

30. *Rhus aromatica* in incontinence of urine.

Freyberger ("Treatment, 1898," No. V.) strongly advocates the use of *Rhus aromatica* in the incontinence of urine in children when resulting from an atonic condition of the bladder. The drug is best prescribed in solution with an aromatic syrup to disguise the taste. The dosage advised is 5 to 10 m in children from two to five years, 10 to 15 m for children five to ten years, and 15 to 20 m in older children. The author claims that the drug is as efficacious as belladonna, and can be given without the slightest ill-effects, and that good results can be obtained when belladonna proves inefficient.

GOUT, RHEUMATISM, AND RHEUMATOID ARTHRITIS.

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Gout.

In the "Year-Book for 1898" (p. 130) some papers by Mordhorst were referred to, in which he describes the granular form in which urates are deposited from saturated solutions under certain conditions (*Kugelurate*).

In a more recent publication (*Centralblatt. f. innere Medicin*, 1898, xix., p. 409) the same observer discusses the action of sodium carbonate and salicylate in gout and rheumatism.

He believes rheumatism to be but a preliminary stage of gout and ascribes the pains and swellings of the former disease to the formation in the affected parts of uratic granules. When the urate retains its granular form for a longer or shorter time we have rheumatism, but when it becomes converted into crystalline sodium biurate gout is developed.

On this theory he ascribes the action of sodium salicylate in rheumatism to a solvent action exerted by this salt upon the granular urate, and, with the view of testing this theory, he instituted a series of experiments.

Mordhorst found that neutral phosphate, acetate, bicarbonate, sulphate, tartarate, or lactate of sodium, as also common salt, when added to weak solutions of sodium carbonate saturated with uric acid, caused precipitation of granular urate, and that the granules formed retained their spherical shape for months.

He next found that the addition of sodium salicylate delayed the granule formation, and that the addition of salicylate after the granules were formed was capable of causing them to be redissolved. In two to five hours acicular crystals fell.

He next argues that the fluids of connective tissues and cartilage, and synovia, owe their alkalinity to sodium carbonate, and not to the bicarbonate and di-sodium phosphate, as is usually taught. He bases this conclusion on the fact that whereas the addition of uric acid to a dilute solution of sodium bicarbonate

causes the evolution of bubbles of carbon dioxide, no gas is evolved when uric acid is dissolved in sodium carbonate solutions, or in the body fluids above mentioned, unless the acid be added in large excess.

He further finds that nothing favours the precipitation of granules of urate more than the addition of acids, and nothing hinders this change more than the addition of salicylate carbonate or bicarbonate of soda.

On the other hand, sodium salicylate hastens the change of the granules into uratic needles and cuts short the inflammatory stage, but the presence of the needles may readily give rise to relapses and to actual gout. In this way the rapid subsidence of the inflammatory symptoms, and the frequent relapses in gout and rheumatism after the administration of salicylate of soda, are easily explained.

Mordhorst agrees with Haig in thinking that the increased excretion of uric acid which follows the administration of these drugs is due to the elimination of urates stored up in the tissues, and not to any increased production of that substance. He holds that of the uric acid formed part is at once excreted by the kidneys, part is oxidised and so destroyed, and that part again is held back and stored in the tissues.

The granular urate is susceptible of oxidation, whereas the crystalline biurate is not.

Administration of sodium carbonate or bicarbonate does not directly favour the solution of the crystalline biurate, but does so indirectly by encouraging the oxidation of uric acid as it is formed, the crystals being the more readily dissolved the less the amount of uric acid present in the body fluids.

Lastly, he considers that the best way of administering the bicarbonate is in the form of mineral waters containing carbonic acid and common salt, and as free as possible from lime.

