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REPORT

ON THE

DISEASE YAWS

BY

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In dealing with Yaws in this report I propose to make a few remarks on the Nature and Etiology of the disease, in so far as it may help to illustrate the mode of action of the drug "Thyroid" which I have found out to be a specific for Yaws.

Nature and Etiology.

Yaws is a specific and contagious disease dependent upon a definite virus. It manifests itself in the shape of a new growth in the skin. This new growth is produced by the irritation of the virus (Micrococci.) There may be only a simple growth and this on any part of the body. In such a case the disease will be purely local and will represent the site of inoculation of the virus. Given a strong and healthy individual the disease will not make any further progress, as the healthy tissues will combat the effect of the poison. In a debilitated and therefore predisposed person, the virus will enter the circulation directly or by the lymphatics and be disseminated throughout the system, thus bringing about a constitutional disease. It is to be supposed that the Micrococci are arrested at certain points in the tissues whilst being carried in the blood stream and when thus arrested they reproduce themselves and bring about the formation of new growths. These growths consist essentially of granulation tissue and they are the means which nature adopts to prevent the further propagation of the virus. These barriers of cell formation are the manifestations which are described under the terms—"Squamae", "Papulæ" and "Granulomata". These last being the fully developed Neoplasmata, which usually terminate by resolution, that is to say, by a process of absorption if the host is in such a condition as that the organisms will not get the upper hand of him. More rarely, in debilitated persons, the granulomata break down and form intractable ulcers, nay, the process of ulceration may involve muscle and even bone.

It would be futile on my part to attempt a description of the minute anatomy of these new formations, as the matter has been thoroughly threshed out by Dr. Nicholls in his able report on Yaws. Before however concluding my remarks on this part of the subject, let me recapitulate the doctrine of Phagocytosis, which I believe plays a most important rôle in this disease. As I have already mentioned, the special characteristic of Yaws is a new growth. This growth consists of granulation tissue. Granulation tissue is composed of leucocytes and the fixed cells of the tissues. It must be granted that both kinds of cells may become amœboid and have the power of taking up solid particles and digesting them. The two kinds of cells are distinguished as Microphags, the leucocytes, which have the power of more readily attacking and destroying bacteria and Macrophags derived from the fixed cells of the tissues which perhaps do not possess much power of attacking and destroying Micrococci.

As we have seen in Yaws, the Micrococcus is inoculated somewhere in the skin. There immediately ensues an inflammation accompanied by an invasion of leucocytes. Why? For the purpose of devouring the Micrococci.

If the individual attacked be healthy the scavenging cells will destroy the Micrococci and prevent them entering the circulation. If however the individual be not in a position to meet this invasion of Micrococci the amount of damage will be in proportion with the staying powers of his cells.

Yaws is propagated only by direct infection with the virus at a spot where there is a breach of continuity in the skin or mucous surface.

Treatment.

The object of this report is not to describe how, where or when the patient contracted Yaws, but given a case of Yaws, what manner of procedure must be adopted to rid him of the disease.

In a simple and uncomplicated case of Yaws the means to adopt to rid the patient of the disease is to administer "Thyroid", whether it be the fresh gland or any of the artificial preparations. Reference to my list of cases will show that all of them were pure and simple uncomplicated cases of the disease. I had under my care fourteen patients. In each case the time required to effect a cure varied, but cures in all diseases depend on individual idiosyncrasies. The shortest period required in my list was nineteen days and the longest eighty-six. I must however mention that owing to want of the Thyroid a continuous action of the drug could not be maintained and I have no doubt that where the drug can be administered regularly without interruption a shorter time will suffice to effect a cure than if given off and on. In all my cases a great improvement was noticed within a fortnight. The pains in the joints were dissipated after a week's administration of the drug. Want of appetite was a symptom of very short duration, as also the sleeplessness. The very common complication of Yaws, Anæmia, was soon overcome. In the new growths an almost immediate change was noticed. In the Squamae, the dead epidermic scales were shed within a week, leaving the spots perfectly smooth. After a fortnight's administration of the drug the spots were hardly perceptible to the naked eye and by the end of the third week they could hardly be distinguished with the aid of a lens. These remarks apply to Squamae which occur on the body surface generally. Where the epidermis is thick, as for instance, in the soles of the feet and palms of the hands, the changes noted above will not be so rapid. Owing to the altered structure of the skin in these situations, the Squamae differ much in appearance to those that occur on the body generally. It is therefore to be expected that a longer period will be required to bring about a change in the squamae occurring in the soles of the feet and palms of the hands. I may say that a fortnight's administration of the Thyroid will suffice to throw off the dead epidermis. Another fortnight will be required to do away with all furfuraceous derguamation leaving the parts with a young and healthy epidermis (See Case XIV.)

It will of course take a few weeks before the epidermis will attain its usual thickness.

I may confidently say that a case of Dermatitis—crabs—in the soles of the feet will be thoroughly cured in six weeks.

In the papulæ the changes noticed were just as rapid as those in the squamae. It may be well to mention here that both these manifestations of the disease usually present themselves in the same patient.

In cases I and II. after the administration of the Thyroid had continued, for one week, the papulae had shrunk altogether and had even cast their scales leaving black marks to represent their former sites. After a fortnight the marks had entirely disappeared. It may be asserted therefore that three weeks will suffice to cause the disappearance of papulae in a patient.

In the granulomata the changes noticed will depend again on their situation. When they are placed on the body generally an appreciable

shrinkage will be noticed after a week's administration of the Thyroid, nay I may say that a small size granuloma may be absorbed in the space of twelve days (Case XII.) More frequently however it will take a longer period for this change to occur. Sometimes where there is a source of irritation the granuloma will persist so long as the irritant acts on it (Case XI.) The granuloma on thigh persisted in spite of Thyroid treatment for over one month. It began to be absorbed and had disappeared entirely after 3 weeks of Thyroid when it was protected by a piece of cotton wool.

When the granulomata are situated in the soles of the feet the process of absorption will take a slightly longer time, the cause depending on the thickness of the epidermis in these situations.

Where the granulomatous tissue breaks down through low vitality and ulceration supervenes, it will be necessary that the standard of health should be raised to such a pitch that the elements concerned in the process of elimination should be able to perform their duty efficiently. I have no doubt that in the Thyroid principle we have the desideratum which will bring about that standard of health.

I cannot vouch for its efficacy where Syphilis is a complication although I believe it will act beneficially even in those cases. But where Anaemia is the complication the good effects of the drug are illustrated in Cases VII, IX, X and XI.

Where destruction of tissue has taken place giving rise to deformity, we can hardly expect a return to the normal state of things. Thyroid administration will cause absorption of the detritus. Healthy granulations will appear and eventually cicatrisation will take place.

