from twelve to twenty-four hours gangrene, either moist or dry, follows. When of the moist variety the process may be so deep and so intense that the bones themselves share in the disintegration and death may result from septic absorption even before the line of demarcation has appeared. When it is of the dry type, which is much less common, the usual changes of mummification ensue.

Treatment.—This is a matter of the greatest import and demands the utmost skill on the part of the physician, for upon the slowness with which the blood is allowed to return to the vessels depends the future of the frozen part.

To produce this gradual thawing out, the part should first be rubbed with snow until the icy hardness has in part disappeared, then iced water should be applied and the patient put to bed in a cold room with plenty of blankets to cover all but the affected area, near which ice bags should be placed. The temperature of the room should be very slowly elevated. These precautions are perhaps all that can be taken, and in a few days the extent of the injury will manifest itself by the appearance or not of gangrene. In the mean while, absolute rest in bed and stimulation must be insisted upon, and when once the line of demarcation is clearly marked the surgeon should interfere to avoid as much as possible the dangers of septicæmia. Such measures are frequently highly successful and one is often surprised at the slight loss of substance even after the most solid and extensive freezing.

Charles J. White.

DERMATITIS EPIDEMICA.—Definition.—An acute, contagious dermatitis, attacking preferably the aged, often universal in extent, subject to one or more relapses, accompanied by great prostration, frequently fatal in result, and always followed by desquamation. Pathologically a parakeratosis.

Synonym.—Savill's disease.

Symptoms.—The existence of this disease is denied by many and ignored by others. It was first observed by Savill in the Paddington Infirmary of London in 1891, and from that year until 1895 about five hundred cases were recorded. Since 1895 the disease in epidemic form has sunken into obscurity, but several possible sporadic cases have been observed by Colby and by Fordyce.[1]

The cutaneous outbreak of the disease is preceded by a feeling of local irritation which, within twenty-four hours, is followed by one of three types of initial lesion: first, papular; second, erythematous; or, third and very rarely, circinate. In almost half of the cases these first lesions appear upon the arms, the face, or the scalp, continue for from three to eight days, and are succeeded by a more or less generalized eruption with constant desquamation, which continues with frequent exacerbations and remissions for five or six weeks. This secondary stage assumes a moist type, resembling eczema madidans in sixty-six per cent. of the cases and in the remaining individuals appears as a dry, papular eruption closely simulating pityriasis rubra of Hebra. At this period the patient experiences great burning, itching, and tenderness and intense prostration and anorexia. The third stage of the disease is that of subsidence, when the skin assumes a hard, drawn, brownish appearance, the hair and nails may fall, and the patient is left weak and prostrate. During the epidemic of 1891, 12.8 per cent. of the people afflicted succumbed. The temperature rarely goes above 99° F., and albuminuria is not present except as a slight trace during the height of the disease.

Etiology.—The cause of this affection is still obscure. Savill and Russell, however, independently isolated from the scales and from the blood of the heart a diplococcus which resembled in many ways the Staphylococcus pyogenes albus, but which failed to liquefy gelatin.

Old age and chronic invalidism play an important part as predisposing factors, and it was observed that men were attacked almost twice as frequently as women in the first epidemic.

Pathology.—The microscopical appearances resemble very closely those found in chronic eczema. The rete is hypertrophied, the keratohyalin-bearing cells disappear, the papillæ are swollen, and a few cells surround the superficial vessels of the corium—in other words, a parakeratosis. According to Echeverria,[2] the one important change not observed in eczema lies in the homogeneous degeneration of the more superficial rete nuclei—a process which he has termed peridiaphania.

Diagnosis.—When an acute, practically afebrile, papular or erythemato-papular dermatitis breaks out among the inmates of an institution, shuns the young and attacks the old, continues with one or more relapses for from four to eight weeks, reduces the vital forces almost to a minimum, is accompanied by a continued and almost universal exfoliation of the epidermis, and produces a mortality greater than that of scarlet fever, then we should recall to our minds the peculiar epidemic which was first described by Savill in 1891.[3]

From eczema I think one should differentiate this disease on account of its proneness to attack the aged and on account of the prostration, the epidemicity, the constant exfoliation, and the high death rate accompanying it. Erysipelas, pityriasis rubra, and scarlatina are the other diseases which one must exclude, but I think the reader can readily appreciate the great differences between them and dermatitis epidemica.

Prognosis.—The mortality in the first epidemic was 12.8 per cent. and was much greater in men than in women. In the last epidemic the death rate fell to seven per cent. Thus the disease is certainly one to be dreaded. As a rule, when the disease begins with papules the outlook is better than in those cases in which erythema constitutes the initial stage.

Treatment.—Savill found that daily baths of creolin of twenty minutes' duration rendered the greatest service. Localized lesions were often controlled by applications of collodion, and tar, ichthyol, and oxide of zinc proved of service in allaying the subjective symptoms and in keeping the patient comparatively clean. Internally, sustaining treatment was, of course, necessary in the severer cases.

Charles J. White.

