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## ORIGINAL ARTICLES.

### TOILET AND MEDICINAL SOAPS.

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The skin may be briefly described as a dense layer, consisting chiefly of white fibrous tissue, with which are intermingled yellow elastic and unstriped muscular fibres. It is abundantly supplied with blood-vessels, lymphatics and nerves. Its outer surface is thrown up into little elevations, called papillæ, in which are lodged the tactile corpuscles. Sebaceous and sudoriparous glands are embedded in its substance, while its exterior is protected by an epithelial covering divisible into four strata. The epithelial cells constituting the superficial layer are hard and dry, from loss of water and conversion of albumin into keratin. The cuticular appendages, hair and nails, are merely modifications of the epithelium.

The epithelial sheath, known as the cuticle or epidermis, is destitute of blood-vessels or nerves, and nourished solely by imbibition. The cells dry, harden and flatten as they approach the surface, and are continually being shed as they lose their vitality. The hair and nails, as the limit of their growth is reached, require trimming.

The integument as a whole, including the epiderm, protects the soft parts which it covers. The office of the epiderm is to shield the more delicate derm from mechanical and chemical irritants.

The functions of the true skin are varied and important. The sebaceous glands, situated in the substance of the skin, open, as a rule, into the hair follicles, and lubricate the hair-shaft as it is gradually extruded. At the same time a cholesterine fat is formed within the cornified cells of the hair, nails, and most superficial layer of the epidermis. These fats render the skin soft and pliable, protect those portions which are exposed to atmospheric vicissitudes, and preserve the dessicated cells from cracking and exposing the softer cutis vera. They lessen friction and prevent maceration upon prolonged exposure to moisture. Perspiration is an excretory fluid, contains a small proportion of urea, and is of importance as a medium of elimination. A higher function performed by this fluid is the regulation of the temperature of the body. The skin is also a respiratory organ, absorbing oxygen and giving off carbonic acid. The general covering of the body, therefore, affords a certain degree of assistance to the work of the kidneys and lungs.

The dry cells of the epiderm prevent the too rapid evaporation of water from the succulent tissues beneath, a loss which would be incompatible with their vitality. Finally, the elasticity and density of the corium, together with the mode of its attachment to

the subcutaneous tissue, guard the deeper structures against the effects of violence.

*The Action of Soap.*—This brief rehearsal of anatomical and physiological facts prepares us to understand how intimately the health of the cutaneous envelope depends upon that of the general system. If the blood be depraved by the presence of noxious principles, whether generated within the organism or admitted from the external world; if the nutrient fluid has not been properly elaborated, is lacking in red corpuscles and hæmoglobin, the nutrition of the skin must suffer with that of all other tissues. Thus gout, rheumatism, diabetes, cancer, scrofula, tuberculosis, syphilis and fevers, occasion more or less characteristic lesions of the integument. Anæmia, chlorosis, disease of the liver or kidneys, likewise impair the health of the integument. A healthy skin depends primarily upon healthy blood, proper nervous tone, and a healthy condition of capillary blood-vessels. All these conditions are interdependent. On the other hand, to perform its own highly useful functions, the skin itself requires frequent ablution. Exposed as it is to deleterious influences from within and from without, it requires, for its utmost efficiency, scrupulous attention. The rate and uniformity of its capillary circulation is often rudely disturbed by atmospheric influences, organic and inorganic material is constantly being deposited upon its surface, and the accumulation of defilement is a frequent source of disease. An uncleanly skin offers an excellent soil for the growth of various pathogenic microorganisms, whereas a healthy integument is generally able to resist their invasion.

Personal beauty depends to a great degree upon the habits of life. We are not able, it is true, to reconstruct irregular features, but temperance, pure thoughts, and personal cleanliness, produce good blood, a healthy skin, a bright eye, an expression of intellect, animation and refinement, and this combination, to all intents and purposes, constitutes beauty.

A fine complexion is an essential element of comeliness, and complexion, whether blonde or brunette, whether creamy, rosy or olive, is due to activity of the circulation, the state of the blood, the presence of a sufficient but not excessive quantity of oil, the proper performance of the functions of the skin, and scrupulous cleanliness of the epithelial coat. The nutrition of the skin is to be chiefly secured by internal hygiene. The epithelial surface must be cleansed by local measures, by proper attention to the toilet. The mixture of epithelial debris, fatty matter, organic and inorganic deposits from within and without, cannot be effectually removed by the sole and unaided use of water. A substance is needed which is able to dissolve and emulsify the extraneous matter, without inflicting any injury upon the living cells of the integument. Such a substance we have in soap; that is, if properly prepared.