The above are statements of facts based on actual observation. But the question arises, how are these changes brought about? The lay mind may conceive that a something must destroy the growths and the detritus, where ulceration exists. That something, it may be said is the Thyroid principle itself. But to the professional mind, what is it should suggest itself? Surely, Phagocytoses! We have already seen that the growth seldom breaks down. There is therefore no caseation to say that absorption will be effected by means of the lymphatics and blood circulation (except in the case of ulceration). How then does absorption take place in these growths? The only means by which it can be effected is the ingestion of the specific virus by the amoeboid cells, which no sooner have they taken up their supply than they find their way into the blood stream or lymphatic system, there to digest and destroy the cause of the disease. The time required for this carting process will depend upon the condition of vitality of these cells. If the standard of health in the patient be high, the duration of the process will be a short one; but if the standard of health be low, depending on a condition of Anæmia, the duration of the process will be lengthened in proportion with the severity of the Anæmia.

The action of the Thyroid principle is probably stimulation of the Amoeboid cells, whereby they are rendered more active and possibly the principle may have a neutralising effect on any poisonous product that may be manufactured by the Micrococci and introduced into the circulation.

We do not know for certain what part the Thyroid gland plays in the human economy, but certainly it has an influence on the circulatory system. The Thyroid gland probably manufactures a principle which acts on the blood cells. This principle acts as a stimulant to the cells, whereby they are enabled to take up effete matters in the circulation and bring about their destruction. Let us consider for a little what happens in Myxoedema. Myxoedema is associated with Atrophic disease of the Thyroid gland. It manifests itself as a swelling of the skin and sabcutaneous tissue generally. It resembles oedema, but differs from it in so far as it does not pit on pressure and is a more solid

swelling than oedema. The swelling is said to be due to the accumulation of mucin in the tissues concerned, but in the skin there are signs of irritation in the form of masses of round cells. The hairs are liable to atrophy, the secretion of glandular structures is diminished. The teeth are prone to drop. Interstitial changes occur in kidneys, liver, spleen and nerves and the subject of Myxoedema is practically an imbecile. Can organisms be so generalised as to bring about these various manifestations? I think not. What systems in the body are most likely to be concerned in a disease so generalised? Surely the circulatory and lymphatic systems! Granted that these systems are the ones at fault, we must now look to the cause of this fault. The symptoms and signs which present themselves in Myxoedema are peculiar to that disease only. These signs and symptoms manifest themselves when extripation of the Thyroid gland is performed and Myxoedema we have seen, depends on Atropic disease of the gland. What then is the cause of these phenomena? Probably some poisonous materials, dregs of ultimate combustion which circulate in the blood, the cells of which cannot assimilate and destroy through want of the Thyroid principle. Is this inference unwarrantable? I think not. For in Myxœdema, the administration of Thyroid soon brings about a subsidence of the symptoms and signs. Further, if the administration of the Thyroid be discontinued, the whole train of symptoms and signs re-appear. This I think is a clear indication that the Thyroid gland in the human economy supplies a principle to the circulation, whose main action is the stimulation of the blood cells concerned in taking up effete materials that may be introduced therein and possibly the principle has a neutralising effect on poisonous compounds.

This digression is not with a view of showing that the disease Yaws, has any direct connection with the Thyroid gland, but is meant to indicate the action of the Thyroid principle on the blood cells concerned in the elimination of products introduced in the circulation. Let us see what takes place in Yaws. Here, when the patient is in health, the Thyroid will supply the principle necessary to stimulate the blood cells, in order that they may take up and destroy whatever Micrococci may attempt to pass through the barrier of cell formation. But when the patient is in bad health, the Thyroid will probably supply an insufficiency of the principle or else a principle poor in quality and as a result the cells through wants of the proper stimulus will be lowered in vitality and unable to meet the attack of the Microorganisms. It is therefore to be expected that in ill-health the disease will be generalised. But whether local or general, by artificial feeding with Thyroid we introduce into the system the necessary stimulant to the cells. They regain their activity and perform their work in an efficient manner and clear the tissues of all cause of mischief. I have advisedly written this last sentence—and clear the tissues of all cause of mischief as it is stated that with good feeding Yaws can be cured. By good feeding the vitality of the cells is improved. They probably destroy the greater part of the organisms and to all appearances the patient may seen thoroughly cured of the disease. But how many relapses take place in this class of patients? I think the percentage is high. Is there a reason for this! The following reply is applicable. By good feeding you improve the patient's health and consequently you put his blood cells in such a condition that they will remove as much as they can of the virus and its products, scarcely leaving a trace of the disease. No sooner do you remove the patient from the good feeding and favourable hygienic conditions, than the disease re-appears. Why? because the cells did not remove thoroughly from the tissues the cause of the evil. Some Micrococi laid in ambush awaiting their opportunity to make an attack. With Thyroid feeding such has not been my experience, as the notes of cases will prove. I have had opportunities to see my patients after they left my care and never in a single case was there a relapse. Good feeding may be an adjunct to remedial measures, but I cannot admit that it is a cure for Yaws.

In order to show the amount of help that my patients got from their dietary I shall here transcribe what they had according to the Hospital diet table. I may say that all adults were under High Diet.

High Diet.

Breakfast 8.30 A.M.—Bread, ½ pound.
Chocolate, 1 pint.

Dinner 2 P.M. —Meat Soup, 1 pint.
Meat (without bone) ¼ pound.
Vegetables, 1 pound (cooked.)

Supper 6 p.m. —Bread, ¼ pound.
Chocolate, 1 pint.

Chocolate shall contain ¾ ozs. of well ground cocoa, 4 ozs. milk, and 1½ ozs. of sugar in every pint.

Meat soup shall consist of 2 ozs. pork, 3lbs meat, 20 ozs. pumpkins, 8 ozs. rice, 1d. seasoning, salt and pepper as required to every 20 pints.

Children (3 to 9 years.)

Breakfast 8.30 A.M.—Bread, ¼ pound.
Milk or Arrowroot, ½ pint.

Dinner 2 P.M. —Rice, ½ pound.
Meat Soup, ½ pint.

Supper 6 P.M. —Bread, ¼ pound.
Milk or Arrowroot, ½ pint.

Now, at Dennery, which is a small village, it is difficult to get meat regularly and very often my patients had to take to the Middle Diet.

Middle diet.

Breakfast —Bread, ½ pound.
Tea, 3 gills.

Dinner —Rice or Vegetables, 1 pound (Cooked.)
Salt-fish, ¼ pound.
Olive oil, ½ oz.

Supper —Bread, ¼ pound.
Tea, 3 gills.

Tea shall consist of hot water and sugar, flavoured.

