European. Other peoples hitherto investigated may be classified as follows:

Dolichopellic.—Australians, Bushmen, Hottentots, Kaffirs, many Polynesians, Malays.

Mesatipellic.—Negroes, Tasmanians, New Caledonians, many Melanesians.

Platypellic.—Europeans, Mongolians, East Indians.

This relates to male pelves only, as nowhere do females possess dolichopellic pelves. Anthropoid apes have markedly dolichopellic pelves, much exceeding in this character any human forms. Indeed, as compared with lower animals, the pelvis of man is much broader and of greater capacity. These differences are occasioned by

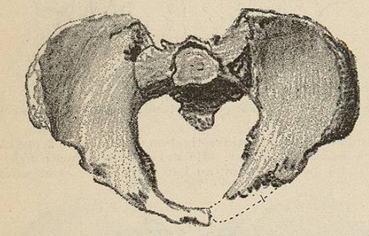

FIG. 3784.—Pelvis of an Individual Belonging to the Stone Age. (Hennig.)

the erect attitude, which necessitates an effective support of the viscera. In some races of men slight peculiarities appear which may be considered to be transitional forms. (See Figs. 3780, 3782, and 3783.) The Veddahs of Ceylon, for example, have pelves in which the inlet is remarkably contracted in front, so that the inlet appears almost wedge-shaped.

Sexual Differences.—From what has been said above it will be seen that the highest and best developed forms of pelvis are not found in the human male but in the female, contrasting markedly with other sexual characters which usually tend toward embryonic or undeveloped forms. This also is a natural result from the erect attitude. In the quadrupedal position comparatively little weight is hung from the pelvic arch, and a marked separation of the bones during parturition does not necessarily impair to any considerable degree the stability of the support of the body. In the erect position, however, so great a weight is thrown upon the arch that no considerable amount of separation is practicable, and there comes to be an antagonism established between the constantly increasing size of the child's head and the diameters of the pelvic straits. The female pelvis therefore becomes comparatively wider, shorter, smoother, and more capacious than that of the male. It has been described as a short segment of a long cone, that of the male being a long segment of a short cone.

The following table, mainly from Waldeyer, gives the principal sexual differences in the articulated pelvis:

Portion.	Male.	Female.
Sacrum	Relatively longer and narrower. Average index 103.5.	Relatively shorter and wider.
Curvature	Generally more marked, uniform.	Usually less; flatter above, more curved below.
Promontory	More prominent	Less prominent.
Coccyx	More frequently has five vertebræ. Co-ossifica earlier, projects forward more.	More frequently has four vertebræ. Synchondroses remain later; projects forward less.
Ilium	Higher, narrower; placed more obliquely, inclination of borders to each other = 53°.	Lower, broader, less obliquely placed; inclination averages 50°.
Crests	Thicker, rougher, more sinuous.	Narrower, less rough, less sinuous.
Portion.	Male.	Female.
Posterior superior spines	Average distance apart 50 mm.	Average distance apart 40 mm.
Fossæ	Deeper	Shallower.
Ischium	Stronger, thicker	Less massive.
Tuberosities	Nearer together, inflexed	Wide apart, everted.
Ischio-pubic rami.	Margins more everted.	Margins less everted.
Pubis	Arch pointed, more angular (70°-70.95°). *Angulus* pubis.	Arch rounded, arch-like (90°-100°). *Arcus* pubis.
Symphysis	Deeper. At birth its width is narrower than or equal to its height (Fehling).	Shallower. At birth its width is greater than its height (Fehling).
Joint cavity	Rare	Frequent.
Spines	Nearer together	Farther apart.
Crests	Shorter	Longer.
Insertions of gracles muscles.	Nearer together	Farther apart (Cleland).
Obturator foramen.	Higher, more oval, obturator canal narrower.	Lower, almost triangular, obturator canal wider.
Acetabula	Nearer together, show less in front.	Wider apart, show more in front.
Great sciatic notch.	Lower, more oval	Higher, more circular.
Distance from body of ischium to posterior inferior iliac spine.	Averages 40 mm	Averages 50 mm. (Cunningham).
True pelvis	Deeper, narrower, more funnel-shaped, capacity less.	Shallower, wider, not markedly funnel-shaped, capacity greater.
Superior strait	More heart-shaped and dolichopellic, transverse diameter less, plane less inclined.	More elliptical (reniform) and platypellic, transverse diameter greater, plane more inclined.
Inferior strait	Narrower	Wider.
Inclination	Less marked	More marked.