[1] Monatshefte für praktische Dermatologie, vol. xix., p. 476.
[2] Jour. Cut. and Gen.-Urin. Dis., vol. xvi., p. 73, and vol. xv., p. 141.
[3] British Journal of Dermatology, vol. iv., pp. 35, 69, 105. Jour. Cut. and Gen.-Urin. Dis., vol. xii., pp. 281–329.

DERMATITIS FROM ROENTGEN RAYS.—The immediate, almost universal adoption of Professor Roentgen's discovery in 1896 was soon followed by reports from different countries of a peculiar dermatitis resulting from the action of *x*-rays upon the skin. For the first two or three years the number of recorded cases was ever increasing owing to the more widespread experimentation and to the ignorance of the cause of the resulting inflammation; but now that investigators have learned to avoid too powerful currents and have exercised caution in placing the Crooke's tube at sufficient distance from the skin, the instances of reported accidents are happily distinctly infrequent.

To gain a clearer conception of the alterations induced in living tissues we may divide the resulting inflammations into two classes—those occurring in individuals experimented upon and those observed upon the experimenters themselves. The symptoms which are now to be described are those which occurred in about fifty cases recorded here in Boston, in Baltimore, and in Europe.

First, the accidents to patients. This class constitutes the great majority of cases found in literature and is rich in the variety and in the intensity of its lesions.

Erythema is perhaps the most frequent symptom observed, usually occurring with ill-defined outlines and appearing sometimes within a few hours or at varying intervals up to the sixteenth day.

The condition of dermatitis manifests itself in many ways, and in our list we find the following qualifying adjectives: acute, weeping, suppurating, chronic, and deep. Papular and pustular forms are the rarest, while the vesicular and the bullous (the latter sometimes hemorrhagic) types are much more frequently observed. Often the dermatitis is signalized simply by swelling or

by irritation. Very frequently the dermatitis is much severer, and we find the disease assuming a more virulent type, forming eschars; or ulcers, which are often deep and accompanied by intense pain, appear usually in three or four weeks and sometimes require weeks, months, or even one or two years to cicatrize. At times the healing is interrupted by relapses.

Disturbances in the nutrition of the appendages of the skin are also frequent sequelæ, and the application of *x*-rays is not rarely followed by a loss of hair in an area which has been subjected to this peculiar influence. The alopecia is usually observed from the tenth to the thirtieth day and the hair returns slowly, sometimes requiring even months before complete restoration has been effected. Among the rarer complications of the hair noted we find canities.

Changes in the nails are not uncommon, and I have observed such disturbances as pigmentation, persistent pain, and total loss of the nails.

When we examine the later changes which follow the various types of dermatitis we find that exfoliation and desquamation or pigmentation are the commonest, while leucoderma is a rarity, but in all cases we are struck by the peculiarly slow restoration to health.

Such are the objective conditions observed, and referring to the subjective symptoms we must first mention pain, which is characterized in different cases as slight, intense and deep, neuralgic even after a lapse of six months, or lancinating and persistent. After pain, but with far less frequency, writers have described sensations of burning, of irritation, of prickling, of pruritus, of hyperæsthesia, or of partial anæsthesia.

Disturbances of internal organs are not unknown and several instances of nausea, usually supervening in from two to three hours, have been recorded, while vomiting within a few moments and pain, which has persisted for two months, are other examples of involvement of the stomach. Among other internal complications a feeling of oppression about the heart, with or without palpitation, and dyspnœa have been mentioned.

From this short, purely descriptive list we see how many and how varied are the possible lesions resulting from the exposure of the body surface to the *x*-rays, and considering now the possible accidents which may befall the operator we find rather different conditions. Here we see the effect of prolonged and oft-repeated exposure to this strange influence. An experimenter may subject himself for weeks with impunity to the daily action of Roentgen rays, and then, without warning, the hands may become intensely painful or pigmented, the nails may darken or may fall never to return, the hair may disappear, ulcers may form—in a word, all the graver effects which we have noted in patients may come to the experimenter, with these peculiarities, however: the parts affected are almost always the hands, and their restoration to health is almost invariably an exceedingly slow and painful process.

What causes these unfortunate accidents? This is a question which has not yet been definitely answered. Professor Thompson's theory (which is perhaps the most plausible yet given) is that ultra-violet rays are at fault, and he has proved the strength of his argument by the results of experimentation. He allowed *x*-rays to fall upon the skin and found that that area was affected which, by the interposition of blue glass, was subjected to the action of violet rays only. Professor Trowbridge, in a recent article, claims that the *x*-rays are really a light far lower in the scale than the violet rays, thus adding weight to Professor Thompson's theory.

Another idea (that expressed by Tesla) is that the ill-effects of the Roentgen rays are due to the action of ozone and that the greater the heat and the moisture of the skin the greater the resulting damage.

A third theory (also emanating from Tesla) is that during the subjection of the part to the *x*-rays certain minute particles are discharged from the tube and find lodgment in the skin, and this action is especially marked when the tube is of aluminum. Other views have been expressed by foreign writers, among which we may mention that which makes the cathode rays the principal agent, or the ingenious theory that the organic liquids of the body are decomposed and thus produce the grave conditions which we have been studying.