Can it be said that the above dietaries would introduce into the system sufficient pabulum to warrant the assertion that Yaws can be cured by good feeding? Such an affirmation would be chimerical! Undoubtedly good feeding is a considerable aid in the treatment of Yaws, but does not the same principle hold good in all diseases? Reference to Case III. in my list will show that the patient was a child 3 years of age. Her diet therefore consisted of ¼ pound bread and ½ pint milk in the morning for breakfast. For dinner she had ½ pound rice, and ½ pint meat soup. For supper ¼ pound bread and ½ pint milk. She was put under Thyroid feeding on January 21st 1896. She was fed with it until February 7th, a matter of 17 days. She was greatly improved. She was admitted with 5 granulomata and out of this number 3 had

disappeared. On 7th of February she therefore still had 2 granulomata unabsorbed. From 7th February to 12th March, she had the same diet, *but* no Thyroid. Let us see her condition on the 12th March—The 2 old granulomata were exactly the same as when we saw them on 7th February and in addition a "dartre" had made its appearance on the right submaxillary region and had developed into a granuloma in spite of the diet. No sooner however was Thyroid feeding begun than the granulomata began to shrink and disappear. Instances of the sort can be gathered in my list of cases. What inference is to be drawn from these facts? Good and regular feeding may prevent a spread of the disease and possibly cause a subsidence of the signs and symptoms but will not cure Yaws. Good feeding and Thyroid administration will eradicate the disease from the system.

Hygiene.

Favourable hygienic conditions will, of course, help to a considerable extent to improve the general health. This again applies to all diseases, and is a circumstance which should always be attended to by a medical man. At the Dennery Hospital the hygienic conditions are especially favourable to Yaws patients. The Hospital is situated on a hillock, near the sea where the full benefit of the Atlantic breeze can be enjoyed. I cannot doubt that my patients were greatly benefited by their stay at the Hospital from a hygienic point of view. This is a question which will come up for consideration further on.

Local Applications.

In the first case of Yaws which I had under my care, the disease presented itself in the form of tubboes in the soles of the feet. Unwittingly, as at that time I was not thoroughly conversant with the disease and knew little of its pathology, I cauterized the tubboes on three occasions (Case 1.), with the result that the disease became generalized.

Destruction of the granulomata is a practice that cannot be too strongly deprecated. A study of the pathology of the disease will show that these growths are the results of efforts made by nature to isolate the morbid poison and prevent its propagation to other tissues. If then in the attempt made to destroy the poison we counteract the efforts of nature by destroying the cells which are concerned in the elimination of the poison, we can only expect that the morbific agent, not meeting with any obstacle, will travel along paths left open and generalise itself. The one lesson which I had was sufficient for me and in all my other cases I simply applied some absorbent wool to the granulomata or ulcer and left the rest to be performed by the Thyroid principle.

Daily sea-baths are strongly recommended in this disease. I did not allow my patients a single bath until their skins were thoroughly clear of the disease. This may be thought very stringent on my part and I may even be stigmatized as uncleanly. In order however that the cures in my cases may not have been attributed to sea bathing, I did not allow my patients to indulge in that luxury. When all traces of the disease had disappeared, I first of all sent them for sea-baths every morning for a week and then I ordered them to go and bathe in the river.

Suppression of Yaws.

This question of the suppression of Yaws in these islands has been ably dealt with by Dr. Nicholls in the concluding remarks of his report on Yaws. I therefore have little to say on the matter, except to give my support to the system of compulsory segregation. My reasons being:—

(A.) A patient with Yaws at large is a focus for the spread of the disease and in the interests of the community generally such a source of danger

should be removed from its midst. Everybody, rich and poor, white and black, if exposed to the operation of the virus will certainly contract the disease.

(B.) A properly equipped hospital for the reception of Yaws patients, where they will get regular meals and where the authorities will be assured that proper medication is carried out, is certainly to be prefered to a voluntary or even a compulsory dispensary system of relief. Many circumstances militate against the Dispensary system of relief. (1) The focus of infection is not removed from the general community. (2) The disease may be so advanced in the patient that he is physically incapable of attending the Dispensary or else he may have the disease affecting his feet, and although willing to avail himself of the relief afforded at the Dispensary, he cannot undertake the journey to it. (3) The uncertainty and unreliability of the medication carried out at home.

(c.) Influences of hospital surroundings, will inculcate in the patient the alphabet of hygenic laws. He will have appreciated the benefits derived from cleanly habits and I think the duty of the authorities will be as much to cure the patient of his disease as to school him in the duties which he owes to his person. In other words, the patient must be told that daily ablutions of the body is an actual necessity in these climes; that frequent changes of clothing is a luxury which he should indulge in; that the clothes which he wears at work during the day, should be changed for another set at night. He should be impressed with the importance of eating the best he can procure. He should be told the benefits to be derive by living in a healthy locality and how ventilation is an important factor in housebuilding. We have not only to cure Yaws, but we must make every endeavour to eradicate the disease from these colonies. It will not do to get rid of the disease and send the patient back to his home, where he will expose himself to the operation of the contagion again; we must warn him against the possibility and instruct him in such a manner as that he will avoid the source of the evil. By this means only can we hope to suppress Yaws. The most important duty, I think, of the Yaws Constables would be a close supervision of all cases that left the hospital. This supervison should be kept on for at least one year after the patient was discharged. Should a relapse take place the patient should immediately be taken back to the Hospital. I am happy to be able to say that in my list of cases there was not a single instance of a relapse up to this day. If by Thyroid feeding we eradicate the disease from the system once and for always, leaving no dregs whatever and if again one attack of Yaws confers immunity, we can entertain the hope of being able to wipe away the disease from these Colonies. A more lengthened trial of the Thyroid feeding in a properly equipped hospital will be necessary to decide this most important question. Hitherto the remedial measures adopted have had no certain and decided effect in the eradication of the disease from the system and consequently dregs of the disease remaining in the system after the patient has left the hospital may possibly have started operations again, without necessarily the patient exposing himself to a fresh operation of the virus. Hence, as recommended above, a careful supervision of the patients after they left the hospital will be indispensable in order that a definite decision may be arrived at.

In every case the patient should be kept in the hospital for a fortnight after all signs of the disease have disappeared, the Thyroid feeding being continued during that time.

Diagnosis.

The question of diagnosis between Yaws and Syphilis has been well worked out by Dr. Nicholls in his report. The slightest acquaintance with both diseases will suffice to convince one of their non-identity.

From Acquired Syphilis.

The only Syphilitic eruption which can be said to bear a resemblance to that of Yaws is rupia. I shall not describe rupia and enumerate the differences between it and the Yaws eruption, but I would desire to draw attention to the conditions under which rupia appears in a patient in conjunction with other manifestations of Syphilis. Rupia is met with in neglected Syphilis. The patient's constitution is usually shattered and therefore one would hardly expect that rupia would be the only manifestation of the disease presenting itself under these circumstances. When a disease is under consideration it will not suffice to look to a certain set of symptoms and signs only, but the whole set must be considered. Given a patient with rupia, we must look for other signs of Syphilis. An inspection of some of the mucous membranes, such as palate and fauces, will most certainly show some changes. At first, congestion, later on infiltrations with overgrowth, subsequenty ulcerations. Again besides these superficial eruptions and ulcerations we must look to deeper structures, we must look to the eye for Iritis, to the bones for Nodes, to the testicles for Symmetrical Orchitis and Epididymitis. We must lastly look to the age of patient.

