



# THE UNIVERSITY *of* EDINBURGH

<b>Title</b>	Remarks on the granulomata of the skin
<b>Author</b>	Mackenzie, James
<b>Qualification</b>	MD
<b>Year</b>	1922

Thesis scanned from best copy available: may contain faint or blurred text, and/or cropped or missing pages.

## Digitisation Notes:

- Page nos 30,39,47,50 & 51 are omitted in original

REMARKS ON  
THE GRANULOMATA OF THE SKIN.

THESIS

submitted for the M.D. Edinburgh 1922.

by

JAMES MACKENZIE, M.B., Ch.B., 1906.

Late Surgeon to the Colne Cottage Hospital,  
Colne, Lancashire.

Brigade Surgeon & Examiner to the St John's  
Ambulance Association.

---



## GRANULOMATA OF THE SKIN.

The term granuloma of the skin has been applied to a variety of conditions the common feature of which is ulceration with the formation of granulation tissue.

There are many different pathological conditions of the skin which have this feature in common; namely, that at a certain stage of their development the predominant characteristic is the formation of a mass of granulation tissue, or a granulomatous mass or, more briefly a granuloma. This term is therefore not reserved for any specific condition of the skin, but is applied to all skin and subcutaneous lesions which at some time or other are characterised by a hyperplasia of granulation tissue. The author has met with a variety of cutaneous affections which might be included in this category and proposes in the following thesis to give an account of the various pathological conditions belonging to this group with special reference to a series of cases which have come under his personal observation.

The pathological lesions which might be included among the granulomata of the skin are very numerous, and it is not intended that the account of them given in the present thesis should be exhaustive. But all the more important ones will be fully described and the rarer ones with the exception of mycetoma will be more briefly dealt with. The condition mycetoma, has been more fully elaborated. With regard to the conditions Syphilis, Tuberculosis, Actinomycosis, Glanders, only the cutaneous manifestations of these will be briefly dealt

with, as it is impossible within the limits of a thesis to deal fully with these conditions.

The same applies to certain forms of Sarcomata or other malignant ulcerations of the skin, which, at a certain stage of their development might be classed among the granulomata. Only brief reference can be made to these.

The following is a list of the pathological conditions which may be grouped together under the term, Cutaneous Granulomata.

1. Actinomycosis of the skin.
2. Tuberculosis " " "  
(Lupus)
3. Granuloma Annulare  
Lichen Annularis
4. Mycetoma.
5. Syphilis.
6. Rhino Scleroma.
7. Granuloma trichophyticum.
8. Granuloma Pyogenicum, Botryomycosis Hominis.
9. Verruga Peruana (Peruvian Wart).
10. Granuloma Teleangiectodes Tropicum et Europeum.
11. Granuloma Inguinale.  
(Granuloma Venererum Granuloma pudendum.)

### Actinomycosis of Skin.

This is due to the ray fungus, it occurs in nodules in the deep layers of the cutis. It is a chronic indurated, sluggish, red, nodular infiltration containing the ray fungus, with tendency to break down and form sinuses.

### Symptoms.

The most commonly affected parts are the face, neck, and jaw. Organism gains entrance through mouth, by chewing grass, hay, or corn, usually through decayed tooth in the jaw; the first sign is the appearance of a hard subcutaneous swelling which may attain considerable size; the overlying skin soon becomes sluggish dark red colour. Later, softening can be detected in the centre; and perforation occurs in several points, from which oozes a seropurulent or bloody discharge, containing minute friable yellowish grains in which the characteristic fungi are found.

During process of enlargement and breaking down, other nodules develop in neighbourhood, fuse together and then pass through same stages. Finally, an indurated nodular mass is formed, becoming when advanced, quite extensive, with ulcerated surface from which number of fistulous tracks pass into depths of mass, they skin over, surface is purplish red colour, which is characteristically puckered.

### Etiology and Pathology.

Actinomycosis in man is identical with the form of the disease which attacks cattle, horses, and those who have the care of them, i.e. farmers and drovers. The cause in both

being the ray fungus, called actinomyces, consisting of central mass of mycelium, from which threads, or mycelia, with bulbous ends, spread in all directions, and form a star-like figure, whence the fungus takes its name. Fungus readily seen with the naked eye, in discharge or in the infiltrated nodules, as yellowish grains, about  $\frac{1}{250}$  or  $\frac{1}{25}$  of an inch in diameter.

Histologically, the nodular and infiltrated mass is composed of granulation tissue, resembling round-celled sarcoma, sometimes epithelioid and giant cells seen.

The disease is more common on the continent of Europe than in the British Isles.

#### Diagnosis.

Not difficult in typical cases, and in doubtful cases, presence or absence, of ray fungus conclusive. Disease must be distinguished from dental abscess; tubercular affections; Lupus Vulgaris; Syphilitic gummata; sarcoma; carcinoma; mycetoma; and phlegmonous inflammation.

#### Prognosis.

Disease generally spreads very slowly, and when confined to skin and superficial parts, actinomycosis is curable but hardly ever shows any tendency to Spontaneous cure.

When internal organs, thorax, abdominal walls, anus, muscles, bones, blood-vessels and orbit attacked, disease very serious.

#### Treatment.

Internal, Iodide of Potassium in large doses, steadily

increased, effective in early stages; injections locally of a 1% solution of Potassium Iodide and Sodium Iodide, at first one Pravaz syringeful, later on, half as much again; copper sulphate in  $\frac{3}{4}$  grain doses, 4 times daily, has given good results.

Local.

Removal of diseased part with sharp spoon; maintenance of aseptic conditions by means of antiseptic lotions, of which Lugol's solution is one of the best, and probably inhibits growth or effects of fungus.

X-rays are often valuable.

## GRANULOMA ANNULARE.

(Ringed eruption on fingers. Lichen annularis).

Rare chronic dermatosis; common in children or young adults, and in women. Most frequent on dorsal aspect of hands, especially over joints, then wrists, feet ankles, elbows, knees, buttocks, in the order named. Rarely seen on scalp.

### Etiology and Pathology.

Cause unknown - occurs more frequently with those of tuberculous history. Process inflammatory, chiefly cell infiltration. Is a true granuloma.

Diagnosis, easy. Distinguished from Lichen planus annularis; erythema elevatum; Keloid. Peculiar whitish nodules, raised, band-like or nodular rings segments or crescents, sluggish course, absence of subjective symptoms very distinctive.

### Symptoms.

Sometimes sudden onset, at others slow and gradual; number of nodules form rings or crescents, pale red or bluish red, sometimes white like ivory; surface smooth, glistening. Nodules vary from millet to hemp seed in size, each separate solid papule, firm or doughy to touch, deep seated, but projecting above skin level, slightly flattened on surface.

Increase peripherally, with partial or complete disappearance of central part, which shows slight atrophy; Edge of ring abrupt at outer edge, slopes gradually to normal level on inner edge. Ring-like formations up to 1 or 2 inches or more in diameter.

Course usually persistent, often stationary for some time,

varying from months to years - usually spontaneous cure,  
leaving slight stain; eruption rarely abundant.

Prognosis and Treatment.

Disease is benign.

Application of mercurial plaster; or salicylic and  
resorcin ointment; lotions as used for acne.

### Syphilis of the Skin.

This is due to inoculation with the *Treponema pallidum*; the organism is spirillar, forming several spirals and at either end is flagellum of extreme tenuity. It has not yet been grown outside body; the organism is found in large numbers in primary sore, in mucous membrane lesions, and in recent papules, less common in macules. In secondary stage it can be detected in blood and spleen. It is very rare in tertiary lesions.