Development.—Each of the three or four upper vertebræ which form the sacrum are developed from eight centres, three of which are primary and like those of other vertebræ, namely, one for the body appearing at the fourth to the eighth month, and two for the neural arch. (See Figs. 3785 and 3786.) From these latter grow out the articular and transverse processes. There are also five secondary centres, two for the epiphyseal plates, that from the tenth to the thirteenth year form along the upper and lower surfaces of the body of each vertebra, one for the spinous process, and two situated laterally and representing costal elements. The lower vertebræ usually lack these. In addition, there are formed in the seventeenth or eighteenth year two marginal epiphyses on each side, the upper ones being connected with the auricular facets. The bone is complete from the nineteenth to the twenty-first year.

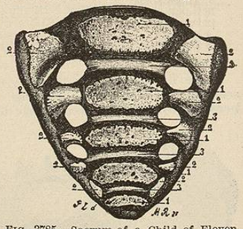

FIG. 3785.—Sacrum of a Child of Eleven Months. 1, 1, Ossific points for bodies; 2, 2, lateral points; 3, 3, intervertebral ligaments.

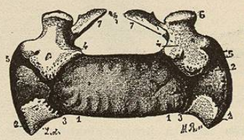

FIG. 3786.—Ossification of First Sacral Vertebra. 1, 1, Body; 2, 2, lateral points; 4, 4, centres for arch.

Each coccygeal vertebra ossifies from a single primary centre, which does not appear until from four to nine years after birth, and there appear later secondary centres representing the upper and lower epiphyseal plates, and in the upper vertebra two additional centres for the cornua. (See Fig. 3787.)

The hip bone is formed from three cartilages that originate separately, the one for the ilium appearing latest. (See Fig. 3788.) Ossification occurs by three primary and nine secondary

FIG. 3787.—Development of the Coccyx. 1, 1, Centres for bodies; 2, 2, articular processes; 3, 5, epiphyses.

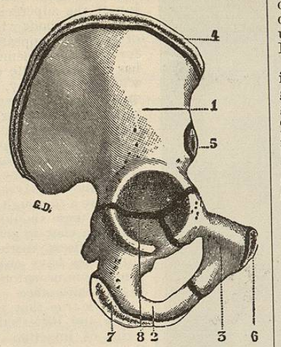

FIG. 3788.—Development of the Hip Bone. (From Testut.) 1, Ilium; 2, ischium; 3, pubis; 4, epiphyseal point for the iliac crest; 5, epiphyseal point for the anterior inferior iliac spine; 6, epiphyseal point at the symphysis pubis; 7, epiphyseal point for the ischium; 8, Y-cartilage uniting the three primitive portions of the hip bone.

centres, the primary ones being first separated in the acetabulum by a Y-shaped piece, the triradiate cartilage. In rare cases an independent centre, the os acetabuli, may remain in the acetabulum ununited. Marks of the original composition remain on the developed bone: (1) at the ilio-pectineal eminence; (2) on the ischio-pubic rami, at the seat of origin of the corpora cavernosa; (3) as a thickened bar extending from the posterior border of the acetabulum to the great sciatic notch. Ossification occurs in the order shown in the following table:

Centres.	Time of appearance.	Time of union.
Primary.		
Ilium	3d to 4th month.	17th to 18th year.
Ischium	4th to 5th month.	17th to 18th year.
Pubis	5th to 7th month.	17th to 18th year.
Secondary.		
Epiphyses acetabuli.		
Between ilium and pubis	12th year	18th year.
Between ilium and ischium	12th year	15th to 16th year.
Between ischium and pubis	12th year	15th to 16th year.
Epiphyses marginales.		
Iliac crest	15th to 16th year.	21st to 25th year.
Symphysis pubis	18th to 20th year.	20th to 21st year.
Tuberosity of ischium	15th to 16th year.	17th to 22d year, female. 21st to 24th year, male.
Anterior inferior spine of ilium	15th to 16th year.	16th to 17th year.
Spine of pubis	18th to 20th year.	20th year.
Spine of ischium	15th to 16th year.	17th to 18th year.

Frank Baker.