Contrast the above with any case of Yaws where granulomata (supposed rupia) are the only manifestations of the disease. In all probability the patient will be a child from three to fourteen or fifteen years of age. Can it be said that Syphilis will be acquired at such a tender age? Granting even that possibility, we would find the disease under those circumstances in centres where immorality is rampant. But where do we find children afflicted with Yaws? They are usually found far away from these centres of immorality, they are found in the country districts and most often in the remotest parts of these districts. Again let us look to the patient's condition. He may be anæmic, but certainly his constitution would not be said to be shattered. He may be covered with granulomata, but examine his mucous membranes for mucous patches, his bones for Nodes, his eyes for Iritis, his testicles for Orchitis and Epididymitis and I am afraid the search will be in vain. Can it therefore be said that Syphilis and Yaws are one and the same disease? Syphilitic growths are exceedingly liable to break down and suppurate. The converse is true of Yaws.

From Congenital or Inherited Syphilis.

Take a three or four month old baby with Syphilis. The child will be puny, there will be catarrh of the nasal mucous membrane—snuffles—rashes about the body, mucous tubercles and superficial ulcerations about mouth and arms.

An infant of the same age with Yaws, will certainly not present these signs. He will have granulomata or squamae and papulæ about his body, but certainly no affections of the mucous membranes.

Take the child when he is older. In Syphilis we must expect, interstitial Keratitis, periostitis followed by necrosis, disease of the ear, ulceration of palate and formation of gummata in the viscera, depressed and widened bridge of nose, Hutchinson's teeth, parrot's nodes, hot-cross-bun-like skull and innumerable other syphilitic manifestations. In all my cases of Yaws, not a single one of these conditions was present. Can it therefore be said that Yaws is identical with Inherited or Congenital Syphilis?

Lastly.

Yaws, Leprosy, Syphilis and Tuberculosis form a group of affections whose structure and general relations show a great deal of analogy to inflammation on the one hand and tumours on the other. They all depend on a virus which multiplies its kind and tends to reproduce lesions outside of its original seat, in other words, they are infective diseases. They are also mostly all infectious.

In every case the microbe is peculiar to the disease. Further, each microbe acts in a different manner on the tissue (granulation tissue) which nature, in her efforts to isolate the organisms, throws out. In Syphilis and Tuberculosis there is a great tendency for the new formed tissue to break down and caseate while in Yaws and Leprosy the converse is true. Up to a certain stage, therefore, the lesions produced by these microbes are almost identical. Now, if the tissue produced by these different organisms be the same in all the four diseases we must naturally conclude that the constituents of that tissue will act in the same manner, if there is any action, towards the various microbes. We have already seen, in what has gone before, that the constituents of this granulation tissue (Microphags and Macrophags) play an important part in the absorption of the new growths in Yaws. It is to be inferred therefore that these same Microphags and Macrophags which occur in Syphilis, Tuberculosis and Leprosy will have a similar action in the absorption of the new growths which occur in them. Let us now go a little further. We have seen that the Thyroid principle introduced artificially into the system has a very decided stimulating action on these Microphags and Macrophags in Yaws. What deduction must we make from this fact? The only inference to be drawn from this, can be that if the Thyroid principle can stimulate the Microphags and Macrophags in Yaws to bring about a resolution of the disease, we must expect that it will have the same stimulating effect on the same Microphags and Macrophags in Syphilis, Tuberculosis and Leprosy. In other words if the Thyroid principle is a Specific for Yaws, it must also be a Specific for the others.

I may mention that I tried the Thyroid tabloids in a case of Lupus with decided benefit. The Lupus was situated on the nose and had long been treated with little or no effect—one phial of one hundred tabloids of Thyroid had brought about a cure. I have not been able to see the patient myself but I was kept informed of her condition. The information can be relied upon.

EUG. L. POLLONAIS,
Colonial Assistant Surgeon.

Dennery, January 31st, 1898.

CASE I.

EDAN (Coolie).—6 years of age. Native of India. Resident on Ressource Estate. Admitted October, 1895.

Complaint.—Pains about the joints, fever and granulomata—tubboes in the soles of the feet. This had been going on for 4 weeks.

History.—Child was always healthy, leading an open air life, running about the savannah and coolie barracks. Food of the ordinary kind, i.e. rice, salt fish with spices.

State on Admission.—Child was haggard, with an expression of deep concern. His temperature stood at 102° F. The little patient was unable to keep standing owing to the pains in the back, in the knees and also the agony which he experienced whenever the soles of the feet touched the ground. He had tubboes at the heels and at the balls of the great toes. He could not sleep at night and had completely lost his appetite.

Treatment.—This being the first case of Yaws I came across, I was at a loss to know how to go about it. Acting therefore under the guidance of the rules in Dr. Nicholls' report, I began to administer doses of Confectio Sulphuris every other morning. In addition to this I cauterized the "tubboes" with pure Carbolic on three occasions and dressed them with Iodoform every morning. I also gave him a mixture of Perchloride of Mercury and Iodide of Potassium to be taken in tablespoonful doses thrice daily. This treatment