*A Good or Pure Soap.*—In a strictly chemical sense, soap is a combination of a fatty acid with a basic metallic oxide, but the term is usually restricted to the product resulting from the union of fats and oils with alkaline substances, the latter combinations alone being soluble in water. In the manufacture of soap, the fat is derived from various animal and vegetable sources. Tallow, suet, lard, palm oil, olive oil, cottonseed oil and cocoanut oil are among those most frequently employed, the choice depending to a large extent upon the place of production, in consequence of the comparative supply and price of the different fats. The alkalis—potassium and sodium—are used almost exclusively in the form of caustic lyes. A broad physical difference at once separates soda from potash soaps, the former being of relatively hard, the latter of soft consistency, although the soda soap may be made from a fluid fat, and the potash soap from the solid fatty acids. Soft soap is restricted to the treatment of disease. Hard soap is used for purposes of the toilet, incidentally aiding in the sanitation of the skin, and acting also as a prophylactic against local disease. Many medicinal substances have been incorporated in the soda soaps, with the view of making their solutions useful adjuvants in the treatment of cutaneous maladies. Soda soaps are, therefore, divisible into *toilet* and *medicinal soaps*. I shall first speak of the former class.

The integument will become soiled in the contingencies of daily life, and requires to be cleansed with soap and water. In addition to merely removing dirt, the friction employed in the act of washing stimulates the tone and the circulation of the skin. The action of the soap is promoted by the use of warm and soft water, or water free from insoluble salts of lime. The fluid should not be too hot, nor should the soap be used too frequently, or in too great a quantity. The dirt upon the skin is composed of dead and loosened epithelial scales, mixed with organic and inorganic materials, some of which have been thrown out of the system upon the skin, while others have been deposited upon the skin either from atmospheric contact, or from articles which have been handled. The object of washing is obviously the removal of this deposit without injury to the epithelium. In order to fulfil these indications, soap should be of neutral reaction or nearly so—in other words, should contain very little free alkali. According to chemical calculation, an exact combination of fatty acids with an alkaline base should result in a product of neutral reaction. This result, however, is seldom or never attained in the process of manufacture. The soap boiler roughly tests the reaction by the sense of taste, and it is asserted that the alkalinity of the same style of soap varies in each separate lot made. Be this as it may, an essential requisite of a good toilet soap is that it contains a minimum proportion of free alkali. An undue amount of alkali present will act as a direct chemical irritant, or even cauterant. A smaller proportion exerts an injurious influence by dissolving the fats of the epithelium, leaving the latter dry, harsh and easily disposed to crack. Many soaps, attractive to the sight and smell, are, on account of the alkali which they contain, no more fit to be used upon the skin than is laundry soap, and this statement is especially true of those made by the cold process. If a soap causes smarting as soon as the lather is applied, it should be washed away from the surface by means of a

slightly acidulated solution, lemon-juice for example, in order to neutralize the excess of soda. The essential oils used to communicate an agreeable perfume are often irritant in their effect, and the same is to be said of the brilliant colors used to render the preparation sightly and salable. Soap is thus defined by the United States Pharmacopœia: "A white or whitish solid, hard, yet easily cut when fresh, having a slight, peculiar odor, free from rancidity, a disagreeable alkaline taste and an alkaline reaction. It is readily soluble in water and alcohol." This definition applies to the white Castile, made with olive oil, the type of a good soap. The red streaks in the mottled Castile are due to a deposit of an iron soap which, being insoluble, detracts from the efficiency of the product, and is therefore an impurity. Cocoanut oil is the least desirable of fats for soap making. As it requires a larger amount of alkali to saponify, the finished product retains a surplus of lye, besides other irritants, and the oil itself is exceedingly prone to undergo decomposition. The only advantage it possesses is its solubility in salt water, whence its name of "marine soap."

*Adulterated or Impure Soap.*—For various commercial reasons of economical production, in order to meet competition, etc., various adulterations are frequently added to soap. Most of these seriously diminish its value as an article of the toilet. Resin is one of the commonest impurities, and is used because its acids require less soda in order to saponify. This is contained in the common yellow soap, which is a mixture of a resin soap in the proportion of 10 to 40 per cent. or more with any hard fatty soap. The presence of a large amount of resin is decidedly irritant to delicate skins. Other substances which are often added are pearl-ash, silicate of soda, starch, sugar, and an excess of common salt. These adulterants are either harmful in themselves, or are changed by the soda lye into deleterious substances. Transparent so-called glycerine soaps are frequently completely destitute of glycerine, the transparency being due to the presence of sugar, of which the article may actually contain a larger quantity than of soap. These contaminations are more or less injurious to the integument, especially if it be diseased. Again, cheap soap is often made of imperfectly purified animal fat, which contains bacteria of putrefaction, and probably also pathogenic organisms.

In the preparation of medicinal soaps, a neutral reaction is of especial importance, as in a neutral mass the incorporated drug or drugs remain unchanged for an indefinite period, while in alkaline soaps they soon undergo chemical alteration.

