off of the epidermis. The reaction produced may give some very undesirable results, but when the procedure is carried out with care it is usually of great benefit. The number of applications necessary will vary in each case, and the paste should be discontinued when the epidermis has a seared, yellow look, and exfoliation is imminent; a mild, soothing salve should then be substituted for it. The process may be repeated a number of times, but a milder resorcin paste should be used after the first peeling has occurred. This method, which is rather heroic, necessitating the patient's confinement to the house, is of great value, but necessarily of restricted use, and, the same results being obtainable by milder measures, it should be reserved for obstinate and rebellious cases.

There are a large number of lotions in use for acne, which, together with other ingredients, contain some proportion of sulphur. Of these, there may be mentioned: ℞ Sulphuris sublimati, ʒ ij.; Ætheris, spiritus vini, glycerini, āā ʒ ij.; Aquæ calcis, aquæ rosæ, āā ʒ iv. M. (Crocker). ℞ Sulphuris lactis, ʒ iv.; Tincturæ saponis viridis, ʒ x.; Glycerini, ʒ vi.; Spiritus vini, ʒ i. M. (Elliot). ℞ Sulphuris lactis, ʒ iss.; Glycerini, ʒ i.; Spiritis vini camphorati, ʒ x.; Aquæ rosæ, q.s. M. (Besnier). These various combinations owe their efficacy for the most part to the sulphur they contain, and may be varied according to the physician's wishes. One of the most useful will be found to be: ℞ Zinci sulphatis, potassii sulphuret., āā gr. xv.; Sulphuris lactis, gr. xx.; Aquæ rosæ, ʒ i. M. When made with fresh drugs and properly prepared, this lotion is of very great value. It should be applied at night after the face has been thoroughly washed with soap and water, and allowed to remain all night. If irritation is produced, cold cream can be used during the day. But it is wise, however, to keep up the effect of the treatment even during the day, and for this purpose a lotion of boric acid can be used, or a one- to three-per-cent. solution of resorcin in water, but preferably in alcohol and water, equal parts. A very beneficial lotion is ℞ Acidi borici, gr. xv.; Resorcini, gr. x.; Acidi acetici diluti, ʒ ij; Spiritus vini, ʒ vi. M. Potassium sulphide, ʒ i., in rose water, ʒ iv., is also recommended. The mercuric salt is often of value, but it should never be used in conjunction with sulphur preparations, owing to the probable formation of sulphuret of mercury on the surface. Authors recommend ℞ Hydrargyri bichloridi, gr. xv.; Ammonii chloridi, gr. xxx. to lx.; Alcoholi, ʒ iv.; Aquæ, Oi. M. The formula of the "Oriental Lotion" as given by Hebra is: ℞ Hydrargyri bichloridi, ʒ i.; Aquæ destillati, ʒ iv.; Ovorum iij albumen; Succi citri recentis, ʒ iij.; Sacchari, ʒ i. M. Another formula recommended by the writer is: ℞ Hydrargyri bichloridi, gr. iij. to vi.; Acidi salicylici, gr. xxx.; Acidi acetici diluti, ʒ iss.; Spiritus vini, ʒ iiss. M. When using any of these lotions, it should be remembered that more or less desquamation and peeling of the horny layer takes place, and it is advisable to warn patients of the fact. When this occurs, it is wise to discontinue the application and to use an indifferent salve until the reaction has subsided, and then to begin anew with the lotion.

Ichthyol as an external agent is most valuable in certain cases. It may be used in watery solution—five to fifty per cent.—or it may be added to any of the foregoing formulæ, with the exception of those containing mercuric chloride. The writer has found it of especial benefit in cases in which pustulation was a marked feature; and in full strength or in a fifty-per-cent. dilution it has very commonly served the purpose of aborting a beginning lesion. In those instances of acne in which from time to time one or two papules begin to develop, the ichthyol application, as mentioned, has been a most valuable agent in cutting short the career of such fresh lesions.

In the case of patients in whom there is no complication of a seborrhœa oleosa, but who have a natural dryness of the integument, ointments are especially of use. When indicated, they should be such as possess antiseptic properties, and may contain various remedial agents. Among the many recommended, the Unguenti hydrargyri ammoniati, five to ten per cent., may be mentioned, and also one made with the red or yellow oxide of mercury—three to ten per cent. A ten-per-cent. sulphur ointment may be of value, or the hypochloride of sulphur may be used—ten to fifteen per cent., or the iodide of sulphur—three to ten per cent. At times the following formula will be found a good one: ℞ Unguenti hydrargyri oxidi rubri, ʒ ij.; Unguenti sulphuris (U. S. P.), ʒ iij.; Unguenti aquæ rosæ, q.s. ad ʒ i. M. In ordinary cases the writer would advise: ℞ Acidi borici, gr. x.; Resorcini, gr. x.; Acidi acetici diluti, ʒ iij.; Lanolini, ʒ vi.; Unguenti aquæ rosæ, ʒ ij. M. In addition to these, there may be mentioned calomel ointment, three to ten per cent., β naphthol ointment, five per cent., or one containing dermatol, or oxychlorate of bismuth, etc. In cases characterized by indolence, the Unguentum hydrargyri nitratis, diluted (1 to 8, 1 to 4, or 1 to 2), is of benefit. Chrysarobin, pure carbolic acid, tincture of iodine, have also been used in individual instances with benefit. That is, there is a host of external remedies or "cures" for acne embodied in literature, but when dealing with a case of the disease it should always be kept in mind that each case represents an individual, and whatever line of treatment is instituted it should involve the use of an antiseptic, should be adapted to the peculiarities of each individual patient's skin, and should be adjusted in accordance with the intensity of the lesions existing in each case.