was continued until October 29th. His condition on that date was anything but satisfactory. The patient who managed to crawl about before, could not even raise himself in bed now. He complained of excruciating pains in the joints, but especially at the left hip. The "tubboes" were in the same condition as when I first began. And I noticed in addition on the face, chest, abdomen, thighs, in fact all over the child's body the appearance of a crop of papulæ and "dartres" here and there as for instance at the back of the neck, on the front of the left thigh and on the right cheek, "granulomata" had formed. The patient could not take food and did not sleep at all. He had an evening rise of temperature. On the same day October 29th, I determined to give the sheep's Thyroid a trial in the treatment of Yaws. The result obtained by the administration of this substance was marvellous. The effect produced was comparable to that produced by Quinine, in intermittent fever. The dose administered was ¼ of a Sheep's Thyroid twice a day, morning and evening. He had the Thyroid on 29th, 30th, and 31st October. Astonishing as the fact may seem, yet on November 1st, the little patient who previous to this could not move without a yell, now allowed himself to be lifted to the sitting posture and although not with relish he could be induced to take a little bread and milk. He, would himself ask for a drink of water, and say that he felt a little better. The pain about the hip was not so agonising. An inspection of his body surface, although not revealing a marked change, yet showed that the "papulæ" had a tendency to shrivel. There was certainly no appreciable change in the "granulomata." No Thyroid could be obtained on November 2nd 3rd and 4th. He had ¼ Sheep's Thyroid twice daily, on 5th, 6th, 7th, 8th and 9th November. On the last named date I examined the patient. I found him on the hospital gallery, stick in hand, leaning against the railing with a broad smile on his face indicating that he felt a great change in his pitiable condition. He was able to take more food and slept all night. The change on the body surface was remarkable. The "papulæ" had all dried up and their scales had mostly all been rubbed off at night when the patient was asleep. The three "granulomata" had shrivelled up considerably and had thick dry scales. On November 10th no Thyroid was given. I found that the scales of the granulomata on the front of the thigh and on the cheek had been rubbed off and at their former sites, distinct black marks were visible (maculæ). The granuloma at the back of the neck was still covered by its scale. Thyroid was given on 11th, 12th, 13th November. On 14th November, I noticed some more "papulæ" about the forehead, cheek, and under lip, These papulæ were exactly similar to the first set I had noticed. The patient, however, did not complain of pains in his joints. He had a good appetite and slept well. The "tubboes" which up to now I had kept covered with cotton wool, had dried up and were represented by scales. The patient could stand perfectly well, and did not experience the slightest inconvenience from them. I removed the scales and found no signs of granulation tissue under them. The skin was perfectly healthy. I again administered ¼ Sheep's Thyroid twice daily on November 16th, 17th, 18th, 19th and 20th. On the last named date I examined the patient—I found that the second crop of papulæ had proved abortive all except one on the under lip which had gone on to form a "granuloma." The scale at the back of the neck had dropped leaving the macula and the feet were perfectly nice and clean. The patient no longer experienced the slightest pain in the joints and was running about the hospital grounds with the other children. He had a ravenous appetite and slept very soundly. Thyroid was administered on November 21st, 22nd, 23rd, 24th, 25th. On November 26th, I began the admininistration of a Glycerine Extract of Thyroid from Messrs. Willows & Francis, of London. 30 minim doses twice daily were given on November 26th, 27th, 28th, 29th, 30th. On the last named date I examined the patient and found that the granuloma on the under lip had disappeared leaving the macula. There was not anywhere on the patient's body a sign of Yaws. He ate well, slept soundly and played with the other children at the hospital. He got 30 minim doses of the Extract on December 1st and 2nd, and on December 3rd, he had the first bath, since his admission to the hospital, it was a sea bath. He again had the Thyroid Extract in 15 minim doses on December 12th, 13th, 14th, 15th, 16th and 17th. On December 22nd I discharged the patient from hospital. He was perfectly cured. I have had occasion to see the patient on the Estate on visiting days and always found him in the bloom of health. I saw him last on December 24th 1897, and he was perfectly healthy.

CASE II.

Dagaroua (Coolie).—15 years of age. Creole coolie—Richefond Estate. Admitted on November 4th, 1895.

Complaint.—Accumulation of pus in the left inguinal region. This accumulation was quite superficial and looked like a bleb produced by Emplast. Cantharidis in a jaundiced patient.

History.—Patient was always very healthy and was leading an open air life. There was no history of venereal disease.

State on Admission.—Except for that bleb on the left inguinal region the patient seemed perfectly healthy.

Treatment.—The bleb was cut with a pair of scissors, the dead epidermis recovered and the part was powdered with a little Iodoform and bandaged. It healed readily. On November 15th whilst making my round at the hospital, I noticed that the patient had "papulæ" about his wrists. I got him to undress when to my utter astonishment I found that he was actually covered over with "dartres." On November 16th I began to administer doses of Confectio Sulphuris every second morning and gave him Liq. Donovoni. I continued this treatment until November 29th, and the patient's condition on that date was as follows:—The "dartres" had developed into granulomata on the penis and buttocks. There were well marked "'papulæ" on the back. The patient complained of malaise and had evening rise of temperature and had lost his appetite. On November 30th I began to administer Extractum Thyroidæ in 30 minin doses twice daily. He had it on December 1st, 2nd, 3rd, 4th, 5th, 6th, till 11th On this last named date, I had to suspend the Extract as it had brought about an intense diarrhœa. The patient's condition otherwise was as follows:—There was no appearance of "dartres" or even scales about the wrists and body surface generally. The "granulomata" on the penis and buttocks had almost disappeared, their thick crusts were ready to drop. There was no more evening rise of temperature, but feelings of malaise still persisted, but these I attribute to the diarrhœa. No Thyroid Extract was given on December 12th, 13th and 14th and the diarrhœa immediately ceased. The scales of the "granulomata" fell off on 14th December, and the "maculæ" could then be seen. On 18th December a second crop of "dartres" appeared on the left buttock, dorsum of penis and the web of thumb and index finger of the left hand. The Thyroid Extract was begun again on the 19th, and continued in 15 minim doses twice daily until the 26th. On this date I examined the patient and found that the "dartres" had entirely disappeared. The patient ate well, slept soundly, and and did not feel any pains about the joints again, in fact he was thoroughly cured of the Yaws. He had his first bath on December 27th and was discharged from the hospital on January 1st 1896. I saw the patient on several occasions since, the last time on December 12th 1897, and he had no relapse.

CASE III.

Joumanie (Coolie).—3 years of age. Native of Saint Lucia and sister to Edan, (Case I). She was in hospital in the month of November 1895, and was very often found lying with her brother in the same bed. Admitted to the hospital on January 20th, 1896.

Complaint.—"Granulomata" about the face—two on the left cheek, another at left corner of the mouth, at junction of mucous membrane and skin and one on the chin—There was also a large granuloma—1½ inch diameter—on the inside of left thigh. All the "granulomata" were encrusted and gave forth a viscid secretion. The patient had an evening rise of temperature, but did not complain of pains at the joints.

History.—Patient had always been healthy and running about in the open air on the estate. Her mother was perfectly healthy.

Treatment.—The administration of ½ Sheep's Thyroid was begun on January 21st, and continued to 25th. No Thyroid on 26th and 27th January. She had it again from 28th January to 1st February. On this last date I examined the patient and found her condition as follows:—One granuloma on the cheek had entirely disappeared leaving the macula, the other at alæ of nose was still covered by its crust which was removed by a pair of forceps and no trace of a "granuloma" was to be seen. A similar procedure was adopted for the "granuloma" on the chin. The only two which still persisted, although much smaller, were the ones at left angle of the mouth and on the thigh. On 4th, 5th, 6th, and 7th February, ½ Sheep's Thyroid twice daily was given. From February 7th to March 12th, I could not procure any Thyroid. I, however, kept the patient at the hospital, and gave her no other remedies. During this interval a "dartre" had made its appearance in the right submaxillary region. On March 12th, therefore, the little patient was suffering from three "granulomata"—one in the right submaxillary region, one at left angle of mouth, and one on inside of left thigh. The administration of ½ Sheep's Thyroid twice daily was resumed on March 12th and continued till 20th. On this date I examined the patient and found that the three "granulomata" had greatly reduced and portions of their crusts had fallen off. The little patient was feeling quite well. No Thyroid on 21st, 22nd, and 23rd March. Thyroid given from 24th to 28th March. None again from 28th to 31st March. I examined the patient on April 1st, and found that the granuloma at the angle of mouth had disappeared leaving a white mark. The other two "granulomata were very small and still had their crusts on. From April 1st to April 11th ½ of Sheep's Thyroid was given twice daily. On April 12th I examined the patient and found that the two last "granulomata"—the one on thigh and the one in the submaxillary region—had entirely disappeared, but the "maculæ" were

distinctly visible. The patient ate well and was perfectly healthy. She had her first bath on April 13th, I kept her in hospital until May 16th and during that time there was never any sign of a relapse. I have had occasion to see the child on the estate several times already, the last time on December 24th 1897, together with her brother, Edan, and there was no sign of Yaws about her.