PEMPHIGUS.—The word pemphigus does not convey to the mind the idea of a clear-cut disease. The pemphigus diseases have been divided into a number of groups whose only common bond of union is the occurrence of bullæ at some time in their course. Any particular group of bullous affections may differ in every other respect from the other groups. Although these bullous diseases differ widely from one another, yet owing principally to the obscurity of their causes, it has been found difficult to segregate them or to remove any particular group from the conglomerate class of pemphigus diseases, and put it under a distinct heading. Duhring and Brocq have done much to simplify the study of pemphigus by removing altogether from this class the group of cases that Duhring has called dermatitis herpetiformis, and Brocq has called dermatitis polymorpha dolorosa. Brocq, under the term dermatitis polymorpha dolorosa, includes rather more cases than Duhring does under the term dermatitis herpetiformis. Some of Brocq's cases are not herpetiform at all.

PEMPHIGUS NEONATORUM.—Pemphigus neonatorum is an instance of what has been before mentioned of groups of cases being removed from the class of pemphigus diseases and classified under a different head. This disease in future will have to be described under the heading impetigo contagiosa, to which class it really belongs. It is described here for two reasons: first, its name is still a familiar one in medical literature, and, secondly, its most striking symptom, sometimes its sole symptom, is a bleb, leading the observer most naturally to look for its description under the heading pemphigus.

Pemphigus neonatorum is an acute contagious disease characterized by the occurrence, during a limited time, of crops of blebs.

Symptoms.—In otherwise apparently healthy infants of from three to eight days old, blebs suddenly arise. They vary from a pea to a hazelnut in size, or they may be even larger. They are at first tensely filled with clear yellow serum, and are scattered anywhere over the cutaneous surface, and spring from an apparently normal or a reddened skin. After a short time the bullæ become flabby and the contents grow turbid. Then shortly the delicate covering of the bleb gives way, exposing a red weeping surface upon which the epidermis has more or less perfectly formed, according to the time, whether early or late, at which it has broken. The blebs arise, become turbid, burst, and heal in a few days. The duration of the disease is from one to two weeks, in which time it produces several crops of bullæ. This constitutes the whole disease, which usually affects only the skin, and seems but rarely to have an influence on the constitution. It may, however, run a severe course, and cause death in a very short time.

Most of the recorded cases are reported as epidemics in foundling asylums. It is probable, however, that even a larger number occur scattered throughout the community, but are left unnoted. The sporadic cases are usually seen only by the obstetrician or midwife, who, seeing that the general health is not affected, adopts some indifferent treatment under which the patients generally recover.

Diagnosis.—In the hereditary bullous syphilide the bullous eruption is particularly marked on the palms and soles, situations that remain free in pemphigus neonatorum. Besides this, in syphilis the base of the bulla is infiltrated and frequently ulcerated, and the eruption is polymorphous, consisting of papules, pustules, and large erythematous infiltrations. In addition, in syphilis, there are snuffles, mucous patches, and condylomata. In varicella the lesions are vesicles rather than bullæ and are rarely large. In Ritter's disease the erythema, usually beginning near the mouth and spreading over large areas or the whole cutaneous surface, is the principal symptom. The bullæ are subsidiary to this. Besides, in Ritter's disease the connection between the horny layer of the skin and the rete Malpighii is loosened as in pemphigus foliaceus, so that the horny layer either comes away spontaneously or can be taken off in large masses or ribbons by a stroke of the finger. It must be mentioned here that Richter, in a recent and careful study, has concluded that Ritter's disease is not an independent affection at all, but an unusually malignant variety of pemphigus neonatorum.

Pathology.—The opinion is gaining ground that pemphigus neonatorum, some cases of pemphigus febrilis, impetigo contagiosa, and possibly Ritter's disease are identical affections. The pronounced contagiousness of pemphigus neonatorum, its confinement to the very surface of the skin, its frequent lack of constitutional symptoms, its self-limitation, and its duration, all correspond

to what we know of impetigo contagiosa. We know also that impetigo contagiosa, even in adults, may be a bullous disease, and that it is particularly apt to be so in