The histology of dermatitis from Roentgen rays has not been investigated thoroughly. Darier gives us the best descriptions, but his work applies chiefly to the milder forms of inflammation. He found that the cells of the stratum corneum were greatly thickened but retained their normal structure; that the stratum granulosum was markedly increased in depth by hyperplasia and by hypertrophy of the cells, which contained many large and numerous eleidin granules; that the cells of the stratum spinosum were also both hypertrophic and hyperplastic, showed mitoses, and contained some migratory cells; and that, with the exception of some extravasated cells, the important changes in the corium were associated with the pilo-sebaceous apparatus where only vestiges of hair follicles appeared, while the hair papillæ, musculi arrectores, and sebaceous glands were quite gone.

Treatment.—Prophylaxis is naturally the first consideration and a safe rule to follow is this: never use a current stronger than from six to eight milliampères and never place the tube nearer to the body surface than from 15 to 20 cm. For the milder accidents, such as erythema, pruritus, vesicles, or bullæ, use a wash of zinc. oxid. ʒ ss., acid. carbol. ʒ ss., aq. calcis ʒ viij.; a dusting powder of zinc. oxid. ʒ ss., amyl. maidis ʒ i.; and a paste of zinc. oxid. ʒ ss., amyl. maidis and vaselin. āā ʒ ss. For the cases in which ulcerations have occurred, try at first a wash of hydrarg. chlorid. mit. ʒ ss., aq. calcis ʒ viij. or one of ferri et potass. tartrat. ʒ i., alcohol ʒ i., aquæ ʒ vij., the zinc oxide paste above mentioned, and a powder of nosophen or of ferri subcarb., amyl. maidis, āā ʒ ij. Where there is a broken surface associated with intense pain an ointment containing from five per cent. to ten per cent. of orthoform has proved of benefit. When all remedies have apparently failed to cicatrize a stubborn ulcer we may resort to skin-grafting, to the use of static electrical baths, and to the application of oxygen to the part.

Charles J. White.

DERMATITIS GANGRÆNOSA INFANTUM. See *Varicella Gangrænosa.*

DERMATITIS HERPETIFORMIS.—(Synonyms: Dermatitis multiformis, Dermatite polymorphe douloureuse [Brocq], Pemphigus pruriginosus [Cazenave], Hydroa bulleux [Bazin]; Herpes gestationis [Milton], Hydroa herpetiforme [Tilbury Fox], etc.)

Definition.—A chronic, relapsing dermatitis, marked by successive outbreaks of erythema, papules, vesicles, or bullæ, accompanied by itching and tending to disappear in the course of months.

Symptoms.—The cutaneous eruptions of dermatitis herpetiformis are usually preceded by a feeling of malaise or are ushered in by chills or by fever. The patient soon notices that his body—especially the arms—is mottled with brilliant macules which in a few days develop into irregular, flattened, scarlet papules which in their turn are capped by vesicles. In the course of a few days these vesicles coalesce and become bullæ or remain isolated and soon become ruptured or are infected and become pustules. Associated with these changes, which may require a week for their completion, the patient experiences a feeling of intense pruritus. Each of these lesions may not develop synchronously with its neighbor, and therefore the same individual may present upon his body macules, papules, vesicles, pustules, or bullæ, and, on account of his itching, scratch marks and crusts and later in the disease pigmentation. It is this great variety of lesions occurring at any given moment which has suggested the title of dermatitis multiformis.

Once arrived at its full development the disease may gradually improve and in a few weeks the skin may be restored to its original state, but far more frequently the patient will experience repeated attacks, each one pre-

ceded by the usual prodromes of malaise or of fever and attended by severe itching. As a rule the disease lasts for two or three months, but many cases are observed which persist even for many years.

We have thus far described the so-called typical example, but let us now consider the anomalous case, which, curiously enough, is more commonly seen. Instead of malaise or chills or fever we may have pain, burning, itching, insomnia, dyspnœa, or intense hyperæsthesia as precursors of the disease. From an objective point of view we may note that the disease omits the macular and papular stages and begins with an attack of vesicles with or without a halo of erythema. These vesicles are usually small and flat with irregular outlines and are often grouped, thus suggesting herpes—the condition which Duhring considered most characteristic of the disease. Again, pustules may form as such without passing through the earlier stages, but many authors deny that such a condition is possible and assert that pustules are always secondary to vesicles and are the products of infection. Again, bullæ may be the first outward manifestation of the process, may appear on the mucous membranes, and may reach the size of a twenty-five-cent piece. They are usually unilocular and their serum soon becomes turbid. Again, the disease may assume an urticarial type and appear in circinate forms with or without secondary vesicles. Frequently, as the result of scratching, furuncles, lymphangitis, and adenitis are produced; and lastly, as rarities, we may meet with keratoses of the palms and soles or papillomatous growths about the articular folds of the body. It is doubtful, however, whether these last-named characteristics exist independently, for in the former condition we can never positively exclude the effects of arsenic which has usually been administered, and in the latter we cannot deny that irritation and infection have not produced the hypertrophy.

