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Keratosi follicularis

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KERATOSIS FOLLICULARIS

BY

ALFRED P. STAPPENBECK

SENIOR THESIS

PRESENTED TO

THE COLLEGE OF MEDICINE

UNIVERSITY OF NEBRASKA

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INTRODUCTION

Keratosis follicularis has many synonyms such as Psorospermosis, Darier's disease, Keratosis vegetans, Psorospermose vegetante. Lately in 1935 Dr. Kendall Frost made an effort to have all the terms discarded and the disease put under the heading of Dyskeratosis follicularis until the skin manifestation is more fully understood.⁸⁹

The disease in its early stage is manifested by the presence of papules which may make their appearance at any age, in either sex, over any area and has a familial tendency. These papules have a tendency to extend gradually or by acute exacerbations to the neighboring skin areas. The papules later become crusted, and may later coalesce forming in some areas papillomatous, vegetation tumor-like growths. The areas of predilection of the lesions are on the hairy areas of the body, such as scalp, face, neck, chest, back, inguinal regions, and extensors of the arms.

This thesis is written in part as an aid in satisfying my own curiosity as this skin disorder is present upon myself. A chart is made as a means of correlating the cases presented up to the present time, in an effort to come to fairly definite conclusions.

ETIOLOGICAL, PATHOLOGICAL
AND
CLINICAL HISTORY

This skin manifestation was first given its name in 1886 by Morrow, who made biopsys and described the lesions on a single patient. Up to this time due to other skin diseases of simular nature there was no set diagnosis made uniformly, due to the fact no microscopic sections had been made to differentiate between them.

Morrow's patient was a sailor who first noticed the disease when an adult. The lesions were first noticed on the back of the hands. Then these lesions slowly extended all over the body being much more severe on the posterior surface of arms and neck, on the thighs and on the legs. The face, palms, and soles were free.

The patient said that a voyage would aggravate the severity of lesions, and while on land these would subside a great deal.

Upon physical examination Dr. Morrow described the surface of the skin as that of feeling over nutmeg grater. Upon superfical examination the ducts of the sebaceous glands projected upwards being occupied by a more or less prominent spinous elongation, which are of a grayish, round, comedo-like substance.

These comedos when expressed are of a dirty grayish color, hard horny, and dry. When thrown upon a paper

there is a sound simular to that of the "rattle of dry peas." No matter how large or how long present these comedos were in the follicles there were no signs of infection or irritation.

The cause of this was believed to be an involment of the sebaceous glands in which there was perhaps an atony or defeciency in their excretory powers. Thus the retention over a long period of time, the desiccation and solidification along with a premature exfoliation of epithelium in the sebaceous gland before their fatty transformation took place. These comedo like structures would be slowly pushed to the surface, and would assume the shape of the ducts.

He said Ichthyosis sebacea and Keratosis follicularis were different. He differentiated the former to be due to an over secretion of the sebaceous glands with a desiccation after it left its over active glands with the hard cornification and incrustation. While the latter was due to under activity of the sebaceous glands. However, it is now known that Ichthyosis sebacea, and Keratosis follicularis are the same.

He said Ichthyosis follicularis is an objectionable term in that Ichthyosis is a congenital malformation in which there is "an altered and anomalous devious development of the skin," which is present soon after birth and has a generalized distribution over the skin. While this

manifestation is not present at birth, is not over the skin surface, and is not in the skin itself but involves the hair follicle and its annex sebaceous gland.

On microscopic section the outer layer of the sebaceous gland was flattened against its basement membrane, and the inner portion of the comedo showed flattening and no fatty transformation. Also the entire sebaceous gland was thought to be involved.

This above description of microscopic and macroscopic findings does not entirely agree with the later findings of Keratosis follicularis; but never-the-less Morrow is credited with naming the disease as "Keratosis follicularis." 2

White and Darier in 1889 working independantely both described cases which are identical. White calling his case Keratosis Follicularis and Darier his cases as Psorosperose Folliculaire Vegetante. White published his work in June and Darier his in July, unknown to each other.

White described his case in which there were lesions over the entire body with the exception of the palms and the soles with portions of the flexor portions of the arm being free. He analyzed these lesions as follows:

- 1." Minute papules, the size of small pin heads, smooth, firm, and not different

in color from surrounding skin."

2. "Papules some what larger than above lesions but slightly hyperaemic in appearance."

3. "Still larger papules of flattened hemispherical shape, with smooth or polished, dense coverings of nail like consistency, and varying in color from a dull red to a purplish dusky red, brown and blackish brown."

All these above lesions are distinctly separate from one another with normal skin between them.

4. "Extensive elevated areas formed by confluence of the above lesions, presenting uneven surfaces. covered by a thick yellowish or brownish, flattened, horny concretions."

5. "Elongated, horny masses from 1/2 to 1/3 inch in diameter and from 1/8 to 1/2 inch in height with an irregular outline with blunt, truncated apices, yellowish in color, of dense consistency and very compact. They may be removed with much difficulty which exposes a base of the corresponding area, which is elevated

- over that of the general skin surface,
and having a hyperaemic and moist
appearance.

His description of the distribution of these lesions is very good. "The small discrete papules are distributed over the flanks and lateral thoracic regions, the flexor aspects of the arms, and some parts of the legs, The larger forms and confluence of the same occupy extensive tracts upon the extensor aspects of the arms, anterior and posterior aspects of the trunk, and nearly all the entire lower extremities. On the lower legs they form thick plates, completely encircling the legs." The prominent horny prolongations are seated upon the median spaces of the trunk, front and back especially over the sternum and the pubes.

6. "Smooth flattened, blackish, elevated plates forming a continuous covering upon the dorsum of the feet."

7. "Enormously dilated follicular openings distended apparently by firm slightly projecting concretions, forming hemispherical elevations. These occupy nearly the whole surface of the upper part of the face."

8. "Small sharply pointed conical

horns, curved at the tip protruding an eighth of an inch from a few of the distended follicles and found below the eyes."

9. "A few large circular elevations with blind central depressions, nearly a half inch in diameter seated upon the temples."

10. "Large papilloma-like excrescence almost fungoid in appearance nearly filling the space behind the ears, and separated from each other by deep fissures."

In this case the hair growth was normal, but there were scattered medium sized firm papules on the scalp. There was little deviation from the normal skin texture on the soles, palms and genitals. The nails are coarse, slightly thickened, and on the free edge some jaggedness. There was considerable pruritus in which the scratching tore off several of the horny elevations, which were slowly reproduced. There was a severe odor which is characteristically that of decomposing epithelium.

This man was a soldier, and when at age of 22 first noticed "a rash" under his knapsack after a march. He said this rash had the appearance of the small lesions he had when abserved. Then 6 years after the initial rash the lesions extended to the legs and then slowly spread over the whole body. He had always been in good health.

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The manifestation of the disease is a keratosis or primarily a hypertrophy or modified cornification around the follicular openings.

Dr. Bowen made microscopic examinations of biopsys taken from the patient by Dr. J. C. White. He found there was a keratosis of the epithelial lining at the mouth of the follicles. Thus due to dilatation and pressure the sebaceous glands are pushed aside, but are found to be normal. Thus a gradual corneous production pushes up the horny plug above the skin surface. Thus with a review of the two cases it can be seen that Dr. Morrows case showed a simular condition existing as to the horny plugs in each case, but Dr. Morrows case did not show any of the other typical manifestations that Dr. J. C. Whites patient did. Dr. Morrows case upon biopsy examination showed an involvment of the sebaceous gland, while later works find that the sebaceous glands are not involved. However recent authors grant Dr. Morrow with describing, making a diagnosis, and first giving this skin manifestation its name, of Keratosis follicularis.^u

In 1889 in the July number of the "Annales De Dermatologie." Dr. J. Darier of the St. Louis Hospital in Paris made an anatome-pathological report of a skin affection which he called "Psorospermosse Folliculaire Vegetante," but the description and symptoms agree with

the Keratois follicularis" as described and diagnosed and reported by J. C. White in June of the same year. These two men worked separately and unbeknown of the others work until thier separate articles were published.

Dr. Dariers observations were taken from two cases. In these the lesions were generally scattered over the body but more severe on the scalp, face, pre-sternum, flanks but more severe in the ingiunal region. "In its first stage the elementary lesion is a small papule surrmounted by a brownish or grayish crust which is elevated, thin, hard, and dry to the touch, and firmly adherent. When you have succeeded in removing it you see that it is veritable little horn incased in a funnel shaped depression by a conical extremity of dirty-white color semi-soft consistence, and has a fatty feeling." At the point of confluence of the lesions there is found upon the skin a brownish or earthly colored layer, more or less fatty to the touch, and there are a series of closely-packed irregular elevations, which give the hand a sensation as of passing over a file. Hypertrophic, reddish elevations the size of a lentil, or pea, or even larger having a central depressions, are at times found from which can be pressed sebaceous matter, either pure or mixed with pus."

The various types of lesions may form large confluent masses which are more often found in the anal region, hypogastric region, and the folds of the groin. These lesions are more on the order of tumors. These so called tumors are, as shown by histological studies, to be advanced stages of the early papules, surmounted by a peculiar crust.

The origin of these lesions is principally at the neck of the pilo-sebaceous follicles. There is a structural difference in the follicular epithelium above and below the openings of the sebaceous gland. The portion above is similar to the surface epithelium, or just an invagination. The neck is filled and dilated with the plug of horny material which projects from the surface. The hair is not involved, but either goes through or around the mass.

It was his opinionⁿ that these so called horny plugs differed in this respect from the cornified productions of other affections. "A great number of these cells in the lower portion of the plugs have the aspect of quite round bodies surrounded by a refractive membrane of double contour, plainly marked, which gives them somewhat the appearance of cartilage cells enclosed in their capsules. This membrane contains a granular protoplasm, which often fills it incompletely and in

10.

the middle of which is generally seen a nucleus well defined and furnished with a nucleoles." With the above description and the absence of union of these bodies, Dr. Darier maintains these are not epidermal cells. These are considered by Dr. Darier to be parasites or organisms of the class sporozaires or psorosperms. Thus, these horny plugs are composed largely of psorosperms, epithelium bacteria, and altered pus. These psorosperms are found almost entirely in the epithelium of the vertebrates, and live within the epithelium cells. These organisms have no movement, live within the cells, "solitary encystment not preceded by conjugation, and a relatively small number of spores which form in the cyst."

Similar bodies were also found by Bollinger in Pagets disease. Also, other men found similar bodies in epithelionas. Therefore some thought at this time these psorosperm or parasites were also the cause of these diseases.

Darier, thus, differentiated this skin disorder from Keratosis follicularis, that Dr. Morrow described, in that these were none of these bodies so described.

His final conclusions are:

1. "There exists in man a group of cutaneous diseases which merit the name of psorospermoses being due to the presence

in the epidermis of parasites of the order of sporezoaires, group psorospermies or coccidies."

2. "In one of these diseases the of a particular nature invade the orifices of the follicles of the skin; they present themselves under the form of round bodies, generally encysted and inclosed within epithelial cells, or as refractive grains. This accumulation constitutes a plug which projects from the orifice of the follicle."

3. "The presence of these parasites may serve to establish the diagnosis of this disease, for they are not meet in any other affection which is clinical analogous."

