The Treatment of Lupus

A Thesis.

for the Degree of MD.

presented by

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The object of this Thesis is to examine the different methods of Treatment of Lupus, especially the mechanical means, which have been originated within the last few years. The frequency of the disease, the deformity which it causes when allowed to run its course unchecked, and its extreme obstinacy and tendency to recur after operations for its removal, gave it an interest which has been heightened by the discovery of its tubercular nature and as a consequence the fear of its generalisation to the system, which make it important to remove the morbid material as rapidly and completely as possible.

In the Introduction I have briefly reviewed the recent progress in Pathology which has given Lupus a place in the group of Tubercular Diseases; and have drawn attention to the views brought forward by Bernier (of the Hôpital Saint Louis, Paris) as to the possible rise of its causing phthisis re. by becoming generalised in the system, either spontaneously or as a result of the operations undertaken for its cure. To avoid this latter danger he has introduced
introduced the method of scarification and puncture with the galvano-cautery instead of with the knife.

In the following chapters, I glance at the General Treatment; then at the Local Treatment—Cauterisation in massi, either actual or potential (chemical), Excision, Scraping, Scarification and lastly Bœnie’s Method (interstitial galvano-cauteration), examining the last three in more detail.

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Introduction
(1) Untersuchungen über Lupus. Virchows Archiv. Bd. 60, 1874

(2) Untersuch. über d. Lymphdrüsen tuberculose. Tubingen 1871

(3) Ziegler. Beur die Herkunft des Tuberkelbacillus. Würzburg 1875
Introduction

Pathology - Inoculation - Bacillus tuberculosus
Theory of Pathogenic - Relation of Lupus to Tuberculosis
Auto-inoculation - cases - means of avoiding it.

Lupus is a chronic non-contagious disease of the skin and neighbouring mucous membranes, consisting in tuberculosi of the true skin; characterised by the appearance of small red tubercles, apparently deeply seated in the true skin, which, after passing through several stages, disappear by ulceration or involution, leaving scars or cicatricial atrophy of the skin.

Friedländer was the first to assert the tuberculous nature of lupus. He founded his opinion on the identity of the anatomical appearances in the young lupus nodule with those of true tubercle, but especially on the presence, in the lupus nodules, of giant cells, which he considered with Schüppel, to be pathognomonic of tubercle. Although later observers have shown that giant cells are formed in other tissues also, e.g. granulation tissue, still Friedländer's belief in the identity of lupus and tuberculosis...


3) Grundris der Chirurgie. Leipzig 1883 Bd. II


5) Soc. de biologie. Paris. 25 July 1883

tuberculosis has always been supported by a certain number of observers, who recently have demonstrated their pathological unity. The means by which they have accomplished this are:

a. Inoculations

b. Histological Observation

a. Inoculations. Many observers—Kaposi, Vidal, Malassez, etc.—had practised inoculations of lupus matter without any success, but since then others have been more successful: Schüller produced tuberculosis by injecting lupus matter into the trachea and bronchi; Hechter induced tuberculosis of the iris by injecting the lupus product under the cornea; Léloir has also produced typical tubercles by inoculations in the anterior chamber of the eye; more recently Cornil has been very successful in his inoculations into the peritoneal cavity, and has produced undoubted tuberculosis, which he was able to carry through a long series of cases by re-inoculations.

b. Histological Observation. Since the discovery by Koch of a specific bacillus as the infectious agent of tuberculosis,
1) *Berliner Medizinsche Wochenschrift*. №.15 1883


there have been constant endeavours to find this in lupus and thus determine its relationship. Quite recently Demme found bacilli tuberculosis in three cases of lupus; he thought the bacilli were mostly situated in the giant cells. Pfeiffer, in a single case, a girl of 11, affected with lupus of the conjunctiva of 5 years standing, removed the granulations and while fresh made sections of them with the freezing microtome and stained with Rösch and methylene blue. In two sections out of eight he found the bacilli, in one to the number of six or eight in a well-formed tubule with reticular centre; in the other there were two only. Toutalpoint was even more successful. He removed portions of lupus, choosing parts that were not ulcerating, hardened them in absolute alcohol and made fine sections with the microtome. These were stained by Koch's method and examined in Canada Balsam. In seven cases which he examined he obtained positive results. The bacilli were in very variable numbers in the different cases, in a lupus in the cicatrix of a burn, there were numerous giant cells and
1) *Nebel des Verkommen des Industriearbeiters*, *Fortschr. d med* N° 20 1883

2) *Soc. de Biologie, Paris*, 20th July 1883
and in all the sections there were many bacilli; in the other cases the bacilli were less numerous, in a lupus of the cheek which had cicatriced after scraping the number was least. The bacilli were most often intracellular, but also occurred in the lupus cells; they were scattered, or in groups of ten or twelve; they did not appear to be in the giant cells but were numerous around them. Schuchardt and France (1) found the bacillus in fifty cases of local tuberculous, four of which were cases of lupus. Cornil (2) after many unsuccessful attempts found the bacillus in a section of lupus.

As the result of these observations we may almost with certainty consider it as a settled fact that lupus is a local tuberculous, the production of tuberculosis by inoculation of lupus matter, the identity in structure of the lupus nodules with tubercle, and the presence of the bacillus tuberculosis in lupus being very strong evidence in favour of this view.

Theory of its Pathology. Lupus cutis or the skin or mucous membranes is a tubercular lesion,
but it is not in subjects previously tuberculous that it develops, but rather in young subjects probably predisposed to the disease by some native condition of the lymphatic system—lymphatic temperament. The point of origin and development of lupus is in a large majority of cases a part uncovered by clothing; very commonly its origin appears to be favoured by a slight injury of the skin or mucous membrane—a burn, wound, ulcer, eczema &c. Usually the lupus lesion is isolated and local, growing at the point of entrance like an ordinary parasitic element, but in some cases the lymphatic glands seem to be simultaneously infected. It is difficult to explain how the cases of multiple lupus arise, without causing general infection, as it is unlikely that several different points of the skin would be infected from without at the same time; usually if the lesion is seen soon after its first appearance, it is completely localized, very small and superficial, the glands are not involved, and the health of the patient is not at all affected. It is very probable that the disease germs come from without, but as to its mode of introduction or of generation after
it has obtained entrance, nothing is yet known.
Experimental inoculation of lupus matter and also of
the cultivated bacillus into the skin, have as yet
been without result, but having only been tried
on animals they are not conclusive.
It matters little whether we believe the disease to start
in the epidermis or in the derma, for if we
suppose it possible for the tubercular element
to germinate when once it has gained entrance,
the slightest break in the layer of epidermis
covering the summit of a papilla would allow
it to pass into the true skin at that point.
In the majority of cases the evolution of lupus
is strong evidence in favour of its external
origin, for whether it be on the skin or mucous
membrane, it grows with extreme slowness
(the cases of rapidly destructive lupus are relating
rare, and are often in reality, cases of syphilitic
ulceration, which is much more rapid in its progress,
its extension being almost insensible, going on for
years without spreading beyond the affected region.