*Toilet Soaps.*—A number of oleaginous and demulcent, or even slightly stimulant substances, make very acceptable additions to soap intended for toilet use. These, equally distributed throughout the mass, and mingling with the lather, produce a softening or tonic effect upon the skin due to themselves, and distinguished from the detergent action of the soap. A very narrow margin, in fact, separates some of the toilet preparations from those medicated to suit diseased conditions.

*Lanolin Soap.*—The presence of a certain amount of lanolin softens the integument, and neutralizes an irritant or solvent action due to an uncombined alkali.

*Glycerine Soap.*—A pure glycerine soap is an excellent preparation, particularly for use in the winter

season, when the hands tend to become chapped. Glycerine soap usually contains equal quantities of pure hard soap and glycerine. An excess of glycerine will dissolve the soap, and the mixture forms but a feeble lather.

Suet may be made use of instead of beef tallow or lard.

*Oatmeal Soap.*—Oatmeal is an emollient ingredient of certain toilet soaps.

*Bran Soap* is an emollient application to rough skins.

*White Castile Soap*, made from olive oil and soda, is one of the best articles for the toilet, being free from adventitious irritants, such as pigments and perfumes. The mottled Castile was formerly preferred, but the insoluble iron in no way adds to its efficiency, nor is it an indication of the absence of impurities.

*Marshmallow Soap.*—Marshmallow is an agreeable constituent of a toilet soap. The oil of almond, incorporated in a soap, has an excellent softening influence upon the integument.

*Pine-needle Extract Soap.*—A soap containing pine-needle extract has an admirable tonic effect, and is a useful disinfectant for the hands of physicians and surgeons.

*Shaving Soap.*—A special application which applies only to men is a soap to facilitate the removal of the beard. An efficient shaving soap should be of the soda type, and semi-solid consistence. A small quantity of mild and agreeable perfume may acceptably be added in the process of manufacture. A soap which forms an abundant and rather thick froth, and permits the painless removal of hairs from the face through the habit, so customary among barbers, of "close shaving," is mentioned here only to be condemned. It destroys a thin layer of the cuticle, lacerates the minute blood-vessels which surround the openings of the hair follicles, and renders the skin irritable, tender and prone to disease.

Unna has devised a soap which he terms super-fatted. It is made with beef tallow and a mixture of sodium and potassium in definite proportions. A slight excess—about 4 per cent.—of fat is present. This soap has been principally used as a basis for the incorporation of certain medicaments adapted to treatment of diseases of the skin. In the absence of such additions, however, it constitutes an excellent toilet article, cleansing the skin from dirt, yet leaving the natural unctuousness undisturbed. It is so prepared that the unsaponified fat does not readily become rancid. Super-fatted soap, used with warm water, is said to be admirably suited for use in shaving.

*Potassium and Sodium Soaps.*—Turning now from its hygienic, prophylactic and cosmetic properties, we find that saponaceous preparations have a decided sphere of usefulness in the treatment of cutaneous disorders. It is self-evident, that when a surface has been cleansed of foreign matter and pathological products, it is placed under the most favorable circumstances for the action of whatsoever topical remedy it is brought into contact with, irrespective of the form in which that remedy may be applied. Cases differ, conditions differ and stages differ, so that powders, lotions, ointments, pastes and soaps have each their peculiar range of utility. But the fact that the very agent which cleanses a certain area is also the vehicle by which a remedy is applied, is a

sound argument for the employment of medicinal soaps.

Both the hard and soft variety have been used in dermato-therapy. I shall dwell first upon the latter because it has been most widely used and is more powerful in its effects.

*Soft or Potassium Soap.*—Soft or potash soap is variously known under the names of *sapo mollis*, *sapo viridis*, green, brown or black soap. It contains a certain excess of alkali and may be made from either animal fat or vegetable oil, olive oil being chiefly used in its manufacture. The form in which it is met with is often unsatisfactory, and only the carefully prepared product of the best makers should be selected. Green soap should have the consistency of jelly, should not flow from an upturned vessel, should have a brownish or greenish color, be soft and perfectly homogeneous, have a strong, caustic odor and an acrid, alkaline taste. It should contain no sand and should be soluble in alcohol with little residue. The best quality comes to this country from certain German manufacturers. Green soap softens, macerates or even destroys the epiderm, the effect varying according as it is or is not applied with friction, and according to the time during which it is left upon the surface. It may be used under its own form or in that of an alcoholic solution, two parts of the soap being dissolved in one of alcohol. Solution removes the disagreeable odor and when filtered and scented with the spirit of lavender, it is known as *spiritus saponis kalini*, or Hebra's spirit of soap.

