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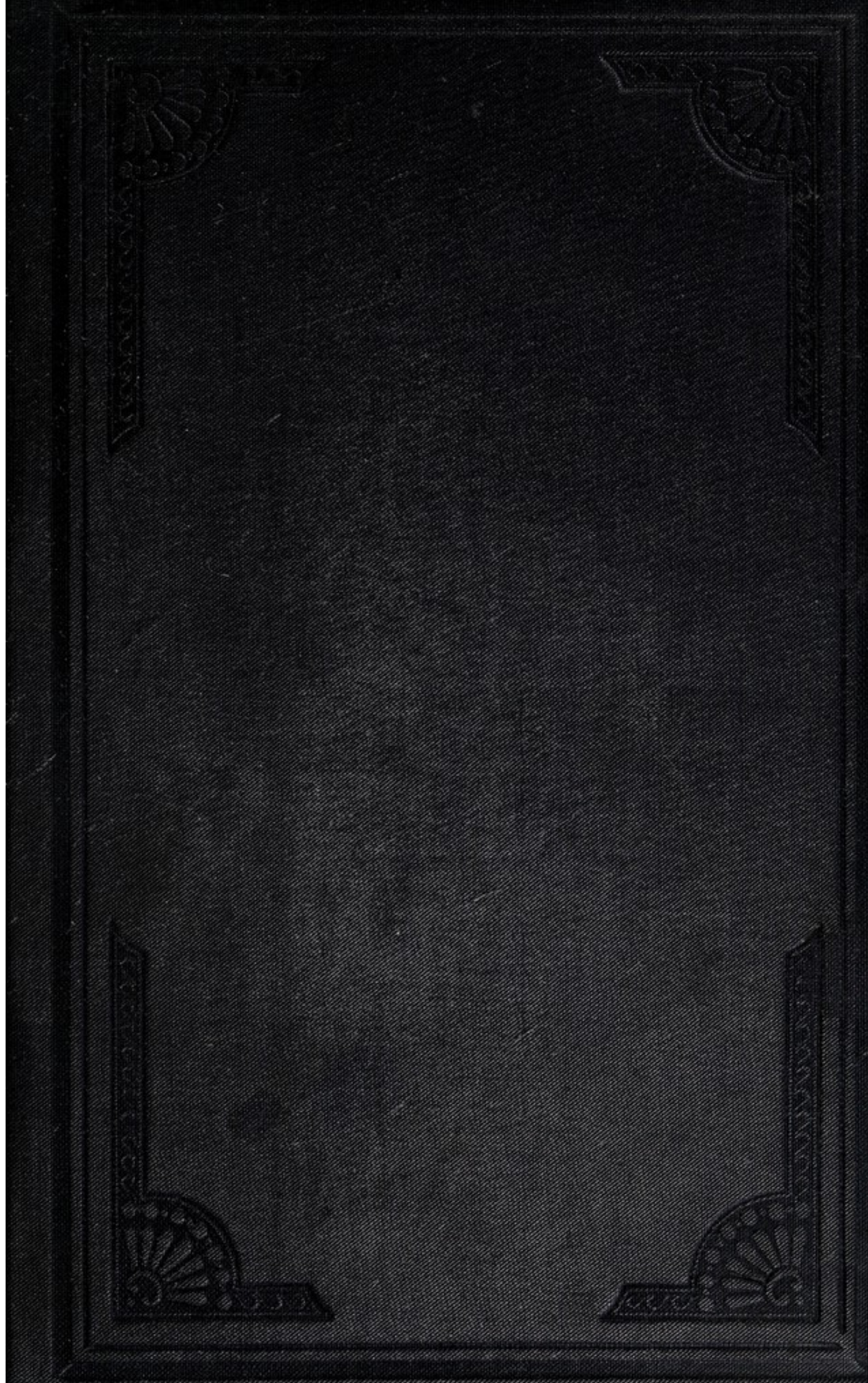
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No. 6 IN THE PHYSICIANS' AND STUDENTS' READY
REFERENCE SERIES.

OINTMENTS AND OLEATES

ESPECIALLY IN

DISEASES OF THE SKIN.

BY

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SECOND EDITION.

REVISED AND ENLARGED.



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PREFACE TO THE FIRST EDITION.

A PERIOD of ten years has elapsed since I became interested in the production of the different oleates and their introduction to the medical profession as useful remedies for the treatment of diseases of the skin, etc. From that time I constantly endeavored by investigation and experiment to test their value, and it is pleasant to say that my efforts have proved successful, as evinced both in my hospital and private practice, and in the adoption of the oleates by practitioners in this country and in Europe. The results of my labors were publicly made known through papers read before the Philadelphia County Medical Society, the Medical Society of the State of Pennsylvania, the American Medical Association, the British Medical Association, and the International Medical Congress, held at Copenhagen. This small volume is not only a *résumé* of all that I have heretofore written concerning the oleates and their uses, but enables me to lay before my readers in a permanent form all my experience. It also contains much new matter which

I think will prove interesting and of value, and which I have not heretofore published.

It is with pleasure that I acknowledge the efficient aid and co-operation of my friend, Dr. L. Wolff, well known in connection with the chemistry of this subject, who, with untiring assiduity, rendered me every assistance in his power to further my efforts toward a satisfactory conclusion.

J. V. S.

PHILADELPHIA, 1519 WALNUT STREET,
April, 1885.

PREFACE TO THE SECOND EDITION.

SINCE the first edition of this work was published, in 1885, the oleates have continued to be prescribed with undoubted advantage. The best proof of this is shown by the very marked improvement in the quality of oleic acid and its salts, with the metals and alkaloïds. Chemists and pharmacutists, both in this country and abroad, have greatly interested themselves in devising improved modes of preparation, some of which I have incorporated in this second edition. I may also add that the oleates of mercury and zinc have been made official in the last edition of the British Pharmacopœia.

In order to make as complete a survey as possible of the manner in which, and the purposes for which, fatty substances are applied to the human body, I have extended the scope of the work so as to embrace a consideration of ointments. In addition to our official, I have described those which are commonly used in this country,—those substances which are used extemporaneously and the officinal British ointments.

The official lists of France, Germany, and Austria are also given, while those familiar in the practice of Italy, Spain, and the Spanish colonies have been compiled from all accessible sources. The reader may thus obtain a conspectus of the whole subject of inunction as it exists to-day in the civilized world. In all cases the mode of preparation is given, and the therapeutical applications described *seriatim*, in so far as may be done without needless repetition.

J. V. S.

1519 WALNUT STREET, PHILADELPHIA, PA.,

May, 1890.

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PART I.
OINTMENTS.

OINTMENTS AND OLEATES.

CHAPTER I.

OINTMENTS.

LOCAL MEDICATION OF SKIN DISEASES.

AN ointment is a fatty substance designed for topical application. The selected fat may be used without any addition. It is, however, both customary and advantageous to incorporate with the fat some more active medicinal ingredient or combination of ingredients. The fat would, therefore, seem to answer the purpose of a vehicle by which the medicament is brought and retained in contact with a diseased surface. But that the oleaginous basis possesses valuable physiological and therapeutical properties peculiar to itself is proven by the fact that the sebaceous secretion of the skin is of an oleaginous composition and consistence. In estimating, then, the value of a medicated ointment, we must take into consideration the separate virtues of the fatty basis and the included drug or drugs.

The sebaceous glands abound most particularly in those portions of the integument provided with hair. Their ducts generally communicate at an acute angle with the upper third of the hair-follicles, though some open directly upon the surface. They have not been found upon the palms of the hands, the soles of the feet, or the dorsal surfaces of the last phalanges of the fingers and toes. Sebum consists of fat-cells, free fat, and epithelial *débris*. Chemical analysis has determined that it contains about 40 per cent. of olein and palmitin, 13 per cent. of casein, 8 per cent. of gelatin, a small quantity

of the chloride, phosphate, and sulphate of sodium, together with about 35 per cent. of water. It is, unmistakably, a natural or physiological unguent. The connection of the sebaceous ducts with the hair-follicles suggests that the secretion must be related in some way to the nutrition of the hair. It maintains the skin in a soft and flexible condition, and fortifies it against changes of temperature. It obviates deleterious friction between opposing surfaces, and protects the outlets of the body from the effects of irritant discharges. Sebum acts as a preservative to the cuticle, protecting it from maceration by excessive perspiration and consequent exposure of the sensitive cutis vera.

This brief enumeration supplies us already with an indication for the use of ointments. For, when the skin is diseased, either as the result of local or constitutional causes, its secretory functions are disturbed or suppressed. Inunction offers a partial substitute for the natural secretion, softens the harsh tissue, and reduces its heat. It is principally in cases of disease or injury of the integument that unguents are applicable. To a necessarily limited degree they are employed in morbid conditions of the accessible mucous membranes. Fat is also serviceable in mitigating pruritus. The irritant effect of acrid discharges, such as occur in eczema, in diseases of the vagina and uterus or of the intestinal canal, is lessened or prevented by the application of an ointment. Scabs, such frequent concomitants of affections of the skin, are softened and removed by the same means.

Oleaginous substances are of avail in the treatment of fever. The intense heat and itching of the skin in scarlatina are noticeably relieved by general inunction. At the same time the pulse and general temperature of

the body are reduced. Senator ascertained that, although the external use of fat or oil produced little or no diminution of the normal temperature, yet in disease its influence was more marked. The accurate experiments of Dr. Colrat, of Lyons, upon children aged from 1 to 2 years, leave no room for doubt upon this point. This observer made use of different substances, as lard, cerate, and vaseline, and found that in every instance they occasioned a decline of temperature, as noted by the thermometer placed in the rectum. The reduction varied from 1.4° F. to 3.6° F. The greatest diminution occurred at the end of about an hour. In about three hours after the application the temperature had risen again, when the inunction was repeated. During the desquamative stage of scarlatina inunction is especially valuable. It is probably, also, of some prophylactic utility by restraining the dispersion of scales through the atmosphere. The same method is of undoubted service in measles. Fat is an important nutrient. It enters into the chemical constitution of the principal animal tissues. The blood usually contains about 0.4 per cent., the muscles 3.3, milk 4.3, brain 8, and the nerves 22 per cent. Even the digestion of albuminous food requires the presence of a small quantity of fat. It is necessary in the process of cell construction, and, in fact, is found wherever active vital processes are manifested. This being the case, when fat has been consumed by an exhausting disease the system stands in urgent need of a fresh supply. Rachitis, scrofula, chronic dysentery, and tuberculosis are examples of maladies in which it is desirable to administer oleaginous materials. In these conditions, however, the stomach is often intolerant to a pabulum so beneficial to the system. In such a contingency much good may be effected by inunction. It is advisable to precede the

application by a warm bath, which will relax the glands and their orifices, and thus favor absorption. Cod-liver oil is the agent usually chosen, and is generally the best; but circumstances may preclude its use, in which case the commoner fats, such as lard or suet, may be substituted.

ANTIQUITY OF OINTMENTS.

In the effort to cure disease, mankind, at an early stage of intellectual development, seems generally to have regarded it as an entity inflicted by supernatural power, to be removed by spells, prayers, and incantations. The healing art in its infancy was therefore largely relegated to priests. As time progressed, however, more material modes of medication sprang into existence. The reception of wounds or injuries, in the chase or in warfare, must early have suggested some crude local treatment. The same methods would soon be extended to lesions which were the result not of accident, but of disease. Applications, at first restricted to cases in which the surface was visibly altered, were given a trial in those in which pain or other conspicuous symptom evidently arose from deeper portions of the body.

The wide distribution of fats and oils gives assurance that unguents must very early have obtained a place in the list of external remedies. With this assumption corresponds what we learn from the observation of travelers and the records of history. Oleaginous applications which are, to all intents and purposes, ointments, are largely employed by barbarous races. We meet with very early allusion to ointments in the hieroglyphic writings of Egypt. The Ebers' papyrus, ascribed to 1600 B.C., contains a formulary of prescriptions by noted physicians, and among many other preparations allusion is made to ointments. They are said to be

described also in the cuneiform inscriptions. In the Old Testament reference is made in several places to "the art of the apothecary." In Exodus, xxx, 25, we read: "And thou shalt make it an oil of holy ointment," etc., and in Job, xli, 31: "He maketh the deep to boil like a pot; He maketh the sea like a pot of ointment." It is said that the diachylon ointment was devised by Menecrates in the year 1, Anno Domini. This class of medicaments is described in the works of Celsus, who probably lived under Augustus; Galen (130-203 A.D.), Oribasius (326-403 A.D.), Ætius and Paulus Ægineta, whose eras are uncertain. During the Dark and Middle Ages ointments continued to be largely employed, and often included very strange ingredients. Their composition and their use became at times closely connected with superstitious beliefs. One of the most conspicuous examples of this alliance is the "weapon-salve" of that enigmatical character, Paracelsus. This salve is said to have contained boar and bear's fat, rain-worms, hog's brain, yellow sandal, mummy, blood-stone, and moss from the skull of a hanged criminal, which latter was to be gathered at the waxing of the moon.* "The virtues of this salve," remarks Paracelsus, "are remarkable, for with it one can heal all kinds of wounds, though the patient be miles away, provided one can but procure the weapon with which the wound was inflicted. This weapon must be greased once a day with the salve, then tied up in a clean linen cloth, and preserved in a warm locality. It should be protected from dust and cold draughts, otherwise the patient would experience great pain and become delirious. Although this cure may appear supernatural, and therefore be discountenanced

* Pictorial History of Ancient Pharmacy. By Hermann Peters. Translated by Dr. William Netter. Chicago, 1889.

by many, I can, nevertheless, assure the reader that this is not the case; for those instructed in the natural sciences know from experience, and have proven by diligent research, that the cure is accomplished by means of a certain magnetic force that emanates from the stars and acts upon the salve, conveying the latter's magnetic force through the air and to the wound." The first real pharmacopœia was published in Nuremberg, in the year 1546, by Valerius Cordus. It contains a division devoted to ointments. Among the substances mentioned is *adeps hominis*, "poor sinners' fat."

INDICATIONS FOR OINTMENTS.

Drugs may be applied to the integument in finely-powdered substance, in the form of a lotion, or an ointment. In the protean variations which diseases of the skin assume, we are often forced to ask ourselves which of these three forms is the best adapted to the condition of the case under consideration. Doubtless, certain maladies or stages are more successfully treated by means of a dusting-powder, while a lotion or an ointment is no less clearly to be preferred under other conditions. Yet it is not always clear, before the experiment has been made, which application shall be attended by the best results in a given case. If the surface involved is very extensive, and the attack be acute, the skin intensely red and hot, a liquid application will, as a rule, answer the best purpose. The affected part may be submitted to the action of an aqueous or spirituous solution, or may be immersed in water of a suitable temperature. But if the disease be of a chronic nature, a continued subjection to the influence of water induces a swollen, relaxed, softened condition of the parts, to which the term "water-logged" has been given. In this condition the local circulation is weak and retarded, and the nerve-

force depressed. It is essential that powders should be well ground and sifted, and free from gritty particles. The form, situation, or extent of the diseased area influences our selection of a powder. Powders are scarcely suited for use on an extensive surface. Again, in many parts of the body powders can be retained in contact with difficulty. When adherent, they protect the skin from atmospheric changes and influences. They are excellently suited to absorb moisture, and consequently are especially useful when a serous or sero-purulent discharge is present. Ointments also serve as a protection against the atmosphere; they loosen scabs or crusts, securing an unprotected integument upon which the powers of the medicament may be directly exerted. They may be readily applied to a surface of any form or extent by being spread upon lint and held in position by means of a bandage. They are, perhaps, of more general applicability than either powders or lotions in diseases of the skin, besides being of service in numerous other affections.

FATS AND OILS.

Fats and oils, though differing in physical state under ordinary circumstances, agree very closely in chemical composition. Fats derived from the animal kingdom are, with a few exceptions, solid, while oils of vegetable origin are, for the most part, fluid. The difference in consistency depends upon the presence of different proportions of their characteristic ingredients. It also depends upon temperature. The fixed oils, when chemically pure, are devoid, or nearly so, of color, taste, and smell. They are lighter than water, the specific gravity of fluid oils ranging between 0.900 to 0.970. The animal fats, likewise, when perfectly pure, are, for the most part, colorless and transparent, and, when fresh, destitute of smell and

taste. They are lighter than water, in which they are insoluble, but most of them dissolve in boiling alcohol. They are all soluble in ether and in volatile oils. They melt, in general, below the boiling-point of water. They communicate to linen and paper a permanent translucent stain, and are bad conductors of heat and electricity.

Fats and oils are hydrocarbons, and consist of hydrogen, carbon, and oxygen. The proportion in which these elements are present varies, as a rule, from 76 to 80 per cent. for carbon, from 11 to 13 per cent. for hydrogen, and from 10 to 12 per cent. for oxygen. Fatty and oleaginous substances consist essentially of a fatty acid in combination with a radical. This combination is broken up by a process of saponification. The addition of an alkali, alkaline earth, or metallic oxide, together with water, effects a decomposition. The fatty acid unites with the alkali or the metal, from which it may be readily freed by the addition of almost any other acid, mineral or vegetable. In the separation of the fatty acid glycerin results. The combination of acid and base is described as a glyceride.

The fatty acids most frequently met with are three in number, and are known as stearic, palmitic, and oleic. These, combined as glycerides, form the most important constituents of all fats and oils. In these combinations three equivalents of the fatty acids are substituted for the three replaceable hydrogen atoms of the glycerin. In other words, the natural, simple fats are all triacid compounds. Glycerin is a trihydric alcohol, while the glycerides belong to the group of ethers. There are three ethers, corresponding to each of the three fatty acids which have been mentioned. They are distinguished from each other by means of the prefixes *mono*, *di*, and *tri*, so that each forms a series; we have monostearin,

distearin, and tristearin; monopalmitin, dipalmitin, and tripalmitin; monolein, diolein, and triolein. It is the triacid combinations which chiefly occur in the fats employed in external medication. They are, however, generally designated simply as stearin, palmitin, and olein. No fat or oil is found to be composed solely of one of these glycerides. Each is a compound, as it exists in the natural state, formed by the association of two or more glycerides or simple fats. It is true that one of the simple fats is apt to preponderate in the constitution of a given compound or natural fat. It is chiefly to this fact that the different consistencies of different fatty materials are due.

Stearic acid exists most abundantly in the more solid animal fats, such as beef and mutton suet. It is present in smaller quantity in the softer animal fats, and also in some vegetable oils. It is obtained by saponifying suet with soda-lye, and heating the soapy solution with water and dilute sulphuric acid. This frees the fatty acids from combination. After cooling they are removed, washed with water, and dissolved in as small a quantity as possible of hot alcohol. When this has cooled the greater part of the solid acid separates out, and may be purified by repeated crystallization in absolute alcohol, until a substance is obtained which melts constantly at 69° to 70° C. (156° to 158° F.).

Pure stearic acid occurs in the form of nacreous needles or laminæ. It is without odor or taste, and its reaction is distinctly acid. It melts at 69° to 69.2° C. (156° F.) to a colorless oil, which, upon cooling, becomes a fine, white, crystalline mass. It is heavier than water at low temperatures, but between 9° and 10° C. (48° to 50° F.) its specific gravity is the same as that of water.

It is to the presence of a large proportion of stearin that the firmness of mutton suet is due.

Palm-oil is the principal source of palmitic acid, although it is found in other animal and vegetable oils. It is prepared by saponifying palm-oil with caustic potash, decomposing the soap with sulphuric acid, and crystallizing the separated fatty acid several times from hot alcohol till it exhibits a constant melting-point.

Palmitic acid is a colorless solid, and has neither taste nor smell. It is lighter than water, in which it is insoluble, but is freely soluble in boiling alcohol or ether. It melts at 62° C. (144° F.). It burns with a bright, smoky flame.

The origin, mode of preparation, physical and chemical properties of oleic acid are described in the latter portion of this work.

It was formerly customary, in discussing the chemistry of fat, to include margaric acid. It is now known, however, that this does not exist in natural fat as a distinct acid, but is really a mixture of stearic and other fatty acids having lower melting-points, especially palmitic acid. This fact could not be recognized by the older methods of separation, but has been demonstrated by Heintz.

The properties of simple and compound fats depend almost entirely upon the acids which they contain, and for this reason are extremely similar to those of the acids described.

RANCID FATS.

When oils or fats are exposed to the air they absorb oxygen freely, undergoing certain changes in their physical and chemical properties. The word "rancidity" is used to express this alteration. The substance acquires an acid reaction, becomes acrid to the taste,

offensive to the smell, and deepens in color. The reaction is due to the development of free acids belonging to the fatty acid series. The conversion from a neutral to an acid body renders a fat unfit for the purposes of an unguent. To say nothing of the repulsive odor, the fatty acids characteristic of rancidity are highly irritant and unhealthy to the skin. They would in many cases, also, promote chemical changes in the incorporated medicaments.

It is interesting to observe in this connection that the German chemist, H. Hager, has lately published a method by which rancid fats may be restored.* This consists in shaking the fat or oil with ethyl alcohol of 90, 88, and 86 per cent. Generally, an alcohol of 85 to 87 per cent. will answer, since it dissolves the majority of fatty acids. "To each volume of the rancid fat contained in a cylindrical glass vessel, and warmed to about 35° C. (95° F.), 1 to 1 $\frac{1}{4}$ volumes of alcohol should be added, and the whole shaken violently about three times in the course of half a day, so that by each shaking an emulsion-like liquid is produced. On the second day, at a temperature of 20° to 24° C. (68° to 75.2° F.), the mixture will separate into two clear layers, the lower being the oily, the upper the alcoholic layer. Lastly, the alcohol should be drawn off, partly by decantation, partly by the aid of a siphon. Another portion of alcohol, about one-half a volume, should then be added to the oil, shaken, and, after standing, drawn off as above, save that it is advisable to allow the mixture to stand two or three days." The process is an economical one, since the alcohol can be recovered by distillation.

It is stated by the author from whom I have quoted

* The Druggists' Circular and Chemical Gazette, June, 1889. From the Berlin Pharmaceutische Zeitung.

that his method is not applicable to all kinds of oil. It failed with castor-oil, codliver-oil, croton-oil, and expressed laurel-oil. On the other hand, it succeeded excellently with oil of beech-nut and olive-oil. It was found necessary, however, to treat the latter three times with alcohol instead of twice. No mention is made of experiments with animal fats. It is recommended that, in attempting to restore rancid fats by this method, a trial should be made on a small scale.

A compound hydrocarbon, derived from petroleum and belonging to the paraffin series, has of late years been introduced into pharmacy under the name of petrolatum, cosmoline, or vaseline. It is of unctuous consistency, bland, neutral, and indisposed to become rancid. It has been and is, consequently, largely employed in the preparation of ointments. My opinion of the efficacy of this substance is fully expressed in a preceding chapter, and need not be repeated in this connection.

The consistence of ointments should be similar to that of butter. The vehicles commonly used in their preparation are lard, suet, petroleum jelly, and lanolin. Spermaceti, cacao-butter, and the glycerite of starch are also occasionally employed.

ADEPS : LARD.

Lard, *adeps*, is defined by the U. S. Pharmacopœia as "the prepared internal fat of the abdomen of *sus scrofa*, purified by washing with water, melting, and straining." The same authority describes it as "a soft, white, unctuous solid, of a faint odor, free from rancidity, having a bland taste and a neutral reaction. Entirely soluble in ether, benzine, and disulphide of carbon. Specific gravity about 0.938. It melts at or

near 35° C. (95° F.) to a clear, colorless liquid, and at or below 30° C. (86° F.) it is a soft solid." It consists of 62 per cent. of olein, or fluid fat, and 38 per cent. of the hard fats, palmitin and stearin. The olein may be separated by pressure or by boiling alcohol.

Lard is not infrequently adulterated with water, starch, alum, chalk, or cotton-seed oil. These substances may all be detected by appropriate tests. The presence of salt, also, is undesirable. The salt may be separated by boiling the lard with twice its weight of water.

The tendency to rancidity may be obviated by digesting the lard with benzoin, beta-naphthol, or poplar-buds. Benzoinated lard is official, and is made by the addition of 2 parts of benzoin to 100 parts of lard.

SEVUM : SUET.

Suet, *sevum*, "is the internal fat of the abdomen of ovis aries, purified by melting and straining." It is defined as a white, smooth, solid fat, nearly inodorous, having a bland taste and a neutral reaction. Soluble in 44 parts of boiling alcohol, in about 60 parts of ether. It melts between 45° and 50° C. (113° and 122° F.) and congeals between 37° and 40° C. (98.6° and 104° F.). It is the firmest of animal fats, and contains about 70 per cent. of stearin and palmitin and 30 per cent. of olein. Its specific gravity is between 0.937 and 0.952.

PETROLATUM: PETROLEUM JELLY.

Petroleum jelly, petroleum ointment, or *petrolatum*, is "a semi-solid substance, consisting of hydrocarbons, chiefly of the marsh-gas series, obtained by distilling off the lighter and more volatile portions from American petroleum, and purifying the residue. Melting-point, about 40° to 51° C. (104° to 125° F.), the first constituting the softer and the second the firmer variety.

When petrolatum is prescribed or ordered without specifying its melting-point, the low-melting variety, which liquefies at about 40° C. (104° F.), is to be dispensed.

“A yellowish or yellow, fat-like mass, transparent in thin layers, more or less fluorescent, especially when melted; completely amorphous, tasteless, and odorless, or giving off, at most, only a faint petroleum odor when heated, and having a neutral reaction. When gently heated until the mass is almost entirely melted, the liquid portion has a specific gravity varying from 0.835 to 0.860. It is insoluble in water; scarcely soluble in alcohol or in cold absolute alcohol, but soluble in 64 parts of boiling absolute alcohol, and readily soluble in ether, chloroform, disulphide of carbon, oil of turpentine, benzine, benzol, and in fixed or volatile oils. When heated on platinum foil, it is completely volatilized without emitting the acrid vapors of burning fat or resin.”