The Relation of Lupus to Pthihia
Acrifibula with its cutaneous, glandular particular
lesions has always been considered a frequent
1) De la sérufle dans ses rapports avec la phthisie pulmonaire. Paris 1883


and powerful cause of phthisis, but recently
lupus, among many other conditions formerly
considered as scrophulous, has been placed in
the class of tubercular disease. Hence we no
longer speak of the scrophulous becoming tuberculous
but rather of a local tuberculous e.g. lupus
becoming generalised in the viscera.

Laillou (1) on this point says "Patients with lupus
"seem exposed to contract pulmonary tuberculous
"it is a frequent cause of death in them, sometimes
"it takes an acuter form, more often it is stupid
"and of long duration"

Lemignand (2) describes three forms of phthisis arising
in lupus patients:

1. Chronic phthisis (the ordinary form)
2. Acute phthisis (rare)
3. A paroxysmal form of which only
   a few cases have been noticed

Those who have not observed phthisis among
lupus patients have probably been led astray
by the fact, that the tuberculosis of lupus can
remain indefinitely local, the determination
of tubercle towards the viscera occurring slowly,
insidiously and often with long periods of rest,
and many of those patients in whom a careful
examination
(1) Deucalion loc. cit. supra p. 382.

(2) Iniquand loc. cit. p. 124.

(3) Iniquand loc. cit. p. 124.
examination would expose Commencing phthisis, may pursue for a long time, every appearance of good health.
But this innocence of lupus, easy to understand so long as it remains a local tuberculosis, is not absolute; rapidly or slowly (20 years) the infection of the system appears, perhaps by spontaneous penetration, but possibly from some wound of the lupus surface leading to auto inoculation.

"The morbid series has commenced with the invasion of the skin and mucous membrane by the "tubercular element, it is continued by a secondary "infection indicated by enlarged subcutaneous glands, "and terminates by a deep or visceral infection, "occupying in this process some years."
The infection of the lung may be manifested by acute phthisis, or suspicious pleurisy, or chronic phthisis or the peculiar paroxysmal form with hectic symptoms described by de la Roë.

The following are abstracts of some cases which illustrate the relation between Lupus & Phthisis:

Man 36, Lupus vulgaris. Abhited and then contained with nitrate of lead and bromide of potassium; cured.
At this time apparently in good health with no appearance
(1) Inguinal. loc. cit. supra p. 125

(2) Lyon médical 30th July 1876


(4) loc. cit. supra p. 384.
of phthisis, but in three years he died of consumption having had phleumy, and tuberculous masses on the sternum and ribs in the internai.

Girl in good health. Cured of lupus of the face by scraping and chloride of zinc followed by scarifications. Soon after her health failed, the cervical glands enlarged and she showed signs of phleumy to which she succumbed in three years.

Arbut records two cases—one of galloping consumption and the other of tubercular phleumy, both following lupus.

Doutreleuport records the case of a girl otherwise robust, with lupus of the face, who was suddenly seized with tubercular meningitis and died in eight days. At the autopsy he could discover no possible centre of infection but the lupus.

Beanie examined the lupus patients in his wards in June 1883, with the result that out of thirty-eight cases the following eight showed signs of infection.

1. Man 45. Lupus erythematous of nose
   Ordinary consumption. Tubers, 2. on left apex. Characteristic expectoration.

2. Woman 33. Lupus vulgaris of neck
   Haemoptysis.
Hemoptysis. Phthisis of apex of both lungs, especially left, dulness on percussion, moist rales.

Man 21. Lupus vulgaris of cheek of 11 years standing. Hemoptysis for the last six months, rapidly advancing phthisis, moist rales at both apices.

Girl 12. Lupus vulgaris of nose, beginning at age of three, of rapid progress, lupus of pharynx. A year ago there was harshness of the respiratory murmur; now she has electrocardiographic changes at both apices, external dulness.

Girl 17. Lupus vulgaris ulcers of nose from infancy. Dulness at right apex, respiration jerking, expiration harsh and prolonged.

Girl 11½. Small lupus of centre of cheek, for 6 years duration. Respiration jerking, dulness on percussion, respiratory murmur obscure at apex. Expiration prolonged.

Girl 16. Lupus of cheek from infancy. Nearly cured when she lost colour and flesh. Expiration tubular at both apices; at left apex fine rales on coughing.


Thus
1) Lyon médical 30th July 1876

2) Annales de dermatologie Aug 1883 No 8 p. 285
Thus twenty-one per cent of these lupus patients had manifest physical signs of phthisis, more or less advanced.

In view of these facts it must be acknowledged that there is a possibility of lupus occasionally and perhaps frequently leading to phthisis. This leads us to the possibility of a prophylaxis against this accident by prompt and entire destruction of the local disease before the system is infected. The frequency of this generalization appears to become greater or at least its progress seems to be precipitated in patients treated for the local disease by methods which cause effusion of blood. Given an infectious agent in a patch of skin, there could hardly be a better method of inoculating it, than that of scarification, cutting the vessels across and leaving them with open mouths to absorb the material lying in the wound.

Aubert (1) had a suspicion of this when he observed two cases of rapid consumption in two lupus patients operated on by him.

Pecsonier (2) states his theories as follows:—

"I do not maintain that all subjects affected with lupus
Lupus are already, or will become phthisical; but I consider that lupus patients, in common with all subjects with a local tuberculous, are in constant danger of a general infection. I do not affirm that all lupus patients treated by methods causing effusion of blood become or will become phthisical, but my own observation has led me to think that secondary phthisis is more common or at least appears sooner in these patients than in others.

If this be so, and if lupus can become the centre of tuberculous infection, we should endeavour to destroy this centre thoroughly and quickly, taking care at the same time that the method we use does not facilitate the general infection. The methods accompanied by effusion of blood, especially incisions, seem very likely to lead to this auto-inoculation. If we can find a method which gives as good results as the other and at the same time removes this danger, we should certainly adopt it. Bzoni claims this for his method, he says: "I can venture to affirm, that with the aid of incision, or scarifications with the theme canting..."
Hemostating is better still with the delicate electro-cauteries that I have had made with this object, it is possible to destroy with certainty the centres of lupus and obtain results at least equal to those of other methods."

From what I have seen of Prentice's method as compared with the other systems in use in the same hospital I am sure that his results were more quickly obtained and compared favourably with similar cases treated by other methods.

As to whether it will prevent auto-inoculation there is not yet been time to show, but the principle of sealing up the vessels by heat and thus preventing absorption gives promise of success.

2) Mémoire sur l'emploi de l'iode. Paris 1829

3) Traité pratique des maladies de la peau. Paris 1867
Chapter I

General Treatment

Before the introduction by Volkmann of mechanical means for the cure of Lupus, a great number of internal remedies had been employed in the hope of curing the disease. These remedies were employed for two purposes:

1. to remove the supposed dependence or predisposition, and thus cause the disease to disappear, and to prevent its recurrence,
2. to destroy or rather to cause the involution of the existing Lupus.

The same remedies were used for both purposes.

Iodine. Lugol first introduced Iodine and the Iodides into general use. He associated them with tonics, exercises, etc.