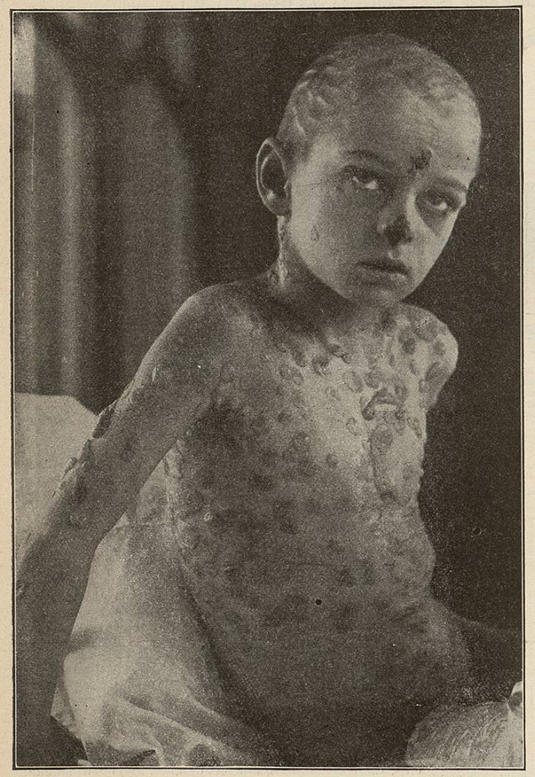

FIG. 3789.—Dr. H. M. Sherman's Case of Acute Pemphigus, Probably Infective, in Full Eruption.*

the tropics. In infants, who are always kept very warm and whose skin is delicate, the tendency to form bullæ, even in temperate climates, is marked. It is also urged in favor of this view that if an infant is infected from an adult who has impetigo contagiosa it gets pemphigus neonatorum, and vice versa if an adult is infected from an infant having pemphigus neonatorum he gets impetigo contagiosa (Matzenauer). Luithlen has shown that the bleb in pemphigus neonatorum is caused by separation of the horny layer from the rete Malpighii. This anatomical finding of the superficial situation of the bleb corresponds with what we know of its clinical appearance and behavior, for it will be remembered that the bleb has a thin delicate covering and heals with great rapidity, and it also corresponds with what we know of the very superficial character of the lesions in impetigo contagiosa.

Treatment.—It has been found that pemphigus neonatorum occurs with noticeable frequency in the practice of uncleanly midwives and nurses, and therefore a thorough personal disinfection of these should be required. It is with a view to getting on the track of such disease carriers that the Berlin authorities have ordered all cases of pemphigus neonatorum to be reported to the health office.

If it be true that pemphigus neonatorum and Ritter's disease are simply forms of impetigo contagiosa, then the parturient woman and the infant should be carefully shielded from this very prevalent disease. Attention is here drawn to the facts that many cases of what are commonly called barber's itch in men and impetiginous eczema in children are really impetigo contagiosa, and that impetigo contagiosa is so frequent, particularly in children, that a skin clinic is scarcely ever without examples of it.

As the infants attacked rarely suffer from constitutional symptoms, and the disease is generally short and self-limited, no internal treatment is required. If, however, constitutional symptoms do arise, such as fever and exhaustion, they must be treated on the principles obtaining in such cases, as no specific treatment is known. As the malady is contagious and is scattered over the entire cutaneous surface, a general cutaneous antiseptic treatment is indicated. The antiseptics chosen, however, must be those that will neither injure the infant's delicate skin nor by absorption cause constitutional symptoms. In regard to absorption, it must be remembered that the thin skin of the infant more readily absorbs medicaments than the stronger, thicker skin of later life. As fulfilling these indications, two antiseptics come to mind: alcohol and boracic acid. Boracic acid may be used in the infant's bath in the proportion of about four ounces to the gallon, and a lotion consisting of a saturated solution of boracic acid in dilute alcohol, may also be used as a rub-down. This solution, by the way, is one of the best to use in any case of pyogenic infection of the skin. It may be readily made by the family in the following way: A bottle is half-filled with alcohol, then nearly filled up with water, and then boracic acid is poured in until some of it remains undissolved in the bottom of the bottle after shaking. The supernatant fluid is of course a saturated solution of boracic acid. When an ointment is necessary or desirable, as on the face or in the flexures, a weak ammoniated mercury ointment is the best; it is made by adding five grains of ammoniated mercury to an ounce of vaseline. When crusting takes

*The instance of acute bullous eruption, the subject of these photographs (Figs. 3789 and 3790), occurred in the practice of Dr. H. M. Sherman of San Francisco. The patient was a boy, seven years of age, who had been operated upon for tuberculosis of the right knee-joint. Subsequently to the operation sinuses formed, discharging a bright green pus. The eruption then appeared behind the ears and on the neck, and spread rapidly over the head, trunk, and extremities, even to the fingers and toes. The eruption consisted of blebs only. The contents of these blebs were clear at the start, and remained clear throughout their entire course, and there was no evidence of any inflammatory reaction of the skin. There was no rise of temperature, nor was there any disturbance of the general health; the eruption disappeared at the end of a few days. No bacteriological examination was made. This was probably an instance of an acute infective pemphigus, the exact nature of which is not known.

place, the crusts must be removed before either lotions or ointments may be expected to be of any use. This is best done by applying boracic acid starch poultices. These are made by adding hot water to ordinary laundry starch while constantly stirring, to make a moderately thick paste. To a large teacupful of the paste a heaping teaspoonful of boracic acid powder is added, and it is then poured into a thin muslin bag and applied.