When a patient has endured the disease for any length of time his body presents a striking appearance. In the severe cases there is hardly a spot upon the whole surface which appears normal. Interspersed among innumerable small pigmented macules appear the acute lesions of the disease, such as papules, vesicles, or bullæ in various stages of development or of retrogression. The patient is apt to be emaciated from loss of sleep, but in other respects the records of the case will show no important deviations from health. Possibly a mild diarrhœa or a slight evening rise of temperature may have existed, but nothing more serious, except in the very severe cases, in which we may have "dyspnœa, endocarditis, bronchitis, angina, pulmonary congestion, or hæmoptysis" (Brocq) to contend with.

Pathology.—The histological changes in dermatitis herpetiformis are mostly those of diapedesis, most accentuated in or near the papillæ. In this region of the corium the vessels are dilated, œdema is present, and the swollen meshes of the connective tissue contain lymphocytes, eosinophiles, and, later, polynuclear leucocytes. The deeper layers of the corium are normal, while in the rete we find a few eosinophiles and some hyperplasia (acanthosis). As the disease progresses and approaches the vesicular or bullous stage, the rete cells are vacuolated, a few polynuclear leucocytes appear, and œdema becomes more marked. In the papillæ similar changes are occurring until finally the two layers separate and the epidermis is raised, forming a liquid chamber containing fibrin, coagulated albumin, and many eosinophiles.

The blood changes are extremely interesting and have been studied especially by Leredde, who claims more than other investigators are willing to admit. Leredde asserts that eosinophilia is constantly present and increases very perceptibly with the appearance of a fresh outbreak of vesicles or bullæ. According to his figures the percentage of eosinophilous cells is generally from eight to fifteen and may run up to from twenty to forty, while the polynuclear leucocytes are reduced to forty or fifty per cent. In a bulla occurring in one of Dr. White's cases in Boston, Cabot found eosinophiles present to the amount of ninety per cent. From the results of these studies Leredde wishes to call this disease hématodermite.

Diagnosis.—Before asserting positively that a patient is afflicted with dermatitis herpetiformis, one must exclude the possibility of erythema multiforme, eczema, pemphigus, dermatitis medicamentosa, impetigo herpetiformis, and possibly urticaria bullosa and hydroa æstivale. Such a differential diagnosis is by no means always simple, and in many cases it is only after careful questioning and a supervision of the case for a sufficient period of time that the physician can be sure that his diagnosis of dermatitis herpetiformis is correct.

Space does not permit, in this résumé of the subject, to go minutely into the details of all these possibly conflicting diseases, but let us remember that if we are consulted by a person who has a dermatitis which presents a multiformity of lesions, among which vesicles and bullæ are especially prominent, and which are accompanied by great pruritus, we must surely consider it probable that we are dealing with a dermatitis herpetiformis. And if the disease has lasted many weeks and is marked by successive outbreaks of grouped vesicles preceded by fever and malaise and followed by intense itching and no other bodily disturbance, then we may feel almost positive of the correctness of our diagnosis.

Treatment.—At all periods of the disease we must try to alleviate the distressing pruritus, and in all probability one of the following prescriptions will prove of benefit: ℞ Zinc. oxid. ʒ ss., acid. carbol. ♏ ss., aq. calcis ʒ viij.; ℞ Pulv. calamin. ʒ ss., acid. carbol. ♏ ss., glycerin. ʒ ij., aquæ ʒ viij.; or ℞ Zinc. oxid. ʒ ss., sulph. præcip. ʒ ss., lanolin. ʒ i.; and internally we may try: ℞ Potass. acetat. ʒ i., aquæ ʒ viij. S. Tablespoonful in water t.i.d., or ℞ Phenacetin, gr. x. t.i.d. We must advise a mild, nourishing diet and forbid all exciting foods and drinks.

When the disease has established itself, internal administration of arsenic, quinine, ergotin, atropine, iron, or strychnine and a mild, supporting diet and rest in bed often afford relief.

Prognosis.—In almost all cases we can assure our patient of an ultimate recovery; but he must prepare himself for many vexatious setbacks and delays. If, however, the patient is old and feeble and the disease has assumed the distinctly chronic phase we must not be too hopeful, for inanition from the effects of the disease and from loss of sleep or intercurrent diseases may carry him off despite our most careful treatment.

Charles J. White.

DERMATITIS, MALIGNANT PAPILLARY; PAGET'S DISEASE.—Definition.—A very chronic, finely papular dermatitis, usually of the female nipple, associated with oozing and crust formation and in course of years degenerating into carcinoma.