After a time these remedies were pushed so far that in 1857 Devugie protested strongly against their abuse. At that time pure Iodine was given in a solution of Chloride of Sodium or as an alcoholic tincture, but after a time these preparations set up gastric irritation with pain, loss of appetite, etc.

Iodide of Potassium was also tried but when the dose was increased the same gastric
1. loc. cit. supra


4. Lancet June 27th 1846.
   March 19th 1870
symptoms set in. Devergie (1) and Bazin (2) after
long trials both came to the same conclusion
that with iodine and the iodides lupus is
very rarely, if ever, cured even in the early
stages of the disease.
Iodide of Starch as recommended by McCall
Anderson (3) gives very favourable results in
some cases of Lupus erythematosis.
Cod-liver oil has for long been credited
with the cure of lupus, even
when used alone. Devergie (1) cites several
cases, McCall Anderson (3) and many others
report cures, but in many of these it was
not employed exclusively. Bazin (2) used
it very extensively; he gave doses rising
to six or eight ounces in twenty-four hours
combined with two or three ounces of Syrup
of Iodide of Iron. In these doses, although
for a time it often produces great improvement,
it ultimately leads to entire loss of appetite,
and can hardly be used at all in warm
weather.
Iron has nearly always been used in
combination with some other remedy,
especially with cod-liver oil. The syrup
of
11) Bernin, Annales de dermatologie 1880 p. 697

12) Heloa, Vol. IV p. 100
of the iodide is the favourite preparation. Sulphur, Arsenic, Mercury etc., have been used occasionally but seem to have no effect on the disease. Sodoform has lately been tried in lupus erythematosus, but although some cases were improved by it, the effect was only temporary. The general conclusion at present seems to be that with the exception of some cases of lupus erythematosus, general remedies are quite powerless against lupus, but are extremely useful in improving the general condition, removing anaemia, chlorosis or any scrofulous tendency which may be present.

For these purposes we administer cod-liver oil alone or with the addition of iodine. By means of these with better tonics, and dietetic and hygienic means, we endeavour to improve the patient's general condition on ordinary therapeutic principles, but we do not in the least expect that the disease will be cured.\(^3\)
1) Sydenham Soc. Transactions Vol IV p. 38

2) Vidal Leers sur le loup, Paris 1874
Cap II

Emoliants, Iritants, Caustics.

Emoliants

Consisting of starch poultices, water dressing, baths etc. are very useful as adjuvants in the course of mechanical treatment, but by themselves seem to have no curative effect on the disease.

Iritants

Are most useful in cases of l. erythematosus which are sometimes cured by their use but more often only relieved for a time. Herbs trusted chiefly to mixtures of soft soap. Tar, nitrate of mercury, iodine, glyceride of iodine, perchloride of iron, non-caustic solutions of soda, potash, chloride of guaiac are also used, usually with only temporary effect.

Mercurial plaster - emplâtie de Vigo \(^{(2)}\) is much employed for protecting the part after scarification; it acts as a slight irritant and also causes a sort of local necrosation.
(1) British Med Journal Aug 1883 p. 323

(2) loc. cit. supra p. 103
of the tissues.
Probably to this category belong the anti-
septic dressings which Mr. Bickerstette (1)
asserts never fail to cure. He employs
"an antiseptic dressing in the form of liquor
"calcis bisulphatis (a strong solution which
"is painless) on lint coated with waterproof
"tissue, with the effect of speedy improvement
"in a few weeks and cure in a few months
"at the most."

Caroties
Arsenic has long been extensively
used in the treatment of lupus.
It possesses the advantage that when
applied to a part it destroys the ulcerated
tissue only, leaving the healthy skin
intact. Cosnier's paste, as modified by
Helen (2), is the form of
Acid Arsenii gr
in which it is usually
employed. The paste
is to be spread thick
on strips of clothe and
applied closely to the part, for two or three
days, renewing the ointment each day
until
(1) Helvét. Vol. IV p. 104 (Care of Poisoning)

(2) Dahurin: Diseases of the Skin p. 127
until the lupus nodules and points are seen to be blackened and destroyed. On the second and third days the pain is very severe. After three to five days the dead parts are thrown off by suppuration and there remains a number of punched-out smaller and larger ulcers, with intervening islands and bridges of perfectly healthy skin, from which after granulations have sprung up, cicatrisation proceeds rapidly. The results are at times very satisfactory, but the danger of poisoning by absorption is so great, that this caustic is seldom used now.

Nitrate of silver in strong solution or better still in stick is one of the very best caustics for lupus. Hebra used to regard it as the remedy 'par excellence.' A pointed piece is made to penetrate the lupus deposit, so as to destroy it completely and to reach the healthy tissue beneath. It can also be applied coated on a needle which thus penetrates more easily. Dühring says it may be employed without danger of leaving scars and should therefore

(2) Rapporto annuale dei malati cutanei etc. Milan 1865 quoted by Besnier in translation of Kapos 1881.

(3) Arch. für Dermat und Syph. II Jahr. 2 Heft p. 585.
Therefore always be used about the face where cicatrizes are to be guarded against. One important objection to its use is the peculiar staining of the skin which may occur after its use. Squire \(^1\) mentions a case which was cured in nine months by this method but "the greater part of the face acquired a deep slate colour, which gave the patient a somewhat startling appearance."

Chloride of zinc in paste or sticks or solution has been much used. It has always been the favourite caustic for use with the mechanical means, being rubbed into the wounds after puncturing by Dubin's method or the lancet dipped in it before each puncture as Anzey \(^2\) recommends. It is chiefly used now in solution for applying to the surface after scraping to remove any remaining suppurate Caustic Potash and Vienna Paste (equal parts of Caustic potash & quicklime, made into a paste with rectified spirit) are very seldom used in this disease, and then only on concave parts, and not over tendons, joints etc.

Acid
Acid Nitrate of Mercury is good for very small patches when they are got in the early stage. I have seen a small lupus on the ala nasi completely cured by three applications of it at short intervals.

Carbolic Acid has also been used but is extremely painful. With two exceptions all the caustics do too much. Tissues still uninjured by the cell growth are destroyed along with it, and hence the scar is depressed and tends to contract, causing additional disfigurement to that already inflicted by the disease.

The two exceptions are arsenic and nitrate of silver, to which there are other serious objections. The caustics are also applied as an accessory to the mechanical means, which were first used solely for the purpose of introducing caustics better into the tissues. It is the usual practice after scraping to make sure of completing the destruction of the lupus masses by applying a strong caustic solution to the raw surface.

Cauterisation
1) Sydenham Soc. Transl. Vol IV p. 111


3) Jamieson Practitioner 1881 II p. 194

4) Aubert Le traitement du Lupus a l'Antiquite
   Annales de dermatoj 1883 p. 128
Cauterisation

The actual cautery has been applied for ages to the destruction of lupus "en masses." Helvæus (1) used it both in the form of the Thermal cautery, and also a special porcelain galvanic cautery, heated by a platinum wire coiled spirally round it and connected with a battery. Jonathan Hutchinson (2) also used the actual cautery with the greatest success. The American surgeons often scar the whole surface with the actual cautery after scraping. But it is Robert (3) of the Antiquaille at Lyons who supports this method most strenuously. He uses it in the majority of cases; always when the disease is situated on covered parts. He administers chloroform and with a hot iron thoroughly destroys the disease. The after treatment is apt to be salue. Tendons and the granulations need to be restrained by repeated applications of nitrate of silver. The instruments used for cauterisations are:

1. The hot iron in various forms
2. Paquelin's thermal cautery
3. The porcelain...
The porcelain galvanocoagulating used by Neumann, Hebra, etc.