4. "The neck of the follicle invaded becomes secondarily the seat of papillomatous vegetations, which take on an extensive development and constitute veritable tumors."

5. "This disease which can be called Follicular Vegetative Psoropermosis, should from an aetiological standpoint

be closely allied to Pagets disease and very probably to Molluscum Contagiosum." 4

Immediately many men took up the theory of Darier, that these parasites were the etiological factor in the cause and production of the plugs in this disease. However, there were a few men who did not believe this to be true, and held to the hyper keratosis of the epithelium cells in the necks of the follicles, as found by White and Brown. In fact for two or three years after Darier's work the greatest proportion of the cases were described as "Psorospermiosis Follicularis" and not as "Keratosis Follicularis."

Shortly after Darier put forth his contentions on the etiological factor of this dermatological manifestation, Dr. J. C. White had a second patient, a young girl who was the daughter of his first patient. Both cases were similar clinically in all respects to those cases of Dr. Darier. Due to Dr. White's original paper not reporting the findings of these so called psorosperm in his first case; Dr. Bowen made biopsys of each patient's skin. He used the same technic as that of Dr. Darier and found in both the so called psorosperm or inclusion bodies. Thus all cases falling under the same category.

Dr. J. C. White and Dr. Bowen then raised the question as to these bodies being the etiological factor in the

3
4
cause of this disease. These so called organisms could not be cultured, or could the disease be transmitted by auto-innoculation.

Dr. Bowen also found cells strangely resembling these bodies in question in other skin diseases. Grave suspicion was, thus, cast upon these questionable bodies being the etiological factor in the cause of a single dermatosis.⁵ 6 ON 14B.

In Nov. of 1892 Dr. Boeck maintained that, the presence of parasitic psorosperm being the etiological factor in the cause of Darier's disease was yet to be proven. In his opinion these large round bodies, in question, were nothing else but epidermal cells which had undergone irregular cornification. He maintained the disease had, also, a connection with a seborrheic process and there was a tendency for hyper-keratosis.⁷

In Oct. of 1892 Dr Elliott made an abstract of Dr. Neissner's paper. He claimed that due to want of proof that these so called bodies were parasites, the theory was slowly dying for want of support. That, due to the fact many men were seeing and claiming these were coccidia bodies just because they looked like them, and not being able to culture them, the evidence swayed to the fact these bodies were nothing but pathologically changed cells. Thus, the theory of Psorospermiosis would

Addition to Page 14

In Nov. of 1890 Dr. Piffard made studies of these questionable bodies by means of polarized light and determined they were nothing but rete cells undergoing corneous degeneration. He was also of the belief that the simular bodies found in Pagents Disease and Cancer were nothing but degenerated cells.⁶

in the future only be a matter of historical interest. 8

Thus with the works of Dr. White, Dr. Bowen, Dr. Boeck and Dr. Elliott as well as many other men, there was the swinging away of the theory of Dr. Darier, as to the etiological factor being the parasitic psorospermes in this dermatosis.

In 1896 Dr. Darier gave a revised view-point on the pathological anatomy of the disease. This view point was a wide difference from his early presentation in 1889. In fact Dr. Darier refuted his theory of the parasitic psorospermes as being the etiological factor of the disease.

He now felt the lesions had a tendency to be around the pito-sebaceous follicles as well as around the sweat follicles, even lesions in the epidermis alone. There may be these morbid areas surrounding healthy follicles. The epidermis not connected with a hair follicle showed that there was an infiltration at the stratum corneum (horny layer) of "keratoid masses." These have not the same structural manifestations as do the cells of the stratum corneum, but are granules. This was of great diagnostic importance.

At the border of the lesions, there could be seen fissures in the stratum mucosum (mucous layer). These fissures or cavities were caused by irritation due to

the pressure of the keratoid bodies.

The stratum granulosa was also interrupted and the cells did not contain the normal eleiden which was now absent or was gathered in little groups in the upper portion of the stratum mucosum. Thus in these cells there was a keratonization without the presence of eleiden.

The granules of the keratoid masses were round or polyhedral cells, with nuclei. Under these lesions and under the keratoid masses there were seen "Corpi-ronds" which the foundation in the lacunae. These appeared to be intra-cellular. It was these characteristic bodies which were of value in the micro-scopic diagnosis of the disease.

The early process was granular disintegration of certain of the stratum mucosa layer cells and the "Corpi-ronds" form the foundation beneath in the lacunae, as well as on the lateral sides of these disintegrating mucous cells.

These "Corpi-ronds" appeared to be intra-cellular but appeared to be only altered mucous cells which have undergone keratonization abnormally in its mechanism, topography and even in its ultimate product, which was not eleiden.

These "Corpi-ronds" were thus no longer considered

by him to be psorospermia or coccidia bodies but altered stratum mucosum cells.

Thus, Dr. Darier changed his opinion on the pathology as well as his attitude on the etiological cause of the disease.

Great credit was given to Dr. Darier in the microscopical pathological findings of this dermatosis, in that subsequent biosys^p were required to exhibit these queer refractive bodies in order to establish an absolute diagnosis of Keratosis follicularis, if there was a questionable clinical picture.

Due to his works the disease was called Darier's Disease, as well as Keratosis follicularis. 9

CLINICAL PATHOLOGY

The present day concept is that there is essentially a keratosis of the mouth of the follicles, but there, also, may be an involvement of the skin surrounding a normal follicle, also skin may be involved which is in no way connected with any follicles. Mucous membranes, palms, soles, and nail-beds may also be involved.

The lesions on the scalp are much like those of a seborrhea of a crusting nature, but there is no tendency to the loss of hair. The lesions on the face, neck, back of ears, back and chest may be small papules from which fatty, horny, plugs of hard consistency may be pressed out leaving central pits. The advanced stage will be a crusting over of these papules, the crusts being of a grayish, yellow, oily, appearance and when scrapped off present red erythematous bases upon which the crusts slowly reproduce themselves. In some areas as in the inguinal region, groin, legs, and on the scalp there may be a coalescence with the formation of papillomatous, vegetating, tumor-like growths. The advanced stages have the characteristic odor of disquamating epithelium. /

In some cases there is an involvement of the mucous membrane in which there is whitish papules upon the hard and soft palate.

In a few cases there is a symmetrical hyperkeratosis of the palms and soles.

In a few cases the lesions of the nail-beds are manifested by the appearance of the nails which are dry, brittle, striated and have jagged edges.

Subjective symptoms may vary from no discomfort to much pain and pruritus of which the latter is much more severe in the summer.

Many patients noticed that summer aggravates the skin lesions and have a tendency to extend during this time. Also, winter seems to give some recession of the areas involved and relief from subjective symptoms.

PATHOLOGY

The appearance of biopsy sections is described very nicely by Dr. Darier in 1896, which is written under the heading of clinical history and pathology on page 15. It is with his work that subsequent biopsys were more easily diagnosed as Keratosis follicularis.

The present belief is that this disease is a dyskeratosis due to a disturbance in the keratinization of the excessively poliferating prickle-cells. ⁸⁹

Dr. Hamdi made a study of the lacunae or hiatus between the basal cells and the Malpighian layer, and determined the changes began with an abnormal hypertrophy of the basal cells. These new fragil cells are thus torn from their parent basal cells, which are normally adherent to the prickle-cells above. There is a change in cell differentiation with the formation of elongated, round and oval cells which are very rich in protoplasm, and are slightly swollen. These cells are analagen o of prickle-cells. Some of these cells cease development and sharp margins develop around them these are known as the grain cells or "gains". Some of these "grains" develop refractive bands between the protoplasm, and the nucleus, and are known as the "corps-ronds". These two types of cells are of diagnostic significance in in biopsy sections. ⁸⁹

Brunauer showed there may be an involvement of the mucous membranes as well as characteristic lesions elsewhere. He put forth his idea, these "grains" and "corps-ronds" are cells which have undergone hyaline degeneration, and the "lacunae" are the expression of abnormal keratinization in the second and third layers of the rete. The bud like projections into the corium are due to the poliferation of the basal cells. 29

HEREDITY FACTOR

This skin disorder seems to have a definite familial tendency in which several members in one family may be involved. There are several instances in which the family history is negative.

Dr. Sweitzer in 1924 reported a case in which the Great-Great-Grand-Mother, Great-Grand-Father, Grand-Father, the patient and her niece were all afflicted. Thus present in 5 generations.⁵⁰

Several other instances of the familial tendency can be seen in the charts.

An abstract of the charts will give more on the family-history.

TREATMENT

The present accepted treatment is the use of the x-ray in its various forms.

Mr. Scheer maintains the early lesions respond readily whereas the late stages are very resistant and almost impossible to give lasting relief.

Although hope is held out to the curing of some cases not far advanced, no hope is in store for those cases in which the disease is wide-spread, as it will gradually extend no matter what is done.

Dr. Fred Wise had 2 cases which did not respond well to x-ray, but showed improvement with the use of the Infra-Roentgen Ray.

Dr. Andrews had one patient which failed to show improvement with large amounts of x-ray but the Infra-Roentgen-Ray gave results of much value.

FOREWARD TO CHARTS

These charts I believe are of definite value in arriving at a more thorough understanding of the picture of the disease as a whole and can be readily abstracted in any particular phase from 1886 up to the present time 1938.

Due to the fact that case histories written one after another are of no value to arrive at definite conclusions, these cases put in the chart form will be of some value.

I have abstracted 117 cases written in the American Literature from 1886 to 1938. I believe this takes almost all the cases reported in the United States as well as a few cases abstracted from the European literature.