The histological change in syphilitic lesions is infiltration of tissues with round cells, especially in neighbourhood of blood-vessels, with tendency also to endothelial proliferation; in some lesions there are found a few giant cells.

In later stages the rete corium and subcutaneous tissues are involved. The main difference between earlier and later lesions is that in former, infiltration of cells is not dense, hence little tendency to necrosis and ulceration, unless some local mechanical injury also; in latter, infiltration of cells so dense that blood supply to part is interfered with, and some of the small vessels become blocked with endothelial proliferation, hence necrosis of tissues is liable to occur. In syphilitic lesions tendency to organization of new material is much less than in other granulomata. Dusky colour of secondary eruption is due to haemoglobin of extravasated red blood-corpuses; the cause of brownish stain left when eruption disappears.

The most important eruptions which may appear during course of disease are:-

1. Macular syphilide, or Syphilitic Roseola, is the first of

all the secondary eruptions to appear.

2. Papular Syphilide appears in two forms, in one the papule forms round hair follicle, and is called Follicular Syphilide, and in other not connected with hair follicle. These papules are small and pointed, may continue as papules for months, or go on to pustules. Papules not in connection with hair follicles are larger, and at early stage are covered with scales.

3. Squamous Syphilide, or Syphilitic Psoriasis, derived from Papular Syphiloderm. Scales small, and yellowish brown tint. It is found on trunk and limbs, on flexor surfaces of forearm, and on palms and soles.

4. Corymbose Syphilide, rare. Papules large flat, in centre, are number of follicular papules, group measuring 1 - 2 inches in diameter. Usually seen on back.

5. Pustular Syphilide may be derived from papular form. Most often seen on scalp, face trunk; crusts form of reddish brown colour. When pustules heal, leave behind small white scars. Pustular follicular syphilide, when each pustule pierced by a hair, is widely spread, chiefly on back and chest.

6. Bul ous Syphilide, occurs in late secondary stage - contents soon become purulent, then bullae dry up, and small conical crust, like limpet shell forms and if removed ulcer found beneath. This form is often called Rupia. Vesicles very rare in Syphilis.

7. Syphilitic Leucodermia most common in second half of first

year - more common in women than men, chiefly on neck. Spots round or oval, yellowish brown colour, whilst skin between abnormally white.

8. Syphilitic Alopecia. Occurs early, probably dependent on a folliculitis. Hair comes out generally, with ill-defined bald patches.

9. Tertiary Syphiloderma. Pustular and rupial eruptions come between secondary and tertiary stages. Typical cutaneous lesion of tertiary period is an ulcer due to breaking down of gummata.

Two chief forms - In one ulceration is shallow, ulcer tends to spread serpiginously, centre often healing.

The other form is where gummata, in deeper layers of skin, break down, forming multiple deep, sharply cut ulcers; on floor often yellowish slough, like wash leather. These ulcers extend centrifugally, and meet to form large ulcers with irregular margins.

In congenital syphilis there is no primary sore; virus introduced into child's body before birth. If infection is very severe, miscarriage results or child is born dead; if less intense, child is born alive with signs of disease on it; child nearly always dies. Usually, symptoms do not appear before 3rd 6th week or longer, when child begins to waste, has nasal catarrh or "snuffles".

One of earliest signs is appearance of rash, first on abdomen, spreading rapidly to limbs and face. Macules are larger than in acquired form, and often run together; colour

brighter red, or sometimes pale fawn colour. Palms and soles especially affected; skin may exfoliate. Rash fades quickly under treatment.

In mouth, mucous patches common; condylomata at angles of mouth and at anus, which quickly become fissures which on healing, leave scars radiating from mouth. Generally other organs, especially eyes, bones, joints, nervous system, involved; teeth, upper central incisors showing characteristic change, they are "notched and pegged" known as "Hutchinson's teeth".

Gummata are less common in hereditary than in acquired syphilis;

#### Tuberculosis of the Skin.

##### Lupus Vulgaris -

Cellular infiltration of the skin by tubercle bacillus, producing papules and nodules; ending in ulceration, scarring or atrophy.

##### Symptoms.

Most commonly on face, near nose; elbows and knees. Several small deep-seated, brownish red nodules appear in succession, termed apple jelly nodules; nodules enlarge and form patches; then break down into shallow ulcers, with soft dark red borders, small amount discharge, which dries and forms crusts - ulcers heal in time, forming scars. Progress of disease slow; patch, few inches in diameter, takes several years to form.

As disease increases, extends more deeply, destroying in part underlying cartilage or bone - also sometimes spreads to

nose and mouth. Healing may occur in one part, and disease extend at another, scar tissue and ulceration existing together. Spontaneous cure very rare.

#### Etiology.

Lupus more common in women than men - rare before 3rd year, usually about 20th year. Sometimes family history of phthisis; lupus and pulmonary tuberculosis never occur in same person.

#### Pathology.

Lupus caused by local activity of tubercle bacillus through local inoculation - sometimes appears on surface of tuberculous glands or in scar tissue after excision of T. B. glands (Norman Walker). Bacilli not numerous in lupus.

#### Diagnosis.

With typical patch on face, outlying nodule and ulceration, lupus easily recognized. Must be distinguished from syphilitic ulceration and multiple lupus of limbs from pelrosy.

#### Prognosis.

Depends on extent of disease. Treatment difficult - recurrence common, but cure always obtainable.

#### Treatment.

Internal treatment important, though alone it will not suffice for a cure. General tonics; iron, codliver oil; thyroid extract grs. 11 - 111, 3 times daily, especially after removal of disease by curette, continued for many months;

symptoms of thyroidism must be watched for and dose reduced or drug stopped.

Injection of tuberculin has proved useful in some cases.

#### Local Treatment.

If possible, excision, well beyond patch and deep, in all parts except face, for which "Finsen light" treatment should be employed; X-rays also.

Radium applied to surface gives excellent results - quite painless.

Scraping with curette very effective. Should be done under general anaesthesia; after scraping, nitric acid should be applied to raw surface to destroy small portion disease left behind. Method rapid; scar produced fairly good.

Multiple Scarification by means of knife with many blades under an anaesthetic, local or general; operation usually has to be repeated many times - interval of 3 - 4 weeks between each desirable.

Local caustic, e.g. Pyrogallol; Lactic and mineral acids if sufficiently strong destroys Lupus, but very painful and slow - not to be recommended generally.

Whatever method employed, recurrences liable to occur, and great patience and perseverance needed.

## MYCETOMA.

Mycetoma was first recognised as a special disease by Vandyke Carter some thirty years ago. The affection manifests itself under two forms presenting, according to Carter, different states of the same disease: (1) The black or melanoid and (2) the pale or ochroid varieties. As a rule, the hand or foot is affected. There is considerable distortion of the foot or hand, an increase of size, more or less marked, in all directions; there are numerous, somewhat mammillated, apertures, communicating with cavities of various sizes, and channels of various lengths in the subjacent tissues. The material, which oozes from the foot, frequently contains brownish-black granules, in appearance not unlike the rougher description of gunpowder; whereas, in the pale variety, little particles, bearing a considerable resemblance to fish-roe, are very commonly seen. On section, also, the state of the hard and soft tissues presents much in common: (a) Numerous lined cavities, generally communicating with each other by means of sinous channels; (b) Softening and excavations, more especially of the tarsal and carpal bones, but frequently also involving the long bones; and (c) The packing of these cavities with a hard, dark substance in the black variety, and with a more or less soft, yellowish, fatty or gelatinous substance, mixed with globular roe-like particles in the other.

