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The Psyche and the skin : their interrelationships

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"For this is the great error of our day---
that physicians separate the soul
from the body."

---Plato

"We see only what we are ready to see. We
eliminate and ignore anything that is not
a part of our prejudices."

---Charcot

PREFACE

By its very nature, the field of medicine will never remain static. New theories and new concepts are being introduced constantly, and the past few decades have produced many notbale advances. One of these has been the concept of psychosomatic medicine. Braceland (25) has defined psychosomatic medicine as the study of the interrelationships between the psychologic and the physiologic aspects of all normal and abnormal bodily functions. Day (37) has commented that the psyche includes more than just the conscious mental processes. It includes also the emotions, both conscious and unconscious. Every alteration of the psyche affects the soma, and somatic alterations also affect the psyche.

While many of us have placed psychosomatics in the same category as witchcraft, few of us can deny that mind and body should logically have equal importance in medicine. As stated by Alexander and Ross (4),

the mind and body exist in a single individual, who is precisely that: not divided. Yet, we have long considered the body separately from the mind. This may be due to the fact that the body is tangible: we can see the results of disease, and when we treat the disease adequately we can see the modification of the pathological process. Such is not true of the mind. Here, we are in a realm where no rigid rules apply: a realm where countless factors intermingle to produce a multitude of poorly defined disturbances. It is no wonder that the average practitioner often feels lost when he is confronted by the complaints of a patient who has neither organic changes nor frank psychosis. This is the patient with "functional" disease.

Many writers agree with Raginsky (139) that the division of the healing profession between organic and functional disease is highly artificial, yet we often scoff at psychosomatic medicine and ridicule the man who treats his patients by simply listening to their troubles. However, the fact remains that functional diseases are very common, and many of them are responding to the brief psychotherapy that can be practiced by the general practitioner. It has been shown by Denker (38) that the psychotherapy of the general

practitioner is even more effective than that of the psychiatrist in treating these patients with functional diseases. We must not evade these cases, for they belong to us more than they do to the psychiatrist.

We like to consider psychosomatic medicine as something new, yet we have simply attached a new name to the friendly and sympathetic doctor-patient relationship that was formerly practiced by the general practitioner (Wittkower and Russell, 187.) After having passed through a phase in medicine during which the laboratory assumed supreme power, we are finally realizing that the laboratory cannot answer all of our questions. Too, we have found that application of the older practitioner's methods often produces relief of symptoms which cannot be relieved in any other way. Strauss (168) has said that <u>all</u> medicine is psychosomatic. Schilder (155) states that purely organic processes do not exist, for the organism is fundamentally a psychophysical entity. It is impossible to say when a functional disease stops and an organic one begins, according to Braceland (25), for disease is not a static condition. It is reasonable to suppose that all illness goes through a reversible phase before fixed structural changes occur, and it may well be that chronic "functional" disease can lead in time to permanent tissue changes (Braceland, 25.)

Wittkower and Russell (187) have stressed the need for greater understanding of morbid physiology and psychology. This does not mean that we should minimize morbid anatomy and histopathology, but rather that we should attempt to place the psychic component of disease on a plane equal to that of the somatic component. Raginsky (139) states that we must establish a common ground on which the sciences of medicine and psychiatry may stand together as equal partners. Stevenson (161) has found that the majority of illnesses confronting the general practitioner today are both psychologic and physiologic in nature, and we must therefore guard against the "either-or" attitude.

With the advent of psychoanalysis and various of the psychometric techniques, it has become possible to place the diseases of the psyche on a rather definite basis. We are now able to recognize the psychoses in the same manner that we recognize physical disease. Thus it is that psychic phenomena have become more "tangible." Our knowledge of gross psychopathology has, in turn, enabled us to increase our understanding of functional disease (Wittkower and Russell, 187.)

The literature pertaining to the emotional factors in skin disease is voluminous. As with any phase of medicine in which laboratory data is difficult to obtain, much of the literature is entirely descriptive and consists simply of detailed case histories. In the preparation of this paper, it was decided to omit abstracts of these cases, and to present, instead, a summary of this loosely organized mass of literature. For that reason, many of the statements in this thesis may seem to be poorly substantiated. If such is the case, the reader is referred to the original paper being quoted. The references in the bibliography should be consulted in all cases where this paper seems too brief or too dogmatic. The primary intent of this thesis is to condense and summarize the literature dealing with psychosomatic dermatology, and in order to do this, considerable detail has been sacrificed.

INTRODUCTION

The physiological relationship between the psyche and the skin is apparent to all of us. We know, for instance, that embarrassment produces blushing, that fear often causes pallor, and that nervous tension may give rise to increased perspiration. However, the pathological relationship between the psyche and the skin has not been so readily accepted. Even with the development of psychosomatic concepts, we were somewhat slow in recognizing that emotional factors could produce or precipitate demonstrable skin pathology. Brunner (26) feels that the use of unfamiliar psychiatric terminology may have been responsible for the rejection of the psychosomatic concept by many dermatologists. It is only during the past two decades that dermatologists and psychiatrists have become aware of the fact that emotions and cutaneous changes are often related in disease as well as in health. Curiously enough, the dermatologists were the first to practice psychotherapy on patients with the psychosomatic dermatoses, and according to Cappon (31), the main stimulus toward a psychological orientation has come from the dermatologists.

The general field of psychosomatic dermatology is not limited to a few specific and isolated dermatoses, nor is there any personality type which invariable develops cutaneous lesions. The proponents of psychosomatic factors in dermatology emphasize that they do not regard such factors as the sole cause of any skin disease. Rather, they recognize that in a number of skin disorders the psychic element appears to play an important part (Obermayer, 134, and Sulzberger, 169.) Emotional disturbances may be the chief causes of these diseases, as in neurotic excoriations; they may be contributing causes as in herpes simplex; or they may be the results of a skin disease, as in acne vulgaris. The multiple etiology of these skin diseases includes such factors as bacteria, toxins, allergies, and constitutional predisposition. These may exist in variable proportions in a given dermatitis (Obermayer, 134.)

Several writers list those dermatoses in which they feel that emotional factors are of etiological importance. There is some variation in these lists, for like many things pertaining to the psyche, it is impossible to speak in terms of the absolute.

Obermayer (134) lists the following as important psychogenic dermatoses: acarophobia, neurotic excoriations, dermatitis factitia, generalized and localized pruritus of non-organic origin, chronic urticaria, chronic dyshidrosis of the hands and feet, neurodermatitis (atopic dermatitis), alopecia areata, rosacea, dermatitis herpetiformis, lichen planus, herpes simplex, chronic stomatitis aphthosa, and some cases of psoriasis and acne vulgaris. Again, Obermayer emphasizes that emotional factors are not the sole cause of these lesions, but he considers them to be a definite link in a chain of etiological factors. In his opinion, complete cure of the dermatitis cannot be attained without attention to the psyche.

Cappon (31) includes the following in his list of emotionally influenced dermatoses: hyperhidrosis, dermographism, urticaria, eczema, prurigo, alopecia, recurrent herpes simplex, warts, acne vulgaris, and psoriasis.

Wittkower and Russell (187) mention pruritus ani and vulvae, eczema, pompholyx, dyshidrosis, psoriasis, seborrheic dermatitis, urticaria, orsacea, acne vulgaris, alopecia, and neurotic excoriations.

Kelley (100) lists the following as skin changes secondary to mental disturbances: cutaneous hyperesthesia, trichotillomania, acarophobia, syphilophobia, neurotic excoriations, dermatitis factitia, acute urticaria, chronic urticaria, and generalized neurodermatitis.

Alexander and Ross (4) believe that the most extensive studies with regard to psychophysiological relationships in the skin are those of neurodermatitis and urticaria, although the emotional factor is probably important in other lesions as well.

Levin and Behrman (110) recognize the following as neurogenous dermatoses: urticaria, angioneurotic edema, prurigo, neurodermatitis, dyshidrosis, rosacea, alopecia, and neurotic excoriations. They also report that some cases of psoriasis and lichen planus develop after severe shock and long periods of emotional unrest.

Menninger (125) states that the great plague of dermatological practice is composed of the obscure reactive disorders. He considers the most important of these to be eczema, or neurodermatitis.

Just as there is disagreement as to which of the dermatoses have psychologically important components, so there is disagreement as to how much the emotions contribute to a given dermatitis. However, four derm-

atological conditions seem to have rather prominent psychosomatic elements. These are: pruritus (ani, vulvae, and scroti), eczema (neurodermatitis), pompholyx with its associated dyshidrosis, and urticaria. These four dermatoses will be considered in this paper.

Neurotic excoriations, acarophobia, trichotillomania, and syphilophobia belong in a category by themselves, for there is little question as to the role which the mental state plays in the production of these lesions. Their position in psychogenic dermatology is not considered controversial enough to merit elaboration. Obviously, the treatment of these conditions is primarily in the hands of the psychiatrist.

There is little question that the psychosomatic concept has wide application throughout the field of medicine. Braceland (25) states that at least one-third of the patients who consult the general practitioner have no organic changes to account for their symptoms. He believes that another one-third of the practitioner's patients have symptoms out of all proportion to the amount of organic disease which is present. Thus, emotional factors are significant in the etiology of two-thirds of the cases seen by the general practitioner. Menninger (125), Wittkower and

Russell (187), and Weiss and English (179) all confirm Braceland's statements. Raginsky (139) feels that regardless of his specialty, the physician soon discovers that a large percentage of his medical problems are psychosomatic.

The importance of skin diseases in the practice of medicine must not be minimized. Estimates differ, but it is probable that at least 10% of general practice is dermatological (Cormia, 32.) Although skin diseases are not often fatal, they furnish more cause for patient anxiety than many other diseases. This is true because the skin is so readily visible and because our society has placed so much emphasis upon personal appearance. This fact causes the development of post-morbid emotional disturbances in many people whose pre-morbid personality was perfectly normal. It is often difficult to determine which came first, the emotional disturbance or the skin lesion. Gottesman and Menninger (71) have found that there is some degree of emotional turmoil in nearly all dermatological patients.

Although the psychic factors which result from skin disease are of obvious social and personal significance, this thesis will deal largely with the premorbid personality and its effect upon the development of the neurodermatoses.

Consideration of the psychosomatic aspect of dermatology is of great practical value, for the dermatologist and the general practitioner can do much toward helping these patients to re-adjust. They are not psychotic, and they do not need intensive psychotherapy at the hands of a psychiatrist. Denker (38) has said that the general practitioner has just as good results with these patients as the psychiatrist has. Several investigators have reiterated the opinion that the neurodermatoses do not require intensive psychoanalytic treatment (Gottesman and Menninger, 71, and Obermayer, 135.) Weiss and English state that the general practitioner can do minor psychotherapy just as effectively as he does minor surgery, but it is essential for him to be able to recognize cases that are beyond his scope, and refer these people to a psychiatrist.

Minor psychotherapy as used by these men consists primarily of reassurance and the sympathetic ear. Billow (18) emphasizes that it should not consist only of telling the patient that he is "nervous" and giving him phenobarbital. This type of covering therapy cannot possibly furnish more than temporary relief.

Menninger (124) has found that patient with a psychogenic dermatitis can never be managed entirely by local medication. These patients go from doctor to

doctor, and from patent medicine to patent medicine. They live in constant fear of recurrence, disfigurement, or intractability. Their skin disease becomes the most important factor in their lives.

A note of caution has been introduced into the literature by Wittkower and Russell (187), lest we become too quick about calling a dermatosis psychogenic and thus commit serious mistakes. Emotional disturbances are common, and they may coincide with and be independent of a skin disease of organic origin. Campbell (28) also warns against the use of a functional diagnosis when something more serious and acute is present. Sulzberger, in a comment at the close of Campbell's paper (28), points out that for the first time in history the patient has come to know that something intangible may cause his complaints. It is often too easy for the harrassed physician to fall in with this tendency to call the unexplained disease psychosomatic. Engman (56) states that some women regard it as highly complimentary to be called "nervous." Another danger of the present attitude of some physicians toward psychosomatic concepts is that they have found that by adopting this school of thought they need have no more therapeutic failures (Sulzberger, 169.)

The field of psychosomatic dermatological lesions is one in which great service can be performed, not as a life-saving procedure, but as a procedure leading to greater happiness and mental well-being in a group of people which seems to be increasing in size with the increased pace of modern living. This is a field which calls for great understanding on the part of the physician, and a basic and honest realization that the psyche can have a profound effect upon the reactions of the human skin.

SCHEME FOR ANALYSIS OF PSYCHOSOMATIC DISORDERS

Physical Disorder	Psychic Disorder	General Group	Examples	Diagnostic Features
+	-	Purely physical	Polio with paralysis but good adjustment	
-	+	Purely psychic	Depressions Mania Schizophrenia Phobia Obsessive compulsive Hypochondriasis Character disorder	Slowed mentally Increased speed Withdrawal Irrational fear Repetitive actions Many symptoms Antisocial
+	+	Psychic disorder secondary to CNS damage	Organic & toxic psychoses, brain tumor, encephalitis, paresis, arteriosclerosis, hypoglycemia	Steady, unfluctuating progression. Confusion. Impaired intellect. Emotional lability. Neurologic signs.
+	+	Psychic reaction to physical disorder	Blindness, physical deformity	Mild anxiety
+	+	Physical disorder accompanying psychiatric state	Anxiety state Hysteria Psychosomatic Asthma Angina pectoris Obesity	Tachycardia, hyperpnea Reflexes intact;paralysis Well-correlated symptoms & psychic disturbance; response to psychotherapy

(From Stevenson)

THE PSYCHE: PSYCHOSOMATIC MEDICINE IN GENERAL

Psychosomatic medicine has had a rather stormy course. Menninger (124) believes that the thoughtful physician constantly sees it demonstrated that there is an emotional factor in organic disease, yet he has been taught to place greatest emphasis upon the somatic, and he has even been criticized by his colleagues for recognising an emotional factor in organic disease. This constitutes one of the strangest paradoxes in medicine: that what we all know in private life we hesitate to discuss in our scientific sessions. It is difficult to say why the psychological factor in disease has been so actively rejected. Perhaps it is because psychological factors have been made the basis of a so-called religion in which all doctors are considered wicked (Menninger, 124.) Wittkower and Russell (187) state that mental changes as a result of bodily disease are a commonplace in such things as uremia and myxedema, yet our imagination boggles at the idea of mental disturbances leading to disordered bodily function with structural changes.

It is possible to account for many of the organic responses to emotion on the known facts of autonomic innervation and function. Menninger (124) states that the work of some of the Russians has shown that cortical stimulation evokes hormonal substances capable of producing the same effects as does the direct stimulation of the brain itself. According to this, injection of blood and spinal fluid obtained after the stimulation of the brain will affect the pancreas, for instance, in the same way as did the original cortical stimulation. The hormonal theory is also suggested by the work of Bender (15.) He has demonstrated that the facial and ocular reactions characteristic of fright could be produced in monkeys after destruction of the nerve supplying the muscles. He has further shown that the administration of acetylcholine caused the same muscular reactions as did the emotion, fright. Perhaps then, fright stimulates the production of acetylcholine or a substance similar to it which can produce reactions that have previously been attributed to direct nervous stimulation. Such a hormonal theory also helps to explain the widespread effects of emotional stimulation upon the soma. It is no longer possible to say that

there is not experimental evidence for the existence of physiological mechanisms by which psychological activity may result in structural damage (Menninger, 124.)

However, the fact remains that psychosomatic phenomena in humans do not lend themselves well to laboratory study. In this day of fanatic worship of the tangible, the intangibility of the psyche constitutes a major reason for its lack of acceptance. There is currently in progress a movement toward standardizing the studies of the psyche, and various psychometric tests are becoming available. The problem of establishing controls in psychosomatic investigation is another barrier of considerable importance (Wittkower and Russell, 187.)

Psychosomatic concepts were born at a time when medicine had fallen into the extremes of organic orientation (Raginsky, 139.) An incredible collection of disconnected details had been disclosed by laboratory work, and Raginsky believes that this led to a profound loss of perspective. Then, too, the discovery of pathogenic micro-organisms focussed attention on the infectious origin of pathological changes. Another factor in making medicine more somatologic was the over-popularization of certain psychogenic discoveries at the

end of the 19th century. This created a reaction against psychology and psychiatry by the medical profession, and there was a compensatory swing toward the soma (Raginsky, 139.)

During recent years, however, we have been forced to consider the importance of the psyche in reactions of the soma. Several authors have noted the frequency of exacerbations of somatic diseases after emotional trauma, and this has been reported so often that it could hardly be mere coincidence. Another fact which emphasizes the importance of the psyche to somatic pathology is brought out by Heath (86) in his statement that 80% of the accidents are suffered by 20% of the population.

We are currently watching an increase in the incidence of functional disease. Obermayer (135) attributes this to two factors: the accelerated speed of modern living, and the multiple internal conflicts arising because of changes in ideological concepts. He has found two predominant personality patterns in the patients with psychosomatic disease. One of these is the "high-pressure" business man, who is obviously tense, overly ambitious, and who assumes unnecessary burdens and takes his responsibilities too seriously.

He is active, brisk, exacting, and intelligent, and his inner instability is often masked by outward calm. The other personality pattern recognized by Obermayer is that of the person with conscious feelings of inferiority and insecurity. He is inclined to worry unduly, to be emotionally hypersensitive, easily discouraged, and extremely sensitive to criticism. This patient's personal maladjustment is manifested by shyness and an attitude of detachment and self-absorption. Obermayer concludes that the basic feature of the personality of the patient with psychosomatic disease is emotional instability. Other writers have also noted this fact (Saul, 151, and Wittkower and Russell, 187.)

Braceland (25) attributes the apparent increase in emotional problems in general practice to several conditions:

1) There is always unrest in a post-war world. Herodotus noted this 2300 years ago.

2) Our sociologic, economic, and industrial problems add to the post-war insecurity.

3) Many people have lost philosophic and religious beliefs that heretofore sustained them.

4) Because there are no longer epidemics of acute disease, more of the doctor's practice deals with chronic illness than before. This has a greater psychosomatic

element than the acute diseases have.

5) The "medical education" of the laity has made people realize the importance of emotional factors, and they seek help more readily than previously.

How can emotions cause somatic disease? Raginsky (139) points out that all of our emotions are expressed by physiologic processes: sorrow by weeping, amusement by laughter, shame by blushing, fear by palpitation, anger by increased heart activity, and despair by sighing. Such changes are fleeting, and when the emotion disappears, the corresponding physiologic change also disappears. The study of neurotic patients has shown that under the influence of more permanent disturbances of the psyche, chronic dysfunctions of the body often develop (Raginsky, 139.) This has led to the concept of "organ neurosis."

Organ neuroses are disturbances of the internal vegetative organs caused by nerve impulses, the origin of which are emotional processes located in the cortical and sub-cortical centers of the brain. The hypothalamus is the link between the higher centers and the autonomic system, which transmits emotional impulses to the organs (Weiss and English, 179.)

Synonomous with "organ neurosis" is the term "functional disease." This refers to the fact that the tissues in this group of diseases do not show any morphological changes: only the function of the organ is disturbed. At this point, the disease is reversible. However, we are now beginning to suspect that functional disorders of long standing may lead slowly to genuine organic disorders based on visible anatomic changes (Raginsky, 139.)

Alexander and Ross (4) state that the fundamental concept underlying psychosomatic study is that emotional states express themselves in both external behavior and internal physiological processes. The latter respond in an adaptive manner to every emotional state.

Deutsch (40) believes that the continued interaction between psychological and physiological processes must be considered in every human being, independent of whether the total function of the organism proceeds normally or abnormally. The fusion between organic and psychological processes, once expressed in an organic dysfunction may remain latent and rise to the surface under various conditions which in themselves are not the real causative factors of the disturbance. The normal human develops a specific psychological structure made up of more or less balanced instinctual

drives and the character organization controlling them. In different phases of life, these two components are not equally developed and not always in a state of equilibrium. If a rather severe organic disorder appears at the time of an emotional conflict, the coincidence of organic and emotional processes may bring about a permanent amalgamation of the organic symptomatology and the emotional process.

Braceland (25) believes that the emotions must be regarded as potential pathogenic agents along with the generally recognized factors of bacteria, toxins, and allergy. The emotional conflicts which are excluded from consciousness are the ones most likely to cause symptoms and to be expressed in psychosomatic illness.

Alexander and French (3) report that Alkan in 1930 was the first person to state clearly that organic disease may be profitably studied from the psychological standpoint. He indicated that psychogenic disturbances within the field of the autonomic nervous system may result finally in organic changes. He postulated that intra-psychic conflicts may be expressed by spasms of amooth muscle which secondarily lead to anemia of the organ, stasis, muscular hypertrophy, or infection. As a result of these secondary factors, organic changes which are not reversible develop in somatic structures.

Weiss and English (179) have explored the problem of how psychological disturbances are related to structural alteration. In the 19th century, the viewpoint of disease could be diagrammed as follows:

Cellular disease--->Structural alteration--->Physiological disturbance.

In the 20th century this formula underwent alteration in some situations such as essential hypertension and some of the vascular diseases:

Functional disturbance--->Cellular disease--->Structural alteration.

We are still uncertain as to what may precede the functional disturbance, but it seems reasonable to say that a psychological disturbance could antedate the functional disturbance, and the formula then becomes:

Psychological disturbance--->Functional disturbance--->Cellular disease--->Structural alteration.

According to Fulton (64), newer disclosures concerning the relation of the cerebral cortex to the autonomic system give an adequate physiological basis for the relationship between the psyche and the soma. He postulates that mental and emotional states concomitant with activity of the cerebral cortex are accompanied by visceral changes which also arise from cortical excitation. According to this theory, the visceral

changes are secondary to the mental state. Alexander and French (3) believe that the neurosis is both the visceral and the mental change, and that neither one can be termed cause or effect.

An interesting theory of mental illness has been proposed by Barta (12). He believes that there are two deviations from the normal personality type, and that it is possible to place any personality in one of the two or in the intermediate type. The so-called hyperordinate is the timid antisocial person, and the hypoordinate is the impulsive, gregarious person. Between the two stands the mixed ordinate, and Barta considers the ordinate to be the hypothetical normal man.

Barta's theory is similar to one proposed by Eppinger and Hess and reported by Rogerson (142). Their theory was that there were only two types of person: the vagotonic (psychologically introverted), and the hypersympathicotonic (psychologically extroverted.) Since so few people fit into either one category or the other, this division of personality types has been largely abandoned. The important thing to remember is that no personality can be strictly cataloged, for the psyche is an extremely labile thing.

Selye's (156) adaptation syndrome was the first effort to designate that specific chain of events which is initiated by a variety of stressful situations and is mediated by hormonal mechanisms. He found that physiological adaptations to stress occur in all parts of the body. Thus far, an understanding of the precise influence of psychological factors upon the endocrine system is still to be found.

Margolin (120) has recently reported the interesting phenomenon of dissociation of functions of a single organ. His work was done on patients under psychoanalytic observation, and he found that there were changes in gastric motility and gastric secretion which did not parallel each other. In fact, they varied in a random and independent manner. This would indicate that a dissociation of an organ's functions may be a mechanism in the production of psychosomatic disease.

Thus, we see that emotions do affect the body. What is it, then, that causes some people to develop organic disturbances that are of psychic origin while other people do not?