In principle this method would seem to be the best, for it combines immediate and complete destruction of the morbid tissue with prevention of auto-misculation. But it is exposed to the same objections as the use of caustics - it destroys the healthy tissue as well as the diseased, and occasions great disfigurement. In the face in particular it produces useless and troublesome destruction whenever it is sufficiently applied to be sure of destroying the disease. The extensive cauteries and the danger of secondary troubles, keloids, etc., in uterus, and the necessity of directing cautery sometimes for months, by means of repeated cautery, with irritation of surface, causing severe pain at each application, are very serious objections to this method.

Excision
(1) Zu Behandlung der frusten Flechte. Bonn 1849
(2) Lancet 1875 Vol I p. 759

(3) Lancet 1878 Vol I p. 350

(4) Rapport. French Tram. Note by Translator p. 290
Excision

The extirpation of lupus by this method, which seems extremely good in principle, because it is the most radical and the most simple has been occasionally introduced into surgical practice but has always seem fallen again into disfavour. Hoppe\(^1\) recommends it as the best method of treatment in his day; Gay\(^2\) records three cases treated successfully by excision with immediate plastic operation; Reid\(^3\) mentions a case of lupus of the buttock successfully excised; Beanii\(^4\) had a patient on whom Bequa executed a plastic operation after excision, to preserve the eye which was exposed by destruction of the lower lid.

Excision can hardly be done without combining with it a plastic operation to remove the deformity. The disease is very apt to recur either at the excision or in the flap.

As a rule the extent of the patch, and its
frequent seat on the face more and ligs
absolutely forbid the practice of
excision. Even on limited surfaces
in regions where it can be attacked
the result does not answer our
anticipations. The return of the
disease is very nearly the rule.
To prevent it, we should be obliged
in many cases to pass beyond the
limits of depth which we must
observe.
If it should be required in any
case, it should be performed with
the thermo- or electro-cautery;
affected parts such as the lobule of
the ear could be readily removed
in this manner.
1) Bardeenheuer. Indications zur Anwendung des scharfen Löffels. Köln 1877. quoted by Auspitz, locat


3) Medical Times & Gazette. Aug 26th 1876 p. 223
Cap. III

Scraping

Fischer of Cologne had employed the sharp spoon in the treatment of Lupus for more than twenty years, when Volkman of Halle first drew general attention to this method. Volkman, in his memoir on the subject, recommends the use of a mixed method—scraping and punctiform scarification combined. His plan consisted in scraping away the absolutely rotten and friable portion of "diseased skin (nodules lupus deposits)" by means of a steel spoon with sharp edges, the patient being under chloroform, and then when the wound has healed, of setting up traumatic inflammation of the "circumjacent skin, affected with molecular lupus infiltration, by numerous punctures inflicted with the point of a narrow-bladed lancet, repeating the latter operation under chloroform at intervals of a fortnight." He thus removed the central mass with the spoon and to complete the treatment punctured the isolated nodules which remained around the principal centre.

This
This was the origin of the two methods called "Scraping" and "Punctiform Scarification." By means of scraping the nuclei infiltrated in the depths of the derma are removed; the healthy tissue on account of its elasticity and resistance not being damaged by the spoon, which removes hardly anything but mortis tissue, thus recalling the caustic action of arsenic which destroys mortis but leaves intact healthy tissue.

The instrument employed by Volkman was a modification of the spoon (Brami's) sometimes employed in the treatment of caries. It is round or oval and $\frac{3}{4}$ of an inch to one inch in diameter, with sharp edges. Being so large it could only be employed against extensive masses of lupus; to attack the peripheral nodules which occur as small yellowish points scattered round the central mass, he used a small narrow bladed knife with which he made numerous punctures into the infiltrations. He affirmed that none of his cases resisted this treatment and that rapidly advancing cases.
1) Medical Times and Gazette  Aug 26th 1876 p. 223

2) Lancer Feb 22nd 1879 p. 261

3) Leçons sur le lupus  Paris 1879
casts had been cured in seven or eight weeks. Balmauno Sprique \(^1\) substituted for the large spoons employed by Volkman, very small curettes whose action was easier regulated, for the large spoon sometimes lacerated the healthy tissue and so caused an irregular or unsightly cicatrix. He says \(^2\) "I employ "a much smaller sharp-edged spoon than "Volkman — namely one of about 1/4 and "another about 1/16 the size of his — for "enabling greater precision to be obtained "in the operation."

Since that time, scraping has been very largely used, without the consecutive deprivations, as the finer spoons enable us to enucleate very small isolated nodules without having recourse to punctures.

As a consequence, many modifications have been made in the instruments. Lucas \(^3\) used a blunt spoon or scoop. Sprique made his spoons open at the base towards the handle. Vital \(^4\) at St. Louis, Paris used a curette in the form of a narrow blade, Carved.

(2) Rapporti ini Hebri, Skin Diseases. Lydenham Soc. Translation Vol. IV p. 113
curved in an arc of a circle or at a right angle, with cutting edges, and differing from the ordinary curette in not having sides. Desniers used a fenestrated curette which had no bottom, and was therefore simply a ring with cutting edges.

All of these modifications are for the purpose of clearing the spoon more easily of the debris which is apt to accumulate and clog the instrument.

Operation. As a rule general or local anaesthesia should be employed, although some surgeons never use it. With the instrument chosen (which should be small except in very extreme cases and when it is important to work rapidly), all the morbid tissue should be scraped away. The spoon enters very easily into the soft mass of the neoplasm, which should be removed by firm scraping. There is not much resistance felt till the healthy
British Medical Journal Aug 18, 1883 p. 322
healthy tissue is reached, but this should be scraped pretty firmly over to remove the small nodules which are embedded in it. Morris describes his method thus: "With a large spoon all scales are thoroughly removed and with them the great bulk of the superficial deposit; and after drying the surface, the minute nodules which are deeply lodged in pockets of the corium, are dug out with smaller and pointed scoops. The margins are also vigorously scraped. Though the greater portion of the disease may be removed at one operation, some of the smaller deep-seated nodules which have escaped will reappear in the scar and require subsequent treatment."

The pretty sharp haemorrhage caused by the scraping is quickly arrested by pressure with wadding and thus the more surely if the centres of lupus have been completely removed. The haemorrhage after scraping of the nasal cavities is stopped by plugging very lightly with wadding. To complete the destruction of the disease it
Lucas Lament 1679 Ep. 261
is very common to apply a strong solution of chloride of zinc to the scraped surface, but it causes severe pain for several hours. With the same object some surgeons scar the whole surface of the wound with the actual cautery. The wound is then covered with a piece of dry lint, which is allowed to remain on till it comes away of itself. After two or three days the greyish deposit formed by the layer of tissue, which though destroyed by the scraping remained adherent, separates and a healthy granulating surface is left. Villkraun after scraping employed cauterisation with solid nitrate of silver, practiced about the third or fourth day, when the wound has become red and granulating; but there is no necessity for this as the wound cicatrices without any difficulty.