In the "soap cure" *sapo viridis* is allowed to remain for some time in contact with the affected region, or is even applied with friction until blood oozes from the surface. It is used in this manner especially in chronic eczema and psoriasis. When sufficient irritation has been excited some sedative application may be used in its place. In psoriasis, the patient, after having been vigorously rubbed with soft soap, is sometimes kept for three days wrapped in a blanket impregnated with the soap, at the expiration of which time he is allowed to take a bath. In eczema affecting the scrotum, green soap may be applied as a poultice until the epidermis has been destroyed and the surface is covered with a free exudation. Good results are undoubtedly often secured by these methods, but they are too heroic for general adoption in this country. American skins are too thin to bear with impunity such severe treatment. An excessive irritation is produced and the disease is, not infrequently, aggravated. Moreover, American people will not submit for any considerable period to harsh measures and confinement to a hospital bed on account of a condition which, though a source of annoyance and mortification, will not interfere with a successful prosecution of business.

Employed in moderation, however, soft soap removes scales, crusts and dirt, and is beneficial in the treatment of seborrhœa, ichthyosis, pityriasis, eczema, psoriasis, acne, rosacea, elephantiasis, leucoderma, scrofuloderma, and syphiloderm. Kappesser, Senator and others have made use of it successfully in the treatment of enlarged glands whether due to simple inflammation, syphilis or scrofula. Beetz speaks favorably of its action in many cases of subcutaneous and glandular suppuration. In scrofulous or tuberculous disease of the mesenteric glands, periostitis or caries amendment has followed the practice of the same method.

In carrying out this treatment the best procedure is to first, rub the soap lightly with the ends of the fingers upon a small portion of the diseased patch, gradually covering a larger area until the whole affected surface, if not too large, may be treated at one *séance*. If the area be too extensive, it may be gone over in sections, one portion at a time. If this manner of operating be well borne it may be prosecuted more vigorously, either by assistance of the finger tips, a piece of flannel or a brush. Finally, upon cessation of the manipulations the surface should be washed.

The spirit or tincture of soap, either pure or diluted with three parts of Cologne water, makes an effective liniment in cases of sprains, stiffness and pain of joints, etc. Anodynes, such as aconite, chloroform or laudanum, may be very serviceably combined with it for use in these affections.

The soft soap treatment is effective but must be carefully supervised. It is capable of readily penetrating the tissues and therefore must be sedulously watched if used in acute cases or upon delicate skins.

Soda soap is of comparatively hard consistence and is milder in its action. It can be used in the same class of cases to which potash soap is applicable and we may often, therefore, have our choice between the two forms. As a matter of practice it will often be found of benefit to begin with the hard and subsequently resort to the use of soft soap. Even in the therapeutical employment of soft soap, however, judicious circumspection is demanded.

*Medicinal Soft or Potassium Soap.*—Either potash or soda soap may be made the vehicle for the application of various medicaments. This places in our hands an easy and convenient method of employing local remedies, a method which, in its preliminary operation upon the cuticle, enhances the effect of the chosen medicament.

Many drugs have been used for the purpose of medicating soft soap. Those which have proved of most service are tar, naphthol, carbolic acid, sulphur, balsam of Peru and mercury.

Tar has been incorporated with green soap in the form of *pix liquida*, *oleum fagi*, *oleum cadini*, *oleum rusci*, *oleum ligni fossilis empyreumaticum*. Either of these may be added in the strength of one to eight drachms to the ounce of soap or its solution. These soft tar soaps are beneficial in chronic eczema, psoriasis, ichthyosis, pityriasis, scrofuloderma and seborrhea sicca.

In the management of the same affections soft naphthol soap is of equal efficiency. Naphthol soap is made from  $\frac{1}{2}$  to 3 drachms or more of the drug with each ounce of potash soap. This preparation is also valuable in scabies and pediculosis.

Carbolized soft soap contains from 10 to 90 grains of carbolic acid to the ounce of soap. This combination has proved effective in seborrhœa oleosa, acne indurata, chronic papular eczema and paræsthesia. Itching as a complication of various cutaneous maladies is mitigated by the use of carbolized soft soap.

Salicylated soft soap is made in the same strength as the immediately preceding preparation. It is useful in the management of disordered function of the sudoriparous glands, as hyperidrosis and bromidrosis.

Sulphur alone has been mixed with green soap in all proportions. It has also been used in union with tar. Sulphur or sulphur-tar soft soap is decidedly

curative in obstinate cases of scabies and eczema. These combinations, however, have the pronounced disadvantage of a disagreeable odor.

Balsam of Peru added to green soap in the proportion of  $\frac{1}{2}$  drachm or more to the ounce is an excellent application to indolent ulcers, boils and unhealthy wounds.

Mercurial soft soap is made by mixing corrosive sublimate or one of the mercurial ointments with the soap. The corrosive chloride may be used in the proportion of 10 grains or more to the ounce. Blue ointment or ointment of the mercurous or mercuric oleate may be added to the soap in the strength of one drachm to three of the former to the ounce of the latter. Sometimes, even, equal parts of each are taken. The resulting mixture is used in the treatment of obstinate syphilitic lesions, especially in debilitated subjects who are intolerant of mercury administered by the mouth. It is applicable likewise to the manifestations of early syphilis, to buboes, especially when chronic, to scrofulous ulcers, to pigmentary spots and alopecia.