CHART I

| CASE NO. | REPORTED BY | | AGE | | REGION WHERE | | FAMILY HISTORY | BIOPSY REPORT | PRESENT EXTENT | | | | | | | | | | |
|----------|-------------|---------------------------|-----------|---------|---------------|--------------------------|--|----------------|---------------------------------|-----------|-----------|----------------------------|-----------|-----------|-----------|---------------------------|-----------|-----------|-----------|
| | DOCTOR | SEX | AGE | NOTICED | FIRST NOTICED | SCALP | | | FACE | NECK | ARMS | BACK OF HANDS | PALMS | NAILS | CHEST | BACK | AXILLA | | |
| 1 | 1886 | DR. MORROW | MALE | 21 | 16 | BACK OF HANDS | NO REPORT | ? | SEVERE | FREE | SOME | SEVERE | SEVERE | FREE | NO REPORT | SEVERE | SEVERE | MODERATE | |
| 2 | 1889 | WHITE | MALE | 49 | 22 | SHOULDERS | ONE DAUGHTER (BELOW CASE) | 1870 CONFIRMED | SOME | SEVERE | SOME | FLEXORS SOME | SOME | FREE | SEVERE | SEVERE | MODERATE | MODERATE | |
| 3 | 1890 | WHITE | FEMALE | 21 | 5-6 | SIDES OF FOREHEAD | FATHER (ABOVE CASE) | CONFIRMED | SOME | SEVERE | SOME | WRISTS SOME EXTENSORS | SOME | NO REPORT | NO REPORT | SOME | NO REPORT | NO REPORT | |
| 4 | 1891 | LUSTGARTEN | MALE | 49 | 26 | BACK OF HANDS | NEGATIVE | CONFIRMED | SOME | SOME | NO REPORT | SOME | SOME | FREE | YES | SEVERE | SEVERE | NO REPORT | |
| 5 | 1896 | BOWEN | FEMALE | 29 | 16 | ON FACE | NEGATIVE | CONFIRMED | SEVERE | SEVERE | SEVERE | SLIGHT | FREE | FREE | YES | SEVERE | SEVERE | NO REPORT | |
| 6 | 1898 | ELLIOT | FEMALE | 50 | NO REBAT | NO REPORT | ONE SON + ONE DAUGHTER | CONFIRMED | SOME | NO REPORT | NO REPORT | SOME | SOME | NO REPORT | NO REPORT | NO REPORT | NO REPORT | NO REPORT | |
| 7 | 1905 | H. CURL | MALE | 28 | 27 | ON SIDES OF NOSE | NEGATIVE | NO REPORT | NO REPORT | SEVERE | SLIGHT | NO REPORT | SLIGHT | NO REPORT | NO REPORT | NO REPORT | NO REPORT | NO REPORT | |
| 8 | 1906 | HARTZELL | MALE | 35 | 29 | LOWER RT. CHEST | NO REPORT | CONFIRMED | FREE | FREE | FREE | FREE | FREE | FREE | FREE | LOWER CHEST RT. SIDE ONLY | FREE | FREE | |
| 9 | 1906 | E. STOUT | MALE | 35 | 15 | NO REPORT | NO REPORT | NO REPORT | NO REPORT | NO REPORT | MARKED | NO REPORT | MARKED | NO REPORT | NO REPORT | MARKED | MARKED | NO REPORT | |
| 10 | 1908 | G. WENDE | MALE | 37 | 17 | THICKENING PALMS + SOLES | NEGATIVE | CONFIRMED | NO REPORT | NO REPORT | SLIGHT | SOME EXTENSORS MARKED | SOME | MODERATE | NO REPORT | MODERATE | MODERATE | MODERATE | |
| 11 | 1908 | MACLEOD + COLLINS | MALE | 19 | 1 | NO REPORT | 2 BROTHERS AS BELOW | NO REPORT | MARKED | MARKED | MARKED | MARKED | NO REPORT | NO REPORT | NO REPORT | SOME | SOME | SLIGHT | |
| 12 | 1908 | " | MALE | 13 | 1 | NO REPORT | 2 BROTHERS ABOVE + 1 BELOW | NO REPORT | MARKED | MARKED | MARKED | MARKED | NO REPORT | NO REPORT | NO REPORT | SOME | SOME | SLIGHT | |
| 13 | 1908 | " | MALE | 10 | 2 | NO REPORT | 2 BROTHERS AS ABOVE | NO REPORT | MARKED | MARKED | MARKED | MARKED | NO REPORT | NO REPORT | NO REPORT | SOME | SOME | SLIGHT | |
| 14 | 1911 | G. H. FOX | FEMALE | 17 | 8 | NO REPORT | NEGATIVE | NO REPORT | NO REPORT | SOME | SOME | NO REPORT | SOME | NO REPORT | NO REPORT | NO REPORT | NO REPORT | NO REPORT | |
| 15 | 1911 | ROBINSON | FEMALE | 14 | 2 Mo. | BACK OF HANDS | NEGATIVE | CONFIRMED | SOME | SOME | SOME | SOME | SOME | FREE | YES | SOME | NO REPORT | SOME | |
| 16 | 1911 | D. O. ROBINSON | FEMALE | 13 | 8 | ARMS | NO REPORT | CONFIRMED | SOME | SOME | SOME | SOME | SOME | FREE | YES | SOME | SOME | NO REPORT | |
| 17 | 1911 | HARTZELL | MALE | YOUNG | SOME YEARS | NO REPORT | NO REPORT | CONFIRMED | --- | --- | --- | LESIONS CHIEFLY LOCATED ON | | | | | | | |
| 18 | 1911 | FORDYCE | MALE | 34 | 32 | NO REPORT | MOTHER | NO REPORT | NO REPORT | SOME | NO REPORT | NO REPORT | SOME | SOME | NO REPORT | SOME | SOME | SOME | |
| 19 | 1911 | GOLDENBERG | MALE | 31 | NO REPORT | NO REPORT | 3 BROTHERS; 2 COUSINS; 1 DAUGHTER | NO REPORT | SOME | FREE | SOME | FREE | FREE | FREE | FREE | FREE | FREE | FREE | |
| 20 | 1911 | " | FEMALE | 2 | 5 WKS. | ON SCALP | 3 UNCLÉS; 2 SECOND COUSINS; ABOVE PATHER | NO REPORT | SOME | FREE | SOME | FREE | FREE | FREE | FREE | FREE | FREE | FREE | |
| 21 | 1912 | HANS RITTER | FEMALE | 35 | NO REPORT | NO REPORT | NO REPORT | NO REPORT | --- UNIVERSALLY DISTRIBUTED ALL | | | | | | | | | | |
| 22 | 1912 | W. H. MOOK | MALE | 45 | 8-9 | SCALP | NEGATIVE | CONFIRMED | SEVERE | SEVERE | SEVERE | SEVERE UPPER PART | SOME | SOME | NO REPORT | SEVERE | SEVERE | NO REPORT | |
| 23 | 1912 | " | MALE | 18 | 5 | EYELIDS | NEGATIVE | CONFIRMED | SOME | SOME | SOME | SOME | NO REPORT | SOME | NO REPORT | SOME | SOME | NO REPORT | |
| 24 | 1912 | " | MALE | 21 | 4-5 Mo. | SCALP | ONE BROTHER | CONFIRMED | SOME | SOME | SOME | SOME | NO REPORT | SOME | YES | SOME | SOME | SOME | |
| 25 | 1912 | " | MALE | 24 | 14 | FACE | NO REPORT | CONFIRMED | SOME | SOME | SOME | FREE | SOME | SOME | NO REPORT | SEVERE | SEVERE | FREE | |
| 26 | 1913 | TRIMBLE | MALE | 34 | 32 | FEET | MOTHER; SISTER; BROTHER; 2 NEPHEWS | CONFIRMED | SLIGHT | SOME | NO REPORT | SOME | SOME | SOME | NO REPORT | SOME | NO REPORT | SOME | |
| 27 | 1914 | STEL WAGON | MALE | 48 | 24 | NO REPORT | NO REPORT | NO REPORT | NO REPORT | ECZMA | NO REPORT | SOME | NO REPORT | SOME | NO REPORT | SOME | SOME | SOME | |
| 28 | 1916 | OWNS + H. FOX | MALE | 74 | 23 | ABDOMEN | NO REPORT | NO REPORT | SEVERE | NO REPORT | NO REPORT | SOME | NO REPORT | NO REPORT | NO REPORT | NO REPORT | NO REPORT | NO REPORT | |
| 29 | 1916 | WHITEHOUSE | FEMALE | 23 | 13 | SIDES OF NECK | NO REPORT | NO REPORT | SOME | SOME | SOME | NO REPORT | NO REPORT | SOME | NO REPORT | SOME | NO REPORT | SOME | |
| 30 | 1916 | M. SCHEER | FEMALE | 41 | 3 Mo. LOVE | CUBITAL SPACE OF ARM | NEGATIVE | CONFIRMED | FREE | FREE | FREE | CUBITAL SPACES SOME | FREE | FREE | FREE | FREE | FREE | FREE | |
| 31 | 1918 | A. SCHALEK | MALE | 39 | 39 | PALMS | NEGATIVE | CONFIRMED | SOME | MARKED | SOME | SOME | SOME | MARKED | YES | SOME | SOME | SOME | |
| 32 | 1919 | BECHET | MALE | ? | NO REPORT | NO REPORT | MOTHER; SISTER; BROTHER; 2 NEPHEWS | NO REPORT | SLIGHT | MARKED | SLIGHT | NO REPORT | MARKED | SEVERE | NO REPORT | SEVERE | NO REPORT | NO REPORT | |
| 33 | 1920 | F. WISE + H. J. PARKHURST | MALE | 78 | 26 | BACK OF HANDS | ONE DAUGHTER (DIED RECENTLY) | CONFIRMED | SOME | SOME | SOME | SOME | SOME | NO REPORT | YES | SEVERE | SEVERE | SEVERE | |
| 34 | 1920 | " | FEMALE | 21 | 13 | AXILLA | NEGATIVE | NO REPORT | FREE | FREE | SOME | FREE | NO REPORT | NO REPORT | NO REPORT | SEVERE | SEVERE | SEVERE | |
| 35 | 1920 | W. J. CHARGIN | FEMALE | 32 | 29 | LOWER BACK | MOTHER | NO REPORT | NO REPORT | NO REPORT | NO REPORT | SOME | NO REPORT | NO REPORT | NO REPORT | SLIGHT | SOME | NO REPORT | |
| 36 | 1921 | FOX | FEMALE | 28 | 8 | NO REPORT | NEGATIVE | NO REPORT | --- SLOWLY EXTEND OVER | | | | | | | | | | |
| 37 | 1921 | J. A. BORGHOFF | MALE | 27 Mo. | 21 Mo. | UPPER PART OF BACK | NEGATIVE | CONFIRMED | SOME | NO REPORT | NO REPORT | CUBITAL FOSSES SOME | FREE | SLIGHT | NO REPORT | SEVERE | SEVERE | SEVERE | |
| 38 | 1921 | HUBBARD; BLOTT; CHILLOW | MALE | 16 | 15 | NO REPORT | NO REPORT | CONFIRMED | SLIGHT | SOME | NO REPORT | NO REPORT | NO REPORT | NO REPORT | NO REPORT | NO REPORT | SLIGHT | NO REPORT | NO REPORT |
| 39 | 1921 | ABRAMOWITZ | MALE | 24 | 22 | NO REPORT | NO REPORT | CONFIRMED | SLIGHT | NO REPORT | NO REPORT | SOME | NO REPORT | NO REPORT | NO REPORT | NO REPORT | SOME | NO REPORT | |
| 40 | 1922 | LANE | MALE | 24 | 18 | NO REPORT | NO REPORT | NO REPORT | NO REPORT | NO REPORT | NO REPORT | NO REPORT | SLIGHT | NO REPORT | NO REPORT | SOME | SOME | NO REPORT | |
| 41 | 1922 | BECKMANN | FEMALE | 45 | 3 | NO REPORT | NO REPORT | NO REPORT | SOME | SOME | SOME | NO REPORT | NO REPORT | NO REPORT | NO REPORT | NO REPORT | NO REPORT | NO REPORT | |
| 42 | 1922 | WISE | NO REPORT | 26 | 25 | NO REPORT | NO REPORT | NO REPORT | SLIGHT | NO REPORT | SEVERE | NO REPORT | NO REPORT | NO REPORT | NO REPORT | NO REPORT | SOME | NO REPORT | |