Heath (86) writes that the manner in which man behaves depends upon past memory. If in his early life the child is given misinformation designed to frighten him, he cannot meet new encounters in life

in a realistic manner, and for that reason he develops stress. A relatively frequent stress-producing factor in our society is the unrealistic information given about sexuality. Insecurity in later life often develops as a result of the child's having been threatened with desertion if he is "not good." When stress occurs because of such faulty background learning, adaptations are made to ease the stress. The behavior patterns that result are usually inferior, for they consist of giving up gratifying goals and accepting less gratifying, but less dangerous, compromises. A neurosis is an inferior behavior adaptation selected because stress makes fulfillment of the primary goal too dangerous. The neurotic adaptation is usually a childish regression to an infantile pattern.

Strictly speaking, the psychosomatic patient is not psychoneurotic. True, he may be both, but he is no more apt to be psychoneurotic than is the non-psychosomatic patient. Diethelm (46) has distinguished between the two mental states as follows: the psychosomatic person has suppressed his emotions, and the psychoneurotic person has repressed his emotions. Suppression is a holding in abeyance: the emotion may be conscious, but it is unexpressed or unrelieved. On the other hand, repression denotes a complete dissociation of the emotion from consciousness.

Frankle (61) has found that the emotionally introverted group of people show more somatic complaints, and the emotionally extroverted show fewer somatic complaints than a group intermediate.

English (55) believes that the most commonly encountered emotions producing organic changes are: the need for love, anxiety, hostility, inferiority feelings, ambivalence, guilt, ambition, and envy. Of these, the first three are the most important. The need for love is one of mankind's greatest hungers, according to English. Lack of it brings such emotions as frustration, hurt pride, and jealousy. Anxiety, too, is one of our most basic emotions. Fear is the conscious representative of anxiety, but the origins of anxiety itself are largely unconscious. Wittkower and Russell (187) state that anxiety is the most common psychopathological force.

How does anxiety arise? English (55) believes that it has its origin in two very early life situations: the fear of physical harm and the fear of loss of love. Anxiety has two components, the psychic and the somatic. Somatic components include such things as palpitation, perspiration, and hyperpnea. These are thought to occur when the emotional energy overflows by way of the autonomic nervous system. If one's energy is used up in concentration on the feared thing, too little energy

is left for happy living. According to Harris (83), happy living and good health are dependent upon a gratification of basic needs and upon an ability to discharge anger externally and completely when those needs are not gratified. The concept of dammed-up internal tensions being discharged into the soma is rather familiar (Alexander and Ross, 4, Dunbar, 53, Menninger, 124, and Frankle, 61.)

The third emotion which English regards as important in the formation of the psychosomatic symptom is hostility. This emotion arises when the human fails to find conditions which keep him in a state of well-being, and therefore experiences ideas of retaliation and the use of force to gain his ends. The conflict arises when he feels that his environment will not tolerate any show of hostility. This causes him to repress the emotion. The more that the repressed hostility builds up, the more labor another part of the mind has to exert to keep it from being released. English feels that there are tremendous quantities of hostility latent in the human race, producing not only serious social problems, but many individual problems and symptoms of illness as well.

Raginsky (139) believes that the following are the important factors in the development of a psychosomatic illness: 1) the constitution of the patient,

2) the exaggeration of a normal function, 3) the lability of the exaggerated function, 4) the fixation of the exaggerated function, and 5) the somatic changes.

Deutsch (43) believes that the somatic expression of the pathologic conflict depends on the following:

1) The recurrence of an organic dysfunction in infancy
2) The coincidence of this dysfunction with instinctual conflicts
3) The frequency of the simultaneous repetition of this dysfunction and of the specific conflict
4) The fusion of the two processes
5) The repression of the original conflict
6) The consistency of using the organic dysfunction as the pre-verbal expression of the conflict
7) The figure in the environment that stimulates the specific conflict
8) The symbolization of this figure in the parts of the body involved
9) The degree of ego weakness
10) The type of neurosis of the parental figures
11) Other incidental and accidental life experiences.

Having thus discussed the way in which psychic dysfunction can cause somatic changes, the next logical question concerns the choice of the organ in psychosomat-

ic disease. Alexander and Ross (4) feel that specific emotional states elicit specific psychological responses. However, Heath (86) writes that it has become more evident in recent years that the concept of specific emotional cause resulting in specific somatic disease is untenable. Heath believes firmly in the multiple etiology of disease, and considers the emotional phase non-specific.

No one has proposed an adequate answer to the question of the choice of organ in organ neuroses. Menninger feels that organic disease is a manifestation of internally directed aggression or death instinct, and the organ disturbed represents symbolically the repressed emotionally laden idea. Alexander and French (3) believe that an organ's specific function could be used to express a psychic tendency which because of conflict could not be expressed through the voluntary nervous system. Raginsky (139) states that an hereditary predisposition may influence the choice of the organ. Obermayer (135) feels that the predisposition to functional disorders is similar to an allergic response, that it is constitutional. The target organ is sensitized just as in an allergic manifestation, and heredity in addition to the sensitizing situations is re-

quired for the development of the psychosomatic illness. Other authors have commented about the close similarities between allergic and functional diseases (Wittkower, 185, Gillespie, 66, Lynch, Hinckley, and Cowan, 114, and Stokes, 165.)

The concept of the normal person becomes important when one is dealing with psychosomatic disease. Psychiatrists often dismiss the matter immediately, saying that there is no such thing as a normal person, but such an answer is of no help to the clinician. As reported by Wittkower and Russell (187), Glover has defined the normal personality as being free of symptoms, unhampered by mental conflict, having a satisfactory working capacity, and being able to love someone other than himself. Conversely, the abnormal personality cannot adjust easily, has faulty reaction patterns, anxiety, and mental conflicts. Any kind of frustration may then precipitate an acute episode in such a person.

There have been many classifications of psychosomatic illness. Braceland (25) quotes one such classification as proposed by Ewalt:

A. Patients with symptoms referred to the body, but without demonstrable somatic pathology
    1. Psychoneurotics
    2. Simple anxiety reactions
B. Patients with definite structural changes due in

part, at least, to psychologic disturbances.

Stevenson (162) classifies the psychosomatic disorders as follows:

A. Psychoneuroses: anxiety state, hysteria

B. Psychosomatic disorders proper: low grade tension is important, but not the sole cause, as in hay fever, asthma, and urticaria

C. Physical disturbances secondary to psychic: obesity, multiple fractures, etc.

D. Diseases which are often affected by the psychic state: angina pectoris, epilepsy, etc.

From these classifications, we can see that in strictest terms, a disease must produce structural changes in order to be considered psychosomatic. Barta (12) believes that psychosomatic medicine is properly limited to the study of the pathologic structural changes which occur as a result of mental and emotional reactions.

Many of the functional diseases which confront the general practitioner do not involve structural changes. It is quite likely that they actually precede a definite psychosomatic disease, and it is known that they are more amenable to psychotherapy than the psychosomatic diseases with their structural changes (Stevenson, 162.)

Macalpine (115) also emphasizes the fact that the psychosomatic symptom is not the same as the psychoneurotic symptom. She states that the psychoneurotic symptom represents a compromise between the ego and the repressed forces, and the secondary gain extracted from the environment is considerable.

According to Macalpine (115), the outbreak of a psychosomatic symptom can be traced to a recent reality stimulus. The patient is rarely aware of this situation, and if he does relate the symptom to anything emotional, it is usually a "cover cause." Macalpine states flatly that conscious problems or difficult life situations do not produce psychosomatic symptoms.

Among the emotions which produce psychosomatic symptoms, Macalpine (115) feels that repressed rage is of great importance. The repression of rage takes place in response to a reality circumstance in which the expression of it is either forbidden or impractical. It is not an ego or super-ego restriction against instinctual inner danger as is the case in the formation to a psychoneurotic symptom. Macalpine believes that rage responses play a major part in psychosomatic patients, particularly the eczema patients.

Another point of distinction between the psychoneurotic and the psychosomatic patients is that the latter rarely show evidence of secondary gain. Indeed, the absence of secondary gain has diagnostic value, and its absence makes successful treatment surprisingly short in some cases. In the case of the psychoneurotic, important types of secondary gain are love, sympathy, injury to other people, and inconvenience to others.

Macalpine (115) finds that the psychosomatic symptom is further characterized by:

1) It is not accompanied by conscious awareness of the emotion which it expresses.
2) It is abortive behavior which does not achieve its purpose of altering the environment.
3) It is not a defense against a conflict: it is the partial break-through of an emotion.

Therapy must be directed toward getting the patient to experience the emotion and to display its physical signs. Macalpine finds this in accordance with the James-Lange theory which maintains that an awareness of an emotion is inseparable from its physical manifestations.

Macalpine (115) admits that psychosomatic symptoms may accompany psychoneurotic character formation. It is of interest to note the resemblance of

the psychosomatic symptom and the psychoses, in that both are remittant and have intervals of perfect freedom. This, too, further sets them apart from the psychoneurotic symptom.

In the minds of psychiatrists, there is now little question that physical symptoms and signs can be elicited by stimuli which are psychological in nature. Menninger (124) reports that both hypnosis and hysteria afford clear evidence that just as a blister or paralysis may be brought about by a mechanical blow, they may also be brought about by a psychological blow. That the mind can actually produce cutaneous blisters has been reported many times in the literature. Doswald and Kreibach (48), and Heller and Schutz (89) were all successful in producing bullous lesions by suggesting burns to hypnotized and hysterical patients. Bunneman (27) has reported two cases in which he believed cutaneous hemorrhages could be induced by suggestion, and Mayr (122) reported the case of an English physician who could suggest wheals on any portion of his body.

There are still many unexplored areas in the field of psychosomatic medicine. Kasper (98) and Draper (49) emphasize the importance of pooling our knowledge regarding all illness, especially psycho-

somatic illness. The usual state of affairs is deplorable, for the internist investigates the ulcer and the psychiatrist studies the neurosis, and the two occasionally greet each other in the hall. Saslow (150) and Kalz (95) also emphasize the importance of team function in the practice of comprehensive medicine.

In the treatment of patients with structural disease, we cannot overemphasize the importance of giving the patient an explanation of his problem (MacDonald and Farquharson, 117.) Such an explanation will prevent grave anxiety about the illness. Weiss and English (179) feel that it is helpful to explain the phenomenon of organ language to these patients with psychosomatic disease. They suggest using such examples as nausea meaning that the patient cannot "stomach" something. Weiss and English warn against simply telling the patient that his trouble is "functional" and dismissing him. This often implies to the patient that his trouble is imaginative, and this irritates him for he knows that his symptoms are very real. Another point to guard against is the continued examination of the patient after he has been told that there is nothing wrong with him. These authors stress the fact that we must satisfy ourselves that the patient has no organic disease, must then tell the patient this, and must then stop examining him.

Falsely attributing an organic disease to emotional disturbance is obviously a grave error. Stevenson (161) has listed a few points which are helpful in distinguishing the psychogenic from the somatogenic:

1) Psychic disturbances show wide fluctuations in severity and occurrence
2) Physical disturbances progress steadily toward recovery or decline
3) Toxic and organic psychoses present this triad:
   a. Loss of perception and intellection
   b. Emotional lability with over-reaction
   c. Change in behavior, becoming untidy, etc.

The treatment of the various neurodermatoses is far from standardized. Nearly everything has been tried, from the extremes of simple local therapy to psychoanalysis with no local treatment. Kalz (95) stresses the importance of suggestive therapy, and reports having seen X-ray treatments prove curative even when the technician had neglected to switch on the high power. However, suggestion therapy is a short cut which cannot be used in most cases (Kalz, 95.)

THE SKIN

Macroscopically, the skin is a soft, flexible membranous covering which completely invests the body. It is continuous with the mucous membranes at the natural orifices. The essential structure of the skin is that of a connective tissue framework with blood vessels, lymphatics, nerves, and nerve endings, the whole of which is covered by the epidermis. The skin is marked superficially by many tiny openings of glands. Skin color is determined by pigment in the upper layers and by the blood of the capillaries in the dermis. The thickness of the skin varies from about 0.5 mm to 4.0 mm on the eyelids and the soles, respectively. The structures of the skin may be divided into two groups: the skin proper, including epidermis, dermis, subcutaneous tissues, blood vessels, lymphatics, nerve fibers, and special nerve endings; and the skin appendages, including hair, nails, sebaceous glands, and sweat glands.

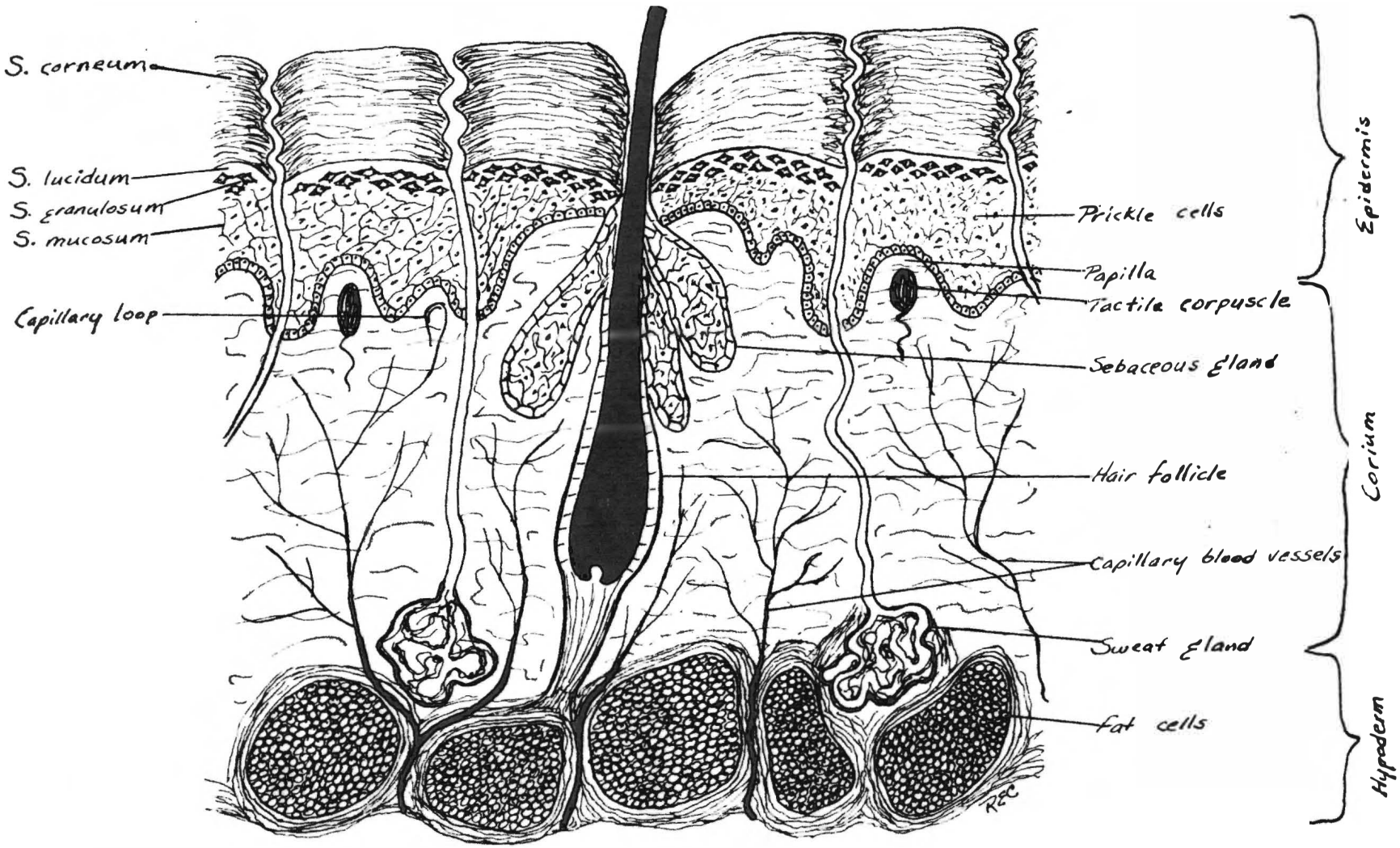
Briefly, the skin serves the functions of secretion, elimination, protection, sensation, and heat regulation. Because of its manifold functions, the skin is necessarily a complex structure. (Sutton and Sutton, 174)

EMBRYOLOGY

From a very early age, the epidermis is an ectodermal investment of two layers. The surface layer is composed of flattened, horny cells and corresponds to the corneum of the adult. The deeper layer is the single cell thickness of the stratum germinativum. This layer rests upon mesoderm. During the third month of fetal life, the lower surface of the epidermis develops parallel ridges, and sweat glands grow downward from them. Eventually, the sweat glands come to lie in the dermis, or corium.

The dermis, or true skin, is of mesodermal origin. During the first six weeks of life, the dermis and hypodermis consist of ordinary mesenchyme, but about the second month, a fibrillar interstitial substance begins to form in the mesenchyme.

Also during the second month, the mesenchyme divides into a superficial compact layer and a deeper loose layer. The former is to become the corium, while the latter is to become the subcutaneous tissue. The dermis differentiates into a peripheral papillary layer and a deeper reticular layer, and in the latter the collagenous bundles become thick and interlaced. They lie in a direction parallel to the skin surface.



THE STRUCTURE OF THE SKIN

Hair is first seen during the second month, and nails do not appear until the third month. True nail substance is not produced until the fifth month. Sweat glands appear first on the palms and soles, also during the fifth month. They consist of an elongated shaft and a lower globular portion. The lumen forms in the secretory ball in the seventh month, and in the excretory duct somewhat later. The two lumina eventually unite to form the entire sweat gland. (Sutton and Sutton, 174.)

ANATOMY

It is necessary to have a thorough understanding of the anatomy of the skin if one is to understand the changes which occur in the skin during disease (Sutton and Sutton, 174.) MacKenna (118) calls attention to the high lineage of the skin, it being derived in part from the same embryonic layer as the central nervous system.

The integument consists of three layers: the outer epidermis, the dermis, and the hypoderm.

The epidermis consists of stratified squamous epithelium, and is arranged in four layers. The basal layer next to the dermis is regularly columnar or wedge-shaped, and as one progresses toward the surface the cells become flatter. Mitosis occurs in the basal layer, and

can sometimes be seen in the middle layers. Because the epidermis is avascular, nutrient exchange occurs through the corium, or dermis. The four layers of the epidermis are named from beneath outward as follows: 1) Stratum mucosum 2) Stratum granulosum 3) Stratum lucidum 4) Stratum corneum

The stratum mucosum, also called the rete malpighii, consists of cells which are soft and mucoid in character and are distinctly nucleated. Their outer surfaces are covered with many short protoplasmic spines, hence the term "prickle cells." The under-surface of the prickle layer presents a series of projections which fit into the interpapillary depressions of the corium.

The stratum granulosum varies from one to four cells in depth, and extends in unbroken continuity over the entire surface of the body. These cells are somewhat flattened and spindle-shaped, have well-defined nuclei, and lie parallel to the surface of the skin.

The stratum lucidum is a translucent, ribbon-like layer which separates the S. granulosum from the S. corneum. It consists of three or four layers of large, clear, irregularly shaped cells, most of which contain disintegrated nuclei. This layer of the skin is sharply defined on the soles and palms.

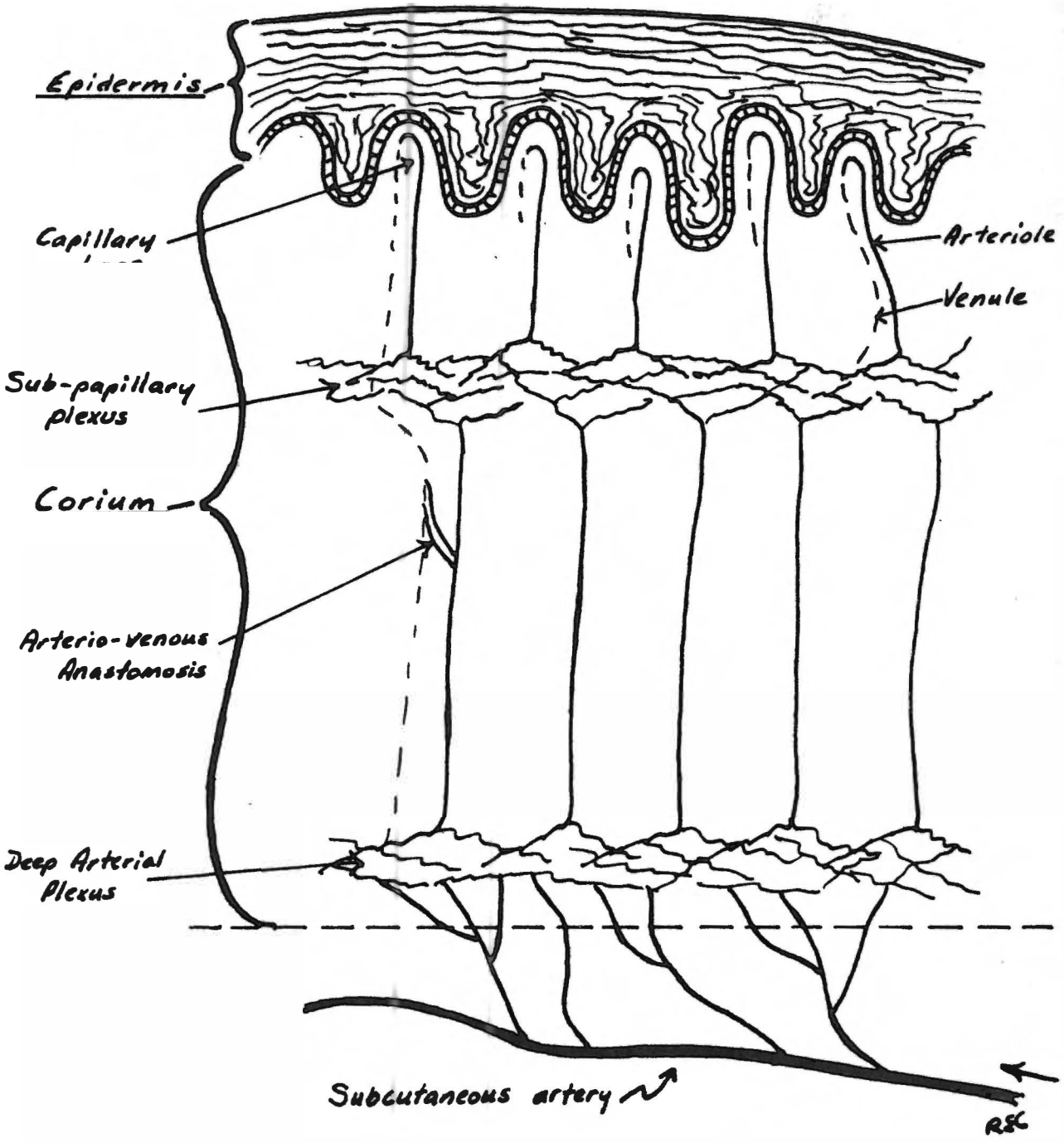
The stratum corneum, the most superficial of the layers of the epidermis, consists of several layers of flattened or fusiform cells. The most superficial of these are little more than horny scales. This layer is the thickest and most highly developed on the palms and soles. The cells comprising this layer are remarkable in that they are very resistant to acids.