*Medicinal Hard or Sodium Soap.*—The hard has a wider scope of usefulness than the soft variety of soap. Its value in the treatment of disease has been augmented by the addition of a great number of drugs. I have been in the habit for many years of employing medicated soda soap both in private and public practice. Like soft soap it has the power of removing thickened and hardened epidermis, dirt and morbid secretions, but is milder in its action. Nevertheless, it is capable of doing harm and must be applied with care. Precautions should be observed in its application, trying first its effect upon a small spot and if it be well borne and prove beneficial, bringing it into contact with a larger surface or with the entire diseased area. Careful observation of its effects will teach us whether it can be beneficially employed every day or less often.

The soaps which I have habitually employed are divided into cakes each containing an average weight of three and a half ounces or 1680 grains. The soaps here recommended have been manufactured under my supervision by Mr. W. H. Llewellyn, 1410 Chestnut Street, Philadelphia, Pa. The chemist having taken the greatest care in their preparation, especially to have the soaps super-fatted as recommended by Unna and Eichhoff. The soaps upon which I have learned to place the most reliance after many years experience with medication in this form, are as follows:

*Alum Soap* (*sapo aluminis*), ten per cent. or 168 grains of alum. This preparation is a beneficial agent in hyperidrosis, seborrhœa oleosa and pustular eczema, especially of the subacute form. It is of service in lupus, cancer, scrofulous and syphilitic lesions of the skin, a stimulant and astringent to ulcers and bed sores.

*Arnica Soap* (*sapo arnica*), 10 per cent. or 168 grains extract of arnica. Sore nipples, bruises, abrasions, wounds, chilblains and dandruff are improved by the use of arnica soap. It is a good application to the surface of impetigo, ecthyma, boils and carbuncles.

*Boro-glyceride Soap* (*sapo boroglyceriti*), 10 per cent. or 168 grains, 50 per cent. solution of boro-glyceride.

This is preferable to a soap containing boric acid or borax. It possesses antiseptic virtues and is val-

uable in the treatment of ulcers, wounds, suppurating, sloughing or gangrenous surfaces. It affords relief in paræsthesia, especially of the genitals, is useful in acne, seborrhœa and rosacea.

*Camphor Soap* (sapo camphoræ), 10 per cent. or 168 grains of camphor. Camphor soap allays the itching which accompanies eczema and chilblains.

*Carbolic Acid Soap* (sapo acidi carbolici), 5 per cent. or 84 grains of carbolic acid.

The effect of carbolic acid soap is first stimulant and subsequently anæsthetic. It likewise possesses antiseptic properties. This soap makes an excellent wash for inflamed and suppurating surfaces, such as boils and carbuncles, wounds and ulcers. It relieves pruritis and is of advantage in chronic eczema and psoriasis. Its smell, however, is a drawback, for which reason a naphthol or salicylic acid soap is preferable. Association with glycerine has been found to lessen the odor of carbolic acid soap.

*Chamomile Soap* (sapo anthemidis), 10 per cent. or 168 grains extract of chamomile.

Mildly stimulant and astringent and of an aromatic odor, chamomile soap is serviceable in intertrigo, dermatitis, seborrhœa, and in conditions attended by excessive and foul secretions. The addition of sulphur adds to its efficiency and forms chamomile and sulphur soap (sapo anthemidis sulphurisque). This soap, possessing the virtues of both its medicinal ingredients, is of value in seborrhœa sicca, especially of the scalp, alopecia, acne and when the skin is greasy and shiny.

*Eucalyptol Soap* (sapo eucalyptoli), 5 per cent. or 84 minims of oil of eucalyptus.

Eucalyptol Soap is stimulant, astringent and antiseptic. It may be used with good effect in cleansing unhealthy wounds and ulcers, abscess cavities and carbuncles. It is a good remedy for chapped hands, and overcomes the unpleasant odor of bromidrosis.

*Naphthol Soap* (sapo naphtholi), 5 per cent. or 84 grains of naphthol. This is one of the most efficient of the medicinal soaps. Its freedom from odor, its stimulating, astringent, antiseptic and slightly anæsthetic influence renders it useful in eczema, especially sub-acute and chronic psoriasis, pityriasis, ichthyosis and offensive discharges. Bromidrosis is controlled and often cured by the use of naphthol soap. It relieves or cures the bites and stings of many insects and animals. Naphthol soap is useful in herpes and scabies.

*Salicylic Acid Soap* (sapo acidi salicylici), 4 per cent. or  $67\frac{1}{2}$  grains of salicylic acid.

This preparation, which is well adapted to toilet use, is superior to a soap containing carbolic acid from the fact that it is destitute of odor and irritant properties. It is particularly indicated in a thickened condition of the integument which is often present on palmar, plantar and extensor surfaces. Salicylated soap is of value in the treatment of impetigo, ecthyma, pustular eczema, sycosis, furuncles, wounds and ulcers. It is of assistance in the management of tinea and herpes. Chapped skin and bromidrosis are also benefited by its use.