LANOLINUM: LANOLIN.

Purified lanolin, *lanolinum purissimum*, is a valuable ointment-basis which was brought to the notice of the profession by Professor Liebreich, in 1886. In the course of an extended series of investigations upon the nature and distribution of cholesterin, he determined the presence in keratinous tissue of a substance to which he gave the name lanolin. It exists in human epidermis, hair, horn, hoof, feathers, etc. It is most abundantly present in sheep's wool, which is, consequently, our source of supply. F. Hartmann had, in 1868, pointed out the fact that wool-fat contained a considerable amount of cholesterin, and in 1872 described a method by which it could be extracted from wool-fat. Lewin, in 1876, believed that he had demonstrated the presence of cholesterin in the stratum granulosum of

the epidermis, as well as in the sweat-ducts, but this assertion has lately been denied by Buzzi and Santi.* These earlier statements appear to have escaped the attention of physiological chemists, with the exception of Berthelot, who alludes to the probable existence in the animal body of cholesterin ethers and the fatty acids. While not belonging, in chemical composition, to the fats, cholesterin shares many of their physical properties.

Crude lanolin consists of cholesterin and ischolesterin combined with fatty acids, as stearic, and traces of others. Its odor is due to the presence of volatile fatty acids, capric and caproic. It has also been found to contain ceryl cerotate and its homologues, and, probably, cholesteryl cerotate. A certain proportion of glycerides of the lower fatty acids is also present. The pure product should not contain these fatty acids in the free condition.

Lanolin is obtained from wool-fat by a species of churning. We are not fully acquainted with the details of the improved process by which it is now produced on a large scale in the chemical manufactory. The cholesterin fats or combinations of cholesterin with fatty acids do not form soaps with aqueous alkaline solutions. The free fatty acids, on the other hand, are readily saponifiable. The cholesterin fats, however, form emulsions with alkaline solutions, and also with the soaps formed from fatty acids. Such an emulsion, subjected to centrifugal action, separates into a thin milk and a cream. The cholesterin fats collect like a cream upon the top of the watery soap solution. They are freed from impurities (fatty acids or alkalies) by heating on a water-bath until melted. The resulting product is anhydrous lanolin. The substance used as a medicament contains from 25 to 30 per cent. of water, which is not, however, chemically

* Monatshefte für praktische Dermatologie, August 15, 1889.

combined, and is readily expelled by heat. Hydrated lanolin, when heated upon the water-bath, separates into two layers, the lower of which is aqueous and the upper oleaginous.

Anhydrous lanolin is completely soluble in ether, benzol, and chloroform, sparingly soluble in stronger alcohol, and insoluble in water.

Purified lanolin, as now made, is of an unctuous, tenacious consistence and whitish color. It is almost entirely devoid of smell. The earlier samples were yellowish in color, and possessed a slight odor, by no means unpleasant, similar to that of wool or of new cloth. It is of neutral reaction. Anhydrous lanolin is capable of absorbing its own weight of water without losing its consistence.

The specific gravity of purified lanolin is 0.973; its melting-point, 38° to 40° C. (100.4° to 104° F.).

Lanolin possesses several conspicuous advantages as an ointment-base. Differing from the true fats, it manifests no disposition to become rancid. From this it follows that it is incapable of effecting any chemical change in the substances which may be incorporated with it, nor does it produce any irritant action upon the skin to which it is applied. Hence, an ointment made with lanolin may, as far as its base is concerned, be left in uninterrupted contact with the affected part. Dr. A. Gottstein, of the Pharmacological Institute of Berlin, has demonstrated that lanolin is indestructible or impermeable by micro-organisms. Its employment may, consequently, be regarded as an aseptic measure. For this reason it has proved, unmedicated, a serviceable dressing in burns, scalds, erysipelas, frost-bites, erythema, and dermatitis.

Lanolin is characterized by a peculiar penetrative

power, which is very reasonably ascribed to the fact that, as a derivative of horny tissue, it is readily absorbable by the epidermis or the gland-follicles. It rapidly disappears when applied to the skin with slight friction. Of the fact I have long since assured myself. To the same effect is the testimony of a Russian observer, who found that narcotic extracts embodied in lanolin were easily absorbed, and were efficient in twice the quantity which would be a proper dose by the mouth. Quinine hydrochlorate in lanolin is said to be soon absorbed, and iodide of potassium appears in the urine in from two to six minutes after inunction. It is more rapidly absorbed by the skin of children than by that of adults, and generally is more easily taken up after the skin has been washed with ether. Contrary results have been, indeed, reported. Dr. Guttman compared the effect of iodide of potassium and salicylic acid, rubbed up respectively with lard and with lanolin, and states that the most frequent evidence of absorption was found in the urine of those patients upon whom a lard ointment had been used. To the same effect are the experiments of Ritter and Pfeiffer. These contradictory results are, perhaps, explainable by the statement of Professor Liebreich that the early samples of lanolin obtained by him contained cholesterol ethers not readily fusible. He had, therefore, recommended that 10 per cent. of lard be used with the lanolin in preparing ointments, because these ethers retard absorption. But in the present product, *lanolinum purissimum*, this disadvantage has been overcome, and he now advises the lanolin to be used without the lard.

As a matter of fact, it is penetration *into* and not *through* the skin that is our object in the application of an ointment. It is seldom the case, in these days of the hypodermic syringe, that we should think of influencing

Twenty-one different ointment-bases were examined at a temperature of 15° C. (59° F.). One property possessed by lanolin, particularly valuable from a pharmaceutical point of view, is its ready miscibility with metallic mercury. A mixture of equal parts of lanolin and mercury may be effected in ten minutes, while after half an hour's trituration no mercury can be perceived by the use of the lens. This fact alone renders wool-fat an important addition to pharmacy as well as medicine, the tedious and difficult manipulations formerly necessary in the preparation of mercurial ointment being now superseded. It is for this reason that the last edition of the Austrian Pharmacopœia prescribes lanolin in the formula for mercurial ointment.

Lanolin readily combines with other oils, fats, and glycerin. The only practical drawback—not a very serious one, however—is its stickiness. Mr. H. Helbing* has endeavored, with doubtful success, to overcome this objection by the following mixture, for which he proposes the name *unguentum lanolini*: 65 parts of anhydrous lanolin, 30 parts of liquid paraffin, and 5 parts of cerasin.

Impure specimens of lanolin, containing free fatty acids, are decidedly irritant. It is desirable, therefore, to be acquainted with the tests for its purity, published by Liebreich. These are as follow: 1. A small quantity, on being heated in water over a water-bath, must show the absence of glycerin. 2. If a solution of caustic soda be added, ammonia must not be developed. 3. If a small amount be heated with water on a water-bath, the fat must separate in oily drops without producing an emulsion. 4. With litmus-paper the reaction must not be acid. 5. When well mixed with water upon a ground-

*The Pharmaceutical Journal and Transactions, December 21, 1889.

glass plate with an iron spatula, the product must contain over 100 per cent. of water, and the mass be sticky and paste-like, adhering to the spatula; if impure, the mass will have a soap-like smoothness, from which the spatula readily glides. 6. On exposure, the surface of lanolin and lanolin salves become darkened, owing to the escape of water, and not to decomposition. 7. It never becomes rancid, and its odor should remind one of wool.*

G. Vulpius † has proposed the following reaction as a mode of identifying lanolin: If a few centigrammes of lanolin are dissolved in chloroform, and if this solution is cautiously stratified above an equal volume of undiluted sulphuric acid in a test-tube, there appears at the contact of both liquids a fiery, brown-red ring. The chloroform above the ring has a violet reflection.

Lanolin has been made officinal in the last (seventh) edition of the Austrian Pharmacopœia, and also enters into the formula of the Austrian mercurial ointment.

The result of my own investigations upon lanolin appeared in the *Medical and Surgical Reporter* for April 3, 1886.

It would appear to be naturally indicated, from its presence in epithelial tissue, that lanolin is a peculiarly appropriate remedy in cases of perverted nutrition of that tissue and its modifications. Its penetrative power suggests that the deeper layers of the integument, also, may be beneficially influenced. Thus it is admirably adapted to act as an ointment vehicle. Not only, as it permeates the skin, does it act as a direct nutrient, but we may also readily take advantage of its absorbability in order to convey other medicinal agents more deeply into the integument than they could otherwise obtain

* American Druggist, 1886, p. 108. United States Dispensatory, 1888, p. 1839.

† Archives de Pharmacie.

entrance. By adding to lanolin an aqueous solution of the substance to be incorporated, we secure a much more intimate union with the fat than is possible when lard, suet, or cosmoline is used as a basis.

Its rapid absorption may, however, in some cases be a disadvantage. When cutaneous inflammation is intense a bland protective will often prove itself most beneficial, and in such case, provided the protective unguent undergo no chemical alteration, unabsorbability becomes a virtue. Intense hypernutrition threatens destruction of tissue, and this is not the condition in which a nutrient agent is called for or is likely to prove useful. When, however, the inflammation is of a less severe grade, and especially when it is dependent upon abnormalities of the secretory functions of the skin, lanolin assumes a place of first importance as a remedy. The same is likewise true when the health of hair or nails is impaired.

Lanolin maintains the lustre or gloss of the hair. Therefore, when this gloss has been lost, as may happen during the progress or in consequence of certain diseases, lanolin, in addition to tonic or specific constitutional remedies, improves the impaired nutrition. Notably in syphilis, especially of the hereditary variety, the integumental appendages suffer. The hair becomes dry, dull, and harsh, or falls in patches of variable size. The nails are often affected, becoming thickened, cracked, or brittle, or are even cast off by ulceration. The hair also may be the subject of atrophy, become attenuated, bulbous, and splintered. This condition may be the result of syphilis, phthisis, chronic malarial intoxication, or of other severe and debilitating disease. Local conditions, likewise, may induce atrophy. In all of these conditions the inunction with lanolin is of benefit. In

syphilitic cases it should be accompanied, of course, by appropriate constitutional medication. In non-specific atrophy of the hair some local stimulant may be incorporated with the lanolin in order to invigorate the circulation and nervous supply of the skin. If the atrophy be due to parasitic disease some parasiticide must be combined.

In some individuals the hair is naturally rather dry. This indicates an imperfect elaboration of lanolin, and again points us to the fact that we possess in this article a natural pomade. On account of its stickiness it will generally be advisable to dilute it with some bland fixed oil, such as the oil of almonds or of sesame.

Senile atrophy of the skin may be benefited by the persistent and systematic use of lanolin. In this condition the integument becomes dry and wrinkled. Here, as suggested by Dr. Jamieson, lanolin serves a double purpose, inasmuch as, from its fatty nature, it is of important service in retaining the animal heat.

Premature baldness points us indubitably, in the first place, to lowered nutrition of the hair-bulbs. This may be due to the operation of purely local causes, but, no less certainly, it is often the expression of depressed nerve-force. In the former case a mildly stimulant lanolin ointment will improve the growth of the hair; in the latter, the local will need to be supplemented by proper systemic treatment.

But not only are the cutaneous appendages, of which it is a normal constituent, and therefore a physiological remedy, benefited by the use of lanolin. It favors, also, the glandular functions of the skin. It may therefore be regarded as a tissue-nutrient. The sebaceous secretion, indeed, betrays a close chemical relationship to lanolin, and both are concerned in the nutrition of the

hair. Lanolin has approved itself as of undoubted efficacy in many cases of derangement of the cutaneous glands. Nor must it be forgotten that, in all probability, the perspiratory glands share with the sebaceous the office of anointing the skin. In fact, the secretions of the skin are of mutual assistance. In anidrosis the integument becomes dry and rough, with a tendency to crack. Frequent inunction with lanolin assists in restoring the functional activity of the crippled glands, and should be employed in conjunction with such other measures as may be prompted by our knowledge of the cause of the suppression. Jamieson recommends the use of lanolin as a pomade in cases where seborrhœa has lately existed. The same author points out the fact that lanolin is one of the best excipients we possess for ichthyol, since that substance is soluble in water in any proportion, and therefore may very easily enter into intimate combination with wool-fat as a basis. Lassar has demonstrated that chrysarobin is effective in smaller quantity when combined with lanolin, and therefore practically strengthened,—a point of consequence in the treatment of psoriasis.

In ichthyosis, after the scales have been softened and removed as far as possible, inunction with lanolin tends to promote the nutrition of the affected surface. In scleroderma, also, it is of some service. It removes the dryness of the surface and may aid in absorption of the infiltration.

Lanolin is an excellent vehicle for those agents which have the power of destroying the vegetable parasites of the skin. In tinea versicolor, tinea favus, and the varieties of tinea trichophytina, lanolin will prove more effective in introducing the remedy into the gland-ducts than any other agent. It is admirably adapted to serve

as an ointment-basis for the oleate of mercury or copper in the treatment of the affections specified.

Both by reason of its easy and rapid mixture with mercury and its penetrative power, it is peculiarly serviceable in the inunction treatment of syphilis.

According to Fränkel, it diminishes secretion and prevents the formation of crusts when applied to mucous membranes. This would suggest its employment in nasal catarrh and affections of the genito-urinary tract. In these cases it is often of great benefit combined with the hydrochlorate of cocaine. Lanolin is useful, likewise, in eczema, especially the chronic form. Lassar highly recommends it in the treatment of impetigo contagiosa. When suitably diluted and perfumed it is an admirable toilet pomade. It rapidly heals chapped hands and lips, and may be spread upon the face before retiring at night in order to soften the skin after exposure to cold and wind.

Lanolin is likewise of excellent service as a base for naphthol, salicylic acid, pyrogallie acid, and resorcin, and seems to heighten the therapeutic action of those drugs.

CETACEUM: SPERMACETI.

Spermaceti, *cetaceum*, is officially defined as "a peculiar concrete, fatty substance obtained from *physeter macrocephalus*." It is described, according to the same authority, as "white, somewhat translucent, slightly unctuous masses of a scaly-crystalline fracture; a pearly lustre, becoming yellowish and rancid on exposure to air; odorless, having a mild, bland taste and a neutral reaction. Specific gravity about 0.945. It melts near 50° C. (122° F.), and congeals near 45° C. (113° F.). It is soluble in ether, chloroform, disulphide of carbon, and in boiling alcohol; but slightly soluble in cold benzin."

Spermaceti is derived from the sperm-whale. The enormous head of this creature contains, at its upper part, between the skull and the integument, a large cavity, divided and subdivided by cartilaginous septa. These spaces are filled with an oil in which the spermaceti is dissolved. After death the substance concretes and the oil is removed by draining. Some still remains, however, and is separated by expression, washing with hot water, melting, straining, and repeated washing with a weak potash solution. Spermaceti consists, according to Heintz, of four alcohols, which act as bases, united with lauric, myristic, palmitic, and stearic acids.

OLEUM THEOBROMÆ: CACAO-BUTTER.

Oil of theobroma, *oleum theobromæ*, or cacao-butter, is "a fixed oil expressed from the seed of *Theobroma Cacao*. A yellowish-white solid, having a faint, agreeable odor, a bland, chocolate-like taste, and a neutral reaction. It melts between 30° and 35° C. (86° to 95° F.)." It is composed of stearin, palmitin, and olein, with the glycerides probably of arachic and lauric acids.

GLYCERITUM AMYLI: GLYCERITE OF STARCH.

The glycerite of starch, *glyceritum amyli*, is prepared by adding 10 parts of starch to 90 parts of glycerin. "Rub them together in a mortar until they are intimately mixed. Then transfer the mixture to a porcelain capsule, and apply a heat gradually raised to 140° C. (291° F.), stirring constantly, until the starch granules are completely dissolved and a translucent jelly is formed."

This is a good demulcent application in many cases. It is well adapted to serve as a vehicle when no chemical incompatibility exists with the drug to be incorporated, as, for instance, iodine. On the other hand, the hygro-

scopic properties of glycerin often render it an unsuitable local remedy.

COMPARATIVE PERMEABILITY OF OILS INTO THE SKIN.

In most, if not all, diseases of the skin, strictly so called, the effect of an ointment is exerted by actual penetration into the substance of the integument, and not merely by contact with the superficial layer of the epithelial cells. Indeed, it is difficult to conceive, in the latter contingency, how any benefit could be produced. The absorbability of the ointment-base becomes, for this reason, a very important question. The greater number of official ointments are made with lard, and this fat is found to be very readily absorbed. This is demonstrated by the constitutional action of powerful remedies rubbed up with lard and applied to the skin. It is explained by the chemical constitution of lard, in which so large a proportion of oleic acid is present. The drawback to the use of lard is its alterability, but this may be readily overcome; and, moreover, a large quantity of ointment should never be prescribed on account of its liability to become rancid. Suet is not nearly so well absorbed as lard, but its comparative firmness recommends it when a rather stiff unguent is desirable. Of the unalterable bases, lanolin is the best. It is well absorbed and not at all irritant. Glycerin, though unalterable, is irritant to broken surfaces. Petrolatum is unchangeable, and is suitable for the preparation of ointments that do not contain much water, and when absorption of its added ingredients is not desired.

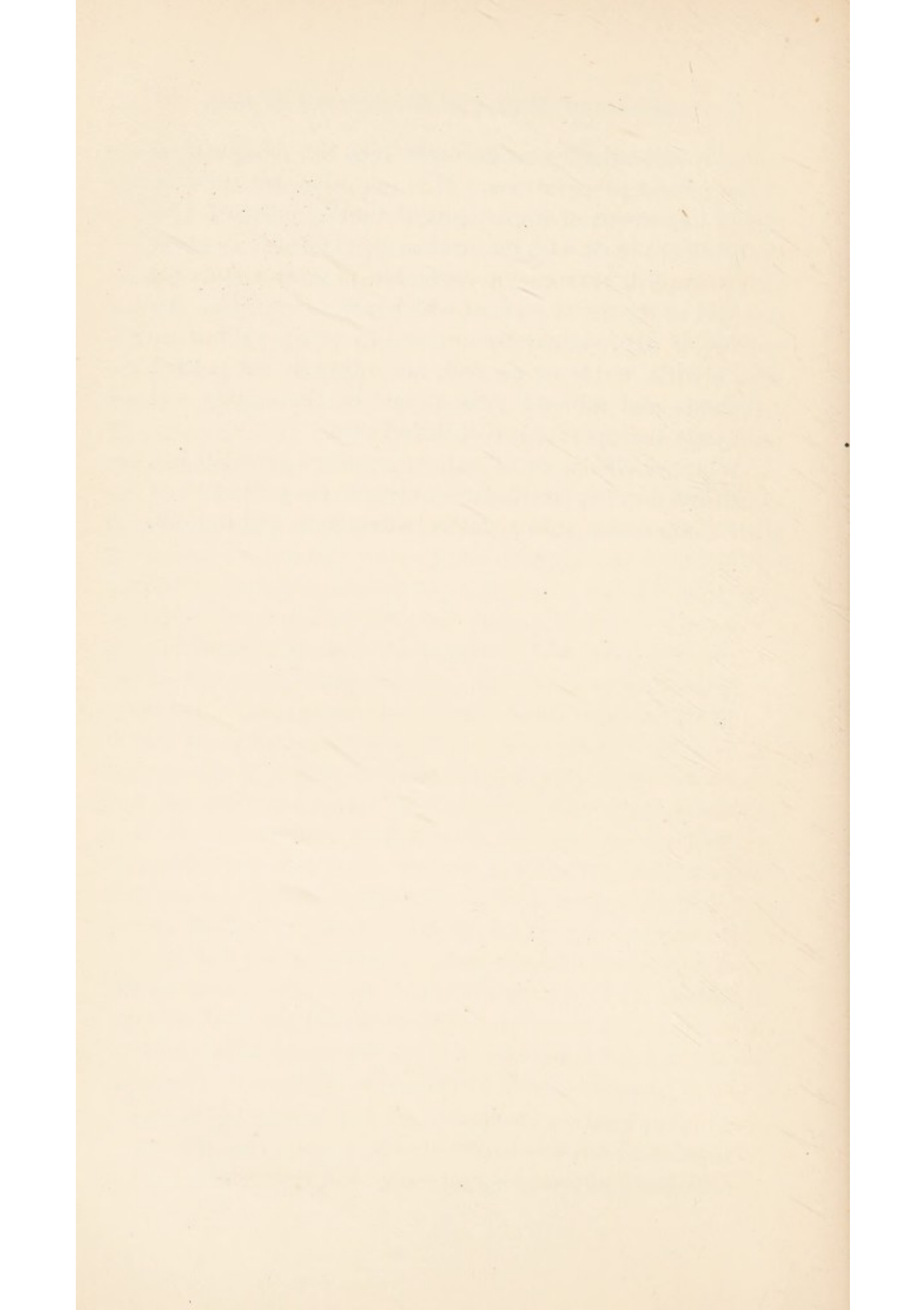
Absorption of an unguent is favored by prior immersion of the part in warm water and by friction.

INCORPORATION OF MEDICINAL SUBSTANCES INTO FATS.

Ointments are made of substances derived from various sources. Vegetable powders or extracts, alkaloids,

metallic and alkaline salts, enter into the composition of the official preparations. It is requisite that the contained ingredient or ingredients should be mingled with the ointment-basis with the most uniform nicety. In order to accomplish this end a vegetable powder should be reduced to the finest form of which it is susceptible. An extract, if dry, should be softened by being rubbed up with a little water or alcohol, according to its nature. Alkaloids and mineral salts should be thoroughly and uniformly incorporated with their bases.

Whether official or of extemporaneous prescription, ointments may be classified, according to the properties of their components, into sedative, astringent, and irritant.



CHAPTER II.

OFFICIAL OINTMENTS AND THEIR THERAPEUTIC USES.

THERE are twenty-six official ointments according to the last revision of the United States Pharmacopœia. A number of other preparations, formerly official, are still habitually ordered under the old, familiar titles, while the number of extemporaneous combinations is indefinite.

SIMPLE OINTMENT.

1. *Unguentum, ointment*, or simple ointment. Lard, 80 parts (or 4 ounces av.); yellow wax, 20 parts (or 1 ounce av.). To make 100 parts (or 5 ounces av.). Melt the wax and add the lard gradually; then stir the mixture constantly until cool.

This non-medicated fatty substance is generally used merely as a basis, with which are commingled various medical ingredients. It possesses emollient properties, however, and may be used as a dressing to blistered or excoriated surfaces, and as an application in acute eczema, especially as it occurs in infants. It is well adapted to be employed as an unguent in scarlatina or in other exanthem or specific fever, in order to influence local and general temperature. It is serviceable, also, in lessening friction between opposed surfaces. It is likewise beneficial when the skin is dry, harsh, or fissured on account of suppression of its secretions. This is the case, for instance, in anidrosis. It affords relief to the itching and burning sensations of erythema simplex. In pompholyx it diminishes heat and itching, and protects the surface exposed by rupture of the vesicles.

Formulary.

Take of Powdered arrow-root, 1 drachm.
 Subnitrate of bismuth, $\frac{1}{2}$ "
 Simple ointment, 1 ounce.

Mix. Use in erythema, acute eczema, herpes, etc.

Take of Powdered starch, 1 drachm.
 Oil of chamomile, 5 drops.
 Simple ointment, 1 ounce.

Mix. Employ in scarlatina, anidrosis, dermatitis, etc.

CARBOLIC ACID OINTMENT.

2. *Unguentum acidi carbolici*, ointment of carbolic acid. Carbolic acid, 10 parts (or 48 grains); ointment, 90 parts (or 1 ounce av.). To make 100 parts (or about 1 ounce). Mix them thoroughly.

On account of the germicide properties of the carbolic acid, an ointment containing it is serviceable in parasitic diseases of the skin, scabies, phtheiriasis, tinea favosa, tinea versicolor, and in all the varieties of tinea tricophytina. It stimulates the growth of healthy granulations upon indolent ulcers, and removes the odor of unhealthy, sloughing, or gangrenous wounds or surfaces, as well as that of open cancer. It alleviates itching in the various forms of pruritus, and in that due to urticaria or eczema. It serves a good purpose, also, either weakened or strengthened, according to the indications, in different forms of eczema, whether acute or chronic; in eczema of the head, to which children are subject, or in eczema of the face. In psoriasis, after the scales have been detached, the ointment of carbolic acid improves the condition of the diseased integument. It relieves the burning pain of the erythematous or bullous degree of burns, while in escharotic burns it disinfects the ulcerated surface, represses exuberant and promotes healthy granulations. The itching and burning of erythema multiforme and of erysipelas are lessened by this preparation.

It also mitigates the intense itching which accompanies pemphigus. It promotes the cure of sycosis, and often proves of service in the local treatment of lupus erythematosus.

Formulary.

Take of Extract of witch-hazel, 1 drachm.

Sublimed sulphur, 1 "

Carbolic acid ointment, 1 ounce.

Mix. Valuable in ulcers, cancer, chronic eczema psoriasis, sycosis, etc.

Take of Extract of belladonna, $\frac{1}{2}$ drachm.

Balsam of Peru, $\frac{1}{2}$ "

Carbolic acid ointment, 1 ounce.

Mix. Useful in parasitic diseases, itching of the skin, lupus, ulcers, etc.

Take of Hydrochlorate of cocaine, 3 grains.

Sulphate of atropine, 1 grain.

Sulphate of morphine, 2 grains.

Carbolic acid ointment, 1 ounce.

Mix. Useful in acute eczema and all irritable conditions of the skin.

GALLIC ACID OINTMENT.