In a paper on the pathology and treatment of gout (*Lancet*, 1898, i., p. 147), Luff (see "Year-Book, 1898," p. 129) discusses the treatment of gouty conditions under the following headings:—

1. The treatment of acute paroxysms and especially the relief of pain.
2. That of subacute and chronic conditions and the prevention of recurrences (*a*) by promoting the elimination of uric acid; (*b*) by limiting its formation.
3. That of the affected joints, directed to the removal of uratic deposits, and the remedy of deformities.

1. During the acute paroxysm he advises, amongst other measures, the application of a lotion consisting of sodii carb. ζ ijj,

lin. belladonnæ ζ ij, tinct. opii ζ j, and water to an ounce. A small quantity of this lotion should be mixed with an equal bulk of hot water and poured upon cotton wool previously arranged around the joint, and lightly covered with oil silk.

He advises a large dose of colchicum (vini colchici \mathfrak{m} 30 to 40) at the commencement, and afterwards smaller doses with citrate of potash.

2. In more chronic cases elimination of uric acid is to be promoted by drugs, diet, and hygiene. Citrate of potash may be given, and a considerable amount of water. Common salt should be avoided because of its power of diminishing the solubility of sodium biurate.

Excessive formation is to be checked by diet and general hygienic measures. Occasional doses of blue pill followed by Epsom salts are useful, and colchicum and guaiacum, the efficacy of which he attributed to stimulation of the hepatic metabolism.

A rational mixed diet should be given, but animal food, being rich in proteids, is to be strictly limited, one reason for this limitation being the effect of the mineral constituents of meat in diminishing the solvency of gouty deposits.

The benefit derived from visits to mineral springs he attributes mainly to the free taking of water, much additional aid being derived from the strict regimen enjoined during the course. Where removal of deposits is aimed at, springs impregnated with sodium salts are to be avoided, although such waters prove useful in many visceral gouty affections.

3. In chronic gout with painful affections of joints or subcutaneous tissues, he recommends a mixture with gr. x of potassium iodide and \mathfrak{m} v to x of tincture of iodine, but such treatment is contra-indicated when advanced kidney disease is present.

Exercise in moderation and short of causing fatigue is of benefit during convalescence.

In a paper read before the Royal Medical and Chirurgical Society Luff gives a further account (see "Year-Book, 1898," p. 130) of experiments on the action of vegetable ashes upon the solubility of sodium biurate, etc., and suggests that a table salt prepared from the ashes of certain vegetables might prove a valuable substitute for common salt in the dietary of gouty patients.

Elsewhere (*Lancet*, 1898, i., 1606, and *Practitioner*, vol. xl., 1898, p. 235) Luff discusses the treatment of gout by alkalies and salicylates, and his conclusions stand in curious contrast to those of Mordhorst already quoted.

After recapitulating the grounds upon which he bases his

conviction that the kidneys are the seat of the formation of uric acid, he gives reasons for the belief that the treatment of the disease by drugs of the kinds referred to is based upon false premises.

In a series of experiments with blood serum to which various alkalies had been added, including potassium bicarbonate, sodium bicarbonate, lithium carbonate, sodium phosphate, piperazine and lysidine, he has found that none of these substances have the slightest effect in delaying the conversion of the quadriurate into biurate even when present in much larger quantities than could possibly be introduced into the blood by their administration as drugs. Hence he concludes that treatment by alkalies does not delay the conversion of quadriurate in biurate. None of these drugs when added to serum had any effect in increasing the solubility of sodium biurate.

A third assumption that in gout there is a general acidity of the system causing a diminished alkalinity of the blood receives no support from careful experiments by Klemperer, and a diminution of the alkalinity of serum containing uric acid in solution does not hasten the deposition of sodium biurate, or diminish its solvent power for that substance.