*Sublimate Soap* (sapo hydrargyri chloridi corrosivi), 1 per cent. or  $16\frac{1}{2}$  grains of corrosive sublimate. Sublimate soap is unlikely to excite salivation. Although I have ordered it extensively I have never known of its producing this effect. Sublimate soap may be recommended in scabies and pediculosis and for the irritation which may be present upon the

body. It is an excellent application for freckles, pigmented spots, chloasma and the reddened and roughened skin which may follow the eruptive fevers, notably small-pox. It exerts an admirable tonic influence upon the skin and is a valuable local agent in improving the complexion. This soap relieves paræsthesia and the itching which is a concomitant of many cutaneous diseases. Syphilitic eruptions improve under its use.

*Tar Soap* (sapo picis liquida), 10 per cent. or 168 grains of tar.

Tar soap is valuable in the treatment of certain chronic affections, more particularly eczema and psoriasis. It promotes activity of the local circulation, stimulates the absorbents and reduces infiltration. It allays itching and is of service in pityriasis and ichthyosis. On account of its unpleasant odor and irritant properties, however, it may with advantage be superseded, in most cases, by naphthol soap, which is equally effective in the same conditions, and is free from the disadvantages mentioned.

The combinations enumerated, both for soft and hard soap, are those which I have found, by experience, to be the most reliable and beneficial, and which, consequently, I have most frequently prescribed. I append a catalogue of other preparations which may, upon proper occasions, be profitably employed, giving at the same time the proportion of their included drug or drugs together with their indications.

*Amber Soap* (Eau de Luce). This is a liquid soap, the chief ingredients of which are tincture of the oil of amber, balsam of Gilead and water of ammonia. Amber soap may be used in cases of enlarged glands, moles, warts, etc.

*Balsam Soap* (sapo balsami Peruviani), 5 per cent. or 84 grains of balsam of Peru.

This preparation makes a suitable wash for cleansing indolent or foul ulcers, sinuses and abscesses, wounds, etc.

*Elder Flower Soap* (sapo sambuci florum), 10 per cent. or 168 grains of elder flower. This soap may be suitably used in intertrigo, rosacea and sun-burn. It is a pleasant toilet preparation.

*Ergot Soap* (sapo ergotæ), 10 per cent. or 168 grains extract of ergot. Ergot soap is of assistance in the treatment of eczema, acne and rosacea.

*Glycerin Soap* (sapo glycerini), 15 per cent. or 252 grains of glycerin. Glycerin soap has been mentioned under the head of toilet soaps. Pityriasis and rough or chapped skins furnish the indications for its use.

*Naphthol Sulphur Soap*, (sapo naphtholi sulphurisque). 3 per cent. or  $50\frac{1}{2}$  grains of naphthol; 10 per cent. or 168 grains of crushed sulphur. Scabies, pediculosis, the bites and stings of insects, hyperidiosis, bromidrosis, eczema seborrhœa and psoriasis are the diseases in which this soap may be brought into use.

*Sulphur Soap* (sapo sulphuris), 10 per cent. or 168 grains of washed sulphur.

Acne and rosacea are improved by the use of sulphur soap.

*Iodine Soap* (sapo iodi), 3 per cent. or  $50\frac{1}{2}$  grains of resublimed iodine.

This preparation may be called into requisition in the care of scrofulous and syphilitic lesions of the skin, old granulations, etc. An iodine soap made from the Sulzbrunn iodine mineral water is said by Dr. E. Haffter, of Frauenfeld, to furnish an effective

means of removing the smell of iodoform from the hands. The iodine exists in this spring water in the form of iodide of magnesium.

*Iodide of Sulphur Soap* (sapo sulphuris iodidi), three per cent. of iodide of sulphur, 50½ grains in a cake.

Acne indurata, chronic ulcers, freckles, yellowish-brown or blackish patches upon the skin may improve under the use of this soap.

*Kino Soap* (sapo kino), ten per cent. or 168 grains extract of kino.

Eczema, rosacea and ulcers are conditions which may be benefited by cleansing with kino soap.

*Lead Soap* (sago plumbi), three per cent. or 50½ grains of acetate of lead.

Lead soap may be appropriately applied to boils, carbuncles, abrasions and bed-sores.

*Tannin Soap* (sapo acidi tannici), three per cent. or 50½ grains of tannic acid.

A soap containing tannic acid assists in the treatment of seborrhœa oleosa, hyperidrosis and ulcers.

*Tannin-Balsam Soap* (sapo tanno balsamicus), two per cent. or 33½ grains of tannic acid; five per cent. or 80 grains of Peruvian balsam.

The above combination is usefully applied to ulcers, wounds and chilblains.