| CASE No. | YEAR | REPORTED BY | SEX | AGE | AGE FIRST NOTICED | REGION WHERE FIRST NOTICED | FAMILY HISTORY | BIOPSY REPORT | TREATMENT | RESULTS |
|----------|------|-------------------------------|--------|--------|-------------------|-----------------------------|--|----------------|---|---|
| | | DOCTOR | | | NOTICED | WHERE | | REPORT | | |
| 1 | 1886 | DR. MORROW | MALE | 21 | 16 | BACK OF HANDS | NO REPORT | ? | NONE REPORTED | NONE REPORTED |
| 2 | 1889 | WHITE | MALE | 49 | 22 | SHOULDERS | ONE DAUGHTER (BELOW CASE) | 1890 CONFIRMED | NONE REPORTED | NONE REPORTED |
| 3 | 1890 | WHITE | FEMALE | 21 | 5-6 | SIDES OF FOREHEAD | FATHER (ABOVE CASE) | CONFIRMED | NONE REPORTED | NONE REPORTED |
| 4 | 1891 | LUSTGARTEN | MALE | 49 | 26 | BACK OF HANDS | NEGATIVE | CONFIRMED | NONE REPORTED | NONE REPORTED |
| 5 | 1896 | BOWEN | FEMALE | 29 | 16 | ON FACE | NEGATIVE | CONFIRMED | SULPHUR + SALICYLIC ACID OINTMENT DAILY WASHING SCALP | CLEARED TO SLIGHT DEGREE ON FACE + SCALP |
| 6 | 1898 | ELLIOT | FEMALE | 50 | NO REPT | NO REPORT | ONE SON + ONE DAUGHTER | CONFIRMED | AGE OF 39 AREAS ON KNEES + FEET CORRECTED | WELL UNTIL A.Y.R. AGO NOW SEVERE AS BEFORE |
| 7 | 1905 | H. CURL | MALE | 28 | 27 | ON SIDES OF NOSE | NEGATIVE | NO REPORT | SALICYLIC ACID OINTMENT PRESSED OUT PLUGS WITH BLUNT SPON | MUCH IMPROVEMENT DISMISSED IN ONE WK. |
| 8 | 1906 | HARTZELL | MALE | 35 | 29 | LOWER RT. CHEST | NO REPORT | CONFIRMED | NONE REPORTED | NONE REPORTED |
| 9 | 1906 | E. STOUT | MALE | 35 | 15 | NO REPORT | NO REPORT | NO REPORT | X-RAY (APRIL 1906 TO JAN. 1907) 30 DOSES 5 MIN. LONG | MUCH IMPROVEMENT IN AREAS EXPOSED + AREAS NOT EXPOSED |
| 10 | 1908 | G. WENDE | MALE | 37 | 17 | THICKENING OF PALMS + SOLES | NEGATIVE | CONFIRMED | X-RAY | SUPERFICIALLY OF SOME VALUE NO EFFECT ON ^{1/4 AREA} AREA |
| 11 | 1908 | MACLEOD + COLLINS | MALE | 19 | 1 | NO REPORT | 2 BROTHERS AS BELOW | NO REPORT | NONE REPORTED | NONE REPORTED |
| 12 | 1908 | " " " | MALE | 13 | 1 | NO REPORT | 2 BROTHERS 1 ABOVE + 1 BELOW | NO REPORT | NONE REPORTED | NONE REPORTED |
| 13 | 1908 | " " " | MALE | 10 | 2 | NO REPORT | 2 BROTHERS AS ABOVE | NO REPORT | NONE REPORTED | NONE REPORTED |
| 14 | 1911 | G. H. FOX | FEMALE | 17 | 8 | NO REPORT | NEGATIVE | NO REPORT | X-RAY (OCT. 25 - DEC. 29) | GREAT DEAL OF IMPROVEMENT |
| 15 | 1911 | ROBINSON | FEMALE | 14 | 2 Mo. | BACK OF HANDS | NEGATIVE | CONFIRMED | NONE REPORTED | NONE REPORTED |
| 16 | 1911 | D. O. ROBINSON | FEMALE | 13 | 8 | ARMS | NO REPORT | CONFIRMED | NONE REPORTED | NONE REPORTED |
| 17 | 1911 | HARTZELL | MALE | YOUNG | SAME YEARS | NO REPORT | NO REPORT | CONFIRMED | NONE REPORTED | NONE REPORTED |
| 18 | 1911 | FORDYCE | MALE | 34 | 32 | NO REPORT | MOTHER | NO REPORT | NONE REPORTED | NONE REPORTED |
| 19 | 1911 | GOLDENBERG | MALE | 31 | NO REPORT | NO REPORT | 3 BROTHERS; 2 COUSINS; 1 DAUGHTER | NO REPORT | NONE REPORTED | NONE REPORTED |
| 20 | 1911 | " " " | FEMALE | 2 | 5 WKS. | ON SCALP | 3 UNCL. 2 SECOND COUSINS; ABOVE PATHER | NO REPORT | NONE REPORTED | NONE REPORTED |
| 21 | 1912 | HANS RITTER | FEMALE | 35 | NO REPORT | NO REPORT | NO REPORT | NO REPORT | 2 SUCCESSIVE DOSES OF X-RAY OVER EVERY AREA | VERY GOOD RESULTS |
| 22 | 1912 | W. H. MOOK | MALE | 45 | 8-9 | SCALP | NEGATIVE | CONFIRMED | X-RAY FOR LAST 7 YRS. | ALMOST ALL GONE EXCEPT FEW IN GLUTEAL AREA |
| 23 | 1912 | " " " | MALE | 18 | 5 | EYELIDS | NEGATIVE | CONFIRMED | X-RAY FOR A FEW WKS. | SOME IMPROVEMENT - BUT PATIENT LEFT |
| 24 | 1912 | " " " | MALE | 21 | 4-5 Mo. | SCALP | ONE BROTHER | CONFIRMED | X-RAY EVERY 2-3 DAYS (40 TREATMENTS) | MARKED IMPROVEMENT |
| 25 | 1912 | " " " | MALE | 24 | 14 | FACE | NO REPORT | CONFIRMED | X-RAY | MARKED IMPROVEMENT |
| 26 | 1913 | TRIMBLE | MALE | 34 | 32 | FEET | MOTHER; SISTER; BROTHER; 2 NEPHEWS | CONFIRMED | NONE REPORTED | NONE REPORTED |
| 27 | 1914 | STEL WAGON | MALE | 48 | 24 | NO REPORT | NO REPORT | NO REPORT | NONE REPORTED | NONE REPORTED |
| 28 | 1916 | OGNS + H. FOX | MALE | 74 | 23 | ABDOMEN | NO REPORT | NO REPORT | NONE REPORTED | NONE REPORTED |
| 29 | 1916 | WHITEHOUSE | FEMALE | 23 | 13 | SIDES OF NECK | NO REPORT | NO REPORT | NONE REPORTED | NONE REPORTED |
| 30 | 1916 | M. SCHEER | FEMALE | 41 | 3 Mo. 4 Mo. | CUBITAL SPACE OF ARM | NEGATIVE | CONFIRMED | X-RAY UNIT IN 4 DIVIDED DOSES | IN 3 WKS. PATCHES FLATTENED OUT |
| 31 | 1918 | A. SCHALEK | MALE | 39 | 39 | PALMS | NEGATIVE | CONFIRMED | X-RAY | 3 Mo. MARKED IMPROVEMENT |
| 32 | 1919 | BECHET | MALE | ? | NO REPORT | NO REPORT | MOTHER; SISTER; BROTHER; 2 NEPHEWS | NO REPORT | NONE REPORTED | NONE REPORTED |
| 33 | 1920 | F. WISE + N.J. PARKHURST | MALE | 78 | 26 | BACK OF HANDS | ONE DAUGHTER (DIED RECENTLY) | CONFIRMED | NONE REPORTED | NONE REPORTED |
| 34 | 1920 | " " " | FEMALE | 21 | 13 | AXILLA | NEGATIVE | NO REPORT | 1/4 UNIT DOSES ONCE EVERY 2 WKS. = FOR 6 WKS. | ALL SHOW 70% IMPROVEMENT EXCEPT IN AXILLA |
| 35 | 1920 | W. J. CHARGIN | FEMALE | 32 | 29 | LOWER BACK | MOTHER | NONE MADE | NONE REPORTED | NONE REPORTED |
| 36 | 1921 | DR. FOX REPORTED IN 1911 FOX. | FEMALE | 28 | 8 | NO REPORT | NEGATIVE | NO REPORT | X-RAY + RADIUM IN LAST 10 YRS. | REMOVED SOME AREAS BUT ALWAYS NEW AREAS |
| 37 | 1921 | J. A. BORGHOFF | MALE | 37 Mo. | 21 Mo. | UPPER PART OF BACK | NEGATIVE | CONFIRMED | X-RAY | SOME IMPROVEMENT BUT PROGRESSED |
| 38 | 1921 | HUBERT BIGOT | MALE | 16 | 15 | NO REPORT | NO REPORT | CONFIRMED | NONE REPORTED | NONE REPORTED |
| 39 | 1921 | ABRAMOWITZ | MALE | 24 | 20 | NO REPORT | NO REPORT | CONFIRMED | NONE REPORTED | NONE REPORTED |
| 40 | 1922 | LANE | MALE | 24 | 18 | NO REPORT | NO REPORT | NO REPORT | NONE REPORTED | NONE REPORTED |
| 41 | 1922 | BECKMANN | FEMALE | 45 | 3 | NO REPORT | NO REPORT | NO REPORT | X-RAY | DISAPPEARED LEAVING ATROPHY OF EXPOSED SKIN |
| 42 | 1922 | WISE | MALE | 26 | 25 | NO REPORT | NO REPORT | NO REPORT | NONE REPORTED. | NONE REPORTED |