Luff differs from Haig as regards the cause of the undoubted increase of uric acid excretion which follows the administration of salicylates, attributing it to increased formation rather than to the elimination of ready-formed uric acid. This increased formation he attributes to the fact that salicylic acid readily unites with glycocine to form salicyluric acid and thus brings an increased amount of glycocine to the kidneys, where it combines with urea to form uric acid. His experiments show that blood serum containing uric acid in much larger quantities than could be introduced by its administration as a drug has not its solvent power for sodium biurate at all increased, and it is as biurate that uric acid is deposited in the tissues.

George W. Balfour (*Edinburgh Medical Journal*, 1898, iii., p. 561) contends that an acute attack of gout is not inflammatory at all, but is due to thrombosis of the small vessels around the affected joint. This event accounts for the sudden onset of acute pain in the joint. He maintains that the events which follow are precisely those which would follow the formation of an anæmic area in and around the joint, viz.: early visible turgidity of the veins leading from the affected area, followed by swelling due to accumulation of plasma within the anæmic area; lastly, the skin becomes tense and glistening. The surface temperature in the neighbourhood of the joint is not raised. Urate of soda being

always present in the serum of gouty patients, slowly crystallises out of the extravascular fluid, and is left behind when the serous part of the effusion becomes reabsorbed as the circulation becomes restored.

He quotes, as affording further support to his hypothesis, that many sufferers from gout have been able to ward off an attack by active exercise, and that Dr. William Balfour, who practised in Edinburgh in the first half of the century, was in the habit of successfully treating the acute attacks by compression, friction and percussion of the part.

Walter (*Münch. med. Wochenschr.*, 1898, xlv., p. 302) speaks very highly of two new drugs, saligenin and aminoform (urotropin), in the treatment of gouty conditions.

He finds that in all attacks of acute arthritis, whether rheumatic or gouty, saligenin very rapidly arrests the inflammatory process, removes pain and reduces the temperature. The drug proves more active than salicylic acid, and its effects were more lasting, whilst the unpleasant after-effects of the latter are almost completely absent when saligenin is employed.

Saligenin (Lederer) occurs in plates with a pearly lustre, and melts at 86° C. It has a somewhat bitter taste. One gramme requires five to ten minutes to dissolve in 100 cc. of water. About 3 grm. are administered daily. Sweating and slight noise in the ears may follow its use.

Aminoform is a finely crystalline powder, very soluble in water, devoid of smell, and with a sweetish flavour, followed by a slightly bitter after-taste. When heated with dilute mineral acids it gives off formaldehyde. This drug is especially useful in warding off attacks of gout, and Walter has observed this effect in several cases of persons liable to frequent attacks, who have enjoyed long periods of immunity whilst taking it. A coffeespoonful may be taken in a tumblerful of water in the morning.

There are no unpleasant after-effects, but some relaxation of the bowels may follow its use, which is perhaps rather due to the water so taken. Slight scalding is sometimes noticed at the first micturition after too large a dose has been taken, *i.e.* if the spoon be heaped too high.

R. Newman (*New York Med. Record*, 1897, p. 848) advocates the claims of statical electricity in the treatment of gout. In chronic cases he has found it of value in warding off acute attacks. In a case in which the urine was analysed, the application of statical electricity on several days in succession, was followed by a conspicuous decrease of the uric acid excretion.

Alfred C. Wood (*Annals of Surgery*, 1897, xxv., p. 633) describes

the removal of several large tophi from the backs of the hands of a gouty man. The operation was rendered difficult by the tendons, and in one instance a tendon ran through the toplus, and necessitated piecemeal removal. The masses had no firm adhesions to the neighbouring structures. The wounds healed well, and there was no fresh formation in the scabs of the deposits five months after their removal.

G. Baccelli (*Gazzetta degli Ospedali*, 1898, p. 619), in the course of an article upon the treatment of gout by diet, medicines, and mineral waters, states his belief in oxygen as the sovereign remedy in this disease, and considers that it acts by favouring the complete oxidation of uric acid into urea, and so facilitating its elimination. He has tried it in not a few cases, and always with much benefit. One may commence with the inhalation of 20 to 30 litres daily, the dose being gradually increased to 60 to 80 litres. Analyses of the urine during the period of administration, show a diminished excretion of uric acid, and an increase of urea.