Symptoms.—In 1874 Sir James Paget published a description of fifteen cases of the peculiar affection which has since borne his name. The disease may begin with an unusual plugging, with horny concretions, of the follicular openings about the nipple, or it may first appear as a mildly desquamating dermatitis of the areola. This condition is soon followed by a slight oozing with consequent adherent crusting, and this appearance, in turn, yields to exulceration. Thus the disease is fully established, and with a gradually increasing circumference it may remain in this stage for years. It is usually in this stage that the physician first sees his patient and on examination will note the following characteristics: he will find a dermatitis, usually of one breast, very rarely of both, varying in size from the area of the areola to one involving the whole breast with the nipple as its centre; he will find the lesion round or elliptical in shape, with a delicately raised, finely serpiginous border about which may be seen minute vascular twigs; he will be peculiarly struck with the very brilliant redness of the part, which appears as a raw surface covered with minute papules, some of which are tipped with newly formed epithelium, and producing a "copious, clear, yellow,

viscid exudation" which dries and forms crusts; and finally he will recognize, on grasping the lesion between his fingers, a feeling of delicate resistance, as though a piece of cardboard or a thin layer of metal were embedded in the skin.

Connected with these outward signs the patient will complain of pain, which may be neuralgic or lancinating, and when the disease is well advanced pruritus will develop and frequently become annoying, leading to scratching and consequent fissuring of the skin.

The disease will thus progress slowly with gradual destruction and retraction of the nipple, and in the end, which may not be for twenty years, will degenerate into carcinoma, which always begins in the region of the nipple and may remain superficial or may involve the whole organ and surrounding tissues and lead to metastasis. These are the symptoms of Paget's disease, which, as a rule, attacks the female nipple, but it has been observed by Crocker upon the scrotum and by Pick upon the glans penis.

Etiology.—Age plays an important rôle, and, although an example of the disease has been observed in a patient of twenty-eight, the vast majority of cases occur between the ages of forty and sixty years. Sex also proves a deciding factor, as but few cases thus far have been observed in men. As to the actual determining cause of this disease, the pathologists are at present uncertain. In 1889–90, when Wickham and Darier published their excellent monograph (which to-day remains the best we have upon this subject), the theory was accepted that coccidia or psorosperms—a subdivision of the sporozoa—were the undoubted cause. To-day, we must hold our decision in abeyance, awaiting the final settlement of the question as to whether these peculiar bodies are really living parasites or merely strangely degenerated epithelial cells.

Pathology.—The microscopical study of Paget's disease is extremely interesting. Darier and Wickham divide the lesions into three stages:—first, that of hypertrophy; second, that of atrophy; and third, that of cancer.

First Stage.—Here the horny layer is thin and composed of delicate lamellæ, the granular layer is slightly increased in thickness, and the mucous layer appears to be two or three times thicker than normal. This layer contains at the same time, in varying abundance, the peculiar bodies which differ in protoplasm, in shape, and in size from normal epithelium, and are enveloped in a double, highly refractile, hyaline membrane. At times the interpapillary down-growths are composed entirely of these bodies. The derma presents two distinct layers, the upper of which is formed of dense, parallel, straight fibres, which receive faintly the coloring reagents and contain in their interstices fusiform or flattened connective-tissue cells. Unna holds an entirely different conception of this layer and claims that it is all a pure plasmoma. From this region all elastic fibres have disappeared, but the blood and lymph vessels persist as straight, vertical, enlarged tubes, and much inflammation is visible about the sebaceous glands. The lower layer of the derma, including the sweat glands, remains normal in all respects.

The Second Stage.—This is in reality a condition of atrophy, and we find the horny and granular layers completely absent in places and the rete Malphighi either also gone or reduced to two to three layers of cells, which in turn are almost entirely composed of the peculiar psorosperm (?) bodies and extravasated leucocytes. The derma presents the same characteristics as in the first stage.

The Third Stage.—A detailed description of this stage would carry us beyond our limits, but let us only say that the cancer usually makes its first appearance in the surface epithelium, where it assumes the alveolar type, or it may begin in the lactiferous ducts or at times in the breast tissue itself.

It is interesting to note that the so-called coccidia can be demonstrated by scraping gently the surface of the lesion and examining the scales under the microscope after they have been soaked for a few moments in tincture of iodine or in bichromate of potash or in liquor potassæ.

Diagnosis.—There is only one disease to be excluded before making a diagnosis of malignant papillary dermatitis and that is eczema. Eczema of the nipple appears during the child-bearing period, while Paget's disease is most unusual before the age of forty years. In eczema we find a soft area having an ill-defined border and characterized by the presence of vesicles, pustules, œdema, and pruritus, and when the disease has become chronic we find frequent improvements or exacerbations. In Paget's disease none of these characteristics is present and in their stead we see an area that is frequently painful to the touch, is brilliantly red in color, has a granulating surface, yields but rarely to medical treatment, and constantly increases in size through years and years.

Treatment.—Authorities differ in their views in regard to the treatment of Paget's disease. The English believe in mild applications, and, if no improvement ensues after sufficient trial, they advocate thorough extirpation as soon as the diagnosis has been confirmed by the microscope.