Results: "Superficial cases heal so as to leave scarcely any perceptible scar, and the most extensive surfaces may be induced to cicatrise without the induction of contraction, puckering or contraction which too often follows the free use"
"'an of canary and canaries.'"
The cervices are usually smooth, thin and
pliant, but are slightly depressed.
The disease, very often, does not return.
When the operation has been thoroughly done,
but the small nodules scattered round the
central mass, must each be carefully
removed, and any reappearance watched
for and immediately dealt with. This
surveillance must be kept up for some
time to ensure ultimate success.

"The great advantage of this treatment is the
rapidity with which a cure can be obtained
and if a large surface be affected in a
position in which a scar is of no consequence
from its appearance, it is on the whole
the best that can be recommended.

"In lupus of the mucous membrane, I
have had the most satisfactory results
from scraping."

Indications for Scraping

1. It is extremely useful in lupus of the
nasal, buccal and pharyngeal mucous
membranes, where linear scarifications
are not always easily applicable.
2. It can be used on parts of the body covered by the clothing, where a very perfect cicatrix is not of much moment.
3. It might be preferred in very extensive cases where the treatment by scarification is rather tedious.
4. Some prefer it habitually to the other methods (except in some cases where it is important to preserve all the tissue possible e.g. when the nose is affected) as the operation is rapidly performed, and the after-treatment is not so tedious and there is less tendency to return of the disease than after scarification.
Dublini
1. Rapporta annuale dei malati cutanei del ospedale
maggiore di Milano 1865 p. 329
2. Weber des Lupus erythematosis. Tübingen 1871
Cap. IV

Scarcification

Those who first employed scarifications in the treatment of lupus, did not seek, by this means alone, to obtain the complete cure of the disease, but they simply punctured or scarified to produce small solutions of continuity, by which they could then introduce some caustic substance which would thus act on the deeper parts of the new formation.

It was with this object that Galvani of Milan, who has the priority in this method, applied multiple punctures to the treatment of lupus, using an instrument—Sebeschki—which made numerous punctures at a time. He employed this instrument simply to make the caustic agent penetrate deeper. Veiel of Cannstatt also with the same object used a multiple scarificator, consisting of six parallel lancets, with which he made numerous punctures, and then, applied to the surface a caustic solution of equal parts of chloride of zine and alcohol.
1) Arch. f. Dermat und Syph. 5. Jahr. 2. Hft. S. 583


3) Über den Lupus und seine Behandlung - Sammlung klinischer Vorträge. Leipzig 1870 S. 94

4) Volkmann loc. cit. S. 74
Ausitz(**) dipped the lanceet in a caustic solution of iodine, carbolic acid or chlorid of zinc, before each puncture, thus carrying the caustic into the midst of the morbid tissue.

Schiff(**) has still further carried out this idea; with a hypodermic syringe he makes repeated injections of iodine and glycerine (1 in 20) into the neoplasm.

Volkmann(**) was the first to use the method for the sake of its own curative effect, without the addition of caustics, but simply as an accessory to treatment by scraping. After scraping as much as possible, he used punctiform scarification, for destroying the outlying nodules and completing the cure.

"Hundreds(...) or even thousands of punctures, two lines or more in depth, are made close to one another into the affected portion of skin, by means of a small bladed knife with a sharp point. In many cases at the end of the process of puncturing the skin appears slightly discoloured or even suspiciously white,... yet I have never seen gangrene follow".

'Balmamno Squin'

Balmauno Squire in using Volkman's method of scraping, modified the scarification substituting linear for punctiform. He says "In place of the puncturation of Volkman which is rather an uncertain operation as regards uniformity in the effect produced - I prefer to scarify the skin with regular linear parallel incisions, spaced uniformly about 1/6 of an inch apart."

In two cases in which he thought that scraping would cause too much loss of tissue, he was induced to try scarification alone, with such a satisfactory result that he adopted the method. This was the beginning of linear scarification, since then it has been modified in its details and the instruments employed, both by Squire and others, among whom Vidal (of Hôpital Saint-Louis Paris) has made great improvements.

Squire after a time found the single cataract needle with which he scarified, rather tedious, so he resorted to a multiple scarificator consisting of twelve or sixteen parallel blades.
10. Sganier loc. cit. supra.

At first he used "to veer the direction of the parallel incisions at each successive scarification, so that each succeeding set is oblique to the direction of the preceding set," but Vidal modified this by making both incisions and cross-incisions at one sitting, thus completely lacerating each separate spot at one operation. Vidal and Besnier also introduced different forms of scarificator which they found more convenient.

Instruments. Those chiefly employed are Squiris' needle, Vidal's scarificator, and Squiris' "multiple scarificator".

Squiris Needle is an instrument resembling a common cataract needle but about four times as large in the head, which is hoof-shape shaped and double edged. It is the best instrument for scarifying very small nodules and is now chiefly used for attacking the small tubercles which are apt to reappear beneath the cicatrix after the cure is nearly
nearly complete. For ordinary scarifying it is too thin and flexible, and so affects the dexterity of hand of the operator.

2. Vidal's Scarificator is more solid and rigid than the needle. It has a straight narrow blade about an inch long, with a triangular double-edged point. It is not so flexible as the needle and does not bend during the operation. It is the instrument most commonly used now. Besnier has a modification of this consisting of a small narrow-bladed knife double-edged in all its length or for a short distance at the point. Vidal also uses a sickle-shaped scarificator, cutting with the convex border only, for scarifying the gums, hard palate, etc.

3. Squire's Multiple Scarificator consists of a solid handle carrying at its extremity twelve or sixteen cutting blades, slightly convex and placed parallel.
parallel about \( \frac{1}{16} \) of an inch apart.

This is a copper plate on each side placed transversely to regulate the depth to which the blades can be inserted, which does not usually exceed \( \frac{1}{2} \) of an inch.

This instrument is very useful when the surface to be operated on, is large and flat, especially for inexperienced operators. The great advantage is the rapidity with which a large surface can be scarified, sixteen incisions being made with one movement, but the pain usually necessitates local anaesthesia. The method of using the scarificator is very simple; the blades are pressed pretty firmly into the diseased tissue and drawn in a straight line across the patch; after covering the patch with incisions in one direction, recommence and go over the whole surface.
Surface again, this time cutting at an angle to the first series, thus obtaining a surface regularly cut into squares or lozenges and resembling the lines of an engraving. The operation is very short and with local anaesthia is nearly painless. By means of the multiple scarificator we can make our incisions perfectly parallel and very close together; it permits many incisions to be made at a time and shortens the duration of the operation and it prevents the incisions from being made too deep and thus giving rise to cicatrices. It has the disadvantages that it can only be used on large patches; that you cannot, as with the single scarificator, vary the depth of the incisions at different points as the touch indicates variations in thickness of the morbid tissue, but must make them of equal depth throughout, and that the instrument is very difficult to clean and keep in order.