*George T. Elliot.*

**ACNE NECROTICA.**—(Synonyms: Acne frontalis, seu varioliformis; acne pilaris; acne rodens; acne atrophica; folliculitis varioliformis, etc.)

Definition.—A chronic, recurrent, papulo-pustular affection, having its seat about the hair follicles, leading to necrosis of the involved tissues and terminating in a variola-like scar.

Symptomatology.—The site of predilection is the forehead, at the margin of the hair, and it is this fact which gave rise to the name acne frontalis. A wider acquaintance with the affection, however, has shown that it involves other regions. It may extend to the hairy scalp, the face, the neck, and the interscapular and intermammary regions. Cases of more or less generalized eruptions of papulo-pustules terminating in necrosis and scar formation have been described, which present many of the clinical features of this malady.

The primary lesion is generally stated to be a papule which soon becomes encrusted and covers an underlying ulceration. Sabouraud describes the elementary lesion as an umbilicated vesicle always seated about a hair. Within two or three days it attains its full dimensions, about 3 mm. in diameter. Its central portion then sinks below the level of the surrounding integument, becomes harder, encrusted, and gives to the observer the impression that it is mortised into the skin. The color of the crust, at first a yellow or brownish yellow, darkens with age. The lesion may remain in this state for several weeks; exceptionally two or more pustules may become confluent.

On removing the crust or after its spontaneous separation, a red, moist, or dry depression is left which eventually becomes white like the variola scar. Superficial lesions healing with shallow depressions, and deeper ones leading to depressed scars, are generally encountered in every case (Unna).

The presence of lesions in various stages of evolution, with pigmented and non-pigmented scars of older ones, makes up the peculiar clinical picture of the disease.

Pathology and Morbid Anatomy.—It is now generally conceded that acne necrotica is a perifolliculitis probably of locally infectious origin.

Sabouraud insists that the affection demands for its development hair follicles previously infected with his microbacillus of fatty seborrhœa. It is not possible to have acne necrotica, according to this writer, unless these infected follicles are invaded by the yellow staphylococci





which are the essential agents in producing the disease. The infection takes place at the follicular opening, and from this point invades the epidermis in a circular manner, giving rise, as the process increases, to an intense leucocytosis in the papillary and subpapillary dermal regions. The final stage is characterized by a dry necrosis of all the involved tissues.

Sabouraud was unable to differentiate the yellow staphylococcus, which he found in all lesions of acne necrotica, from ordinary Staphylococcus aureus from other sources. The distinct clinical lesion to which it is supposed here to give rise may be due to the previous damage to the follicle by the microbacillus of seborrhœa, to its admixture with this organism, to a change in the virulency of the staphylococcus, or to other causes which we are at present unable to determine.

Micro-organisms had been previously described in these lesions by Touton, Unna, and myself, and others. Touton was not inclined to attribute to them any pathogenic importance. Unna, however, considers the affection due to a mixed infection with a small bacillus and his diplococci of seborrhoic eczema.

In lesions examined by myself, staphylococci were found which are probably identical with those described by Sabouraud.

In substance it may be stated that acne varioliformis (Hebra) is an inflammation of the pilo-sebaceous system, probably microbic in origin, leading to destruction of these organs and the surrounding derma, and that Bazin was correct in naming the disease acne pilaris.

Etiology.—Acne necrotica is essentially a disease of adult life. It is rarely seen before the age of thirty, and may develop late in life. Men are more frequently affected than women.

Some of the older dermatological writers attributed it to syphilis. Although sometimes mistaken for a grouped papulo-pustular syphilide on the forehead or at the sites of acne necrotica, it does not owe its existence to that infection.

Its more frequent occurrence among those in the lower walks of life, and its location in the majority of instances on the forehead, exposed to the pressure of unclean hat bands, lend weight to the theory of local infection. A pre-existing fatty seborrhœa is, according to Sabouraud, an absolutely essential condition for the development of an acne necrotica by affording a *locus minoris resistentiæ*, and determining the clinical features of the eruption.