The French, on the other hand, try first their mild measures and resort to the knife only when more active means—such as applications of from five- to ten-per-cent. pyrogallic acid, or ten-per-cent. iodoform, or thirty-three-per-cent. chloride of zinc—have failed.

Prognosis.—So far as the life of the individual is concerned the future is comparatively hopeful, for ample warning is given the surgeon to reach a correct diagnosis and to remove the new growth before metastases have been formed. As to the future of the original disease, it is only proper to tell the patient that if she neglects the new tissue change she must inevitably expect to suffer for her rashness.

Charles J. White.

DERMATITIS MEDICAMENTOSA.—By this term—in the strict sense of the word—is meant a congestion or inflammation of the skin resulting from the action of drugs taken into the system through the digestive tract. Those eruptions which result from the direct application of drugs to the cutaneous system constitute the condition known as dermatitis venenata, and these will be discussed in a later article. A true drug eruption is not of common occurrence, and when it is encountered it is usually the result of some idiosyncrasy. It may be due to an acute poisoning following an overdose of the given drug, or it may be the natural sequence of a cumulative action of the drug due to a retarded action of the emunctories. In the idiosyncratic cases the eruption may follow a single small dose of the drug, which may then be regarded as a poison to the individual in question.

As to the nature of the eruption, it varies greatly. By far the most common form is a more or less diffuse erythema or blush, while scarlatinoid and urticarial rashes are by no means infrequent. More rarely will purpuric spots be noted, or bullæ and nodular eruptions, while again pustular dermatitis characterized by true, more or less minute abscess formations, will result from the action of certain drugs, as quinine and potassium iodide. The individual lesion in these cases does not differ materially or even at all from the simple form of the eruption, and is recognized as resulting from the drug action only because of its appearance after the administration of the drug, or because it is present in greater numbers than in the uncomplicated condition or in unusual locations. The theories as to the development of the eruption vary. According to some, they follow a marked vaso-motor action, as in the cases of the erythematous, urticarial, and scarlatinoid rashes. In these cases there must ensue a paralysis of the vaso-motor system either locally or affecting the entire system, when the spinal vaso-motor centre is involved. According to Morrow, the eruption may result from some irritation of the sensory nerves of the gastro-intestinal mucosa. Again, the trophic centres regulating the nutrition of the skin may be the parts primarily affected; but whatever the etiology a peculiar idiosyncrasy undoubtedly exists in many cases.

Proceeding now to a study of the various forms of drug eruption that have been noted, we find the following given in their alphabetic order:

Abscess or Pustular Dermatitis.—Quinine has been found to give rise to single or multiple abscess formation in certain instances, as recorded by Morrow, Neumann, Schuppert, and others.

Bulæ.—A number of drugs will produce a bullous eruption. Thus, very rarely, bromine may so act, as in a case reported by Wigglesworth, the eruption appearing on the trunk and the blebs varying in size from a split pea to the finger tip. Other drugs so acting are aconite (Panas), quinine, chloral, copaiba (Hardy), morphine (Kirn), phosphoric acid (Hasse), cannabis indica (Hyde), and iodine (Fox and Hyde).

Cyanosis.—Blueness of the skin has been frequently noted after the administration of large doses of the coal-tar products, notably antifebrin or compounds of that body, such as monobrom-acetanilid. The skin is anæmic and slaty colored in most of the instances. Examination of the blood in these cases shows it to be of a dark blue color.

Desquamation.—Marked and persistent desquamation has been recorded by Koebner after the use of quinine, and this occurred subsequently to the appearance of an erythematous rash. Moderate desquamation usually follows the erythema produced by quinine ingestion.

Ecthyma.—Bromine has rarely given rise to an ecthymatoid eruption, as recorded by Van Harlingen and Voisin.

Eczema.—Various drugs may produce an eczematous rash, notably anacardium, chrysarobin, borax (Féré and Larrey), potassium bicarbonate, iodoform (Neisser), and rarely bromine (Voisin).

Erythema.—A great variety of drugs have, when ingested in large quantities, given rise to a more or less diffuse erythema. Among these may be mentioned acidum benzoicum, acidum boricum, anacardium, antipyrin, arsenic, acidum salicylicum, belladonna, bromine, chloral hydrate, chrysarobin, copaiba, cubebs, iodoform, morphine, potassium chlorate, stramonium, strychnine, sulphonal, tar, tartarus boraxatus, terebene, tuberculin, and turpentine.

Furuncle.—Small boils or furuncles have been noted after the ingestion of certain drugs, as arsenic, bromine, quinine, and potassium iodide. It is a common manifestation of iodism.

Gangrene.—This rare trophic skin disturbance has been observed after the use of arsenic, ergot, potassium iodide, and quinine (Schuppert).

Herpes.—Salicylic acid may produce an herpetic eruption.

Pigmentation.—A darkening or discoloration of the skin may follow the use of arsenic, acidum picricum, and the silver salts (argyria).

Pityriasis.—A form of pityriasis rubra has occurred from the use of potassium bichromate.

Psoriasis.—Borax and potassium bichromate in individuals so predisposed may produce a psoriatic eruption.