Acute Febrile Pemphigus.

Acute febrile pemphigus is a very rare disease of which Köbner has formulated the following requirements: After brief prodromes, and after fever has begun to show itself, blebs appear on the previously healthy skin. The fever continues with exacerbations and remissions, and at the same time there are repeated outbreaks of blebs. The blebs are not confined to any particular region of the cutaneous surface, but occur in a scattered manner. After three or four weeks the bullous eruptions subside completely and do not recur. No blebs should appear at a time when no fever is present. It will be observed that the only real point of distinction between pemphigus neonatorum and generalized bullous impetigo of the adult on the one hand and acute febrile pemphigus on the other is a rise of temperature in the latter. Richter, however, has shown that there may be even a severe constitutional disturbance with fever in pemphigus neonatorum, and it is not improbable that in some instances of generalized bullous impetigo there may be fever, so that these three diseases may be identical. There is, however, a still much more severe febrile bullous disease, which has been described by Pernet and Bulloch. Their cases were acute septicæmias; in both instances they occurred in butchers, and followed knife wounds. Probably in the same class are the bullous septicæmias occurring in inflammatory diseases of the umbilical cord, or the bullous septicæmias in the new-born, coincident with septicæmia in the mother. The affection on the skin in such cases may look like an extensive burn with scalding water. These grave bullous diseases seem in many instances to be different from what is understood in speaking of pemphigus neonatorum.

No specific internal treatment has been outlined for pemphigus febrilis. The external treatment would be that advised for pemphigus neonatorum.

Pemphigus Chronicus Vulgaris.

Definition. — Pemphigus chronicus vulgaris is characterized by the appearance of blebs on the skin and also on the mucous membranes. Pemphigus foliaceus and pemphigus vegetans are to be looked upon as varieties of pemphigus chronicus vulgaris. They are worthy, however, on account of their peculiar clinical appearance and course, of a separate description.

Etiology.—The cause of pemphigus is unknown. That it is not merely a local, but a constitutional, disease is shown by the fever that accompanies it, and also by the more or less rapid deterioration in the general health of those afflicted with it. That few blebs on the surface of the body should cause cachexia and death is not to be thought of as a possibility. The blebs are only one symptom of a general constitutional disease. Take, for example, pemphigus vegetans when at times the blebs cease to appear. This temporary cessation of the appearance of the blebs does not seem to retard in the least the general course of the disease.

The occurrence of blebs in diseases of the nervous system, in nerve injuries, and in neural leprosy has led many to think that pemphigus is a disease of the nervous system. These are the only facts, however, that favor this view. That the disease is due to some toxic substance that acts through the nervous system, in some such way as an intoxication with rotten fruit will cause urticaria, is not impossible.

Symptoms.—Pemphigus vulgaris frequently commences with general as well as with cutaneous symptoms. The general symptoms are fever, malaise, gastric disturbance, sleeplessness, and decided nervousness. With these symptoms there appears on the skin a greater or less

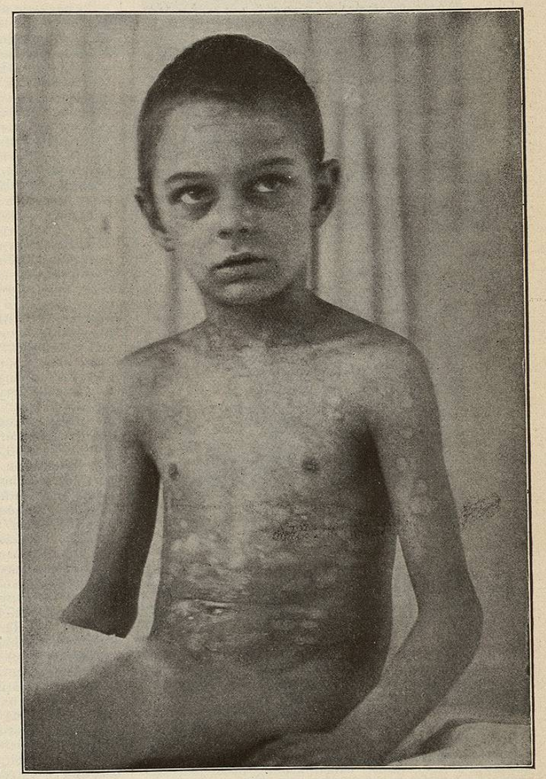

FIG. 3789.—Stage of Convalescence from the Attack of Acute Pemphigus. (Same case as that shown in Fig. 3790.)