Diagnosis.—The absence of comedones and the sites affected, together with the depressed encrusted lesions, intermingled with white and pigmented scars, easily enables one to differentiate this variety of folliculitis from acne vulgaris. Its differential diagnosis from a papulo-pustular or a grouped pustulo-tubercular syphilide is more difficult. The history of frequent recurrences extending over months or years, which patients with acne necrotica give us, together with the absence of concomitant manifestations of syphilis, should enable one to separate the two diseases. Syphilis again shows no predilection for the hairy parts of the face which the former affection does in a striking manner.

Other varieties of pustular affections of the follicles do not give rise to the peculiar and rapid tissue necrosis with its resulting variola-like scar. It is questionable whether the generalized eruption of papulo-pustules resulting in scar formation like that of acne necrotica of the face should be included with this disease in a single group.

This disseminated eruption, to which various names have been given, as hydradenitis suppurativa, acnitis, necrotizing granuloma, etc., frequently begins as a deep-seated papule about the coil glands or in the connective tissue of the derma independently of the glandular structures. While the two diseases present many similar clinical features, it is quite probable that they depend on different infectious agents. Boeck claims for the generalized eruption a close relationship with lupus erythematosus, and believes that both affections are due to the toxic products of the tubercle bacillus absorbed from a focus in some part of the body.

Prognosis.—It is not difficult to cure a single attack of the eruption, but recurrences are the rule, and we have no certain means of preventing them or of limiting their frequency.

Treatment.—The various internal remedies recommended by dermatological writers have probably no value in curing the attacks or preventing relapses.

The lesions are quite readily healed by ointments containing sulphur, resorcin, β naphthol, salicylic acid, ammoniated mercury, or calomel. These drugs may be used in the strength of two to five per cent. or stronger.

Careful attention should be paid to the hygiene of the scalp and to personal cleanliness, as the agent producing the infection is probably widely scattered.

The scalp should be frequently washed with the ordinary tincture of green soap, followed by lotions containing bichloride of mercury, 1:1,000, to insure its disinfection. Resorcin lotions (two to ten per cent. in alcohol and water, equal parts), with the occasional use of sulphur or salicylic acid ointment, may be used alternately with the bichloride lotion. It is only by the persistent use of local antiseptic applications, not only to the eruption itself, but to the surrounding skin, that we may hope to prevent or delay relapses.

*J. A. Fordyce.*

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**ACNE ROSACEA.**—(Synonyms: Acne erythematosa; gutta rosacea; acné rosée; Couperose; Kupfernase; etc.)

Definition.—Acne rosacea represents not one disease, but a rosacea with a superimposed acne. Rosacea is a congestive disturbance affecting the nose and portions of the face, transitory at first, but afterward becoming permanent, and represented by redness, dilatation of the cutaneous blood-vessels, the formation of a telangiectasis, and in some instances by more or less hypertrophy of the connective tissue and the glandular elements of the skin. The acne lesions developing in the course of the process are secondary products, and are expressions of an inflammatory process affecting the sebaceous glands.

Symptomatology.—Rosacea attacks especially the nose and the neighboring portions of the cheeks, though it may extend laterally to the malar prominences, or even implicate the forehead and the chin, and in some cases the entire face, with the exception of the orbital spaces. The symptoms characterizing the process vary in degree and in intensity according to the stage and the grade of the affection. In the earlier stages, there is only more or less marked hyperæmia or congestion of the nose and cheeks, occurring after eating or drinking, or after exposure to cold, or at the time of menstruation. The symptoms are usually transitory, and, remaining in existence for a short space of time, disappear without leaving a trace. The patients generally complain that there is at the time a sensation of heat or of burning, but yet the skin itself is cold to the touch. This recurrent congestion may take place for a variable length of time, alternating with a return to normal conditions; but sooner or later the hyperæmia occurs more often and apparently without cause or inducement, and gradually the redness becomes a stable and permanent fact, varying only in degree from time to time. The congestive disturbance, when permanent, is diffuse and sluggish in character, without definite outlines, and the redness returns only slowly after pressure. At times, however, it may be active and may simulate an erysipelas or acute dermatitis. When exposed to the cold, the affected surfaces are liable to become bluish and cyanotic in appearance.

The stage of permanent congestion may persist for a

variable length of time without any further change occurring in the skin. But sooner or later there develops upon the nose and other surfaces a condition of telangiectasia, represented by fine, tortuous, dilated blood-vessels. These vary in size, being usually more prominent and larger on the alæ nasi, and they sometimes present in their course distinct varicosities. The telangiectatic condition may be slight or severe, and in some cases attains such a height that the entire nose and cheeks are covered with distinctly evident tortuous vascular dilatations, varying in color from bright red to purplish red, according to the temperature and the somatic condition of the affected individual.