Carter found the cause of the disease in a fungus, and assumed that in the black variety it was present in a resting state, while he considered the roe-like bodies to be a change - seemingly a degeneration - of the black masses. Without entering more fully into the matter, Carter made attempts at

growing the fungus, as also did Berkely and H. J. Carter, and the result was a pink mould, *Chionyphe Carteri*.

But little importance can be attached to this fungus. The method of separating and growing the fungus was extremely faulty and crude, and, as Lewis and Cunningham pointed out, the fact that this pink mould grew as luxuriantly in connection with preparation which had been preserved in alcohol as in connection with specimens of the morbid fluid by itself is sufficient to prove that the *Chionyphe Carteri* has nothing to do with the tissue lesions or the black and yellow bodies.

The parasite theory of mycetoma up to the present time has by no means been shared by all competent observers. Among the keenest opponents we find Lewis and Cunningham, who in 1875 wrote of the roe-like bodies and the black masses as follows:-  
"The former we have shown to be fat in various modified forms;  
"the other to consist of degenerated tissue, mixed to a greater  
"or less extent with black pigment and fungoid filaments."  
Though they acknowledged that they found vegetable elements in the melanoid forms, they deny any etiological importance to them. Tilbury Fox more or less agreed with these observers, as did also Moxon and Hogg.

The identity of actinomycosis and mycetoma must naturally be based on an absolute agreement in the etiology, the macroscopic and microscopic appearances of the morbid lesions, and in the nature of the fungus. So far as the latter is concerned it must be shown that it belongs to the same group of vegetable organisms as the European ray fungus. It is by no means necessary that the fungi should be specifically identical; by claiming that mycetoma is nothing more or less

than actinomycosis we make the lesion dependent on a fungus belonging to the same genus as the actinomyces hominis or bovis.

With regard to the etiology of the disease in India extremely little is known, but perhaps not much less than in the case of actinomycosis. In the latter affection it is assumed that the parasite finds its way into the human body from the ground or crops, and no doubt there is some evidence in favour of such view. Dr. Carter asserts the same for mycetoma, and the fact that the hands and feet are the parts chiefly and almost exclusively affected lends some support to the view that the organism is derived from plants or the ground.

That actinomyces is the cause of the morbid lesions in man and animals has of late been proved by the brilliant researches of Bostrom, Wolff and Israel, who have succeeded in growing it in artificial media and in reproducing the affection in animals. This, so far, has not been done for the Indian parasite and no doubt this link is still wanted to complete the chain of evidence. As, however, the ray fungus is morphologically extremely characteristic, the absence of cultivation experiments can hardly be considered an obstacle to the acceptance of the identity of the Indian and the European diseases. It can be demonstrated that otherwise they agree in all essential points.

#### Nature of Mycetoma.

That a very singular and serious affection of the foot and hand, widely prevalent in India, had hitherto been distinguished

by various special names, is a circumstance sufficiently indicative of the peculiar character of the malady; and, also, of its obscure relation to better-known European diseases, to one or other of which, however, it has been commonly relegated by independent observers.

The following names occur in the bibliography of this Indian foot-disease- "Morbus tuberculosis pedis; Madura foot; Godfrey and Eyre's tubercular disease; endemic degeneration of the bones of the foot; Morbus pedis entophyticus Chionyphe Carteri, or fungus-foot, etc. Other terms have also been employed, as Ulcus grave, then, Caries; Hypertrophy with caries.

All, or almost all, European surgeons visiting India agree that here is a peculiar malady, but in what respect this peculiarity consists there is not an agreement; only an attempt is generally made to identify the affection with a pathological form recognized in Europe. It should be mentioned, however, that a few surgeons have refrained from expressing an opinion regarding the nature of the foot-disease, although well qualified to judge; thus Dr. Ballingall calls the complaint a "tumour affecting the foot," and again the well-known denomination "Madura Foot" had this advantage, that it was sufficiently distinctive without implying a guess as to the nature of the complaint.

First, then, is the foot disease of India simple caries of the tarsal or metatarsal bones; or mutatis mutandis of the hand-bones? Seeing that it has neither the typical local nor general characters of caries; and also that it possesses a special feature in its attendant discharge of small organic

particles, which caries in Europe has never been known to present for notice, the answer must be in the negative.

Next, is it correct to compare this localised Indian malady with strumous or tubercular disease of the bones or skin, such as is in general recognition in Europe? Are the pale, soft granules belonging to the former the same as "tubercles," or tubercular deposits, characteristic of the latter; are the typical black granules often found only the early forms of tubercles, or mere accidents such as blood-clots; or a complication, as melanosis?

First, however, one may say that the bones of the foot and hand are not the earliest implicated in the Eastern disease, that is, not necessarily so; for in numerous instances, perhaps oftenest, when seen at an early stage the superficial soft parts are alone found to be affected. And the anatomy of the disease does not support the view of tubercular or strumous destruction of the bones as the basis of all its signs. What affection of the skin, then, shows small sinuses discharging peculiar granules or particles, such as we here find? Or what can that affection be which, commencing in the skin, extends through the entire thickness of the foot, converting it into a globular mass; and yet having no other pathognomonic sign, but very numerous openings, shedding a thin discharge, frequently, if not at all times, containing distinct particles comparable to small seeds, as of the poppy, or to clusters, as of the ova of the fishes; or if of black colour, and hard, comparable to grains of gunpowder, or black peas, etc.? And

And all the time the patient remains free from constitutional irritation and in fair health; he is in appearance neither strumous nor syphilitic; he has no marks of similar diseases, or any disease in any other parts of the body; none of his family are in like manner affected; and on the tumefied foot being amputated, his health, if depressed, quickly rallies. Examination being made of the excised member, a very peculiar tunnelling, as it were of the tissues, is noticed, and an abundant growth of bodies like to, but of larger size than, those discharged at the termination of the cavities and channels, lodging and isolating them while in the foot; and, besides, nothing more is seen except, perhaps, such swelling or degenerative change of the normal tissues, as might naturally attend the prolonged presence and constant advance of a foreign body, within their midst.

It has never been shown by minute investigation that pathological "tubercles," or tubercular deposits, really exist, as a main feature of the foot disease, in either bone or soft parts; and their absence has been, on the other hand, repeatedly demonstrated.

The pathological study of mycetoma is almost limited, as to time, by the experience of the modern disciples of dermatology. The fungus originally recognized in the black variety of Madura foot by Vandyke Carter was by him later regarded as probably identical with actinomycosis, to which the disease was then attributed. Less than ten years ago Ponfick, Crookshank, Kanthack, Hewlett Boyce, Vincent and others began to investigate this remarkable resemblance. As this resemblance

was more clearly recognized, the noteworthy differences between the two diseases have become accentuated, the result to-day being some little confusion. No attempt can be made, based upon the results of examination of a single case, to decide definitely on the question of the identity or absolute diversity of the two maladies under discussion. The subjoined points of distinction, however, are fairly well illustrated both in the literature of the two diseases and in the examination of the case here recorded. Some of them have been already formulated by Surveyor.