The true skin, or corium, consists of a dense network of fibrous and elastic tissue. Incorporated in this layer are blood vessels and lymphatics, nerves and tactile corpuscles, and glandular structures and hair follicles. The corium can be divided into two layers: the basal layer (pars reticularis) which merges into the subcutaneous tissue, and the superficial layer (pars papillaris) which supports the rete of the epidermis. The projections of the pars papillaris are very close together on the parts of the body that are sensitive to pressure. These projections usually each contain a single capillary loop, and medullated nerve fibers and nerve endings are found in many of the papillae. The composition of the lower layer is nearly identical with that of the hypoderm beneath it. As one progresses upward in this layer, the fat lobules gradually become fewer in number and smaller in size until they are practically replaced by dense white fibrous or collagenous

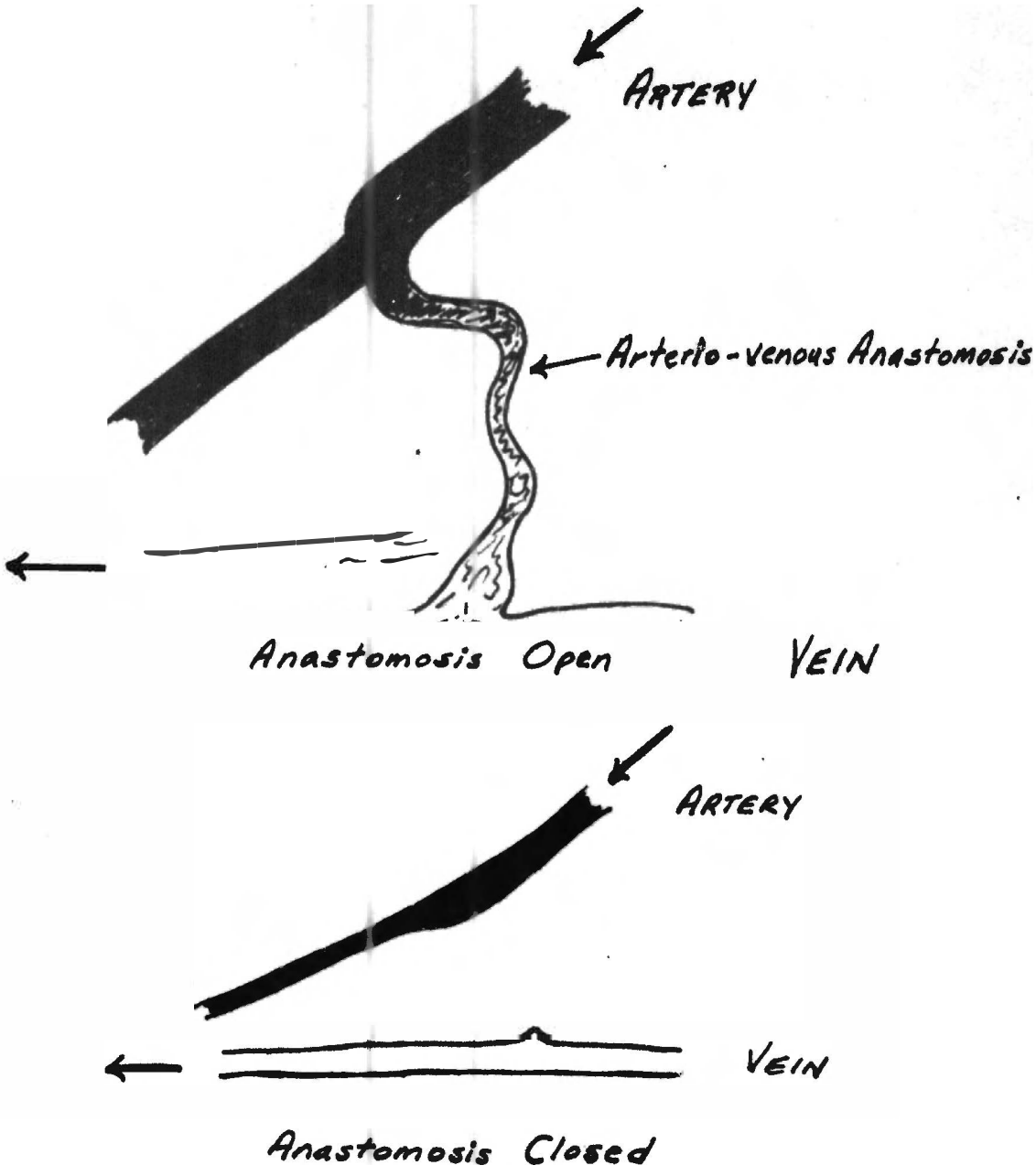
tissue which is interlaced with nerve trunks and blood and lymphatic vessels. Many small strands of yellow elastic tissue are threaded through the entire corium, surrounding glands, hair follicles and blood vessels, and finally passing upward to terminate between the columnar basal cells of the epidermis. These fibers are important in holding the dermis to the epidermis.

The hypoderm is the subcutaneous tissue, and it is composed of loosely woven bundles of connective tissue which enmesh clumps of fat cells. The sweat glands and the deeper hair follicles are situated in the hypoderm.

The blood supply of the skin is derived from two parallel plexuses, one of which is in the deepest part of the corium and the other of which is high in the corium. Twigs from the deeper arterial rete supply the fat lobules and the sweat glands. From this plexus, branches ascend to the upper 1/3 of the corium, where the second plexus is formed. This more superficial plexus is the subpapillary network. Twigs from the subpapillary layer send off arterioles into the papillary layer, to the hair follicles and the sebaceous glands. Tiny arterial branches then pass into the papillae and divide there into capillaries which unite to form a venule at



THE ARTERIAL SUPPLY OF THE SKIN



Reaction of Arterio-venous Anastomosis and associated vessels to a lowering of body temperature

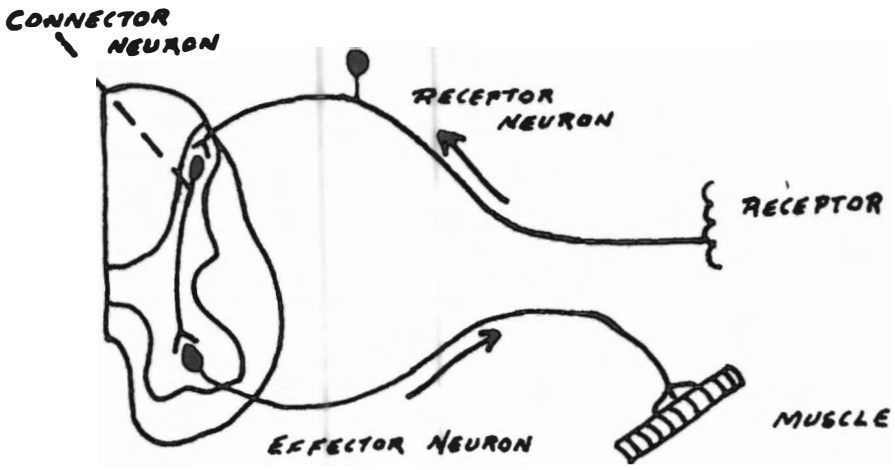
(From Best & Taylor)

Some of the small arterioles leading to the subpapillary plexus anastomose directly with the veins beneath. These channels are surrounded by thick walls which differ from the walls of ordinary ateries. Elastic tissue and collagenous reticulum surround these channels, and thus the glomus is formed. These structures are found in a definite zone immediately beneath the subpapillary plexus, and they are most numerous on the digits and distal portions of the extremities.

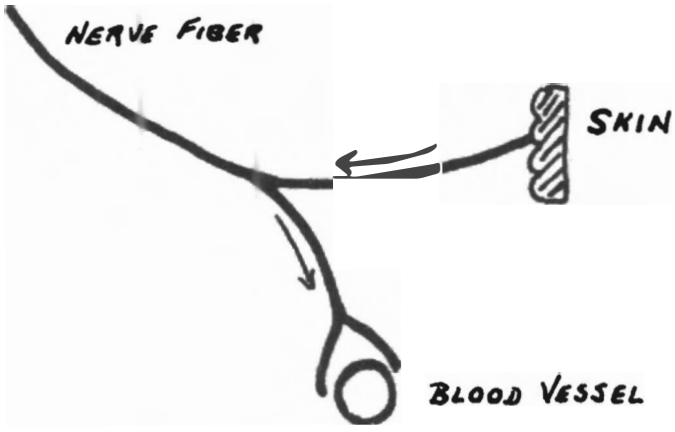
The lymphatics of the skin parallel the blood vessels except that there are lymph spaces in the corium, and the lymph passes by exosmosis through the apices of the papillae into the deeper layers of the epidermis. The superficial lymphatic plexus is so abundant that substances in the lymphatics are absorbed almost immediately (Sutton and Sutton, 174.) The greater part of the fluid which circulates through the skin is taken up by the veins. This can be shown by the fact that edema of the extremities always follows ligation of the veins and only occasionally follows ligation of the lymphatic vessels. Chemically, lymph is practically identical with extravascular fluid in the tissues, and the composition of lymph depends largely upon permeability of the capillaries.

The nerve supply of the skin fills two important roles: it renders the skin a keen sense organ, and it innervates the motor components of the skin. Sensory fibers are the peripheral processes of sensory neurones, and they terminate in either free arborizations between epidermal cells, or in relation to special endings within the corium or subcutaneous tissue. Sympathetic nerve fibers supply the involuntary muscle of vessels, arrectores pilorum muscles, and sweat glands. In order to reach the skin, the fibers extend distally and toward the surface along the general course of the blood vessels. In the corium, some of the medullated fibers divide into many branches, lose their medullary sheath in the papillary layer, enter the epidermis, and end in arborizations between the epithelial cells as far distal as the stratum germinativum. Terminations are between, not attached to, the epidermal cells. Many nerve fibers terminate in the deep and superficial portions of the corium, and are distributed to the walls of vessels and dermal accessory structures. There are several different types of nerve endings in man, each covering a separate modality.

In 1937, Lewis (111) postulated the existence of a nocifensor system of nerves which comprises a sys-



A SIMPLE REFLEX ARC



AN AXON REFLEX ARC

(From Best & Taylor: Textbook of Physiology)

tem of intrinsic cutaneous nerves separate from the sensory systme. Axones arborize freely in the skin, and the flare at the site of an injury is due to vasodilatation by the action of these fibers. This axon reflex, or flare reflex, exists only five to seven days after the severance of the cutaneous nerve, and it cannot be obtained after degeneration has occurred.

The skin contains both smooth or non-striated muscle and striated muscle. Smooth muscle fibers are found in the skin of the scrotum, nipples, eyelids, around sweat glands, and as part of the glomus. Striated muscle occurs in connection with the muscles of facial expression. The cutaneous musculature is abundantly supplied with elastic fibers which serve to bind the fiber together and to distribute traction and pressure. This in turn influences secretion, excretion, circulation, and the interchange of fluids.

There are two types of glands in the skin:

A. Merocrine (secretion without cell destruction)
    1. Eccrine: clear secretion, as in sweat glands
    2. Apocrine: secretion has tips of disintegrated cells
B. Holocrine: (sectetion is the disintegration product of the cells, as in sebaceous glands)

The glands of the skin fall into two categories, represented by the sweat glands and the sebaceous glands. The latter supply oily lubricant to the skin, and are attached to hair follicles. They are absent on the palms and the soles, and in general they are situated more superficially than the sweat glands. The sebaceous glands vary in size from small pouch-like alveoli to large multilobular structures. There is a single or double layer of columnar epithelial cells at the periphery, and the center of the gland is filled with large polyhedral cells which contain fat. As these cells break down and escape from the lobules, new cells are supplied by the continuous activity of the proliferating basal elements. Fatty material and epithelial debris escapes into the hair follicles. These glands are of great importance in many skin diseases.

The sweat glands are most numerous on the palms and soles. They consist of two parts: the duct and the body of the gland. The body of the gland is situated deep in the corium, and consists of many coils. This portion of the gland is supplied with blood from a dense vascular network which surrounds it. The nerves supplying it are non-medullated sympathetic fibers that also form a close network around it. The duct of the gland

assumes a corkscrew course as it passes upward through the epidermis and finally opens on the skin surface.

A third type of gland is found in the skin of the pubic, abdominal, circumanal, axillary, and mammary regions. These glands secrete fatty and odorous substances as well as sweat. They are large glands, and are twice as frequent in the female as the male. These apocrine glands atrophy with the advance of age even more than the sweat glands do.

Skin appendages include hair and nails. Although they do participate in some skin diseases, they are not commonly the site of any psychogenic dermatoses, and therefore will not be discussed in detail.

PHYSIOLOGY

The functions of the skin have been summarized by MacKenna (118) as follows:

1) Integumentary: Including covering the body
2) Regulation of temperature
3) Respiratory: negligible in man
4) Excretory: sweat assists kidneys in elimination
5) Absorptive: negligible in man
6) Sensory
7) Psychic

MacKenna feels that because of its embryolog-

ical relationship with the central nervous system, the skin is one of the chief organs through which emotion is expressed. Fear blanches the skin; horror may cause the skin to contract and the hair to bristle. All of the well known physiological responses of the skin to emotional states indicate the close connection between psychic centers and the vasomotor mechanisms of the cutaneous capillaries. The psychic functions of the skin are of very practical importance, for emotion plays a part in the aggravation, if not in the actual causation, of some of the common skin diseases (MacKenna, 118.)

Sutton and Sutton (174) reiterate the fact that the skin is the dividing line between the individual and his environment. Thus, it is primarily a barrier. The insensitive, insoluble, and relatively inert horny layer with its underlying regenerative elements resists abrasions, heat, light, and living organisms. The tough springy corium with its fatty base of hypoderm absorbs minor extrinsic forces very effectively. Light is reflected or absorbed by pigment; heat is removed by increasing blood flow; and the healthy dry skin apparently has some bacteriostatic power as well.

The skin normally has a bacterial flora which has little invasive power, although these organisms may become pathogenic after gaining entrance through the

injured or abraded skin. The most vulnerable points of entrance for bacteria are the pilosebaceous orifices. Normal skin cultures show Staphylococcus albus, Staphylococcus citreus, Streptococcus viridans, gamma type streptocci, diphtheroids, gram positive bacilli, and many types of saprophytic fungi. As mentioned before, the healthy skin appears to have some natural self-disinfecting mechanism. It is known that sweat is fungicidal if its pH is less than 7.0.

The sensory nerves of the skin have been divided into two types on the basis of the speed with which they regenerate after severance. This fact has enabled them to be studied separately, so the distinction is not as artificial as it might seem at first. The sensory nerves which regenerate most rapidly convey imperfectly localized sensations of pain and extremes of temperature. This system of sensory nerves has been designated protopathic. The sensory nerves which regenerate less rapidly are for more sensitive perception. This system of fibers is found only in the skin, and there are separate fibers for heat, for cold, for light pressure, and for tactile discrimination. This constitutes the epicritic system. Available information indicates that each sensory fiber

conveys only one quality of sensation. In hairy regions the pressure points lie near the hair follicle. Pressure sensitive fibers surround each follicle and the hair serves as a lever to stimulate the nerve endings. After cocainization of a nerve trunk, sensory loss occurs in this order: pain, cold, warmth, touch, and motion. It has been proved that itching is not due to stretching of the tissues since intracutaneous injections of saline do not provoke itching. Sutton and Sutton (174) feel that histamine is the cause of itching.

The influence of histamine on the skin has been used in a test for nerve function proposed by Loesser in 1938. The test involves puncturing the skin at 1/2 inch intervals and applying a drop of 1:1000 histamine HCl. The wheal which results is surrounded by an intense flare if the nerves are intact. If the nerves have degenerated, there will be no flare. The absence of the flare has been noted in degeneration before there was any electrical evidence of degeneration (Sutton and Sutton, 174.)

The sensation of pain is like that of temperature and pressure in that it has a punctiform distribution. Pain is probably the most widely distributed of all sensations. The fibers which conduct pain

sensation have a specificity for pain and serve no other purpose. Pain at surface points can usually be accurately localized if the senses of pressure and of temperature are retained. On the other hand, pain arising in the viscera can seldom be accurately localized and may even be mis-referred to a distant point.

The skin is important in the heat regulation of the body. An increased flow of blood materially hastens heat conduction and consequent radiation through the corium and epidermis, and at the same time activates sweat secretion. Heat loss by evaporation depends on the production of sweat, the air humidity, and the amount of skin exposed.

The vascular activity of the skin has been studied extensively. Landis (108) points out that the minute vessels of the skin must perform their basic functions under conditions wich are less satisfactory than in the deeper tissues. First, the blood vessels of the skin are exposed to rather marked extremes of heat and cold, and to chemical and mechanical trauma more than the deeper vessels are. Secondly, the capillary bed of the skin is meager in comparison to that of muscle, intestine, or kidney. Third, the metabolic needs of the skin may be sacrificed over prolonged periods in order to keep the body temperature constant. Under extreme

conditions, cutaneous metabolic requirements may be temporarily neglected in order to keep the temperature of the internal tissues constant.

The glomus is essentially a mechanism for increasing the rate of cutaneous blood flow. It was first described in 1877 by Hoyer (93), and it consists of an anastomosis connecting the smaller arteries and venules of the skin. The purpose of these specialized vessels has been studied by Grant (75) who concludes that their purpose is two-fold: 1) To bring large amounts of arterial blood to those peripheral skin areas which are most apt to suffer from exposure to cold, and 2) To permit extremely rapid cutaneous circulation so that the radiation of heat can be enormously increased if necessary.

Landis (107) reports the work of Roberts and Griffith who studied a large series of cases and found that in normal, unstimulated skin approximately 1/2 of the available capi laries were open. They induced vasodilatation by introducing histamine into the skin, and found that in the area of the flare numerous additional capillaries dilated and became visible. Landis reports also the work by Chambers in 1922 when he developed delicate micro-manipulators by which it was possible to measure directly the pressure in a single capillary.

He measured arteriolar pressure as 32 mm of Hg with the hand at the level of the heart, and measured pressure in the venous end of the capillary loop as 12 mm Hg. This gradient of capillary pressure indicates that the peripheral resistance to blood flow is partly due to the tonus of the capillaries, although it is primarily a function of arteriolar dilatation. It is interesting to note that the average capillary blood pressure has the same order of magnitude as the colloidal osmotic pressure of the plasma proteins. Thus, we have shown that the filtration or absorption of fluid through the capillary wall is actually determined, as Starling suggested in 1896, by the balance between the osmotic pressure of the plasma proteins and the capillary blood pressure.

The blood pressure of the capillaries at the base of the fingernail with the hand at heart level varies widely even from moment to moment. Mechanical injury or inflammation of the skin leads to conspicuous reflex vasodilatation and an increased rate of blood flow. Capillary pressure rises considerably during the resultant period of hyperemia, and as hyperemia diminishes, capillary pressure rapidly returns toward normal. Cooling of the skin produces vaso-constriction and at first a drop in capillary pressure, which is followed in a few minutes by a secondary rise in capillary pressure assoc-

iated with the reac ive hyperemia. It is this secondary reactive hyperemia that protects the peripheral tissues from injurious effects of prolonged cooling.

It is important to remember that capillary pressure is an extremely labile thing: the exchange of fluid between blood and tissue spaces will be directly affected by all changes in capillary pressure. The balance between the volume of tissue fluid and that of the circulating blood is also dependent upon another factor: the permeability of the capillary wall. If the capillary wall is made permeable to protein by the local injection of histamine, by inflammation, or by direct injury with heat, cold, light, or chemicals, leakage of protein will reduce the effective colloid osmotic pressure of the blood. Capillary pressure, now unopposed, will produce excessive filtration which, combined with reduced absorption, leads rapidly to the accumulation of edema fluid. The edema fluid removed from induced and spontaneous wheals contains large amounts of protein. It is now generally agreed that whealing is due to increased capillary permeability. Capillary pressure and blood flow determine the rapidity whith which whealing appears, however, and complete obstruction of blood flow prevents the appearance of wheals.

In 1927, Lewis (111) carried out his classical experiments regarding the capillaries of the skin and their reactions. The problem was to find a physical link between the central nervous system and erythema, edema, wheals, vesiculation, and bullae in the skin. It had been shown experimentally that vasoconstrictor innervation was accomplished through the sympathetics, and Langly first described the antidromic impulses passing over sensory nerves to cause vasodilatation (as reported by Stokes, Kulchar, and Pillsbury, 166.) According to Langly, the antidromic pathways provided a means of explaining the centrally dominated, extensive, directly induced vasodilatation. These impulses travel along sensory nerves in the opposite direction from the sensory impulses, and are capable of producing vasodilatation of central origin in peripheral structures, especially the skin. The central nervous system thus affects the vessels of the skin directly. The axon reflex by which local vasodilatation follows the stimulation of a sensory nerve from the periphery is of significance largely in the production of the flare.

The Lewis theory has also provided a link between the sensory nerve termination and the vessel itself, but this link is a chemical one: the "H-substance" which is liberated as a metabolite about the nerve ending.

This substance is responsible for the triple response first described by Lewis. The triple response includes: the streak (vasodilatation), the wheal (exudative edema), and the flare (reflex nervous vasodilatation.) Thus, the triple response is the same as dermographism, or as urticaria, itself.

Urticaria is by this interpretation the triple response to a local histamine-like substance liberated from irritated or injured skin cells. The liberation of this substance can also be brought about through antidromic impulses originating in the central nervous system. One of the strongest pieces of evidence in favor of Lewis' theory is the refractoriness of the spontaneous wheal as it involutes to histamine and epinephrine.

Sutton and Sutton (174) consider that inflammation is a function of the skin. The classical rubor, tumor, calor, and dolor which characterize inflammation are considered by these authors to be the same as the responses to stroking the skin. These authors report that following the release of a consticting band on an extremity, there is an increase in blood flow of 500-600%. They feel that this reactive hyperemia may be due to histamine that collected in the ischemic tissues. They have found that normal capillary pressure is 20-40 mm Hg. In the histamine flare it is 50-60 mm Hg; in

reactive hyperemia it is 35-45 mm Hg; and in hyperemia due to application of heat it is 70-80 mm Hg.

In 1946, Hans Selye (156) proposed the adaptation syndrome, which was more inclusive than his previously proposed alarm reaction which appeared in the literature in 1936. The adaptation syndrome is very important to the understanding of skin disease of psychogenic character. The general adaptation syndrome is the sum of all non-specific, systemic reactions of the body which ensue upon long continued exposure to stress. Selye writes that all experimental observations are compatible with the view that during the general adaptation syndrome certain hormones of the anterior pituitary and adrenal cortex are produced in excessive amounts in order to increase the orga ism's resistance. This defensive endocrine response facilitates adaptation to stress, but if the stress is long continued the resulting endogenous hormone overdosage may become the cause of certain diseases of adaptation of a structural type. These diseases constitute some of the most common maladies of man, and include cardiovascular, renal, and joint diseases. A close relationship between the adaptation syndrome and allergy has often been suspected because the liberation of histamine-like substances occurs in both conditions.

Selye reports that strong nervous stimuli can act as alarming agents. Fear and rage have even been regarded as possible causative factors in shock through the mechanism of increasing the output of adrenalin and causing vasoconstriction with increased capillary permeability, hemoconcentration, and secondary fall in blood pressure. However, the importance of the nervous system and nervous disturbances has not been proved to play a prominent role in regulating the course of the general adaptation syndrome.