The process, as a rule, does not progress beyond this stage, but occasionally and after long existence, a fibroid degeneration of the surface attacked takes place. It is the nose, however, which, as a rule, is the seat of this change, the other portions of the face being affected only to a slight degree and moderately thickened. The nose under these conditions becomes hypertrophied as a whole, and on portions of its superficies there may in addition arise lobulated or pedunculated, firm growths of various size, which sometimes attain enormous development (rhinophyma).

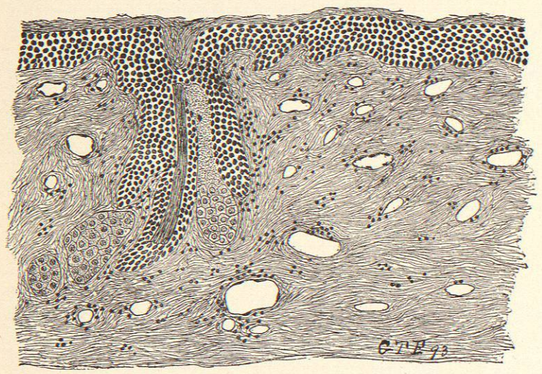

Fig. 16.—Acne Rosacea, Showing Dilated Blood-Vessels. (Author's drawing.)

In all of the stages of rosacea a seborrhœa oleosa generally coexists. The affected surface is greasy, the orifices of the sebaceous glands are dilated, and minute drops of oil can be seen exuding from them after the flushing has subsided, and even independently of the hyperæmia. When the congestion has become permanent, these orifices may be so excessively dilated that the skin has a sieve-like appearance, but it is in the hypertrophic form of rosacea that the greatest degree of dilatation is found. In other cases, the affected surface is scaly and dry or covered with small, thin, yellowish scales, or with larger greasy, soft crusts. The patients complain of itching and burning, and these symptoms are invariably associated with a yellow, scaly discoloration of the interpalpebral space and with a certain grade of what is generally called pityriasis, or seborrhœa sicca capitis. The clinical picture presented by these cases is quite distinct from that of the others described and represents a complication of rosacea and dermatitis seborrhoica. In fact, the presence of the latter process alone may and frequently does lead to the same congestive and hyperæmic objective appearances as originate from other and different internal causes.

A further and very common complication of a rosacea is acne, which, in the majority of cases, sooner or later arises on the congested surface. It is when the two processes are combined that an acne rosacea may be said to exist. The lesions may be either of the superficial (simplex) variety or of the deeper (indurata), or both may be present. They will be found on the nose and cheeks, singly or very numerous, and occurring in numbers on the nose, in which organ they frequently cause considerable deformity and also very marked pain. In themselves, the lesions differ in no wise from those others which occur independently of rosacea.

The course of the process is always a slow one, and, having developed, it persists in varying degree for an indefinite period of time, or until its inducing cause or causes have been removed by appropriate care or treatment Slight subsidences of the congestive disturbance and of the acne lesions are generally seen to alternate with exacerbations.

Pathology and Morbid Anatomy.—Rosacea is primarily a vasomotor neurosis, resulting in retardation of the circulation in the superficial capillary plexus. Although at first transitory, this paretic condition of the blood-vessels becomes, through frequent repetition, somewhat fixed. In consequence the congestive redness becomes permanently established, and the telangiectases and varicosities gradually become evident. The implication of the blood-vessels is not limited to the superficial ones, but may extend to the deeper plexus, and so all the vessels throughout the skin may be affected. In consequence of the congestion, the sebaceous glands are influenced and the seborrhœa oleosa arises. The acne lesions owe their origin to the resulting debased nutrition of the skin. In some cases new connective tissue forms about the blood-vessels and the follicles, thus producing a thickening of the corium and causing ultimately either the hypertrophic form of the disease, or, in very severe cases, rhinophyma. On the other hand, one form of the hypertrophic stage is attributed to an increase in size of the sebaceous follicles.

The histological anatomy of the first stage of rosacea has been found by the writer to be represented by a dilatation of the blood-vessels in the upper portion of the cutis and by a few collections of round cells about them. In the second stage, there was an increase in degree in these features, many dilated vessels having thin walls, and large lumina being found widely distributed throughout the corium, which was also slightly thickened and œdematous. In the third stage (rhinophyma), marked hyperplasia of the connective-tissue elements of the skin had taken place, and the sebaceous glands were also somewhat enlarged. The blood-vessels were large and tortuous and their coats were thickened. Substantially the same changes have been found by others, but Unna also ascribes the formation of the growths in some cases to an enlargement and multiplication of the sebaceous glands, which thus constitute the major part of the rhinophymatous change. In other cases he states that the connective-tissue hypertrophy predominates, though the glandular change may also be a prominent feature. The investigations of Hans Hebra led to practically the same conclusions. The histopathology of the acne lesions occurring in connection with rosacea does not differ from that of the same efflorescences which arise independently.