3. *Unguentum acidi gallici*, ointment of gallic acid. Gallic acid, *10 parts* (or 48 grains); benzoinated lard, *90 parts* (or 1 ounce av.). To make *100 parts* (or about 1 ounce). Rub the gallic acid with the benzoinated lard, gradually added, until they are thoroughly mixed, avoiding the use of an iron spatula.

The astringent properties of gallic acid render its ointment useful as an application to hæmorrhoids, especially of the internal variety. It stimulates the healing of indolent ulcers, and is a useful application after the scales have been removed in eczema capitis.

Formulary.

Take of Camphor, 5 grains.

Calomel, 5 "

Gallic acid ointment, $\frac{1}{2}$ ounce.

Mix. For eczema of the scalp, ulcers, excessive sweating, and sycosis.

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Take of Sublimed sulphur, $\frac{1}{2}$ drachm.
Gallic acid ointment, 1 ounce.
Mix. Use in eczema, ulcers, and chronic acne.

TANNIC ACID OINTMENT.

4. *Unguentum acidi tannici*, ointment of tannic acid. Tannic acid, 10 parts (or 48 grains); benzoinated lard, 90 parts (or 1 ounce av.). To make 100 parts (or about 1 ounce). Rub the tannic acid with the benzoinated lard, gradually added, until they are thoroughly mixed, avoiding the use of an iron spatula.

The indications for this preparation are substantially the same as for the preceding. It is, however, more decidedly astringent than the ointment of gallic acid, and may, therefore, be used not only in hæmorrhoids, but also in prolapse of the rectum. It may be employed to advantage in fissured nipples and in eczema capitis. It is one of the remedies found efficacious in herpes. It is serviceable in alopecia circumscripta, in the treatment of phagedenic ulcers and chilblains.

Formulary.

Take of Extract of Indian hemp, 1 drachm.
Salicylic acid, 1 scruple.
Tannic acid ointment, 1 ounce.
Mix. Beneficial in fissured eczema, frost-bite, and ulcers.
Take of Saloi, $\frac{1}{2}$ drachm.
Acetate of lead, 5 grains.
Tannic acid ointment, 1 ounce.
Mix. Employ in seborrhœa, acne, eczema, and sycosis.

ROSE-WATER OINTMENT.

5. *Unguentum aquæ rosæ*, ointment of rose-water, cold cream. Expressed oil of almond, 50 parts (or 5 ounces av.); spermaceti, 10 parts (or 1 ounce av.); white wax, 10 parts (or 1 ounce av.); rose-water, 30 parts (or 3 fluidounces). To make 100 parts (or 10 ounces av.). Melt together, at a moderate heat, the oil, spermaceti,

and wax; then gradually add the rose-water, stirring the mixture briskly and constantly until it is cool, and continue the stirring until it has become uniformly soft and creamy.

This is an elegant preparation, generally used merely as a vehicle into which more active medicinal substances are rubbed. It is, however, a bland and pleasant unguent, deriving an agreeable scent from the rose-water which it contains. It may be substituted for the simple ointment whenever desired in the cases to which the latter is applicable. It protects the integument and moderates the heat of the parts in dermatitis, acute eczema, erythema multiforme, and superficial burns. It is also emollient to irritated or abraded surfaces, and heals chapped lips or hands.

Formulary.

Take of Boric acid, $\frac{1}{2}$ drachm.

Powdered arrow-root, 1 "

Rose-water ointment, 1 ounce.

Mix. For erythema, eczema, dermatitis, chapped lips or hands, etc.

Take of Iodol, $\frac{1}{2}$ drachm.

Rose-water ointment, $\frac{1}{2}$ ounce.

Mix. Use in syphilis, chronic eczema, psoriasis, burns, frost-bite, etc.

Take of Beta-naphthol, 1 scruple.

Camphor, 10 grains.

Rose-water ointment, 1 ounce.

Mix. For animal parasitic affections, itch, chronic eczema, psoriasis, acne, etc.

BELLADONNA OINTMENT.

6. *Unguentum belladonnæ*, belladonna ointment. Alcoholic extract of belladonna, 10 parts (or 48 grains); diluted alcohol, 6 parts (or $\frac{1}{2}$ fluidrachm); benzoinated lard, 84 parts (or 400 grains). To make 100 parts (or about 1 ounce). Rub the extract with the diluted alcohol

until uniformly soft, then gradually add the lard and mix thoroughly

Belladonna ointment relieves local pain and spasm. It also, when applied to the breasts, suppresses the secretion of milk. Rubbed upon the os uteri, it softens the rigidity which sometimes takes place during labor. It relaxes spasm of the neck of the bladder or of the sphincter ani. Its anodyne properties render it a useful topical remedy in neuralgia and herpes zoster, as well as in irritable or malignant ulcers and in painful hæmorrhoids. It arrests the suppurative process in boils, and promotes the resolution of enlarged glands. Belladonna ointment also affords great relief in superficial joint affections. It is likewise of use in excessive sweating. The pupil and the throat should be carefully watched during the employment of this ointment upon raw surfaces.

Formulary.

Take of Calomel, 10 grains.

Belladonna ointment, 1 ounce.

Mix. For syphilis, boils, enlarged glands, herpes, herpes zoster, etc.

Take of Hydrochlorate of cocaine, 5 grains.

Belladonna ointment, 1 ounce.

Mix. Use in cancer, inflamed skin around nipples, excessive sweating, etc.

CHRYSAROBIN OINTMENT.

7. *Unguentum chrysarobini*, chrysarobin ointment. Chrysarobin, 10 parts (or 48 grains); benzoinated lard, 90 parts (or 1 ounce av.). To make 100 parts (or about 1 ounce). Rub the chrysarobin with the benzoinated lard, gradually added, until they are thoroughly mixed.

This ointment is of especial advantage in the treatment of psoriasis. It should be thoroughly rubbed into the affected part after the scales have been, as far as possible, removed. Care should be taken to avoid bring-

ing it into contact with healthy skin, as it is highly irritant, and may give rise to an intense dermatitis. Chrysarobin ointment has also another drawback. It leaves an indelible stain upon the linen, which must, therefore, be protected. It communicates a purple color to the hair. Patients should always be cautioned against carrying any of the ointment to the eyes. It likewise does good in chronic eczema and in the second stage of rosacea. It has been used with advantage in some cases of lupus vulgaris. Chrysarobin ointment is a good application in tinea versicolor and tinea circinata.

Formulary.

Take of Oil of cade, $\frac{1}{2}$ drachm.

Chrysarobin ointment, 1 ounce.

Mix. For chronic eczema, psoriasis, and vegetable parasitic skin diseases.

Take of Calomel, 5 grains.

Chrysarobin ointment, $\frac{1}{2}$ ounce.

Mix. Employ in syphilis, alopecia, lupus, chronic acne, and rosacea.

LEAD OR DIACHYLON OINTMENT.

8. *Unguentum diachylon*, diachylon ointment. Lead plaster, 60 parts (or 264 grains); olive-oil, 39 parts (or 170 grains); oil of lavender, 1 part (or 5 minims). To make 100 parts (or about 1 ounce). Melt together the lead-plaster and olive-oil, at a moderate heat; then, having permitted the mass to become partly cool, incorporate with it the oil of lavender, and stir constantly until cold.

This is a valuable application in acute and subacute eczema wherever seated, with the exception of the portions of the body covered with hair. In these situations, since it mats the hair, its use is inadvisable. It may, however, be employed in the eczema capitis of infants. Its mild astringency and sedative action commends it as a remedy in seborrhœa and in dermatitis. Diachylon ointment alleviates the torments of urticaria and pru-

ritus pudendi, and the pain of herpes zoster. It is a good application in sycosis, impetigo contagiosa, and is very efficacious in the treatment of sweating feet.

Formulary.

Take of Camphor, 10 grains.

Lead or diachylon ointment, $\frac{1}{2}$ ounce.

Lanolin, $\frac{1}{2}$ ounce.

Mix. Beneficial in chronic eczema, especially of the hands and feet, fissured eczema, eczema of the head, sycosis, seborrhœa, and dermatitis.

Take of Beta-naphthol, 10 grains.

Oil of eucalyptus, 5 drops.

Lead or diachylon ointment, 1 ounce.

Mix. For animal parasitic affections, eczema of the genital organs, excessive and odorous sweating.

Take of Iodol, 15 grains.

Hydrochlorate of cocaine, 5 grains.

Lead or diachylon ointment, 1 ounce.

Mix. For sycosis, herpes, urticaria, impetigo, and itching of the skin.

NUT-GALL OINTMENT.

9. *Unguentum gallæ*, nut-gall ointment. Nut-gall, in No. 80 powder, *10 parts* (or 48 grains); benzoinated lard, *90 parts* (or 1 ounce av.). To make *100 parts* (or about 1 ounce). Rub the nut-gall with the benzoinated lard, gradually added, until they are thoroughly mixed.

The indications for this preparation are the same as those for the ointments of gallic and tannic acid.

Formulary.

Take of Calomel, 10 grains.

Nut-gall ointment, 1 ounce.

Mix. Use in purpura, fissured eczema, and excessive sweating.

Take of Iodide of lead, 1 scruple.

Nut-gall ointment, $\frac{1}{2}$ ounce.

Mix. For enlarged glands, chronic ulcers, and scars.

MERCURIAL OR BLUE OINTMENT.

10. *Unguentum hydrargyri*, mercurial ointment, blue ointment. Mercury, *450 parts* (or 1 ounce av.); lard, *225 parts* (or $\frac{1}{2}$ ounce av.); suet, *225 parts* (or $\frac{1}{2}$ ounce

av.); compound tincture of benzoin, *40 parts* (or 40 minims); mercurial ointment, *100 parts* (or 100 grains). To make *1000 parts* (or about 2 ounces av.).

Mix the mercury with the tincture of benzoin in a mortar, add the mercurial ointment (which should contain 50 per cent. of mercury), and triturate the mixture until globules of mercury cease to be visible; then add the lard and suet previously melted together and partially cooled, and continue the trituration until globules of mercury cease to be visible under a magnifying power of ten diameters.

Blue ointment, no doubt, is principally valuable in the treatment of syphilis. It may be used upon the initial lesion, upon buboes, and enlarged glands in other regions, and to syphilitic ulcers. Mercurial ointment may be rubbed into the thin skin of the axilla, the groin, bosom, or abdomen, in order to secure constitutional effects in the various stages and manifestations of the disease. Spread upon the face in small-pox it retards maturation of the pustules, and therefore prevents pitting. It is a good topical application in erysipelas, chilblains, and allays inflammation in paronychia and in synovitis, and promotes absorption in the latter affection. Benefit is derived from its employment in dermatitis, intertrigo, and in the second stage of rosacea. Combined with green soap it is of service in scleroderma. Blue ointment sometimes affords great relief in lupus erythematosus. In the early stage of lepra it causes absorption of some of the tubercles, and has been useful in some cases of yaws. It is also destructive to pediculi.

Formulary.

Take of Green soap, or *sapo viridis*, . . . 1 ounce.

Mercurial or blue ointment, . . . 1 ounce.

Mix. For the inunction treatment of syphilis.

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Take of Oil of cade, $\frac{1}{2}$ drachm.

Mercurial or blue ointment, $\frac{1}{2}$ ounce.

Mix. For indurated spots of syphilis, old syphilitic ulcers, and enlarged glands.

AMMONIATED MERCURY OINTMENT.

11. *Unguentum hydrargyri ammoniati*, ointment of ammoniated mercury. Ammoniated mercury, in very fine powder, *10 parts* (or 48 grains); benzoinated lard, *90 parts* (or 1 ounce av.). To make *100 parts* (or about 1 ounce). Rub the ammoniated mercury with the benzoinated lard, gradually added, until they are thoroughly mixed.

The uses of the white precipitate ointment are the same in general as those of the preceding preparation. As it is of a stimulant nature it proves very effective in chronic eczema. It is used with benefit in sycosis, seborrhœa, comedo, rosacea, atrophy of the hair, and impetigo contagiosa, lupus erythematosus, molluscum epitheliale, and in the early stage of lepra to promote absorption of the tubercles. White precipitate ointment is of service, also, in scleroderma. It destroys pediculi.

Formulary.

Take of Carbonate of zinc, 1 drachm.

Oil of chamomile, 5 drops.

Powdered arrow-root, 1 drachm.

Ammoniated mercury ointment, 1 ounce.

Mix. Use in chronic eczema, particularly of the head, lousiness, sycosis, lupus, and seborrhœa.

Take of Beta-naphthol, 1 scruple.

Ammoniated mercury ointment, 1 ounce.

Mix. For animal parasitic diseases, especially itch and lousiness, indurated acne, leprosy, and scleroderma.

NITRATE OF MERCURY OR CITRINE OINTMENT.

12. *Unguentum hydrargyri nitratis*, ointment of nitrate of mercury, citrine ointment. Mercury, *7 parts* (or 444 grains); nitric acid, *17 parts* (or 1 fluidounce

and 5 fluidrachms); lard-oil, 76 *parts* (or 11 ounces av.). Heat the lard-oil in a glass or porcelain vessel to a temperature of 70° C. (158° F.); then add, without stirring, 7 *parts* (or 5 fluidrachms) of nitric acid, continue the heat so long as a moderate effervescence continues, and allow the mixture to cool. Dissolve the mercury in the remainder of the nitric acid, with the aid of sufficient heat to prevent the solution from crystallizing; add this solution to the mixture before it has become entirely cold, and mix them thoroughly, avoiding the use of an iron spatula.

This ointment has a very wide range of application. It is a valuable local remedy in ulcers and eruptive diseases generally. It prevents the development of pocks and consequent pitting in variola. Citrine ointment is a germicide, and therefore curative in the various forms of tinea and in phtheiriasis. It is one of the best external applications in syphilitic lesions, as chancres, ulcerated buboes, ozæna, and the later cutaneous manifestations of the disease. In most cases it is the preferable form of mercurial ointment to use. It is beneficial in chronic eczema, pityriasis, psoriasis, chloasma, scrofuloderma, lupus erythematosus, lepra, and in atrophy of the hair, seborrhœa, rosacea, and sycosis. The effect of this, and, in fact, of all the mercurial ointments should be carefully observed, as they are capable of producing salivation.

Formulary.

Take of Oil of cade, ½ drachm.

Camphor, 5 grains.

Nitrate of mercury or citrine ointment, 1 ounce.

Mix. For chronic eczema, psoriasis, syphilis, and lupus.

Take of Salol, ½ drachm.

Nitrate of mercury or citrine ointment, 1 ounce.

Mix. Valuable in chancres, ulcerated buboes, and chronic eczema.

Take of Beta-naphthol, 1 scruple.

Nitrate of mercury or citrine ointment, 1 ounce.

Mix. Use in frost-bite, bites of insects, sycosis, and scrofula.

YELLOW OXIDE OF MERCURY OINTMENT.

13. *Unguentum hydrargyri oxidi flavi*, ointment of yellow oxide of mercury. Yellow oxide of mercury, in very fine powder, *10 parts* (or 48 grains); ointment, *90 parts* (or 1 ounce av.). To make *100 parts* (or about 1 ounce). Rub the oxide of mercury with the ointment, gradually added, until they are thoroughly mixed.

This is a useful remedy in cases of rosacea, scleroderma, scrofuloderma, and, to a certain extent, in lepra. It forms, also, an admirable application to the eyelids in chronic conjunctivitis, being preferable, for this purpose, to the ointment of the red oxide, which it has largely superseded.

Formulary.

Take of Lanolin, 2 drachms.

Yellow oxide of mercury ointment, . . . 2 "

Mix. Useful in syphilis, scrofuloderma, leprosy, and chronic eczema.

Take of Thymol, 3 grains.

Yellow oxide of mercury ointment, . . . ½ ounce.

Mix. For chronic acne, enlarged glands, and syphilis.

RED OXIDE OF MERCURY OINTMENT.

14. *Unguentum hydrargyri oxidi rubri*, ointment of red oxide of mercury. Red oxide of mercury, in very fine powder, *10 parts* (or 48 grains); ointment, *90 parts* (or 1 ounce av.). To make *100 parts* (or about 1 ounce). Rub the oxide of mercury with a small quantity of the ointment until a perfectly smooth mixture is obtained; then gradually add the remainder of the ointment and mix thoroughly.

The red oxide, being of a crystalline character, is more irritant and stimulating than the yellow oxide, which fact renders it less adapted to use upon the eyelids. In other cases, however, its irritant properties are desirable, as upon indolent ulcers, whether syphilitic or not; upon chancres indisposed to heal; in goitre, enlarged

spleen, chronic eczema, seborrhœa, rosacea, scleroderma, lupus erythematosus, and lepra.

Formulary.

Take of Iodol, 10 grains.

Red oxide of mercury ointment, . . . ½ ounce.

Mix. Employ in chronic syphilitic spots, indolent ulcers, and scleroderma.

Take of Creasote, 5 drops.

Red oxide of mercury ointment, . . . ½ ounce.

Mix. For chronic ulcers, enlarged glands, and leprosy.

IODINE OINTMENT.

15. *Unguentum iodi*, iodine ointment. Iodine, 4 parts (or 18 grains); iodide of potassium, 1 part (or 16 grains); water, 2 parts (or 8 minims); benzoinated lard, 93 parts (or 420 grains). To make 100 parts (or about 1 ounce). Rub the iodine and iodide of potassium first with the water and then with the benzoinated lard, gradually added, until they are thoroughly mixed, avoiding the use of an iron spatula.

Iodine ointment is counter-irritant and stimulant, thus promoting absorption of old inflammatory exudations. It often, in conjunction with other measures, effects a very rapid reduction of a goitre, reducing the volume of the tumefied glands characteristic of scrofula. Applied directly to the tonsils by means of a camel-hair brush, it is said by Dr. Cerchiari to diminish the size of the enlarged glands after the active inflammation has subsided. Iodine ointment is useful, likewise, in chilblains. It relieves the aching pain of myalgia. On account of the germicide properties of iodine its ointment is appropriately used in various parasitic skin diseases, such as tinea tonsurans and tinea circinata. It may be beneficially applied to the skin in cases of erysipelas. In addition to baths and massage it is of service in the treatment of scleroderma.

Formulary.

- Take of Camphor, 5 grains.
 Iodine ointment, $\frac{1}{2}$ ounce.
 Mix. For scrofula, frost-bite, and scleroderma.
- Take of Delphinia, $\frac{1}{2}$ drachm.
 Iodine ointment, 1 ounce.
 Mix. Use in ringworm and to destroy pediculi.

ODOFORM OINTMENT.

16. *Unguentum iodoformi*, iodoform ointment. Iodoform, in very fine powder, *10 parts* (or 48 grains); benzoinated lard, *90 parts* (or 1 ounce av.). To make *100 parts* (or about 1 ounce). Rub the iodoform with the benzoinated lard, gradually added, until they are thoroughly mixed.

Iodoform is antiseptic and anæsthetic. An ointment which contains it must consequently prove of service in the treatment of inflamed and ulcerated surfaces. Chronic leg-ulcers, whether or not of syphilitic origin, are stimulated to repair. It is likewise a valuable application to bed-sores, ulcers the result of injury, scrofulous ulceration and upon the enlarged glands of scrofula. Iodoform ointment restrains inflammatory action in buboes, and may prevent suppuration. It diminishes the swelling and pain of orchitis, the pain of cancerous ulcers, and is a serviceable application as well in cases of rodent ulcer. It is an effectual remedy in chancroid, and is at times attended with very good results in chronic eczema. It has been found of advantage as a local measure in lupus vulgaris.

Formulary.

- Take of Extract of witch-hazel, $\frac{1}{2}$ drachm.
 Iodoform ointment, $\frac{1}{2}$ ounce.
 Mix. Chancroids, cancerous and syphilitic ulcers, and bed-sores.
- Take of Oxide of zinc, 1 drachm.
 Carbonate of lead, 1 "
 Iodoform ointment, 1 ounce.
 Mix. Syphilitic ulcers, chronic eczema, scrofula, and lupus.

MEZEREUM OINTMENT.

17. *Unguentum mezerei*, mezereum ointment. Fluid extract of mezereum, 25 parts (or 2 fluidrachms); lard, 80 parts (or 360 grains); yellow wax, 12 parts (or 54 grains). To make about 1 ounce av. Melt together the lard and wax with a moderate heat, add the fluid extract, and stir the mixture constantly until the alcohol has evaporated; then continue to stir until cool.

Mezereum is a local irritant and vesicant. Hence, an ointment which contains it will prove effectual in exciting indolent ulcers to reparative action. It is also adapted to maintain a raw surface after a fly-blister has been used, in cases where it is desirable to keep up for some time a powerful counter-irritation.

Formulary.

Take of Hydrochlorate of cocaine,	. . . . .	5 grains.
Mezereum ointment,	. . . . .	½ ounce.
Mix.	For indolent syphilitic spots and exuberant granulations.	
Take of Iodoform,	. . . . .	½ drachm.
Mezereum ointment,	. . . . .	1 ounce.
Mix.	Use in enlarged glands and indolent ulcers.	

TAR OINTMENT.

18. *Unguentum picis liquidæ*, tar ointment. Tar, 50 parts; suet, 50 parts. To make 100 parts. Mix the tar with the suet, previously melted with a moderate heat, and, having strained the mixture through muslin, stir it constantly until cool.

The resinous, acid, and empyreumatic substances contained in tar communicate to it decided stimulant and antiseptic properties. It is, therefore, an admirable remedy in subacute or chronic inflammatory processes. Tar ointment is also serviceable in those affections of the skin which demonstrably depend upon parasitic growths. After the scales of psoriasis have been removed, tar ointment is a useful application to the diseased surface.

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It is, however, frequently objectionable to patients on account of its penetrating odor and the dark stain which it leaves upon the skin. Again, it will not infrequently give rise to an excessive local stimulation, productive of dermatitis. Its occasional absorption into the circulation develops systemic poisoning, as evidenced by fever, nausea, dark-colored urine and fæces. Its use, therefore, necessitates careful observation on the part of the physician. These drawbacks may be avoided by the substitution of some of the tar derivatives, mention of which shall hereafter be made.

Tar ointment is one of the most efficient topical applications in the treatment of chronic eczema, in whatever region situated. The same preparation answers a good purpose in cases of comedo. It is capable of relieving prurigo, or even, in some instances, combined with appropriate internal treatment, of lessening this obstinate affection. Tar, either undiluted or in the form of an ointment, is of value in pemphigus when the bullæ have burst and an excoriated surface is exposed. The ointment of tar will sometimes exhibit a remedial action in lupus erythematosus and also in lupus vulgaris. It is a good local application in sycosis.

Formulary.

Take of Beta-naphthol,	10 grains.
Camphor,	10 "
Tar ointment,	1 ounce.

Mix. For chronic eczema, psoriasis, and lupus.

Take of Cod-liver oil,	2 ounces.
Tar ointment,	2 "

Mix. Serviceable in sycosis, circumscribed spots of baldness, chronic eczema, seborrhœa, and ichthyosis.

CARBONATE OF LEAD OINTMENT.

19. *Unguentum plumbi carbonatis*, ointment of carbonate of lead. Carbonate of lead, in very fine powder, *10 parts* (or 48 grains); benzoinated lard, *90 parts* (or 1

ounce av.). To make *100 parts* (or about 1 ounce). Rub the carbonate of lead with the benzoinated lard, gradually added, until they are thoroughly mixed.

The sedative and astringent properties of carbonate of lead render it a valuable external remedy in lesions of the integument. From its complete insolubility it is, in fact, only made use of as a topical application. It may be advantageously employed in all non-parasitic cases of cutaneous disease accompanied by acute inflammation. Dermatitis is effectually relieved by the ointment of the carbonate of lead. It is valuable in the treatment of burns and scalds, rapidly relieving the extreme pain so characteristic of this form of injury. Carbonate of lead ointment is likewise equally beneficial as a dressing to blistered surfaces. It is true that if the cuticle has been extensively destroyed, leaving a raw, absorbent surface, there is some danger of systemic poisoning. From the experience of those who have used the white-lead ointment largely in the treatment of burns, it would appear, however, that the fear of constitutional involvement has been unduly exaggerated. It is an excellent local application in pemphigus after the bullæ have been punctured or have spontaneously ruptured, and especially after excoriations have formed. This ointment may be employed with propriety in erythema simplex or erythema intertrigo, and in herpes. The same preparation proves of excellent service in the management of acute eczema. It is one of the best topical remedies in erysipelas, and is often efficacious in promoting the cure of acute ulcers.

Formulary.

Take of Powdered arrow-root,	. . . .	1 drachm.
Oil of chamomile,	. . . .	6 drops.
Sulphate of morphine,	. . . .	3 grains.
Carbonate of lead ointment,	1 ounce.

Mix. Beneficial in acute eczema, erythema, burns, and scalds.

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Take of Carbonate of zinc,	1 drachm.
Creasote,	5 drops.
Powdered starch,	1 drachm.
Carbonate of lead ointment,	1 ounce.

Mix. An excellent soothing ointment in acute eczema, herpes, pemphigus, acute ulcers, and in erysipelas.

IODIDE OF LEAD OINTMENT.

20. *Unguentum plumbi iodidi*, ointment of iodide of lead. Iodide of lead, in very fine powder, *10 parts* (or 48 grains); benzoinated lard, *90 parts* (or 1 ounce av.). To make *100 parts* (or about 1 ounce). Rub the iodide of lead with the benzoinated lard, gradually added, until they are thoroughly mixed.

This preparation combines alterative with astringent qualities. It is, therefore, often able to promote the absorption of chronic enlargements, whether these are the result of a chronic inflammatory process or assume the form of new growths due to exalted or perverted nutrition. The iodine which it contains renders it particularly serviceable in scrofulous glandular hyperplasia. It is used with success in order to secure a return of the spleen, enlarged in consequence of malaria, to its normal volume. Similarly, it is capable of checking the progress of goitre in some cases, especially if employed in the early stage of the affection. Dr. Whitla* speaks of its having been recommended as an application to the breasts in order to check the secretion of milk. The same author states that it is efficacious in obstinate cases of tinea circinata contracted from the cow. It will also sometimes prove successful in the cure of chronic ulcers.