The general adaptation syndrome consists of several phases: the alarm reaction which is divisible into shock and counter-shock, the stage of resistance, and the stage of exhaustion. Weiss and English (179) state that in the initial phase, if the damage is not too severe and permits survival, the toxic metabolites stimulate the anterior pituitary to discharge adrenocorticotrophic hormone which, in turn, stimulates the secretion of adrenal cortical hormones and thus raises the resistance of the body. The second phase of the alarm reaction, counter-shock, then occurs. The second major stage, resistance, occurs after prolonged exposure to stimuli to which the organism has acquired adaptation as a result of continued exposure. The stage of exhaustion occurs after the stimulus has been so pro-

longed that adaptation could not be maintained. During this stage it is impossible to gain further resistance.

The extreme lability of the vascular structures in response to nervous stimuli has long been noted. Barcroft (10) demonstrated that the externalized spleen (the vascularity of the skin is analogous) is very sensitive to a wide variety of shades of emotion. In a dog with an externalized spleen, the spleen contracted from a numerical value of 100 to 55 while she was deciding whether or not to accompany her keeper from the room. This reaction is apparently due entirely to emotion. While it may well be more pronounced in the spleen than the skin, the vascularity of the two is comparable, and what affects one should affect the other also. Grollman (78) has also shown the remarkable range and character of the circulatory reactions to mental stimuli. He made a series of studies of the reactions of medical students to a professor's reprimand, and found large differences in the blood pressure, pulse, and cardiac output depending upon the particular reaction of the student.

According to Sutton and Sutton (174) the lymph capillaries consist of a wide anastomotic bed with active flow. Any injury, whether physical or chemical, greatly

increases the permeability at the site. These authors feel that any injection into the skin is, in fact, intralymphatic. Changes in pressure and motion are important factors in causing particles to enter lymphatic channels and move along them.

The autonomic nervous system has many ramifications in the skin. The response of the autonomics is characterized by extensive reactions to a single stimulus. In other words, responses of the autonomic system are designed for total mobilization of the body's resources. Brunner (26) states that it is characteristic of such stimuli that directly or indirectly they activate the basic reflex reaction patterns having to do with fear, rage, and so on: in short, with emotional responses. These responses are complex, with manifestations in the psychic, autonomic, and somatic spheres.

The autonomic nervous system innervates involuntary muscle and glands of the skin. This makes heat regulation possible. Brunner (26) states that the fibers to the sweat glands are functionally cholinergic although they belong to the sympathetic system.

The higher centers of the autonomic system are in the hypothalamus, and this has connections with the cortex and thalamus. The two divisions of the autonomic system, the parasympathetics and sympathetics usually

exert opposing actions on the structures which they innervate in common, but Brunner states that a synergistic effect can be demonstrated in many instances. The two systems differ in the substances liberated at their terminals, the parasympathetics liberating acetylcholine and the sympathetics liberating sympathin, a substance like epinephrine. Parasympathetic fibers are often called cholinergic and sympathetic fibers, adrenergic.

Brunner (26) describes the way in which an environmental stimulus can affect the autonomic system. If the stimulus produces fear, there is a series of physiologic changes which are initiated by the autonomic system. These changes include peripheral vasoconstriction, splanchnic vasodilatation, increased cardiac rate and output, increased blood pressure, increased respiratory rate, sweating, and muscle tension. Concomitant psychic changes include the desire for flight, the awareness of danger, and the consciousness of visceral changes. There is then somatic activity appropriate to the situation.

Ordinarily these signs of autonomic stimulation are transient and disappear when effective somatic activity has caused the necessary adjustment in the external environment. When the normal somatic response is not possible, the physiologic "set" persists for longer

periods. Brunner (26) feels that following such repeated frustration of the basic instinctual drives, chronic disorganization of the vegetative functions may result. In this persistent activity of the autonomic nervous system which accompanies the inhibition of somatic responses lies the physiologic basis of certain organ dysfunctions.

There is ample experimental evidence for the mechanism as described by Brunner. Masserman (121) produced anxiety reactions and phobias in cats by setting up a frustrating situation in which the previously conditioned response leading to food was counter-balanced by an unpleasant stimulus at the moment of food taking. These animals showed persistent physiologic phenomena of the alarm state. Gantt (65) produced neuroses in dogs in several ways. He noted that the responses of the animals fell into several categories: 1) active attempts to escape 2) passive defensive immobility and motor disturbances 3) permanent dysfunctions in various organ systems 4) autonomic changes detectable by laboratory study. Brunner (26) feels that it is quite possible that these animal neuroses have their counterpart in the frustrations of basic drives incident to modern living.

Rothman (145) discusses the role of the autonomic nervous system in cutaneous disorders in considerable detail. He mentions the fact that fear, rage, and anger cause constriction of the pilomotor muscles and also vasoconstriction, both of which are adrenergic. The nerve supply to the sweat glands is anatomically identical, but functionally cholinergic.

Rothman (145) believes that sweat secretion is the finest recorder of minimal emotions and of minimal mental effort. The sweat secretion is measurably increased with the solution of a simple puzzle, and this mechanism has proved to be too sensitive for use in lie detection. Emotional sweating is most pronounced over the soles and the palms, but may occur over the entire body surface.

The innervation of the sebaceous glands is not well understood (Rothman, 145.) The "ointment face" has been described in patients with infectious encephalitis and post-encephalitic parkinsonism, and this is perhaps the most obvious reason for believing that there is a direct connection between the central nervous system and the sebaceous glands. This excessive seborrhea is not confined to the face, and is always associated with destructive lesions in the pons or mid-brain.

Rothman (145) feels that it is over-simplification to classify emotion as adrenergic or cholinergic, even though it is true that the adrenergic impulses of pilomotion and vasoconstriction and the cholinergic impulses of sweating and vasodilatation usually occur together. They do not always occur together, an example being cold sweat. It is generally thought that the vasoconstrictors have a lower threshold and respond more rapidly than the vasodilators. Often both are innervated simultaneously, in which case the vasodilators usually prevail.

The voluntary influence on the production and suppression of autonomic impulses is of clinical interest. Although the autonomic nervous system is classically regarded as being involuntary, many cases have been reported in which people could produce autonomic skin changes at will. Rothman (145) states that it is quite obvious that the integrating centers of the hypothalamus are under higher control in the cortex, and he would like to conclude that many people are able to train themselves to exercise suppression of the emotional autonomic impulse. He points out that functional hyperhidrosis is often an intolerable problem to the concert violinist, yet by simple reassurance and discussion of the psychosomatic relationships, true hyperhidrosis is often stopped.

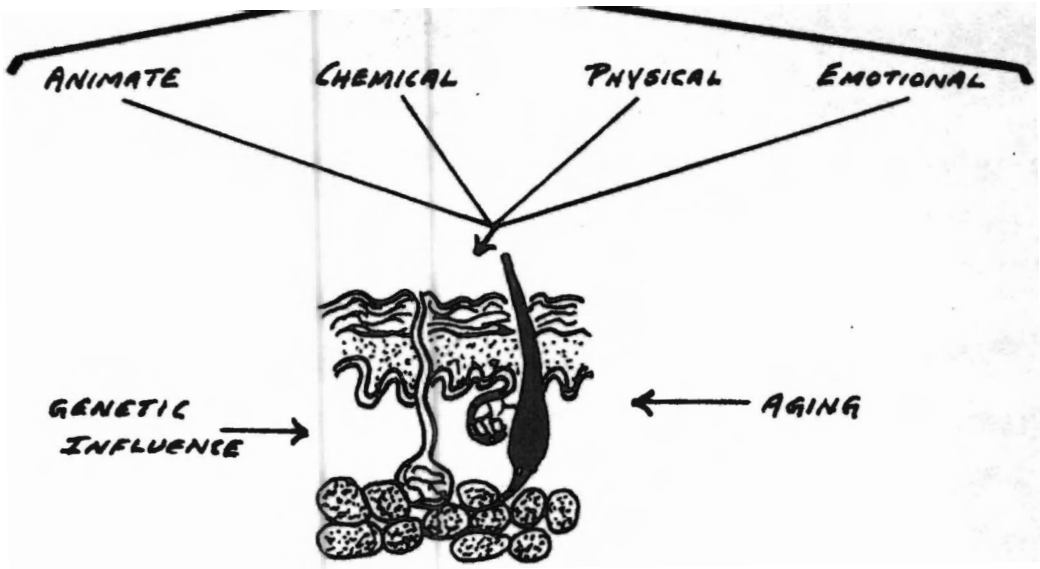
Emotional urticaria is a remarkable exaggeration of blushing, and is the only psychosomatic disease which is relatively well understood, according to Rothman (145.) These patients respond to excitement and reprimands with a distinct urticaria. They also respond to external heat in the same way, and it is thought that they are allergic to the acetylcholine which is released in the skin in response to either emo ions or heat. On systemic administration of acetylcholine they get a generalized urticaria.

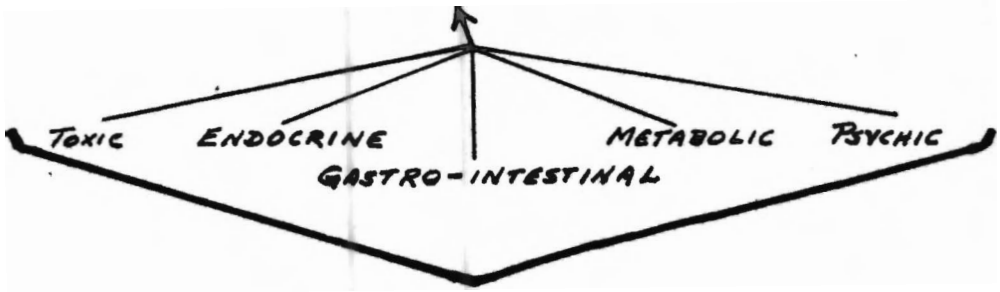
The vasomotor impulses to the skin that result from emotional stimuli are always of short duration and therefore do not interfere with the nutrition of the tissues enough to cause permanent damage. However, even though they are short-lasting, they can well interfere with the course of a disease which is present independently from the emotions. Arteriolar vasodilatation and the resulting arteriolar hyperemia increases all inflammatory signs and decreases the itching threshold. For that reason, a person with a pruritic skin disease will have more intense itching when troubled by emotions such as self-pity and apprehension. Phenobarbital is the best drug for counteracting this mechanism. Atropine has no effect because the antidromic vasodilator impulse is nicotinic in nature (Rothman, 145.)

With regard to the importance of epinephrine, Harrison, Calock, Pilcher, and Wilson (84) believe that it outweighs the nervous element per se in the various adjustments to anger. Barath (8) found that epinephrine has a double function dependent upon the dosage, and Dale (35) discovered that in small amounts under certain conditions it may act like histamine and cause vasodilatation with a fall in blood pressure.

Other changes which are of interest in the neurophysiology of the skin have been noted by Glaser (67) and by Kretschmer and Kruger (106.) These investigators have shown that definite changes occur in serum calcium under hypnosis. It has been suggested that cellular hypersensitivity tends to be "vagoid" if the cell is richly supplied with potassium, and "sympathicoid" if it is rich in calcium. Stokes , Kulchar, and Pillsbury (166) warn against the tendency to classify patients with neurogenous skin diseases as either vagotonic or sympathicotonic, for these are terms of local significance only, as shown by Szondi (175.) In fact, the extreme lability introduced by the interplay of sympathicotonic and vagotonic impulses in various parts of the body has caused conscientious observers like Becker (14) to take refuge in the term "neurocirculatory instability" as the underlying state in the neurodermatoses.

EXTERNAL ENVIRONMENTAL INFLUENCES





INTERNAL ENVIRONMENTAL INFLUENCES

ETIOLOGY OF SKIN DISEASES

(Wittkower & Russell)

DISEASES

Wittkower and Russell (187) state frankly that the cause of many skin diseases remains obscure and that the various manifestations of skin disease are infinite in number. This suggests to these authors that skin diseases arise from a great number of causes, all acting together on people who have different modes of reaction. It is known that a stimulus may have different effects on different persons. It is also known that different stimuli may all have similar effects on the same person.

Wittkower and Russell (187) recognize the importance of the following factors in the etiology of skin disease:

1) Inheritance of racial qualities and genetic faults
2) The skin must withstand all types of physical assaults
3) The skin is exposed to vast numbers of chemicals
4) Affections of the gastrointestinal tract may lead to faults of absorption and nutritional deficiencies
5) Infections from pus-forming bacteria affecting the skin
6) The influence of endocrine glands is probably great
7) Degenerative changes of aging begin in early adult life
8) Emotional stresses play a variable part: may aggravate dermatosis or may cause abnormal skin sensations.

The terminology of skin lesions is as follows (MacKenna, 118):

A. Primary lesions:

1. The macule: a small or large circumscribed alteration in the color of the skin without any change in the consistency of the skin.
2. The papule: a circumscribed solid lesion elevated above the surface of the skin.
3. The nodule: a large papule more deeply set in the skin, and healing with scar formation.
4. The wheal: an acute transient superficial edematous elevation of the epidermis, which usually itches.
5. The vesicle: a tiny blister situated under the epidermis and containing serous fluid.
6. The pustule: a vesicle in which serous fluid has been changed to pus by bacterial action.
7. The scale: may be primary or secondary, and is composed of partially separated flake of horny cells.

B. Secondary lesions:

1. The crust:an aggregation of dried blood, pus, serum
2. The ulcer; a deep excoriation with destruction of entire epidermis and part of dermis.
3. The scar: fibrous tissue replacement after injury
4. The fissure: a split in epidermis so that dermis is exposed.

A HISTORY OF PSYCHODERMATOLOGICAL CONCEPTS

Raginsky (139) calls attention to the fact that over 2500 years ago, Socrates chided the physicians of Athens for their organistic medical attitudes. He expressed the view that the body could not be cured without treating the mind also. It was the generation of German physicians in the middle of the 19th century who initiated the current search for a more scientific understanding of psychosomatics.

As reported by Wittkower and Russell (187), Brocq and Jacquet recognized emotional factors in the condition known as lichen simplex chronicus circumscriptus of Widal in the year 1891.. It was in 1906 that Doswald and Kreibach (48) produced blisters by hypnotic suggestion. Others later repeated this process with similar results. In 1912, Sadger (149) pointed out the importance of the skin as an erogenous zone. Kreibach, in 1924, postulated a neurogenic concept of pruritus leading to eczema. He called the pruritus occuring in grossly normal skin a "fixation phenomenon" which arose from repressed anxiety or desire. In 1925, Hazen and Whitmore added more to the concept of pruritus by stating the opinion that many

cases of pruritus vulvae were attributable to marital unhappiness or unsatisfied sexual desire.

Klauder (104) was the first person to write extensively of the influence of the psyche on the skin. It was in 1926 that he stated that the influence of the psyche was probably greater on the skin than on any other organ. In 1927 Sack pointed out that the skin is an especially favorable field for the study of psychosomatic relationships, since all voluntary innervation seems to be excluded from the skin. It is the end-organ of somatic equivalents of psychic processes (Sack, 148.) Stokes has made several important contributions to the field of psychosomatic dermatology (163 and 164), and he was the first to point out the masochistic-sadistic trends in these patients. In 1928, Heilig and Hoff (87) demonstrated that the presence of the herpes virus and the suggestion of the development of the herpes are not sufficient to produce clinical herpes simplex. There must be in addition an <u>affect,</u> which seems to inhibit the defense mechanism so that the herpes can become effective.

Blaisdel (20) coined the term "mental allergy" in 1932, and presented a very detailed case history in which seborrheic dermatitis was seen to exacerbate in direct relationship to emotional stress in a patient who also had hayfever, "reactive skin", and emotional turmoil

(poor sexual adjustment, inferiority complex, and father domination.) Blaisdell classified mental allergy in two large groups: those whose mental disturbance acted on the skin through other organs, and those in whom the distress of the mind resulted in distress of the skin without noticable involvement of other organs.

In 1932, Becker (14) placed the entire field on a more physiologic basis when he called attention to neurocirculatory instability associated with some psychosomatic disorders. This was followed in 1933 by an article by Ingraham recalling the close developmental relationship between the skin and the nervous system.

Goldsmith (70), in 1939, injected the first note of warning into the field of psychodermatology when he stated that we should not exaggerate the importance of mental factors in the production of skin disease. His statement was based on a study of dermatoses in patients attending a hospital for organic and functional nervous diseases. He found only excoriations relatively more common than in the general hospital population. He also pointed out that conflicts may lead to either psychoneuroses or to affective disturbances, and for that reason skin disorders due to emotional conflict should not be expected to be accompanied by a psychoneurosis. In his opinion, the skin disease provides an outlet for nervous

tension, so a psychoneurosis does not develop. If, however, the patient is prevented from somatizing his emotional difficulty and from obtaining gratification by rubbing the lesions while the tension persists, he will either rub other areas and produce new lesions, or he will break down into frank psychoneurosis or even psychosis because of the lack of a cutaneous safety valve.

It was also shown in 1939 by Klaber and Witt-kower (103) that the personality type may be of fundamental importance in the pathogenesis of rosacea.

MacKenna and Macalpine have attempted to correlate specific personality types with dermatological lesions (118.) They have concluded that four personality types are particularly apt to develop skin lesions: hysterical, obsessional, narcissistic, and anxious.

Cormia (33) has stated that the fundamental factors producing conflict are of far greater importance than personality types in the production of psychogenic dermatoses. The dermatosis depends not only on the personality type of a person in his life setting, but also upon the nature of the predisposing and precipitating stimuli. Brunner (26) stressed the importance of frustration of emotional satisfactions in a paper written in 1948.

English (55) made further contribution to the literature in 1949 when he described the eight most common emotions producing skin disorders. He included: the need for love, anxiety, hostility, inferiority feelings, ambivalence, guilt, ambition, and envy.

This is a field in which there is a great need for more specific and experimentally controlled work. Psychometric tests are available, and there is every reason to suppose that hypnosis and psychoanalysis can aid in our understanding of psychodermatology. The time is past for detailed case studies, and only carefully controlled experimental work will satisfy many people of the significance of the relation of the psyche to the skin.

THE PSYCHOGENESIS OF THE NEURODERMATOSES

In speaking of the psychogenic factors in disease, we mean simply the production of physical symptoms by the powerful biological urges which motivate our lives: fear, love, and hate. When these drives are intensified without adequate expression, they can affect the physiology sufficiently to produce symptoms. The essence of the concept of functional symptoms is that the physiological disturbance is produced, not by damage to the organ, but by a variation in its function. There is simply a change in the balance of forces (Saul and Bernstein, 153.)

Van de Erve and Becker (176) point out that there are various terms for so-called functional disease. These include "neurocirculatory instability," "diathetic makeup," and "protoplasmic instability." These investigators have found that an underlying instability plays an important role in the development of the neurodermatoses as well as in the allergic states.

Menninger (125) states that the skin patient is usually not confronted with death, paralysis, or other similar catastrophe. However, something psychologically more important than locomotion is threatened:

the appearance. Usually the dermatological patient's lesions are no secret, and he is subject to countless conjectures as to cause, implications, and consequences of his disease. The attitude of the laity toward skin lesions has been further emphasized by Weiss and English (179), and is of great importance in the psychological attitude adopted by the patient after his skin affliction appears. The public commonly regards dermatological lesions as a manifestation of filth, lice, or syphilis, and thus the dermatological patient is condemned from the beginning.

In Menninger's (125) opinion, the suffering of the dermatological patient is vastly underestimated by those who have not had similar afflictions. The torture to which some of these people are subjected transcends that of physical pain. Menninger remarks that the dermatological patient usually shows an attitude of controlled desperation.

Rogerson (142) feels that it is futile to try to attach certain personality types to certain neurodermatoses. In view of the multiplicity of the diseases oroduced, it is obvious that a single set of psychic factors could not possibly be implicated. Gillespie (66) also states that there is no apparent specificity between skin lesions and underlying psychological causes. The

The same lesion may be produced by a variety of psychological factors, and similar psychological factors will produce different lesions in different individuals.

Grace and Graham (72) emphasize the importance of the attitude of the patient in the production of bodily disease. This includes the way in which a person perceives his own position and the action, if any, which he wishes to take in dealing with the situation.

Cormia (32) states that psychosomatic factors are emerging rapidly as important features in the etiology of many of the common dermatoses. The delineation of psychosomatic factors is even more important when it is recalled that this group of diseases responds so poorly to routine dermatological therapy. In the opinion of Cormia, the most important group of the neurodermatoses. are the pruritides, which comprised about 50% of a recent series of cases. In this series, long-standing difficulties in adult life were of primary importance in the etiology of the neurodermatoses. Childhood maladjustments were also of great importance in these cases.

According to Margolin, Orringer, and Kaufman (120), the unconscious is a potent factor in the determination of organic function. Its role must be understood if apparently spontaneous fluctuations in physiological activity in human beings are to be assessed and

interpreted. Through the application of psychoanalytic technique, it has become possible to investigate the role of parts of the psychic apparatus not readily accessible by other means.

Shaffer and Beerman (157) recapitulate the causes for emotional tension. They state that emotions are part of the basic hereditary equipment for adaptation. Emotions represent the sensory component of visceral responses to the adaptive strains of life, and when adaptation is adequate to meet the subjective demands of the individual, the emotional problem is practically nonexistent. If the organism fails to adapt, the tension engendered by the adaptive stimulus cannot be discharged, and relaxation is not possible. The accumulated emotional tension must be discharged in an abnormal manner. It may take the form of neurotic behavior, or it may become manifest as an organ reaction. The emotion which gives rise to this reaction may be so repressed due to its obnoxious content that the patient is unaware of its existence.

Shaffer and Beerman (157) believe that the skin participates frequently as a means of releasing pent-up emotional tension. It may react with a variety of patterns: vascular dilatation or constriction, changes in

vascular permeability, modification of glandular activity, sensory disturbances such as paresthesias and itching, and kinetic activities such as rubbing and biting. According to these writers, chronic rubbing trauma to the skin may be the result of psychogenically induced pruritus, or it may stem from a kinetic discharge of nervous tension. In either case, the eventual result is lichenification, eczematization, or excoriation.

Wittkower and Russell (187) state that the skin may be influenced by the mind either directly or indirectly in the following ways:

1) The symptoms may be wholly psychogenic (hyperhidrosis)
2) The emotional factor is often important in reactions of hypersensitivity (eczema, urticaria)
3) A normal emotional manifestation in the skin may occur too easily and by maintained (rosacea)
4) Emotions may be one of the excitants setting off virus or other infections (herpes recurrens)
5) Emotional distrubances may predispose to infections (hyperhidrosis leading to fungal infections)
6) Emotional conflicts may increase the risk of dermatitis (compulsive washing)
7) Emotional disturbance may be the aggravating factor in occupational dermatoses

8) People with strong masochistic trends may unconsciously maintain dermatoses

9) Trivial, small, mild lesions may cause mental distress and profound anxiety by their presence

Brunner (26) outlines the mechanism for producing psychosomatic disorders of the skin. He points out the importance of the prolongation of an intense autonomic reaction in the production of organic changes. For instance, emotional stimulation of the parasympathetics innervating the cutaneous capillaries may cause increased permeability through liberation of acetylcholine and resultant whealing (emotional urticaria.) The concept of a psychosomatic disease as arising from the prolongation of a normal physiologic reaction is important in understanding the pathogenesis of these diseases.