*Thymol Soap* (sapo thymol), three per cent. or 50½ grains of crystallized thymol.

The non-irritant and antiseptic virtues of thymol render a soap of which it is an ingredient, a serviceable application to unhealthy wounds or ulcers, pustular eczema or other pustular diseases of the skin, to abscesses, sinuses, etc.

*Turpentine Soap* (sapo terebinthinæ compositus).

This is known as Starkey's soap. It contains equal parts of carbonate of potassium, oil of turpentine and Venice turpentine, and is capable of rendering service in chilblains, psoriasis and syphilis.

*Wintergreen Soap* (sapo gaultheriæ), three per cent. or 50½ grains of methylsalicylic acid.

Wintergreen soap is a pleasant article, applicable to eczema, psoriasis, acne, lichen, ulcers, wounds, freckles, impetigo, ecthyma, chilblains, etc.

*Witch Hazel Soap* (sapo hamamelidis), ten percent. or 168 grains of extract of hamamelis.

Bromidrosis, eczema and alopecia are conditions in which we may resort to the use of witch hazel soap.

Properly made and properly applied potash or soda soap often renders efficient assistance in the treatment of diseases of the skin. The fact must not be overlooked, however, that like all other active agents, they are capable of effecting harm when improperly used. They must not be carelessly prescribed without regard to the nature of the ailment, stage of disease, condition of the patient, etc. Soap has a decided position in dermato-therapy. It would be, however, irrational to expect too much from these preparations. They are to be looked upon as valued assistants only, seldom able, unaided, to effect a cure, more than this ought not to be anticipated. By not expecting benefit from their use beyond their power as assistants we learn to employ them with judgment and guard against disappointment from their failure, in cases to which they are not adapted.

The super-fatted soap introduced by Unna, of which mention was made when speaking of toilet soaps, is now made by the addition of a mixture of lanolin and olive oil instead of olive oil alone

as formerly recommended. The proportions in which these ingredients are now mingled with the soap mass are two per cent. of lanolin and three per cent. of olive oil. The presence of lanolin, a soft animal fat with no tendency to become rancid, of ready absorption by the skin and miscibility with water, confers additional value upon the product. A higher percentage of lanolin, however, diminishes the lathering property.

Various medicinal agents have been incorporated in this super-fatted article and employed by Unna, Eichhoff and others, who report very favorably of their advantages. From the lists and reports lately issued by the latter authority I have selected the following as an addendum to the present paper:

*Aristol Soap*, two per cent. of aristol.

This is recommended in psoriasis, eczema, leg ulcers, ulcerated lupus and gummata.

*Benzoic Soap*, five per cent. of benzoin.

A good toilet soap, useful in intertrigo and seborrhœa of the scalp.

*Creolin Soap*, five per cent. of creolin.

Creolin soap is of benefit in the treatment of scabies and contagious impetigo.

*Creasote Soap*, two per cent. of creasote.

This preparation may be used in lupus.

*Hydroxylamin Soap*, three per cent. of hydroxylamin.

Adapted to the treatment of lupus, psoriasis, tinea and parasitic sycosis.

*Iodoform Soap*, five per cent. of iodoform.

Iodoform soap is beneficial in chronic and syphilitic ulcers. When used in conjunction with massage it may promote the absorption of exudations.

*Iodol Soap*, five per cent. iodol.

An effective substitute for iodoform soap.

*Menthol Soap*, five per cent. of menthol.

Especially indicated in paræsthesia and urticaria.

*Menthol Eucalyptol Soap*, five per cent. of menthol with three per cent. of oil of eucalyptus.

A beneficial soap in rheumatism, gout, neuralgia, urticaria, itching of the skin and as a disinfecting soap to wounds and ulcers.

*Pine-needle Oil Soap*, ten per cent. of pine needle oil.

This is a valuable remedy in tinea, favus, eczema, psoriasis and assisted by massage, in chronic rheumatism.

*Quinine Soap*, five cent. of quinine.

A mild stimulant soap in acne, after and during fevers, in dandruff or seborrhœa of the scalp.

*Resorcin Soap*, five per cent. of resorcin.

Of utility in seborrhœa, eczema and erysipelas.

*Resorcin-Salicylic Soap*, five cent. of resorcin and three per cent. of salicylic acid.

A useful soap in acne, seborrhœa and in parasitic skin diseases.

*Resorcin-Salicylic-Sulphur Soap*, five per cent. of resorcin with three per cent. each of salicylic acid and sulphur.

*Resorcin-Salicylic-Sulphur-Tar Soap*, five per cent. of resorcin with three per cent. each of salicylic acid, sulphur and tar. The two last named soaps are serviceable in eczema, psoriasis and parasitic skin diseases.

*Salol Soap*, five per cent. of salol.

This is an effective soap to employ in chronic eczema, psoriasis, acne, excessive secretion of perspiration and in foetid sweating.

*Salicylic-Creasote Soap*, five per cent. of salicylic acid and two per cent. of creasote.