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| CASE NO. | YEAR | REPORTED BY | | SEX | AGE | NOTICED | REGION WHERE FIRST NOTICED | FAMILY HISTORY | BIOPSY REPORT | PRESENT | | | | | | | EXTENT | | | |
|----------|------|---------------------|----------|--------------------|------------------|---------------|----------------------------------|---|---------------|---------|--------|------|-------------|---------------|-------|-------|--------|--------|-----------------|-------------------------------|
| | | DOCTOR | ABSTRACT | | | | | | | SCALP | FACE | NECK | ARMS | BACK OF HANDS | PALMS | NAIUS | CHEST | BACK | AXILLA | |
| 43 | 1922 | LIPPERT | 42 | MALE | 35 | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | |
| 44 | 1922 | LOUSTE + BARBIER | 43 | FEMALE | 36 | SINCE BIRTH | N.R. | N.R. | CONFIRMED | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | IN VOLVEMENT IS GENERAL NO |
| 45 | 1923 | SKLARTZ | 44 | MALE | 43 | N.R. | N.R. | N.R. | N.R. | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | IN VOLVEMENT IS GENERAL NO |
| 46 | 1923 | BRONIER + REISEK | 45 | FEMALE | 24 | 18 | RIGHT AXILLA | NEGATIVE | CONFIRMED | N.R. | N.R. | SOME | N.R. | N.R. | N.R. | N.R. | N.R. | SOME | N.R. | SOME |
| 47 | 1923 | ESCHER + PROTRIER | 46 | MALE | 21 | 18 | N.R. | N.R. | CONFIRMED | N.R. | SOME | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | MID-DORSAL SOME | SOME |
| 48 | 1923 | MAC DONALD | 47 | MALE | 20 | 12 | N.R. | N.R. | NOT DONE | FREE | N.R. | N.R. | FLEXOR SOME | SOME | N.R. | N.R. | SOME | SOME | N.R. | |
| 49 | 1923 | H. FOX | 48 | FEMALE | 71 | 69 | N.R. | NEGATIVE | CONFIRMED | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. |
| 50 | 1924 | THORNLEY | 49 | F.F. FEMALE | 21 | 13 | CHIN | NEGATIVE | N.R. | SOME | SOME | N.R. | N.R. | SOME | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. |
| 51 | 1924 | SWETZTER | 50 | MRS. M.C. FEMALE | 34 | 26 | N.R. | N.R. | CONFIRMED | SOME | SOME | SOME | N.R. | SOME | N.R. | N.R. | SLIGHT | SOME | SOME | |
| 52 | 1924 | " | 50 | FEMALE | 11 | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | SOME | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. |
| 53 | 1924 | W.H. SCHNEIDER | 51 | MALE | 42 | 12 | BACK OF HANDS | SON AS BELOW CASE | CONFIRMED | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | IN VOLVEMENT IS GENERALIZED |
| 54 | 1924 | " | 51 | MALE | 11 | N.R. | N.R. | FATHER ABOVE CASE | CONFIRMED | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | IN VOLVEMENT IS GENERALIZED |
| 55 | 1925 | OULMANN | 52 | MRS. S. FEMALE | 52 | 45 | RIGHT BREAST | NEGATIVE | NONE DONE | SOME | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | SOME | SOME | SOME | |
| 56 | 1925 | FREE MAN | 53 | FEMALE | 47 | 32 | SIDES OF ABDOMEN | NEGATIVE | CONFIRMED | N.R. | SOME | N.R. | N.R. | SOME | N.R. | N.R. | N.R. | N.R. | N.R. | |
| 57 | 1925 | MILJAN + PERIN | 54 | FEMALE | 24 | 15 | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | SOME | N.R. | N.R. | N.R. | SOME | SOME | N.R. | |
| 58 | 1926 | PHILLIPS | 55 | M.H. MALE | 55 | 7 | N.R. | FATHER + 1 SON | N.R. | SEVERE | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | SEVERE | SEVERE | SEVERE | |
| 59 | 1926 | B. FOX | 56 | U.T. FEMALE | 33 | 8 | N.R. | NEGATIVE | N.R. | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | REPORTED IN 1911 + 1921 SINCE |
| 60 | 1926 | WHITEHOUSE | 57 | FEMALE | 32 | 27 | N.R. | N.R. | N.R. | N.R. | SOME | SOME | N.R. | N.R. | SOME | N.R. | N.R. | SOME | N.R. | |
| 61 | 1927 | FINK | 58 | MALE | 18 | 11 | FOREHEAD + SCALP | N.R. | N.R. | SOME | SOME | N.R. | N.R. | SOME | N.R. | N.R. | SOME | SOME | N.R. | |
| 62 | 1928 | LANE | 59 | FEMALE | 18 | 11 | AFTER BOIL ON FOREHEAD | N.R. | N.R. | SEVERE | SEVERE | SOME | SOME | SLIGHT | SOME | N.R. | N.R. | N.R. | N.R. | |
| 63 | 1928 | VALKER | 60 | FEMALE | 15 | 3 | HANDS | N.R. | N.R. | N.R. | SOME | SOME | N.R. | SOME | SOME | N.R. | N.R. | N.R. | N.R. | |
| 64 | 1928 | CANNON | 61 | MALE | ABOUT 4 YRS. AGO | BACK OF HANDS | NEGATIVE | CONFIRMED | SEVERE | SOME | SEVERE | SOME | SOME | N.R. | SOME | SOME | SOME | SOME | SOME | |
| 65 | 1928 | H. FOX | 62 | I.M. FEMALE | 22 | 18 | AFTER ATTACK OF OTITIS MEDIA | GENERALIZED | CONFIRMED | FREE | N.R. | N.R. | SOME | N.R. | N.R. | N.R. | SOME | SOME | N.R. | |
| 66 | 1928 | TRAUB | 63 | L.P. FEMALE | 35 | 17 | NECK | FATHER + SISTER HAD SOMETHING SIMILAR BUT GOT BETTER WITH ARSENIC | CONFIRMED | N.R. | SOME | SOME | --- | --- | --- | --- | --- | --- | --- | GENERALIZED OVER BODY |
| 67 | 1928 | FERNANDEZ + VAZQUEZ | 64 | MONSIEUR M.H. MALE | 24 YRS. AGO | NECK + CHEST | NEGATIVE | CONFIRMED | N.R. | N.R. | SOME | SOME | N.R. | N.R. | N.R. | N.R. | SOME | N.R. | SOME | |
| 68 | 1930 | KEIM | 65 | P.W. MALE | 17 | 13 | BACK + LEGS | NEGATIVE | CONFIRMED | SOME | N.R. | N.R. | SOME | N.R. | N.R. | N.R. | SOME | SOME | N.R. | |
| 69 | 1930 | C.E. SCHOFF | 66 | FEMALE | 22 | 8 | FACE SCALP BASE OF NECK | NEGATIVE | CONFIRMED | SOME | SOME | SOME | SOME | N.R. | N.R. | N.R. | N.R. | N.R. | SOME | |
| 70 | 1930 | " | 66 | FEMALE | 31 | 7 | BASE OF NECK + AXILLA | MOTHER + SISTER + BELOW DAUGHTER | CONFIRMED | N.R. | N.R. | SOME | N.R. | N.R. | N.R. | N.R. | SOME | SOME | SOME | |
| 71 | 1930 | " | 66 | FEMALE | 10 | 7 | BASE OF NECK | GRAND-MOTHER + AUNT + ABOVE MOTHER | CONFIRMED | N.R. | N.R. | SOME | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | |
| 72 | 1930 | S.E. SWETZTER | 67 | FEMALE | 39 | 26 | N.R. | SAME AS IN 1924 | CONFIRMED | SOME | SOME | SOME | N.R. | SOME | N.R. | N.R. | SOME | SOME | SOME | |
| 73 | 1931 | GILLESPIE | 68 | F.S. FEMALE | 8 | 7 | N.R. | MOTHER + 2 BROTHERS ONE BELOW | N.R. | SLIGHT | SOME | SOME | N.R. | N.R. | N.R. | N.R. | SOME | N.R. | N.R. | |
| 74 | 1931 | " | 69 | C.S. MALE | 20 | 8 | FACE + SCALP | MOTHER + 1 BROTHER + ABOVE BROTHER | N.R. | SOME | SOME | N.R. | SOME | N.R. | N.R. | N.R. | SOME | SOME | N.R. | |
| 75 | 1931 | P. BECHET | 70 | S.C. FEMALE | 28 | 28 | NECK | N.R. | N.R. | SOME | N.R. | SOME | SOME | N.R. | SOME | N.R. | SOME | SOME | N.R. | |
| 76 | 1931 | A. WALZER | 71 | H.T. FEMALE | 39 | 16 | FACE | N.R. | CONFIRMED | SEVERE | SEVERE | SOME | SOME | N.R. | N.R. | SOME | SOME | SOME | SEVERE | |
| 77 | 1932 | E. TROW | 72 | MALE | 25 | 10 | AFTER CASE OF MERSUUS | N.R. | N.R. | SOME | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | SOME | SOME | N.R. | |
| 78 | 1932 | L. HOLLANDER | 73 | MISS. A.R. FEMALE | 21 | 9 | N.R. | N.R. | N.R. | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | GENERALIZED DISTRIBUTION |
| 79 | 1932 | M. BROWN | 74 | B.M. MALE | 35 | 29 | N.R. | N.R. | NONE DONE | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | A MILD CASE BUT NO |
| 80 | 1932 | M.T. VAN STUDDIFORD | 75 | SI. NEGRO MALE | 32 | 13 | CHEST + FACE | N.R. | CONFIRMED | SLIGHT | SOME | N.R. | SOME | N.R. | N.R. | N.R. | SOME | SOME | N.R. | |
| 81 | 1932 | A. WALZER | 76 | F.F. FEMALE | 29 | 14 | FOREHEAD | N.R. | N.R. | SOME | SOME | SOME | N.R. | N.R. | N.R. | N.R. | SOME | SOME | N.R. | |
| 82 | 1932 | J.F. FRASER | 77 | G.M. FEMALE | 29 | 29 | N.R. | N.R. | NONE DONE | N.R. | N.R. | SOME | SOME | N.R. | N.R. | N.R. | SOME | SOME | N.R. | |
| 83 | 1933 | F. WISE | 78 | G.R. FEMALE | 23 | 13 | N.R. | GRAND-MOTHER + MOTHER | CONFIRMED | SOME | SOME | SOME | N.R. | SOME | SOME | N.R. | N.R. | SOME | N.R. | |
| 84 | 1933 | F. VERO | 79 | C.A. MALE | 38 | 17 | LEFT CHEST LEFT ABDOMEN LEFT ARM | N.R. | CONFIRMED | N.R. | N.R. | N.R. | SOME | N.R. | N.R. | N.R. | SOME | SOME | N.R. | |