Operation. The operation with the single scarificator is carried out as follows:
The patient is placed on an elevated table where he can be kept quite still and the incisions made with perfect regularity. Local anaesthesia with Richardson's ether spray or with a freezing mixture may be used if the disease is very extensive or the patient nervous, but in ordinary cases it is not needed and when it is used the patient usually prefers to do without it after a few settings, as it is troublesome and the freezing itself causes a good deal of pain. General anaesthesia is never required.

Holding the scarificator like a pen firmly without stiffness, so as to follow the variations in depth of the lupus, the operator makes a series of parallel incisions at regular intervals, and then a second series oblique or perpendicular to the first, so that the surface thus treated resembles the shading of an engraving. This is done methodically all over the patch, taking care always to penetrate to the very bottom of the diseased tissue, which
(1) Lecours sur le lupus Paris 1879
which is always more or less softened, and to avoid cutting deeply into the
healthy tissue which is easily recognised by the resistance which the healthy fibres
offer to the knife.
The depth of the incisions should vary according to the thickness of the involved
tissue e.g. in lupus vulgar it is often necessary to penetrate for half an inch
or more, while in lupus erythematous the incisions should be quite superficial.
When the disease is very extensive, it is not advisable to scarify the whole
surface at one sitting, but it should be operated on by degrees. In choosing
the points to be attacked first, we are
guided by the characteristic progress of
the disease – the tendency is for it to
extend at the periphery, so we must
scarify all round the margin first, as
when this is once done, the disease
eventually crosses the scarified zone by
extension. According to Kidal, no
cicatrix is produced even on healthy
skin if the depth of the incisions does not
exceed...
exceed half the thickness of the skin, so it is safer to extend the incisions beyond the actual border of the disease, as by so doing the cutaneous is not enlarged and we make sure that we are leaving no nodules at the periphery.

If there are several patches of lupus they can sometimes be all scarified at the same setting, thus shortening the duration of treatment.

The pain is not usually very severe. As a rule after several repetitions the patients become used to the operation and complain very little of the pain. However intense the pain may be, it never lasts more than two or three hours, and the application of cold water compresses soon brings relief.

Haemorrhage is generally not severe during the operation and is stopped in a few minutes by pressure. Vidal uses small pieces of wadding, which are applied to each small patch as it is completed, and held in place while another part is operated on; after a few minutes pressure
the haemostatic process is complete and the part may be dressed. Perchloride of iron is very seldom necessary except in some cases of lupus verrucous when the scars are very deep.

After treatment. After the bleeding is stopped, the surface is carefully washed and dried and then covered either with a piece of wool or lint, or a patch of mercurial plaster. There is a slight inflammation after the operation, which, if it does not become too intense, is useful. The patient should not attempt to arrest this unless it extends and an erythematous blush appears around the patch, when a starch poultice should be applied. Very rarely Erysipelas occurs, but it is not dangerous, and sometimes seems to hasten the cure.

The dressing should be kept on for two or three days or even longer. At the end of a week cicatisation is complete, so that it is possible to repeat the operation, and in that case
case, the patient should remove the crusts with a pointed and clean the surface, the night before.
After the scarifications have been repeated a few times, the tubercles disappear and the cicatricial surface is flat, but often the neoplasm can be seen forming again in the thickness of the cicatrix or often beneath it. And though the nodules are very small, it is necessary to destroy them thoroughly as they grow very rapidly.
It is in these cases that Guericke needle finds its chief use, for piercing through the cicatrix and destroying the nodules underneath. There need be no hesitation in thus apparently spoiling a good cicatrix, for in a week all trace is lost. This examination for the remnants of the disease should be repeated at intervals for several months to make sure that the cure is complete.
In this method as in most others, we cannot altogether prevent the return of the disease. It may lie within a few
months or only after years, but there is always a danger of it recurring, especially in old cases. The tubercles tend to return, often with great tenacity, but we must put up with this inconvenience for the sake of the very perfect cicatrix which is attained by this method. The cicatrix is smooth, flat and level with the surrounding skin; it is regular and not hard to the touch; when pinched between the fingers it is perfectly pliant; for some time after the cure is complete, it is a little red but in time this disappears, and it can hardly be distinguished from the surrounding skin.

Duration of Treatment. The number of settings necessary to obtain a cure varies with the extent of the patch and the endurance of the patient.

a. Extent of the patch and age of the disease. In a comparatively recent case, small enough to be completely scarified at each operation, from six to twelve settings will arrest its development.
01) Kaposis Disease of the Skin. French Translation.

Note by Translator. Vol II p. 283 note.
destroy most of the centres and apparently cure the disease. But unfortunately it is very difficult to say with certainty that a case is completely cured and that there are not some very minute nodules left which may become centres for a return of the disease. For this reason it is necessary to insist on the patient returning at intervals for some time after the disease is apparently cured, and if after some months there is no sign of relapse, we may consider it as a cure, if not complete, at least likely to last for a considerable length of time.

In cases where the patch is large and cannot be scarified in all its extent at once, the number of sittings sometimes exceeds sixty or eighty, each separate point having to be attacked from six to twelve times.

In the worst form—lupus vorax—one or two operations as a rule completely arrest its progress. It is the quickest and easiest cured of all the forms of lupus.
(1) Bulletin de l'Académie de Médecine 1880
and shows hardly any tendency to return.

b. The tolerance of the patient is very important as it allows more or less ground to be got over at each operation. Some patients with several patches, will allow them all to be scarified at one sitting and thus hasten the cure.

Mode of Action. Scarification by section of the capillaries, rapidly makes a patch of lupus anaemic, and in addition the inflammation which follows the numerous wounds favours the destruction of the neoplasm. Each cut causes a local bloodletting which disengorges the vascular and stumpy tissue and the passive congestion gives place to regular circulation.

The repair of the cut parts takes place very rapidly. Vidal thus describes the process: "The most advanced "lupus cells, those which are segmenting, "as well as the giant cells, undergo "granular and fatty degeneration, and "are destroyed during the stage of inflammation."

Whilst
"whilst a portion of the youngest or embryonic cells, which appear as nuclei, being imprisoned in the cicatricial formation, become modified and go to form connective tissue."

This observation explains how results that appear almost incredible can be obtained - the repair and restoration of the part occurring to an extent that is hardly credible when we consider the morbid condition of the tissues. Thus the point of a nose, which appears to be deeply destroyed by a fungating mass of granulations, can be restored to shape with hardly any loss of substance. It seems that in these cases the softened tissue that would otherwise be eliminated contains in the form of embryonic cells, the germ of future repair, which only require to be stimulated by the irritation of the scarifications.