Madura foot is apparently a purely local disorder. In the many cases on record no history occurs of cervical or thoracic complications as in actinomycosis; mycetoma chiefly attacks the feet and hands, occasionally the ankles and knees. In India, where it is prevalent, actinomycosis is almost unknown; and the commoner cervical localizations of actinomycosis are never the sites of mycetoma. There are no black, red, and white (or pale) varieties of actinomycosis as in mycetoma, though upon this point it is to be admitted that there is a possibility that the appearance of the black grains in one variety of Madura foot is due either to an accidental change in the fungus, or, as has been suggested, to double infection.

Respecting the fungus of mycetoma and that of actinomycosis, the following differences are set forth by Surveyor and Boyce: actinomyces grows readily in a hydrogen atmosphere; the fungus of mycetoma grows in such an atmosphere, but only with exceeding slowness; it also differs in the rapidity with which it takes up aniline stain.

. The following unsettled points indicate how far we are at present from understanding the exact nature of these diseases and their mutual relations: (1) There is no agreement as to what constitutes the differences between the white (or "ochroid"), the red, and the black varieties of Madura foot. These different clinical symptoms, it is to be noted, are never in any one instance commingled so that the granules at one time black are at another time red or white; (2) In some cases where the fish-roe-like particles have been surgically evacuated from sinuses existing in unquestioned subjects of Madura foot, no fistulous tracts have opened externally to the outer surface of the skin. In several unmistakable cases of Madura foot, where no doubt existed as to the clinical symptoms, no fungus whatever has been detected.

#### Causes of Mycetoma.

1. There is no evidence that plethora or anaemia, or any special state of the system, predisposes to the advent of Mycetoma. On general principles, indeed, it might be thought that debility and the like influences would render some individuals more resistant than others in more perfect health, to the onset of the entophytic malady; yet this notion has not been supported by experience, and as is the case with the Filaria-disease, all observations tend to demonstrate the independence of the parasitic complaint of any particular or weakened state of the body at large.

As to unusual personal predisposition arising from local causes, those latter only require mention which affect the entry

of spores, etc., into the tissue at a certain time of year, such as spontaneous cracks or fissures in the sole of the foot, or sore places; or accidental abrasions, scratches or punctures which men or women working bare-footed in the fields, or tending cattle on grazing grounds, would be so likely to meet with. It may also be supposed that an habitually soiled state of the feet from adhesion of damp mud or tenacious black soil, or of an animal excreta (upon which fungi are so apt to grow), would render more likely the local affection of the foot; owing to the probability of spores being present in such matters, and so ready to enter the sweat-ducts or lodge in a wound. A chronic ulcer, perhaps deep and hidden, would also seem a favourable nidus or substratum for the growth of a mould-fungus; or even foul secretions; but of all these states or circumstances not one can be shown to be needful to the entry of the entophytic germs, and one is compelled to conclude that these, like the young *Filariae*, may and commonly do enter the foot through an unbroken surface, without any adventitious aid; and further that infection may occur under local circumstances or attendant external conditions, respecting which hardly anything is yet known.

2. The one exciting cause of the disease is the entry of fungus spores, or other germs, into and beneath the skin of some part of the living foot. There, the materials and stimuli favourable to their subsequent growth and development are abundant, continuous, uniform; the soft structures, at least, present no obstacle to increase of size and luxuriance of ramification.

Respecting the actual introduction of such spore or germ, however, there are no other than presumptive data. Obviously it is in the highest degree improbable that a competent observer should witness the natural inoculation of the foot; experiment upon man would be inadmissible; and the accidents named by patients in connection with the apparent commencement of their complaint are neither alike nor constant. It is therefore by inference, chiefly, that the view proposed can be supported.

That the assertions of patients are altogether untrustworthy may be doubted. A desiccated and dead thorn, lying upon the ground, which on the advent of moisture becomes covered with a mould, may be the means of introducing spores into the human foot; by an individual either accidentally treading upon it, or making use of it as a lancet to open a boil or small abscess. A bruise leading to the effusion of blood beneath the cuticle might so produce a favourable substratum for the growth of a parasite; just as a bruise of an apple, or pear, is by experiment known to favour the same occurrence. The sole of the foot would here, too, be most liable to such injuries.

It is, however, evident from the same kind of evidence, namely, the clinical history of these cases, that not seldom the tumour began of itself. It is quite possible that without infliction of any injury the fungus-spores may readily enter the foot. Already analogous instances have been referred to by Carter. The following remarks will suffice to show that there is no physical obstacle to the entrance and passage of the spores of *Chionyphe* into and along the

natural channels of the skin; these channels are presented by the sweat-ducts: thus the dimensions of these spores are  $\frac{1}{6000}$  by  $\frac{1}{4000}$  of an inch: the diameter of the openings on the cutaneous surface of the sweat-ducts ranges from  $\frac{1}{500}$  to  $\frac{1}{200}$  of an inch; and at the narrowest, when joining their deep-seated glands, the ducts are still upwards of  $\frac{1}{1000}$  of an inch in diameter or four or five times as wide as the spores themselves. There are no other natural openings in the skin in any part, except the orifices of hair-follicles and sebaceous glands, but neither one nor the other of these organs is present in the sole of the foot and palm of the hand; here, however, the earliest outward signs of Mycetoma commonly present themselves, and this circumstance thus becomes an argument in favour of the view that fungus-spores are usually introduced through the sweat-ducts, or as an alternative (but less frequent) channel, directly through the skin itself. It is common for natives of India to present an excessive perspiration of the palms and soles; so that the permeability of the sweat-ducts is probably constant.

As the calibre of the hair follicles and the attendant sebaceous glands is considerably larger than that of the sweat-ducts, the same line of argument as here adopted would apply to them; these structures are found in all other parts of the foot than the plantar and inter-articular surfaces, and in them sweat-glands are also present. Possibly their viscid contents would impede rather than favour the inward progress of spores; but it need not be questioned that inoculation of the foot or hand may take place upon their dorsal surface or margins,

besides on the palm or sole.

The three routes by which local infection may occur have been indicated, namely, through the hair-follicles and glandular ducts, and across their thin walls; directly through the skin, between the layers of epithelium; and lastly, through a lesion of the cutaneous surface. As regards the first-named channel, in the sole of the foot only sweat-glands are found, and their ducts are here so numerous as to count upwards of 2,000 in the square inch.

In conclusion, it may be stated that the proximate or immediate cause of the swelling of the foot or hand, and of all the hurtful results of the disease in question, is the growth within the textures of these parts of a vegetable parasite.

## RHINOSCLEROMA OR GLEOSCLEROMA.

This is a rare disease characterised by hard, cartilaginous, nodular, microbic and chronic granuloma, affecting the nose and upper lip, and skin around, and sometimes the involvement and closure of the nares.

### Etiology.

Endemic in Eastern Europe, especially Austria-Hungary and Russia, also in some tropical countries; very rare in British Isles; chiefly amongst poorer classes; both sexes equally affected. Occurs in youth or early adult life.

### Symptoms.

Begins insidiously with painless nodules of various colours, often pink or red, or greyish red, sharply defined, and marked off from surrounding skin, flat, slightly raised, which may be separate or coalesce.

Nodules painful on pressure. The disease begins in the deeper layers of the mucous membrane of the anterior nares, and spreads gradually to the surrounding skin, and to the nasal cartilage, affecting specially the alae and septum; it spreads to the upper lip and sometimes to the mouth and downwards from the posterior nares, and the pharynx and palate, and very rarely to larynx and external auditory canals, and it has been known to perforate skull and even extend into brain. Sometimes larynx primary seat of disease, whence extension to trachea may occur.