Etiology.—Rosacea develops more frequently in women than in men, and while occurring especially after the age of thirty and in older people, yet it also is





not infrequently seen in younger persons. It arises in women very commonly in association with puberty, with menstrual and utero-ovarian irritation, and especially at the menopause. It also is liable to appear during pregnancy, in sterile women, and very frequently among those others who come in the category of old maids. In both sexes, disorders of the gastro-intestinal canal are potent factors in the production of the congestive disturbance, and in individual cases there will therefore be found such disturbances as constipation, gastric or intestinal indigestion, fermentative processes, etc. Anæmia is often the basis of the cutaneous disease, and so also is plethora. The gouty and rheumatic diatheses are prone to favor the development of the disease both directly and through those functional and other disturbances which are so liable to occur in those who are subjects of these constitutional conditions. Sedentary habits strongly predispose to the process, and hence rosacea and its accompanying feature, acne, very commonly affect seamstresses, sewing girls, and others obliged by their occupation to forego outdoor or physical exercise. In connection, however, with their confining occupations, it should also be mentioned that these same individuals are usually subjects of functional bodily disturbances, due to their diet and poor hygiene. The morphine habit has been claimed to produce the disease, and it has also been attributed to various intranasal processes, such as atrophic and hypertrophic rhinitis, chronic catarrhal inflammations of various degrees, and sycosis of the vibrissæ. Seborrhoic dermatitis is claimed by Unna to be a most important cause of rosacea in women. It would be more correct, however, to regard its effects when located on the nose as in the line of producing a redness similar to rosacea, through the inflammatory congestion incident to its presence, than to claim that it causes that latter disease itself. Exposure to cold and bad weather is an external factor in the etiology of the process. The writer has seen sunburn determine its existence, and in a number of cases a slight chilblain condition of the nose led to objective symptoms simulating accurately a mild rosacea. Face steaming, use of very hot water, continual exposure to the heat of a fire—all enter into this category. The effect of diet and abuse of spirituous liquors is generally very well known. The articles of diet which are injurious are practically the same as have been mentioned for acne, and their effects are not so much in themselves, as in the gastro-intestinal and other disturbances which they may bring about. When used in excess, all liquors may lead to the development of a rosacea, but the most pernicious are fermented drinks, such as ale, beer, porter, and also sweet wines and liquors, port, etc. Tea, when improperly used, may have a similar influence, owing to the injurious effect of the tannin on the gastro-intestinal canal. The influence of smoking in itself is certainly remote, though it possibly may indirectly operate through the production of a catarrhal or other intranasal irritation. In many cases, however, no definite etiological cause can be discovered.

Diagnosis.—The diagnosis of rosacea will be obtained from the history of its development, as well as from the clinical symptoms presented by it. As the disease occupies, as a rule, the nose and neighboring portions of the cheeks, it will be found that the persistent redness was preceded by intermittent flushing, and was followed by superficial capillary dilatation and the formation of telangiectases and varicosities. Lupus erythematosus, which commonly occupies the same surfaces, may be differentiated from a rosacea by the distinct delimitation of the patches constituting it. The outlines, though irregular, are sharply defined, the edges are usually elevated and enclose a scaly area. The patches tend to enlarge by peripheral extension, and as a rule atrophic changes occur over the affected area.

Erythematous eczema should also be differentiated from rosacea. Its occurrence is not limited, however, to the same localities, but it appears anywhere on the face, or neck, or other surface. It appears bruskly as an acute process, which in time may become chronic in character. The affected portions are somewhat swollen from serous exudation; they are scaly and rough to the touch, or have a glazed, varnished appearance, and there is much burning and itching. When syphilis exists on the nose, either in the form of the papulo-pustular-grouped syphilide or when there are cutaneous gummata, errors in diagnosis are not only possible, but are not infrequent. If attention, however, is paid to the history of the development of the redness and of the lesions discretely located or aggregated together in groups upon it; if it is noted that beneath the crusts distinct ulceration with subsequent scarring occurs, and that there is a tendency as regards the gummatous lesions to serpiginous extension with consecutive cicatrization, then the diagnostic difficulty should give no trouble.

The term erysipelas is used very loosely both by medical men and by patients, and it is a most common fact to hear the latter complain of an erysipelas, which in reality is a rosacea of several months' or years' standing. They often state that their diagnosis was that made by their physician. It should, however, be remembered that, though erysipelas does frequently affect the nose primarily, yet it is an acute process, begins with slight or marked chills, and is accompanied by elevation of temperature and such other somatic disturbances as are never associated with a rosacea.

Prognosis.—The prognosis of this cutaneous affection will depend to a great extent upon the possibility of removing its inducing cause or causes in any given case and upon the ability to prevent their recurrence. An entire and absolute cure is obtainable and can be effected, or if not this much, at any rate a most decided amelioration of the symptoms.