Purpura.—A number of drugs have caused a purpuric eruption, notably salicylic acid, chloral hydrate, chloroform (by inhalation), the iodides, quinine, and sulphonal.

Pustules.—Aconite, arsenic, salicylic acid, bromine, chloral, and iodine have given rise to pustular formations.

Urticaria.—Anacardium, bromine, copaiba, iodine, resin, quinine, salol, and santonin may produce an eruption of urticarial wheals.

Vesiculæ.—Vesiculæ have been noted after the ingestion of many drugs, mainly salicylic acid, aconite, cannabis indica, chloral, copaiba, iodine, morphine, oleum morrhuæ, quinine, and turpentine.

Zoster.—Arsenic may produce an eruption of zoster.

Of all the drugs that may give rise to lesions such as are recorded in the foregoing list, there are but two, the bromides and the iodides, which are common and persistent. These are so well known that a more detailed description at this place will not be necessary. The exanthematous rashes produced by many drugs are purely vaso-motor in origin. All of the various symptoms are prone to occur in clearly defined groups, without any features that would differentiate them from the eruptions resulting from other causes. Their course may be slightly atypical in that there may be an absence of some of the symptoms usually associated with the eruption, or the presence of a symptom not generally noted, but, as a rule, the course and duration conform to the ordinary, and the diagnosis must be made from the history of the case, from the disappearance of the eruption on the withdrawal of the drug, and from its prompt reappearance when the treatment is resumed. The subjective symptoms vary with the eruption. Frequently there is a sensation of burning, tingling, or itching, this often being associated with the peculiar physiological manifestations of the drug. Often no symptoms are present beyond the appearance of the characteristic eruption.

The treatment of drug eruptions consists in the immediate withdrawal of the drug and in the application of some healing substance, as the glycerite of tannin (1 to 3), boric-acid ointment, ichthyol ointment (in lanolin or antiphlogistin), or simple cold cream or vaseline. Antipruritics, as carbolic-acid solution, may give relief, and alkaline diuretics are often useful. In certain cases in which an eruption is feared from the use of a given drug, it is possible so to combine the remedy with other substances as to ward off the unfavorable manifestation. Thus, the mineral acids may be given to prevent the rash which follows the use of pyrogallol and chrysarobin. Liquor potassii arsenitis in small doses, given with potassium iodide or potassium bromide, appears to modify acneiform eruptions. The number of drugs capable of producing a dermatitis venenata is, figuratively speaking, legion, and it is manifestly impossible in an article of this size to enumerate them all. *Emmanuel J. Stout.*

DERMATITIS PAPILLARIS CAPILLITII.—(Synonyms: Dermatitis Papillomatosa Capillitii, Acne-Keloid or Acne Chéloïdienne [Bazin]; Sycosis Capillitii [Rayer]; Sycosis Framboesia [Hebra]; Mycosis Framboesioides or Pian Ruboïde [Alibert].)

Kaposi was the first to describe this affection under the above title. It is regarded as a very rare disease, although the author has had the opportunity of observing five cases in five years, three of which occurred in negroes and two in white individuals. Different opinions exist as to its exact character. Thus Brocq regards it as a form of folliculitis decalvans; Hebra calls it sycosis framboesiformis; Bazin has given it the name acne-keloid; and Alibert has described the process as pian ruboïde. Kaposi looks upon the disease as being entirely independent of syphilis and not originating in the follicles, and he regards it as an idiopathic inflammatory condition, which usually begins on the back of the neck at the lower hairy margin and extends upward toward the vertex.

Symptoms.—The disease first manifests itself in the form of papules, the size of a pin's head, which are isolated at first, but soon become closely crowded and form cicatricial, keloidal, pale or red plaques which are very firm. Later, exceedingly vascular, papillomatous vegetations, consisting of granulation tissue, develop in the occipital region. These growths project from 2 to 3 cm. above the level of the skin, bleed easily, are covered with crusts, and exude an evil smelling secretion. At times abscess formation and destruction of tissue occur. After the process has continued for years the growths are replaced by cicatricial formation, keloidal in character, and pronounced atrophy of the hair follicles results. Bald patches are visible here and there and the hairs are arranged in tufts on the cicatricial tissue—conditions which are characteristic of the affection. The hairs are removed with difficulty; they are brittle, twisted, and tortuous. When the nodules are incised with a scalpel, distinct creaking can be detected and the cut surface shows numerous bleeding points. Small pustules are observed here and there. Slight tenderness and decided pain at

times may be experienced by the patient; these symptoms, however, may be lacking. The disease pursues a very slow course, but continues to progress.

Etiology.—The cause of the affection is unknown. It is said to appear at any time of life and in either sex; the cases observed by the author were all in males, ranging from twenty-two to thirty years of age, three of them being negroes. The situation of the lesions has led some to attribute the occurrence of the disease to irritation from collar or shirt buttons.

