Ludwig's angina. There is no generally recognised clinical description of this disease. H. T. Butlin remarks: "If we were all of us asked to sit down and write a description of Ludwig's angina I am inclined to think we should find we had described several distinct diseases." Nor is our knowledge of the bacteriology of the disease any more precise. Most observers regard the disease as a streptococcus invasion. Kanthack examined four cases; in the first the cellulitis came on after a severe attack of tonsillitis and he found streptococci; in the second, arising from a carious tooth, he found the streptococcus pyogenes and the staphylococcus aureus; in the third he found the pneumococcus; and in the fourth he found the streptococcus pyogenes.

REMOTE INFECTIONS.

Enough has been said to show that the mouth may infect neighbouring tissues and organs with which it is in more or less direct continuity, but it is probable that the bacteria of the mouth may also produce more remote infections. W. Ewart believes as the result of clinical observations that in many cases of malignant endocarditis the infection is traceable to dental caries or other septic conditions of the mouth. In acute infective periostitis and osteomyelitis it is obvious that the organisms which produce the disease must have reached the affected bone through the circulatory system. How they get into the blood in the first instance is a mystery, but it cannot be denied that in some cases the infection may come from the mouth. W. G. Spencer mentions the case of a woman who had pyorrhœa alveolaris in a very marked degree, her remaining teeth being simply necrotic masses in suppurating cavities. She had pyonephrosis for which he could find no obvious cause in her history. It seemed to him that this patient, who was anæmic and septic, may well have owed her condition to her teeth, for after they were removed and the kidney was drained she was restored to health. G. E. Herman removed a pyosalpinx from a woman suffering also from pyorrhœa alveolaris; the latter condition was first noticed by the anæsthetist at the operation. For a week after the operation the temperature oscillated between 100° and 100·8° F. without anything to account for it being observed in the parts concerned in the operation. Nine days after the operation a sanitas mouth-wash was prescribed. The temperature fell at once to 99·4°. On the next day four teeth were taken out and after this the temperature never exceeded 99·2°. Nothing was observed in connexion with the operation to account for the temperature. Ewart thinks that functional derangements of the heart and circulation are often due to toxins absorbed from a septic mouth and that the blood is often profoundly affected by the same cause in some severe forms of anæmia. He says: "Were an examination of the mouth to be made in all cases sufficiently early, it is probable that the discovery of pyorrhœa alveolaris and of dental caries would explain the pathology of some mysterious cases and that an opportunity might sometimes be afforded for the prevention of pyæmia and of malignant endocarditis."

THE MOUTH AS A SOURCE OF INFECTION TO OTHERS.

Not only is the mouth a source of many varieties of infection to its owner but it may be the means of transmitting disease to other individuals. I have already referred to the presence of virulent diphtheria bacilli in apparently healthy mouths and indicated the possibility of spread of infection. Operations in unclean mouths are always attended with more or less risk to the operator himself. Miller records a case in which a scarcely perceptible injury of the finger by an instrument used in excavating a tooth was followed by severe swelling of the finger and back of the hand, resulting in the formation of a large and stubborn abscess which did not heal until after several incisions had been made. A still more serious case occurred some years ago in the practice of a dental hospital. A student scratched his finger on the sharp point of a diseased root. On the following day severe swelling, redness, and tension, accompanied by intense pain, ensued which rapidly spread to the arm and shoulder; high fever, delirium, and other symptoms of blood poisoning arose and only by the most energetic treatment and after a long period of illness was the danger of a fatal result completely removed.

The transmission of the syphilitic virus by means of saliva and instruments employed in the mouths of syphilitic patients is a frequent occurrence. Dulles reports a case in which a patient developed a chancre of the lip two weeks after extraction of a tooth by a dentist. Otis saw chancre

of the lip develop about three weeks after a morning spent in a dentist's chair. Bulkley records 30 cases in which syphilis was communicated through bites or blows upon the teeth as well as a number of cases in which the dentist had inoculated himself by scratching the finger upon a patient's tooth. Veritable epidemics have been caused by infection with the saliva of syphilitic persons. At Philadelphia in 1878 a number of boys were tattooed by a man who was in the habit of moistening the instrument which he used with his saliva. Every one of the boys who were tattooed became affected with syphilis. In the Russian province of Wiatka it appears to be the custom amongst the peasants to ascribe all forms of disease of the eye to the presence of a foreign body and to attempt to remove the latter by inserting the tip of the tongue between the eyelids. Some individuals acquire a certain dexterity with their tongues and are employed to perform the operation. In this way 34 persons were infected by a single woman and as many more by other individuals.