Formulary.

Take of Balsam of Peru,	$\frac{1}{2}$ drachm.
Iodide of lead ointment,	1 ounce.

Mix. For thickened conditions of the integument, enlarged glands, and in ringworm.

* Elements of Pharmacy, Materia Medica, and Therapeutics. By William Whitla, M.D. London, 1889.

Take of Beta-naphthol, 10 grains.

Iodide of lead ointment, $\frac{1}{2}$ ounce.

Mix. Serviceable in chronic eczema, chronic acne, freckles, and yellowish-brown or blackish patches on the skin.

IODIDE OF POTASSIUM OINTMENT.

21. *Unguentum potassii iodidi*, ointment of iodide of potassium. Iodide of potassium, in fine powder, *12 parts* (or 60 grains); hyposulphite of sodium, *1 part* (or 5 grains); boiling water, *6 parts* (or $\frac{1}{2}$ fluidrachm); benzoinated lard, *81 parts* (or 400 grains). To make *100 parts* (or about 1 ounce). Dissolve the iodide of potassium and the hyposulphite of sodium in the boiling water, in a warm mortar; then gradually add the benzoinated lard and mix thoroughly.

The alterative and resolvent properties of the incorporated salt render this ointment a valuable application in many cases in which the iodide of potassium is indicated for internal administration. Enlarged scrofulous glands return to the normal size. Hypertrophied spleen yields to its influence, while goitre is occasionally checked in its progress, or even reduced by the use of the preparation under consideration. It may be appropriately employed in the management of keloid tumors, and has been found of avail in causing absorption of the newly-produced connective tissue.

Formulary.

Take of Lanolin, $\frac{1}{2}$ ounce.

Iodide of potassium ointment, $\frac{1}{2}$ ounce.

Mix. Employ in scars, keloid growths, and enlarged glands.

Take of Hydrochlorate of hydrastine, 8 grains.

Iodide of potassium ointment, 1 ounce.

Mix. For excessive sweating, scrofuloderm, and eczema of the hands and feet.

STRAMONIUM OINTMENT.

22. *Unguentum stramonii*, stramonium ointment. Extract of stramonium, *10 parts* (or 48 grains); water,

5 parts (or $\frac{1}{2}$ fluidrachm); benzoinated lard, 85 parts (or 400 grains). To make 100 parts (or about 1 ounce). Rub the extract with the water until uniformly soft; then gradually add the benzoinated lard and mix thoroughly.

The close relationship which exists between the active alkaloids of stramonium and belladonna, in chemical composition, physiological and therapeutical properties, indicates that the local or systemic effects of the two drugs will closely resemble each other. Hence, it is not necessary to repeat in detail the maladies in which stramonium ointment is found beneficial. It is on account of its anodyne and antispasmodic properties that this preparation is chiefly employed. Stramonium ointment relieves the suffering incident to irritable ulcers, inflamed hæmorrhoids, inflamed tumors, engorged breasts, open cancers, bed-sores, neuralgia, and herpes zoster.

Formulary.

Take of Boric acid, $\frac{1}{2}$ drachm.
Stramonium ointment, $\frac{1}{2}$ ounce.

Mix. Valuable in irritable ulcers and fissured eczema.

Take of Powdered starch, 1 drachm.
Sulphate of morphine, 2 grains.
Creasote, 5 drops.
Stramonium ointment, 1 ounce.

Mix. For cancerous and bed sores, herpes, herpes zoster, and rosacea.

SULPHUR OINTMENT.

23. *Unguentum sulphuris*, sulphur ointment. Sublimed sulphur, 30 parts (or 130 grains); benzoinated lard, 70 parts (or 300 grains). To make 100 parts (or about 1 ounce). Rub the sulphur with the benzoinated lard, gradually added, until they are thoroughly mixed.

Sulphur is an excellent parasiticide, and for this reason its ointment has long been esteemed a most valuable remedy in the cure of scabies. Its disagree-

able odor is an objection to its use in private practice, but its cheapness and efficiency commend its use in dispensary or hospital service. No more than any other application, however, should sulphur ointment be used indiscriminately. Sulphur acts as a local irritant, and, although it will destroy the *acarus scabiei* and the ova, it is capable of aggravating the secondary lesions which may have resulted. Regard, therefore, must be had to the actual conditions in each individual case. Another disease of the skin of parasitic origin, in which sulphur ointment may be beneficial, is *tinea circinata*. It is likewise valuable in all vegetable parasitic diseases of the skin.

The local irritant properties of this preparation render it available as a stimulant to indolent ulcers. Sulphur ointment is also found very serviceable in chronic eczema. In the treatment of comedo a stimulating ointment, such as that of sulphur, proves of great advantage. It is productive of good results in certain cases of acne, in which a stimulant application conduces to resolution of the inflammation existing in the affected sebaceous glands. It may sometimes be used with advantage in the treatment of sycosis, and occasionally it will relieve the progress of prurigo. In molluscum epitheliale, when the lesions are numerous, the sulphur ointment will lead to their removal. Improvement sometimes results in yawns from the use of this unguent, either of full strength or weakened according to the circumstances of the case.

Formulary.

Take of Carbonate of zinc,	1 drachm.
Thymol,	5 grains.
Sulphur ointment,	1 ounce.

Mix. For vegetable and animal parasitic diseases, as scabies, or itch; *tinea circinata*, or ringworm.

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Take of Camphor, 10 grains.

Beta-naphthol, 5 “

Sulphur ointment, 1 ounce.

Mix. Useful in acne, seborrhœa oleosa, subacute and chronic eczema, and in rosacea.

Take of Fifty-per-cent. solution of boroglyceride, . . . 2 ounces.

Sulphur ointment, 2 “

Mix. Employ in eczema of the scalp and hairy parts of the body, sycosis, and in parasitic diseases.

ALKALINE SULPHUR OINTMENT.

24. *Unguentum sulphuris alkalinum*, alkaline sulphur ointment. Washed sulphur, 20 parts (or 96 grains); carbonate of potassium, 10 parts (or 48 grains); water, 5 parts (or $\frac{1}{2}$ fluidrachm); benzoinated lard, 65 parts (or 312 grains). To make 100 parts (or about 1 ounce). Rub the sulphur with the carbonate of potassium and the water, gradually add the benzoinated lard, and mix thoroughly.

This preparation has been lately introduced into the Pharmacopœia. Its uses are analogous to those of the sulphur ointment. It is a serviceable local application in scabies, acne, indolent ulcers, etc.

Formulary.

Take of Extract of conium, $\frac{1}{2}$ drachm.

Alkaline sulphur ointment, $\frac{1}{2}$ ounce.

Mix. For irritable ulcers, eczema of nipples and arms.

Take of Salicylic acid, $\frac{1}{2}$ drachm.

Alkaline sulphur ointment, $\frac{1}{2}$ ounce.

Mix. Use in chronic eczema, chronic acne, and indolent ulcers.

VERATRINE OINTMENT.

25. *Unguentum veratrinæ*, veratrine ointment. Veratrine, 4 parts (or 20 grains); alcohol, 6 parts (or $\frac{1}{2}$ fluidrachm); benzoinated lard, 96 parts (or 480 grains). Rub the veratrine with the alcohol, in a warm mortar, until dissolved; then gradually add the benzoinated lard and mix thoroughly.

Veratrine is a local irritant, and, when brought in contact with the skin, gives rise to a feeling of warmth and tingling. Furthermore, it occasions paralysis of the terminal filaments of the sensory nerves, and possesses, therefore, local anæsthetic powers. Applied to mucous membranes, it causes evidences of irritation, as sneezing, vomiting, purging, etc., and when absorbed produces vomiting, marked muscular prostration, and tremor. Given to dogs in lethal doses, the tremors are converted into convulsions. It is, therefore, necessary to watch the effects of this ointment with the utmost care when employed externally, especially if it be upon or near an abraded or denuded surface. We should caution the patient and attendant, also, to be on their guard against inadvertently depositing any of the preparation upon the eye.

Anæsthetic virtues have led to the use of veratrine ointment in painful affections of the integument, and in muscular and peripheral nervous systems. It is a valuable local remedy in neuralgia, especially of the trifacial nerve. Veratrine ointment is often, however, sufficient to relieve the lancinating pain of herpes zoster, the agony of sciatica, and likewise affords relief in migraine, chronic rheumatism, myalgia, and intercostal neuralgia. It promotes the nutrition and increases the power of muscles long disused on account of paralysis. Perceptible improvement not infrequently results in infantile paralysis from the continued use of veratrine ointment. Chronic swelling and stiffness of joints, dependent upon rheumatism, scrofula, traumatism, etc., are notably benefited by the use of this preparation. Dr. Turnbull states that he has often witnessed wonderful relief in cases of organic heart disease from veratrine ointment rubbed upon the breast. He also recommends its application to

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the affected joints in the beginning of a paroxysm of gout. It has been successfully employed to produce the removal of the pigmentary patches of chloasma. The application of veratrine ointment is attended with good results in alopecia circumscripta, and it is an efficient remedy in pediculosis.

Formulary.

Take of Carbolic acid, 5 grains.

Veratrine ointment, $\frac{1}{2}$ ounce.

Mix. Valuable in neuralgia and itching of the unbroken skin

Take of Camphor, 10 grains.

Hydrate of chloral, 1 scruple.

Veratrine ointment, $\frac{1}{2}$ ounce.

Mix. Pigmentary spots, circumscribed baldness, and around the eruption of herpes zoster.

OXIDE OF ZINC OINTMENT.

26. *Unguentum zinci oxidi*, ointment of oxide of zinc. Oxide of zinc, *20 parts* (or 90 grains); benzoinated lard, *80 parts* (or 360 grains). To make *100 parts* (or about 1 ounce). Rub the oxide of zinc with *20 parts* (or 90 grains) of benzoinated lard, previously melted, until the mixture is perfectly smooth; then add the remainder of the benzoinated lard and mix quite thoroughly.

The mild astringent virtues of the oxide of zinc render its official ointment a peculiarly appropriate application in the early stage of acute inflammation of the superficial structures. As a rule, the acute stage of eczema demands emollient treatment. A bland unguent which shall protect the inflamed area from contact with the air and gently stimulate the contractility of the engorged and paralyzed capillaries is more effectual in relieving the pathological conditions than more active remedies. Upon this ground the oxide of zinc ointment is one of the best means of local treatment that can be

adopted in the acute form of this malady. It forms an excellent dressing in dermatitis and in the erythematous and bullous varieties of burns. It is found very serviceable in erythema, erythema intertrigo, and may often be used with good effect in impetigo when the scabs have been removed. In the latter disease, if necessary, the ointment may be made slightly stimulant by the addition of some local irritant substance. Oxide of zinc ointment is likewise beneficial in impetigo contagiosa, and may be advantageously employed in pompholyx and pemphigus. It is successfully used in the milder herpetic eruptions, and is not without value in the lesions of herpes zoster. Though no form of local treatment is of much avail in this painful affection, the characteristic eruption of which is indicative of disease of some portion of the sensory nervous system, yet the zinc ointment will serve to protect the lesions and relieve the irritation consequent upon their rupture. It is, indeed, usefully spread upon excoriations, from whatever cause resultant. Oxide of zinc ointment is sometimes able to diminish the tenderness and pain of sore nipples. The intolerable tingling, burning, and itching of urticaria will sometimes yield more readily to simple inunction with this bland preparation than to more powerful remedies. The local symptoms of erysipelas are also not infrequently relieved by the application of oxide of zinc ointment. In seborrhœa, when secondary inflammation of the skin is present, the sedative properties of this ointment are often of decided advantage.

Formulary.

Take of Calomel,	. . . . .	10 grains.
Oil of chamomile,	. . . . .	5 drops.
Oxide of zinc ointment,	. . . . .	1 ounce.

Mix. For acute eczema, erythema, frost-bite, herpes, and herpes zoster.

54 *Ointments formerly Official in U. S. Pharmacopœia.*

Take of Sublimed sulphur, $\frac{1}{2}$ drachm.

Powdered arrow-root, 1 “

Carbolic acid, 3 grains.

Oxide of zinc ointment, 1 ounce.

Mix. Use in subacute eczema, infantile eczema, seborrhœa oleosa, sycosis, and acne.

Take of Beta-naphthol, 5 grains.

Oil of eucalyptus, 4 drops.

Oxide of zinc ointment, 1 ounce.

Mix. For eczema of the head, face, acne, and rosacea.

Take of Balsam of Peru, $\frac{1}{2}$ drachm.

Boric acid, 1 “

Creasote, 8 drops.

Oxide of zinc ointment, 1 ounce.

Mix. Employ in acne, seborrhœa, excessive sweating, and in chronic ulcers.

OINTMENTS FORMERLY OFFICIAL IN THE UNITED STATES PHARMACOPŒIA.

In addition to the ointments official in the last edition of the United States Pharmacopœia, there are a number of others, formerly official, most of which continue to be prescribed by title and dispensed according to their ancient formulæ. The following ointments, therefore, merit enumeration and discussion almost equally with the official preparations:—

TARTAR EMETIC OINTMENT.

Unguentum antimonii, tartar emetic ointment. Take of tartrate of antimony and potassium, in very fine powder, *100 grains*; lard, *400 grains*. Rub the tartrate of antimony and potassium with the lard, gradually added, until they are thoroughly mixed.

Tartar emetic is a powerful local irritant. An ointment in which it is incorporated, when rubbed into or left in prolonged contact with the skin causes a pustular eruption which bears a considerable resemblance to that

of variola. This preparation is, therefore, available in many conditions in which it is desirable to produce counter-irritant effects. It is, however, open to the objection of constituting a painful method of local treatment. Again, it is capable of giving rise to severe, destructive inflammation of the integument. Tartar emetic ointment was formerly very generally employed as an application to the chest in chronic affections of the lungs or bronchial tubes. Its use in these cases has, however, been generally abandoned, being more serviceable, perhaps, in chronic synovitis, relieving the swelling, stiffness, and pain of the affected joints. It has, in fact, fallen into disuse, and has been superseded by equally active but less painful remedies.

Formulary.

Take of Calomel, 10 grains.

Tartar emetic ointment, 1 ounce.

Mix. For ringworm of the scalp and favus.

Take of Sulphur, $\frac{1}{2}$ drachm.

Tartar emetic ointment, 1 ounce.

Mix. Acts sometimes decidedly in arresting obstinate ring-worm of the body.

BENZOIN OINTMENT.

Adeps benzoinatus, benzoinated lard. Resin in coarse powder, 2 parts (or 140 grains); lard, 100 parts (or 16 ounces av.). Melt the lard by means of a water-bath, and, having loosely tied the benzoin in a piece of coarse muslin, suspend it in the melted lard, and, stirring them together frequently, continue the heat for two hours, covering the vessel and not allowing the temperature to rise above 60° C. (140° F.). Lastly, having removed the benzoin, strain the lard and stir while cooling.

This preparation was, in the United States Pharmacopœia for 1870, designated as unguentum benzoini, benzoin ointment. Benzoin is a balsamic resin obtained

from the *Styrax benzoin*, a tree native to Siam, Sumatra, Java, and Borneo. It is a concrete juice procured by incising the bark, and the principal ingredients are resins and benzoic acid. It is upon the presence of the latter substance that the therapeutic properties of benzoin chiefly depend. The acid possesses decided antiseptic powers, and hence benzoin has proven an excellent dressing to unhealthy wounds, sinuses, and ulcers. It prevents fatty substances from becoming rancid.

Benzoinated lard, containing but 2 per cent. of benzoin, is generally used as an ointment-basis. It enters into the composition of the following official ointments: Unguentum acidi gallici, unguentum acidi tannici, unguentum belladonnæ, unguentum chrysarobini, unguentum gallæ, unguentum hydrargyri ammoniati, unguentum iodi, unguentum iodoformi, unguentum plumbi carbonatis, unguentum plumbi iodidi, unguentum potassii iodidi, unguentum stramonii, unguentum sulphuris, unguentum sulphuris alkalinum, unguentum veratrinæ, unguentum zinci oxidi.

Formulary.

Take of Hydrochlorate of cocaine,	. . .	4 grains.
Sulphate of atropine, . . .	. . .	1 grain.
Benzoin ointment, . . .	. . .	½ ounce.

Mix. For frost-bite and rosacea.

Take of Hydrochlorate of hydrastine, . . .	. . .	5 grains.
Carbonate of zinc, . . .	. . .	1 drachm.
Benzoin ointment, . . .	. . .	1 ounce.

Mix. Use in seborrhœa, acne, and excessive sweating.

CANTHARIDES OINTMENT.

Unguentum cantharidis, ointment of cantharides, ointment of Spanish flies. Take of cantharides cerate 120 grains; resin cerate, 360 grains. Mix them thoroughly.

The Spanish fly which this ointment contains communicates to it decided local irritant properties. It is,

however, a comparatively weak preparation, and should not be used with the design of producing vesication, for which purpose the cantharides cerate or cantharidal colloidion is designed. The ointment is capable of producing a blister upon a delicate, sensitive skin, and especially upon those portions of the body where the skin is naturally thin. But it is too weak and uncertain in its action to be depended upon when the object is to cause strong counter-irritation. Cantharides ointment is appropriately employed when it is deemed judicious to maintain an open blister for the sake of a continued counter-irritant or revulsive effect. It is also used with benefit in order to stimulate the nutrition and growth of the hair in alopecia circumscripta.

Formulary.

Take of Thymol,	5 grains.
Extract of nux vomica,	$\frac{1}{2}$ drachm.
Cantharides ointment,	1 ounce.

Mix. Useful at times in circumscribed baldness.

Take of Carbolic acid,	6 grains.
Cantharides ointment,	1 ounce.

Mix. For alopecia circumscripta, and in obstinate cases of ring-worm of the head and face.

CALOMEL OINTMENT.

Unguentum hydrargyri chloridi mitis, ointment of calomel. Take of calomel 60 grains; lard, 1 troy ounce. Mix thoroughly.

The mild antiseptic and protective qualities of calomel render it an excellent application in abraded, excoriated, or superficially ulcerated condition of the integument. This ointment is consequently valuable in the treatment of herpes, especially of the genitals, and is a fitting dressing to chancreoids. It is efficient in the relief of that troublesome and obstinate affection, pruritus ani. Calomel ointment may be very properly em-

ployed upon many forms of cutaneous syphilis, and is an excellent local remedy in chronic eczema. In the weakened form of 10 grains to the ounce calomel ointment effects decided relief in the acute stage of sycosis. It is of service in dermatitis, particularly in the later stage of the disease, and is one of the agents made use of in psoriasis after the scales have been removed. A weak ointment of calomel—5 or 10 grains to the ounce—is a useful remedy in impetigo contagiosa. In the same strength it promotes cicatrization in ecthyma, applied to the open, granulating surfaces exposed upon separation of the crusts.

Formulary.

Take of Creasote, 8 drops.

Calomel ointment, 1 ounce.

Mix. For acute sycosis, subacute eczema, erythema, and in secondary syphilis.

Take of Beta-naphthol, 10 grains.

Calomel ointment, 1 ounce.

Mix. Use in chancroids, syphilis of the skin, chronic acne, parasitic diseases of the skin, and in impetigo contagiosa.

CREASOTE OINTMENT.

Unguentum creasoti, ointment of creasote. Take of creasote *1 fluidrachm*; simple ointment, *1 ounce* (av.). Mix thoroughly.

Creasote ointment has been omitted from the United States Pharmacopœia of 1880, and the formula just given is that of the British Pharmacopœia. The British preparation is more than twice as strong as that in our Pharmacopœia of 1870.

This ointment relieves the itching and burning of erythema multiforme and of eczema. It is beneficially applied in burns, chilblains, erysipelas, and to ulcerated surfaces. It is particularly adapted to cases of indolent, foul, or gangrenous ulcers by reason of its antiseptic properties, and has been used with success in psoriasis.

Formulary.

Take of Beta-naphthol, 5 grains.

Creasote ointment, 1 ounce.

Mix. For itching of the skin, especially in eczema, ulcers, psoriasis, and chilblains.

Take of Carbonate of lead, 1 drachm.

Creasote ointment, 1 ounce.

Mix. Useful in erysipelas, erythema, acute eczema, and in burns.

RED IODIDE OF MERCURY OINTMENT.

Unguentum hydrargyri iodidi rubri, ointment of red iodide of mercury. Take of red iodide of mercury, in fine powder, *16 grains*; simple ointment, *1 troy ounce*. Mix thoroughly.

The red or biniodide of mercury is possessed of very vigorous local irritant properties. For this reason it is used but seldom in this country, and then usually in half strength, 8 grains to the ounce. It is, nevertheless, a valuable remedy in certain stubborn affections, as has been demonstrated by the East India army surgeons in the treatment of goitre. The following, according to Ringer,* is the mode of application: "In India this ointment is applied to the swelling at sunrise by means of an ivory spatula, and is then well rubbed in for at least ten minutes. The patient then sits with the goitre held up to the sun as long as he can endure it. In six or eight hours there will probably be some pain from the blistering action of the application, although no pustules will have arisen. At about 2 o'clock in the afternoon a second application is made, the ointment being rubbed in with a light hand; the ointment is then allowed to remain, and its absorption is completed about the third day. In ordinary cases one such course cures the patient, but in bad cases it may be necessary to repeat the treatment in six or

* A Hand-book of Therapeutics. By Sydney Ringer, M.D. Eleventh edition. London, 1886.

twelve months. In countries where the sun is less powerful the patient sits before a fierce fire, or the ointment may be rubbed over the swelling night and morning, afterward covering it with oil-skin."

The Indian surgeons also very warmly commend the ointment of the red iodide of mercury as a local remedy in the case of enlargement of the spleen, or "ague-cake," not uncommonly left after a severe or prolonged attack of malarial fever.

This ointment may be advantageously applied upon denuded psoriatic patches. Great care, however, should be exercised in its use. The official preparation, at least to begin with, is much too strong. Two grains to the ounce is as strong a preparation as should be used at first, for fear of complicating the disease which we seek to relieve.

The unguent under consideration was the favorite remedy of Cazenave in lupus.

Formulary.

Take of Lanolin, $\frac{1}{2}$ ounce.

Red iodide of mercury ointment, . . $\frac{1}{2}$ "

Mix. For scars and enlarged glands.

Take of Chian turpentine, $\frac{1}{2}$ drachm.

Red iodide of mercury, $\frac{1}{2}$ ounce.

Mix. Useful in old syphilitic spots, and in obstinate cases of ringworm of scalp.

COMPOUND IODINE OINTMENT.

Unguentum iodi compositum, compound iodine ointment. This preparation is made by rubbing together iodine, 15 grains; iodide of potassium, 30 grains; water, 30 minims; lard, 1 troy ounce. It has deservedly been dismissed from the official list, since it consists of the same ingredients as the yet official *unguentum iodi* (*q. v.*), with an immaterial difference in their proportions. The curative virtues of both unguents are, therefore,

applicable to the same maladies and conditions. Both stain the skin orange-yellow.

Formulary.

Take of Lanolin, $\frac{1}{2}$ ounce.

Compound iodine ointment, $\frac{1}{2}$ "

Mix. For scrofuloderma and syphilitic spots.

Take of Green soap, 1 ounce.

Compound iodine ointment, 1 "

Mix. Applicable for scars and old syphilitic sores.

SUBACETATE OF COPPER OINTMENT.

Unguentum cupri subacetatis, ointment of subacetate of copper. The impure subacetate of copper of the United States Pharmacopœia of 1870 has been replaced by the purified acetate of copper. The subacetate, or verdigris, is stimulant, cauterant, and astringent if applied locally. The ointment which contained it consequently acquired those properties. Its use has been largely abandoned.

TOBACCO OINTMENT.

Unguentum tabaci, ointment of tobacco. This was made by mixing a watery extract, prepared from $\frac{1}{2}$ troy ounce of finely-powdered tobacco, with 8 troy ounces of lard. Tobacco is a very powerful local irritant, and this fact led to the former use of its ointment as an application to indolent ulcers, while the exceedingly poisonous properties of its alkaloid suggested its use in some of the parasitic diseases of the skin. Nicotine is, however, very readily absorbed, even through the skin, and its depressant powers are so great that this ointment has been superseded by others, which, though stimulant and parasiticide, are less liable to produce constitutional effects.

Formulary.

Take of Subiodide of bismuth, $\frac{1}{2}$ drachm.

Tobacco ointment, 1 ounce.

Mix. Useful at times in indolent ulcers, and in fissured eczema around the anus.

Take of Extract of conium, $\frac{1}{2}$ drachm.
 Extract of belladonna, $\frac{1}{2}$ "
 Tobacco ointment, 1 ounce.

Mix. For cancerous and bed sores and irritable ulcers.

NATIONAL FORMULARY UNOFFICIAL OINTMENTS.

There are a number of preparations widely known and used in this country, but for which many varying formulæ exist. In order to secure uniformity of composition the American Pharmaceutical Association have proposed a formulary, which it commends to the use of physicians and druggists. It is styled the "National Formulary of Unofficial Preparations," and its general adoption will prevent the embarrassments which continually arise from the variation in ingredients and proportions of preparations ordered by the same title. In prescribing, the letters "N. F." should be appended in order to indicate that the standard formula is to be followed. The National Formulary includes directions for the preparation of five ointments, as follow:—

CALAMINE OINTMENT.