Sauvageon (5) explains the action of the punctiform scarifications as follows: "The punctures with a fine knife stimulate..."
"stimulate absorption by causing small
haemorrhages into the tissues. These
occurring suddenly, excite the tissues
to reaction, as an effect of which blood
clot and cell-growth are simultaneously
removed"

Indications for Scarcification

1. According to the seat of the disease
scarcification should be preferred when
the disease is situated on an exposed
part, especially the face, where it is
desirable to have a very perfect eczema.
In these cases it is the procedure which
gives the best result (Bencis method
vide p. 54 as yet has given as good results
as scarification, but it may still be
considered on its trial)

If the patch is very large and on a
part covered by the clothes it would
be preferable to use scraping which
is not nearly so tedious, either in the
operation or after treatment

2. According to the form of lupus
2. In lupus erythematosus the results
of scarification are not decisive. The
lesion
Vidal, Leçons sur le lupus, Paris 1879
lesion is superficial so the incisions should not exceed about \( \frac{1}{16} \) of an inch in depth as then they leave no cicatrix. Squier's Multiple Scarificator is extremely useful, as it enables us to regulate accurately the depth of the incisions and it is well adapted for working on the level surface of this form of lupus. The incisions are healed by the fourth or fifth day and can then be repeated. No dressing is required. These cases are usually extremely tedious and obstinate and are often better suited for treatment with superficial caustics or irritants such as soft soap, mercurial blebs, etc. The variety of erythematous lupus resembling acne, which is very difficult to cure and apt to return, has been successfully treated by scarifications made deeper and with more energy than usual. 

b. Lupus vulgaris. The rapidly advancing form—lupus vorax—which all other methods seemed powerless to cure, is checked in a few days by scarifications.
They should be deeply and regularly carried out, without delay, and usually after a few operations a very good cicatrix is produced. It is in this form that scarification stands out preeminent. Its effect being much more evident than in slight or superficial varieties.

Results 1. In the ordinary form of lupus vulgaris it causes in a fairly short time
2. It arrests in a remarkable manner the progress of lupus verrucosus which is more rapidly cured than any other form
3. It is not so efficacious in lupus erythematous, which returns with great obstinacy
4. It is more useful in the form resembling acne if the incisions are made sufficiently deep
5. Its effect seems to be proportionate to the gravity of the disease, in the worst forms it is rapid, in the slightest forms tedious and uncertain

6. It produces a smooth and elastic cicatrix, the same colour as the skin.
7. Relapse is the great drawback and often makes the treatment very tedious and disheartening.

8. The danger of circulatation of the morbid material by the incisions, and general infection of the system, has led Besnier to discard this method altogether; it remains to be seen whether his conclusions are correct, but his method of scarification with the Gauvain cautery produces as good results and appears likely to prevent this danger.
(1) loc. cit. sup. Vol IV p 111

(2) Diseases of the Skin. Translation Paris 1881. Vol II p. 289

(3) Treatise on Diseases of the Skin. Translation Paris 1879 p. 427


(5) Annales de dermatologie Paris Aug 1883 p. 404
Cap II
Bennier's Method

Linear and Perforiform Scarification
with the Galvanoe-Cautery

The use of the actual cautery for the intestinal
cauterisation of lupus is by no means a new
method. Helba (1) in 1841, was the first
to apply it practically, using the galvano-
cautery with aloop of platinum wire
ending in a point, which he thrust at a
white heat into the disseminated lupus nodule.
Kaposi (2) used Pagetius thermo-cautery for
this purpose, applying it in the same manner.

Neumann (3) had a galvanoe caustic apparatus
constructed, for destroying isolated nodules.
Briard (4) extols the employment of the galvano-
cautery, as the only means of preventing
relapses and the propagation of the disease.
Guilford (5) in several cases of the cutaneous and
hypertrophic form of lupus, obtained good
results with the thermo-cautery, first
destroying the principal masses and then
for some months puncturing the isolated
nodules with the cautery until the cure
was completed.
1) Annales de Démot. 1883 p. 204 note.
Besnier in the end of 1882, was the first to apply scarring with the actual cautery to the cure of lupus. He describes the case—
one of vascular lupus of the arm—as follows:

"The extent and thickness of the patch constituted a material objection to scraping or scarifying. I decided to submit the patient to cauteryisation with the thermocautery: In the first few sittings, with a curved sharp cautery, about the thickness of a hairpin, I tattooed the whole of the periphery of the patch; the central part was afterwards treated in the same way, but with a larger cone-shaped cautery; then as the surface was level, the punctures were replaced by linear or crossed scarifications made with the ordinary thermocautery knife. After a dozen sittings at intervals of a fortnight, it was impossible to find any remains of the lupus lesion, and the seat of the disease was occupied by a faint smooth cicatrix. He was so satisfied with the result in this case (and thinking also to remove the danger of auto-inoculation) that he determined to apply this method in all the cases under treatment."
Loci ext. supra p. 403.
treatment in his wards. He has now
done this for about a year, with very good
success, and believes that by his method the
disease is cured, as quickly or even quicker
than by ordinary scarifications, leaving as
good a cicatrix, and that the danger of
auto-inoculation is very much reduced or
if the disease is taken in its early stage
is probably altogether removed.
When he came to be operating more frequently
he found the thermo-cautery, which he used
in his first case, very inconvenient. It went
out very easily when inserted into the tissues
and required to be reheated, making the
operation very tedious. For this reason
he adopted the galvano-cautery which in
the form that he has introduced is much
more convenient.
In describing his method he says "The destructi
of the lesion by means of interstitial cautexi
is the preferable treatment, for
while it allows of as rapid as possible
repair, it is also a perfect prophylactic
against general infection. It permits
patients to be treated as out-patients, it
"is applicable to all parts, even the face, and
on the mucous membrane of the mouth and
pharynx it constitutes the best mode of cure.

Instruments. The galvanic cautery consists
of the battery, the handle, and the points.
1. The source of electricity can be varied to
suit the convenience of the operator. The
usual form is a bichromate of potash pile
with platinum contact. The degree of
action is regulated, by immersing the
plates more or less in the fluid. This is
done by depressing a spring, which can
be fixed at any point, when the spring
is set free the elements rise out of the
fluid.

2. The handle is connected at one end with
the wires of the battery, and at the other the
points are fitted by a simple arrangement,
so as to be removed and changed without
difficulty.

3. The points are formed of platinum wire
bent into the required shape. They consist of:

a. Needles
1. Needles, simple and multiple.

The simple needle may be straight or curved at any angle.

The multiple pointed needle, or 'grille,' makes the operation much shorter, and enables the puncturing to be more regularly done.

2. Knives, multiple sacrificator, buttons.

The number of points in the multiple needles varies from two to nine.

The blades are blunt so as to cause no bleeding.

The multiple sacrificator has three or four blades and is the most often employed.

The buttons are especially useful in lupus of the gums, roof of the mouth and soft palate.

The
The difficulty with the needles and knives is to have the points fine enough, to make punctures and incisions without leaving cicatrices.

Operation. The patient is best on a high table, where he can be kept steady, placed in a good light. Local anaesthesia if it is required may be induced either by a freezing mixture or the ether spray, but if the latter is used care must be taken to remove all ether from the surface, or any article of clothing which is soaked with it, before bringing the cautery near, as the neglect of this precaution might lead to the patient being severely burnt.