CASE IV.

A. H.—Black native. 20 years of age. Mabouya valley. Admitted to Hospital April 14th 1896.

Complaint.—Pains about the joints. Want of appetite. Sleeplessness. Patient covered over with "dartres." Dermatitis of palms of the hands very well marked.

History.—Patient had always been healthy, until four weeks ago when he felt pain in the joints and noticed these spots about his body.

Treatment.—From April 14th to April 18th, ¼ of sheep's Thyroid was given twice daily. On the 18th, he felt quite better of the pains in the joints and slept soundly at night. His appetite had improved. At a first glance the skin seemed much the same, but a closer examination with a lens revealed that the greater part of the loose epidermis had disappeared and the spots were smoother. Nowhere about the body have they gone on to form "papulæ." From April 20th to April 25th I increased the dose of the Thyroid from ¼ to ½ of the gland twice daily. I saw him on the 25th. His appetite was very good, he slept very well and no longer complained of pains in the joints. With a lens I could detect no loose epidermis about the spots and the natural colour of the skin seemed to be returning, especially on the un-exposed parts of the body. The Dermatitis of the palms had greatly improved. No Thyroid on 26th and 27th April. From 28th April to May 2nd ½ sheep's Thyroid was given twice daily. On May 3rd I saw the patient and found his condition still better, I could hardly make the difference between affected and unaffected skin. Here and there, especially on the legs and dorsum of hands, the spots could be detected. The "dermatitis" was limited to the edges of the palms at the inner sides of the hands. From May 5th I reduced the dose of the Thyroid to ¼ of a gland twice daily, as Case v. had been admitted to the Hospital and my supply of Thyroid was very small. This dose was given daily till May 23rd and on this day the patient was feeling very well, he had a good appettie and slept soundly. No spots could be detected about his body and the dermatitis had almost disappeared. From 26th May to June 6th ¼ sheep's Thyroid was given twice daily. The patient was still more improved and what remained of the dermatitis was hardly perceptible. His skin was quite nice. The Thyroid was continued until June 19th and unfortunately from that date to July 7th I could not get any Thyroid. During this interval, I noticed a few light coloured spots about the patient's forehead and on close examination a furfuraceous desquamation could be detected. A relapse therefore had taken place. The patient did not feel quite so well. On July 7th I again began the administration of the Thyroid twice daily. On July 19th I examined the patient and found that the spots on the forehead were very faint. He felt no pains and had a good appetite once more. The dermatitis of the palms had entirely disappeared.

From July 21st to July 31st ¼ sheep's Thyroid was given twice daily. On August 1st I saw the patient and found him perfectly cured. No spots whatever could be detected about his body. His hands were quite natural. I kept this patient in Hospital until September 28th 1896, giving him the Thyroid every other day. During the remainder of his stay at the Hospital he never presented any sign of Yaws. I saw him on January 10th 1898 and he is quite well. He has been working steadily and never had any trouble with his joints again.

CASE V.

A. D.—Black creole. 16 years of age. Desruisseaux, Micoud. Admitted May 4th 1896.

Complaint.—"Granuloma" on the upper lip just below the septum of the nose. Granulomata tubboes in the soles of the feet.

History.—Patient had always been healthy. He belongs to a respectable and well-to-do family. Always had good food and leading an open air life.

Treatment.—From May 5th to May 12th he was given ¼ sheep's Thyroid twice daily. I saw him on 12th May and found that the granuloma on the lip had shrivelled and the crust was nearly off. The tubboes had no moisture about them and were smaller. He could not as yet walk about. From 12th to 19th May he continued with the Thyroid. On the last named date I saw the patient and found that the crust of the granuloma on the upper lip had dropped and the "macula" marked the spot of the granuloma. The tubboes in the soles of the feet were smaller yet and the patient could move about more easily. The crusts had not yet fallen. From May 20th to June 1st the Thyroid was continued regularly. On June 1st I saw the patient and found that all the crusts af the tubboes had

fallen off, leaving a nice and smooth surface. The patient never had any rise of temperature, but slept little at night when he first came to the Hospital. Now, however, he enjoyed sound sleep at night and had a good appetite. The Thyroid was administered regularly from June 2nd to June 10th and on this day I saw the patient. He had not the slightest sign of Yaws about him. The soles of his feet were quite natural and the skin of his whole body was perfectly healthy. I continued giving him the Thyroid until June 19th when my supply of the article was finished. I kept him on at the Hospital in case of a relapse. None made its appearance and on July 7th I again gave him some Thyroid until July 14th when he was discharged from the Hospital thoroughly cured.

I saw this patient in January 1897 and he was quite healthy and could work.

CASE VI.

L. A.—Black woman. 27 years of age. Village of Micoud. Admitted July 27th 1896.

Complaint.—Slight pains about the extremities. Small indolent ulcer on external malleolus and an encrusted granuloma on front of neck near Thyroid cartilage.

History.—Patient unmarried. Never contracted any disease and was an ordinary labourer.

Treatment.—The administration of Sheep's Thyroid was begun on July 28th, she had ½ of the gland twice daily till August 7th, when I examined her. On that day, I found that the granuloma had all but disappeared, the crust was hanging by a mere film of dead epidermic cells. There was considerable improvement on the ulcer at the external malleolus, it showed distinct signs of life,—I mean granulation tissue was filling in a previously crater-like ulcer. I may here mention that a little carbolic lotion was the dressing applied to the ulcer, and this she had been applying before her admission to the hospital with no beneficial result. She no longer complained of the pains about the extremities. She ate well and slept well. No Thyroid from 7th to 11th August. From 11th to 21st August, the Thyroid was given in the usual proportions and on this last date I examined the patient and found that the crust of the granuloma had fallen off and that a "macula" marked the spot of the former granuloma. The ulcer on the malleolus was completely filled up and the young epidermic was rapidly spreading over the healthy granulation tissue. The patient was looking well. The administration of the Thyroid was continued on this patient every alternate week until September 28th 1896, when she was discharged from the hospital thoroughly cured. I see this patient almost every Wednesday when I visit Micoud. On my last visit, January 5th, 1898, she was perfectly healthy and had no relapse.