Unguentum calaminæ, calamine ointment. Take of prepared calamine 1 part; ointment (U. S. P.), 5 parts. Mix them intimately, by trituration, so as to produce a smooth and homogeneous ointment. Calamine is the native impure carbonate of zinc. It is reduced to an impalpable powder by first heating the calamine to redness, then pulverizing it, and finally completing the process by levigation and elutriation. It was formerly the subject of such gross adulteration that it was dismissed from the Pharmacopœia. It is now, however, obtained in an approximately pure condition. Calamine ointment has been retained in the British Pharmacopœia. It is slightly

astringent and desiccant. Its properties and indications may be regarded as identical with those of the official oxide of zinc ointment, and may, consequently, be recommended in the treatment of excoriations, superficial ulcers, dermatitis, eczema, erythema, herpes, and impetigo.

Formulary.

Take of Creasote,	6 drops.
Carbonate of lead,	1 drachm.
Calamine ointment,	1 ounce.

Mix. Excellent for acute eczema, erythema, dermatitis, and herpes.

Take of Borax,	½ drachm.
Calamine ointment,	1 ounce.

Mix. For burns, excoriations, and acne.

CAMPBOR OINTMENT.

Unguentum camphoræ, camphor ointment. Take of camphor, in coarse powder, *2 parts*; white wax, *1 part*; lard, *6 parts*. Melt the white wax and lard with a gentle heat, then add the camphor, and stir the ointment until it is cold.

Camphor is a topical irritant, and even gives rise to inflammation if left long in contact with the skin. Its ointment might, therefore, be appropriately used as a stimulant to indolent ulcers. Camphor ointment also acts as an anodyne and counter-irritant, applied with friction, in rheumatism, myalgia, and neuralgia. It is also serviceable as an external remedy in many forms of chronic inflammation, being capable of exciting the vascular and absorbent systems. Camphor ointment serves a good purpose, too, as an addendum to unguents employed in eczema, paræsthesia, and other affections of the integument.

Formulary.

Take of Subnitrate of bismuth,	1 drachm.
Prepared suet,	3 drachms.
Camphor ointment,	3 “

Mix. Serviceable in eczema and herpes of the lip.

Take of Calomel,	10 grains.
Beta-naphthol,	8 "
Camphor ointment,	1 ounce.

Mix. For eczema, especially of the head and face, and all irritable conditions of the integument.

COMPOUND LEAD OR BROWN OINTMENT.

Unguentum fuscum, brown ointment. Take of camphorated brown plaster *2 parts*; olive-oil, *1 part*; suet, *1 part*. Melt them together, and stir the mass until it is cold.

Camphorated brown plaster is made according to the following formula: Take of red oxide of lead *30 parts*; olive-oil, *60 parts*; yellow wax, *15 parts*; camphor, *1 part*. Triturate the red oxide of lead with a portion of the oil in a capacious copper kettle until a smooth paste results. Then add the remainder of the oil, excepting a small quantity required for trituration with the camphor, and boil the whole over a naked fire, under constant stirring, until gas-bubbles rise, or until the red color of the mixture begins to turn brown. Then moderate the heat, but keep up the stirring until the mixture has acquired a dark-brown color, and from time to time allow some drops of it to fall into cold water to test its consistence. When this is satisfactory, remove the vessel from the fire, add the wax in small pieces, and finally the camphor, previously rubbed to a smooth paste with a little olive-oil. Mix thoroughly, allow the mixture to become somewhat cool, and, while it is still warm, pour the plaster into paper molds, previously coated with mucilage containing about 5 per cent. of glycerin and dried.

The red oxide of lead is a more highly oxygenated form than the litharge, which is so extensively employed in the preparation of plasters. It is not official, and is brought into pharmaceutical use only as an ingredient

of the brown plaster and ointment. It possesses the mild astringent and sedative virtues common to most of the salts of lead, and the brown ointment may, therefore, be beneficially applied for medicinal purposes to the same class of diseases in which diachylon ointment is found so efficient,—subacute and acute eczema, paræsthesia, dermatitis, erythema, herpes, seborrhœa, and sycosis.

Formulary.

Take of Ergotine, $\frac{1}{2}$ drachm.

Compound lead or brown ointment, . . . 1 ounce.

Mix. Use in acne, rosacea, acute eczema, and dermatitis.

Take of Lanolin, $\frac{1}{2}$ ounce.

Compound lead or brown ointment, . . . $\frac{1}{2}$ "

Mix. For chronic eczema and chronic sycosis.

COMPOUND TAR OINTMENT.

Unguentum picis compositum, compound tar ointment. Take of oil of tar *4 parts*; tincture of benzoin, *2 parts*; oxide of zinc, *3 parts*; yellow wax, *26 parts*; lard, *32 parts*; cotton-seed oil, *35 parts*. Melt the yellow wax and lard with the cotton-seed oil at a gentle heat. Add the tincture of benzoin, and continue heating until all the alcohol has evaporated. Then withdraw the heat, add the oil of tar, and, finally, the oxide of zinc, incorporating the latter thoroughly, so that, on cooling, a smooth, homogeneous ointment may result.

The combination of astringent and antiseptic properties render the compound tar ointment an excellent remedy in a wide range of cutaneous diseases. It is of service in inflammations due to the more usual causes, while it is equally efficacious in those which depend upon the development of an animal or vegetable parasite. The oxide of zinc present qualifies its irritant action. This combination, therefore, is well adapted for use in chronic eczema, psoriasis, pemphigus, sycosis, and tinea

circinata. It has also been successful in cases of lupus erythematosus.

Formulary.

Take of Extract of witch-hazel, 1 drachm.

Compound tar ointment, 1 ounce.

Mix. For tinea circinata, sycosis, chronic eczema, and psoriasis.

Take of Borax, $\frac{1}{2}$ drachm.

Compound tar ointment, 1 ounce.

Mix. Use in lupus erythematosus, pemphigus, and sycosis.

COMPOUND SULPHUR OINTMENT.

Unguentum sulphuris compositum, compound sulphur ointment. Take of precipitated carbonate of calcium 10 parts; sublimed sulphur, 15 parts; oil of cade, 15 parts; green soap, 30 parts; lard, 30 parts. Mix the lard with the green soap and oil of cade. Then gradually incorporate the sublimed sulphur and precipitated carbonate of calcium.

This compound ointment is indifferently known as Wilkinson's ointment, or Hebra's itch ointment, the formula being originally devised by the former and modified by the latter authority. The sulphur, the green soap, and the oil of cade all possess stimulant properties, and an ointment which contains them is admirably adapted to be used upon the patches of psoriasis, the investment of scales having been previously removed. As implied by one of its titles, it constitutes an effective mode of treatment in scabies. Its use is, however, attended by the drawback of being tedious and painful. It is an effectual remedy in tinea circinata.

Formulary.

Take of Iodol, $\frac{1}{2}$ drachm.

Compound sulphur ointment, 1 ounce.

Mix. For scabies, or itch, and in tinea circinata, or ringworm.

Take of Beta-naphthol, $\frac{1}{2}$ drachm.

Compound sulphur ointment, $\frac{1}{2}$ ounce.

Mix. Useful in chronic psoriasis and in thickened conditions of the integument.

CHAPTER III.

OINTMENTS OFFICIAL IN THE BRITISH PHARMACOPŒIA.

THE Pharmacopœias of the United States and of Great Britain agree in all essential respects. That of the latter, however, has retained, as official, a number of ointments which are no longer recognized as official by that of the United States. The official ointments of Great Britain are thirty-four in number. Of these nineteen are unofficial in this country. Most of them, however, are well known and frequently prescribed, either according to their official title and formula, or in extemporaneous combination, which approximates the authoritative proportions. I deem it proper, therefore, in a work of this character, to enter into a brief enumeration of these preparations.

BORIC ACID OINTMENT.

Unguentum acidi borici, ointment of boric acid. Take of boric acid, in fine powder, $2\frac{1}{2}$ ounces (av.); soft paraffin, 10 ounces (av.); hard paraffin, 5 ounces (av.). Melt the hard and soft paraffins together, and add the boric acid distributed over the surface of the liquid by passing it through a sieve, then stir them together constantly until cold.

Boric acid is one of the most valuable of the disinfectants, having the power of destroying pathogenic germs, while at the same time it is destitute of local irritant properties, and hence can be applied to open wounds. To unhealthy wounds and ulcers, to erysipelas and to septic lesions, the boric acid ointment is an

admirable application. It is a very good dressing in dermatitis, the bullous variety of burns, and is often successful in the removal of warts. It is a good local adjuvant in comedo, and an excellent remedy in bromidrosis. Dr. Russell Sturgis is very fond of boric acid combined with lanolin in the treatment of certain cutaneous affections of children, especially eczema of the head or face, intertrigo and seborrhœa. He employs 20 per cent. of boric acid to 80 per cent. of lanolin.

Formulary.

Take of Lanolin, $\frac{1}{2}$ ounce.

Boric acid ointment, $\frac{1}{2}$ "

Mix. Employ in unhealthy wounds, ulcers, burns, warts, and in odorous sweating.

Take of Hydrochlorate of hydrastine, 6 grains.

Boric acid ointment, 1 ounce.

Mix. For acne, seborrhœa, and in subacute eczema.

SALICYLIC ACID OINTMENT.

Unguentum acidi salicylici, ointment of salicylic acid. Take of salicylic acid *60 grains*; soft paraffin, *1080 grains*; hard paraffin, *540 grains*. Melt the hard and soft paraffin together, add the salicylic acid, and stir the whole constantly until cold

The germicidal properties of salicylic acid are superior to those of carbolic acid. An ointment containing the former substance is a suitable application to cutaneous disorders of mycotic origin, though, owing to the absence of local irritant properties, it has a less wide field of usefulness than the ointment of carbolic acid. It is valuable in the treatment of tinea circinata, and is occasionally of service in lupus vulgaris. A weak ointment of salicylic acid—5 grains to the ounce—is found serviceable in the removal of freckles. Not infrequently it is capable of conferring relief in paræsthesia. It has been successfully employed in the

management of eczema rubrum and chronic eczema, especially of the palms of the hands and soles of the feet.

ACONITINE OINTMENT.

Unguentum aconitinæ, ointment of aconitine. Take of aconitine 8 grains; rectified spirit, $\frac{1}{2}$ fluidrachm; benzoated lard, 1 ounce (av.). Dissolve the aconitine in the spirit, add the lard, and mix thoroughly.

Aconitine, the active principle of *aconitum napellus*, produces, when applied locally, paralysis of the sensory nervous system, beginning with the end-organs and ascending the trunk to the centre. The first effect is a sensation of warmth, which is succeeded by tingling and finally numbness. Used externally, it is, therefore, valuable in affections characterized by severe pain. Aconitine ointment finds its principal indication in the treatment of neuralgia, and, above all, in neuralgia of the trifacial. It is likewise serviceable in the treatment of sick-headache. Rubbed upon the brow it will arrest the nausea and vomiting. The pain of chronic rheumatism, gout, and myalgia is often relieved by this preparation. Aconitine ointment often relieves the pain present in herpes zoster, provided it be applied around the eruption, attention being particularly paid to not bringing the preparation in contact with the unbroken skin. It should be rubbed into the skin until it occasions tingling or numbness. Especial care should be taken to avoid an open surface on account of the powerful cardiac depressant properties of the alkaloid when absorbed.

Formulary.

Take of Menthol, 10 grains.

Aconitine ointment, $\frac{1}{2}$ ounce.

Mix. For neuralgia of the skin and paræsthesia.

Take of Sublimed sulphur, 1 scruple.

Carbolic acid, 5 grains.

Aconitine ointment, $\frac{1}{2}$ ounce.

Mix. Use in papular eczema, prurigo, and dermatalgia.

ATROPINE OINTMENT.

Unguentum atropinæ, ointment of atropine. Take of atropine 8 grains; rectified spirit, $\frac{1}{2}$ fluidrachm; benzoated lard, 1 ounce (av.). Dissolve the atropine in the spirit, add the lard, and mix thoroughly.

Atropine paralyzes motor nerve-trunks and their end-organs. Its effect upon sensory nerves is slighter, diminishing but not destroying their excitability. This ointment is, therefore, more likely to do good in diseases of which spasm, rather than pain, is the most marked feature. The internal rather than the local use of atropine should, however, be preferred. It has been employed as an outward application in neuralgia, herpes, and in irritable venereal sores, but other agents are often superior. Care should be taken in its external use, as it is very readily absorbed by abraded surfaces and severe constitutional effects may result.

In a case of syphilitic ulcer on the penis, treated at the Medico-Chirurgical Hospital, the application of atropine in half the strength just suggested, in conjunction with the ointment of oleate of mercury, while relieving the local symptoms, gave rise to marked physiological action of the atropine. Dyspnœa, acceleration of the pulse, dryness of the throat, and dilatation of the pupil followed to such an extent as to cause the application to be withdrawn and morphine administered.

Formulary.

Take of Hydrochlorate of cocaine,	. . . . .	2 grains.
Carbonate of zinc,	. . . . .	$\frac{1}{2}$ drachm.
Ammoniated mercury,	. . . . .	5 grains.
Atropine ointment,	. . . . .	$\frac{1}{2}$ ounce.

Mix. For chancre, chancreoids, syphilitic and irritable ulcers.

Take of Tannic acid,	. . . . .	10 grains.
Acetate of lead,	. . . . .	1 scruple.
Atropine ointment,	. . . . .	$\frac{1}{2}$ ounce.

Mix. Useful in fissures around the anus, the penis, the scrotum, and in herpes.

SPERMACETI OINTMENT.

Unguentum cetacei, spermaceti ointment. Take of spermaceti 5 ounces (av.); white wax, 2 ounces (av.); almond-oil, 1 pint (imperial measure), or a sufficiency; benzoin, in coarse powder, $\frac{1}{2}$ ounce (av.). Melt together the spermaceti, wax, and almond-oil; add the benzoin, and, frequently stirring the mixture, continue the application of heat for two hours; remove from the source of heat, take out the residual benzoin by straining, and stir constantly until quite cold.

Spermaceti ointment constitutes a bland protective dressing. It may be applied to superficial inflammations, blistered surfaces, abrasions, etc., and is sometimes better borne than more powerful remedies. This is true of all demulcent ointments, and the spermaceti preparation possesses no peculiar advantage. It is seldom or never used alone in this country, but enters into the composition of our official *unguentum aquæ rosæ*. Spermaceti ointment soon becomes rancid.

Formulary.

Take of Powdered arrow-root,	$\frac{1}{2}$ drachm.
Camphor,	5 grains.
Prepared suet,	3 drachms.
Spermaceti ointment,	3 “

Mix. For chapped lips and excoriations around the genital organs.

Take of Powdered starch,	$\frac{1}{2}$ drachm.
Subnitrate of bismuth,	$\frac{1}{2}$ “
Spermaceti ointment,	$\frac{1}{2}$ ounce.

Mix. Valuable for irritation in the axilla, about the groins, and in erythema of the female breasts.

ELEMI OINTMENT.

Unguentum elemi, ointment of elemi. Take of elemi $\frac{1}{4}$ ounce; simple ointment, 1 ounce. Melt, strain through flannel, and stir constantly until the ointment solidifies.

Elemi is a resin akin to the turpentine, and pos-

sesses mild irritant properties. It is occasionally used in Great Britain as a stimulant to indolent ulcers.

EUCALYPTUS OINTMENT.

Unguentum eucalypti, ointment of eucalyptus. Take oil of eucalyptus, by weight, *1 ounce* (av.); soft paraffin, hard paraffin, of each, *2 ounces* (av.). Melt the hard and soft paraffins together, add the oil, and stir until cold.

Eucalyptus contains a volatile oil, several resinous substances, tannic acid, etc. Its distinctive properties depend upon the presence of eucalyptol.

Eucalyptus is a decided local irritant. It is also a disinfectant of considerable power, surpassing quinine in this respect. Like the latter substance it inhibits amœboid movements.

The ointment under consideration, therefore, constitutes a good dressing to chronic, indolent, or unhealthy ulcers.

GALLS AND OPIUM OINTMENT.

Unguentum gallæ cum opio, ointment of galls and opium. Take of ointment of galls *1 ounce* (av.); opium, in powder, *32 grains*. Mix thoroughly.

This preparation is used chiefly in the treatment of painful hæmorrhoids, and fissured eczema around the nose, lips, and anus.

GLYCERIN OF SUBACETATE OF LEAD OINTMENT.

Unguentum glycerini plumbi subacetatis, ointment of glycerin of subacetate of lead. Take of glycerin of subacetate of lead *4½ ounces* (av.); soft paraffin, *18 ounces* (av.); hard paraffin, *6 ounces* (av.). Melt the hard and soft paraffins together; then add the glycerin of subacetate of lead and stir until the moisture has cooled.

This is an excellent astringent and sedative ointment.

It may be usefully employed in dermatitis, erythema, erysipelas, herpes, and to blistered or abraded surfaces.

Formulary.

Take of Salol, 10 grains.

Glycerin of subacetate of lead ointment, 1 ounce.

Mix. Use in erysipelas, erythema, and in blistered or abraded surfaces.

Take of Dried carbonate of sodium, 10 grains.

Hydrochlorate of morphine, 4 "

Glycerin of subacetate of lead ointment, 1 ounce.

Mix. For dermatitis, burns, acute eczema, and erythema.

COMPOUND MERCURIAL OINTMENT.

Unguentum hydrargyri compositum, compound ointment of mercury. Take ointment of mercury 6 ounces; yellow wax, olive-oil, of each, 3 ounces; camphor, $1\frac{1}{2}$ ounces. Mix the wax and oil by the aid of heat, then incorporate the ointment of mercury, and, when the mixture is nearly cold, add the camphor in powder. Stir the whole thoroughly together.

Pharmaceutical rather than therapeutical reasons have dictated the formula of the compound ointment of mercury. The addition of camphor softens the mass and renders it more readily applied.

DILUTED NITRATE OF MERCURY OINTMENT.

Unguentum hydrargyri nitratis dilutum, diluted ointment of nitrate of mercury. Take of nitrate of mercury ointment 1 ounce (av.); soft paraffin, 2 ounces (av.). Mix.

This official dilution fulfills the same indications as our *unguentum hydrargyri nitratis*, but is intended to replace the latter when that preparation is found too irritant. An official dilution, however, seems unnecessary, since the stronger ointment can be extemporaneously weakened to any degree.

ACETATE OF LEAD OINTMENT.

Unguentum plumbi acetatis, ointment of acetate of lead. Take of acetate of lead, in fine powder, *12 grains*; benzoated lard, *1 ounce* (av.). Mix thoroughly.

This ointment possesses the virtues of the other saturnine preparations. It may be used in dermatitis, erythema, herpes, to blistered surfaces, to pemphigus after the vesicles have ruptured, etc.

Formulary.

Take of Extract of calamus, $\frac{1}{2}$ drachm.
Powdered arrow-root, 1 "
Acetate of lead ointment, 1 ounce.

Mix. For scrotal eczema and eczema of the hands and feet.

Take of Carbolic acid, 4 grains.
Sublimed sulphur, 1 scruple.
Acetate of lead ointment, 1 ounce.

Mix. Use in infantile eczema, rosacea, and in excessive sweating.

SULPHURATED POTASH OINTMENT.

Unguentum potassæ sulphuratæ, ointment of sulphurated potash. Take of sulphurated potash *30 grains*; hard paraffin, $\frac{1}{4}$ ounce (av.); soft paraffin, $\frac{3}{4}$ ounce (av.). Triturate the sulphurated potash in a glass or porcelain mortar, and gradually add the melted mixture of the hard and soft paraffins, rubbing them together until the ointment is perfectly smooth and free from grittiness. This ointment should be recently prepared.

The therapeutical virtues of sulphurated potash are analogous to those of sulphur. Hence, it is used externally in the same class of affections to which sulphur is applied,—chronic eczema, tinea circinata, and scabies.

Formulary.

Take of Beta-naphthol, 1 scruple.
Sulphurated potash ointment, 1 ounce.

Mix. Especially useful in scabies and in ringworm.

Take of Balsam of Peru, 1 drachm.
Sulphurated potash ointment, 1 ounce.

Mix. For chronic eczema, psoriasis, itch, and ringworm.

RESIN OINTMENT.

Unguentum resinæ, ointment of resin. Resin, 35 parts (or 7 ounces av.); yellow wax, 15 parts (or 3 ounces av.); lard, 50 parts (or 10 ounces av.). To make 100 parts (or 20 ounces av.). Melt them together at a moderate heat, strain the mixture through muslin, and allow it to cool without stirring.

The resin cerate of the United States Pharmacopœia is made according to the above formula, and is substantially the same preparation as the ointment of resin of the British Pharmacopœia. The *unguentum resinæ* is made as follows:—

Take of resin, in coarse powder, 8 ounces; yellow wax, 4 ounces; simple ointment, 16 ounces. Melt with a gentle heat, strain the mixture while hot through flannel, and stir constantly while it cools.

From a pharmaceutical point of view resin is valuable in communicating to fatty substances a proper consistence for use as ointments. The cerate or ointment of resin is an excellent mild stimulant to ulcers, burns, and blistered surfaces.

Formulary.

Take of Menthol,	10 grains.
Hydrochlorate of cocaine,	5 “
Resin ointment,	1 ounce.

Mix. Serviceable in boils, carbuncles, and indurated acne.

Take of Oil of cade,	1 drachm.
Resin ointment,	1 ounce.

Mix. For eczema of the hands and feet.

SAVINE OINTMENT.

Unguentum sabinæ, ointment of savine. Take of fresh savine-tops, bruised, 8 ounces; white wax, 3 ounces; prepared lard, 16 ounces. Melt the lard and wax together on a water-bath, add the savine, and digest for twenty minutes. Then remove the mixture and express through calico.

In the United States Pharmacopœia an official cerate is substituted for the ointment. The directions for preparing the cerate are as follow :—

Fluid extract of savine, *25 parts* (or 5 ounces av.); resin cerate, *90 parts* (or 8 ounces av.). Melt the resin cerate by means of a water-bath, add the fluid extract of savine, and continue the heat until the alcohol has evaporated; then remove the heat, and stir constantly until cool.

Savine possesses very decided local irritant properties. An ointment or cerate which contains it is consequently useful in those conditions which demand stimulation, as in chronic gout. Its most general use, perhaps, is in maintaining a blister, and for this purpose it has the advantage over the ceratum cantharidis of not producing strangury.

STAVESACRE OINTMENT.

Unguentum staphisagriæ, ointment of stavesacre. Take of stavesacre-seeds *4 ounces* (av.); benzoated lard, *8 ounces* (av.). Crush the seeds and macerate them in the lard, kept melted over a water-bath for two hours. Strain through calico and set aside to cool. This ointment contains about 10 per cent. of oil of stavesacre.

Staphisagria is a powerful irritant. Its properties depend mainly upon an oil which it contains in large quantities, and an alkaloid called delphine. Both the oil and the alkaloid are highly stimulant local applications.

The ointment of stavesacre is an efficient agent in the destruction of pediculi and the *acarus scabiei*. The preparation, however, is open to the serious drawback of provoking severe cutaneous irritation.

The ointment, as made according to the official formula, is apt to be a gritty mass. Squire prefers using the oil of stavesacre diluted with olive-oil.

Formulary.

Take of Sublimed sulphur, 1 drachm.

Stavesacre ointment, 1 ounce.

Mix. For pediculi and scabies.

Take of Beta-naphthol, 1 scruple.

Stavesacre ointment, 1 ounce.

Mix. Use in animal parasitic diseases.

IODIDE OF SULPHUR OINTMENT.

Unguentum sulphuris iodidi, ointment of iodide of sulphur. Take of iodide of sulphur 30 grains; hard paraffin, $\frac{1}{4}$ ounce (av.); soft paraffin, $\frac{3}{4}$ ounce (av.). Triturate the iodide of sulphur in a glass or porcelain mortar, and gradually add the melted mixture of the hard and soft paraffins, rubbing them together until the ointment is perfectly cold and free from grittiness.

The iodide of sulphur seems to combine the therapeutic virtues of the elementary substances which it contains. Its ointment is a useful remedy in alopecia circumscripta, tinea circinata, and in cutaneous affections associated with a scrofulous taint. It may also prove of service in psoriasis, chronic eczema, acne, lupus and lepra.

Formulary.

Take of Oil of cade, $\frac{1}{2}$ drachm.

Iodide of sulphur ointment, 1 ounce.

Mix. For alopecia circumscripta, chronic eczema, and psoriasis.

Take of Oil of eucalyptus, 4 drops.

Carbonate of zinc, 1 drachm.

Iodide of sulphur ointment, $\frac{1}{2}$ ounce.

Mix. Valuable in chronic acne, rosacea, and lupus erythematosus.

TURPENTINE OINTMENT.

Unguentum terebinthinæ, ointment of turpentine. Take of oil of turpentine 1 fluidounce; resin, in coarse powder, 54 grains; yellow wax, prepared lard, of each $\frac{1}{2}$ ounce (av.). Melt the ingredients together by the heat of a steam- or water- bath. Remove the vessel and stir the mixture constantly while it cools.

Turpentine acts upon the skin as a rubefacient. It possesses, also, marked antiseptic powers. The ointment has been used successfully as a local application in erysipelas, alopecia circumscripta, and is sometimes of service in psoriasis.

Formulary.

Take of Pilocarpine hydrochlorate, 5 grains.

Turpentine ointment, $\frac{1}{2}$ ounce.

Mix. For alopecia and chronic circumscribed eczema.

Take of Citrine ointment, $\frac{1}{2}$ ounce.

Oil of juniper, $\frac{1}{2}$ drachm.

Turpentine ointment, $\frac{1}{2}$ ounce.

Mix. Beneficial for psoriasis, chronic eczema, and alopecia.

CHAPTER IV.

EXTEMPORANEOUS OINTMENTS.