number of blebs, which may come in crops, each crop being accompanied by an exacerbation of the constitutional symptoms. The course of the disease may present great variations. In the first place the initial crop of blebs and those following may be accompanied by very little rise of temperature or none at all, or there may be much constitutional disturbance with very little eruption, or the reverse. The outbreak of blebs and the constitutional disturbance may be continuous, reducing the patient's strength very rapidly; or the disease may begin acutely and stormily, gradually linger on for weeks or months, and finally die down altogether, possibly to

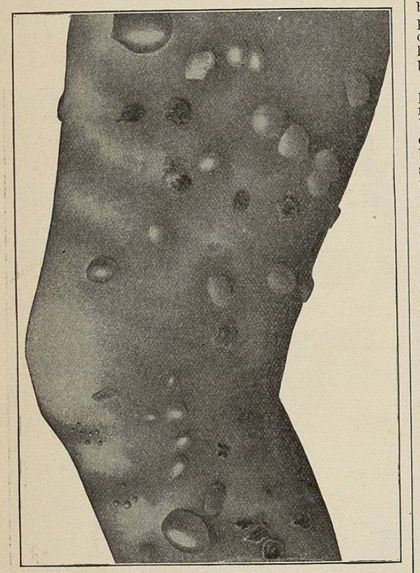

FIG. 3791.—Chronic Pemphigus Vulgaris. In the picture the bullæ can be seen with great distinctness to be full, tense, hemispherical and oval, variable in size and springing from a skin, which is, to all appearances, healthy. In some places there are vestiges of old bullæ that have gone through their evolution: some are broken, others are dried down. There are no evidences of scratching. (From a plate in L. Brocq's article on Pemphigus in "La Pratique Dermatologique" par Ernest Besnier, L. Brocq, and L. Jacquet, t. iii., p. 770. This figure is a reproduction of an aquarelle in Cazenave's collection in the Museum of the Hôpital Saint Louis, and had already been published in the "Leçons sur les maladies de la peau" par Alphée Cazenave, 1856.)

start up again at some future time. The blebs arise either from what appears to be a normal surface or from a reddened spot, and are at first filled with a fluid either as clear as water or of a yellow serous appearance, or red or brown or blue from mixture with blood. In any case this fluid quickly becomes turbid, then purulent. The blebs may be the size of a pea or a hen's egg, or even larger. After a time the blebs either dry down, forming a scab, under which healing takes place, or they may break spontaneously or be broken, leaving a non-infiltrated eroded surface upon which there forms a flat, yellow, brown, or black scab. In due course this scab falls off, leaving a more or less deeply tinted brown pigmented patch, but rarely a scar. At times, after healing, milium bodies, first described by von Bärensprung, are found in the epithelium.

On the mucous membranes the lesions are rarely seen as blebs, because the delicate and moist epithelial layers soon burst, leaving non-infiltrated erosions, which are either red or covered by a yellowish coating. The circular or polycyclic form of these erosions, together with the tatters of epithelium around their borders, show their origin as blebs. On either the skin or the mucous membranes any individual lesion may stop short of forming a bleb or an erosion as the case may be. On the skin such a lesion would be merely an erythematous spot, while on the mucous membranes it would show itself as a whitish-gray epithelial thickening. In pemphigus there may be no eruption whatever on the mucous membranes, or the outburst on the mucous membranes may precede, be simultaneous with, or follow the eruption of blebs on the cutaneous surface. Mosler and Köbner have seen pemphigus of the mouth exist for four years before there was an outbreak on the skin.