An assistant puts the battery in action by pressing down the spring and when the point of platinum becomes red, the apparatus is arranged and fixed so that the point does not get heated beyond a dull red heat. It must never get white hot or the vessels would be cut across as by a knife, giving rise to haemorrhage. This precaution is most important in the first few operations on
very vascular fungating surfaces. The white heat is also inconvenient, as the intense glow from the cautery prevents the operator from seeing distinctly the parts to be cauterised.

When the disease is not very extensive, (as is often seen in lupus vulgaris of the centre of the cheek in young patients, or in isolated patches of lupus erythematosus at a more advanced age), it is best to make with a fine platinum point, a series of punctures extremely close together (1 millimetric apart), so as to give the patch the appearance of having been tattooed. By using the multiple needle, the same operation can be more rapidly executed, e.g. with the nine-pointed needle or grille at each application a comparatively large surface is punctured with great regularity. When using the instruments composed of several blades or needles the application must be made more strongly and a little slower. The instrument being held like a pen, the points at a dull red heat, are forced into the lupus tissue, which
which they penetrate easily. The depth to which they are entered varies considerably with the nature and extent of the disease, but as a rule it does not exceed 1/2 of an inch. The hand recognises easily by the resistance when the healthy tissue has been reached, and the point should only be entered a very little (1 or 2 millimetres) beyond this point. The punctures should also be carried the same distance on to the healthy skin at the periphery, making a complete zone round the disease. When we have to deal with large surfaces, as in cases of lupus extending over the face which are often very thick, deep punctures with the cautery using the grille of six or nine points, or linear scarifications with the cautery using a single knife, or a compound scarificator composed of three or four parallel blades, bring about a cure in a relatively short time.

In these extensive cases the cauteryisation can be applied in patches larger or smaller according to the endurance of the patient, and these can be repeated every day or...
less frequently, operating on a different part each time.
The mode of application should be modified according to the region affected:
1. On the eyelids and conjunctiva, the very finest points should be used and even then only with great caution.
2. On the mucous membrane of the mouth etc. all forms of points may be used, especially the buttons, which are very useful for preventing bleeding.
3. On the alae nasi or in the nostrils the fine points—single or multiple—are particularly applicable in the first few sessions, afterwards scarification with the two or three bladed scarificator produces a smooth and regular cicatrix.
4. On the members, puncture with points medium or large or scarification with the four bladed cautery should be applied.

As a general rule, the surface should first be thoroughly cauterised with the single or multiple needles, the scarifications follow in the next few sessions, then recourse is again had to the single needle to destroy all suspicious.
suspicious points or newly appearing nodules.
Haemorrhage very rarely occurs, except in some cases where the lupus consists of large, soft and vascular masses, when there will be a slight oozing.

The pain produced is very variable in different subjects; the sight of the glowing points and the first touch of the cautery often cause considerable excitement. It is a good plan especially with children to have a button on the handle of the instrument (B. Fig. p. 37) for breaking the circuit, so that the patient need never see the cautery red hot.

After the first fright is over, they stand the operation remarkably well. In Bernard's wards anaesthetics is hardly ever used. However severe the pain may be, it stops directly the operation is finished.

After treatment. The dressing is very simple.

In most cases there has been no bleeding, so there is no oozing afterwards, the eschars are quite dry, and the patient returns home immediately without any dressing or

Simply
simply a little starch powder or a plain bandage.
If the lupus is ulcerating or there has been
any bleeding a piece of mercurial plaster
should be applied.
During the following days, either no
dressing is applied or a piece of mercurial
plaster (enplâtre de Vigo). If there is any
decreton, with swelling and excrementous
crusts, a poultice or a compress soaked in
boracic lotion and covered with oiled
silk is applied at night.
A small crust forms immediately after
the operation; this consists of the eschars,
which in simple cases are dry and exactly
limited to the points where the cautery was
applied. Usually there is no irritation,
and on the eighth day the crusts can be
removed by poulticing or gently scraping
with a blunt spoon. Beneath are extremely
fine red pituits, usually quite healed
and dry; if there are any granulations
they should be touched with a point
of nitrate of silver. In the non-ulcerating
and erythematous forms, the eschar nearly
invariably
invariably leaves a perfectly dry surface, when it is removed.

When the vascular, tumefied or ulcerating forms are cauterised, the eschar does not remain dry, and the surface is rapidly covered with yellow adherent coagulated looking crusts, which are constantly replaced. It is best in these cases to apply a poultice at night and a simple dressing during the day, and as soon as the granulating surface appears it must, if necessary, be kept to the level of the surrounding surface by the application of solid nitrate of silver.

There is sometimes a tendency to Erysipelas, which is easily allayed by a starch poultice.

Duration of Treatment. The number of applications necessary for cure in any case, cannot be fixed in advance. Just as with Scarifications it will depend on the form of the disease and the endurance of the patient, but as a rule the cure is completed in a shorter time than with Scarifications. In some cases after only two or three applications
applications, the disease is cured, but it is still necessary to keep the patient under observation for some time in case of recurrence. In most cases after three applications, the improvement is evident, the surface is smoother and there are hardly any infiltrated nodules. These can be made more apparent by applying glycerine to the cicatrix, thus increasing its transparency. When these nodules are of small dimensions a single puncture with the cautery serves to destroy them; if they are larger it is better to leave the point an instant in the tissue, rotating it at the same time.

Benevites usually repeats the operation once a week, and continues this until the disease is no longer apparent, and there are no suspicious points left.

The cicatrices left are smooth and supple, but for some weeks or even months, they do not appear perfect, as they still retain the impression of the points used. After three minutes, pits or grooves have disappeared (which they always do in a short time).
time) and the level of the epithelium is reestablished. The cicatrix will compare favourably with that obtained by any other method.

**Mode of Action** is the same as that of scarification, with the addition of the direct destruction of infective material by the cautery.

**Indications for use.** It can be applied in all forms of lupus in every situation, since it does not leave cicatrices.

If the hypothesis of auto-vaccination is accepted, some method of rapid destruction of the morbid product must be adopted, and this seems to produce the best results and reduce the danger of general infection to a minimum.

It is especially applicable to lupus of the deeper parts of mucous membranes - of the mouth, pharynx, etc. Scarification and scraping cause considerable haemorrhage in these situations, while with this method there is little or no bleeding.

The form of L. erythematous resembling acne which is so obstinate under all other forms
of treatment is cured within a short time. This method is especially useful in cases of old and extensive lupus. With the nine-pointed 'grille,' a large part of the lesion can be cautérised at each sitting.

In vascular and granulating forms it is by far the best method as it causes very slight bleeding.

Results 1. It cures rapidly.

2. It is as successful as scarification in checking the progress of I. verreauxi and lends it causes very little bleeding.

3. It is very successful in lupus erythematosus, especially in the acne-like form.

4. It leaves a smooth and pleasant cicatrix which, after a time, becomes the colour of the natural skin.

5. Relapse seldom occurs and if points of disease do appear, they can be easily and completely destroyed.

6. If properly applied it destroys the morbid material directly, and that with very little danger of absorption and infection of the system.

Finis