As growths increase, the shape of the nose is gradually altered; it becomes broader and flatter, and feels smooth, rigid and hard to touch, like ivory. They vary in colour, often

brownish-red, and have very little or no tendency to necrosis, and the skin over them is devoid of hair follicles. On the mucous membrane the appearance is as if parts had been infiltrated with glue, which has set to solidity of stone, and the surface somewhat wrinkled.

When the growth is in the skin, the epidermis is tense, often with a tendency to crack, especially about the corners of the mouth and nostrils, and from these fissures exudes glutinous, sticky fluid, which dries into yellow crusts.

By fushion, plaques or masses form, which block up the anterior nares, very rarely nasal lesions; not hard, but soft and ulcerating.

#### Pathology.

The growth is a smooth, well-defined and extremely hard granuloma, showing microscopically dense infiltration of the corium and papillary layers of skin with small cells; also some spindle-shaped epithelial cells, but the special feature is the presence of giant and colloid cells.

The cause is Bacillus Rhinoscleromatis, or Bacillus of Frisch, which in some respects has characteristics in common with Friedlander's Pneumonia Bacillus.

The bacillus is found in large cells of tumour and in glands. In some points the disease resembles Glanders.

#### Diagnosis.

Nationality of patient; peculiar hardness of mass; tendency to grow downwards whilst epidermis but little affected; absence of softening and ulceration; slow but steadily progressive course, and absence of any tendency to absorption,

distinguish it from syphilis.

#### Course.

Chances of recovery very small. The disease may last for 15 to 20 years or even longer, but spontaneous disappearances after acute revers have been recorded. The disease remains strictly local and extends very slowly. Death usually due to pulmonary complications.

Stenosis of nose, mouth and larynx seriously interfere with respiration, and the patient is unable to take nourishment properly. General health not affected in early stages, and later only indirectly.

#### Treatment.

Except at earliest stages, removal is always followed by recurrence, but possibly excision has not been wide enough, as the disease is absolutely local. Recently, anti-toxins have been used with benefit, Sodium Salicylate 2% solution injected into the tumour and also given internally in full doses. X-rays proved very successful. Endeavours must be made to keep nares patent with tangle tents, etc. Galvanocautery can also be employed to lessen nasal stenosis and check temporarily the invading growth.

### GRANULOMA TRICHOPHYTICUM OF MAJOCCHI.

This granuloma is a form of Kerion; which is a type of ringworm of the scalp of markedly inflammatory nature - a pustular folliculitis of the scalp is excited by ringworm fungus.

It is due to trichyophyton megalosporon ectothrix. Several cases have been traced to bovine origin. It occurs generally in those who have to do with animals, especially calves, e.g. butchers and drovers.

It occurs chiefly on backs of the hands and forearms, but occasionally on scalp and elsewhere, in the form of 1 or 2, seldom more, oval or roundish patches,  $\frac{1}{2}$  to 3 inches across, and raised above surrounding skin. The surface is smooth or slightly mammillated or cribriform, the orifice is filled at first with pus; numerous unruptured superficial pustules form and the orifices enlarge to size of hemp seed, these break down and discharge sanious pus-like substance.

Some itching and heat; there is no pain or enlargement of neighbouring glands usually. Development is acute, and may reach highest in a week, and heals under treatment without scar.

#### Treatment.

Press out pus, if there are any openings large enough, syringe with carbolic acid lotion, 1 in 40, and rub in ung. sulph. dr. 1; acid carbolic dr.  $\frac{1}{2}$ . adepis oz. 1.

Impetigo contagiosa may supervene, as complication, from scratching or injudicious and irritating treatment, setting up eczematous inflammation and then pus may accidentally become inoculable. If Impetigo contagiosa is not arrested at once

the pus may spread the ringworm in a most disastrous way over the scalp.

GRANULOMA PYOGENICUM. (Botryomycosis Hominis)

This is a fungating, ulcerative, proud-flesh-like granuloma and varies in size from a pea to a nut. It is usually pedicled, occurs on fingers or other parts of the hand and shoulders. It is essentially a granulation tissue tumour, and is the result of infection by pus cocci; and in section the inflammatory character is evident. It grows from the dermis, is florid in colour; it occurs as a sequel to wounds in man, but is rare, and its growth is slow. It is identical with similar growths in horses.

Diagnosis.

May be mistaken for malignant growth.

Treatment.

Often persistent resistance to ordinary methods. It is easily removed by ligature or sharp spoon, followed by mild cauterization of base.

The pathology of botryomycosis or telangiectatic granuloma is still undecided. An illustration of this condition affecting and destroying a finger is given in a paper by Konjeizny (Munch Med. Woch. 1912. 2219). He regards the cocci which may be found in the tumours as entirely accidental, and considers the tumours themselves to be naevoid; that is, naevi that have been latent suddenly taking on proliferating powers which lead to destruction of the surrounding tissues but no true malignancy.

## LEPROSY.

### Definition.

An infective and markedly chronic disease, due to the *B. leprae*, and characterised by lesions in skin, mucous membranes, nerves and viscera. Communicable from man to man; mode of infection unknown.

### Etiology.

*B. leprae*; non-motile, slender bacillus, resembling tubercle bacillus in appearance and staining reactions, but stains more readily with ordinary stains than tubercle bacillus. Gram-positive and acid-fast (12% acid). Never been cultivated satisfactorily. Non-infective to animals. May be a non-acid-fast streptothrix. *B. Leprae* accepted as cause of leprosy though it does not meet Koch's postulates.

### Mode of Infection.

(a) Inoculation via skin, e.g. a doctor, attending confinement of leprous woman, with wound on his finger, contracted leprosy. As also a Sister of Charity, by pricking her finger while sewing a leper's clothes. Similarly, through vaccination, (*B. leprae* being found in pustule).

(b) Heredity. Influence slight, if any. Infants at birth free. No *B. leprae* found in placenta of leprous women. Disease rare under age of 5 years. By exposure to a common infection, several members of a family may contract leprosy. 160 Norwegian lepers emigrated to America, and none of their progeny developed disease.

(c) Contagion. Early infection of nasal mucosa (*B. leprae* found in discharge) probably accelerated by abrasion through picking nose. Lungs seldom infected. Via genital organs, probably through leprous ulcer. Disease may be conveyed by bed bug (*Cimex lectularius*), as acid-fast bacilli have been found in its alimentary canal after feeding bug on leprous sores; closeness of contact necessary in conveyance; disease attacks unclean people more than cleanly.

Predisposing Influences.

Insanitary conditions generally, malnutrition, males oftener than females, excepting infancy (infants free of leprosy); children may be more liable than adults because of delicacy of tissues and from closer association with parents and attendants.