IN addition to the list of ointments official either in our own or the British Pharmacopœia, and those for which a standard formula has been recommended by the American Pharmaceutical Association, an indefinite variety of substances are made use of in extemporaneous prescriptions. Some of these are metallic salts, many are vegetable products, while modern chemistry has of late made valuable contributions to the list of local medicaments. I shall enumerate those which are most frequently used and justly esteemed. Some of them, doubtless, will hereafter be made official. Ointments composed of these unofficial substances may be divided, like those of which I have hitherto treated, into sedative, astringent, and stimulant.

MENTHOL OINTMENT.

Menthol.—This substance has been made official in the British Pharmacopœia, by which it is defined as a stearopten obtained by cooling the oil derived from the fresh herb of *Mentha arvensis* and *Mentha piperita*. It occurs in the form of colorless crystals or fused crystalline masses. It has the odor and taste of peppermint, and melts at 108° to 110° F. It is soluble in alcohol.

When brought into contact with the skin it produces first a burning sensation, followed by one of coolness, and finally of numbness. It possesses decided antiseptic properties. Its principal therapeutical value is as a local anæsthetic. Rubbed up into an ointment, 5 to 15 grains to the ounce of suitable fatty vehicle it has the power

of relieving itching and pain. Menthol ointment may, therefore, be employed to mitigate the distress of paræsthesia and urticaria, and in lessening the itching due to eczema. It assuages the pain of neuralgia, especially when seated in superficial nerves. It has been successfully employed in trifacial neuralgia, in pleurodynia, and in herpes zoster.

Formulary.

Take of Salol, 10 grains.
 Carbonate of lead, $\frac{1}{2}$ drachm.
 Menthol ointment, $\frac{1}{2}$ ounce.

Mix. Employ in dermatalgia, herpes zoster, and paræsthesia.

Take of Boric acid, 1 drachm.
 Powdered arrow-root, 1 "
 Menthol ointment, 1 ounce.

Mix. For urticaria, papular eczema, and herpes zoster.

SALICYLATED CAMPHOR OINTMENT.

Salicylated Camphor.—A compound ointment bearing this title is in frequent use in the Hôtel Dieu, of Paris.* It is made by heating together *11 parts* of salicylic acid with *14* of camphor. This combination secures stimulant and antiseptic properties. The preparation has been found extremely useful, it is said, in the treatment of unhealthy, specific, or malignant ulcers. It is a useful application to septic surfaces. Phagedæna, syphilitic ulcers, lupus, and open cancer are the affections in which it is reported to be of service.

Formulary.

Take of Boric acid, $\frac{1}{2}$ drachm.
 Carbonate of zinc, 1 "
 Salicylated camphor ointment, 1 ounce.

Mix. For ulcers, lupus, and eczema of the hands and feet.

Take of Sublimed sulphur, $\frac{1}{2}$ drachm.
 Ointment of oxide of zinc, $\frac{1}{2}$ ounce.
 Salicylated camphor ointment, $\frac{1}{2}$ "

Mix. Serviceable in acne, rosacea, and painful ulcers.

* Whitt, *op. cit.*

CUCUMBER OINTMENT.

Cucumber.—An ointment containing this vegetable is made in the following manner: Take of green cucumbers 7 pounds (av.); pure lard, 24 ounces; veal-suet, 15 ounces. Grate the washed cucumbers to a pulp, express, and strain the juice. Cut the suet into small pieces, heat it over a water-bath till the fat is melted out from the membrane; then add the lard, and, when melted, strain through muslin into an earthen vessel capable of holding a gallon and stir until thickening commences, when one-third of the juice is to be added, and the whole beaten with a spatula till the odor has been almost wholly extracted. The portion which separates is to be decanted, and the remaining two-thirds of the juice are to be consecutively incorporated and decanted in the same manner. The jar is then closely covered and placed in a water-bath until the fatty matter entirely separates from the juice. The green coagulum floating on the surface is now removed, and the jar put in a cool place that the ointment may solidify. The crude ointment is then separated from the watery liquid on which it floats, melted and strained and placed in glass jars, which must be kept closely sealed.*

Formulary.

Take of Subnitrate of bismuth, 1 drachm.

Oil of rose, 2 drops.

Cucumber ointment, 1 ounce.

Mix. For burns, blisters, excoriations, erythema, and chapped lips.

Take of Powdered arrow-root, 1 drachm.

Hydrochlorate of cocaine, 5 grains.

Cucumber ointment, 1 ounce.

Mix. Useful in dermatitis and acute eczema.

* Formula of Professor Procter, United States Dispensatory. Sixteenth edition. Philadelphia, 1888.

CUCUMBER CREAM.

The following formula for the preparation of "cucumber cream" is given by A. Zimmerman in the *Pharmaceutical Record*, December 16, 1887: "White wax, 1 ounce (av.); spermaceti, 1 ounce (av.); benzoinated lard, sufficient, 1 pound (av.); 6 fair-sized cucumbers (those which have not become quite green appear to possess most flavor), peeled and cut in slices; borax, sufficient quantity. Melt the wax and spermaceti; add lard and cool; add cucumbers; mix well; then 160 grains borax; mix intimately; allow to stand ten hours; melt over water-bath at slowly increased heat; when melted, strain through cheese-cloth to separate cucumbers; place upon ice at once; when solidified pour water from underneath, and after separation of water incorporate 160 grains more of borax. The borax develops more odor and tends to prevent decomposition of the juice while macerating, besides adding to the healing qualities of the ointment. It should not stand longer than the ten hours, for danger of fermentation starting, which would spoil the cream. More heat than is actually necessary should not be applied, for it tends to drive off some of the odor."

This preparation forms an admirable bland unguent. It is often the case in acute diseases of the skin that none but the most emollient application will be tolerated. The appreciation of this fact is of prime importance in treatment. In erythema simplex and in the early stage of dermatitis and in lichen planus, when the papules are numerous and attended by considerable itching, cucumber ointment affords relief. It is well adapted, also, to the acute form of eczema, or to infantile eczema, in which the mildest stimulant is very apt to increase the mischief. It promotes the healing of a blistered surface.

BALSAM OF PERU OINTMENT.

Balsam of Peru.—This aromatic contains resin, volatile oil, bezoic and cinnamic acids. Its local action is antiseptic and mildly stimulant. It forms an excellent protective dressing to wounds, and may be used either alone or mixed with a fat in such proportion as to form an unctuous mass. The irritant power of Balsam of Peru ointment recommends it as a useful application in comedo, falling of the hair, and in chilblains. It hastens reparative action in fissured nipples, bed-sores, and indolent ulcers.

Formulary.

Take of Salicylic acid,	. . . . .	½ drachm.
Oil of juniper,	. . . . .	½ “
Balsam of Peru ointment,	. . . . .	1 ounce.

Mix. For psoriasis, eczema of the hands and feet, and indolent ulcers.

Take of Sublimed sulphur,	. . . . .	½ drachm.
Carbonate of zinc,	. . . . .	2 drachms.
Extract of Indian hemp,	. . . . .	½ drachm.
Balsam of Peru ointment,	. . . . .	1 ounce.

Mix. Valuable in chilblains, bed-sores, and in fissured nipples.

HAMAMELIS OINTMENT.

Hamamelis.—The astringent and sedative virtues of witch-hazel are exemplified in its local action upon congested or inflamed tissues. It has the power, also, of restraining excessive secretion. For this reason an ointment containing it sometimes yields good results in seborrhœa, erysipelas, eczema, herpes, and rosacea. Witch-hazel ointment is likewise an excellent remedy in the treatment of varicose ulcers. It may be made from the extract in the proportion of 15 to 20 grains or more to the ounce of ointment.

Formulary.

Take of Beta-naphthol,	. . . . .	10 grains.
Hamamelis ointment,	. . . . .	1 ounce.

Mix. Employ in purpura, chronic ulcers, and in the second and third stages of rosacea.

Take of Oxide of zinc ointment,	½ ounce.
Carbonate of zinc,	1 drachm.
Powdered starch,	1 “
Hamamelis ointment,	1 ounce.

Mix. For erysipelas, the first stage of rosacea, herpes, and sub-acute eczema.

CHAULMOOGRA OINTMENT.

Chaulmoogra Oil.—This is a fixed oil obtained by expression from the seeds of *Gynocardia odorata*, an East Indian plant. The oil is of a whitish or yellowish-brown color, of an acid reaction, solid at ordinary temperatures, and melts at 107.6° F. It is soluble in alcohol, ether, chloroform, bisulphide of carbon, and benzine. Its activity depends upon the presence of a fatty acid termed gynocardic acid.

Chaulmoogra oil has been used with some success in the treatment of leprosy. It has not shown itself able to cure the disorder, but it has in some cases delayed the progress and mitigated the symptoms. Its internal administration is conjoined. An ointment is made by mixing from 20 to 30 grains of the oil with lard, suet, lanolin, or other appropriate fatty vehicle. It is serviceable in eczema, particularly in the very chronic, obstinate variety. Other rebellious cutaneous affections may derive benefit from the use of this ointment. It has been employed advantageously in psoriasis and lupus. Chaulmoogra ointment has been thought also by some observers to exercise a modifying effect upon chronic constitutional disorders, such as rheumatism, scrofulosis, and even tuberculosis. The ointment has been applied with asserted good results to scrofulous enlargements, to chronic rheumatic arthritis, in pulmonary tuberculosis, and tabes mesenterica.

Gynocardic acid has also been made into an ointment, 20 grains to the ounce, and substituted for the oil in the same cases.

Formulary.

Take of Citrine ointment, $\frac{1}{2}$ ounce.

Chaulmoogra ointment, $\frac{1}{2}$ "

Mix. For obstinate chronic eczema, scrofuloderma, lupus, leprosy, and tuberculosis of the skin.

Take of Oil of cade, $\frac{1}{2}$ drachm.

Ammoniated mercury, 10 grains.

Chaulmoogra ointment, 1 ounce.

Mix. Use in chronic eczema, psoriasis, lichen, and scleroderma.

Take of Cod-liver oil, 2 ounces.

Witch-hazel ointment, $\frac{1}{2}$ ounce.

Chaulmoogra ointment, 1 "

Mix. Useful in alopecia, seborrhœa, and scrofuloderma.

STYRAX OINTMENT.

Styrax.—This semi-liquid balsam is deservedly held in repute in the treatment of scabies. It possesses two advantages over many of the agents employed in this disease, having a pleasant odor and being devoid of irritating properties. Its consistence renders it easily miscible with olive-oil or lard.

Formulary.

Take of Sublimed sulphur, $\frac{1}{2}$ drachm.

Styrax ointment, $\frac{1}{2}$ ounce.

Mix. For scabies and pediculi.

Take of Calomel, 10 grains.

Creasote, 5 drops.

Styrax ointment, 1 ounce.

Mix. For scabies and pediculi.

CEVADILLA OINTMENT.

Cevadilla.—An ointment made from cevadilla-seeds is sometimes used in the treatment of pediculosis capitis. While it is an efficient remedy, it possesses no advantage over the official unguentum veratrinae, since its virtues depend upon the presence of that alkaloid.

RESORCIN OINTMENT.

Resorcin.—This compound was first obtained in 1864 by fusing galbanum resin with potash, and it has since

been obtained from other gum-resins. It is a diatomic phenol, isomeric with pyrocatechin and hydroquinone, is crystallizable, melts at 219.2° F., distills at 512.6° F., is soluble in water, alcohol, and ether, and insoluble in chloroform and bisulphide of carbon.

Resorcin is an exceedingly valuable addition to the list of drugs which act topically. It arrests or prevents the processes of fermentation and putrefaction, and is deodorant and antiseptic. It consequently fulfills a host of indications. An ointment containing from 1 to 2 drachms to an ounce of lard is a very good dressing to foul ulcers and sloughing wounds. It removes fœtor, checks the suppurative action, and promotes cicatrization. Resorcin ointment has been found useful in the treatment of open chancres or buboes, the later secondary exanthems, and ulcerated gummy tumors. Chancroids, especially of the serpiginous or phagedenic variety, are found very amenable to resorcin ointment. On account of its germicidal properties it has been employed in certain infectious or mycotic diseases. Andeer, who has devoted much study to the drug, extols it as a local application in diphtheria. He uses resorcin either by dusting the crystals upon the affected surface or in the form of a concentrated vaseline ointment. The same authority recommends an ointment of resorcin as an efficient application in affections of the vagina and neck of the womb. It is an efficient topical remedy in erysipelas and anthrax, and serves a good purpose in, at least, removing the offensive odor of open cancer. Venereal warts may be cured by the daily use of an ointment containing from 50 to 80 per cent. of resorcin. It stimulates the absorption of inflammatory exudates, and hence is effective in chronic eczema. Resorcin ointment is an excellent remedy in all the varieties of tinea, and has

been successfully employed in the treatment of alopecia circumscripta. It is said to be beneficial in lupus erythematosus.

Resorcin is but slightly irritant, and hence may often be used when many agents of the antiseptic class are contra-indicated. It possesses also the advantage of being free from odor.

The white, chemically-pure drug only should be used, as those samples which have a yellowish or brownish hue are impure and valueless. It should be observed that an ointment containing resorcin will sometimes turn blue when applied to the skin. This change of color is due to contact with free ammonia or carbonate of ammonium.

Formulary.

Take of Carbonate of lead, 1 drachm.

Resorcin ointment, 1 ounce.

Mix. For erysipelas, ulcers (especially of the venereal character), venereal warts, boils, and carbuncles.

Take of Creasote, 10 drops.

Lanolin, $\frac{1}{2}$ ounce.

Resorcin ointment, $\frac{1}{2}$ "

Mix. Useful in chromophytosis, tinea capitis, barbæ, and corporis; also in chronic eczema.

ERGOT OINTMENT.

Ergot.—Ergot has an important range of applicability in diseases of the skin. The local effects of this substance are stimulant and astringent. The drug may be used in the form of powder, the watery extract known as ergotin, or the oil of ergot. The action of ergotin is substantially the same as that of powdered ergot. The oil is decidedly irritant, and is used to stimulate the nervous, vascular, or absorbent system of the part to which it is applied. The powder or the extract is very serviceable in promoting the cure of ulcers, and may very appropriately be combined with the chlorate of

potassium. An ointment of ergotin, made by incorporating it with a fatty basis in the proportion of 1 part of the former to 8 or 10 of the latter, is not infrequently attended by good results in rosacea.

The oil of ergot is exceedingly useful in a certain class of cases. It may be employed either in full strength or diluted with lard, suet, lanolin, oxide of zinc, simple ointment, or, in fact, any suitable fatty vehicle. It is exceedingly valuable in the management of alopecia. It softens and smooths the hair and promotes the nutrition of the hair-bulb. Its effects are equally beneficial in seborrhœa sicca. It clears the surface of the scalp of the vitiated sebum mixed with epithelial *débris*, and at the same time invigorates the local circulation and glandular action. A very good oleaginous application is made by adding 1 part of oil of ergot to 4 parts of olive-oil. The nutrition of the affected tissue is promoted in ichthyosis by the oil of ergot.

Formulary.

Take of Powdered chlorate of potassium, . . .	½ drachm.
Sulphate of morphine,	4 grains.
Sulphate of atropine,	2 “
Ergot ointment,	1 ounce.

Mix. For ulcerating epithelioma and chronic ulcers.

Take of Borax,	1 drachm.
Cod-liver oil,	1 ounce.
Ergot ointment,	1 “

Mix. Useful in alopecia, seborrhœa, and in sycosis.

ERYTHROXYLON OR COCAINE OINTMENT.

Erythroxyton.—This is an admirable medicament, more especially in affections characterized by severe pain or distressing itching. Its activity, as is well known, depends upon the presence of the alkaloid, cocaine; but it contains, in addition, a certain proportion of tannic acid, besides resin, volatile oil, etc. An oint-

ment may be made from erythroxyton by incorporating its extract in lard in the proportion of from $\frac{1}{2}$ drachm to 2 drachms to the ounce. It acts as a sedative astringent to irritated or inflamed surfaces, and constitutes, therefore, a proper dressing in dermatitis and acute eczema. This preparation is likewise of service in dermatalgia, herpes, and paræsthesia.

The virtues of erythroxyton being dependent mainly upon the alkaloid, cocaine, the latter—or rather its salt, the hydrochlorate of cocaine—should be preferred. The predominant property of cocaine is that of producing local anæsthesia. Cocaine likewise exerts a powerful influence upon the blood-vessels of the part to which it is applied, constricting their calibre and reducing the circulation. It may be doubted, therefore, whether its influence is primarily upon the end-organs and terminal fibres of sensory nerves, or whether these are affected secondarily in consequence of the restricted circulation. However this may be, and it is probable that the sensory nerves are primarily and definitely affected, the analgesic power of cocaine is undoubted. Cocaine allays, also, those perversions of sensibility so common in cutaneous affections, viz., burning and itching.

It therefore plays an important rôle as a topical application in superficial inflammations, reducing the blood-supply which maintains and the pain which results from the disease. The maladies enumerated as benefited by erythroxyton are amenable, perhaps in a superior degree, to unguents containing cocaine. The intolerable burning, tingling, and itching of urticaria are palliated by the same preparation. It is efficacious in the relief of the pain produced by burns. As an application to burns, cocaine hydrochlorate is preferably mixed with lanolin, since that substance itself possesses undoubted

virtue in the treatment of this accident. Cocaine ointment may, with very good results, be applied to the surface of irritable and painful ulcers. It mitigates the pain of epithelioma, particularly after ulceration has taken place, as its effect is greater than upon the unbroken skin. This same ointment is successfully employed in the treatment of painful hæmorrhoids. It may be used to heal excoriations which result from acrid discharges, and the fissures which are apt to occur in chronic eczema.

The ointment of hydrochlorate of cocaine may be made of a strength from 4 to 8 or 10 grains to the ounce.

Erythroxyton ointment, on account of its astringent and slightly stimulant action, is sometimes an efficient application in acne and rosacea.

Formulary.

Take of Carbonate of lead,	1 drachm.
Sulphate of morphine,	2 grains.
Sulphate of atropine,	1 grain.
Powdered arrow-root,	1 drachm.
Erythroxyton or cocaine ointment,	1 ounce.

Mix. Serviceable in epithelioma, and in all painful ulcers, burns, and paræsthesiæ.

Take of Bicarbonate of sodium,	1 drachm.
Powdered starch,	1 “
Creasote,	5 drops.
Erythroxyton or cocaine ointment,	1 ounce.

Mix. For burns, urticaria, erythema, herpes zoster, and chronic eczema.

HYDRASTINE OINTMENT.

Hydrochlorate of Hydrastine.—This salt is slightly stimulant and antiseptic. From 5 to 30 grains rubbed up with an ounce of lard, or other unguent, forms a salve which is useful in allaying the odor produced by foul, unhealthy, or sloughing ulcers, chronic leg-ulcers, or ulcerated carcinoma. It stimulates scrofulous and varicose ulcers to repair. It promotes the cure of

cracked nipples, and is a good application to chancreoids. Chronic eczema often receives benefit from the use of this preparation. It checks the excessive discharge in hyperidrosis, and is serviceable in acne and seborrhœa. The compound under consideration, indeed, exerts a distinctive, individual action upon the perspiratory and sebaceous glandulæ.

Formulary.

Take of Ergotin, $\frac{1}{2}$ drachm.
 Carbonate of magnesium, 1 "
 Hydrastine ointment, 1 ounce.

Mix. For hyperidrosis, acne, and seborrhœa.

Take of Borax, $\frac{1}{2}$ drachm.
 Hydrastine ointment, 1 ounce.

Mix. Use in chronic ulcers, cracked nipples, and chancreoids.

CADE OINTMENT.

Oil of cade—*Oleum cadini*—is a tarry liquid obtained by distillation from juniper-wood. It is readily made into an ointment with any suitable fatty material in the strength of 1 drachm or more to the ounce. It is well adapted to the treatment of the chronic form of eczema. In the proportion of 4 drachms to the ounce it is a serviceable application in psoriasis. In lichen, also, its employment has been attended with good results. In the chronic stage of sycosis it is found beneficial. The oil of cade possesses germicidal properties, in virtue of which its ointment is employed in tinea circinata, and is often combined with sulphur in the treatment of scabies. It is used, either alone or combined, in cases of prurigo.

Formulary.

Take of Sublimed sulphur, 1 drachm.
 Cade ointment, 1 ounce.

Mix. Use in scabies, psoriasis, and chronic eczema.

Take of Citrine ointment, $\frac{1}{2}$ ounce.
 Camphor, 10 grains.
 Cade ointment, $\frac{1}{2}$ ounce.

Mix. Employ in sycosis, lichen, and tinea circinata.

PYROGALLIC ACID OINTMENT.

Pyrogallic Acid.—This substance is a triatomic phenol, and is obtained in the decomposition of gallic acid by heat. It occurs in the form of white scales, is odorless, bitter to the taste, very slightly soluble in water, but freely soluble in alcohol and ether. It fuses at 239° F. and sublimes at 410° F. It is a powerful escharotic, and an ointment should not usually be made to contain more than 10 per cent. Pyrogallic acid ointment should never be spread over extensive areas of surface, and its effect should be carefully watched. Otherwise, it is apt to produce sloughing of tissue, and may even cause grave constitutional symptoms from absorption. In the strength already indicated, pyrogallic ointment forms an excellent application to previously-denuded patches of psoriasis. It gives rise to a brownish stain upon any surface with which it comes in contact. An ointment containing 1 or 2 drachms of pyrogallic acid to the ounce is an excellent application in lupus vulgaris. In about three days' use a black eschar forms. The raw surface is then dressed with any soothing ointment, and in time a smooth scar is the result. The same method is applicable in epithelioma, and is sometimes successful in removing all the diseased tissue. A much weaker ointment—15 grains to the ounce—is destructive to the trichophyton fungus.

Formulary.

Take of Hydrochlorate of cocaine,	. . . . .	4 grains.
Sulphate of morphine,	. . . . .	2 “
Pyrogallic acid ointment,	. . . . .	½ ounce.

Mix. Use in circumscribed chronic eczema and psoriasis, and in limited spots of lupus vulgaris.

Take of Creasote,	. . . . .	5 drops.
Powdered starch,	. . . . .	1 drachm.
Pyrogallic acid ointment,	. . . . .	½ ounce.

Mix. For epithelioma, small ulcers, limited spots of rosacea, and ringworm.

NAPHTHALIN OINTMENT.

Naphthalin.—This is a derivative of coal-tar obtained by distillation, passing over after the coal-naphtha. It is a white, shining, crystalline substance, soluble in alcohol, ether, and chloroform, but insoluble in water. It is an efficient antiseptic and usefully employed, made into an ointment, in many cutaneous diseases and lesions. Spread upon the surface of indolent ulcers it stimulates cicatrization. Naphthalin ointment may be used as a detergent upon ulcerated carcinomata, and is a good application to chancres, chancreoids, and syphilitic ulcers. It serves a good purpose in the treatment of sloughing wounds, and is well adapted for use in chronic eczema and psoriasis. The ulcers of leprosy are occasionally benefited by a strong ointment of naphthalin.

Naphthalin being non-irritant, may be combined with a fatty basis in the proportion of $\frac{1}{2}$ drachm to the ounce and upward, according to the indications of the case. It is not harmful if absorbed.

Formulary.

Take of Subiodide of bismuth,	10 grains.
Carbonate of zinc,	1 drachm.
Naphthalin ointment,	1 ounce.

Mix. For chancres, chancreoids, and syphilitic ulcers.

Take of Calomel,	10 grains.
Oxide of zinc ointment,	$\frac{1}{2}$ ounce.
Naphthalin ointment,	$\frac{1}{2}$ "

Mix. Use in indolent ulcers, leprosy, and chronic eczema.

NAPHTHOL OINTMENT.

Beta-naphthol is derived from naphthalin. "The usual method of manufacture is as follows: Naphthalin and sulphuric acid are heated together for several hours, the mixture poured into a large quantity of hot water, the excess of the naphthalin filtered off, and the solution saturated with lead carbonate. On evaporation the beta-

salt crystallizes out first, the alpha-salt last. The former is soluble in boiling alcohol, the latter is not ; hence they are easily separated. From these lead-naphthalin sulphonates the respective acids are prepared, and from the acids fused with an alkali two naphthols are made,—the alpha and beta,—and these are the only possible, naphthols.”* It occurs as colorless scales, or as a white crystalline powder, melts at 253.4° F., is soluble in 75 parts of boiling water, is readily soluble in alcohol, ether, and chloroform.

Naphthol is one of the most valuable additions to our list of resources. Its range of application is very wide. It is detergent, deodorant, and antiseptic, is comparatively unirritant, and, according to Professor Bouchardat’s investigations, absolutely safe, as it would require nearly $\frac{1}{2}$ pound of it, taken internally, to produce fatal results in a healthy person weighing 150 pounds. Naphthol has five times the antiseptic power of carbolic acid, four times that of creasote, three times that of iodoform, four times that of naphthalin.

Naphthol is a local anæsthetic and antipruritic. These, combined with its germicidal properties, render it of therapeutic value in parasitic, infectious, and inflammatory diseases of the integument. In the strength of $\frac{1}{2}$ drachm to the ounce of lard it is destructive to the pediculi and their ova, whether they infest the trunk, the scalp, or the pubis. Naphthol ointment is curative in the various forms of tinea dependent upon the development of the trichophyton fungus. It is no less efficient in scabies. An ointment may be made of any desired strength, and thus suited to the various circumstances of the age or sex of

* Mr. Louis Genois, *Medical Times*, June 15, 1888 ; *Medical Bulletin*, June, 1889. See paper by author, “Further Observations on Beta-Naphthol,” *Therapeutic Gazette*, October, 1889.

the patient, the delicacy of the skin, the variety and extent of the secondary lesions. It proves, in fact, at once destructive to the parasite and soothing to the inflammation produced by scratching. Twenty grains of naphthol to the ounce of ointment afford great relief in paræsthesia or pruritus wherever manifested. It is, likewise, an excellent local remedy in urticaria. Pemphigus is accompanied by an itching which is frequently intense, and in which naphthol ointment is found one of the most successful applications. The itching of prurigo is relieved by the same treatment. Naphthol ointment serves a double purpose in chronic eczema, relieving the itching caused by the disease and stimulating the absorbent vessels to remove the exudation. This agent is particularly indicated when the skin is rough and infiltrated. In the proportion of 1 or 2 drachms to the ounce of ointment, naphthol is one of our most reliable medicaments in psoriasis. It is devoid of the strong odor of tar, and does not communicate a stain to everything with which it comes in contact.