CASE VII.

A. P.—Black girl. 12 years of age. Village of Micoud. Admitted September 10th 1896.

Complaint.—"Tubboes" in the soles of both feet. Anœmia. Sleeplessness.

History.—Patient had always been well until July 1896, when she noticed that on walking she experienced a certain amount of pain at the heels when pressure was brought to bear on them. This pain gradually increased until she could discriminate tender spots and at those spots after a little while, cracks appeared in the skin and eventually small growths appeared on those cracks—then she says locomotion was impossible and at night I could not close my eyes for the gnawing pain.

Treatment.—Before admitting her to the hospital, I tried the Ungt. Hydrarg. Iodid. Rub. as a local application, and a mixture of Perchlor. of Mercury, and Iodid. of Potass. She continued with this treatment for three weeks with no appreciable change, and then it was that I determined to admit her to hospital. The administration of the Thyroid was begun on September 15th, the patient had ½ of a gland twice daily, till 18th September. There was no Thyroid on 19th, 20th, and 21st, September. The Thyroid was given again regularly every day from 22nd September to 2nd October. On this day I examined the patient and found a great improvement in her Anœmia. She slept well at night and no longer felt pain. The "tubboes" had got much smaller and had no secretion at all about them. The crusts were off. They were protected by absorbent wool. No Thyroid from 2nd to 6th October. Thyroid again given every day from 6th to 23rd October. On this day I examined the patient and found that she was no longer Anœmic, in fact her menstrual flow had made its appearance in the interval. She slept well at night and had a very good appetite. An examination of the soles of the feet revealed that the tubboes had entirely disappeared and the skin of both soles was perfectly smooth and healthy. From October 27th to October 31st she had the Thyroid every day in the usual proportions. On October 31st I had to discharge my patient from hospital owing to a rush of patients seeking admission. In my estimation the patient was thoroughly cured. I see A. P. occasionally at Micoud. I have always found her well—I saw her last on 27th October, 1897, and she was quite well.

CASE VIII.

A. J.—Black girl. 9 years of age. Micoud. Admitted 28th September, 1896.
Complaint.—"Granulomata" on nates, on both knees, and one on small toe of left foot—Patient complained of pains in the joints, sleeplessness and fever.

History.—None could be had from this patient.

Treatment.—The administration of the Thyroid was commenced on October 6th, and continued every day in doses of ½ of the gland twice daily until October 16th. On October 17th I examined the patient and found that all the "granulomata" had reduced considerably in size. The one on the little toe which was the smallest, had almost disappeared. At this stage I had to suspend the Thyroid owing to an attack of measles. I administered a little Aconite and Spt. Æther Nit. for the measles. On October 26th the patient was convalescent. On October 27th the Thyroid was administered again daily until October 31st. On this day I examined the patient and found that all the granulomata had disappeared, but the "maculæ" were well marked. I had to discharge the patient from hospital owing to the large demand for admission. I have had occasion to see A. J. at Micoud on January 27th, 1897, and again on December 8th last, and there was not the slightest sign of Yaws about her.

CASE IX.

A. W.—Coloured boy, about 5 years of age. Micoud. Admitted on November 2nd, 1896.
Complaint.—"Granuloma" at left angle of mouth also a congeries of "granulomata" around the arms. These latter, from their situation, could not have crusts and were mere elevations, whitish in colour and covered by a moist secretion. The patient experienced slight pains in the shoulders and in the knees. He was very Anœmic.

History.—None could be obtained.

Treatment.—The Thyroid was begun on November 3rd. The dose given being the usual ½ of a gland twice daily and was continued regularly until November 14th, when I examined the patient. On this day I found that the granuloma at the angle of the mouth had entirely disappeared and left a whitish "macula." The "granulomata" at the arms had greatly reduced in size, but still presented a moist surface. The little patient's conjunctivæ were getting quite red, indicating that he was better of his Anœmia. The pains about his joints had left him, and he looked very much brighter. From November 17th to November 29th, he had his regular doses of the Thyroid. On November 30th I examined him. The little fellow was quite bright, his complexion a deep brown, his conjunctivæ were perfectly red, and he was able to run about with the other children at the hospital. No sign of a granuloma could be detected at the angle of the mouth. The "granulomata" at the arms had almost disappeared, there was no longer any secretion about the part. From December 1st to December 12th, ½ of Sheep's Thyroid was administered twice daily. On December 14th I examined the patient and found no vestige of a granuloma at the arms, he was cured. I kept the little atienpt in hospital until January 15th, 1897, giving him an occasional dose of the Thyroid. He was discharged quite cured. I have not seen this patient since his discharge from the hospital.

CASE X.

T. W.—Black girl. 15 years of age. Desruisseaux (near Micoud) originally from Trinidad. Admitted on November 15th 1896.

Complaint.—Anœmia, pains in the joints and the whole body covered over with Squamæ dartres). At the anus, a "Granuloma". Evening rise of temperature.

Treatment.—The Thyroid was begun on November 17th and given regularly twice daily in doses of ½ of the gland. It was continued until November 28th, when I saw the patient. She was slightly better of the pains, the fever did not trouble her so much and there was a feeling of want of food. Her conjunctivæ were much better than when I first saw her. There was as yet no marked change in the "Squamæ," true it is, that not so much desquamation was going on. The Granuloma had remained much the same, there was still a moist secretion. From December 1st to December 12th the regular dose of Thyroid was given. On December 14th I examined the patient she was feeling much better. The fever had left her and she no longer complained of pains. She had a good appetite. The "dartres" had greatly altered in appearance, there was no furfuraceous desquamation, the spots had assumed a dark appearance. The Granuloma at the anus had shrunk considerably. There was no secretion and no crust. Thyroid was administered again from December 15th to December 23rd. On December 24th I saw the patient and found her looking quite well. The dark spots were still there but the Granuloma had almost disappeared. From December 23rd 1896 to January 5th 1897, no Thyroid could be obtained. The patient's condition however remained exactly the same as when we last saw her. The Thyroid was begun again on January 5th and given regularly every day until January 16th when I examined the patient. I found her the picture of health. The spots had faded away. The Granuloma at the anus had disappeared. From January 17th to January 29th the patient had the Thyroid regularly every day in the usual proportions.

On January 30th the patient was thoroughly cured. I however kept the patient in hospital until March 25th not giving her any Thyroid to watch for a relapse. There was never a sign of Yaws that made its appearance. She was discharged thoroughly cured.

I have never seen this patient since she left the hospital.

CASE XI.

H. J. C.—Black male child, about 4 years of age. Admitted September 2nd 1897.

Complaint.—Anœmia. Pains in the joints. A large "Granuloma" 2 inches in diameter at gluteal fold of left buttock. "Granuloma" again on inside of left thigh.