A valuable soap for chronic eczema, psoriasis, and in excessive secretions of perspiration in different parts of the body.

*Sulphur-Camphor-Peruvian-Balsam Soap*, five per cent. of sulphur, and three per cent. each of camphor and Peruvian balsam.

A useful soap in acne, seborrhœa, chronic eczema and psoriasis.

*Sulphur-Salicylic Soap*, five per cent. each of sulphur and salicylic acid. An especially serviceable soap in all chronic skin diseases, as eczema, psoriasis, ichthyosis, acne, and rosacea.

*Sulphur-Salicylic-Tar Soap*, five per cent. each of the preparations named.

A valuable combination in all chronic skin eruptions.

*Thiol Soap*, five per cent. of thiol.

A beneficial soap in all parasitic diseases, also useful in eczema, acne and rosacea.

Other remedial agents and several combinations of medicaments have been used but they are such as have been described in the foregoing portions of this paper and therefore, need not be repeated. According to the nature of the disease, its severity and obstinacy or the condition of the patient, the surface may be simply irrigated with the soap solution, the froth may be permitted to dry *in situ* or it may be retained by means of impermeable dressings.

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## AN INTRODUCTION TO THE STUDY OF THE PHYSICAL BASIS OF VOLUNTARY ACTION, MEMORY, EMOTION AND THOUGHT.

An address delivered before the Anthropological Society of Yonkers, N. Y., March 4, 1892.

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*Mr. President, and Ladies and Gentlemen:* I will ask your attention to a few introductory remarks on the psychical life of man before proceeding to discuss my main topic, which is the physical basis of voluntary action, memory, emotion and thought.

### PART I.

A psychological investigation of man is necessary for the reason that though anatomy and physiology furnish us with stronger grounds in favor of the unity of mankind as a species, than the arguments advanced for the opposite theory they cannot alone be considered as decisive, and even if they were conclusive they would lose their validity if it could be proved there existed permanent psychical differences, presenting impassable barriers to the development of individual races. If it is somewhat difficult to arrive at a just estimation of the mental capacity of individuals, it is still more difficult to estimate the psychological capacity of whole nations and races. Individual nations occupy at different periods, different scales of development, and though from the actual performances we may arrive at an estimation of the faculties which produced them, they would seem to vary at times. In addition to these difficulties, there is the circumstance that the external and internal causes,

which in one race affect the transition from a primitive to a civilized state, are as much hidden from us as the causes which prevented the development of another race, and apparently fixed it in the position which it once occupied. All this might make us inclined to assume a different endowment for individual races, particularly as primitive man stands in such striking contrast to civilized man, if we forget that we once occupied a similar position. The religious customs and legends of uncultured nations are too apt to be treated as curiosities, instead of taking pains to properly understand them, so as to deduce from them proper inferences with regard to psychical peculiarities or a proper characteristic of the uncivilized man. It is a hasty assumption that the psychical peculiarities of nations correspond with their physical characters, especially with the structure of the skull. History shows us the overthrow of nations who were once highly cultivated, possessed of finely formed crania, by races of inferior mental capacity and less developed skulls. The larger cranial capacity of the whites did not prevent the Turks and Magyars who entered Europe, from obtaining great conquests and becoming permanently settled. The old Egyptians possessed very small crania. The inhabitants of Tierra del Fuego, the Esquimaux and the nations of Van Dieman's Land have uncommonly large heads. The Kalmuck and Tartar have larger crania than the civilized European, while the Laplander is particularly distinguished by a large skull. The same or similar intellectual and moral dispositions coexist with different cranial formations, and different dispositions, with the same or similar cranial shape and capacity. We see one and the same race proceeding from barbarism to civilization, and again relapse from its high state and its capacities decline, but as the cranial shape remains the same, the assertion that the intellectual faculties are dependent on it is incorrect. The capacity of the cranium does not indicate the amount of mental endowment. As in physical respects, all men may be considered as belonging to the same species, if it can be proved that the greatest physical differences occurring among them are not more considerable than such as may have arisen in the same people in the course of time; so we can, in psychical respects, count all as belonging to the same species, if it can be shown that the greatest differences of their mental development and their intellectual and moral culture, are not greater than the differences of the degrees of civilization, which the same race passes through in its history. Of course, it would be absurd to suppose that races passing through different stages of development should be capable of the same intellectual performances. The capacities of a race may change in time, and we have to decide whether under favorable circumstances, in the course of time, all nations and tribes are capable or not, of reaching the same degree of mental development. We have to examine as to the greatest differences existing in the various races, as regards mental development and the greatest changes which, in this respect, take place among the same race. We will start from the assumption that, as in the life of individuals, so also in that of nations, all cultivation is something secondary, resting upon a gradual progress to a better state than was the primitive or natural state of man. This natural state marked by the absence of all cultivation, we must imagine to have been the original con-