Naphthol exerts a corrective influence upon the secretory functions of the skin. It diminishes the excessive flow in hyperidrosis, while the offensive odor of bromidrosis is destroyed by the same means. An unguent containing 10 grains of naphthol to the ounce is a good stimulant application in acne. It is of advantage, also, in sycosis, either alone or added to some more stimulant preparation. One drachm of naphthol to the ounce of lard is an effective remedy in falling of the hair and in alopecia circumscripta. In lupus erythematosus success has followed the use of an ointment containing from 10 to 50 grains of naphthol to the ounce. The same preparation has been of advantage in lupus vulgaris.

Formulary.

Take of Boric acid, 1 drachm.

Naphthol ointment, 1 ounce.

Mix. For hyperidrosis, bromidrosis, and in vegetable and animal parasitic diseases of the skin.

Take of Oil of eucalyptus, 10 drops.

Calomel, 10 grains.

Naphthol ointment, 1 ounce.

Mix. Beneficial in acne, rosacea, sycosis, and lupus erythematosus.

Take of Citrine ointment, $\frac{1}{2}$ ounce.

Oil of chamomile, 5 drops.

Naphthol ointment, $\frac{1}{2}$ ounce.

Mix. Use in alopecia, prurigo, urticaria, and chronic eczema.

Take of Ergotin, 1 drachm.

Venice turpentine, 1 scruple.

Naphthol ointment, 1 ounce.

Mix. For alopecia, acne, rosacea, and sycosis.

Take of Iodide of sulphur, $\frac{1}{2}$ drachm.

Naphthol ointment, 1 ounce.

Mix. For hyperidrosis, bromidrosis, chronic eczema, and psoriasis.

THYMOL OINTMENT.

Thymol.—Thymol, as defined by the British Pharmacopœia, is “a stearopten obtained from the volatile oil of *Thymus vulgaris*, Linn.; *Monarda punctata*, Linn.; and *Carum ajowan*, Benth. and Hook., by saponifying with caustic soda and treating the separated soap with hydrochloric acid, or from a distilled fraction of the oil by exposure at a low temperature. It may be purified by re-crystallization from alcohol.” It forms “large crystals of the hexagonal system, having an aromatic, thyme-like odor, a pungent, aromatic taste, and a neutral reaction. Soluble in about 1200 parts of water and 1 of alcohol, at 15° C. (59° F.); in 900 parts of boiling water; freely soluble in boiling alcohol; also in ether, chloroform,” etc.* Its chemical composition

* United States Pharmacopœia.

is analogous to that of carbolic, salicylic, benzoic acids, and creasote, and, like those substances, thymol possesses distinct antiseptic powers. It unites with alkalis to form soluble salts. It is a mild caustic. It impairs the function of the end-organs of sensory nerves.

It acts beneficially upon the diseased patches in psoriasis, and is a more elegant remedy than the tar or sulphur preparations, on account of its agreeable odor and absence of color. Twenty grains of thymol to the ounce constitutes an effective ointment in tinea circinata. The stimulant effect of a weaker combination is of service in comedo, acne, and alopecia circumscripta.

Formulary.

Take of Oxide of zinc ointment, $\frac{1}{2}$ ounce.
 Oil of rose, 2 drops.
 Thymol ointment, $\frac{1}{2}$ ounce

Mix. For acne, rosacea, and hyperidrosis.

Take of Sublimed sulphur, $\frac{1}{2}$ drachm.
 Thymol ointment, 1 ounce.

Mix. Use in tinea circinata, alopecia, and sycosis.

ICHTHYOL OINTMENT.

Ichthyol.—This complex body is derived from the dry distillation of a bitumen found in the Tyrol, and which contains fossil fish. The distillate is treated with sulphuric acid, and then neutralized with either sodium or ammonium carbonate. According to the alkali made use of, the resulting substance is designated as the ichthyol-sulphonate of sodium or of ammonium. It is the former compound which I have employed. This is a semi-liquid substance, resembling tar in appearance, having a gas-like odor, of an alkaline reaction, and perfectly soluble in water. It contains from 10 to 15 per cent. of sulphur, readily mixes with fatty substances, and is used from a 5- to a 30-per-cent., or even 50-per-cent., ointment. It seems to combine the therapeutic

virtues of tar and sulphur. Ichthyol ointment is moderately irritant to the healthy integument, but in the chronic diseases of the skin, in which it is generally used, it is usually devoid of irritant qualities. It is possessed of peculiar penetrative powers.

An ointment containing ichthyol is a suitable application in those cases of acne which require stimulation. It is a good dressing to frost-bitten and burnt surfaces and to many varieties of ulcers. Chancroid, ulcerated bubo or lymphatic gland, as well as the ulcers of the leg so common in old and broken-down people, are amenable to the influence of this drug. The ulcerations of lupus vulgaris will often cicatrize under its employment. Good results have been reported from its use in lepra. Chronic eczema will usually amend, in consequence of the improved condition of the vascular and absorbent systems induced by ichthyol. It diminishes the tingling and smarting of urticaria. In chronic urticaria Unna conjoins the internal with the external use of ichthyol. A weak preparation is curative in erythema intertrigo. A 35- or 50-per-cent. ointment of ichthyol is one of the measures upon which we may place reliance in the management of psoriasis. The same treatment has sometimes been attended with success in some of the most chronic forms of cutaneous disease. Lichen ruber and lichen planus are ameliorated, and rosacea frequently manifests great improvement by the use of ichthyol ointment. The prognosis of keloid, either as regards absorption of the new growth or its recurrence after operation, is very unfavorable, yet it does sometimes happen that absorption seems to be promoted by the remedial agents employed, among which may be ranked ichthyol ointment. The congenital hypertrophy of the skin denominated ichthyosis is in its nature incurable.

Nevertheless, it is of advantage to soften, as far as possible, the diseased tissue and to remove the epithelium which accumulates in masses upon the surface. After a preliminary hot-water, hot-air, or vapor bath, inunction with ichthyol exerts an emollient effect.

An ichthyol ointment has been found of service in acute inflammatory rheumatism. Dr. Lorenz, a German military surgeon, has derived marked benefit from ichthyol in the treatment of wounds, contusions, and deep loss of tissue. He has used it both in solution and in ointment form. After the parts have been cleansed with soap and water and dried, the ointment is rubbed in and soon disappears. The part is then covered with a layer of cotton and a roller bandage applied. He found that pain and swelling rapidly subsided after a few inunctions. Acute coryza and inflammation of all kinds, involving the mucous membrane and the skin of the nose, are greatly relieved by an ointment containing from 1 to 10 per cent. of ichthyol. It is esteemed by Nussbaum as of great utility as a local application in erysipelas. Dr. Joseph Schmidt, of Berlin, has related the particulars of a case in which a fatty tumor was removed by the external use of ichthyol. A healthy medical student, 25 years of age, had been afflicted for eight years with a lipoma of the neck, situated directly over the carotid artery. A 50-per-cent. solution was rubbed in for ten successive days. On the fourth and fifth days it was evident that the growth had begun to diminish in size. On the ninth day it was greatly reduced, and a focus of suppuration made its appearance. The pus was evacuated, and the sides of the cavity drawn together by ichthyol plaster. By the twelfth day the wound had healed and no sign of a tumor remained.

Formulary.

Take of Ammoniated mercury, 10 grains.
 Camphor, 10 "
 Ichthyol ointment, 1 ounce.

Mix. For chronic eczema, psoriasis, lichen, keloid, scars, and lupus vulgaris.

Take of Subnitrate of bismuth, 1 drachm.
 Ichthyol ointment, 1 ounce.

Mix. Useful in chancre, chancroids, and old ulcers.

Take of Prepared calamine, 1 drachm.
 Iodol, 1 scruple.
 Ichthyol ointment, 1 ounce.

Mix. For indurated acne, second and third stages of rosacea, and in chronic sycosis.

IODOL OINTMENT.

Iodol, or, in chemical nomenclature, tetraiodopyrol, is a yellowish-brown, crystalline substance, soluble in alcohol, almost insoluble in water; soluble in chloroform and fatty oils and in 3 parts of absolute ether. It is destitute of odor or taste. It is prepared from Dippel's animal oil. This is first purified and then treated with a solution of iodine in iodide of potassium. The tetraiodide, or iodol, is precipitated, is purified by redissolving it in hot alcohol and again precipitating it by the addition of water. Nearly 80 per cent. of iodine enters into the composition of this substance.

Iodol possesses considerable antiseptic power and has been used as a substitute for iodoform, over which it has the advantage of freedom from disagreeable odor. Iodol is much less apt to produce constitutional symptoms than iodoform on account of being a less active poison and also being much less rapidly absorbed. It may be compounded with any desired unguent in the proportion of 10 grains and upward to the ounce. Iodol ointment promotes the healing of ulcers (common or syphilitic), lupus, and ulcerated impetigo. It has

been thought by some to have antisyphilitic virtue, and has been administered internally, as well as applied directly to the lesions produced by the disease. Whatever efficiency iodol manifests depends upon the iodine present. It is a serviceable application to chancroid, chancre, and to the ulcers of every stage of syphilis. Half a drachm of iodol to the ounce of lard, lanolin, oxide of zinc ointment, or other bland fatty material, is an excellent dressing in scrofuloderma. Its prompt employment tends to limit the extent of unsightly cicatrices produced by this affection. Being destructive to the pathogenic germs of inflammation, iodol is a useful medicament in furuncle or carbuncle. It may be applied alone or in combination with another drug or drugs having the same action. If acute inflammation results in the formation of an ulcer, the work of repair is assisted by spreading an ointment of iodol upon the raw surface. A weak ointment of this drug is a beneficial external application in variola, mitigating the severity of the eruption. Its germicidal power is sufficient to render it one of the substances to be used in the treatment of tinea tonsurans. We may also resort to iodol in psoriasis in order to relieve and modify the course of the disease.

Formulary.

Take of Extract of cinchona, 1 drachm.

Oxide of zinc ointment, $\frac{1}{2}$ ounce.

Iodol ointment, $\frac{1}{2}$ "

Mix. For syphilitic and scrofulous ulcers, lupus, chancre, and chaneroids.

Take of Resin ointment, $\frac{1}{2}$ ounce.

Iodol ointment, $\frac{1}{2}$ "

Mix. Valuable in boils, carbuncles, ulcers, and enlarged glands.

Take of Powdered chlorate of potassium, . . $\frac{1}{2}$ drachm.

Iodol ointment, $\frac{1}{2}$ ounce.

Mix. Useful in epithelioma, lupus, impetigo, and chronic ulcers.

In addition to those unofficial substances of vegetable origin and those obtained in the distillation of coal-tar, a number of metallic salts are frequently used in ointment form. The principal extemporaneous preparations are those of bismuth, lead, mercury, and zinc. Occasionally alum is incorporated in an ointment.

SUBNITRATE OF BISMUTH OINTMENT.

Bismuth subnitrate is probably more frequently employed as an ointment than any other metallic combination not prescribed by the Pharmacopœia. It is, in fact, an admirable local remedy, being a mild astringent, a sedative, and an antiseptic. This combination of qualities renders it specially adapted to the relief of a congestive, irritative, or inflamed condition of the superficial parts

Being an innocuous substance, the subnitrate of bismuth may be made into an ointment in the strength of a drachm or more to the ounce, the only limit being the pharmaceutical problem of how much bulky powder may be incorporated into a fatty material with the preservation of an unctuous consistence. Bismuth ointment is all the local treatment demanded in erythema simplex. It is almost equally efficient in erythema intertrigo, in the first stage of dermatitis, as well as in the erythematous and bullous varieties of burns. It is a pleasant emollient to place upon a blistered, abraded, or excoriated surface. Ulcers usually require more powerful remedies, but in the condition known as irritable ulcer bismuth ointment serves a good purpose in moderating the excessive sensibility of the terminal nerve-fibrils. Bismuth ointment is soothing to the raw surface left after rupture of the bullæ of pemphigus. It is a favorite and excellent application in erysipelas, especially the so-called facial erysipelas. Chancroids,

if the inflammatory action be not extreme, heal well under the use of this preparation. It is often serviceable in herpes, and is of particular value in acute eczema. This variety of the affection is, as a rule, aggravated by any but the most gentle remedies. The bismuth ointment, a drachm to the ounce, usually commends itself in this disease. It is of benefit, likewise, in infantile eczema in which harsh measures are contra-indicated. Eczema differs extremely in different individuals, under different surroundings, and even in different portions of the body. It is modified in its manifestation or course according to these various circumstances. The disease, as it appears upon the face, neck, scalp, or ears, is more particularly susceptible to the influence of this unguent.

Formulary.

- | | |
|---|-----------|
| Take of Creasote, | 6 drops. |
| Powdered arrow-root, | 1 drachm. |
| Subnitrate of bismuth ointment, | 1 ounce. |
- Mix. For acute eczema, erythema, burns, irritable ulcers, erysipelas, and chancreoids.
- | | |
|---|----------------------|
| Take of Oxide of zinc ointment, | $\frac{1}{2}$ ounce. |
| Beta-naphthol, | 5 grains. |
| Subnitrate of bismuth ointment, | $\frac{1}{2}$ ounce. |
- Mix. Serviceable in infantile eczema, dermatitis, and burns.

SUBIODIDE OF BISMUTH OINTMENT.

The subiodide of bismuth was brought into notice by Dr. A. S. Reynolds. Subsequently Dr. Chassaignac reported very favorably of its action in the *New Orleans Medical and Surgical Journal* for August, 1877. The costliness of subiodide of bismuth at first prevented it from coming into extensive use, but that objection has since disappeared. It is a brick-red powder, almost odorless and tasteless; insoluble in water, alcohol, ether, or chloroform. It is non-irritant, and, in fact, appears to be a local anæsthetic antiseptic, and will not stain

the skin or apparel. When dusted upon the skin, subiodide of bismuth produces a thin film. It may be used in powder form or incorporated into an ointment. Subiodide of bismuth checks inflammation and suppuration, promotes cicatrization, disinfects unhealthy secretions, and discharges and promptly removes their offensive odor. It consequently proves an admirable dressing to simple or syphilitic ulcers, open buboes, unhealthy wounds, phlegmonous erysipelas, chancres, chancroids, etc.

Formulary.

Take of Chrysarobin, $\frac{1}{2}$ drachm.

Subiodide of bismuth ointment, . . . $\frac{1}{2}$ ounce.

Mix. For chancre, rosacea, and chronic acne.

Take of Beta-naphthol, 5 grains.

Subiodide of bismuth ointment, . . . $\frac{1}{2}$ ounce.

Mix. Useful in syphilitic ulcers, open buboes, and chancroids.

NITRATE OF LEAD OINTMENT.

Nitrate of lead possesses the sedative and astringent properties common to the plumbic combinations generally. Its indications, therefore, are similar to those of the official carbonate of lead ointment. An extemporaneous ointment may be prepared by adding from 5 to 10 grains of the nitrate to an ounce of lard, or other fat, and mixing thoroughly. Erythema, dermatitis, burns, blisters, and excoriations are benefited by the use of this ointment. It promotes the healing process in ulcers, though its effects need to be closely watched, if applied to a large, open surface, for fear of lead poison supervening upon absorption. Nitrate of lead ointment often affords relief to pruritus ani or pudendi, provided this be not dependent upon organic affections of the rectum or urethra. It is an efficient application to fissured nipples and palliates the pain caused by fissure of the anus.

Formulary.

- Take of Extract of conium, $\frac{1}{2}$ drachm
 Carbonate of zinc, 1 "
 Camphor, 5 grains.
 Nitrate of lead ointment, $\frac{1}{2}$ ounce.
 Mix. For pruritus ani and pudendi, fissured nipples, and ulcers.
- Take of Borax, 1 drachm.
 Powdered starch, 1 "
 Oxide of zinc ointment, $\frac{1}{2}$ ounce.
 Nitrate of lead ointment, $\frac{1}{2}$ "
 Mix. For dermatitis, erythema, burns, and excoriations.

ALUM OINTMENT.

Alum.—This cauterant and decidedly astringent substance is sometimes used in ointment form in from 5 to 60 grains to the ounce of fatty vehicle. Alum ointment not infrequently affords relief in herpes. In purpura its local astringent action is sometimes found beneficial, while in bromidrosis it is successful in overcoming the offensive odor characteristic of the affection.

Formulary.

- Take of Sublimed sulphur, 1 drachm.
 Carbolic acid, 5 grains.
 Alum ointment, 1 ounce.
 Mix. For hyperidrosis, bromidrosis, herpes, and purpura.
- Take of Salol, 1 scruple.
 Oil of chamomile, 8 drops.
 Alum ointment, 1 ounce.
 Mix. Useful in acne, rosacea, and seborrhœa oleosa.

CORROSIVE SUBLIMATE OINTMENT.

The bichloride of mercury or corrosive sublimate is sometimes employed in ointment form, and is highly irritant or even escharotic when undiluted. It is one of the most powerful antiseptic agents we possess. A weak ointment fulfills some valuable purposes. In the proportion of 3 grains to the ounce it is a serviceable parasiticide, and may be used to destroy the trichophyton fungus and the pediculus pubis. It may be

used in conditions of the unbroken skin where a strongly stimulant ointment is calculated to be of benefit. An ointment containing 2 or 3 grains to the ounce will sometimes be found of avail in acne. A preparation in which from 2 to 5 grains of corrosive sublimate is mixed with an ounce of lard is an effective application in freckles. Five grains to the ounce of ointment may be applied with good results to ulcerated lupus vulgaris. The bichloride ointment should not be employed upon extensive ulcerated surfaces on account of the danger of absorption. It may be used upon ulcerated epithelioma. Syphilitic ulcers also improve under its application in the strength of about 2 grains to the ounce.

Formulary.

Take of Beta-naphthol, 10 grains.

Oxide of zinc ointment, $\frac{1}{2}$ ounce.

Corrosive sublimate ointment, $\frac{1}{2}$ "

Mix. Valuable in animal and vegetable parasitic affections, as scabies, pediculi, tinea capitis, tinea barbæ, and tinea circinata.

Take of Carbonate of zinc, 1 drachm.

Creasote, 5 drops.

Iodol, 1 scruple.

Corrosive sublimate ointment, 1 ounce.

Mix. For syphilitic ulcers, lupus vulgaris, and epithelioma.

SULPHATE OF ZINC OINTMENT

The sulphate of zinc is a stimulant and astringent salt not infrequently incorporated into an ointment, in from 2 to 30 grains to the base, and applied to ulcerations either simple or specific. Sulphur of zinc ointment may be applied to chancroids, open chancres, and the various ulcerated lesions of late syphilis. It is also deodorant in bromidrosis.

Formulary.

Take of Subnitrate of bismuth, 1 drachm.

Glycerin, 2 drachms.

Sulphate of zinc ointment, 1 ounce.

Mix. For chancres, chancroids, and syphilitic ulcerations.

Take of Boric acid,	.	.	.	.	.	.	$\frac{1}{2}$ drachm.
Salicylic acid,	.	.	.	.	.	.	$\frac{1}{2}$ "
Lanolin,	.	.	.	.	.	.	$\frac{1}{2}$ ounce.
Sulphate of zinc ointment,	.	.	.	.	.	.	$\frac{1}{2}$ "

Mix. Serviceable in seborrhœa oleosa, and in eczema of the head, hands, and feet.

The modification of strength and the combination of remedies in order to form compound ointments are practically endless. In the application of local remedies as ointments, just as in the administration of solutions, we seek to supplement or to moderate the effect of one agent by that of another. The stage of the disease, the age and sex of the patient, and the susceptibility of the skin are circumstances which suggest various deviations from the official formulæ.

In the formulary of extemporaneous ointments, whether organic or inorganic substances, an average strength is to be understood by the reader. Thus, when in a formula, resorcin, iodol, thymol, ichthyol, alum, corrosive sublimate, or sulphate of zinc ointment is mentioned, though it is true that there is no official strength ordained, yet the quantities applicable in different conditions have in each case been given in the text. The physician, therefore, may frame his prescription in accordance with those directions.

CHAPTER V.

OINTMENTS OFFICIAL IN THE GERMAN PHARMACOPŒIA.*

IN order to furnish a complete summary of approved formulæ for ointments in use throughout the civilized world, I have selected the official directions for this class of preparations from several other *foreign Pharmacopœias*.

The German are twenty in number, as follow :—

BASILICON OINTMENT.

**Unguentum Basilicum. Königssalbe. Ceratum Resinæ, Resin
Cerate, U. S. P.**

Common olive-oil, <i>forty-five parts</i>,	. . . . .	45
Yellow wax, <i>fifteen parts</i>,	. . . . .	15
Resin, <i>fifteen parts</i>,	. . . . .	15
Mutton-suet, <i>fifteen parts</i>,	. . . . .	15
Common turpentine, <i>ten parts</i>,	. . . . .	10

It should have a yellowish-brown color. This preparation corresponds closely to the resin cerate of the United States and the resin ointment of the British Pharmacopœia. It is used to fulfill the same indications.

CANTHARIDAL OINTMENT.

Unguentum Cantharidum. Spanischfliegensalbe.

Cantharides, coarsely powdered, <i>two parts</i>,	. . . . .	2
Olive-oil, <i>eight parts</i>,	. . . . .	8

Digest them for ten hours on a steam-bath, express and filter the oil. Prepare the ointment with—

Filtered oil, <i>seven parts</i>,	. . . . .	7
Yellow wax, <i>three parts</i>,	. . . . .	3

Cantharides ointment should have a yellow color. This ointment is used for the purpose of producing

*Pharmacopœia Germanica, editio altera. German Pharmacopœia, second edition. 1883. Translated by C. L. Lochman.

vesication. It is intermediate in strength between the ceratum cantharides of our own pharmacopœia and the unguentum cantharidis formerly but not now official.

WAX OINTMENT.

Unguentum Cereum. Wachssalbe.

Prepare it from—

Olive-oil, <i>seven parts</i> ,	7
Yellow wax, <i>three parts</i> ,	3

This ointment should have a yellow color. Wax ointment is of a demulcent nature, and is useful likewise as a basis for extemporaneous preparations. It may be employed wherever a bland, soothing application is indicated.

CARBONATE OF LEAD OINTMENT.

Unguentum Cerussæ. Bleiweissalbe. Unguentum Plumbi Carbonatis, U. S. P.

Prepare it from—

Carbonate of lead, <i>three parts</i> ,	3
Paraffin ointment, <i>seven parts</i> ,	7

A very white ointment. This is comparable to our ointment of carbonate of lead, though of thrice the strength. It is applicable to the same class of cases,—burns, scalds, blisters, herpes zoster, pemphigus, acute eczema, dermatitis, erythema simplex, erythema intertrigo, and erysipelas.

CAMPHORATED CARBONATE OF LEAD OINTMENT.

Unguentum Cerussæ Camphoratum. Campherhaltige Bleiweissalbe.

Prepare it from—

Ointment of carbonate of lead, <i>ninety-five parts</i> , . . .	95
Camphor, powdered, <i>five parts</i> ,	5

A white ointment, having the odor of camphor. The presence of a small proportion of camphor communicates decided desiccant and anodyne properties to this preparation. It is, therefore, peculiarly adapted to the

treatment of acute and subacute eczema and paræsthesia. It is applicable as well to the acute inflammatory affections of the skin in which the ointment of the carbonate of lead is useful.

DIACHYLON OINTMENT.

Unguentum Diachylon. Diachylonsalbe.

Lead-plaster, *five parts*, 5

Free it from glycerin by washing with water; then, after allowing the water to evaporate on a water-bath, add—

Olive-oil, *five parts*, 5

and melt them together, at a gentle heat, on a water-bath; then stir the mixture until it is cold. Having allowed the finished ointment to stand for a few hours, stir it again.

Diachylon ointment is nearly white. This approximates very closely the composition of our official diachylon ointment, than which it contains a slightly smaller proportion of lead-plaster. Its indications are identical with those of the unguentum diachylon of the United States Pharmacopœia.

GLYCERIN OINTMENT.

Unguentum Glycerini. Glycerinsalbe.

Tragacanth, powdered, *one part*, 1

Alcohol, *five parts*, 5

Rub them together, add—

Glycerin, *fifty parts*, 50

and heat the mixture on a steam-bath.

A white, translucent ointment of a uniform consistence. Combined and stiffened with tragacanth, a mucilaginous demulcent, glycerin ointment forms,—an elegant and admirable application in erythema, herpes, acute eczema (especially in children), dermatitis, etc.

AMMONIATED MERCURY OINTMENT.**Unguentum Hydrargyri Album. Weisse Quecksilbersalbe.****Unguentum Hydrargyri Ammoniatum, U. S. P.**

Prepare it from—

Ammoniated mercury, <i>one part</i>,	.	.	.	.	.	1
Paraffin ointment, <i>nine parts</i>,	.	.	.	.	.	9

A white ointment. This contains the same proportion of ammoniated mercury as the corresponding preparation of the United States Pharmacopœia, the former being made with paraffin ointment, the latter with benzoinated lard. Their indications, consequently, are identical.