He assigns the second place to alkaline remedies.

T. Savill (*Lancet*, 1897, ii., p. 380) discusses the factors which are concerned in producing the injurious effects of certain alcoholic beverages upon gouty subjects. The factors considered are sweetness, amount of alcohol, and acidity. From personal experience and from observations upon infirm and private patients, he is led to the conclusion that alcohol *per se* is not injurious to gouty people, and is sometimes distinctly beneficial when taken at meal times, and properly diluted. He also holds that the acidity of wines plays no such important part in this connection as has been assigned to it. He believes that it is sugar which is the injurious ingredient, and that the evil effects of alcoholic beverages in gouty cases vary in proportion to the amounts of sugar which they contain. He points out that non-alcoholic sweetstuffs and beverages have not an equally injurious action, and is inclined to ascribe the evil effects to the combination of sugar and alcohol. He suggests that, possibly the sugar, by disturbing the digestive processes, prevents the alimentary system, including the liver, from adequately dealing with the alcohol simultaneously introduced.

Rheumatism.

The results obtained by the various investigators who have of late been occupied with the bacteriological investigation of cases of acute rheumatism, by no means agree with each other, and it is not proposed to do more than refer to them very briefly in this place. (See *Practitioner*, Sept. 1898.)

The large immobile bacillus first obtained by Achalme ("Year-

Book," 1898, p. 135) has been observed by several other investigators, and Thiroloix (*C. R. de la Soc. de Biologie*, 1897, iv., p. 268) has succeeded in cultivating it upon milk, and by injection into rabbits has produced endocardial and articular lesions.

Triboulet and Coyon (*ibid.* 1898, v., p. 214, and *Bull. et Mém. Soc. Méd. des Hôp.*, 1898, p. 93) have met with this bacillus in two out of six cases; they have found in some cases a small segmented bacillus; and in all cases a diplococcus, which they are inclined to regard as the true rheumatic micro-organism. This has also been found by Apert (*C. R. de la Soc. de Biologie*, 1898, v., p. 128) in a case of chorea.

The diplococcus when injected into the veins of rabbits caused endocardial lesions, and was obtained in pure cultures from the organs after the death of the animal.

Riva (*Centralbl. f. innere Med.*, 1897, xviii., 825) has obtained some interesting results by using as a culture medium a broth the basis of which was the fresh joints of horses. In all instances cultures were obtained from the synovia of the knee-joints of rheumatic patients, eight in number, whereas in only one or two instances was any growth obtained on ordinary media.

In the early stages of growth pseudospores were seen, but were in time replaced by two distinct forms of bacilli, both of which were sporogenous.

Chvostek (*Verhandlungen des Cong. f. innere Med.*, 1897, p. 99) obtained negative results. In only one case were bacilli obtained from the articular fluid, and no organisms were found in the synovial membrane of the affected joints. Chvostek believes that the symptoms of acute rheumatism are due to the toxins diffused from the foci of infection, such as the tonsils, and, perhaps, the alimentary canal.

After reviewing the results hitherto obtained by himself and other observers, he concludes that these do not show that acute rheumatism is due to a specific micro-organism, or to organisms as yet known, nor do they justify us in looking upon this disease as a variety of pyæmia.

Gustav Singer has made an elaborate bacteriological examination of a number of cases of rheumatic fever, and his results are set out briefly in the *Verhandlungen des Cong. f. innere Med.*, 1897, p. 116, and at length in a monograph more recently published, entitled "Aetiologie und Klinik des acuten Gelenkrheumatismus." The original accounts must be referred to for the description of the methods employed. It is sufficient here to say that his results were negative as to the occurrence of any

specific micro-organism, whereas the ordinary pyogenic micrococci were met with in a large number of cases. Hence he is led to the conclusion that acute rheumatism is not a specific disease, but a special variety of pyæmia, and, like other pyæmic conditions, owes its origin to staphylococcal and streptococcal infection.