A. Nodular Leprosy or Lepra Tuberosa.

Characterised by attacks of pyrexia, and granulomata of skin and mucous membranes. (Period of incubation in all forms of leprosy may cover many years). Nodular leprosy is heralded in by occasional attacks of pyrexia and malaise. With renewal of fever, we have swelling or erythema of face, patch of erythema remaining as fever subsides. Similar attacks recur yearly over 1 - 2 years. Erythema usually in patches, may be diffuse, beginning on face, then extensor aspect of arms, backs of hands and feet, thighs, buttocks. Lobes of ear especially attacked, while mucous membranes (especially nasal) affected at same time as face. Rarely is there no fever. Patches or plaques swell up, infiltrate, attended at first by hyperaesthesia; the "tubercles" or granules begin in the plaques as papules,

which increase in number and size and, coalescing, form the characteristic masses of leprous tissue, which are now anaesthetic. Face becomes "leonine," in time covered by lumpy masses intersected by clefts, ear-lobes enlarged and thickened. Loss of hair on the face generally, including eye-brows, but that on scalp escapes. Thickening of alae of nose, and falling in of its bridge from ulceration of underlying cartilage. Lips irregularly thickened and everted. Nodules may remain indefinitely as hard fibroid masses, but generally they break down and ulcerate, with foul discharge. On healing, much cicatrisation follows. Also, as result of involvement of mucous membranes, tongue infiltrated or ulcerated, larynx and pharynx affected, vocal cords becoming fixed (voice a mere whisper or hoarse). Glands also generally enlarged, with tendency to break down (leaving discharging fistulae), particularly in neck, throat, axillae and groin, with resultant difficulty in breathing and swallowing or interference with joint movements, from mechanical pressure. In most instances of Nodular Leprosy, the disease attacks the eyes; as small lepromata or diffuse leprous infiltration of conjunctiva or cornea. Sometimes the lepromata occur as minute white specks on cornea, and called "Keratitis punctata leprose." Anterior chamber may be involved - iris, and uveal tract ending in iritis and irido-cyclitis: (retina, lens, vitreous humour and optic nerve rarely attacked). On subsidence of eye swelling, contraction and varying degrees of blindness follows. The bacilli spread from margins of eyelids to eye globe. Affection of eyelids by lepromata, with ulceration and cicatrisation, leads to ectropion and exposure

of bulb to infection by septic organisms and injury, finally perhaps destruction of eye. Retardation of development of genital organs in children, e.g. testicles in male (resulting generally in impotence); in female, menstruation may be delayed or absent, or, later in life, irregular and menopause premature. Blood changes - some anaemia, with diminution and destruction of red cells. A leucocytosis during pyrexia; eosinophilia been reported. During pyrexia, bacilli present in blood serum and in leucocytes. Limbs covered in varying extents with leprous nodules and masses. Often symptoms of "Anaesthetic Leprosy" are added, resulting in a "Mixed" form of the disease.

#### B. Maculo-Anaesthetic or Nerve Leprosy.

More common form, especially where the disease is endemic. Bacilli attack nerves, start lepromatous hyperplasia of connective tissue about nerve fibres with resultant irritative lesions, later anaesthetic and trophic ones from destruction due to pressure. First, hyperaesthesia (e.g. pricking, numbness, etc., or vasomotor phenomena, as flushing); also shooting pains along nerve course, superficial bullae or vesicles (first serous, later purulent, and may leave ulcers). Maculae now appear, erythematous or pigmented (brown in white races, and white in black races). Maculae may become patches of considerable size, are slightly raised, smooth or scaly, defined, etc., by central involution, form circinate lesions, whose borders are dark red or purple-brown and scaly or covered with tiny vesicles. (Maculae often in relation to a peripheral nerve). Skin in centre

of patches dries and wrinkles, sweat glands atrophy, and loss of hair. Adjoining patches coalesce; cover areas on face, shoulders, back, forearms, buttocks and knees. Later, border subsides, leaving faintly pigmented patches, forming rough network encircling areas without pigment. There is now compression anaesthesia, perhaps along entire course of nerve, usually affecting primarily the ulnar nerve at tip of small finger. Patches become in time quite anaesthetic, in following order, to touch, heat, cold and pain. Nerves generally attacked are: ulnar, radial, median, branches of cervical plexus, sciatic, peroneal; usually in form of fusiform swellings, but thickening may be uniform. Enlargement on ulnar nerve felt behind olecranon process, on external popliteal behind head of fibula, etc., in case of cervical plexus, nerves usually uniformly thickened. Loss of muscular power from atrophy. Anaesthesia of extremities progresses. Also, contractions (especially of 4th and 5th fingers). Eruption becomes inactive and may fade. Nerve lesions may quiesce. Finally, extreme cutaneous anaesthesia; skin dry and resembling parchment. Ulnar nerve particularly involved (in contractions, as "claw hand"). As result of trophic changes necrosis of bone, suppuration or gangrene, ending in loss of fingers, toes, etc., perforating ulcers (e.g. ball of large toe) from injury as result of anaesthesia. Diplopia or strabismus may occur from implication of eye muscles; affection of orbicularis palpebrarum results in ectropion so that closing of eye impossible and the organ becomes shrivelled and dry, and it is liable to injury and septic infection. Face becomes expressionless or distorted,

by reason of paresis of facial muscles. Similarly, drop-foot from inability to extend foot (implication of antero-external muscles). More children born to lepers with maculo-anaesthetic leprosy, as sexual power retained longer than in nodular type. This form may last for 30 years.

### C. Mixed Leprosy.

Co-existence of nodular and maculo-anaesthetic types. May be "mixed" from beginning, or maculo-anaesthetic lesions and nerve involvement are superimposed on nodular cases; less frequently, nodular form on top of maculo-anaesthetic variety.

### Morbid Anatomy of Leprosy.

Granuloma. Granulomatous tissue plus endothelial cells of varying sizes constitute the "leprous nodule," wherever situated; bacilli very numerous, majority in cells; "lepra cells" also possess many bacilli, some parallel. It is thought some of the lepra cells are perhaps lymphatics with bacillary thrombi. There may be giant cells. Without tuberculosis no caseation. Capillaries are obliterated by cellular infiltration, by which lepromata tend to retrograde changes and absorption, rather than fibromatosis, from poor blood supply.

### Diagnosis.

Easy in advanced cases. In early nodular leprosy, bacilli in nasal secretion, and in excised portions of skin. Clinically, from syphilis, tuberculides, and erysipelatoid attacks from septic foci. In early anaesthetic leprosy, maculae, thickened nerves, and anaesthesia. (N.B. Wassermann reacting frequently

positive in leprosy). Distinction must also be made from epithelioma and rodent ulcer. Also syringomyelia.

#### Complications.

Nephritis, in lepers mortality 30%.

Tuberculosis " " " 25%.

#### Prognosis.

Disease may be arrested on removal of patients to cool climate. Otherwise disease may go on over 30 years, ending in death from exhaustion, tuberculosis or nephritis.

#### Treatment.

Cool climate; good, nutritious diet; strict sanitary conditions in person and surroundings. Local - Finsen light or X-rays. (Use of antiseptic baths to keep body surface clean). Antiseptic lotions to ulcers; similar lotions for nose, mouth, eyes, etc. Surgical aid for gangrene in extremities, and for contractions. Of drugs, chaulmoogra oil (5-10 minims, t.d.s., increased to 1 drachm or more); continued for years intermittently, with circumspection. Also, by intramuscular injection, with equal parts of camphorated oil (2 cc. into buttock once a week at first, later 5 cc. every third day). Gynocardate of soda (2 grs. in pill, after food, t.d.s., increased to 10-20 a day); also subcutaneously (2 grs. dissolved in 1 cc. sterilised water,  $\frac{1}{2}\%$  carbolic acid added, and injected twice a week. Leonard Rogers gives it intravenously (2 or 3% solution in distilled water or normal saline), with (after sterilisation in autoclave) addition of  $\frac{1}{2}\%$  carbolic acid;

about  $\frac{1}{2}$  gr. into vein of forearm. Method painless, and results in local reaction in diseased tissues (with perhaps rise of temperature), and apparent destruction of bacilli. "Anti-leprol" (refined preparation of chaulmoogra oil) by mouth and intramuscularly, is also of benefit. Leprotic fever attacks may be relieved by quinine, and neuralgic pains (preceding anaesthesia) by salicylates or salicin.