Treatment.—In the treatment of rosacea or acne rosacea, very much the same procedures are called for as have been detailed for acne simplex and acne indurata. The cases require both internal and external care, the former being such as will remove or modify that defect in functional or physical health which may be found in the case under consideration at the time, and the latter being such as will bring back tone and vasomotor control to the paretic blood-vessels, or will destroy them, or, in the severest grades of the disease, will remove the disfiguring growths which have arisen. In general it may be said that all internal medication should be such as will correct the existing constipation or gastro-intestinal disturbance present in the case. If uterine or ovarian irritation exists, it should be attended to; and also gout, rheumatism, and lithæmic conditions should receive proper attention. Anæmia or plethora, the tuberculous diathesis, and every other factor should be properly estimated and seen to, and all matters pertaining to errors of diet should be diligently investigated. As a rule, cheese, oatmeal, sweets, pastries, nuts, fermentable articles, and such as are highly seasoned, stimulating, and liable to tax the digestive powers, should be forbidden. Beer and alcohol and all sweet beverages should be stopped, though a light claret with water or a dry Moselle wine may be allowed at meals. Coffee without milk is perfectly allowable, but tea should be cut off, unless it is very weak and freshly made. With these exceptions, the diet should be of a simple, easily digested, and nutritious character. The needs and digestive capabilities of each patient should be studied, and the food taken should be such as is found appropriate.

So far as drugs are concerned, it may be stated that in many of the cases in which the process is in its inception, in which the redness has not become persistent, but is represented by periods of flushing and of retrogression, the mineral acids are particularly useful. Especially is this the case with the dilute nitric, muriatic, or nitro-muriatic acid. Another class, however, may require alkaline remedies and diuretics, the citrate and acetate of potash, or some of the more recent ones, uricedin, urotropein, aspirin, etc., or it may be saline purgatives that are called for. By means of these it is possible, in the early cases, to divert the blood current from the face to

some other part of the body. When the congestive disturbance of the nose and face has become a stable fact, then a very useful remedy is ichthyol. Beginning with doses of gr. v., it should be increased until gr. xv. are taken t.i.d. It may be given in pill or capsule form, or simply diluted with water or coffee. Tolerance to its peculiar taste is quickly established, and only rarely have I found the remedy to be objectionable or distressing to the patient. Besides these particular remedies—and they should be given in conjunction with those others demanded by the necessities of the individual case—ergot and ergotin have been recommended, as well as belladonna, digitalis, quinine, cod-liver oil, etc. But all of these are intended to meet indications furnished by certain cases, and should not be regarded as of general or extended value. Arsenic may be said to be always injurious in rosacea. The local treatment is of the utmost importance, and some, if not many, instances of the disease may be relieved by it alone. In acute cases, characterized by active hyperæmia and burning, soothing applications are to be used. The magnesium carbonate and zinc oxide, or the calamine and zinc lotion referred to in the article on *Acne*, is indicated; or a lotion of ℞ Bismuthi subnitratis, gr. xxx.; Bismuthi oxychloratis, gr. xl.; Magnesiæ carbonatis, gr. xx.; Aquæ rosæ, ʒ i. M. et S., or the Liquor sodæ chlorinatæ diluted 1:20, or less, or more, may be applied. A very thin boiled starch poultice is frequently of great value, as is also the official Liquor calcis.

The majority of the cases of rosacea coming under treatment are, however, of the chronic type, have passed beyond the primary stage, and require a very different order of local treatment—one which is stimulating in its effects and which is intended to improve the vasomotor tone of the paretic vessels. For this purpose, stronger applications than are needed in acne in general are called for, and for this purpose a stiff paste is often useful—℞ Resorcin, gr. l. to cl.; Kaolin, Zinci oxidi, ää ʒ ij.; Unguent. aquæ rosæ, ʒ i. M. In place of the resorcin, ichthyol may be substituted in the strength of ten to fifty per cent., or the ichthyol may be used pure. The pastes are applied every night until a decided reaction has been produced and the horny layer has a glazed appearance and is beginning to exfoliate. The paste used should then be replaced by a mild, soothing ointment, ℞ Acidi salicylici, gr. x.; Zinci oxidi, ℈ ij.; Unguent. aquæ rosæ, ʒ i. M., or any other similar salve. When the exfoliation has ceased, the surface will be found much improved in all probability, and the same paste, or a weaker one, may again be applied and the same course followed. This procedure may be kept up until all the redness has disappeared, or toward the end the lotion given under *Acne*—℞ Zinci sulphatis, Potassii sulphidi, ää ʒ ss.; Sulphuris lactis, ʒ i.; Aquæ rosæ, ʒ i. M.—may be applied. To obtain the same result, caustic potash solutions (two to ten per cent.) have been recommended, or vigorous washing with green soap. Likewise Vleminckx's solution in full strength or diluted one-half, or even weaker, is at times of benefit. Chrysarobin has been advised and used, but the danger of conjunctivitis from its application on the face renders it of doubtful service. When seborrhoic dermatitis is the cause of the rosacea, resorcin and sulphur are particularly called for. They may be used either in ointment form or in water, or in alcohol and water, equal parts.