THE TREATMENT OF PSORIASIS WITH MYELOCENE.

BY D. CHALMERS WATSON, M.B. EDIN.,

PHYSICIAN FOR DISEASES OF THE EYE, EAR, THROAT, AND NOSE,
MARSHALL-STREET DISPENSARY, EDINBURGH;

AND

J. A. DOUGLAS THOMPSON, M.B. EDIN.,

RESIDENT MEDICAL OFFICER, EDINBURGH CITY POOR HOUSE,
CRAIGLOCKHART.

ON March 22nd one of us communicated a paper to the *British Medical Journal* in which he described a preparation of bone marrow to which the name of "myelocene" was given and recorded the results which had been obtained from its application to a series of cases of chronic ear disease. The lines of research which led the writer to make the preparation, his conception of its properties, and the *rationale* of its application to cases of middle-ear deafness were all reserved for consideration in a later publication. The present paper is published with similar limitations. Its object is simply to record the results obtained by the treatment of psoriasis with myelocene. For the details of the observations in Cases 1 and 2 both of us are responsible; for the others, one of us (D. C. W.) alone is responsible.

Before submitting the present record we may direct attention to certain points of difference between the two investigations. The most obvious difference is in the area of application and the quantity of myelocene that can be properly applied. Next, there is the difference in the assimilative powers of the sites to which the remedy is directly applied. There is further the important distinction that in the case of the ear there is a measure of permanent structural change which is absent in the chronic skin lesion under consideration. It need scarcely be added that the investigations differ in the facility with which their results can be demonstrated. These points will naturally be kept in mind by anyone who seeks to estimate the relative significance of the two records. But it is important to note that we speak of *direct* application only, for it will be observed from the record of Case 2 that the treatment of psoriasis with myelocene caused an improvement in the hearing power of the patient who happened to be suffering at the same time from deafness of internal ear origin. The co-existence of these two diseases in the one patient and the aural reaction to the treatment for psoriasis are invaluable data for the exposition of the etiology of both diseases and the *rationale* of treatment with myelocene.

CASE 1. *Psoriasis of nine years' duration in an epileptic.*—The patient was a man, aged 24 years. As regards history it was stated that he was healthy as a boy. When 10 years old he was affected by attacks of *petit mal*, which became aggravated as he approached puberty. At about the age of 14 years the fits became more severe and typically epileptic in character. Treatment did not effect any improvement. When aged 15 years he was treated as an in-patient in the wards of the Edinburgh Royal Infirmary for about six months without improvement. Psoriasis developed during his stay in the hospital. He was admitted to the Morningside Asylum in November, 1899. The skin condition was treated by local

and general measures and improved materially under treatment. He was admitted to the Craiglockhart Poorhouse Hospital in March, 1901. At the time of admission there were numerous areas of psoriasis on the arms and legs with a considerable degree of irritation. The disease was kept under by daily bathing and the local application of tar ointment, but as soon as these measures were stopped the disease increased, large coarse scales forming on the affected areas with severe irritation of the skin. The patient remained in this state until September, 1901, when the present observations were begun. At this time the local treatment consisted in a daily bath with sanitas and the local application to the body of a tar ointment. This treatment was effectual in removing the scales, in keeping the skin fairly clean, and in making the irritation more bearable; it did not appear to exercise any curative influence. In order to minimise the risk of fallacy in the deduction from the results of our investigations we made a series of observations, with intervals of cessation of treatment in the manner recorded.

Observation I. Preliminary, Sept. 5th, 1901.—In order to test whether the local application of myelocene would effect any local change a preliminary observation was made as follows. The treatment in use was suspended

FIG. 1.

Showing the condition of the extensor aspect of the body before treatment. (Observation II.)

and myelocene was applied to the left forearm by inunction after a short preliminary stimulation of the vessels in the skin of the part by bathing with hot water. This was continued for three days, a careful comparison being made of the condition in the two arms during the treatment and on its cessation. The result was a diminution in the severity of the itching in the limb treated and a lessening of the hyperæmia in it with diminished scaling. When the treatment was stopped these symptoms gradually returned

towards their former severity, but it was observed that they never became quite so pronounced as before. The old treatment was then resumed.

Observation II. All treatment stopped, Oct. 3rd, 1901.—In the beginning of October all treatment was stopped and the disease was allowed to progress. The general scaling was soon considerable, being at first fine and then gradually becoming coarser, the scales falling off in showers only to be replaced by others. The irritation became intense and even

FIG. 2.