Prophylaxis.

Segregation and strict<sup>E</sup> sanitary conditions.

## VERRUGA PERUANA.

Peruvian Wart: Carrion's Disease: Oroya Fever.

This is an endemic disease, found only in Western Andes and Peru, specific and inoculable.

### Symptoms.

Prodromal period, may persist for weeks or months before eruption appears, characterised by irregular fever of malarial or typhoid type, with rheumatic pains in joints, and more or less profound anaemia.

These symptoms abate or vanish on appearance of rash, first on face and limbs, but may spread to any part, even to mucous membrane, and consisting of small red spots, or incompletely formed vesicles, ranging in size from pinhead marks to small orange, conical, round, soft, tender to touch and often pedunculated; of bright red colour, becoming darker later on; they tend to form groups and often bleed considerably, or suppurate and form ulcers. Sometimes the lesions shrivel into black spots on the surface, which drop off, leaving no scar. Tendency sometimes to successive crops of eruption.

### Etiology and Pathology.

Disease inoculable; is caused by bacillus somewhat larger than tubercle bacillus.

Prognosis is always grave, mortality very high, 10% to 15%.

Patient may die before appearance of rash; if he survives an attack, profound anaemia may persist.

Treatment. Removal from infected district. Tonics, especially perchloride of iron and quinine useful; stimulants should be given.

## GRANULOMA TELANGIECTODES TROPICUM.

This condition seems closely allied to human Botryomycosis. It occurs in S. Brazil.

### Symptoms.

Onset acute; eruption bright red papules, on face, neck, axilla or pubic region, occasionally elsewhere. Papules rapidly develop into large, red, shining tumours, highly vascular, and on slight injury give rise to severe and frequent haemorrhages which may be followed by grave anaemia. Tumours painless, do not itch; no fever, or interference with general health; glands unaffected. Condition lasts about a year.

### Etiology.

Believed to occur through mouth, natives handing their pipes and drinking vessels containing "mate" from one to another.

### Pathology.

Microscopically, tumours consist of granulomatous tissue, with dilated lymph spaces and vessels, but arise from vessels of cutis. Similarity to appearance of florid tumour about mouth, sometimes present in granuloma inguinale tropicanum.

### Diagnosis.

Disease distinguished from yaws by absence of joint pains.

### Prognosis.

Altogether favourable.

### Treatment.

Tumours removed by being injected with Formaldehyde. If ulcerated, treat with oxide of zinc and salicylic acid ointment. X-ray treatment may be tried.

GRANULOMA TELEANGIECTODES EUROPEUM.

This is an affection, particularly of the fingers, characterized by the local overgrowth of what seems to be exuberant granulation tissue, though it may also to some extent stimulate sarcoma, which is not altogether uncommon either in Britain or on the Continent, and it has recently been investigated in some detail by Hermann Schridde (Schridde. Deutsch Med. woch. 1912, 218), who finds evidence that even in those cases in which this peculiar affection occurs in persons who have not been out of Europe, there is present a casual protozoan which is comparable to, if not identical with, the protozoa that have been described in various Oriental sores, Aleppo boils and so forth.

The overgrowth of granulation tissue produces an appearance on the skin not unlike that of an adherent reddish fungus. It grows very slowly as a rule but as time goes on it spreads both superficially and deeply, and as shown above, it may penetrate to and destroy the underlying bone. It is not surprising that former observers have mistaken the growth sometimes for sarcoma, but microscopically it presents most of the appearance of granulation tissue containing abundant blood-vessels. It has on this account been termed granuloma teleangiectodes, and it has been compared by some to verrugo peruviana. Schridde gives a full description, with illustrations, of what he believes to be the casual protozoa; certain it is that the affection is different from what is ordinarily produced by such cocci as lead to inflammation, so that his contentions seem not at all improbable. Further investigations are needed to confirm what Schridde suggests.

BIBLIOGRAPHY OF THE INFECTIVE GRANULOMATA.

---

General.

- Manual of Tropical Medicine..... A. Castellani &  
A. J. Chambers.
- Treatment of Diseases of the Skin..... W. K. Sibley.
- System of Medicine. Vol. 11, Part 2..... Sir C. Allbutt &  
H. D. Rolleston.
- Treatise on Diseases of the Skin..... H. W. Stelwagon.
- Diseases of the Skin..... J. H. Sequeira.
- Introduction to Dermatology..... Norman Walker.
- Diseases of Skin..... Sir Malcolm Morris.
- Diseases of Skin..... Radcliff Crocker.
- Yaws..... Lt.-Col. R. H. Firth.
- Introduction to Dermatology..... W. H. Evans.

Special Conditions.

Tuberculosis of Skin.

Gardiner..... Ed. Med. Journal, June 1921, 374.

Granuloma Inguinale.

Campbell..... Journal A.M.A. 1921, March 5th, 648.

Granuloma Venereum.

Cuthbert..... B. Journal of Dermatol. Vol. XXXI.

Granuloma. Oriental Sore.

C. M. Wenyon..... Journal Trop. Med. & Hyg. 1911. April 1st  
Annals of Trop. Med. July 1910.

Granuloma of Pudendum.

Markham Carter..... Lancet, 1909, Oct. 15th.

Donald Steel..... Lancet, 1912. 1/225.

J. Grindon..... Journal Cut. Dis. 1913, 236.

Granuloma Pyogenicum. Botryomycosis.

Wile..... Journal Cut. Dis. 1910 /663.

Mycetoma.

An analysis of 100 cases of Mycetoma - Lancet, 1893, ii. 797.

Madura disease.

A. A. Kanthack..... Journal of Pathology, 1893, 1, p. 410.

APPENDIX.

---

Cases under the Author's Observation.

1. March 4th, 1910.

E. M. Female; age 46; card room worker in a cotton mill.

Consultation for an inflamed and painful mass on the left posterior aspect of the flank, mid-way between crest of the ilium and lower ribs.

On examination there was a larger suppurating mass, fungating and showing extensive granulations. The mass was hard and resistant on palpation, with a broad base and about the size of a walnut. It was movable and evidently arising from the subcutaneous tissues.

On microscopic examination there was found a good deal of fibrous tissue with a predominance of fatty elements. The diagnosis was made of a circumscribed Lipoma, which had broken down. Patient had been in the habit of wearing tightly fitting corsets, and long continued pressure and irritation had caused ulceration and infection. The granulations covered the whole of the upper surface of the tumour. The growth was excised and a satisfactory result obtained.

2. July 7th, 1910.

Mary R. Female; aged 52 years; cotton weaver.

Consultation for a "lump" on the right breast, to the right and a little above the nipple.

On examination, there was found a small nodular mass,

tender, painful and excoriated, and showing advanced granulation on the surface. It had a fungating appearance, and had been treated at home by a friend who was an "authority," on home-made ointments. Excision was advised, and on microscopic examination there were a great many connective tissue cells seen; also many fatty globules and some pigmented cells.

Patient in this case also wore tight-fitting old-fashioned corsets which had caused irritation, infection and suppuration, with a granulomatous condition of the tissues.

3. April 10th, 1914.

E. C. Female; aged 50; cotton weaver.

Consultation for a painful sore on the right leg, below the head of tibia.