As has been said, it is very rare for scarring to follow pemphigus blebs on the skin. It is also rare, but not so rare, for scarring to occur on the mucous membranes. What is equivalent to scarring occurs on the conjunctiva, constituting what has been called essential shrinking, but this will be considered later on. Sometimes the erosions on the mucous membranes, especially of the mouth, ulcerate. Probably these ulcerations are not an essential part of the disease, but adventitious from the increased vulnerability of the eroded surfaces, and also from infection, usually with staphylococci or streptococci. In the same way pemphigus may be accompanied by lymphangitis and adenitis, the broken mucous membrane being the open door for the entrance of bacteria. It is said that ulceration in the cheek pouches may result in so much cicatricial tissue as to interfere with the action of the lower jaw. Pemphigus of the throat may cause hoarseness, suffocation from swelling of the glottis or of the mucous membrane of the larynx, a feeling as if a fish bone had lodged in the throat, or a disagreeable feeling of rawness. In pemphigus of the mouth or throat the interference with mastication and the difficulty or impossibility of swallowing solid food add to the misery and weakness of the patient.

As in pemphigus of the other mucous membranes blebs on the conjunctiva are very seldom seen. It may be that they very rarely form, or that if they form they quickly burst. The pemphigus lesion as seen on the conjunctiva consists of an irregular-shaped membranous exudation of grayish-white or grayish-yellow color. Pemphigus of the conjunctiva is almost always followed by cicatrization. It is not meant by this that every pemphigus lesion on the conjunctiva is followed by scar formation. In fact almost all the lesions here, as on the skin, heal without leaving a scar. It seems necessary to scar formation that a number of pemphigus lesions should occur successively at one place (Michel), and, as this often happens, scar formation frequently results.

The scars may be localized, or they may involve almost the whole of the conjunctiva. If they are thus generalized, the conjunctiva will be turned into a dirty gray or whitened, thickened, cutis-like membrane, with a dull dry surface. This is the condition that has been called "essential shrinking." With much shrinking the entire conjunctival sac may be obliterated, and one or both lids may be entropioned, or drawn tight down on the edge of the cornea. In such cases the cornea itself is diseased from exposure, and from the eyelashes of the entropioned lids sweeping over it. It is white and opaque, and its surface is dull and dry, and covered with scaling epithelial cells. Michel never has seen a bleb of the cornea itself, but he quotes Seggel as having seen one, and Mueller as having seen an ulcer covered with a membranous exudation on the upper border of the cornea and on the neighboring conjunctiva; Pergens has also seen a broken bleb of the cornea in an infant.

Pemphigus of the conjunctiva may exist alone or with pemphigus of other mucous membranes such as the mouth, pharynx, trachea, or bronchi, or with pemphigus of the skin. It is held that a diagnosis of pemphigus,

when the mucous membranes alone are effected, cannot be made. It seems, however, that the clinical picture is clear enough, and that such lesions are pemphigus is shown by the fact that after existing for a longer or shorter time pemphigus of the skin may supervene. Just as there can be a pemphigus of the skin alone without pemphigus of the mucous membranes, so also can there be a pemphigus of the mucous membranes without pemphigus of the skin (Kaposi).

Eosinophilia, either in the blebs or in the blood of the general circulation, seems to have very little value as a symptom.

Diagnosis.—In dermatitis herpetiformis the mucous membranes are not apt to be affected; the lesions on the skin are multiform and consist of erythematous patches, papules, wheals, vesicles, and bullæ; the itching and pain are severe and occur in distinct attacks; and the general health is undisturbed.

In epidermolysis bullosa the disease occurs in families and is hereditary; the bulla occurs when an injury has been received, even a slight pressure, as on the feet and hands, may cause it; and the general health is unimpaired. Colcott Fox has, however, reported a case in which the disease resembled epidermolysis in every particular except that it was not hereditary, and he warns against drawing too fine distinctions between it and pemphigus. In epidermolysis bullosa the nails also frequently grow to be deformed, and the disease is probably something more than a mere over-sensitiveness of the skin to pressure. Another instance showing the intimate relationship between these two diseases is the case reported by Mertens, in which there was pemphigus of the mouth, throat, and conjunctiva. Blebs appeared also on the skin, but only after trauma.

The vesicular and bullous eruptions that sometimes follow trauma and also those that sometimes follow vaccination, and that in either instance may last for years, resemble more closely the type of dermatitis herpetiformis than that of pemphigus. Just where they stand, however, in a classification, has not yet been determined.

Quinine, iodine, bromine, and copaiba may all cause bullous eruptions that have to be differentiated from pemphigus.

The blisters caused by the external application of drugs must also be considered. Sometimes such drugs are applied with the intention of deceiving. The occurrence of the blebs exclusively on the skin in an hysterical person in situations easily reached by the patient may cause suspicion. The wings of the Spanish fly have been found on the blebs.