The acne lesions which may be coincident with the rosacea do not require any special treatment, but the telangiectasia and dilated blood-vessels remaining after subsidence of the congestive disturbance have to be dealt with. They may be destroyed by multiple scarification, care being taken to split the vessel longitudinally with a fine-pointed knife and then to make transverse incisions. It has been recommended to touch the open vessel along its length with nitrate of silver, but that usually leaves a scar as a result. Iodine and pure carbolic acid have also been advised, but when the scarification has been properly done, none of these measures is necessary. Excellent results are obtained from electrolysis, and also from the use of the thermocautery. As regards the former, the needle used for electrolytic destruction of superfluous hair is all that is necessary. The needle attached to the negative pole of a galvanic battery should penetrate the vessel before the circuit is closed—that is, before the electric current is turned on. The positive pole—sponge moistened with water or salt solution—is grasped by the patients after the needle has been introduced into the vessel. The procedure is very painful and requires much time, and scarring is very liable to result. The thermocautery acts on the same principle, but it is neither as painful nor as liable to cause scars. A needle point should be used, such as is furnished with the Mikrobrenner introduced into practice by Unna of Hamburg. Much the same result may, however, be obtained if an ordinary sewing needle grasped by a needle holder be heated in an alcohol flame and made use of to puncture the dilated blood-vessels in their course. The method is simple, and I have found it absolutely as efficacious as the more showy and impressive ones previously mentioned.

When the case is one of hypertrophic rosacea, in which the development of connective-tissue growths in greater or lesser degree has occurred, surgical interference is called for. Ablation of the excrescences is necessary and may be done with the knife or the galvanocautery. Electrolysis has been recommended, but is of uncertain value, if not entirely without result.

*George T. Elliot.*

**ACOIN** (Di-para-anisyl-mono-phenetyl-guanidine-chlorhydrate).—Introduced in 1899 by Trolldenier as a local anæsthetic, it has been found to have an action similar to that of cocaine but without systemic effects. Its anæsthesia is more rapid and of longer duration than that of cocaine, and is increased by the addition of a little of the latter. Trolldenier's original solution consisted of 1 part of acoin in 1,000 parts of normal salt solution. Darier recommends acoin, gr. i., cocaine, gr. ii., dissolved in 100 minims of 0.8 per cent. sodium chloride solution. Dropped into the eye, acoin has practically the same effect as cocaine, but when injected into the subconjunctival or subcutaneous tissues there is none of the intense burning sensation which cocaine may produce. In strong solution acoin is caustic.

*W. A. Bastedo.*

**ACONITE.** ACONITUM.—(*Monkshood, Wolfsbane.*) "The tuber of *Aconitum Napellus* L. (fam. *Ranunculaceæ*)" (U. S. P.).

*Aconitum* L. is a genus of some sixty species, distributed almost throughout the Northern hemisphere. Many of the species resemble one another so closely that even from the examination of complete specimens, with flower and fruit, botanists have reached the most diverse conclusions regarding their identity or distinctness. It is therefore not remarkable that the detached medicinal portions should be found difficult of differentiation, or that various species should have been found mixed in commerce. As the chemical and medicinal properties of the different species vary greatly in degree, the tubers of at least one species being used for food, these mixtures become serious in the case of such an important drug. Of late, much more care has been exercised than formerly, so that this adulteration, intentional or accidental, has become infrequent. Partly because of this element, and partly because experiment has proven the activity of the drug to increase under cultivation, the British Pharmacopœia now requires that only the cultivated English tuber shall be supplied. It is also cultivated in various continental localities. These cultivated products are much more expensive than the ordinary drug, but their specification appears fully justified, except when a standardized drug or preparation (see Composition) is employed.

The official species occurs abundantly in the mountainous districts of Central Europe and Asia, extending up the mountain sides to a very high elevation, as well as deep into the valleys. The plant is cultivated as an ornamental flower in the United States, where occasionally it escapes. The tubers used in medicine are chiefly collected in Europe.





Since the herb, although unofficial, is much used in medicine, the entire plant is here described. The simple, stiff, upright stem of aconite rises from 50 to 100 cm. (20 to 40 inches) from the ground, bearing numerous alternate leaves, and a long, close, terminal, spike-like, raceme.

FIG. 17.—*Aconitum Napellus* L.