On examination the condition showed a fairly large plaque-like mass about the size of a florin. There was a blackish spongy area on the surface with middle of the mass with ulcerating granulomatous edges. A portion of the tumour was submitted for pathological examination, and was found to be a papulo-squamous epithelioma. There were no secondary gland infections. Here, apart from the site of selection for Screoma, it was evident that pressure from a constantly worn tight garter had set up irritation and inflammation, which rapidly broke down the tissues, causing a granulating ulcerative mass. Treatment was by X-rays and radium, and the result was good. The mass had almost wholly disappeared when last seen.

4. January 24th, 1917.

J. R. Male; aged 28 years; farm worker.

Consultation regarding a painful unsightly swelling just beginning to break down on lip and invading the left side of colummella of the nose. On examination there was a circumscribed indurated mass felt, involving the width of the lip and invading the septum of the nose. There was pustula formation with an accompanying necrotic area in the centre and granulations beginning to appear at the edge of the necrotic area.

Syphilis was denied and the Wasserman test was negative. The case was treated as an intesne staphylococcal infection with a necrosed centre. Pot. iodide given internally and mild antiseptic lotions and ointments were applied. After three to four weeks' treatment the condition began to improve and at the end of about ten weeks had almost disappeared, leaving an indurated area which was obviously being slowly absorbed. The case was created really as a syphilide which had broken down; in spite of the negative Wasserman. Since then one has come to the conclusion this must have been a case of mycosis Fungoides.

5. November 6th, 1917.

E. C. Male; aged 32; coachman.

This man used to help a veterinary surgeon occasionally in his work. He consulted the author for a 'sore' spot on the right forefinger. On examination there was a mass about the size of a sixpence on the dorsum of the terminal phalanx - raw,

suppurating and fungating. There was a small pustular lesion on the back of the wrist. Diagnosis lay between a case of mycosis Fungoides and tuberculosis cutis. The case was seen by a skin specialist after a long and futile course of treatment and the exhibition of Iodides. A diagnosis of Tuberculosis cutis was given, and treatment began for that condition, and when last seen in January 1919 showed a red raised area, obviously undergoing Fibrous transformation.

6. February 8th, 1918.

Harry H. aged 31 years; cotton manufacturer.

Consultation on account of some nodular, painful and suppurating sores on his face in the beard region. On examination both sides of the face were involved but condition was most marked on right side of the chin and towards the angle of the jaw.

There were unhealthy granulating nodules, loose hairs surrounded by pus, easily removed and gave no pain in defilation with forceps. There was also secondary infection of the cervical and submental glands. Case at first looked like one of Linea Barbae, the area affected being dusky, swollen and exuding pus; one nodule showed a distinct black necrotic area in the centre. Under this necrotic part there was a deep irregular ulcer. Culture gave a pure staphylococcal growth, and no mycelium were formed.

The treatment consisted of slow depilation autovaccines, and intramuscular injections of colossal manganese. When last seen the nodular formations had disappeared, leaving a good deal of scar tissue.

7. August 4th, 1918.

John P. aged 28; labourer.

Consultation regarding "some spots" on the prepuce and penis. On examination one found a crustaceous mass resembling a cauliflower, extending from the posterior half of the glans penis on to the corona and invading the mucous surface of the prepuce. On careful investigation one found that the mass was composed of numerous papillomata closely set together, each small papilloma breaking down and granulating, and giving a sero-purulent discharge. Wasserman's test was negative. The case was treated as one of granulomatous papillomata.

CuSo<sub>4</sub> was applied as a caustic and mild antiseptics were applied as a dressing.

8. January 4th, 1919.

George G. aged 15 years; engineer apprentice.

Consultation for a puffy and tender swelling over the right eye and towards the outer canthus. On examination the author found a puffy oedematous swelling in the right superior quadrant of the socket extending to the ear and over the supra-orbital region. There was ptosis and exophthalmos, with a certain amount of diplopia. After a few days fomenting an abscess was evacuated from the upper part of the socket. The temperature dropped and the systemic symptoms cleared up, but in a short time a granulomatous patch developed at the outer canthus of the eye, very intractable to treatment and slowly and steadily spreading. A Von Pirquet with interculin gave a positive re-

action, and on further enquiry patient said he had a small hard lump at the "corner of the eye" for about 12 months. This ultimately proved to be a Tuberculide which had become infected with staphylococci and had broken down. There was a family history of T. B. and patient himself developed phthisis later on.

Treatment was with tuberculin vaccines, Tri-chloroacetic acid, fresh air, etc.

9. April 20th, 1919.

Elsie Wh. aged 17 years; shop-girl.

Consultation in regard to a "sore nipple." On examination the author found that the nipple was indurated and warty-looking, and brownish in colour. The condition had invaded the areolar tissue and on close examination it was found that the general mass was discrete and composed of inflamed moist granulations. The moisture had dried and formed warty crusts. On removing the crusts the condition showed itself as a granulating mass invading nipple and areola. Patient admitted that the nipple occasionally "wept" and that the surrounding part was often "wet and uncomfortable." This was evidently a dermatitis which had become infested and was rapidly forming a granulomatous mass with changes in the connective tissue cells. There were no secondary glands involvement.

Treatment was that of a chronic and intractable dermatitis, as follows: removal of crusts by starch poultice; application of 100% salicylic acid in vaseline for several days, followed by

a 2% Resorein paste. The condition was very intractable and took many weeks to heal.

10. July 21st, 1920.

Mrs. S. aged 58 years; house-keeper.

Consultation for a "lump" over the inner third of the clavicle, in close relation to the posterior aspect of the clavicle. Diagnosis was at first that of a possible exostosis as it was hard, firm and immovable. But in a few weeks the mass broke down into a suppurating sore, chronic, intractable and spreading towards the inner end of the clavicle. It soon developed into a granulomatous fungating mass, and a Von Pirquet's test was done with tuberculin, which gave a positive reaction. To confirm this an ointment of 5% O.T. Koch in vaseline was applied and a violent reaction was obtained in 3 days. The condition was then diagnosed as a broken-down tuberculide. Six weeks after there appeared another granuloma under the right breast at the mammary fold, and about 10 months after that another granuloma developed on the back of the right hand. In each case the lesion was identical, pursued the same course, and responded to the same treatment: scraping with a sharp spoon, touching with pure carbolic acid, and in this case dressing with "Scarlet ointment." A cure was established, the results being excellent.

11. November 2nd, 1920.

John S. aged 82; retired mill manager.

Consultation about a "sore spot" on his cheek. On

examination there was a small ulcerating and granulating mass on his left cheek about the size of a shilling. Very friable and bled easily. Here and there some small black portions of epidermis were seen clinging to the edge of the mass. Patient had had a lump on his cheek for several years, but paid no attention to it, was in the habit of constantly picking it, until ultimately it began to break down. This was diagnosed as a granulating epithelioma. X-ray treatment was adopted, with marked improvement when last seen.

12. 4th February, 1921.

John T. aged 16 years; butcher's apprentice.

Consultation regarding a painful "lump" on the right shoulder blade. History of attending swimming baths, and used to get rubbed down with same towel as a friend of his. On examination one found an inflamed granulating ulcerative mass on the lower angle of right shoulder blade. There was an inflamed area round the base of the mass, and the upper portion was fungating and discharging pus. The centre showed a distinct dimple or dip. There were one or two small pin-head papular looking lesions in the neighbourhood of the mass inactive. A diagnosis of infected molluscum contagiosum was made and treated as such. The condition cleared up rapidly.

---