Brunner (26) feels that there is a plausible explanation for the well known clinical fact that emotional stimuli may lower the threshold for allergic reactions. Acetylcholine is liberated at the ends of the cholinergic nerves due to the autonomic changes in emotions, and it is then available to act in synergism with the histamine produced by the local union of antigen and antibody. This results in an allergic response in a situation where the histamine might not have been sufficient to produce a reaction alone.

Cormia (32) states that the various methods by which the psyche operates to produce somatic changes are still very obscure. He feels that tissue damage in the skin is due to the release of stress, but he also feels that while the mechanism does relieve part of the stress, it is rarely consciously desired by the patient.

Why should the skin be chosen as the target organ for the expression of emotional tension? Zaidens (190) and other writers have emphasized the fact that the skin is the barrier between the individual and his environment. Zaidens further states that it is the most exposed and the most accessible organ. Even in intra-uterine life, the skin acts as the mediator between the fetus and the mother's protective amniotic fluid. Another important factor in the selection of the skin is the role of exhibitionism, for this is encouraged in the infant and may be used in later life as a means of drawing attention. Zaidens also points out that as the child grows older, he is forbidden to release emotional tension throgh masturbation, and she feels that it is at this time that the skin frequently becomes the transfer organ. The concept of "skin masturbation", is very well known to the psychiatrist.

Sulzberger and Zaidens (173) believe that constitutional an hereditary factors are important components in the determination of the skin as the target organ for the psychosomatic reaction. In other words, the skin which is abnormally susceptible to such diseases as seborrhea may be selected as the "organ of inferiority" whereas a normal skin under the same circumstances would not be the site of the organic reaction.

Gillespie (66) contributes further to the problem of the choice of the skin as a target organ. He points out that the skin is second only to the genital organs as a source of sexual excitement. Indeed, the entire body should be regarded as an erogenous zone. Gillespie also points out that the skin is more liberally supplied with pain afferents than any other organ, and this leads to its particular importance in some people who have deep-seated feelings of guilt. Whenever mental uneasiness expresses itself in motor activity, the skin is often the recipient of the assault.

Rogerson (142) states simply that it is common experience that the skin is one of the best organs of the body inwhich the effect of psychological changes can be demonstrated. Again it is implied that the pathologic changes are simply perverted physiologic changes.

Undoubtedly, part of the reason for the skin's reactions in response to psychic stimuli is that the skin has numerous end organs which respond to all types of stimulation quite readily (Zaidens, 190, and Kalz, 95.) There are extensive nerve end organs in the skin, and there is also a rich vascular supply. As mentioned before, these structures are extremely sensitive to changes in autonomic tone, and they reflect such changes very rapidly.

Schilder has found that sadomasochistic attitudes are very closely related to itching. He feels (155) that pruritus due to an organic disease in early childhood is indespensable to the development of psychogenic anal pruritus in the adult. Schilder attaches considerable significance to the way in which skin diseases in early childhood may produce a definite set of psychic attitudes which persists throughout life. Children with any type of itching lesion become restless, aggressive, and sadistic. These behavior patterns are retained in the adult.

With regard to pruritus, Alexander and French (3) have mentioned the importance of scratching as a means of relieving unsatisfied tension, and Cormia and Slight (34) report a case in which the scratching reached orgiastic proportions. Others have also noted the similarity of itching attacks to sexual orgasm(MacKenna, 118,

Dunbar, 54, and Drueck, 50.)

The importance of the skin in relation to masochism has been emphasized by Fenichel (59) and several other investigators (Sulzberger and Zaidens, 173, Menninger, 124, Dunbar, 54, and Deutsch, 41.)

Deutsch and Nadell discuss the ways in which the neurodermatoses may develop in considerable detail. They stress the importance of heredity in the atopic patient, and they also mention the apparently close connection between allergy and the psychosomatic diseases. Allergy means altered reactivity which is produced by some previous exposure to a substance, and is made manifest by repeated exposure to that substance. Perhaps such a hypersensitivity phenomenon exists in the psychosomatic patient. These authors discuss a hypothetical case in which an infant who has the biological background of atopy has his first skin manifestations. The child experiences a stimulation in an organ system which has all of the properties for use as an adequate means of discharging libidinal energy. The sensual qualities of the skin are intimately related to such libidinal components as narcissism, exhibitionism, and various forms of eroticism. If the skin lesions create sensations which are libidinotropic, a fixation takes place on one of several libidinal levels. Deutsch and

Nadell state that the child may then turn from curiosity to voyeurism; from pride to exhibitionism; from hostility and rage to sadomasochism; and from love to self-love. All of these can be acted out on the skin. The resulting psychic arrest may be transient, depending upon: 1) the biological factors, 2) the duration of the skin condition, an 3) the amount of different sensual perceptions mediated through the skin and found suitable for instinctual gratification. If this psychosomatic interplay meets threats from without, such as prohibition of scratching or of touching, a tension develops.

A tension is both a psychological and a biological force. Stokes (164) feels that it is conceivable that the tense person floods himself with acetylcholine beyond the capacity of his enzymatic release mechanism to neutralize, and suffers therefore from a low grade intoxication with acetylcholine. Stokes has adopted the concept of the tension frame of mind in describing persons with neurodermatitis. He states that the tension personality exhibits a basic insecurity which is further developed into a fear of inadequacy. The sense of the obligatory is prominent in these people, and "I must" is in eternal conflict with "I can't".

Alexander and French (3) discuss some of the emotional problems which most commonly occur in the etiology of skin diseases. They mention sexual maladjustment in this connection, and this observation has also been made by Blaisdell (20) and by Stokes (164.) Mohr (130) described a woman whose skin broke out in red spots after marriage, and in whom separation from her husband caused improvement of the dermatitis. However, she broke out again when she was reunited with him. Alexander and French (3) report two cases of eczema in which the skin disease apparently offered an expression of chronic unsatisfied emotional tension which could not be discharged genitally because of deep conflict. Bartemeier (13) reports the case of a senior dental student who suffered from chronic exudative dermatitis, and whose lesions on his hands disappeared when he stayed away from school for a few weeks, and recurred whenever he returned to school. The literature is filled with cases similar to these, in which the dermatitis cannot be entirely explained on a physical basis.

Alexander and French (3) also mention the importance of feelings of hatred, fear, or guilt with regard to a cruel parent in many cases of neurodermatosis. Deutsch (39) and Allendy (5) both cite cases in which this

seems to be a primary factor. Sudden fright has been thought to be signi icant in the causation of some skin diseases, and Heise (88) reports the case of a nurse who woke up with severe acute eczema five hours after an attack from behind by three patients. Blaisdell (20) also reports a case of a patient who had severe exacerbation of eczema after a narrow escape in an automobile accident.

Most of the men who advocate a psychogenic factor in dermatological conditions are well aware of the fact that the various emotions described in connection with the skin lesions are very common in people who have no skin disease. A causal connection can only be inferred if somatic symptoms appear in connection with typical psychodynamic constellations (Alexander and French, 3.) However, it has been pointed out that there is a high percentage of recurrence of certain character traits and problems in patients with skin lesions. These patients tended to withdraw from a frustrated life to a masochistic absorption in themselves. Sexual gratification was too conflictual to be attained successfully, and masturbation was a source of great conflict. In these patients, release from tension was sought through skin manipulation and fantasy (Alexander and French, 3.) Wittkower and Russell (187) noted that the osychosomatic dermatological patient was often very passive, his docile appear-

ance completely belying his emotional turmoil.

Lynch, Hinckley, and Cowan (114) further emphasize that the presence of tension does not prove a causal relationship with the patient's eruptions, however they have found that the course of most cutaneous disorders is modified by the degree of the patient's emotional tension. They have noted that the relief of tension by sedation, rest, and the DGAD (don't give a damn) program proposed b Stokes (164) is frequently sufficient to relieve those neurodermatoses which are less severe or which have not been present very long. This raises the question of the validity of assuming that because a patient is helped by psychotherapy, the psyche is of etiological importance in the disease. This is actually a philosophical question, and must be answered by the reader himself. It should be pointed out, however, that the relief of symptoms by psychotherapy does not constitute the only reason for assuming these diseases to have psychological foundations.

As mentioned before, the opportunity for study of psychosomatic dermatoses by laboratory methods has not been fully realized. One of the best examples in current literature of a controlled approach to the psychogenous factor in urticaria has come from two German psychiatrists, Diehl and Heinichen (45.) They used the

urticarial wheal produced by the intradermal introduction of a known allergen as the test object by which to gauge the effect of suggestion under deep hypnosis. Two series of experiments were performed on each of three volunteer patients. A set of wheals was produced, and after thirty minutes the dimensions were transferred to tracing paper. Deep hypnosis was then induced, with the suggestion that the set of wheals to be produced next, under identical conditions, would be larger or smaller, or more, or less pruritic than the control set. In one of the total of six experiments there was failure due to poor hypnotic rapport. However, in the other five, differences in size ranging from a 21% to an 81% increase or decrease of the wheal in comparison with the control were obtained. It is such experiments as this that will prove the existence of a psychogenous factor in urticaria and also probably in the allergic states as well.

Several other attempts at controlled studies of the neurodermatoses have been made. Obermayer (134) in striving for greater objectivity in evaluating these patients employed a battery of projective tests and compared the results with those of "normal" people. The tests which he used were: the Rorschach, thematic apperception, word association, draw-a-person, and the Otis intelligence test. In addition to these, he also em-

ployed two physiological tests: the histamine reaction when given by iontophoresis, and the pain threshold as determined by the Mount pain threshold meter. The results of the physiological tests were compared with those of the hospital personnel. Obermayer's results showed several things:

1) Subjects with neurodermatitis show neurotic trends which are in no way specific for the cutaneous disease. Obsessive-compulsive trends were most common.
2) Many of the patients showed a marked tendency to turn hostile or aggressive impulses inward.
3) The Rorschach test disclosed strong concern with tactile sensations and touch.
4) No normal range of reactivity to histamine could be established.
5) There was no discernible difference between pain thresholds of the patients and the controls.

The only fault of these studies by Obermayer is that he has not distinguished between the pre-morbid and the morbid personality. There are psychic changes in the patient which are a <u>result</u> of the skin lesion, and this is brought out well by Engman in a comment at the close of the paper by Obermayer (134.) Engman suggests that studies be made for comparison when the disease has

been in remission for some time. A parallel series for control should be run on other chronic diseases which could have a similar effect on personality.

Sternberg and Zimmerman (160) have also succeeded in placing the psychosomatic skin diseases on a more objective plane. They discovered that the response to an artificially applied stress situation was markedly different in patients with atopic dermatitis than in normal people. That is, the atopic patients did not present the normal eosinopenia which follows stress, and which indicates the activity of the adrenals. The stressful situation used by Sternberg and Zimmerman was that of placing the patients and the controls in a room at a temperature of 100 degrees and a humidity of 90% for one hour. The failure of the atopic persons to develop an eosinopenia was significant to a very high level of confidence (1:1000.) It was proved during the course of these experiments that the atopic patients had an intact and functioning pituitary-adrenocortical mechanism by their response to injections of epinephrine: both the control group and the atopic group exhibited the same degree of eosinopenia in response to epinephrine. Since the adrenocortical-pituitary function is normal, it may be inferred that the cause of the abnormal response in these patients is in the higher centers of the brain or

in the adrenal medulla. The results of this work fit closely into Selye's concept regarding the diseases of adaptation, in which he postulates that these diseases (including allergy and atopy) may depend largely upon a derangement of the pituitary-adrenocortical response to stress, and that as for "triggering" the alarm reaction there is little difference between physical and psychic stress. We have yet to clarify the cause of the faulty alarm reaction to stress.

Sternberg and Zimmerman (160) also point out that irrespective o the localization of the defect in these atopic patients, there is considerable evidence that it is not an irreversible mechanism. Persons with this complex do respond to treatment at times, and they do undergo spontaneous remission. The disease appears to be one of youth, and tends to disappear around the middle thirties. These authors state that the advent of corticotropin and cortisone offers specific medication which consistently influences the clinical course of the disease. Twenty-four of the twenty-seven patients in this series received cortisone, and all showed dramatic results.

As was stated in the introduction of this paper, there is no general agreement as to which of the skin diseases may properly be termed psychogenic. Wright

has suggested the following classification:

A. Diseases of the skin which are purely psychic:
    1. Delusions of parasitosis
    2. Phobias: syphilophobia and cancerophobia

B. Skin diseases with psychic factors predominating:
    1. Neurotic excoriations
    2. Dermatitis factitia
    3. Psychogenic pruritus
    4. Neurodermatitis
    5. Trichotillomania
    6. Hyperhidrosis

C. Skin diseases showing both psychic and somatic factors:
    1. Urticaria
    2. Pompholyx
    3. Rosacea

D. Skin diseases with variable predominance:
    1. Lichen planus
    2. Seborrhea
    3. Psoriasis
    4. Alopecia

E. Skindiseases in which psychic factors are questionable:
    1. Vitiligo
    2. Canities
    3. Acne vulgaris
    4. Herpes
    5. Warts

Many people would argue with certain points in this classification. It is presented simply to refresh the reader's mind as to which of the dermatoses are often considered to be neurodermatoses.

ECZEMA

Definition:

In this discussion, the term "eczema" is taken to mean an acute, subacute, or chronic polymorphous eruption occurring in a predisposed individual. This term is sometimes used rather loosely by the clinician, and in a strictly limited sense it should be used only to describe local or generalized patches of dermatitis of endogenous origin. Stokes (163) describes it as a per-sistent dermatitis in which the predisposing causes or background outweigh the immediate causes. Eczema alone is not a scientific diagnosis, but rather a descriptive term for a clinical reaction. For that reason, it is well to use a qualifying adjective if the exciting cause is known. The term eczema roughly applies also to atopic dermatitis, neurodermatitis, lichen simplex chronicus circumstriptus of W dal, and prurigo.

Hill (90) states that atopic dermatitis is at least 75% of the eczema of infancy and childhood. The mechanisms by which it is produced are obscure, and often the removal of allergens which give positive skin tests do not changes the course of the disease.

Eczema is characterized by three clinical stages: erythema, edema, and infiltration. It is associated with itching or burning sensations, and it shows a marked hypersensitivity to mild irritants such as soap, water, and wool. The lesions occur chiefly on the face, neck, hands, and popliteal and antecubital flexoral surfaces. It frequently becomes generalized.

Etiology:

Wittkower and Russell (187) have found that conditions loosely described as eczema constitute about one third of a dermatologic practice. MacKenna states that it is by far the most common skin disease, (118.) Leider (109) agrees with this statement. Wittkower and Russell (187) state that the disease is often recurrent and refractory to treatment. The cause or causes of this dermatosis are obscure. Wittkower and Russell recognize several factors as being important in the etiology:

1) Contact irritants, both animate and inanimate
2) Drug intolerance
3) Foci of infection
4) Nutritional and metabolic disorders
5) Emotional lability

Wittkower and Russell (187) found that in a group of 90 eczema patients, a correlation between emotional disturbances and eczematous manifestations could

be established in 77 patients.

MacKenna (118) states that the etiology of eczema is obscure and that there are in general three schools of thought on the subject:

1) External irritation: mechanical, chemical, thermal
2) Bacterial: usually regarded as secondary
3) Internal or humoral: there is some deviation in blood chemistry. MacKenna feels that infantile eczema may be due to absorbed toxins from the gastrointestinal tract.

MacKenna (118) believes that eczema is caused by a congenital or acquired defect in the structure of the skin itself, and that this causes it to react when exposed to irritants of any kind, whether applied externally or carried in the blood stream. He feels that the defect is probably hereditary since it is commonly found in several members of the same family. Sulzberger (169) also stresses the importance of hereditary factors. MacKenna has found that several diseases appear to predispose to eczema, among which are gout, asthma, various digestive disturbances, nervous conditions such as shock and overwork, anemia, and glycosuria.

Simon (158) believes that atopic dermatitis is primarily a sensitization reaction to autogenous epidermis.

He bases his opinion upon work he has done with dander extracts. There is some question as to the validity of this statement with regard to atopic dermatitis, but it certainly bears consideration in the case of seborrheic dermatitis. Cormia (33) has suggested that patients with autoeczematization have become sensitized to a water soluble fraction of their own epidermal cells.

Eczema is often regarded as an atopy. This term was first used of Coca (as cited by Kepecs and Robin, 101) and is generally used to describe a type of hypersensitivity which shows the following: 1) Hereditary influences 2) Specific immediate wheeling type of skin reaction 3) Circulating antibody reagins 4) Clinical demonstration of a symptom complex which includes atopic dermatitis, hayfever, and asthma.

The emotional factors in eczema have been stressed by many writers (Sack, 148, Stokes, 163, Blaisdell, 20, Becker, 14, Kierland and Walsh, 102, Hubler, 94, and Engman, 56.) Stokes in 1930 commented on the tremendous drive and restlessness of these people.

Sulzberger (169) has been less enthusiastic with regard to emotional factors in skin disease. He was unable to find any preponderance of manifest psychic or neurologic dusturbances in a series of cases of atopic

dermatitis. He states that patients in his series impressed him as being no more "nervous," irritable, or psychopathologic than any other group of patients suffering from other chronic, distressing, and sometimes disfiguring dermatoses. He reports that on the whole, these patients showed fewer psychoneurotic tendencies than were found in a group of patients with acne vulgaris. It is Sulzberger's opinion that the "nervousness" encountered in patients with atopic dermatitis may be: 1) Purely coincidental, 2) Caused by the same factor that caused the dermatologic condition, or 3) the result of the dermatitis.

Blaisdell (20) and Stokes (163) have mentioned the existence of sexual maladjustment in these patients. Hatred, fear, and guilt were prominent in the cases of Miller (127) and Kierland and Walsh (102.) Masochistic trends were reported by Gillespie (66) and also by Stokes (163.) Exhibitionism and conflicts over mastur-bation were noted in Miller's case (127.)

Zaidens (190) believes that the personality structure of the eczematous patient is fairly characteristic and is evident prior to the dermatologic outbreak. She has found that in 50% of these patients there is a history (family or personal) of hayfever, asthma, chronic rhinitis, conjunctivitis, or infantile eczema.

Deutsch and Nadell (44) recognize the following components as eing synergistic in the production of atopic dermatitis:

1) Pathological cutaneous process in early childhood
2) Involvement of instinctual drives in the skin disease
3) The development of neurotic traits on the basis of the cutaneous disorder
4) The contribution of the family constellation with its complementary neurotic traits
5) The final fusion between the physiological system and the personality pattern

Lynch, Hinckley, and Cowan (114) studied thirteen patients with atopic dermatitis and found that a definite psychosomatic relationship seemed apparent. They state that their results do not permit a generalized concept of personality type. All of the patients presented certain personali ty factors in common: 1) suppression of resentment 2) tension 3) more than average intelligence and self-assertiveness 4) an almost uniform absence of anxiety and hypochondriasis. These authors report that in almost all of their cases the onset of the eruption or its exacerbations was influenced by environmental factors. In patients who ha atopic dermatitis and neurotic mani-festations, the psychic factors were of great importance.

In these cases, almost any environment would provide the dynamic stress necessary to engender the resentment and the cutaneous reaction.

Cormia (39) believes that the skin varies great-ly in its susceptibility to disease. A definite hered-itary predisposition may be noted, especially with regard to family history of pyogenic infections and hayfever and asthma. The importance of atopy in the family has also been stressed by Wright (188.) Cormia feels that some obscure mechanism is responsible for the fact that skin which has had previous dermatitis seems to be more sub-ject to subsequent eruptions. The influence of psycho-somatic predispositions on the development of the derm-atitis is seen very frequently, and must be accepted even though the exact ro le has not yet been determined.

Rogerson (142) studied thirty children with the eczema-asthma-prurigo syndrome and concluded that certain features of the personality pattern were out-standing. He noted that these children were high-strung and overactive; that they were over-anxious; that they were aggressive and dominating; and that most of them were far above the average intelligence quotient. He also observed that a large number of these children occupied a place in the familu where they were particular-ly likely to be over-protected: ten of the group were

only children and six others were only sons. This investigator also found that eighteen of the thirty cases showed the parents to be obviously over-anxious and over-protective.

Barchilon and Engel (9) report a case of eczema which they regard as an hysterical conversion symptom. It is not common to regard skin diseases as conversion symptoms, but these authors point out that there may well be exceptions to the general view that hysterical conversion symptoms must involve the voluntary neuromuscular and sensory systems. The case which they report showed a skin eruption whenever repressed sexual wishes were in danger of being discovered.

Levin and Behrman (110) believe that neurodermatitis may be hereditary and atopic, or may be acquired. They feel that the predisposition to the development of the cutaneous lesions is inherent and dependent upon a hypersensitive constitution. The onset of symptoms is markedly influenced by environmental factors, for the psychosomatic individual reacts more actively than others do to changes in social, economic, family, and sexual relationships. These authors have observed an association between occupational dermatitis and neurodermatitis, and believe that neurodermatitis may be a flare-up of tissue rendered sensitive through previous absorption of offending agents.

Wittkower and Edgell (186) have also emphasized the importance of family predisposition to eczema. This was particularly true of the patients who had childhood eczema. These patients also showed a high incidence of difficult family situations, such as the oldest child or the only child. These writers studied the psychosomatic histories of 90 eczema patients and compared them with similar histories obtained from 50 controls. They found that the eczema patients tended to have been either unwanted children or spoiled children, and they were more attached to one parent than the other. The basic character was that of the insecure clinging child who was always in need of reassurance and affection. Specific situations which were found to precipitate the onset or relapse of eczema were: 1) threats to life and ex-istence in 1/4 of the cases, 2) threats of loss of out-side source of support in 2/5 of the cases, and 3)dis-turbance to inner established patterns. The latter ca-tegory included blows to self-esteem in 1/3 of cases, situations arousing sexual conflict in 1/5 of cases, and situations stirring up latent aggressions in 1/4 of cases.

Stokes (164) lists the following as characteristic of the person with the eczema-asthma-hayfever per-

sonality: 1) a deep-seated feeling of insecurity, 2) an easily developed feeling of inferiority, 3) aggressive-ness, with a tendency to dominate and command attention, 4) an intense I-sensitiveness or self-consciousness, 5) marked lability of physical and mental reaction, 6) an intrinsic kinetic drive, 7) an all-or-none type of reactivity to all stimuli and problems, 8) an IQ higher than the average, 9) tension, either expressed or repressed, 10) restlessness due to rapid exploration and exhaustion of a subject, leading to boredom, 11) a deep-seated overdependence, and 12) an over-reactiveness to all kinds of competition.

Stokes (164) comments that such a personality is laden with **material for a conflict between the disposition to dominate and the over-dependence due to insecurity and inferiority** feelings.

Engman's comments (56) on the subject of eczema in housewives are of interest. He points out that housewifery is the largest industry in the world, and that for that reason housewives' eczema of the hands is the most prevalent industrial skin disease. The disease in-flicts great hardship on individuals and upon entire fam-ilies. Engman belidves that there is never a single cause, and that clinically evident causative factors fall into two classes: local trauma, and predisposition.