| CASE NO. | YEAR | REPORTED BY | DOCTOR | SEX | AGE | AGE FIRST NOTICED | REGION WHERE FIRST NOTICED | FAMILY HISTORY | BIOPSY REPORT | TREATMENT | RESULTS |
|----------|------|-------------|---------------------|------------------|------------------|-------------------|----------------------------|---|---------------------|---|---|
| 43 | 1922 | | LIPPERT | MALE | 35 | N.R. | N.R. | N.R. | N.R. | NONE REPORTED | NONE REPORTED |
| 44 | 1922 | | LOUSTE + BARBIER | FEMALE | 36 | SINCE BIRTH | N.R. | N.R. | CONFIRMED | N. R. | N. R. |
| 45 | 1923 | | SKLARTZ | MALE | 43 | N.R. | N.R. | N.R. | N.R. | N. R. | N. R. |
| 46 | 1923 | | BRONIER + REISEK | FEMALE | 24 | 18 | RIGHT AXILLA | NEGATIVE | CONFIRMED | N. R. | N. R. |
| 47 | 1923 | | ESCHER + PROTRIER | MALE | 21 | 18 | N.R. | N.R. | SCRAPINGS CONFIRMED | N. R. | N. R. |
| 48 | 1923 | | MAC DONALD | MALE | 20 | 12 | N.R. | N.R. | NOT DONE | N. R. | N. R. |
| 49 | 1923 | | H. FOX | FEMALE | 71 | 69 | N.R. | NEGATIVE | CONFIRMED | N. R. | N. R. |
| 50 | 1924 | | THORNLEY | F.F. FEMALE | 21 | 13 | CHIN | NEGATIVE | N.R. | X-RAY FOR LAST 2 WKS. | ERYTHEMAE NO RESULTS CAN BE READ |
| 51 | 1924 | | SWETZTER | MRS. M.C. FEMALE | 34 | 26 | N.R. | N.R. | CONFIRMED | N. R. | N. R. |
| 52 | 1924 | | " | FEMALE | 11 | N.R. | N.R. | N.R. | N.R. | N. R. | N. R. |
| 53 | 1924 | | W.H. SCHNEIDER | MALE | 42 | 12 | BACK OF HANDS | SON AS BELOW CASE | CONFIRMED | N. R. | N. R. |
| 54 | 1924 | | " | MALE | 11 | N.R. | N. R. | FATHER ABOVE CASE | CONFIRMED | N. R. | N. R. |
| 55 | 1925 | | OULMANN | FEMALE | 52 | 45 | RIGHT BREAST | NEGATIVE | NONE DONE | X-RAY 1/2 UNIT DOSES | CONSIDERABLE IMPROVEMENT |
| 56 | 1925 | | FREE MAN | FEMALE | 47 | 32 | SIDES OF ABDOMEN | NEGATIVE | CONFIRMED | N. R. | N. R. |
| 57 | 1925 | | MILJAN + PERIN | FEMALE | 24 | 15 | N.R. | N.R. | N.R. | N. R. | N. R. |
| 58 | 1926 | | PHILLIPS | M.H. MALE | 55 | 7 | N.R. | FATHER + 1 SON | N.R. | N. R. | N. R. |
| 59 | 1926 | | B. FOX | U.T. FEMALE | 33 | 8 | N.R. | NEGATIVE | N.R. | X-RAY + RADIUM SINCE 1911 | PROGRESSED DESPITE TEMPORARY RELIEF |
| 60 | 1926 | | WHITEHOUSE | FEMALE | 32 | 27 | N.R. | N.R. | N.R. | N. R. | N. R. |
| 61 | 1927 | | FINK | MALE | 18 | 11 | FOREHEAD + SCALP | N.R. | N.R. | N. R. | N. R. |
| 62 | 1928 | | LANE | FEMALE | 18 | 11 | ANTERIOR PORTION OF SCALP | N.R. | N.R. | X-RAY | SOME RELIEF |
| 63 | 1928 | | VALKER | FEMALE | 15 | 3 | HANDS | N.R. | N.R. | X-RAY | SLIGHT IMPROVEMENT |
| 64 | 1928 | | CANNON | MALE | ABOUT 4 YRS. AGO | | BACK OF HANDS | NEGATIVE | CONFIRMED | N. R. | N. R. |
| 65 | 1928 | | H. FOX | FEMALE | 22 | 18 | GENERALIZED | NEGATIVE | CONFIRMED | GREEN SOAP VIGOROUSLY | HARDLY NOTICEABLE ON SIDES OF TRUNK |
| 66 | 1928 | | TRAUB | FEMALE | 35 | 17 | NECK | FATHER + 1 SISTER HAD SOMETHING SIMILAR BUT GOT BETTER WITH ARSENIC | CONFIRMED | N. R. | N. R. |
| 67 | 1928 | | FERNANDEZ + VAZQUEZ | MALE | 2 YRS. AGO | | NECK + CHEST | NEGATIVE | CONFIRMED | N. R. | N. R. |
| 68 | 1930 | | KEIM | MALE | 17 | 13 | BACK + LEGS | NEGATIVE | CONFIRMED | N. R. | N. R. |
| 69 | 1930 | | C.E. SCHOFF | FEMALE | 22 | 8 | FACE SCALP BASE OF NECK | NEGATIVE | CONFIRMED | X-RAY + THYROID EXTRACT | NO REPORT |
| 70 | 1930 | | " | FEMALE | 31 | 7 | BASE OF NECK + AXILLA | MOTHER + SISTER + BELOW DAUGHTER | CONFIRMED | N. R. | N. R. |
| 71 | 1930 | | " | FEMALE | 10 | 7 | BASE OF NECK | GRAND-MOTHER + AUNT + ABOVE MOTHER | CONFIRMED | N. R. | N. R. |
| 72 | 1930 | | S.E. SWETZTER | FEMALE | 39 | 26 | N.R. | SAME AS IN 1924 | CONFIRMED | ACUTE WEEPING ERUPTION ON FOREHEAD 500 SALICYLIC ACID PETROLEUM | WEEPING ERUPTION GREATLY IMPROVED |
| 73 | 1931 | | GILLESPIE | F.F. FEMALE | 8 | 7 | N.R. | MOTHER + 2 BROTHERS | N.R. | N. R. | N. R. |
| 74 | 1931 | | " | M.H. MALE | 20 | 8 | FACE + SCALP | MOTHER + 1 BROTHER + ABOVE BROTHER | N.R. | N. R. | N. R. |
| 75 | 1931 | | P. BECHET | F.F. FEMALE | 28 | 28 | NECK | N. R. | N.R. | N. R. | N. R. |
| 76 | 1931 | | A. WALZER | F.F. FEMALE | 39 | 16 | FACE | N. R. | CONFIRMED | X-RAY + RADIUM | TEMPORARY RELIEF BUT PROGRESSED SLOWLY |
| 77 | 1932 | | E. TROW | MALE | 25 | 10 | N.R. | N. R. | N.R. | N. R. | N. R. |
| 78 | 1932 | | L. HOLLANDER | FEMALE | 21 | 9 | N.R. | N. R. | N.R. | INTRAVENOUS NA-THIO SULPHATE INTRAMUSCULAR WAGLE BLOOD CUT OUT ON DIET TO WHICH SENSITIVE | SOME IMPROVEMENT NOTED |
| 79 | 1932 | | M. BROWN | MALE | 35 | 29 | N.R. | N. R. | NONE DONE | 6 X-RAY TREATMENTS OF 1/2 SKIN UNITS | MUCH FLATTENING + IMPROVEMENT |
| 80 | 1932 | | M.T. VAN STUDDIFORD | MALE | 32 | 13 | CHEST + FACE | N. R. | CONFIRMED | CAUTERY OF LESIONS 2 YRS. AGO. | TEMPORARY RELIEF, NOW REAPPEARING + PROGRESSING |
| 81 | 1932 | | A. WALZER | F.F. FEMALE | 29 | 14 | FOREHEAD | N. R. | N. R. | ULTRA-VIOLET-RAY INJECTIONS LOCAL APPLICATIONS | N. R. |
| 82 | 1932 | | J.F. FRASER | F.F. FEMALE | 29 | 29 | N.R. | N. R. | NONE DONE | 5 DOSES OF 1/2 UNITS ABOUT 70 ROENTGENS | NO APPARENT BENEFIT AS YET |
| 83 | 1933 | | F. WISE | F.F. FEMALE | 23 | 13 | N.R. | GRAND-MOTHER + MOTHER | CONFIRMED | N. R. | N. R. |
| 84 | 1933 | | F. VERO | MALE | 38 | 17 | N.R. | N. R. | CONFIRMED | N. R. | N. R. |

CHART III

| CASE NO. | YEAR | REPORTED BY | | AGE FIRST NOTICED | REGION WHERE FIRST NOTICED | FAMILY HISTORY | BIOPSY REPORT | OF THE LESIONS | | | | | | | | | | |
|----------|------|-----------------------------|---------------|-------------------|----------------------------|--|--|----------------|------------------------------|---------------|----------|--------|---------------|-----------|-------|------------------|---------|--------|
| | | DOCTOR | SEX | | | | | ABDOMEN | POBIC REGION | SACRAL REGION | PERINEUM | THIGHS | LEGS | FEET | SOLES | MUCOUS MEMBRANES | PURITUS | |
| 85 | 1933 | H.E. MICHELSON | J.C. FEMALE | 17 | 8 | PALMS | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | SOME | SOME | N.R. | | |
| 86 | 1933 | B.M. KESTEN | MALE | 25 | 4-6 | HAND + PALMS | NEGATIVE | CONFIRMED | N.R. | N.R. | N.R. | N.R. | INGUINAL SOME | N.R. | N.R. | N.R. | N.R. | |
| 87 | 1933 | C.O. WEST | FEMALE | 52 | 15 | FACE | 2 DAUGHTERS BELOW | N.R. | NO MENTION OF AREAS INVOLVED | | | | | | | N.R. | | |
| 88 | 1933 | " | FEMALE | 24 | 10 | N.R. | ABOVE MOTHER + BELOW SISTER | N.R. | " | " | " | " | " | " | " | " | " | |
| 89 | 1933 | " | FEMALE | 22 | 11 | N.R. | ABOVE MOTHER + SISTER | N.R. | " | " | " | " | " | " | " | " | " | |
| 90 | 1934 | A. OLIVER + F.V. PLUMMER | FEMALE | 30 | 15 | BEHIND THE EARS | MOTHER + SISTER | CONFIRMED | N.R. | SOME | N.R. | N.R. | SOME | N.R. | N.R. | UR | N.R. | SOME |
| 91 | 1934 | N.V. EPSTEIN | F.V. FEMALE | 21 | 17 | FOREHEAD | N.R. | CONFIRMED | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | |
| 92 | 1934 | G.A. MACHACEK + J. HOPKINS | M.H. MALE | 20 | 14 | N.R. | N.R. | CONFIRMED | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | NONE |
| 93 | 1934 | M.H. EBERT FOR B.B. BEESON | MALE | 44 | 44 | N.R. | N.R. | CONFIRMED | N.R. | SOME | SOME | SOME | N.R. | N.R. | N.R. | N.R. | N.R. | SLIGHT |
| 94 | 1934 | T. NISBET | R.F. MALE | 31 | 24 | ABDOMEN | N.R. | N.R. | MENTION OF AREAS INVOLVED | | | | | | | N.R. | | |
| 95 | 1934 | J.G. URUEÑA | R.R. FEMALE | 73 | 13-14 | AFTER CASE OF MARSELL N.R. | NEGATIVE | N.R. | N.R. | N.R. | N.R. | N.R. | SOME | SEVERE | SOME | SEVERE | N.R. | N.R. |
| 96 | 1935 | K. FROST | FEMALE | 44 | ? | N.R. | N.R. | CONFIRMED | SOME | SOME | N.R. | SOME | N.R. | N.R. | N.R. | SOME | N.R. | SOME |
| 97 | 1935 | " | S.O.H. MALE | 37 | 29 | CAME ON AS A SADDEN REDNESS LEAVING SATIN AS NOW | NEGATIVE | CONFIRMED | SLIGHT | N.R. | SOME | N.R. | N.R. | SOME | N.R. | N.R. | N.R. | N.R. |
| 98 | 1935 | " | MALE | 31 | 23 | N.R. | NEGATIVE | CONFIRMED | SOME | SOME | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | SOME | SLIGHT |
| 99 | 1935 | S. SILVERS | E.E.F. FEMALE | 17 | SINCE BIRTH | UPPER PART OF CHEST | MOTHER + SISTER | CONFIRMED | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | SLIGHT |
| 100 | 1935 | U.J. WILE + G.H. BELUTE | MALE | 42 | 12 | N.R. | N.R. | CONFIRMED | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | SOME | NONE |
| 101 | 1935 | B.B. BEESON | MALE | 25 | 24 | N.R. | N.R. | N.R. | N.R. | N.R. | SOME | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. |
| 102 | 1935 | H. SILVERS | J.V. FEMALE | 20 | 17 | LEFT SIDE OF NECK | BELOW MOTHER + 2 SISTERS | CONFIRMED | N.R. | SOME | N.R. | SOME | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. |
| 103 | 1935 | " | FEMALE | 52 | N.R. | N.R. | ABOVE MOTHER + BELOW SISTER | CONFIRMED | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. |
| 104 | 1935 | " | FEMALE | 19 | N.R. | N.R. | ABOVE MOTHER + ABOVE SISTER | CONFIRMED | WHAT AREAS INVOLVED | | | | | | | N.R. | | |
| 105 | 1935 | A.D. KING | MALE | 34 | 28 | UPPER BACK + CHEST | N.R. | CONFIRMED | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | SOME | SLIGHT |
| 106 | 1936 | C.J. SHEPARD | C.W.M. MALE | 46 | 30-31 | ONE LEG | N.R. | CONFIRMED | SOME | N.R. | N.R. | N.R. | SOME | SOME | N.R. | N.R. | SOME | FREE |
| 107 | 1936 | M.B. PAROONDIAN | A.B. MALE | 27 | 19-20 | SCALP | N.R. | CONFIRMED | SOME | N.R. | SOME | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | SLIGHT |
| 108 | 1936 | V.A.H. CORNELL | G.L. FEMALE | 17 | N.R. | N.R. | N.R. | CONFIRMED | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. |
| 109 | 1936 | J.A. GAMMEL | J.S. N.R. | 40 | 36 | BACK | N.R. | CONFIRMED | N.R. | SOME | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. |
| 110 | 1937 | R. BREAKSTONE | MALE | 22 | 4-6 | BACK OF HANDS | N.R. | CONFIRMED | N.R. | N.R. | N.R. | N.R. | N.R. | SOME | N.R. | N.R. | N.R. | N.R. |
| 111 | 1937 | H. CHARACHE | MALE | 45 | 33 | SOLE OF RT. FOOT | NEGATIVE | CONFIRMED | N.R. | N.R. | N.R. | N.R. | SEVERE | SEVERE | N.R. | N.R. | N.R. | N.R. |
| 112 | 1937 | C.J. WHITE | R.W.B. MALE | 21 | 5 | SCALP | N.R. | CONFIRMED | SOME | N.R. | N.R. | N.R. | SOME | SLIGHT | N.R. | N.R. | N.R. | N.R. |
| 113 | 1937 | S.E. SWEITZER | J.D. MALE | 74 | 46 | FACE | GRAND-FATHER, FATHER, 1 SON, 2 DAUGHTERS, 2 MALE GRANDCHILDREN | CONFIRMED | N.R. | N.R. | SOME | N.R. | SOME | N.R. | N.R. | SOME | SOME | N.R. |
| 114 | 1937 | S.E. SWEITZER + E.M. RUSTEN | J.G. MALE | 32 | 26 | WAIST-LINE | NEGATIVE | CONFIRMED | SOME | N.R. | N.R. | N.R. | SOME | FREE | FREE | FREE | FREE | N.R. |
| 115 | 1937 | H.E. MICHELSON | T.J. FEMALE | 20 | 13 | NECK + SCALP | GRAND-MOTHER, MOTHER, 3 SISTERS ALL INVOLVED, 3 BROTHERS FREE | N.R. | N.R. | N.R. | N.R. | N.R. | SOME | CRIN SOME | N.R. | N.R. | N.R. | SLIGHT |
| 116 | 1937 | " | J.C. FEMALE | 21 | 7-8 | PALMS + SOLES | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | SOME | N.R. | N.R. | |
| 117 | 1937 | T. BUTTERWORTH | M.H. MALE | 46 | N.R. | N.R. | N.R. | CONFIRMED | N.R. | N.R. | N.R. | N.R. | N.R. | SOME | N.R. | SOME | N.R. | N.R. |
| 118 | 1937 | A. WALLER + LAPOWSKI | A.Z. FEMALE | 16 | 9 | SHOULDERS | NEGATIVE | CONFIRMED | SOME | SOME | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | FREE | SLIGHT |
| 119 | 1937 | P.E. BECHET | R.D. FEMALE | 35 | 35-40 | N.R. | NEGATIVE | CONFIRMED | N.R. | N.R. | SOME | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. |
| 120 | 1937 | H.S. CAMPBELL | FEMALE | 40 | 30 | FINGERS + DORSUM HANDS | PATIENT'S SON AS BELOW | CONFIRMED | SOME | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | SOME | N.R. | N.R. |
| 121 | 1937 | " | MALE | 64 | 6 | PALMS + HANDS | ABOVE MOTHER | CONFIRMED | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. |
| 122 | 1937 | E.T. BEANSTEIN | C.D. MALE | 47 | 4-7 | ON HANDS | N.R. | CONFIRMED | SOME | N.R. | N.R. | N.R. | SOME | SOME | N.R. | N.R. | N.R. | N.R. |