Pathology.—According to Kaposi the affection consists in a chronic inflammation of the corium, in consequence of which a free production of connective tissue, of blood-vessels, and of papillary outgrowths from the skin ensues. The pressure of the new connective tissue causes destruction of the sudoriparous and sebaceous glands and atrophy of the hair follicles.

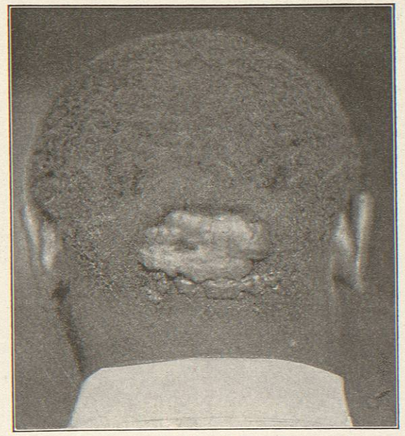

Fig. 1593.—Dermatitis Papillaris Capillitii in a Negro. (Case of Dr. H. W. Stelwagon.)

Diagnosis.—The location of the disease upon the back of the neck, the peculiar hardness of the growths, the presence of hair, arranged in tufts, on sclerosed tissue, are characteristic of the affection. In sycosis the two latter features are not present, and the pustules are penetrated through their centres by a hair; in acne-keloid, however, this is not the case. Verrucæ and papillomata are not so firm to the touch, they pursue a different course, and the keloidal condition is absent.

Prognosis.—The general health does not appear to be influenced by the affection; it is quite rebellious to treatment and prone to recur after removal. The course of the disease is steadily progressive and shows no tendency to spontaneous recovery.

Treatment.—This is quite unsatisfactory. Removal with the knife, curetting, application of caustics or the actual cautery, have all been tried. In two cases, which the author had an opportunity to observe, the disease returned after thorough excision. Kaposi speaks of emplastrum hydrargyri being effective. He advises removal of the papillary and keloidal growths with scissors and knife. The resulting hemorrhage is controlled with cotton tampons and the additional application of silver nitrate, 1 to 1, or the Paquelin cautery. Thorough cauterization of the base is imperative after removal. The galvano-cautery has been employed by Hebra, Jr., who entertains a high opinion of this method of removing the growth.

The author is indebted to Dr. H. W. Stelwagon for the accompanying illustration. *Emmanuel J. Stout.*

DERMATITIS REPENS.—Definition.—A dermatitis, acute in type, chronic in character, arising from a wound of the hands or of the feet, spreading always peripherally and dependent probably upon some nerve disturbance.

Symptoms.—Dermatitis repens was first described by Radcliffe Crocker* in 1888, and in 1896 and in 1897 by Stowers* and by Frèche† respectively, who described conditions which correspond in many ways with Crocker's original cases. Since then no writer, to my knowledge, has added to this small list of cases.

The origin of the disease can almost always be traced to a wound of an extremity—usually the hand. The patient notices that the injury is slow in healing and gradually realizes that the disease is increasing in extent. This slow but persistent spread has been watched from its original seat at the finger tip over the entire hand, up the arm, across the shoulder and down the opposite arm. The original lesion is a vesicle or a bulla which ruptures, leaving a moist, intensely red, exposed base. By an indefinite repetition of this primary process the disease spreads, producing a sodden, raised, and undermined border which leaves in its wake either a moist, oozing, erythematous area or a dry, glistening, pinkish skin devoid of the horny layer.

The progress of the disease is very slow and the rate of spread varies from one-eighth to one-fourth inch a week. The longest duration of the entire process yet recorded is eight months. The health of the patient is not affected and the temperature remains normal. Subjective symptoms are practically wanting.

Etiology.—Our knowledge of the origin and the subsequent progress of this rare condition is at present merely one of conjecture and depends upon no bacteriological or histological investigations. Crocker argues from its manner of growth by peripheral extension only that it is bacterial in origin, and from its chronicity and from its resistance even to the strongest bactericidal chemicals that some disturbance of nutrition favors the progress of the disease.

Pathology.—Unfortunately, dermatology has received thus far no data upon the microscopical conditions associated with this affection.

Diagnosis.—Eczema madidans, a late syphilide, and ringworm are the three conditions to be excluded before committing oneself to the unusual diagnosis of dermatitis repens. The probability of the first disease could be eliminated by the chronic and obstinate continuance of the process, by peripheral extension, by the absence of subjective symptoms, and by the healthy influence of such powerful agents as sulphate of copper, permanganate of potassium, etc. A dry, scaling syphilide could be ruled out probably by therapeutic tests, by the superficial character of the lesion, and by the possibilities of wide-spread extension exhibited by the disease. And lastly, all possibility of the affection being caused by a trichophyton fungus could be dispelled by the aid of the microscope.

Treatment.—The rational treatment suggested by clinical observation consists in the local application of drugs sufficiently powerful to destroy the possible active

* "Diseases of the Skin," 2d edition, p. 180.

* Stowers: Brit. Journ. Dermatology, vol. viii., p. 1.
† Frèche: Annales de Dermatologie et de Syphiligraphie, vol. viii., p. 491.