With a view to combating the organisms to which he believes acute rheumatism to be due, Singer has tried the direct intravenous injection of perchloride of mercury in eleven cases of that disease (*Centralb. f. d. ges. Therapie*, 1898, Heft 1).

The following solution was employed:—

Hydrarg. perchlor.	} āā 0.1 or 0.2 gm.
Sodii chloratis	
Aq. destill. ad 10.0 c.c.	

The proceeding entails a strict attention to details and a certain amount of practice. Singer usually made the injections into the veins about the elbow, the upper arm being surrounded by a compress not sufficiently tight to interfere with the arterial circulation. The skin should be thoroughly disinfected; a dry sterilised Pravaz syringe, with an asbestos piston, is then filled with the solution, and the point of the needle is introduced through the tense skin into the vein in the direction of the blood-flow.

The needle being evidently in the lumen of the vein, the bandage is removed and the contents of the syringe are very gradually emptied into the vessel. The finger is pressed upon the point of entry, and the needle is gradually withdrawn under the finger. The wound is then dressed with iodoform gauze, held by a cross of strapping and a few turns of bandage.

Injections of the 1 per cent. solution—i.e. 0.01 gm.—were given daily, or of the 2 per cent. solution on alternate days.

In one case diarrhoea and some blood in the stools followed the first injection, but no further bad results followed.

In two cases albuminuria followed a few hours after the injection, but no renal elements were found in the urine. The albuminuria was transitory, and its occurrence may be taken as an indication for temporary suspension of the treatment.

As to results, the pains were in all cases quickly relieved; the swelling of the joints diminished, and this in a short time. The effect upon temperature was favourable, but not conspicuous. The author was not in a position to judge definitely of the influence upon cardiac implications.

It may be objected to this plan that as soon as the sublimate comes in contact with proteids of the blood it must be

precipitated, and must lose its active powers; but this applies equally to mercurial treatment of all kinds, and such treatment is certainly not ineffectual.

Parenchymatous injections have not the same subjective or objective effects as intravenous.

In two cases in which salicylate had failed to give relief the injections of perchloride proved very efficacious.

Singer assigns the following limits to the utility of the treatment:—

Injections of perchloride of mercury may be employed with advantage in place of salicylic treatment in cases of acute rheumatism when the means of properly carrying it out are at hand.

It is especially to be recommended in cases in which, from the infective character of the initial symptoms, or from the special features of their course, a pyæmic origin is specially evident.

In cases in which surgical treatment of the primary focus (opening of abscesses) can be undertaken, the simultaneous use of the injection treatment affords a chance of a rapid arrest of the process.

In cases of acute rheumatism, when salicylic treatment fails, or in which the inflammatory process becomes localised in a single joint, the intravenous injections are indicated.

In all cases a lasting result is only to be expected from repeated injections at definite intervals.

The proceeding is contra-indicated in the case of very feeble individuals; when severe renal disease is present, or when intense toxic symptoms follow its employment.

Slight toxic symptoms, which rapidly disappear, merely call for an occasional suspension of the treatment.

S. Sterling (*Münchener med. Wochenschr.*, 1898, p. 303) calls renewed attention to certain advantages of the external application of salicylic acid in the treatment of acute rheumatism. Individual peculiarities in the thickness and delicacy of the skin exert an influence upon the efficacy of the method. Women, young and fair persons, are more suitable than older people and those of darker complexion. Area for area, the skin over the knee absorbs more of the ointments than that of the back, flanks, or abdomen.

The amount absorbed by the skin is conspicuously less than the quantities given by the mouth, but this is, if anything, an advantage, seeing that a favourable effect is obtained with less of the drug.