The flexor aspect at same date as Fig. 1.

painful. Some of the affected areas were even cracked and fissured. The temperature became elevated and a careful examination revealed no other cause than the severity of the skin lesion. The two reproductions from photographs (see Figs. 1 and 2) taken after a fortnight's cessation of treatment show the general condition. The large coarse scales distributed generally over the body may be noted, being especially pronounced in the lumbar regions, the chest, the abdomen, the arms, and the legs, and also the condition of seborrhœa of the scalp in Fig. 1.

Observation III. Local application of myelocene for 10 days to the forearms only, from Oct. 22nd to Nov. 2nd, 1901.—After bathing the forearms in hot water with a little bicarbonate of soda to remove the scales so far as possible myelocene was applied every day for 10 days. This treatment was carried out twice a day for the first two days and subsequently once daily. The results of this observation may be summarised as follows. A general falling off of the coarse scales occurred all over the body, the subsequent scaling being of a much finer type. The skin of the affected areas throughout the body became much softer and more flexible. The scalp became normal. The hyperæmia in the arms considerably lessened and at the end of this period the skin of the affected areas in the arms presented a somewhat

mottled appearance, produced by the presence of pale, apparently healing areas, interspersed among the more hyperæmic zones. The irritation diminished and in eight days from the commencement of this observation had entirely disappeared from the whole body. The temperature, pulse, and respiration altered in the manner indicated in the chart. The character of the pulse improved, becoming more regular.

Observation IV. Cessation of treatment from Nov. 2nd to Dec. 4th, 1901.—No treatment was applied for four and a half weeks, the result being a gradual increase of the hyperæmia and scaling with a return of the irritation, but in a milder form than on any previous occasion when left untreated. The disease spread and involved fresh areas of the skin, but the scales were small and never assumed the large coarse type formerly present. At the same time the skin of the lumbar regions and that of the forearm gradually improved and at the end of this period were practically normal. Fig. 3, reproduced from a photograph taken on Nov. 27th, gives a general idea of the manner in which the disease had spread and extensively involved regions of the back which previously had been unaffected; a similar extension had occurred on the anterior aspect of the trunk. The illustration also shows the marked improvement that had taken place in the skin of the lumbar region. The temperature oscillations in this period should be noted.

FIG. 3.

Showing the improvement in the areas originally affected and the extension of the disease to other areas.

Observation V. Resumption of treatment, Dec. 4th, 1901, to Feb. 11th, 1902.—Throughout the major part of this investigation the myelocene was used in a strength of 50 per cent., the diluent being almond oil. From Dec. 4th, 1901, to Jan. 7th, 1902, the application of myelocene was made to the forearms only. From Jan. 7th to 22nd the

application was made to the legs and the lower part of the thighs only. From Jan. 22nd to Feb. 11th the application was made to the right arm and leg and the left arm and leg alternately. A general outline of the results of this observation will first be made. Improvement set in at once and steadily increased. Fig. 4 shows the appear-

FIG. 4.

Showing the manner of extension of the healing process.

ance of the posterior aspect of the trunk on Dec. 28th, 1901. It will be observed how the healing areas are extending on all sides. A similar change took place on the front of the chest and abdomen and on the lower limbs. The irritation gradually lessened and before the end of this period it finally disappeared. Fig. 5 shows the appearance of the posterior aspect of the trunk on Feb. 11th, when the eruption had disappeared except in the lower sacral and gluteal region. The reader will have observed that the trunk had not been directly subjected to any treatment. The general surface of the skin was white and free from pigmentation. The texture of the skin was delicate and soft, like that of a healthy infant. The skin of the whole body was now in this satisfactory state except the skin of the feet and a few small spots of the flexor aspect of the forearms and axillæ. The temperature became normal and remained so.

It is advisable to refer in greater detail to some points recorded in the course of the different periods in this observation. (a) On Dec. 12th one of us (J. A. D. T.)—who was unaware of the details of the preparation—reported that since a new supply of oil had come into use on Dec. 10th the general condition of the patient had not only ceased to improve but had deteriorated. The irritation had become more pronounced, the hyperæmia and scaling had increased, and the temperature had varied. On investigation it was found that inadvertently a form of myelocene had been used which our experience in the therapeutics of ear disease

had shown to be prejudicial. As soon as the use of this faulty preparation was abandoned and the right remedy was substituted improvement again set in and steadily increased. (b) The general improvement in the trunk went on unabated, but the condition of the arms and ears showed distinct deterioration. The itching returned and there was an extension of spots and scaling on the flexor aspects of the forearms, especially the right forearm. This appeared to be due to over stimulation. When the treatment was applied to the right arm and leg and to the left arm and leg on alternate days the condition of the arms at once improved and the general improvement progressed as formerly.