Under the heading "predisposition", Engman includes the following: lowered threshold of irritability, increased capillary permeability, atopy, allergy, psychosomatic factors, endocrine factors, focal infection, avitaminosis, and the seasons (relapses in fall and winter.)

With regard to eczema of the hands, Rowe (146) states that it is probably due to food allergy more often than we suspect. He found this to be the cause in 80 of 182 cases, and proved this by withholding the allergenic food and then re-introducing it. Twenty-two of these patients had eczema of the hands due to inhaled pollens.

Hubler (94) feels that localized neurodermati-tis is an external manifestation of chronic emotional ten-sion and is characterized by one or more chronic, lich-enified plaques located on areas which may be easily reached. He has found that the appearance of the plaque varies with the method of scratching. Hubler believes that among neurodermatitic patients one is dealing with relatively normal people, and only a few have severe compulsions or other neuroses requiring intensive psy-chiatric care.

Kepecs and Robin (101) found that desensitization to allergens to which the patient is sensitive by skin test is often fruitless. They state that 75% of their patients were immature, poorly integrated persons

who were essentially hysteroid in character. They were often shy and timid and tended to handle feelings by suppression. They came from families in which the mother was dominating and the father was passive and ineffectual. The remaining 25% of their patients were rigid and compulsive, and these patients tended to have longer periods of freedom from their dermatitis than did the hysteroid group.

According to Hubler (94), the method of the production of neurodermatitis is that the itching is initiated by emotional tension. It is very severe itching, and is paroxysmal in character. A habit pattern of itching and scratching becomes established, and the breaking of this habit pattern by local dermatologic therapy is unsatisfactory because the fundamental cause of the disease, the emotional tension still remains. Therefore, a combination of local treatment and emotional adjustment is needed.

Allerhand, Gough, and Grais (6) report studies made on a group of 30 cases of neurodermatitis. The sole purpose of this study was to try to identify some of the psychologic factors which differentiate cases of predominantly functional origin from those of predominantly organic origin. Their chief tool was a questionnaire of 108 items selected from the Minnesota Multiphasic Person-

ality Inventory. They realized that there were two forms of neurodermatitis, generalized and localized, but the psychogenic factor seems to be the same in both. These workers feel that the psychogenic factor is sufficiently important so that it can form a demarkation line between functional neurodermatitis and organic eczema. The neurodermatitis patients could be characterized as follows:

1) Restlessness, need for activity, difficulty relaxing
2) Impatience with others
3) Moderate dominance and brusqueness of manner
4) Emphasis on inner strength and resourcefulness
5) Declared confidence in own health and ability

These men also found that their patients showed a variable degree of sentimentality, increased tactual sensitivity, and intermittent feelings of disappointment with other people.

English (55) re-emphasizes the importance of the need for love, and states that it is one of humanity's greatest hungers. The individual need for such love varies greatly, and in the opinion of English, all other emotions are dependent upon this basic need for love. Without it, there is a marked anxiety which manifests itself in either the psychic or the somatic realms. The patient's sense of well-being is lost, and there is

hostility and a desire to retaliate. In accordance with this theory, English found that the most common factor in children with atopic eczema was rejection by the mother. The irony of the situation may be appreciated by the fact that, hough they long for love, when they do have it they often do not know how to accept it and therefore may have aggravation of the eczema.

The importance of an insecure relationship with the mother is also stressed by Miller and Baruch (126.) This is apparently a common finding in the patient with eczema.

The sexual factor has been repeatedly brought forward in the etiology of skin diseases, but it has not been found to be of significant importance by itself. Stokes (163) found it difficult to evaluate causal roles in this realm because sexual tension is at one time or another such a universal element. Klauder (104) reports that sexual psychoneuroses play a relatively small part in the causation of neurodermatitis.

Kierland and Walsh (102) attach considerable significance to the history of infantile eczema or of other allergic disease in the patient or his family in the causation of neurodermatitis. They, too, point out that exacerbations are usually precipitated by emotional stress and strain. In their experience, the emotional

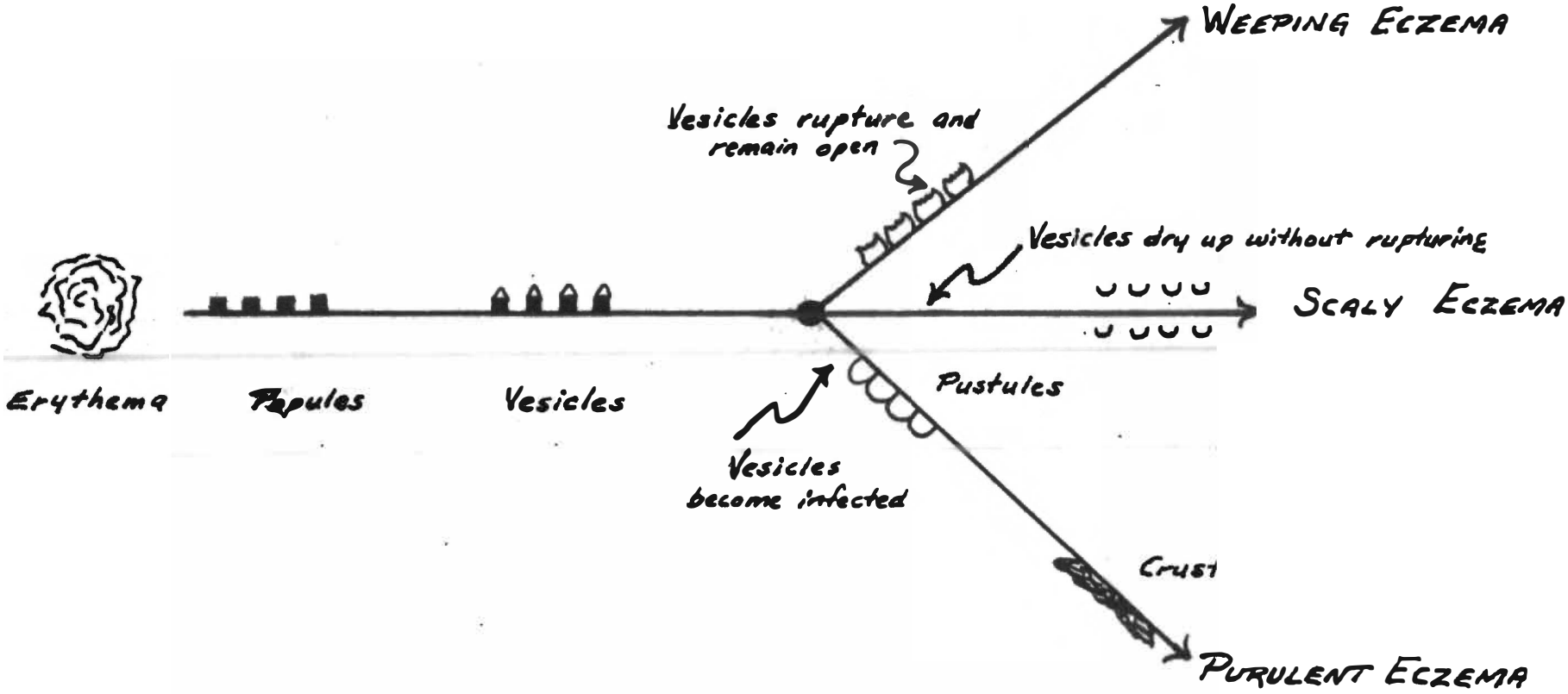
conflicts usually center around a rejecting, dominating mother or father.

Smith and Hughes (159) believe that atopic dermatitis is neither purely atopic nor purely neurogenic in origin, but rather it appears in the person who is hypersensitive both in his emotions and in his cutaneous vascular system. This seems to summarize the opinion of most writers, and the multiple etiology of eczema is accepted without further question.

Pathology:

The pathologic picture of eczema is subject to great variation. Kepecs and Robin (101) report that the lesion is usually sharply outlined and consists of patches of lichenified skin. Periodically, exacerbations occur with the acute symptoms characteristic of the disease: erythema, weeping, edema, and eventual crusting. These authors have found that the disease occurs more often in females than in males by a ratio of two or three to one. Leider (109) reports the same pathological picture, and states that in addition to this the patients always complain of pruritus, insomnia, and nervousness simultaneously with the acute attack.

Dunbar (54) states that the only thing characteristic about eczema is the diversity of its manifesta-



THE EVOLUTION OF ECZEMA

(After MacKenna)

tions. She has found all forms of eruption present: erythema, papules, vesicles, pustules, oozing surfaces, crusts, and scales. The disease may be localized or generalized, and itching is practically universal. Accord-i ng to Dunbar, this whole field has been a dermatological wastebasket for years.

Cormia (33) believes that the earliest pathological change in this disease is in the capillary bed, which is the shock tissue. If this is true, the agents responsible for the initiation of this syndrome would reach the skin through the blood stream, and it would seem that the aggravating factors operated chiefly on the blood vessels. In infants, the clinical manifestations are often preceded by positive skin tests to egg white, nuts, and fish prior to their ingesion by the infant. Apparently then, this sensitization is transferred from the allergic mother. The logical question is whether or not this inherited sensitivity may predispose in some way to the development of other sensitizations and to the subsequent development of eczema.

Cormia (33) feels that the fact that the pru-ritus of the eczema syndrome improves variably in res-ponse to the antihistamine drugs suggests that the lib-eration of histamine-like substances might be a feature of the syndrome. If this is true, the aggravating effect

of psychosomatic factors associated with tension states may be partly explained, for Milhorst has shown that in the tension states there is an increased amount of cholinergic substance present in the circulating blood. Perhaps, then, the acetylcholine liberated at the ends of cholinergic nerves has a synergistic effect with histamine produced by the local antigen-antibody reaction in the shock tissue, and the clinical signs of atopy are then apparent (as cited by Cormia, 33.)

MacKenna (118) has found that the microscopic appearances vary with the stage of the disease, but that at all stages there is some papillary edema with dilatation of the subpapillary blood vessels and some degree of leukocytic infiltration around the blood vessels. This author believes that the most characteristic alterations are found in the epidermis. In the first stage, there is edema of the epidermis. If the inflammatory process continues, the stage of vesicle formation is reached. Vesiculation begins in the deeper strata of the prickle cell layer, and intercellular edema separates the cells. Some of these cells undergo vesicular degeneration. The vesicles are pushed to the surface by a proliferation of prickle cells around the serous cavaties. The next stage in the evolution of eczema is the invasion of the unruptured vesicles by numerous polymorphonuclear leukocytes.

This converts the clear serum of the vesicles into pus. Eventually these pustules rupture and spill their con-tents on the skin surface, and thus the crusts are form-ed. At this point, the eczema always becomes infected
by the bacteria of the skin.

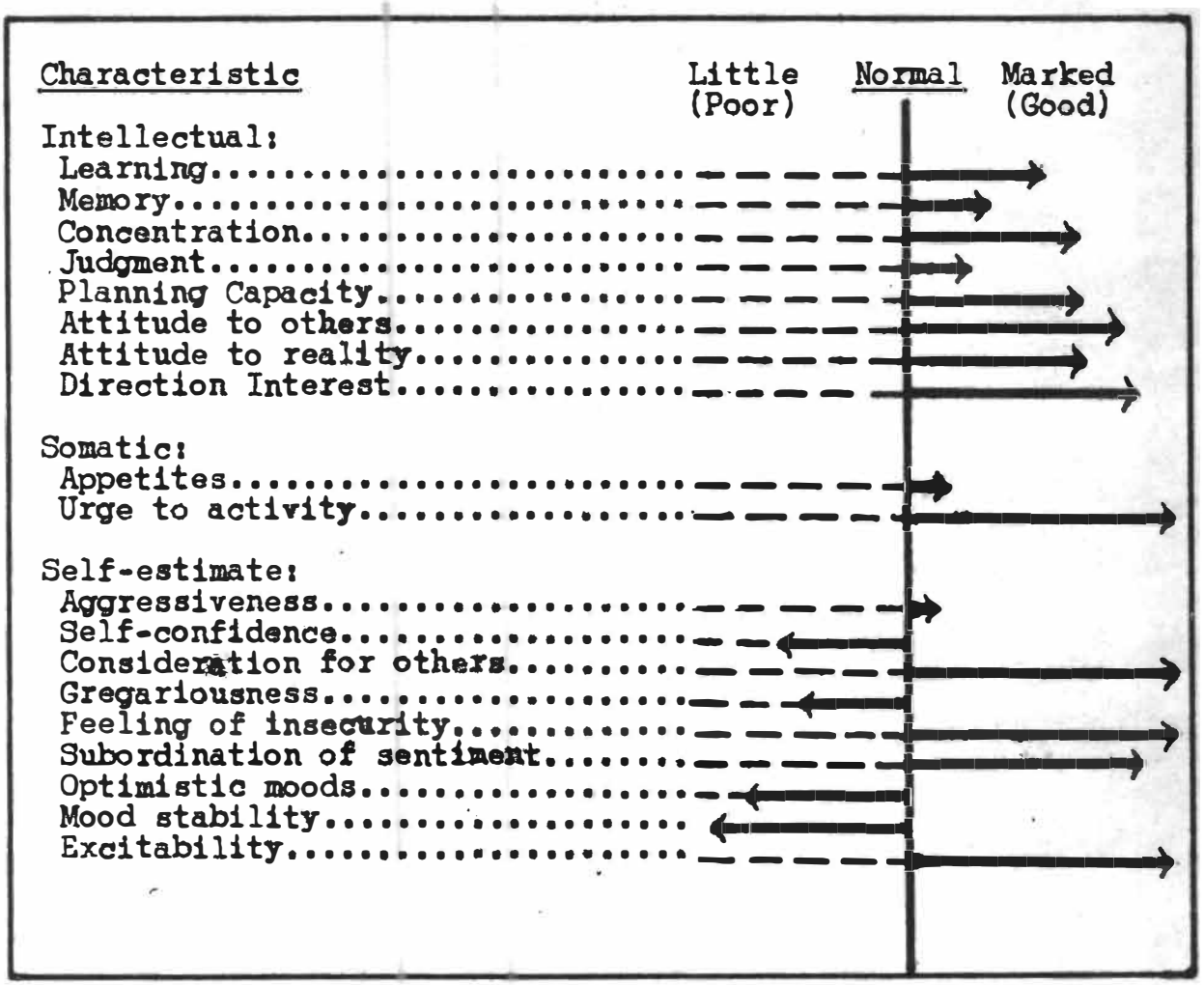
After the acute attack of eczema, there is us-ually complete healing of the skin without scar formation. In severe cases, there may be some hyperpigmentation for a time following the acute episode. Few acute cases sub-side in less than two weeks, according to MacKenna (118.)

Symptoms:

Shaffer and Beerman (157) have listed the characteristics of emot onally induced lichenification as follows:

1) The patient often complains of pruritus out of all proportion to the extent of the dermatitis.
2) The itch is apt to develop at certain times for each patient.
3) A trigger zone is often present: if touched, it rapidly sets off a spreading crescendo of itching.
4) The orgiastic nature of the itching is often remarkable.
5) The itch develops in crises and paroxysms.
6) There may be a vigorous denial if itching and scratch-ing in spite of obvious signs of rub-scratch phenomena.

PSYCHOMOTOR PANEL OF PATIENTS WITH THE NEURODERMATOSES

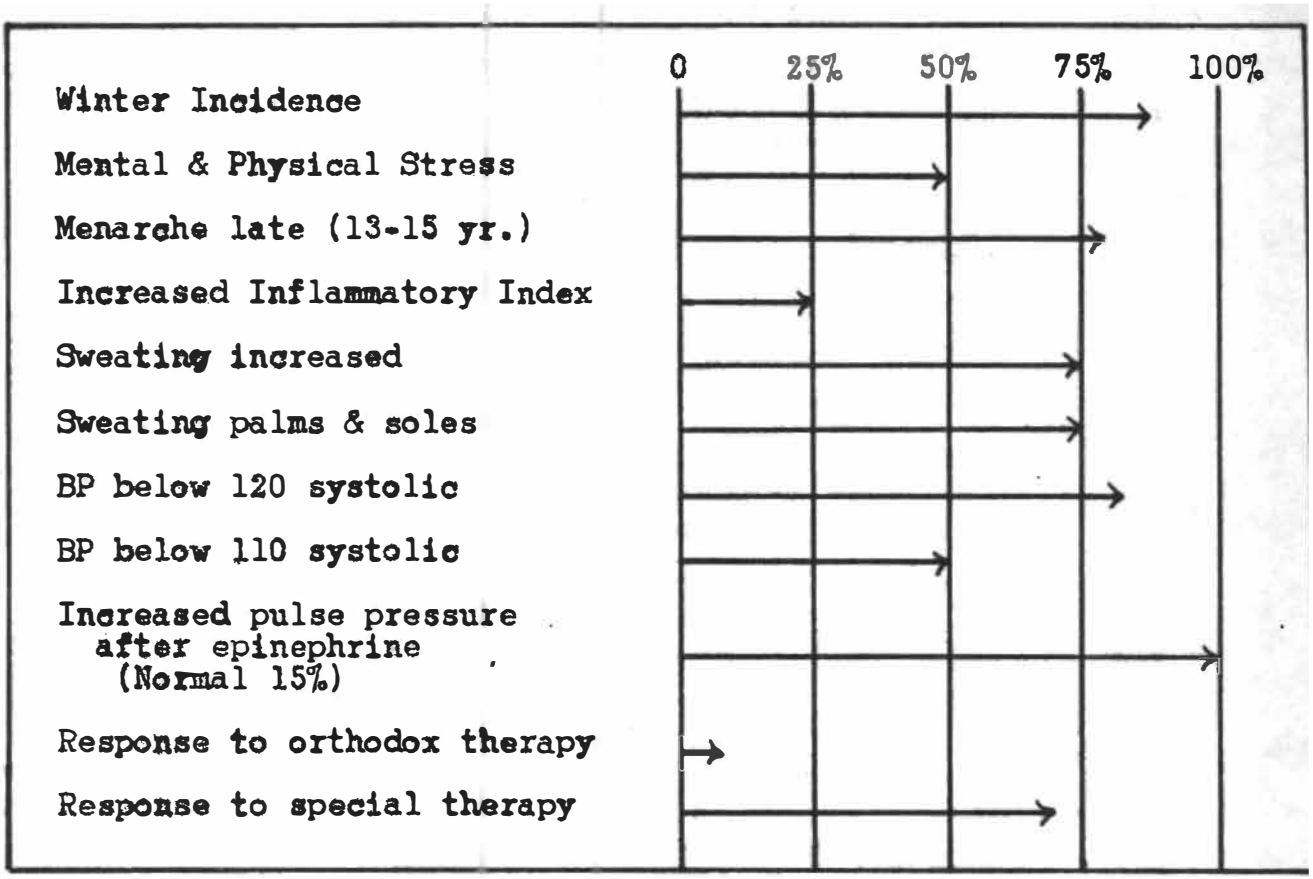


(From van de Erve & Becker)

7) The patient often unconsciously rubs his skin while relating his troubles to the doctor.
8) Certain favorite scratch sites are often utilized.
9) Covering the lesions with an occlusive dressing will often cause the lesion to improve or even disappear.
10) Psychiatric probing toward the core of the patient's emotional problem often gives rise to an acute exacerbation of the cutaneous symptom, especially if the problem is one that has been strongly repressed.

In exacerbations of atopic dermatitis, Kepecs and Robin (101) have noted that itching and scratching are of great importance. Often the scratch is not the result of the itch, but instead is the expression of inner tension. This scratching alone does not appear sufficient to provoke an outbreak of atopic dermatitis, but often if edema of the skin is present at the time of scratching, a weeping lesion is produced. These men stress the importance of the relation of eczema and weeping (also noted in patients with urticaria), and have found that patients who have a desire to weep but cannot are prone to develop skin edema, which may rapidly subside following weeping. Under hypnosis, these patients usually state that the weeping represents a desire to be reunited with a mother figure.

MANIFESTATIONS COMMON TO THE NEURODERMATOSES



(van de Erve & Becker)

Kepecs and Robin (101) have performed some interesting experiments with the intraepidermal blister. They produced such blisters on the volar aspect of the forearm with cantharides cerate, and eight hours later they removed the top of the blister. The amount of blister fluid which forms in one minute is determined by blotting the area, waiting one minute, blotting it again, and weighing the filter paper used for the second blotting. In this way, the authors measured the fluid produced in a number of dermatological patients as well as in normal people. In both groups they first established a base line for each individual. The results were as follows:

1) There was a sharp rise in the blister fluid level as the patient wept. (True of both normal and dermatological patients.

2) The level of blister fluid dropped with relaxation.

3) Following psychotherapy there was less fluctuation in the fluid level.

4) Conscious inhibition of weeping by the patient caused a drop in the fluid level initially, but as the inhibition continued, the fluid level rose sharply.

5) Tearless anger and sexual excitement have not been seen to produce significant rises in fluid level.

6) Anti-histamine drugs cause the blister to dry.

Other experiments by Kepecs and Robin indicate that the blister fl id is essentially the result of transudation from small blood vessels of the skin which occurs

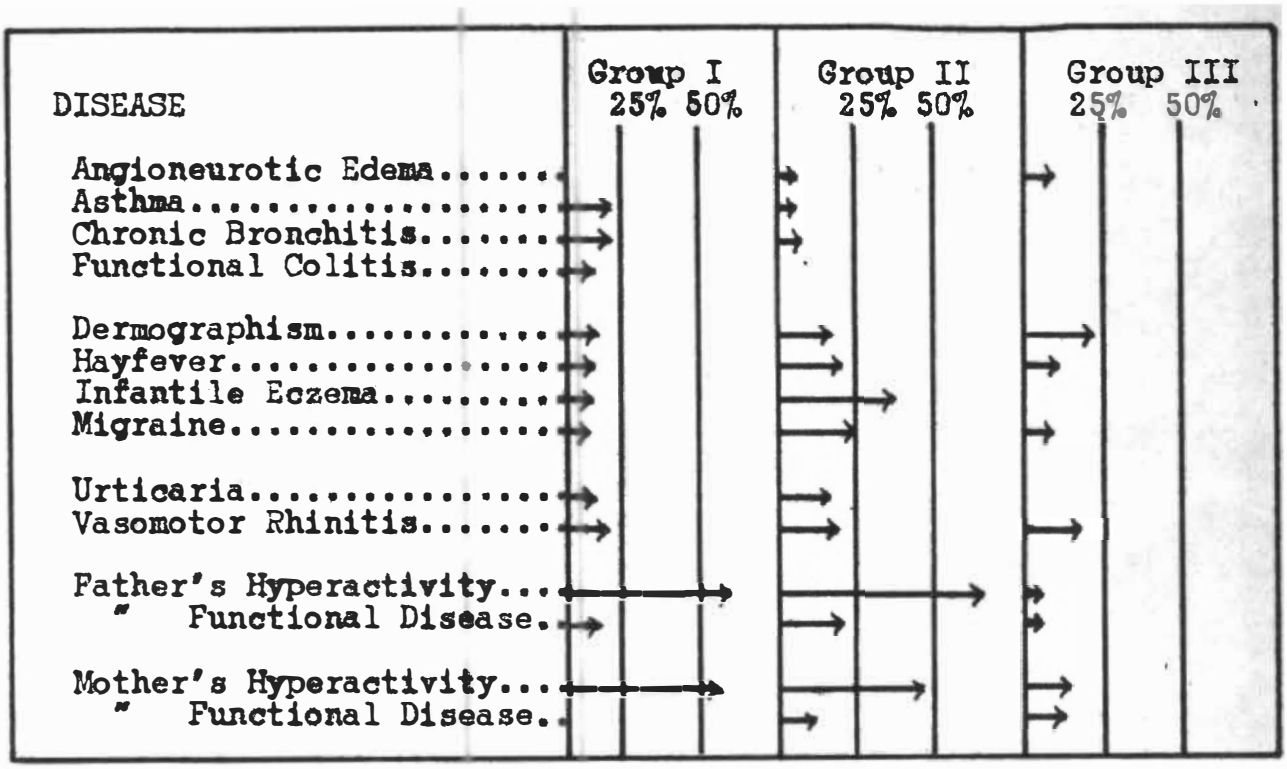
secondary to vasodilatation with its attendent increase of capillary permeability.