Following Bourget, he employs an ointment containing turpentine as a corrosive of the epidermis, but discontinues the

turpentine when, after several applications, the epidermis appears sufficiently destroyed, thus avoiding the risk of eczema and renal irritation. Sterling holds that the sweat of rheumatic patients, being retained by an impermeable dressing, also favours the absorption of the drug. As a rule, a thick layer of unbleached wool is applied, and held by a flannel bandage. A sheet of gutta-percha tissue may be placed between the wool and the bandage.

He has employed this treatment for several years in cases of acute rheumatism, sodium salicylate being usually simultaneously given in the earlier stages of the attack.

The advantages claimed for the treatment are: That a smaller dose is given, often with as good an effect as when larger doses are given by the mouth; the gastric disturbance is avoided; patients, and especially those belonging to the less intelligent classes, appreciate the direct application of the remedy to the seat of pain, and have more confidence in its efficacy.

Giuseppe Ducci (*Il Morgagni*, 1898, xl., p. 551), after trying salophen in three cases of acute rheumatism, states that, as far as this limited experience of its use enables him to judge, salophen is the best substitute for sodium salicylate, and that on account of the rapidity of its action, and the manner in which it is tolerated even by the most delicate patient, it is preferable to other salicylic preparations in the treatment of this disease.

Galliard, on the other hand (*Presse Méd.*, Paris, 1897, ii., 13), thinks that in acute rheumatism the results obtained with salophen are not equal to those produced by corresponding doses of sodium salicylate.

Catrin (*Bull. et Mém. Soc. Méd. des Hôp.*, 1898, xv., p. 479), after trying the external application of salicylate of methyl (see "Year-Book, 1898," p. 136) in a series of cases of acute rheumatism and other articular diseases, finds that the value of this treatment is incontestable, but that it proves most efficacious in subacute and chronic cases, and perhaps in gout.

In acute rheumatism salicylate of methyl calms the pain more rapidly and better than salicylate of soda, but appears to have no effect upon the fever. He therefore advises the simultaneous administration of salicylate of soda by the mouth, where this can be tolerated. Under such circumstances a smaller dose of sodium salicylate is necessary than when that drug is given alone. In subacute and chronic cases the external application will alone be required. In the cases treated by Catrin relapses of acute rheumatism have occurred more frequently than usual,

and he is in doubt whether this is to be ascribed to the mode of treatment or to his having had obstinate cases to deal with.

M. Blech (*Journ. American Med. Assoc.*, 1897, xxix., p. 723) speaks highly, and in part from personal experience, of the value of local hot-air baths in the treatment of subacute and chronic rheumatic conditions, including muscular rheumatism.

J. O'Connor, of Buenos Ayres (*Glasgow Med. Journal*, 1898, xlviii., p. 269) advocates a most heroic line of treatment in cases of acute rheumatism. He ascribes the disease to any infection which, entering by the tonsils or other channels, lodges in the joints, "where the poison is elaborated and poured into the system," and by this latter agency is conveyed to fresh articulations and to the heart.

He therefore holds that in this disease, and in gonorrhœal arthritis also, the affected joints should be opened, irrigated, and drained. A case is quoted in which the knee-joints were successively subjected to such treatment, and 4 and 6 oz. respectively of greenish, turbid serum were removed, together with masses of lymph. In this case, which was that of a young man, the heart was not affected, and the treatment was resorted to after the failure of salicylate and alkalies to afford relief. He also records cases of acute epiphysitis and of gonorrhœal rheumatism successfully treated on the same plan. He advises operation as soon as possible after the disease has declared itself by causing swelling or effusion in a joint; affection of other joints or of the heart should not be waited for to confirm the diagnosis, as, if operation is to be curative, the sooner it is performed the better. When more than one joint is found to be affected, operation should be at once undertaken, even if the heart has already been attacked.

Rheumatoid arthritis.