Hardy mentions the occasional occurrence of blebs on the hands and feet in eczema. I have seen this occur in two separate attacks of eczema in the same patient. Bullæ may also occur in lichen planus (Whitfield). The differentiation would here be made by the presence of the lichen papules and by the itching.

In impetigo contagiosa the eruption, as has been previously mentioned in the section on acute pemphigus, may be bullous even in the adult. This is particularly apt to occur in the tropics. The swift course of the disease, its marked contagiousness, its non-interference with the general health, the very large yellow superficial crusts, and the occurrence of pustules should put one on one's guard.

Prognosis.—Pemphigus is one of the few diseases of the skin in which the life of the patient is threatened.

In such a capricious disease the prognosis is always uncertain. Cases that begin benignly may end malignantly, and vice versa. Nevertheless there are indications that point to a good or bad course of the malady. Luithlen, for instance, divides pemphigus, in regard to prognosis, into two classes of cases. In the first class the blebs appear on erythematous patches, and there is no rise of temperature. In these cases the blebs are situated in the epithelium, and the rete is not raised away from its bed on the papillary layer. The prognosis here is favorable. In the second class of cases the blebs arise on the perfectly sound skin, and their eruption is accompanied by fever and exhaustion. In this class the blebs arise under the rete and lift it completely away from the papillary layer. The prognosis here is always unfavorable.

When the blebs are tense and filled with a clear white or amber-colored fluid this fact is viewed as a favorable sign; while, on the other hand, when the blebs are slackly filled and pus quickly forms, collecting as an hypopyon in the dependent portion of the hanging bag, the outlook is bad.

In pemphigus of the mouth and throat the difficulty or impossibility of swallowing solid food interferes with the patient's nutrition. Independently of this, however, the occurrence of pemphigus of the mucous membranes may be looked upon as an ominous sign. In general, in those cases in which the mucous membranes are affected at the very first or early in the disease, the prognosis is the worst; but no matter at what time in the course of the malady the mucous membranes are affected the symptom is a bad one.

Pemphigus Foliaceus.

That form of pemphigus which is called pemphigus foliaceus has for its chief clinical characteristic the exfoliation of the skin. There may be very few blebs; indeed, when the disease is well under way and the exfoliation is active there may be no blebs at all.

Pemphigus foliaceus may attack either sex, at any age, even in childhood. The disease appears in all countries, and does not seem to depend in any way on climatic influences. It is neither epidemic nor contagious.

It is said that prodromal symptoms are either absent or are not at all well marked, and that when present, they consist in a feeling of general lassitude and a slight rise of temperature. The first symptoms of the disease proper may appear on any part of the skin, or on the mucous membrane of the mouth. The blebs in pemphigus foliaceus, even at first, generally differ from those in ordinary pemphigus. Instead of being large, clear, and bubble-like, they are small, slackly filled, and slushy, with a delicate covering that soon breaks. The blebs often have a reddish tint from the red color of the injected blood-vessels shining through the thin layer of fluid and the very delicate covering of the bleb. The erosion left by the first bleb that appears in a given locality enlarges by undermining of the surrounding epidermis, and, moreover, new blebs form in ever-widening circles about the site of the first, which by this time will probably have healed. But when this healing takes place it does not end the process. It is just at this point that the most prominent characteristic of the disease and the one to which it owes its distinctive title of foliaceus begins. Serous exudation continues to be poured out rather into than under the newly formed, but by no means normally formed, epidermis. This exudate and the epithelial layers into which it is poured form leaflets resembling French pastry; hence Cazenave's epithet foliaceus as applied to this form of pemphigus. The loosening of the attachment between the layers of the epidermis is also a remarkable phenomenon in pemphigus foliaceus, and may be demonstrated by drawing the finger firmly along the apparently sound skin. The top layers of the epidermis will slip off, leaving an excoriation. This slipping of the epidermis is found in other forms of pemphigus, but is particularly well marked in pemphigus foliaceus.

By the spread and coalescence of diseased patches the whole cutaneous surface tends to become involved. This generalization may take place in a few days, or may not be completed before several months have elapsed.

From the above description one can understand that the appearance of the patient will differ widely according to the stage at which the disease is seen. There may be groups of circinate patches of miserably formed bullæ, or there may be circular patches covered with yellow crusts, or the whole skin may be bluish or brownish-red and actively desquamating, with here and there raw patches, but yet with very little weeping. The skin in pemphigus foliaceus is only moderately or not at all thickened.