Lynch, Hinckley, and Cowan (114) found that the people with atopic dermatitis presented certain physical similarities: 1) They had an atopic family background, 2) They were physically vigorous people, 3) They had high pulse pressures and rapid pulse rates, 4) They were under normal weight, and 5) They had a tendency toward vascular hypotension and lowered BMR.

Cormia (33) Finds that the eczematous reaction in the patient may be antedated by hayfever, asthma, or other allergy. He states that there are several paradoxes in this disease: 1) Clinical improvement rarely can be produced by specific desensitization, 2) Removal from the environment of substances giving positive skin tests is only occasionally of therapeutic value, 3) The lack of evident clinical relationship between the urticarial type of response to skin testing and the eczematous pathologic reaction. Cormia feels that disturbances in the life situatidn are of primary importance in the etiology of this disease.

MacKenna (118) lists the following as important factors in the diagnosis of atopic dermatitis: 1) A history of itching, 2) The eruption is usually either vesicular or scaly when seen by the doctor, 3) The lesions are not sharply delimited, 4) The eruption

THE INCIDENCE OF OTHER FUNCTIONAL DISEASES
IN PATIENTS WITH THE NEURODERMATOSES



Legend:
Group I: Patients with dry neurodermatitis & Pruritus ani & vulvae
Group II: Patients with wet neurodermatitis & Dyshidrosis
Group III: Patients with urticaria

(From van de Erve & Becker)

is superficial in character and does not leave scars. The subjective symptoms include burning and itching during the first stage, and intolerable itching and weeping of the lesion at any or all stages.

Van de Erve and Becker (176) report that in their series of eczema patients, there was an alertness and quickness of comprehension. These patients were above normal in planning capacity, learning ability, and attitude to reality. The mentally lazy and inert were noticably absent from this group of patients. In the somatic realm, these workers found that the eczema patients were quick, intent, and made a great number of useless movements. These patients were timid, very suggestible, touchy, and changeable. They were all over-generous and altruistic as compared with the control group.

Treatment:

The treatment of atopic dermatitis presents several problems. All forms of treatment have been tried, ranging from the purely local to the purely psychiatric. Dermatologists have found that these patients are often refractory to treatment, and this fact was of major importance in the general acceptance of the emotional factor in the etiology of the disease (Wittkower and Russell,

187.) The most successful treatment appears to be that of so-called short psychotherapy, as advocated by Wittkower and Russell. The average number of psychiatric visits in a group of 34 patients with eczema was ten, and in this time 29 of them benefitted both mentally and physically. A follow-up in three to eighteen months revealed that 14 of them were free os symptoms. There is no standard therapy for these patients, and each one must be regarded as being highly individual. In any given case, it has been found that any new local treat-ment will give temporary relief.

Smith and Hughes (159) have reported attempts at changing the electrolyte balance in eczematous patients. They have found that alkalies are of no value, but they do report some success with the administration of HCl. The mechanism of action is not well understood.

Ratner (140) warns against treating eczema in children entirely from the symptomatic standpoint. He says that protein skin tests are essential, but the fact that the child often recovers spontaneously when moved to the hospital shows the importance of psychogenic factors.

With further regard to this disease in children, Rogerson (142) also emphasizes the dramatic improvement

which these patients show when they are taken away from home. He feels that it is essential to stress the pos-itive side of the picture to the parents, and to tell them that their child's skin disease is not a sign of degeneracy or weakness, but rather that the sufferers belong to a group of unusually intelligent and potentially successful people.

Stokes (163) feels that it is very important to single out the over-solicitous and antagonistic parents and then proceed with Rogerson's suggestion of devoting 60% of the time to helping the adult to solve his problems and 40% of the time in re-educating the child.

Williams (181) stresses the importance of the management of the maternal rejection factor. This consists of instructing the mother regarding the emotional needs of the child, the effect on the child of these needs not having been met, and the means of providing these needs.

With regard to the adult with eczema, Stokes (163) believes that his primary problem is one of adjustment: he must learn self-acceptance and he must learn to depersonalize his life. His inability to accept second place makes competitive activity very difficult, and he should learn to avoid such activity as much as possible.

patients improve simply when they know that they have had a thorough examination. Environmental manipulation and ventilation have important roles in the therapeutic program. These authors have found that a few patients have a depression severe enough to require electroshock treatment. Reassurance is the most commonly used method of minor psychotherapy, but it must be remembered that this is superficial and deals with secondary anxieties only. It does not get to the deeper primary anxieties. It is important not to let the patient ventilate too rapidly or too early in the course of treatment, since this alone can cause an exacerbation of the disease. Dermatologic therapy should be started at the same time as psychotherapy, and the mildest prescriptions should be tried first. Antihistaminics are recommended for the relief of pruritus and also for sedation. Some of the more common allergenic foods should be restricted, and then gradually added to the diet, one at a time. If this regime of therapy does not give relief, the patient should be referred to the psychiatrist.

In many respects, the most difficult problem for these people is that of getting adequate rest. They begin to build a rest deficit at an early age, and relaxation is often almost impossible for them.

Hubler (94) feels that a combination of local treatment and some form of psychotherapy is the most satisfactory mode of treatment. Only 5% of a group of 450 patients were unable to develop sufficient insight to permit successful management of their emotional problems. It is important not to pry too persistently into the patient's problems and thus to establish a resistance to further questioning. The physician must remain completely unhurried if he is to evaluate and treat these patients properly. Hubler advises the following outline of treatment:

1) Explain the emotional basis of neurodermatitis.
2) Advise slowing down.
3) Advise patient not to let his problems accumulate: do something positive and stop looking for miracles.
4) Stress the balanced life: work, play, rest
5) Abstinence from coffee, tea, and cola drinks
6) May give sedative initially to help patient slow down.
7) Give local treatment to help break itch-scratch cycle.
8) Advise to return for counsel whenever he becomes upset.

Hubler (94) stresses the importance of sending any patient with localized neurodermatitis who shows no response to local therapy, sedation, and six X-ray treat-ments and who will not admit any emotional problems to the psychiatrist. Wilson, in a comment at the close of Hubler's paper stresses the importance of encouraging these patients to stop their thoughtless scratching.

Kierland and Walsh (102) state that it is the exception rather than the rule that an allergic approach to neurodermatitis is of great benefit to the patient. This is not because the allergic factors are of no im-portance, but rather that the psychologic factors are the major trigger mechanisms that drive the patient over his threshold of reactivity. These authors feel that most eczematous patients can be treated by the understand-ing dermatologist who practices minor psychotherapy. Gottesman and Menninger (71) have stated that the com-bined medical and psychologic therapy by the dermatolog-ist himself is the most frequently indicated type of therapy.

Kierland and Walsh (102) have also found that most patients will respond to therapy by the dermatologist alone. They point out that for many patients, local med-ication is an essential part of the treatment. Some

PRURITUS

Definition:

Sutton and Sutton (174) define pruritus as the symptom, itching. Idiopathic pruritus is therefore itching of unknown etiology. The primary symptoms of pruritus are itching, burning, and tingling. The secondary symptoms are hyperemia, laceration. lichenification, pigmentation, secondary infection, and lymphadenitis. MacKenna (118) states that pruritus is a symptom of many cutaneous diseases, but as a dermatological entity it is simply a sensory neurosis of the skin, without any demonstrable lesions. Any lesions are entirely secondary to scratching in these cases.

Klauder was the first to emphasize the role of psychogenesis in itching. He found that a considerable percentage of patients with pruritus were psychoneurotic (Klauder, 1104.)

Pruritus may be either localized or generalized. One must always rule out other cutaneous diseases in the localized forms, and also rule out liver disease and Hodgkin's Disease in the generalized forms. It is often difficult to tell whether the pruritus or the visible

lesions came first. It must always be remembered that pruritus vulvae is fairly common in pregnant women.

Etiology and Symptomatology:

Drueck (50) reports that functional pruritus perineii is far more common than is generally supposed. He has found that the following functional disorders may cause this type of pruritus: 1) Emotional disturbances and hysteria, 2) Repressed sexual urge, or masturbation, 3) Fear or other mental disturbance, and 4) Autosuggestion or heterosuggestion.

MacKenna (118) has found that the attacks of itching usually begin suddenly, and are subject to exacerbations depending upon alterations in the patient's emotional state or physical condition. Drueck (50) feels that the sudden attack is diagnostic of functional prur-itus. Sulzberger and Zaidens (173) believe that the sex-ual and orgasmic nature of the itch crisis have long been recognized, and they, too, emphasize the importance of emotional factors in causing exacerbations of even organic types of pruritus. Rogerson (142) states that the attitude of the patient with organically caused pruritus greatly influences the course and severity of the symptoms. If the patient's attention is concentra-

ted on the part that itches, the itching is made markedly worse than when his attention is elsewhere. Dunbar (54) mentions the importance of fixation on the part involved in determining the severity of the itching. She feels that the mechanism of the itching is very obscure, but that it is generally acknowledged that psychological factors play an important role in all types of pruritus.

MacKenna states that pruritus ani readily sets up an eczema which is also associated with intense itching, so that it is very difficult to tell which came first. He cites some evidence for believing that in long standing cases of pruritus ani there is a fibrosis of the deeper layers of the skin which embarrasses the nerve endings enough to perpetuate the disturbance.

MacKenna (118) and others point out the fact that relief often comes when the skin is torn. The patient with generalized pruritus often scratches until he is exhausted. The itching prevents sleep, the sleeplessness exhausts the nervous system so that the pruritus is less easily borne, and the sufferer finds himself in the orbit of a vicious cycle. Some sufferers have been known to seek relief in suicide.

MacKenna lists a few of the important factors in the etiology of pruritus: 1) Senile atrophy of the skin,

2) Metabolic disturbances, 3) Chronic gastrointestinal upset, and 4) Local phenomena such as anal fissures or hemorrhoids.

What are the psychological factors that help to produce pruritus? Cormia (32) believes that the patient with generalized pruritus is resentful against his entire environment. Kalz (95) noted that his patients had feelings of guilt, frequently linked with fear of having acquired venereal disease. He found that this focussed their attention on the genitalia and pruritus occurred readily. According to him, the pleasure derived from scratching plays a minor role, and the pruritus is easily perpetuated by the anatomical changes which occur early in its course. Scratching causes loss of the horny layer, parakeratosis, and thickening of the skin, and the histological picture characteristic of lichenification then occurs. This thickening of the skin causes pruritus per se which leads to more scratching as well as to more intense focussing of attention on the regions affected. This causes a lowering of the threshold of sensation.

The sexual implications of pruritus ani, scroti, and vulvae have been repeatedly stressed. Rosenbaum (143) believes that the sensation of itching with its resultant scratching may result in pleasant and sensous sensations

at times actually culminating in sexual orgasm. English (55) believes the condition occurs when psychosexual development has never fully reached the point of mature gen-ital pleasure, but the focus for sexual excitement has remained in the skin of the perineal region. This does not preclude some capacity for normal sexual function in these patients, however. Saul (151) presents two cases in which the pruritus was used as an excuse for mastur-bation and was closely related to passive anal homosex-ual wishes. Saul emphatically states that such homo-sexual wishes are not found in all cases of anal pruritus, and that such factors as fine fecal particles in the an-al folds are often the cause of itching. Rogerson (142) believes that in married women pruritus vulvae may serve a double purpose: as a means of avoiding normal intercourse, and for the expression of sexual tension due to conflict situations. Wright states flatly (189) that pruritus vulvae is usually due to sexual conflict and that pruritus ani is usually due to latent homosexual-ity.

Dunbar (54) also mentions the close relation-ship between pruritus and sexual sensations. Sack (148) refers to a case of generalized puritic eczema in which the patient produced sexual orgasm by scratching.

Schilder (155) reports a case in which masochistic, passive, and homosexual wishes played a dynamic part in the patient's psychic structure. Alexander and Ross (4) state that scratching is often a source of conscious erotic pleasure, and is clearly a masturbatory equivalent. Nadell (44) reports a patient who stated, "It makes no difference where I scratch when I itch--it helps."

Treatment:

What can be done for these patients? Rogerson (142) points out that the local treatment of these cases requires careful consideration, for applications to the area simply serve to call the patient's attention to the itchy region. When local treatments are used as placebos, they are definitely likely to cause the symptom to become worse. The use of a placebo is often the easiest course, but seldom the wisest one according to Rogerson.

Kalz (95) writes that topical treatment is necessary to cure the lichenification, but that psychotherapy should be used to maintain the therapeutic results.

Goldsmith (70) believes that the treatment of anal and vulval pruritus can be summarized as follows:

1) Search for, and if possible, remedy the cause (fungus, bacteria, etc.)
2) Apply the simplest external remedies, avoiding anesthe-

tics except in emergency

3) Do not be afraid of X-ray in the hands of an experienced dermatologist

4) In cases resistant to X-ray, try injection of 95% alcohol

5) Neurotomy as a last resource for desperate cases.

Cormia (32) states that localized pruritus may be relieved temporarily by the use of antihistaminic preparations locally.

MacCormack, Sandifer, and Jelliffe (116) concluded after studying a group of itchy patients that local treatment is adversely affected by scratching and by the psychological disturbances which commonly occur either as a prelude or as a sequel to the pruritus. Treatment of their patients was sedation only, and this accomplished the task of relieving the scratching, the depression, and the anxiety. They regarded their treatment as incomplete, however, because no form of psychotherapy was used.

Rosenbaum (143) believes that change of environment and sedation are too often simply evasive therapy. He feels that it is all right to treat these psychogenic

skin lesions locally, but we must remember that there are psychological factors involved in giving the patient oint-

ment to rub on his lesions. In this way we give him permission to indulge in stimulating parts of his ana-tomy which are highly charged emotionally. Rosenbaum also feels that we cannot understand psychosomatic pruritus unless we understand the phenomenon of pleasure in suffering. Other writers (Rothman, 145, and Kalz, 95) believe that most dermatological patients do not find itching and scratching pleasurable.

In a comment at the close of Rosenbaum's paper, Becker warns against attributing too much to psychogenic dysfunction. He reports having seen patients with nail polish eczema or with Hodgkin's disease sent to a psychiatrist because their doctors thought their itching was psychogenic. He cites also the case of a lady who was treated on a psychosomatic basis for years because she broke out with a severe itching when her father died and also when her husband died. After months of psychotherapy, it was discovered that she was allergic to the chrysanthemums which decorated both coffins.

POMPHOLYX AND DYSHIDROSIS

Definition:

Pompholyx is a general term describing deep, vesicular eruptions on the palms and soles. The eruption is usually symmetrical and bilateral, and it may appear suddenly and be associated with burning and tingling. The disease is limited to the palmar and plantar sur-faces, but it is more common on the palmar areas. The primary lesions are deep-seated vesicles filled with a clear fluid. They heal by absorption of the fluid and slight exfoliation. Dunbar (54) states that pompholyx is a disease of the hands and feet characterized by vesiculation, excessive sweating, and pruritus. MacKenna (118) says that there is no general agreement regarding the role of the sweat glands in this disease, but that there is nearly always an associated hyperhidrosis.

Etiology and Symptomatology:

Wittkower (184) reports that pompholyx was first considered a neurosis in 1873 by Tilbury Fox (60.) Its psychosomatic components were overlooked until rather

recently, and now the idea that it is due to emotional factors is becoming quite commonly accepted. MacKenna (118) was among the first of the contemporary investigators to suggest a definite psychological meaning underlying the disease, and he indicated that the sufferer may be indicating by a psychological mechanism that he can-not use his hands or feet in spite of the protests of his conscious mind.

Rogerson (142) writes that the complaint of excessive sweating of the palms is one which often comes before the dermatologist, and is nearly always of psychogenic origin. He has found that it occurs in states of tension and in the nervous individual it becomes most marked on social occasions when it is also most embarrassing. Andrews (7) has observed that pompholyx occurs chiefly in high-strung, nervous individuals, and is es-sentially a psychosomatic dermatosis.

English (55) has found that excessive sweating of the palms, axillae, and feet is fairly common, and he believes that it is impossible to state at this time whether there is some pathology of the sweat glands in pompholyx or whether it is due to emotional conditioning. There is considerable evidence for the latter. In the experience of English, these patients rarely realize that they need any help with their personalities.

Wright (189) also states that excessive sweat-ing of the hands, axillae, and feet is very common. He believes that the intermittent type of hyperhidrosis is definitely of emotional origin, and states that pompholyx may well be associated with emotional upset. Cormia (32) reports that the psychosomatic type of hyperhidrosis af-fecting the palms and the soles has been experimentally produced by stimulation of the cerebral cortex in the premotor area.

Sulzberger and Zaidens (173) point out that many of these people with hyperhidrosis do have definite emotional stress immediately preceeding the sweating. They also call attention to the fact that such excessive sweating may promote such complications as fungal infections, etc. Wittkower and Russell (187) have found that either hyperhidrosis or fungal infections may predispose to contact dermatitis.

Stokes, Beerman, and Ingram (165) believe that the dyshidrosis provides the clearest illunstration of the importance of emotional factors in the complex of allergic-infective dermatoses that we have.

Wittkower reports a series of 50 otherwise un-selected military cases of pompholyx who were psychiatri-cally treated (184). Forty of the fifty were emotionally

maladjusted or psychiatrically ill prior to or at the time of onset of their skin complaint. Ninety percent of those who were psychiatrically ill were anxiety states, either acute or chronic. Those called emotionally mal-adjusted were equally divided between hysterical and obsessional in type. Thirty of the fifty patients had other associated functional disease, such as persistent headaches, cardiac pain, fatiguability, trembling fits, and sleeplessness. According to their prevailing characteristics, the forty patients classed as emotionally maladjusted could be grouped as follows:

1) Vain and conceited (6 patients): They had no doubt as to their good looks and outstanding abilities, and their freely displayed emotions were shallow.
2) Ambitious, but afraid of failure (10 patients): The vanity of these patients centered about their accomplishments, and their only aim was success.
3) Afraid of getting hurt (6 patients): These people gave histories of having been either browbeaten or spoiled as children. They had never been able to fight their own battles.
4) Afraid of showing fear (6 patients): Characterized by their extreme sense of duty and responsibility.
5) Afraid of their own impulses (12 patients): The im-

pulses were either hysterical or obsessional, and either conscious or unconscious.

In the group of patients studied by Wittkower (184) the pompholyx was used as a means of evasion in groups one through four, and as a means of self-punish-ment in group five. In the latter group it seems to sig-nify an urge to confess and a desire to atone for evil impulses.

In thirty-three of the patients studied, the onset of the skin disease was preceded by emotional dis-turbances of a specific nature, arising either from with-out or within. Events leading to the development of the dermatosis consisted of blows to vanity in group one, frustration of ambition in group two, exposure to hard-ships and dangers in group three, and also in group four, and accumulation of guilt over forbidden impulses in group five. In all cases, varying as to whether the hands or feet were involved, a definite purpose in developing the skin disease was easily recognizable.

Wittkower (184) concludes that excessive self-love (narcissism) was a common feature in those predisposed to pompholyx. Fifteen of the fifty patients suffered previously or simultaneously from psychosomatic affections such as intractable headaches and dyspepsia.

Treatment:

In view of the hysterical origin of pompholyx, it is likely that this disease will be readily amenable to short term psychotherapy. Moreover, if the organ language of this disease is understood, a great deal can be done to relieve the complaint by environmental manipulation or by welfare means. Rogerson (142) mentions local treatment by X-ray for palliatuon, but concludes that treatment should be primarily concerned with psychological factors.

URTICARIA

Definition:

MacKenna (118) states that urticaria is an angioneurotic affection of the skin which is characterized by the sudden appearance of a transient erythema followed by raised, white, edematous lesions which are surrounded by a red halo and are intensely pruritic. They subside after a variable time. Angioneurotic edema is a giant form of urticaria in which the wheals are large and poorly defined. MacKenna believes that when a patient is suffering from an acute attack of urticaria, his whole integument except the skin of the palms and the soles will respond to any external stimulus with an urticarial reaction. The tendency to react in this way may remain for some time after the acute attack has subsided. This author feels that three factors are required for the urticarial reaction: 1) vasomotor instability of sympathetic origin, 2) vigorous external stimulation, and 3) an intact local circulation. The phenomenon of such a response in the apparently normal skin of patients with urticaria has been called dermographism.

Dunbar (54) points out that urticaria may be acute or chronic, localized or generalized, and that it-ching is nearly always present. She states that allergic, toxic, physical, and emotional factors have been shown to have a causal relationship. Many of the cases show more than one factor, anc this opinion is shared by Stokes (164.) Davis and Bick (36) feel that it is simply a quantitative exaggeration of a mild skin reaction.

Etiology and Symptomatology:

Wittkower and Russell (187) state that no one would deny the importance of allergy in urticaria, but it is known that the immunologic approach does not give the final answer to the etiology of the disease. According to these writers, the evidence suggests that urticaria is a disease which occurs in individuals who have always felt frustrated because their basic need for affection was not gratified. Situat ons which objectively or subjectively intensified their need for affection precipatated the on-set of urticaria and of recurrences.

The association of urticaria with stressful life situations has been noted by many authors: Grant, Pearson, and Comeau, (76), Saul and Bernstein (153), Hopkins, Kes-ten, and Hazel (92), Dunbar (54), and Stokes, Kulchar, and Pillsbury (166.) Raginsky (139) states that the role of

psychologic factors in urticaria has long been recognized. Wright (188) states that anxiety is the most common cause of the psychic disturbances leading to chronic urticaria. The anxiety most often has its origin in one of the following: 1) somatic disturbances, 2) conscious situational difficulties, or 3) unconscious processes.

Becker (14), and Obermayer (135) have pointed out that the thres old of allergic response may be raised or lowered at a given time by the state of emotional tension, so that a pa ient with a food urticaria may be able to eat a food to which he is allergic when he is free from tension and anxiety.

Sulzberger (169) remains somewhat skeptical of the role of the psychic factor in the production of urticaria. He feels that the basic mechanism is allergic, but does state that emotional influences can perhaps elicit urticarial attacks and in many ways may even favor the creation of allergic states.