This disease was among the subjects discussed at the fifteenth meeting of the Congress für innere Medicin in Berlin and at the meeting of the British Medical Association in Montreal.

The discussion in Montreal (*Brit. Med. Journal*, 1897, ii., p. 1225) was introduced by J. Stewart. He considers that the nervous theory of its pathology rests upon very meagre evidence, and manifests a strong leaning to the view that no sharp line can be drawn between chronic rheumatism and the earlier stages of rheumatoid arthritis, which latter is specially prone to occur in persons of rheumatic tendency who have previously suffered from subacute attacks. He further considers that there is strong evidence of an infectious origin of rheumatoid arthritis, which in its polyarticular form has the features of an infectious disease.

He considers treatment by baths of various kinds to be the

most efficacious in the early stages, and speaks with strong approval of the Tallerman local hot-air baths. He has employed this method in twenty cases with much relief of pain and some improvement of nutrition and gain to weight. Increased mobility of the affected joints usually followed their use. Gibney also spoke favourably of the hot-air treatment.

In his opening address at the German Congress (*Verhandlungen des XVten Congress. f. innere Med.*, p. 27) Bäumlér discussed the differential diagnosis and clinical, and pathological features of this disease, the evidence for and against its relationship to rheumatism and other affections, and the several views of its pathology which have been advanced.

He also showed a leaning towards that view which ascribes to the polyarticular form of the disease an infective origin.

Ott, who followed, devoted his remarks to the subject of treatment, and gave an admirable and exhaustive summary of the entire subject, dealing with all the various remedies which have from time to time been recommended, and considering in detail the prophylactic, medicinal, local, and other measures employed for the relief of the patients. To an address of this kind it is obviously impossible to do any justice in a brief abstract, and we must refer those interested in the question to the original discourse.

In the course of the discussion, Max Schüller, who was the first to observe micro-organisms in certain cases usually included under the name of "arthritis deformans," called renewed attention to this subject, and maintained that these cases constitute in reality a distinct morbid condition, which requires to be differentiated from the ordinary examples of rheumatoid arthritis.

The joint affection of which he speaks occurs in two forms, which may, however, co-exist in the same patient. Cases of the first variety are characterised by chronic inflammatory swelling of the synovial membrane, with inflammatory hyperplasia of the synovial fringes, dilatation of the articular capsule and deformity of the joint. In cases of the second variety, there is, on the other hand, a process of shrinking which results in the growing together of part of the joint, whilst in other parts there is a bulging out of the capsule by the thickened synovia and hypertrophied fringes.

If a joint affected in the first manner be opened during life, the articular cartilage is found to be smooth and normal, and the bones are unaffected, whereas in arthritis deformans the deformities are chiefly due to changes in the bones and cartilages. Joints opened during life contain little or no fluid, and never pus. It was in such cases that Schüller discovered the bacillus which he

described in 1892. Micrococci are not infrequently present also, especially in the ankylosing form, and may have some relation to the development of this particular variety. He does not regard the cocci as the cause of the disease, the bacilli being in his opinion the true pathogenic organisms. He believes that the points of entry are the mucous membranes of the nose, air-passages, and of the urinary and genital organs.

Max Schüller believes that the disease under consideration is a distinct infective malady which has its principal localisation in the joints; which has no relation to acute rheumatism, and for which he proposes the name of *polyarthritis chronica villosa*. He recommends surgical measures for the treatment of the more seriously affected joints, and describes two forms of procedure which he has adopted with success in a number of cases.

The first of these is injection into the diseased joint, and especially into the inflamed synovial membrane, of a fluid composed as follows:—5 gm. of purest and finest iodoform powder, 60–100 gm. of pure glycerine free from acid, 20 drops of guaiacol puriss. For a knee-joint, five or six injections each of 10–15 gm. of the fluid are necessary.