Observation VI. Cessation of treatment, Feb. 16th, 1902.—The treatment was stopped on Feb. 11th when the condition of the trunk was as shown in Fig. 5. On that date the only parts of the skin which were not perfectly normal were the

FIG. 5.

Taken at the cessation of treatment. (Observation VI.)

small areas on the buttocks (as shown in Fig. 5) and a few small spots in the region of the axillæ and the feet. The last-mentioned still showed very numerous spots of disease, varying in size from that of a pea to that of a sixpenny-piece. These were present on the outer and inner aspects of each foot. The surface was pale and the scaling of the spots was fine in character and very scanty in amount. On the cessation of treatment the condition remained practically stationary. On April 30th, two and a half months after all treatment was stopped, investigation showed that the beneficial results of the treatment had been fully maintained and that little change had taken place in the diseased areas on the buttocks (see Fig. 5) and feet, any change, however, being in the direction of improvement. With the view of determining whether any important alterations in the blood pressure

occurred as a result of treatment pulse tracings were repeatedly taken before and during treatment. No marked change was observed. The tracings were kindly taken for us by Dr. H. Oliphant Nicholson.

CASE 2. Extensive psoriasis of 10 years' duration.—The patient was a man, aged 60 years. In type and severity this case presented a close parallel to the preceding one, with the exceptions that the cutaneous irritation was considerably less and the temperature was not elevated. The condition had been treated at various times by local and general measures but without material benefit. The patient was deaf from internal ear disease; he appeared otherwise to be in robust health. Treatment was begun on March 17th and in this instance was continuous and entirely restricted to local treatment to the forearms. After the first few days myelocene was used in a strength of 50 per cent. as in Case 1. From its commencement the course of this case was as satisfactory as that of Case 1. The following noteworthy points were observed. 1. Within 10 days of the commencement of treatment there was a marked improvement in the condition of varicose veins of the legs from which the patient suffered. This improvement could not be attributed to rest in bed as the patient was out of bed every day during this period, whereas for three weeks before the treatment was begun he was confined to bed entirely. In these 10 days there was also a very marked improvement in the general flexibility of the skin of the limbs and trunk. 2. It was observed that the colour and odour of the stools underwent a marked change for the better in the course of the treatment. Repeated observations were made before and during treatment to ensure the accuracy of this observation. 3. Within a month of the commencement of treatment it was observed by one of us who was in daily contact with the patient that the hearing power was decidedly improved. When spoken to on the subject the patient remarked that a few days previously he had for the first time heard the ward clock strike the hour. The ward attendant and nurses in charge fully shared the patient's view as to an improvement in his hearing power. These observations have additional value from the fact that they were entirely spontaneous and were in no way the outcome of a studied attention to the state of the hearing faculty, either on the part of the patient or of those about him.

CASE 3. Psoriasis of three years' duration in a debilitated patient.—The patient, a married woman, aged 25 years, under the care of Dr. Arthur Wilson, had been affected with psoriasis for about three years. The disease was not of the same severe character as in Cases 1 and 2, but the presence of the disease on the face and forehead was a source of great annoyance. The areas affected were the face, the forehead, and the right leg, with isolated spots in other regions. The irritation was considerable and had been present uninterruptedly for over two years. Treatment consisted in the local application of myelocene (50 per cent. strength) to four areas on the outer aspect of the right leg and thigh—the total extent of these areas being approximately five square inches. The result was eminently satisfactory. The parts locally treated healed, the affected areas on the forehead and face almost entirely disappeared, and the isolated discrete spots present in other parts of the body became paler and less scaly but did not disappear. A notable feature in this case was the complete and permanent relief from the irritation from the outset of treatment.

CASE 4. Psoriasis of the scalp of three weeks' duration.—A private patient of one of us, a male, had a ring of psoriasis spots on the top of the forehead at the junction of the hair and forehead proper. The spots varied in size from that of a threepenny piece to that of a shilling. These were treated for fully two weeks by the local application of a salicylic vaseline—30 grains of salicylic acid to the ounce. This was applied once daily but without any benefit. The local application of myelocene (50 per cent. strength) for the same period effected a marked improvement, and 10 days later the skin appeared normal, no further treatment being called for.