Treatment.—With this patient, I began the administration of Thyroid in the form of Tabloids obtained from Messrs. Ferris & Co. At the start, I began with 2 tabloids twice daily. He had then from September 6th to September 27th, when I saw him. On that day, I found that the Granuloma at line of the buttock had shed its crust and had reduced from 2 inches to $\frac{3}{4}$ inch in diameter and its surface did not present a rough aspect but was quite smooth. The Granuloma on the inside of the thigh, although diminished in size, did not make much progress. It still retained its crust. On September 27th I increased the number of tabloids to three, twice a day, this was continued until October 11th, when I saw the patient and found a "macula" at line of buttock. The Granuloma on inside of thigh was however much the same. Situated as it was high up and the scrotum always in contact with it and rubbing against it, I presumed that that was a source of irritation and prevented the absorption of the Granuloma. I consequently ordered that a piece of absorbent wool and Spica bandage be applied to obviate this difficulty. On 11th October I increased the dose of the tabloids to 3, thrice daily. This was continued until November 1st when I examined the patient and found a mere trace of the macula at line of buttock. The Granuloma on the inside of thigh had shed the greater part of its crust, exposing to view the much diminished granulation tissue. The little patient was no longer Anœmic and was looking quite bright.

The Thyroid was continued every day from November 1st to November 15th. On this last date, I examined the patient and found no sign of a "macula" at the buttock. What remained of the Granuloma on the inside of the thigh was a mere crescent of granulation tissue. The rest of the circle was represented by a dark spot (the macula). The Thyroid was continued from November 15th to November 22nd. On 23rd November I saw the patient and found that the crescent of granulation tissue on the inside of the thigh had disappeared and a well marked macula represented the site of the former Granuloma. There was no other sign of Yaws about the patient. On November 24th I ran short of Thyroid and it was only on December 16th that I received my supply. He had three tabloids thrice daily from December 16th to January 1st 1898. He was discharged on January 3rd 1898 thoroughly cured.

CASE XII.

T. F.—Black male child, about 9 years of age. Micoud. Admitted on 27th October 1897.

Complaint.—Anæmia. Pains in the joints. Evening rise of temperature. "Granuloma" (encrusted) about 1 inch diameter on right cheek. "Tubboes" at roots of 2nd 3rd and 4th toes of left foot.

Treatment.—On October 28th 29th 30th and 31st he had 3 of Ferris' tabloids of Thyroid twice daily. On November 1st I increased the dose to three tabloids thrice daily. "Tubboes" and Granuloma were covered with absorbent wool and bandaged. The tabloids were given every day. On November 8th I found the patient on the hospital gallery looking much brighter. He no longer suffered from pains in the joints. On removing the wool from his cheek, I was surprised to find the merest trace of the Granuloma. An examination of the tubboes, showed these to be mere crusts. The patient who before his admission could not walk on account of the pain he experienced when pressure was brought to bear on the tubboes, could get about with tolerable ease now. The Thyroid was continued daily in the same proportions and on November 15th I again saw the patient. The "macula" on cheek was well marked. The crusts of the tubboes had fallen off, leaving the young skin quite smooth and nice. The toes which had the appearance of rudiments, were now quite free and looked as they ought, that is to say, thoroughly developed toes. There was no other sign of Yaws about the patient. I however continued the administration of the Thyroid until November 24th when my supply ran short. On December 16th I received a supply of tabloids and gave the patient 2 twice daily until January 1st 1898.

He was discharged on January 20th 1898 thoroughly cured.

CASE XIII.

S. K.—Coloured female. 16 years of age. Micoud. Admitted 13th November 1897.

Condition on Admission.—Well nourished. No pains in the joints. Sleeps well. Poor appetite. No evening rise of temperature. Exfoliative Dermatitis-(Crabs) in the soles of both feet, especially well marked at the heels. Squamous patches on hypothenar eminence, back and forefinger of right hand and right elbow, also on both knees.

History.—Eight years ago the patient had Yaws and was treated by a penseur. She drank the tisanes for 10 months. She had got better. She never noticed any sign of the disease until a month before her admission when she noticed "pimples" in the soles of the feet.

She broke these pimples, when more of them developed and formed these patches she is now suffering from.

Treatment.—The administration of Thyroid was begun on 14th November and given in the form of tabloids. Three tabloids were given three times daily. On November 23rd I examined the patches and found the greater part of the dead epidermis had fallen off, there seemed to be no tendency to spread in the patches. Here and there in the middle of the patches spots of healthy epidermis could be seen. Unfortunately on November 24th my supply of Thyroid ran short. It was only on December 16th that she again began to have three tabloids thrice daily. I may however mention that during the cessation of the Thyroid the patches remained exactly in the same condition as when I saw them on November 24th. Neither was there any new crop of pimples developed.

On December 24th I examined the patches and found that all the dead epidermis had fallen off leaving a perfectly smooth surface. The line of demarcation of the Squamæ was gradually fading away. The Thyroid was continued until January 10th 1898, when my supply ran short. The patches on that day were just perceptible. The epidermis of the soles had greatly thickened and would soon be back to its normal. The patient had a good appetite and was the picture of health.

As soon as I get a supply of the tabloids I shall continue giving the patient 3 tabloids twice daily for a couple of weeks. I have kept her at the Hospital.

January 31st. The patient has been getting the Thyroid since 23rd instant. She is thoroughly well.

CASE XIV.

E. S.—Coloured male. About 19 years of age. Mabonya valley. Admitted 18th November 1897.

Condition on Admission.—Patient somewhat Anœmic. He had no pains in the joints, but suffered terrible agony with his foot. He had dermatitis—"Crabs" and Granulomata—"tubboes" in the sole of the right foot. He could not possibly put the foot on the ground. At night he could not sleep through the pain.

History.—Patient had always been healthy and was well fed, belonging to a well-to-do family.

Treatment.—Three tabloids of Thyroid thrice daily were given on 19th 20th 21st 22nd and 23rd November. Unfortunately my supply of Thyroid had run short and the patient therefore had to stay without it until December 16th. During the interval I had to give the patient a sleeping draught to take at night. He suffered great pain.

The administration of Thyroid was begun on December 16th and given in the form of tabloids three times daily. The foot was covered with wool. On December 24th I examined the foot and found that the dead epidermis of the crabs had fallen off and the crusts of the tubboes also. The patient discontinued the sleeping draught at night as he could manage without it. He was also better of his Anœmia. The Thyroid was continued until January 10th 1898 when my supply ran short. On that day I found that there was no longer any dermatitis about the foot. The patches where it existed were represented by healthy young skin. The tubboes had almost disappeared.

I have kept the patient in hospital and as soon as I get my supply of Thyroid I shall continue. I may mention that he can walk pretty comfortably now (January 21st 1898).

January 31st. The patient has had Thyroid from 23rd instant. He is so well that he will be discharged next week.

EUG. L. POLLONAIS,
Colonial Assistant Surgeon.