Hopkins, Kesten, and Hazel (92) believe that there has long been clinical evidence of the importance of psychic factors in many of the dermatoses, but that dermatologists have been slow to accept this because there was no known mechanism by which mental stimuli could produce cutaneous lesions. However, Grant, Pearson, and

Comeau (76) have recently shown that the lesions of general urticaria are produced by the release of acetylcholine at the terminations of the cutaneous nerves. This was the first demonstration of a mechanism by which a psychic stimulus could produce a definite lesion of the skin. It is believed that the abnormality in these cases is in the skin cells: they respond abnormally to a release of acetylcholine.

Saul and Bernstein (153) feel that it is not surprising, when we know that embarrassment causes blushing, if stronger emotions might not produce more severe cutaneous effects such as urticaria. These authors point out that there are differences between acute and chronic urticaria, chief of which is the fact that specific allergens are usually found as causative factors in the acute cases while it is exceptional to find this etiology in the chronic forms. These investigators have found that it is common for patients to observe that their attacks are precipitated by emotional disturbances. Case reports reveal that urticarial attacks occur in a great variety of emotional situations, including anger, overwork, pressure to excell, and in situations where sexual wishes are aroused but frustrated. According to these authors, there are numerous reports in the literature of persons developing urticaria by hypnotic suggestion or upon be-

lieving that they had eaten a food to which they were sensitive. Obermayer (135) cites a case in which the patient reacted to a certain food at home but not on vacation, even though the food was obtained from the same source. He also presents a case in which the patient had consistent attacks of asthma and dermatitis following the ingestion of fish, but did not have such attacks following ingestion of the same kind of fish in a hospital.

Exactly what is the role of emotional factors in urticaria? Sulzberger (169) says that he has never observed purely psychogenic urticarial attacks, although their existence has been reported by many careful observers. Generally speaking, there is agreement among the various authors that emotional factors are of great importance. Most investigators hesitate to state that they are the sole cause, or even the most important cause, the allergic phenomena usually being given the greatest emphasis.

Kaywin (99) has found that his patients with chronic urticaria were shy, easily embarrassed, prone to blushing, relatively passive-dependents, and immature with a tendency toward exhibitionism. Obermayer points out that the emotional factors may form a link in a chain

composed of several causative elements, of which allergic, bacterial, and toxic are the best recognized. He believes that in the allergic dermatoses the threshold of allergic response may be raised or lowered at a given time by the state of the patient's emotional tension. In other words, a patient may react to a given allergen at one time, and not at another.

Numerous cases are reported in the literature, all of which add support to the theory of emotional factors in the causation of urticaria. Abramson (2) describes the case of a woman who developed a whealing response to cold, and in whom it was also thought that emotional factors were important. As soon as she had developed insight into her problem, the whealing response to cold disappeared. This appears to be a well authenticated case in which an allergic response to a known physical agent was destroyed without the aid of any desensitizing agent.

Stokes, Sulchar, and Pillsbury (166) report 100 cases of urticaria in which they attempted to weigh the psychogenous element equally against other causative factors, and found it important in 83%. They regard the emotional factors as being very important, but emphasize that such factors are not the sole cause. Wright (188) analyzed 25 cases of chronic urticaria and found that 70%

had a very definite psychic factor in the etiology of their skin disease.

Saul (152) reports a case in which weeping bore a special reciprocal relationship to attacks of urticaria. When his patient wept, she did not have ur-ticaria, and her attacks usually terminated with weeping. When she deliberately suppressed her weeping, she dev-eloped urticaria. Dunbar (54) also reports having ob-served this relationship between urticaria and weeping.

Wittkower and Russell (187) found the following psychopathological mechanisms in their urticaria patients:

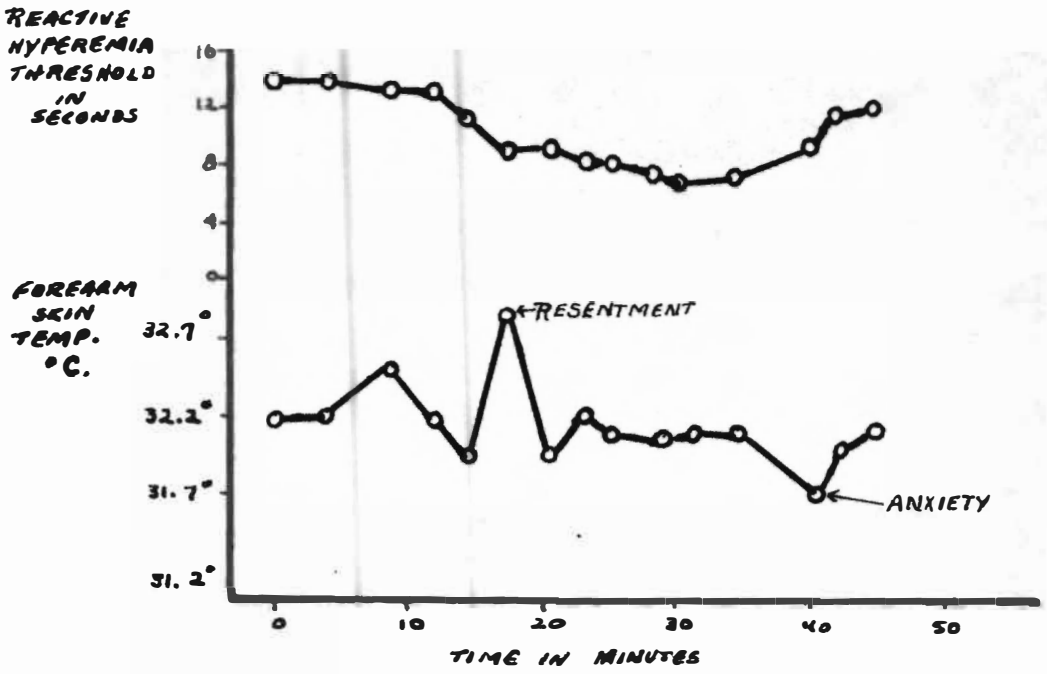
1) Repressed aggressiveness: Skin wheals are an expression of infantile fury.
2) Masochism: Here, the wheals are often preceded by psychogenic pruritus.
3) Repressed exhibitionism: These trends are present in some patients, but not all.
4) Skin erotism: Skin is a potent source of sexual stimulation in affection-starved individuals.
5) Secondary gain: Location of wheals sometimes serves this purpose

Stokes, Kilchar, and Pillsbury (166) also stress the importance of a multiple etiology in urticaria. They found it to be a disease more prominent in women than men,

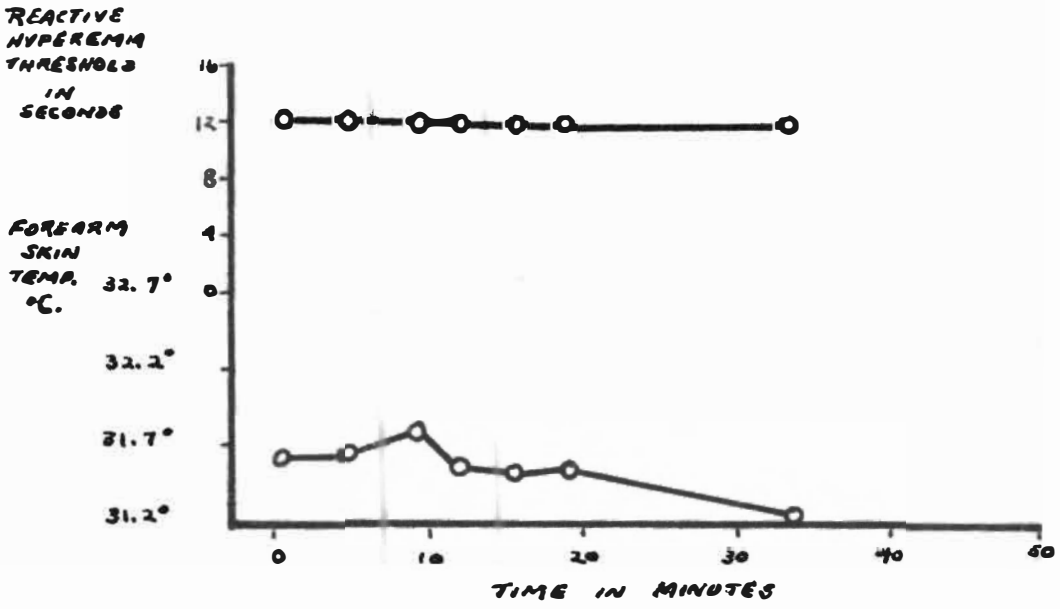
and more common in early adult life than at any other age. Sixty percent of their cases had a marked familial urticariogenic background, as compared with 25% of a con-trol group. Cutaneous infections were frequent in these people, but were of unproved etiologic significance. Other neurogenous dermatoses were infrequent. Fifty-five per-cent of the patients had constipation, and 18% of the remainder had some type of gastrointestinal disturbance. Positive reactions to scratch tests for allergic reactions were obtained in 64% of cases, and multiple atopic sensitivity was noted. Seventy-five percent of the cases showed from one to three causative factors in their urticaria. A psychoneurogenous cause alone was apparent in only 12% of cases. The chief psychoneurogenous elements found were: the tension make-up, neuroticism, the worry habit, shocks, family troubles, and financial troubles. Sex disturbances were of minor significance.

Stokes, Kulchar, and Pillsbury conclude that the driving, high tension, competitive personality is the characteristic urticaria personality.

Graham and Wolf (74) used some very interesting physiological tests on urticaria patients in a well con-trolled series of experiments. They found that in 29 of the 30 cases of their series it was possible to show a definite relationship between feelings of having been wronged and attacks of urticaria. These patients felt



REACTIONS DURING STRESSFUL INTERVIEW
Patient R. L.



REACTIONS DURING NON-STRESSFUL INTERVIEW
Patient R. L.

(From Graham, D.T.)

that they had been hurt and that they could neither re-taliate nor run away. They consequently became resentful, and their urticaria developed. In 20 of the patients whose reactive hyperemia threshold was determined during interviews, it was found that when resentment was aroused by discussion of events which in the past had been assoc-iated with attacks of urticaria, capillary tone was invar-iably lower than during control periods. Associated with feelings of dejection and hopelessness there was a loss of minute vessel tone and a lowered skin temperature, the latter indicating arteriolar constriction. All of the patients in this series manifested dermographism, although in some of them this was not apparent until stressful sit-uations had altered the state of their skin vessels.

Feeling that these patients visualized themselves as "taking a beating", Graham and Wolf thought it seemed pertinent to compare the changes in their skin with those that follow a blow. They found that the reactive hyper-emia threshold dropped in both arms after a blow on only one forearm of a healthy man, and that feigning a blow also caused a drop in reactive hyperemia, but only in the threatened arm. Therefore, it has been shown that real trauma leads to those vascular changes in the skin which are seen in associat'on with urticaria, and that the changes can be elicited when such trauma is threatened.

Graham and Wolf (74) found that the most com-monly encountered pattern of urticarial attacks was one in which there was resentment toward a person exceedingly important to the patient. As long as this conflict was unresolved, many events which might otherwise have been too minor to cause disturbance were sufficient to pro-voke urticarial attacks. In this way, it seemed to be a definite summation effect. The patient always felt that there was nothing he could do to change the situa-tion which provoked his attacks, but it was not uncom-mon for the interviewer to see several modes of solution. The feature peculiar to patients with urticaria is the failure to generate hostile feelings even though cir-cumstances may seem to call for them. These people are preoccupied with what is being done to them rather than with what they are going to do.

It has been concluded by Graham and Wolf (74) that all of the evidence presented with respect to the skin changes in urticaria patients indicates that the essential difficulty is an increased tendency of both arterioles and minute vessels to dilatation. Urticaria is the end point of intense vasodilatation, and no add-itional factor is necessary. It is not necessary to assume that clinical urticaria requires the participation

of histamine or a similar substance. This does not conflict with the idea that some diffusible substance is released at the site of trauma, and causes local vasodilatation with increased capillary permeability. It is even possible that urticarial wheals occur only at the site of trauma to the skin.

Graham and Wolf (74) state that the reason that the patients in their series developed urticaria was that they responded to many of their life situations by generalized cutaneous vasodilatation. At the time of their attacks, many of them saw themselves as unjustly receiving punishment. The entire process can be regarded as an intensification of the familiar skin reddening of anger.

Kaywin (99) has listed some factors which may aid in the recognition and evaluation of the role which the emotions play in urticaria:

1) A history of an anxiety-provoking existence for a period preceding the attack of urticaria.
2) Usually a sudden onset of symptoms, precipitated by a frustrating experience.
3) Frequently no previous allergic history or signs.
4) Subjective and objective signs of anxiety.
5) Chronic symptoms.
6) Shy, easily embarrassed personality type.

Mittelman (128) found that the conflicting trends associated with a case of angioneurotic edema were: 1) longing for affection, 2) fear of abandonment, 3) feelings of helplessness, 4) hostility, 5) aggression, 6) hurt self-esteem, 7) guilt, and 8) self-depreciation.

Treatment:

Stokes, Kulchar, and Pillsbury (166) found that the exclusion of substances to which the patient gave a positive skin test was conspicuously unsuccessful in the treatment of urticaria. It is essential to give attention to several factors rather than to one alone, and a variety of methods may be effective. Some of the cases clear spontaneously. The therapeutic methods used by these men were: 1) acid-calcium regimen, 2) non-specific desensitization, 3) psychotherapy, 4) actinotherapy, 5) restriction of diet, and 6) the occasional administration of atropine and ephedrine. In 60% of the cases, this therapy proved adequate. Thirty-four percent of the re-maining cases were improved, and 6% were not improved.

GENERAL THERAPEUTIC MEASURES

Wittkower and Russell (187) state that therapy begins as soon as the doctor and patient meet, for the confidence which is created by a careful history and physical examination is the first essential for the relief of anxiety. The patient must be made to realize that the doctor is truly interested in the case, and nothing will substitute for the sympathetic ear and the understanding attitude of the doctor. Environmental adjustments should be made when necessary, and emotional conflicts should be exposed and at least partially resolved before relief of the cutaneous symptoms can be expected. In the opinion of these authors, the dermatologist should practice a covering method of psychotherapy, in contrast to the uncovering method used by the psychoanalyst. Covering psychotherapy should reinforce the mature aspects of the personality and should strengthen the forces of repression. It may provide mild ventilation and catharsis in connection with current conflicts, but it must avoid penetrating, extensively cathartic, and uncovering methods. The dermatologist should not strive primarily for insight.

Covering methods include suggestion, physical and mental rest, sedatives, placebos, and interest in manual labor. These authors feel that any treatment has some suggestion value, and the more unusual or bizarre it is, the better the results will be.

Wright (189) states that the phobias and the neurotic excoriations are deep-seated, and should have deep psychotherapy. However, many of the other psycho-somatic dermatoses may be successfully handled by the dermatologist or general practitioner. The success or failure of such treatment is often dependent upon the first consultation, and the physician who has no sym- pathy or who is outwardly hostile will usually fail in his therapeutic attempts. Another cause of therapeutic failure is the quick assumption that nervous factors are to blame and the failure to make a thorough examination for physical causes of the disease. Wright feels that if the patient's symptoms can be looked upon sympathetically, if adequate time is allowed for him to pour out his complaints, if honest reassurance is used in discussing his problems with him, and if confidence toward the physician is present, the patient will recover in the same length of time whether cared for by the psychiatrist or the dermatologist or the general practitioner.

Stokes (164) outlines several methods of brief psychotherapy. He lists the following points to be used in treating the infant or small child:

1) Supervised play with other children
2) Calling off the over-protecting parent
3) Stop the "don'ting" type of discipline
4) Adjust marital conflicts of parents
5) Discourage competitive techniques
6) Conserve the child's energy: rest often
7) Facilities for discharge of tension: nature study, etc.
8) Train child in self-confidence

For the adult, Stokes recommends the following:

1) Attempt to identify the more obvious conflicts
2) Do not stress mechanism of the disease too much
3) Educate with regard to I-sensitiveness and effect of competition on disease
4) Depersonalize the patient's outlook on things
5) Reduce activity
6) Train to relax
7) Train to discharge tension by long walks, etc.
8) Change environment only in severe cases

Stokes stresses that he does not propose to cure these patients by psychotherapy alone.

Saul and Fischer (154) divide psychotherapy into three groups: supportive therapy, giving the patient insight, and physical measures. They point out that the danger with supportive therapy is that the patient may become too dependent upon the therapist. Insight is usually achieved through psychiatric management. These authors feel that so-called "brief psychotherapy" is not without danger: conflicts may be uncovered too quickly and too extensively and the patient may go on to psychosis. Psychoanalysis is indicated for those patients with a deep-seated personality problem, and is not indicated for all patients with psychosomatic disease. The physical measures which these authors mention include sedatives, local applications, and occupational therapy. In the physical treatment, the psychic problem is attacked indirectly. Probably a combination program is the best.

Owen (136) feels that psychotherapy is first, an exploration and reformation of ideas, and secondly, the provision of a comfortable environment. It is well known that fears of illness, lonliness, anxiety, and discouragement have morbidifying effects. Often, these morbid effects can be relieved by making the patient realize that his symptoms are the natural result of fear and anxiety and that there is no structural disease.

Frazier and Leeper (62) have found that the injection of epinephrine is the most reliable means of treatment for urticaria and angioneurotic edema. They have also used pyribenzamine in 100-150 mg. doses, and have fouhd that it usually gives relief. It sometimes requires 800-900 mg in divided doses during a twenty-four hour period to give complete relief of symptoms. In treating pruritus, these authors have found that treat-ment directed at the symptom rather than the cause is futile. Body parasites, diabetes, kidney or liver disease, and the lymphomas should always be considered in a case of pruritus. They have found that suggestive therapy works well in treating psychogenic pruritus. They believe that too often we pack the patient off to Arizona under the guise of "improving his environment". This is futile because he takes his psychic environment along with him.

Smith and Hughes (159) report that there has recently been a move to use histaminase in treating these dermatoses. Results have not been striking, but these authors feel that it is due to poor dosage regulation. The use of gradually increasing doses of histamine in an effort to desensitize the patient have met with varying degrees of success. This method of treatment also bears further consideration.

SUMMARY

The literature concerning the importance of psychogenic factors in skin disease was reviewed. Psychosomatic medicine in general was discussed, with particular emphasis upon the contributing personality traits, the typical psychosomatic symptom, and the methods of therapy which can be practiced by the dermatologist or the general practitioner. The embryology, anatomy, and physiology of the skin were discussed, and the structures which are important in the production of skin lesions were stressed, i.e. the vascular system and the autonomic nervous system.

A history of the development of psychodermatological concepts was presented briefly. The interaction of the psyche and the skin was considered in detail, with emphasis upon the physiological and pathological signs of the influence of the psyche over the skin. Several recent psychometric studies were discussed, and the need for well controlled laboratory tests was mentioned.

Four dermatologic lesions with definite psychogenic factors in their background were discussed with

regard to their causes, pathology, symptoms, and treatment. These lesions were: eczema, pruritus, pompholyx, and urticaria.

General therapy practical for the general practitioner or the dermatologist was outlined with each of the lesions and also at the close of the paper.

The writer wishes to express her appreciation to Dr. Donald J. Wilson whose clinical demonstrations in this field stimulated the research leading to this thesis.

CONCLUSION

It is obvious that a division of the mind and the body is entirely artificial. The two should be regarded as one, and this should apply to both the etiologic and therapeutic aspects of disease. However, in our enthusiasm for recognizing the psyche in disease, we must not neglect the soma. Just as the soma is never exclusively involved in a disease process, so the psyche is never solely at fault.

That the psyche and the skin are closely related is quite evident. Physiological skin changes in response to emotions such as embarrassment are commonplace. It is not beyond the realm of reason, then, that prolonged emotional states could produce actual pathologic changes in the skin. This would be particularly true if the skin were inherently "weak"; that is, if there were a family history of atopy or hypersensitivity. Another important factor in the development of psychogenic changes in the skin is the sensitivity of the skin to psychological stimuli. The skin is the

only barrier between the individual and his environment; it is the only visible bodily organ, it is of vast importance in our social relationships; it is the site of many erotic sensations; and it is convenient for the expression of masochistic trends.

The importance of psychogenic factors in certain of the skin diseases is shown by:

1) Symptoms out of proportion to physical signs
2) Occurrence in persons under emotional stress, or immediately following emotional trauma
3) The refractoriness to treatment, and the temporary improvement with any new form of treatment
4) The chronicity of skin diseases in spite of specific desensitization therapy
5) The favorable response in many cases following changes of environment

Emotions have their origin in the higher centers of the brain. Probably through the connection of the cortex and the hypothalamus, these emotional impulses are conveyed over the autonomic system. They are manifest in all organs and systems of the body, and they are readily visible in the skin. Vasodilatation occurs because of the dominance of these fibers over the vasoconstrictory fibers. This causes an increase in cap-

illary permeability, and with it there is an increase in the transudation of fluids and electrolytes into the cutaneous tissues.

Emotional tension is the result of conflicts between the instinctual wishes and the wishes of society. The "evil" emotions are repressed, and if the repress-ion is faulty, psychoneurosis will occur. Psychoneurosis and psychosomatic disease are both manifestations of em-otional tension. However, psychoneurosis is not the same as psychosomatic disease. In the psychoneurosis, reality is sacrificed: there is dissociation of the em-otion and the reality situation. An element of secondary gain is present in the psychoneurosis. The psychosomatic symptom arises as the result of a recent reality stimulus, and it is not as elaborate in its mechani sm as the psychoneurosis. There is no secondary gain in the psychosomatic symptom. Accumulated emotional tension must be released, and in the psychosomatic symptom it is released through the soma, with consequent structural changes. Strictly speaking, the psychosomatic symptom is not the same as functional disease, for in the latter there is no change in organic structure.

The emotions are known to lower the allergic threshold. Acetylcholine is released at the nerve endings due to emotional stimulation, and it is thought to react synergistically with the histamine produced by the

union of antigen and antibody in the shock tissue. Therefore, the emotional stimulus may make allergic re-sponse occur when the amount of histamine alone is not sufficient to produce a reaction.

There is no specificity between personality type and the dermatologic disease produced. However, certain personality patterns are more apt to develop psychogenic dermatoses than is the "normal" personality. Important findings in the psychodermatologic patient are: long-standing emotional tension which cannot be relieved by the usual channels, feelings of inadequacy and inferiority, narcissism, superior intelligence, and great over-activity and restlessness.

Because psychic changes occur secondary to any skin disease, it is often difficult to tell which came first, the dermatitis or the psychic abnormality. This is an essential distinction to make, and has been neglected by some people in their investigation of the problem of neurodermatoses. The latter term implies a connection between the pre-morbid personality and the cutaneous disease.

Constitutional and allergic factors are of marked importance in the neurodermatoses, and in no single skin disease is the psyche alone at fault. The

problem of choice of organ for psychogenic reaction has not been answered completely, but congenital factors and early conditioning are of great importance.

Intensive psychotherapy is not required for the treatment of these problems. The brief psychother-apy which can be practiced by the general practitioner or the dermatologist is entirely adequate in most cases. It has been repeatedly shown that local treatment alone will not give a complete cure, and it is believed that some form of psychotherapy will improve the cure rate.

The skin is a very valuable organ for the study of psychosomatic phenomena. It accessibility and its sensitivity of reaction make it ideally suited for such study, and it merits more detailed laboratory observa-tion.

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