CASE 5. Psoriasis of nine months' duration in a case of suicidal melancholia.—The patient was a man, aged 55 years, who was admitted into the Royal Edinburgh Asylum under the care of Dr. G. D. McRae. The case was essentially different in character from Cases 1 and 2. The eruption was extensive in the arms, the legs, and the gluteal region, but showed little or no tendency to confluence of the diseased spots. The skin of the limbs was extremely hard and dry

lay stress as being of considerable importance in the observation and study of psoriasis. 1. A careful examination, frequently repeated, of the stools, more especially as to odour and consistence, with the view of determining to what extent the intestinal canal may be acting as a focus of absorption of toxic substances. 2. A similar investigation of the urine, especially noting the total amount passed daily, so as to supply evidence as to the renal activity and general cardio-vascular tone. Further important evidence on this latter point is obtained from (3) a study of the capillary reaction of the general skin surface. More information may sometimes be gained from a critical examination of the skin that is apparently healthy than of the skin that is obviously diseased.

We have pleasure in expressing our indebtedness to Dr. Edward Carmichael for permission to investigate and to record the cases under his care.

NASAL OBSTRUCTION AND DEFORMITIES OF THE UPPER JAW, TEETH, AND PALATE.¹

BY MAYO COLLIER, M.S. LOND., F.R.C.S. ENG.,

SENIOR SURGEON TO THE NORTH-WEST LONDON HOSPITAL; PAST PRESIDENT OF THE BRITISH LARYNGOLOGICAL ASSOCIATION.

THE subject of this paper is the peculiar deformity of the upper jaw, teeth, and palate so commonly associated with obstructed nasal respiration. The diagrams marked A, B, and C taken from casts indicate the commoner types of this deformity. In A the whole range of the maxillary teeth is well inside the range of the mandibular set, or, to be less technical, the arch of the lower jaw is larger and surrounds the arch of the upper jaw. In these cases the lower jaw is prognathous. With the mouth closed the incisors of the lower jaw are well in front of those of the upper jaw, and the molars of the upper jaw rest by their outside edges on the molars of the lower jaw. The cast labeled B shows the whole upper jaw in an extremely atrophic state and the curve of the alveolar arch is less than the curve of that of the lower jaw and the teeth of the upper jaw are just inside the teeth of the lower jaw. In these cases the palate is extremely high and the turbinal bones are closely approximated to the septum. In a third variety, as shown by the casts marked C, the incisor teeth of the upper jaw are in front of the incisor teeth of the lower jaw. The curve of the arch of the upper jaw is altered so that its sides are approximated and the centre of the arch is thrown forwards in front of the incisors of the lower jaw. The incisors of the upper jaw are prominent and overhang those of the lower jaw. Various explanations have been given of these irregular and unsymmetrical conditions of the jaw, teeth, and palate, but none is altogether complete, clear, or satisfactory.

The object of this communication is to show, in the first place, that in impeded nasal respiration there is a difference in the pressure on the outside and the inside of the walls of the upper jaw and that if this is so this difference in pressure, however small, is capable in the young and growing skull of altering and affecting the curves of the upper jaw and the shape of the face and palate. Next, I shall approach the subject from the experimental point of view and show that in young animals whose nasal cavity or cavities have been obstructed for the purpose of scientific observation a profound alteration takes place in the development of the upper jaw and a marked alteration in the curves of the alveolar arch and position and height of the palate, on all fours with what one observes in every-day life. And lastly, as completely negating the prevalent and mischievous statement that these cases are "hereditary, and there is an end to the matter," I have photographs of children whom I have personally seen and known, who were born with beautiful regular faces and symmetrical dental arches. These have become in after life the subjects of the deformities and irregularities outlined by these casts. To say that these cases are hereditary is not an explanation. The term "hereditary" is an unknown

quantity as much as the algebraic formula x . To substitute a name for an explanation is a common but undesirable fallacy. To what extent the shape of the teeth and face and upper jaw is affected by a similar condition in the parent is a matter for careful consideration and offers many pitfalls. The same set of circumstances may surround the offspring in the early years of life that surrounded the parent and produce a similar effect, and yet can in no sense be attributed to a hereditary tendency. The environment is a potent factor in reproducing

the peculiarity. A different environment would have been followed by a different result, whereupon the hereditary tendency vanishes, or, perhaps, is not strong enough to assert itself.

An explanation that approaches nearest the truth is the one associated with nasal obstruction and mouth-breathing. Here, undoubtedly, a stream of air passes the palate and tongue to find its way to the lungs. The lower jaw is constantly separated from the upper jaw and the masseter muscles are constantly put on the stretch. These facts are patent and must be admitted, but the inference is incorrect when it is contended that the alveolar arch is dragged down and approximated by the downward pull of the masseter and that the palate is pushed up and elevated by the impact of the stream of air upon it. The masseter muscle has no attachment to the alveolar arch and could only pull down the malar bone and the

¹ Abstract of a paper read before the Odontological Society of Great Britain on May 1st, 1899.