| CASE NO. | YEAR | REPORTED BY | | AGE FIRST NOTICED | REGION WHERE NOTICED | FAMILY HISTORY | BIOPSY REPORT | OF THE LESIONS | | | | | | | | | | |
|----------|------|-----------------------------|---------------|-------------------|----------------------|--|--|----------------|------------------------------|--------------|---------------|----------|---------------|-----------|------|--------|------------------|---------|
| | | DOCTOR | SEX | | | | | AGE | ABDOMEN | POBIC REGION | SACRAL REGION | PERINEUM | THIGHS | LEGS | FEET | SOLES | MUCOUS MEMBRANES | PURITUS |
| 85 | 1933 | H.E. MICHELSON | J.C. FEMALE | 17 | 8 | PALMS | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | SOME | SOME | N.R. | | |
| 86 | 1933 | B.M. KESTEN | MALE | 25 | 4-6 | HAND + PALMS | NEGATIVE | CONFIRMED | N.R. | N.R. | N.R. | N.R. | INGUINAL SOME | N.R. | N.R. | N.R. | N.R. | |
| 87 | 1933 | C.O. WEST | FEMALE | 52 | 15 | FACE | 2 DAUGHTERS BELOW | N.R. | NO MENTION OF AREAS INVOLVED | | | | | | | N.R. | | |
| 88 | 1933 | " | FEMALE | 24 | 10 | N.R. | ABOVE MOTHER + BELOW SISTER | N.R. | " | " | " | " | " | " | " | " | " | |
| 89 | 1933 | " | FEMALE | 22 | 11 | N.R. | ABOVE MOTHER + SISTER | N.R. | " | " | " | " | " | " | " | " | " | |
| 90 | 1934 | A. OLIVER + F.V. PLUMMER | FEMALE | 30 | 15 | BEHIND THE EARS | MOTHER + SISTER | CONFIRMED | N.R. | SOME | N.R. | N.R. | SOME | N.R. | N.R. | UR | N.R. | SOME |
| 91 | 1934 | N.V. EPSTEIN | F.V. FEMALE | 21 | 17 | FOREHEAD | N.R. | CONFIRMED | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. |
| 92 | 1934 | G.A. MACHACEK + J. HOPKINS | G.H. MALE | 20 | 14 | N.R. | N.R. | CONFIRMED | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | NONE |
| 93 | 1934 | M.J. EBERT FOR B.B. BEESON | MALE | 44 | 44 | N.R. | N.R. | CONFIRMED | N.R. | SOME | SOME | SOME | N.R. | N.R. | N.R. | N.R. | N.R. | SLIGHT |
| 94 | 1934 | T. NISBET | F.R. MALE | 31 | 24 | ABDOMEN | N.R. | N.R. | MENTION OF AREAS INVOLVED | | | | | | | N.R. | | |
| 95 | 1934 | J.G. URUEÑA | R.R. FEMALE | 73 | 13-14 | AFTER CASE OF MARSELL N.R. | NEGATIVE | N.R. | N.R. | N.R. | N.R. | N.R. | SOME | SEVERE | SOME | SEVERE | N.R. | N.R. |
| 96 | 1935 | K. FROST | FEMALE | 44 | ? | N.R. | N.R. | CONFIRMED | SOME | SOME | N.R. | SOME | N.R. | N.R. | N.R. | SOME | N.R. | SOME |
| 97 | 1935 | " | S.O.H. MALE | 37 | 29 | CAME ON AS A SADDEN REDNESS LEAVING SATIN AS NOW | NEGATIVE | CONFIRMED | SLIGHT | N.R. | SOME | N.R. | N.R. | SOME | N.R. | N.R. | N.R. | N.R. |
| 98 | 1935 | " | MALE | 31 | 23 | N.R. | NEGATIVE | CONFIRMED | SOME | SOME | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | SOME | SLIGHT |
| 99 | 1935 | S. SILVERS | E.E.F. FEMALE | 17 | SINCE BIRTH | UPPER PART OF CHEST | MOTHER + SISTER | CONFIRMED | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | SLIGHT |
| 100 | 1935 | U.J. WILE + G.H. BELUTE | MALE | 42 | 12 | N.R. | N.R. | CONFIRMED | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | SOME | NONE |
| 101 | 1935 | B.B. BEESON | MALE | 25 | 24 | N.R. | N.R. | N.R. | N.R. | N.R. | SOME | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. |
| 102 | 1935 | H. SILVERS | J.V. FEMALE | 20 | 17 | LEFT SIDE OF NECK | BELOW MOTHER + 2 SISTERS | CONFIRMED | N.R. | SOME | N.R. | SOME | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. |
| 103 | 1935 | " | FEMALE | 52 | N.R. | N.R. | ABOVE MOTHER + BELOW SISTER | CONFIRMED | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. |
| 104 | 1935 | " | FEMALE | 19 | N.R. | N.R. | ABOVE MOTHER + ABOVE SISTER | CONFIRMED | WHAT AREAS INVOLVED | | | | | | | N.R. | | |
| 105 | 1935 | A.D. KING | MALE | 34 | 28 | UPPER BACK + CHEST | N.R. | CONFIRMED | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | SOME | SLIGHT |
| 106 | 1936 | C.J. SHEPARD | C.W.M. MALE | 46 | 30-31 | ONE LEG | N.R. | CONFIRMED | SOME | N.R. | N.R. | N.R. | SOME | SOME | N.R. | N.R. | SOME | FREE |
| 107 | 1936 | M.B. PAROONDIAN | A.B. MALE | 27 | 19-20 | SCALP | N.R. | CONFIRMED | SOME | N.R. | SOME | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | SLIGHT |
| 108 | 1936 | V.A.H. CORNELL | G.L. FEMALE | 17 | N.R. | N.R. | N.R. | CONFIRMED | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. |
| 109 | 1936 | J.A. GAMMEL | J.S. N.R. | 40 | 36 | BACK | N.R. | CONFIRMED | N.R. | SOME | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. |
| 110 | 1937 | R. BREAKSTONE | MALE | 22 | 4-6 | BACK OF HANDS | N.R. | CONFIRMED | N.R. | N.R. | N.R. | N.R. | N.R. | SOME | N.R. | N.R. | N.R. | N.R. |
| 111 | 1937 | H. CHARACHE | MALE | 45 | 33 | SOLE OF RT. FOOT | NEGATIVE | CONFIRMED | N.R. | N.R. | N.R. | N.R. | SEVERE | SEVERE | N.R. | N.R. | N.R. | N.R. |
| 112 | 1937 | C.J. WHITE | R.W.B. MALE | 21 | 5 | SCALP | N.R. | CONFIRMED | SOME | N.R. | N.R. | N.R. | SOME | SLIGHT | N.R. | N.R. | N.R. | N.R. |
| 113 | 1937 | S.E. SWEITZER | J.D. MALE | 74 | 46 | FACE | GRAND-FATHER, FATHER, 1 SON, 2 DAUGHTERS, 2 MALE GRANDCHILDREN | CONFIRMED | N.R. | N.R. | SOME | N.R. | SOME | N.R. | N.R. | SOME | SOME | N.R. |
| 114 | 1937 | S.E. SWEITZER + E.M. RUSTEN | J.G. MALE | 32 | 26 | WAIST-LINE | NEGATIVE | CONFIRMED | SOME | N.R. | N.R. | N.R. | SOME | FREE | FREE | FREE | FREE | N.R. |
| 115 | 1937 | H.E. MICHELSON | T.J. FEMALE | 20 | 13 | NECK + SCALP | GRAND-MOTHER, MOTHER, 3 SISTERS ALL INVOLVED, 3 BROTHERS FREE | N.R. | N.R. | N.R. | N.R. | N.R. | SOME | CRON SOME | N.R. | N.R. | N.R. | SLIGHT |
| 116 | 1937 | " | J.C. FEMALE | 21 | 7-8 | PALMS + SOLES | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | SOME | N.R. | N.R. |
| 117 | 1937 | T. BUTTERWORTH | V.H. MALE | 46 | N.R. | N.R. | N.R. | CONFIRMED | N.R. | N.R. | N.R. | N.R. | N.R. | SOME | N.R. | SOME | N.R. | N.R. |
| 118 | 1937 | A. WALLER + LAPOWSKI | A.Z. FEMALE | 16 | 9 | SHOULDERS | NEGATIVE | CONFIRMED | SOME | SOME | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | FREE | SLIGHT |
| 119 | 1937 | P.E. BECHET | R.D. FEMALE | 35 | 35-40 | N.R. | NEGATIVE | CONFIRMED | N.R. | N.R. | SOME | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. |
| 120 | 1937 | H.S. CAMPBELL | FEMALE | 40 | 30 | FINGERS + DORSUM HANDS | PATIENT'S SON AS BELOW | CONFIRMED | SOME | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | SOME | N.R. | N.R. |
| 121 | 1937 | " | MALE | 64 | 6 | PALMS + HANDS | ABOVE MOTHER | CONFIRMED | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. | N.R. |
| 122 | 1937 | E.T. BEANSTEIN | C.D. MALE | 47 | 4-7 | ON HANDS | N.R. | CONFIRMED | SOME | N.R. | N.R. | N.R. | SOME | SOME | N.R. | N.R. | N.R. | N.R. |