The leaves (*Folia Aconiti*, B. P.) are sub-rotund, from 5 to 20 cm. in diameter (2 to 8 inches), rather stiff and thick, smooth, shining, and dark green above and paler below. The blade is palmately three-parted; the lateral segments are again divided nearly to the base. The narrowly wedge-shaped divisions are further three or two lobed, and these lobes are again incised, or cleft, with linear and pointed tips. The leaves become less compound toward the upper part of the stem, and are finally reduced to three or several cleft bracts. They have no marked odor, but upon being chewed produce, like the tuber, a persistent stinging sensation in the mouth. They are poisonous and contain a small and uncertain amount of *aconitine* and considerable *aconitic acid*, the latter of no therapeutic importance. The flowers are of striking appearance; the corolla is nearly wanting, and its place is taken by a large colored calyx, of which the upper sepal is developed into a deep cup-shaped helmet, that sits upon the rest of the flower like a bonnet (Fig. 18). The pistils are three, containing numerous small ovules.

The mature tuber gives the specific name to the plant (*napellus*, a little turnip). It is a simple, conical, tapering tuber, ending in a long, slender, cylindrical tap-root, and bearing numerous rootlets upon its sides (see Fig. 19). From its scaly crown arises the flowering stem, and at the base of this stem a short stolon extends horizontally under the ground, and bears on its extremity a young tuber, more or less developed according to the season, and destined to produce the plant of the succeeding year. There may also remain upon the other side of the crown a similar but dead connection between the present tuber and the remains of that of the preceding year. This habit of growth well enables us to determine the season when the tuber was collected. When it shall become positively determined at what season it is most active, this knowledge will doubtless prove of the greatest value to us.

FIG. 18.—Entire Flower of *Aconitum Napellus*.

Fresh *aconite tuber* is brown externally, white within, and has a biting, benumbing "taste," which has caused it to be occasionally stupidly mistaken for horseradish.

The *dried tuber*, which constitutes the usual drug (*Aconitum*, U. S. P.; *Aconiti Radix*, B. P.; *Tubera Aconiti*, P. G.; *Racine D'aconit napel*, Codex Med., etc.), is from 1 to 2 cm. in diameter at the base, and from 5 to 7 cm. in length (two-fifths to four-fifths inch, by 2 to 3 inches); much shrivelled and wrinkled longitudinally, especially below; often curved and twisted, or broken. The external color is dark brown; internally it is grayish, showing, in a transverse section, a distinct, five to eight pointed stellate cambium ring, in each angle of which is a well-developed fibro-vascular bundle. Frequently the tubers are attached in pairs; when not, the scar where they were broken apart can be seen. The taste is similar to that of the fresh root, but the stinging sensation may be a little delayed.

Aconite, even when coming solely from *Aconitum Napellus*, is very variable in quality and often poor. The age of the root has much to do with this. Grown in different countries, or under varying circumstances, it is subject to considerable variation in quality.

COMPOSITION.—Its active constituent is the alkaloid *Aconitine*, described below. The determination of its percentage, which is very irregular, therefore constitutes a perfect method of estimating its quality. Owing to difficulties in its extraction, this determination has in the past not been found practicable, but it is altogether probable that such a method of assay will be incorporated into the forthcoming edition of the Pharmacopœia. It has also been proposed to determine the presence of the normal percentage of alkaloid by securing the tingling effect upon the tongue and lips by the use of a solution of a specific degree of dilution; but the personal equation is so great, and the effects of training so important, that this method has not found favor. The total alkaloidal contents should be about seven one-hundredths of one per cent. Besides the alkaloid, a large amount of aconitic acid, combined with calcium, is present. Resin and slight amounts of fat and sugar are also found.

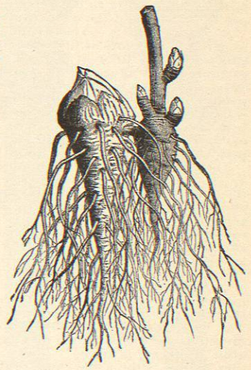

FIG. 19.—Tubers and Roots of *Aconitum Napellus* L.

The aconites were known to the ancients, both in Europe and Asia, as poisons, and are said to be still used by some of the hill tribes of India to envenom their arrows. They were employed as medicines in Germany in the twelfth, and on the islands of Great Britain in the thirteenth centuries, but afterward fell into disuse until 1762, when Stoerck, of Vienna, again introduced them to the medical profession, since which time they have been constantly used.

PHYSIOLOGICAL ACTION.—There is nothing in the composition of aconite which materially modifies the action of the aconitine.

*Primary Effects.*—It sharply stimulates certain of the nerve endings on coming into contact with them, as well as certain of the encephalic centres. These effects upon the nerve endings are evidenced by a tingling sensation in the skin, whether the aconite be directly applied or be carried there in the circulation. A similar tingling is produced upon contact with the mucous membrane, and this becomes a severe irritation when the drug is applied in concentrated form, as when the dust of the alkaloid is inhaled or reaches the eyes. This effect of aconite upon the mouth is markedly to increase the salivary and mucous secretion. It produces some increase of perspiration in the same directly stimulating manner on being carried to the skin. Under careful observation, spasmodic contractions of voluntary muscular fibre can be seen, while stimulation of the vasomotor mechanism (whether central or peripheral is not certainly known)