Of twenty-nine joints so treated, complete recession of the inflammatory process and absorption of the polypoid mass resulted in sixteen, six showed improvement, and seven remained uncured. The injection was usually followed by severe pain and rarely febrile disturbances, which passed off in a day or two. More rapid and certain results were obtained by operation, and removal of the fringes and diseased portions of the synovial membrane. This proceeding, which is described in detail, always resulted in marked improvement, and the results were better the sooner movement was allowed after the operation. In his more recent cases, in which the patients were allowed to walk after as short a time as ten or twelve days, almost normal mobility of the joints resulted.

G. A. Bannatyne (*Edin. Med. Journal*, 1898, n.s. iii., p. 65), whose researches on the bacteriology of rheumatoid arthritis are well known, has obtained very satisfactory results by the treatment of this disease with certain drugs of the phenol group.

With a view to avoiding the intestinal irritation caused by creosotes and guaiacol, he has employed the following substances:—

1. Creosotal, or creosote carbonate, an oily, almost odourless liquid, which was given in doses of 5 to 20 minims daily, in capsules or in emulsion with white of egg.

2. Guaiacol carbonate, an insoluble, tasteless, and odourless crystalline powder, which yields guaiacol slowly in the intestine.

Guaiacol may be detected in the urine half an hour after its ingestion. The drug is given in the form of powder, cachet, or pill, in doses of 5 to 15 grains three to six times daily.

3. Benzosal.—Benzoyl guaiacol is tasteless and odourless. In the digestive tract it is split up into guaiacol and benzoic acid. Four grains may be given three to six times daily.

Of the above Bannatyne considers guaiacol carbonate the best and most reliable drug, and he has seen remarkable improvement follow its use. The only contra-indication is the presence of nephritis. As an external application he employs a mixture of pure guaiacol and olive oil in various proportions, but usually in equal parts, and has found it efficient for the relief of pain. The odour may be masked by oil of cloves.

INFECTIOUS FEVERS.

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1. Treatment of typhoid fever by asaprol.

Asaprol is naphthol monosulphate of calcium. It is highly recommended by Dr. Clement Ferreira (*Bulletin Général de Thérap.*, Oct. 23, 1898). He gives 30 to 45 grains daily. It cleans the tongue, and lessens tympanites and diarrhoea. The substance is an antiseptic, but Dr. Ferreira recommends its use partly because it exercises an agglutinating action on the bacilli of cultures, and therefore possibly exercises a beneficial influence on the malady.

2. Compound tincture of benzoin in typhoid fever.

Dr. J. C. Potter (*Brit. Med. Journ.*, Nov. 27, 1897), recommends minims v. of this tincture every two hours in typhoid fever; after twenty-four hours diarrhoea decreases and the temperature falls. If diarrhoea is not controlled, the dose should be doubled.

3. Treatment of typhoid fever by salol.

Dr. Bramwell (*Brit. Med. Journ.*, vol. ii., 1897, p. 1214) advocates the use of salol in the powdered form, not in tabloids, in doses of 5 to 10 grains (according to age) every four hours until the urine is tinged, when the dose is diminished, giving only sufficient to maintain the faint coloration of the urine. During the first few days of the treatment cold packs and sponging are usually required in severe cases. Dr. Bramwell believes that in several mild cases the disease has been aborted by salol, and cases of greater severity have passed through a mild and uncomplicated course under salol treatment. Dr. Bramwell bases his statements on ten years' use of the drug.

[In the "Year-Book" for 1893 (p. 175) salol was advocated by Mr. Howard Fussel in *Bulletin de Thérap.*, July 8, 1892, and it no doubt is a useful intestinal antiseptic, but there is no proof that abortion of the disease can be attributed to it.—S. P.]

4. Olive oil in typhoid fever.

Dr. O. F. Paget (*Lancet*, vol. ii., 1897, p. 1383) writes that while in Fremantle, Western Australia, over 100 cases of typhoid fever came under his care, and no patient died. He attributes this, in