ABSTRACTS OF CHARTS

I believe the most important of the thesis is the abstraction of the chart in its separate phases.

There are 117 separate cases which are most of the cases reported from 1886 up to 1938.

The distribution in the two sexes varies only to a slight degree. Of these cases there were reported 61 males, 54 females, and 2 cases with no report as to sex.

The ages when the lesions are first noticed vary from ^{at} birth as in many cases, up to the age of 69, as in the case of 49. The largest number of cases, however, occur before the age of 20. The age group is as follows;

Birth to and including age 1 are 7 cases.

Age 2 " " " " 3 " 4 " .

Age 4 " " " " 5 " 6 " .

Age 6 " " " " 10 " 15 " .

Age 10 " " " " 15 " 22 " .

Age 16 " " " " 20 " 14 " .

ABSTRACTS OF CHARTS
(continued)

CONT. Age groupings when lesions are first noticed are as follows.

| | |
|--------------------------------|--------------|
| Age 21 to and including age 25 | are 3 cases. |
| Age 26 " " " " 30 | " 4 " . |
| Age 31 " " " " 35 | " 2 " . |
| Age 36 " " " " 40 | " 2 " . |
| Age 41 " " " " 45 | " 1 " . |
| Age 46 " " " " 50 | " 1 " . |
| Age 50 " " " " 68 | " 0 " . |
| Age 69 | 1 " . |
| No age report | 16 " . |

The heredity trait seems to be an important factor in this skin disease, in that of these 117 cases reported, 37 cases give a positive family history. Of these there are 7 instances of 2 cases reported in their separate families. Also 2 instances of 3 cases reported in separate families. Therefore this takes in 20 of the 37 reported. There are several instances of the 37 cases in which there is a history of the disease being present in the second and third generations and one instance of a history being present in 5 generations, as in case of 52.

ABSTRACTS OF CHARTS
(continued)

The review of the cases as to areas where first noticed shows that the greatest percentage of lesions make their appearance some where on the head or neck.

Lesions first appearing on the scalp, 7 cases.

| | | | | | | |
|---|---|---|---|---|---|-----------------------|
| " | " | " | " | " | " | face , 15 cases. |
| " | " | " | " | " | " | neck , 8 " . |
| " | " | " | " | " | " | back , 5 " . |
| " | " | " | " | " | " | chest, 5 " . |
| " | " | " | " | " | " | arms , 2 " . |
| " | " | " | " | " | " | back of, 8 " . |
| " | " | " | " | " | " | hands |
| " | " | " | " | " | " | hands &, 3 " . |
| " | " | " | " | " | " | palms |
| " | " | " | " | " | " | palms, 3 " . |
| " | " | " | " | " | " | abdomen, 4 " . |
| " | " | " | " | " | " | Axilla, 2 " . |
| " | " | " | " | " | " | soles , 1 " . |
| " | " | " | " | " | " | feet , 2 " . |
| " | " | " | " | " | " | legs , 2 " . |
| " | " | " | " | " | " | generalized, 2 cases. |

Cases of which no area reported of first appearance, 48 cases.

ABSTRACTS OF CHARTS
(continued)

Biopsys were confirmed in 70 cases. No biopsys were done in 5 cases and no reports in 42 cases.

The Doctors in most cases registered the positive findings in the distribution of the lesions and did not register in most cases the negative findings. Thus the reports of the distribution of lesions when down as no report may be considered to be negative.

The abstract of the distribution of the lesions over the various portions of the body give the following;

| | | | |
|----------------|--------------|----------|--------|
| Scalp positive | in 77 cases, | negative | in 40. |
| Face | " " 75 | " , " | " 42. |
| Neck | " " 68 | " , " | " 49. |
| On arms | " " 48 | " , " | " 69. |
| Back hands | " " 40 | " , " | " 77. |
| Palms | " " 30 | " , " | " 87. |
| Nails | " " 16 | " , " | " 101. |
| Chest | " " 71 | " , " | " 46. |
| Back | " " 69 | " , " | " 48. |
| Axilla | " " 34 | " , " | " 83. |
| Abdomen | " " 44 | " , " | " 73. |
| Pubic region" | " 21 | " , " | " 96. |

THE CONT. OF ABSTRACT OF THE DISTRIBUTION OF THE LESIONS

Sacral region positive in 19 cases, negative in 98.

| | | | | | | | | |
|-----------------|---|---|----|---|---|---|---|------|
| Perineum | " | " | 21 | " | , | " | " | 96. |
| Thighs | " | " | 30 | " | , | " | " | 87. |
| Legs | " | " | 26 | " | , | " | " | 91. |
| Feet | " | " | 10 | " | , | " | " | 107. |
| Soles | " | " | 20 | " | , | " | " | 97. |
| Mucous Membrane | " | " | 13 | " | , | " | " | 104 |

Pruritus or subjective symptoms in 21 cases with none in 96 cases.

TREATMENT, RESULTS AND ADDED INFORMATION

Case 10

In 1908 Dr. Wende reported a case in which many epitheliomas had made their appearance, superimposed upon the Keratosis follicularis lesions. At the age of thirty-two the patient noticed large fungating lesions appearing as enlargements of the Darier's lesions. At the age of thirty-seven biopsys were taken of three large lesions on the abdomen, one on the back, two above the rectum, one on the chest and one on the scrotum. The two above the rectum were rodent-ulcers, The rest were epitheliomas. These lesions were removed surgically and x-ray applied to the surrounding skin areas. The larger areas of Darier's were not benefited by the x-ray. ¹⁶

Case 21

Dr. Hans Ritter in 1912 gave x-ray treatments of two successive doses of 10 x Benoist Walter 5 over each area. He also used thermal cautery, but it was very painful, leaving scars and the lesions reappeared. An added portion of his report was that Dr. Herxheimer had excellent results with three cases with the use of Paquelin cautery. ²⁴

Case 30

The case of Dr. Scheer in which he used 1 unit in 4 divided doses gave excellent results as he reported

in 1936 the patient had a complete disappearance of the lesions and never reappearing. It was in 1936 he suggested x-ray was of great benefit on early lesions, but of little or no value on late cases.³⁰

Case 31

Dr. Schalek made a great improvement in standardizing the dosage, as before there was no way of measuring the dosage with the old type x-ray, and the Collidge tube was a better means of standardization. He recommended exposures over the different areas of the body, first on alternate days then twice a week. The average dosage were rays registering 4 milliamperes through a 1 M. M. Aluminum filter, at an 8 inch distance, with a 5 inch spark gap for 5 minutes, representing about a 2 /3 Hampson erthema dose. With this treatment the patient showed improvement after three months.³¹

Case 33

Dr. Wise and Parkhurst reported this old man of 78 years had a basal cell carcinoma at the bridge of the nose on the right.³³

Case 34

Dr. Wise and Parkhurst had a female patient of a very obese type weight 175 pounds. It was thought there might be an endocrine disfunction but Dr. Trimme found

negative endocrine findings. Her treatment consisted of 1/4 H. unit doses of x-ray over chest and back and in axilla, once every two weeks. In six treatments there was a 75% improvement everywhere, except in axilla. Also had during the treatment a tenth grain of thyroid extract three times a day. ³³

Case 36 & 14

Dr. Fox reported this case had received from 1911 to 1921 numerous x-ray and radium treatments. Telangiectatic areas had been produced on the abdomen by unmeasured x-ray, but new lesions reappeared. Also telangiectasia had been produced on the neck by unscreened radium but again new lesions reappeared. In 1922 Dr. Fox felt that in such a case there could be no permanent results obtained. ³⁵

Case 37

Dr. Borghoff reported a case of baby. The lesions appearing at 21 months. Coming in to clinic at 27 months. Treated with x-ray with relief for 6 weeks. Then rapidly spread again and at 31 months showed all areas very severe, much pruritus, irritability and died at age of 32 months. ³⁶

Case 96

In 1934 Dr. J. G. Uruena reported a case in which the woman had been treated in 1927 with unscreened radium

over one foot and sole by another Doctor. The woman received a severe radium dermatitis and died in 1934 with malignancy involving the whole leg. 88

— CONCLUSION

Keratosis follicularis is a skin disease characterized by a dyskeratosis due to excessively proliferating prickle-cells.⁸⁹

The etiology is unknown, but many men think there is an endocrine, or nervous imbalance, or the combination of both. Heredity is an important factor in that many cases give a positive family history.

The lesions seem to appear about as often on females as on males. In the largest percentage of cases initial lesions appearing before twenty, but may appear from birth up to age sixty-nine. The biggest percentage of lesions make their appearance somewhere on the head or neck. The lesions after establishment gradually involve other areas. The areas of predilection in the large number of cases are the head, neck, chest, and back.

The treatment is to treat the early lesions as soon as possible with x-ray, as the long established cases do not respond as well as do the early lesions. However, hope is held out now with the use of the Ultra-Roentgen ray treatment.

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