either the chloride or lactate, is given by the mouth. The firm of Knoll has put up a dissolved mixture of calcium chloride and urea in 10 c.c. (*Afenil*) ampoules, and this dose can be safely injected every day or every other day if required, for two or three weeks at a time. In my experience there is no better treatment for chronic urticaria of obscure causation. Great care must be taken not to inject into the subcutaneous tissues, and also to use a very fine needle, which obviates the unpleasant feelings of heat engendered by rapid transition of the solution.

I have to confess to considerable scepticism of the value of the calcium salts when orally administered, and I have seen nothing to compare with the dramatic effects that occasionally follow the intravenous injections. The favourite salt in this country is the relatively soluble lactate (1 in 10). Other combinations such as the phosphate are hardly soluble at all in cold water.

As calcium sulphide, the metal is used frequently as a chemical depilatory.

There are three heavy metals which are in constant use in dermato-therapy, lead, mercury and bismuth, and it is unlikely that, in spite of changing fashions, any one of them will be entirely abandoned. Lead is the most poisonous of the three, and its use

should, in my opinion, be confined to local applications only. Apart from its well-known indications as the *lotio plumbi* (B.P.), it is sometimes forgotten that the *liquor plumbi sub.*, when mixed with milk (1 in 9), is one of the most soothing and astringent remedies we possess. The *ung. plumbi sub.* (B.P.) (1 in 8) is useful in any type of painful crack or fissure, and this action is usually accelerated by the addition of tar, if the localization is on the feet or hands.

The indications for mercury are too well known to need specification here, but I would recommend you never to order the old blue ointment (*ung. hydrarg.*) for pediculosis, as the cure is often worse than the disease, owing to the severe dermatitis that is apt to follow a 30 per cent. application to hairy regions. As an anti-luetic remedy mercury is fast losing its ancient prestige to bismuth, and I believe it is the experience of most authorities that the latter is more rapid and less toxic in its action. Of the many preparations I have tried during the last five years in the V.D. Department at the Royal Northern Hospital, including the metal itself in suspension, and chemical combinations with iodine and quinine (*quinby*), and arsenic (*bistovol*), I have recently employed one which seems to me to fulfil at least some of the most important claims put forward by the makers. This substance is bismogenol, and is an oily suspension of a salt of bismuth and salicylic acid. It is given intramuscularly in 1 c.c. dosage in acute cases up to thrice weekly, and is really painless, does not give rise to infiltrations or to stomatitis of any severity, while so far as my experience goes it relieves the pains of tabes and the headache of meningeal irritation more effectively than any arsenical preparations, and even (in two cases) after these had failed.

My impression is that the persistent and intractable W.R. yields more readily to bismogenol than to any other of the bismuth salts, but I have not yet worked long enough with it to test the claims put forward on this score by Continental clinicians.