RED OXIDE OF MERCURY OINTMENT.**Unguentum Hydrargyrum Rubrum. Rothe Quecksilbersalbe.****Unguentum Hydrargyri Oxidi Rubri, U. S. P.**

Prepare it from—

Red oxide of mercury, <i>one part</i>,	.	.	.	.	.	1
Paraffin ointment, <i>nine parts</i>,	.	.	.	.	.	9

A red ointment.

The German and American ointments are of the same strength, though prepared by the aid of different vehicles. Their applications, therefore, are the same.

MERCURIAL OINTMENT.**Unguentum Hydrargyri Cinereum. Graue Quecksilbersalbe.****Unguentum Hydrargyri, U. S. P.**

Lard, <i>thirteen parts</i>,	.	.	.	.	.	.	13
Mutton-suet, <i>seven parts</i>,	.	.	.	.	.	.	7

Melt them together at a gentle heat, and, when cold, take 3 parts of the mixture and rub it in an iron capsule with—

Mercury, <i>ten parts</i> ,	10
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Add the mercury in small portions at a time, waiting after each addition until no more globules of mercury are visible to the naked eye. Finally, add the remainder of the fatty mass and mix intimately.

A bluish-gray ointment in which no globules of

mercury can be seen by the naked eye. Three grammes of the ointment, after the removal of the fat by ether, should yield nearly a gramme of mercury. The American contains a larger proportion of mercury (50 per cent.) than the German preparation ($33\frac{1}{3}$ per cent.). They may, however, be used interchangeably.

IODIDE OF POTASSIUM OINTMENT.

Unguentum Kali Iodati. Kaliumjodidsalbe. Unguentum Potassii Iodidi, U. S. P.

Iodide of potassium, <i>twenty parts</i>,	. . . . .	20
Water, <i>ten parts</i>,	. . . . .	10

Dissolve and mix with—

Paraffin ointment, <i>one hundred and seventy parts</i> ,	170
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A white ointment.

The American ointment contains a slightly higher percentage of the salt than the German. The two preparations, however, have precisely the same range of application.

ROSE-WATER OINTMENT.

Unguentum Leniens. Unguentum Aquæ Rosæ, U. S. P.

Prepare it from—

White wax, <i>four parts</i>,	. . . . .	4
Spermaceti, <i>five parts</i>,	. . . . .	5
Expressed oil of almond, <i>thirty-two parts</i>,	. . . . .	32
Water, <i>sixteen parts</i>,	. . . . .	16

To 50 grammes of the ointment add 1 drop of oil of rose. Cold cream is a soft and white ointment.

This is substantially the same preparation as our rose-water ointment, differing slightly in the proportion of the ingredients. It is used for the same purposes as an emollient and a vehicle.

PARAFFIN OINTMENT.

Unguentum Paraffini. Paraffinsalbe. Vaselinum, vaseline.

Prepare it with—

Solid paraffin, <i>one part</i>,	. . . . .	1
Liquid paraffin, <i>four parts</i>,	. . . . .	4

The mixture should be white, translucent, and of the consistence of an ointment, interspersed with small crystals when examined under the microscope, and should melt between 35° and 45° C. (95° and 113° F.).

This substance forms, it is true, an excellent ointment-basis from a purely pharmaceutical point of view. It is open, however, to the objection that it does not permeate the skin. This subject has been discussed with detail in the latter portion of the work.

SUBACETATE OF LEAD OINTMENT.

Unguentum Plumbi. Bleisalbe. Ceratum Plumbi Subacetatis, U. S. P.

Prepare it from—

Lard, <i>ninety-two parts</i>,	. . . . .	92
Solution of subacetate of lead, <i>eight parts</i>,	. . . . .	8

A white ointment.

This preparation is analogous to our ceratum plumbi subacetatis and the unguentum glycerini plumbi subacetatis of the British Pharmacopœia. Like them, it is an excellent dressing to burns, scalds, blisters, herpes, dermatitis, etc.

TANNATE OF LEAD OINTMENT.

Unguentum Plumbi Tannici. Tannin-Bleisalbe.

Tannic acid, <i>one part</i>,	. . . . .	1
Solution of subacetate of lead, <i>two parts</i>,	. . . . .	2

Rub them to a smooth paste; then prepare an ointment by mixing the paste with—

Lard, <i>seventeen parts</i> ,	17
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The ointment has a slight yellowish color. It should be prepared only when ordered.

The combination of tannic acid confers additional astringency upon this preparation. It is a useful application to indolent ulcers, internal hæmorrhoids, sore nipples, bed-sores, chilblains, etc.

COMPOUND ROSEMARY OINTMENT.

Unguentum Rosmarini Compositum. Rosmarinsalbe.

Lard, <i>sixteen parts</i>,	. . . . .	16
Mutton-suet, <i>eight parts</i>,	. . . . .	8
Yellow wax, <i>two parts</i>,	. . . . .	2
Expressed oil of nutmeg, <i>two parts</i>,	. . . . .	2

Mix and add to the finished ointment—

Oil of rosemary, <i>one part</i>,	. . . . .	1
Oil of juniper-berries, <i>one part</i>,	. . . . .	1

The ointment has a yellowish color.

The stimulant properties of the volatile oils, especially that of rosemary, render this preparation a local irritant, and as such it is used for the purpose of relieving the pain of neuralgia, chronic rheumatism, lumbago, etc. It will also promote the healing of ulcers.

SAVINE OINTMENT.

Unguentum Sabinae. Sabinasalbe.

Prepare it from—

Extract of savine, <i>one part</i>,	. . . . .	1
Wax ointment, <i>nine parts</i>,	. . . . .	9

Savine ointment should have a brown color.

A savine cerate is official in the United States Pharmacopœia and a savine ointment in the British Pharmacopœia. Both are of greater strength than the German preparation. The latter, therefore, is considerably less irritant. It may, however, be used with the object of maintaining a blister.

TARTAR EMETIC OINTMENT.

Unguentum Tartari Stibiati. Brechweinsteinsalbe.

Prepare it from—

Tartrate of antimony and potassium, <i>two parts</i>,	. . . . .	2
Paraffin ointment, <i>eight parts</i>,	. . . . .	8

A white ointment.

This is of the same strength as the unguentum antimonii formerly official in the United States Pharma-

copœia, paraffin ointment being used as a base instead of lard. The remarks upon the use of the American apply exactly, therefore, to the German preparation.

TURPENTINE OINTMENT.

Unguentum Terebinthinæ. Terpentinsalbe.

Prepare it from equal parts of common turpentine, yellow wax, and oil of turpentine.

A soft, yellow ointment.

The official British turpentine ointment is prepared from oil of turpentine, resin, and yellow wax. The German ointment may be used to meet the same indications.

OXIDE OF ZINC OINTMENT.

Unguentum Zinci. Zinksalbe. Unguentum Zinci Oxidi, U. S. P.

Prepare it from—

Common oxide of zinc, <i>one part</i>,	.	.	.	.	.	1
Lard, <i>nine parts</i>,	.	.	.	.	.	9

A white ointment.

The uses of this preparation have been described in connection with the oxide of zinc ointment of the United States Pharmacopœia. The American is twice the strength of the German ointment.

CHAPTER VI.

OINTMENTS OFFICIAL IN THE FRENCH PHARMACOPŒIA.*

THE French official ointments are thirteen in number.
They are as follow :—

ALTHEA OINTMENT (SO CALLED)

Onguent dit d'Althæa. Unguentum Althææ.

Oil of fenugreek,	. 800 grammes (25 ounces, 353 grains).†
Yellow wax,	. 200 " (6 " 211 ").
Resin,	. 100 " (3 " 105½ ").
Venice turpentine,	. 100 " (3 " 105½ ").

Melt, at a gentle heat, the wax and the resin in the oil of fenugreek, add the turpentine, strain through a cloth, and stir the ointment until it has become nearly cold.

The oil of fenugreek is derived from the seeds of *Trigonella fœnumgræcum*, Nat. Ord. Papilionaceæ, an annual plant indigenous to the south of Europe and some parts of Asia. It is cultivated in France on account of the seeds, which yield oil and mucilage.

This ointment is used as a mild stimulant to ulcers, blisters, etc.

ARCÆUS OINTMENT.

Onguent d'Arcæus. Unguentum Arcæi. Balsam of Arcæus.
Compound Elemi Ointment.

Mutton-suet,	. 200 grammes (6 ounces, 211 grains).
Venice turpentine,	. 150 " (4 " 398 ").
Elemi,	. 150 " (4 " 398 ").
Lard,	. 100 " (3 " 105½ ").

Melt at a gentle heat the suet, lard, and resin ; then add the turpentine. Strain through a cloth and stir the mixture until it has become nearly cold.

* Codex Medicamentarius, Pharmacopée Française. Paris, 1884.

† The metric weights are translated into troy ounces and parts thereof.

This nearly corresponds to the British unguentum elemi. Each contains the same proportion of elemi, but an equal quantity, by weight, of turpentine is added to the French preparation. This addition will serve to increase somewhat the gentle irritant properties of the elemi. It will form an excellent dressing to burns, ulcers, blisters, chilblains, etc.

BASILICON OINTMENT.

Onguent Basilicum. Unguentum Basilicum.

Black pitch, . . .	100 grammes (3 ounces, 105½ grains).
Resin, . . .	100 “ (3 “ 105½ “).
Yellow wax, . . .	100 “ (3 “ 105½ “).
Olive-oil, . . .	400 “ (12 “ 412 “).

Melt at a gentle heat the pitch and the resin; add the wax and the oil. When melted, strain and stir until the ointment has nearly become cold.

The composition of this ointment is nearly the same as that of the American resin cerate and the British and German resin ointments.

The uses of basilicon are, consequently, those of its corresponding preparations.

RHAZES' WHITE OINTMENT.

Pommade de Carbonate de Plomb. Pomatum cum Carbonato Plumbico.

Carbonate of lead, . . .	10 grammes (154½ grains).
Benzoinated lard, . . .	50 “ (1 ounce, 292 grains).

Mix thoroughly. This ointment should be prepared only as needed.

The French ointment of the carbonate of lead is nearly twice the strength of the American and British corresponding preparations. This ointment contains a less proportion of the plumbic salt than the German unguent. It is adapted to the relief of the same class of affections which need not here be repeated.

CANET'S OINTMENT.

Emplâtre de Canet. Emplastrum cum Oxido Ferrico.

Simple plaster, . . .	100 grammes (3 ounces, 105½ grains).
Gum-diachylon plaster, .	100 " (3 " 105½ ").
Yellow wax, . . .	100 " (3 " 105½ ").
Olive-oil, . . .	100 " (3 " 105½ ").
Colcothar—anhydrous sesquioxide of iron, .	100 " (3 " 105½ ").

Divide the oil into two parts ; into one incorporate the colcothar while pulverizing it ; in the other, melt at a gentle heat the plasters and the wax. Unite the two mixtures, stir until the plaster mass is nearly cold, and divide it into cylinders.

Simple plaster corresponds to the emplastrum plumbi, lead or diachylon plaster, of the United States Pharmacopœia.

Gum-diachylon plaster is official in the French Codex, and is made according to the following formula :—

GUM-DIACHYLON PLASTER.***Emplâtre Diachylon Gommé. Emplastrum Diachylum Gommatum.**

Powdered litharge, . . .	620 grammes (19 ounces, 254½ grains).
Lard, . . .	620 " (19 " 254½ ").
Olive-oil, . . .	620 " (19 " 254½ ").
Water, . . .	250 " (40 " 101 ").
Yellow wax, . . .	120 " (3 " 413 ").
White pitch, . . .	120 " (3 " 413 ").
Venice turpentine, . .	120 " (3 " 413 ").
Ammoniac, . . .	100 " (3 " 105½ ").
Galbanum, . . .	100 " (3 " 105½ ").
Essence of turpentine, .	60 " (1 " 432 ").

Prepare the lead plaster with the litharge, lard, olive-oil, and water, taking care, at the end of the operation, that most of the water is evaporated in order to preserve the glycerin.

*The formula for gum-diachylon plaster is given because it is an ingredient of Canet's ointment, and without it the formula of the latter would be incomprehensible to the American reader.

Place separately in a water-bath with four times their weight of water the powdered ammoniac and galbanum and the essence of turpentine; shake constantly until the gum-resins are emulsified as completely as possible; strain through a cloth. Evaporate this emulsion over a naked flame to the consistence of thick honey. Mix this product with the simple plaster, liquefied at a gentle heat. Melt the mixture, strain through a cloth, and then add the yellow wax, white pitch, and turpentine, stirring until the plaster mass is sufficiently cool. Then divide it into cylinders.

This excellent preparation approximates the composition of the iron or strengthening plaster, *emplastrum ferri*, of the United States Pharmacopœia. The presence of the gum-resins adds to its counter-irritant properties. The iron, together with the large proportion of lead plaster, renders it astringent. Canet's ointment is consequently an excellent application in chronic rheumatism, chronic synovitis, lumbago, enlarged glands, herpes zoster, dermatitis, paræsthesia, etc.

CITRINE OINTMENT.

Onguent Citrin. Pommade Citrine. Pomatum Citrinum.

Lard,	400 grammes (12 ounces, 412 grains).
Olive-oil,	400 " (12 " 412 ").
Mercury,	40 " (1 " 139 ").
Officinal nitric acid, . .	80 " (2 " 278 ").

Dissolve the mercury in the nitric acid without the aid of heat. Melt separately the lard in the oil at a gentle heat. When the fatty substances are half-cooled add the mercurial solution. Mix thoroughly by shaking and pour the pomade into paper molds. This ointment should not be kept exposed to the light.

It is analogous to our official citrine ointment, with which its properties are identical.

SIMPLE DIGESTIVE OINTMENT.

Onguent Digestif Simple. Unguentum Digestivum Simplex.

Venice turpentine, . . .	40 grammes (1 ounce, 139 grains).
Yelk of one egg, . . .	20 " (309 grains).
Olive-oil, . . .	10 " (154½ grains).

Mix the yelk of egg and turpentine in a mortar, and add gradually the olive-oil.

This preparation possesses the stimulant, antiseptic, and hæmostatic properties of the turpentine, of which it is so largely composed. It may be used upon unhealthy, sloughing, or indolent ulcers, in burns, erysipelas, and alopecia circumscripta.

GRAY OINTMENT.

Onguent Gris. Onguent Mercuriel Simple. Pommade Mercurielle Faible. Pomatum Cum Hydrargyro Simplex.

Equal-parts mercurial ointment, . . .	100 grammes (3 ounces, 105½ grains).
Benzoinated lard, . . .	300 " (9 " 316 ").

Mix in a mortar.

This is a diluted form of our mercurial or blue ointment, and may be employed whenever the latter, for any reason is considered too strong an application.

EQUAL-PARTS MERCURIAL OINTMENT.

Pommade Mercurielle à Parties Égales. Onguent Mercuriel Double Onguent Napolitain. Pomatum Cum Hydrargyro.

Mercury, . . .	500 grammes (16 ounces, 48 grains).
Benzoinated lard, . . .	500 " (16 " 48 ").

Melt the lard; pour about one-third of it into a brass pot, and maintain it at such a temperature that the substance remains sufficiently soft; add the mercury gradually, rubbing briskly with a pestle, until the metal is completely extinguished; then add the remainder of the lard and stir until the mixture is perfect. This prepa-

ration corresponds almost exactly to the mercurial or blue ointment, unguentum hydrargyri, of the United States and British Pharmacopœias. Its therapeutic employment has been pointed out under the latter head.

LAUREL OINTMENT.

Onguent de Laurier. Pommade de Laurier. Pomatum Laurinum.

Fresh laurel-leaves, .	500 grammes (16 ounces, 48 grains).
Laurel-berries, . . .	500 " (16 " 48 ").
Lard,	1000 " (32 " 96 ").

Bruise the leaves and the berries, and subject them, with the lard, to a gentle heat until all the water of vegetation is evaporated. Strain, and allow to cool slowly; separate the deposit; melt the ointment anew, and when it is half-cooled pour it into a pot.

Laurus nobilis, Nat. Ord. Lauraceæ, or bay-tree, is an evergreen bush or tree, a native of Asia Minor, but growing in all the countries surrounding the Mediterranean Sea. The leaves have a fragrant odor, a bitter and aromatic taste. The berries are of an oval shape, about the size of a cherry, purple when fresh, black and wrinkled when dried. A greenish-yellow volatile oil is obtained from the leaves by distillation. The berries have a similar but more pungent odor and taste, and contain both a volatile and a fixed oil. Leaves, berries, and oil are stimulant and narcotic.

Laurel ointment is a pleasant emollient preparation, which may possess also some slight sedative action in virtue of the narcotic principle contained in the plant. It may be employed in erythema simplex, erythema intertrigo, dermatitis, erysipelas, acute eczema, upon abraded or blistered surfaces, impetigo after the scabs have been removed, pemphigus and pompholyx after the blebs have ruptured, in herpes, urticaria, and the erythematous and bullous forms of burns.

MOTHER THEKLA'S OINTMENT.

Emplâtre Brun. Emplastrum Fuscum Theclæ. Thekla's Brown Plaster.

Olive-oil,	1000 grammes (32 ounces, 96 grains).
Lard,	500 " (16 " 48 ").
Butter,	500 " (16 " 48 ").
Yellow wax, . . .	500 " (16 " 48 ").
Powdered litharge, .	500 " (16 " 48 ").
Mutton-suet, . . .	500 " (16 " 48 ").
Purified black pitch, .	100 " (3 " 105½ ").

Place the fatty substances in a large copper pan, and heat them until they give off vapors due to the alteration of the fats; then add the powdered litharge, passing it through a sieve; stir constantly with a wooden spatula. Leave the mixture over the fire, stirring it until the mass has assumed a dark-brown color; then add the purified black pitch. When the plaster is sufficiently cold pour it into a pot or into paper molds.

This combination is analogous to the brown or compound lead ointment, unguentum fuscum, of our National Formulary preparations. The American brown ointment is made with red oxide of lead instead of litharge, and contains a small proportion of camphor, which is lacking in the French preparation, while the pitch present in the latter is absent in the former.

The therapeutical applications of the French and American brown ointments are the same, and in both cases are substantially those of the diachylon ointment, unguentum diachylon, of the United States Pharmacopœia.

POPLAR OINTMENT.

Onguent Populeum. Pomatum Populeum. Poplar-bud Pomade.

Recently-dried poplar-buds,	800 grammes (25 ounces, 350 grains).
Fresh poppy-leaves,	500 " (16 " 48 ").
Fresh belladonna-leaves,	500 " (16 " 48 ").
Fresh hyoscyamus-leaves,	500 " (16 " 48 ").
Fresh dulcamara-leaves,	500 " (16 " 48 ").
Lard,	4000 " (128 " 384 ").

Bruise the plants in a marble mortar, place them in a pan with the lard and subject them to a gentle heat, stirring until the water of vegetation is entirely evaporated. Then add the bruised poplar-buds and digest in a water-bath for twenty-four hours. Strain and allow to cool slowly. Separate the deposit and melt the ointment anew in order to pour it into a pot.

This preparation possesses decided anodyne and antispasmodic properties, owing to the large proportion of solanaceous narcotics which it contains. The poppy-leaves are feebler, but whatever action they exert tends in the same direction. The poplar-buds, from which the preparation takes its name, are chiefly valuable for pharmaceutical rather than therapeutical reasons. They have the property of preserving lard unaltered for an indefinite period.

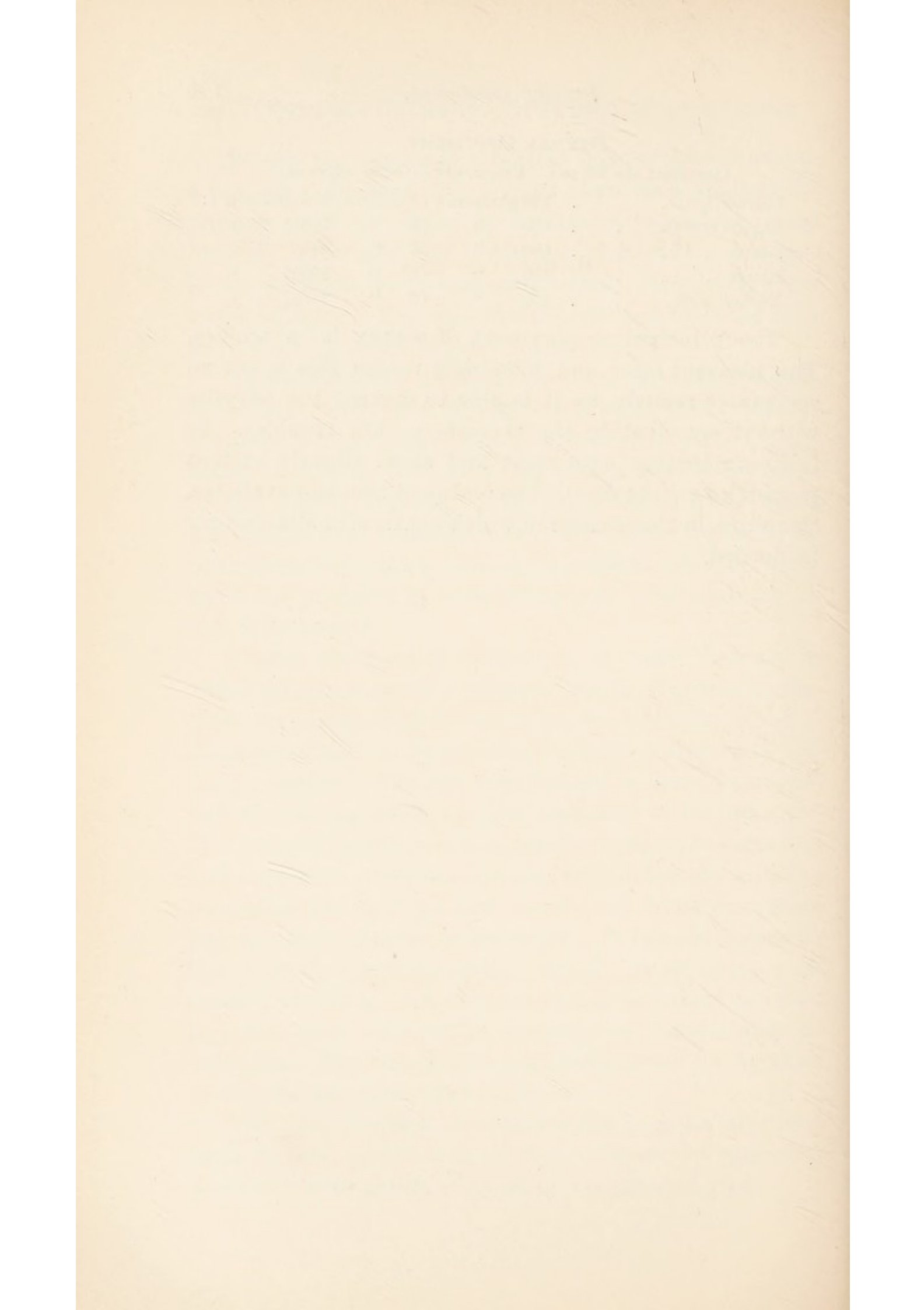
Poplar ointment is efficacious in those diseases in which pain or spasm is a marked feature. Neuralgic affections are especially relieved by poplar ointment, which is likewise efficacious in quelling the pain characteristic of herpes zoster. Chronic rheumatism or gout, lumbago, and chronic synovitis are also amenable to its influence. It is a useful application to engorged breasts, to furuncles and abscesses. Poplar ointment diminishes the pain due to cancer and lessens that caused by irritable ulcers, painful hæmorrhoids, or bed-sores. It relaxes spasm of the os uteri, sphincter vesicæ, or ani. It suppresses excessive sweating. An ointment of this composition may in some cases relieve the torments of paræsthesia or urticaria. The throat and the pupil should be watched during its use upon open surfaces.

The pain incident to epididymitis is materially lessened by the application of the ointment in question, combined with gentle support of the affected part.

STYRAX OINTMENT.**Onguent de Styrax. Unguentum cum Styrace.**

Olive-oil, . . .	150 grammes (4 ounces, 398 grains).
Liquid styrax, . . .	100 " (3 " 105½ ").
Resin,	180 " (5 " 384 ").
Elemi,	100 " (3 " 105½ ").
Yellow wax, . . .	100 " (3 " 105½ ").

The principal employment of styrax is in scabies. The pleasant odor and blandness render this agent an acceptable remedy, as it is able to destroy the parasite without aggravating the secondary skin troubles. In this combination with resin and elemi slightly irritant properties are obtained. The ointment becomes available, therefore, in those cases in which gentle stimulation may be needed.



CHAPTER VII.

OINTMENTS OFFICIAL IN THE AUSTRIAN PHARMACOPŒIA.

THE ointments officinal in the Austrian Pharmacopœia* are thirteen in number. The list is as follows:—

AROMATIC OINTMENT.

Unguentum Aromaticum. Aromatische Salbe.

Absinth-leaves, finely divided, 125 grammes (4 ounces, $14\frac{1}{2}$ grains);
Dilute alcohol, 250 “ (8 “ 24 “);
are brought to a pulp, digested for six hours, then heated with—

Lard, 1000 grammes (32 ounces, 96 grains);
until all the moisture has evaporated and strained. The straining is melted with—

Yellow wax, . . . 250 grammes (8 ounces, 24 grains);
Oil of laurel, . . . 125 “ (4 “ $14\frac{1}{2}$ “);

and again strained. When cold it is mixed with—

Oil of juniper,
Oil of peppermint,
Oil of rosemary,
Oil of lavender, of each, . . . 10 grammes ($154\frac{1}{2}$ grains);

and made into a homogeneous ointment.

This is a similar preparation to the compound rosemary ointment of the German and Italian Pharmacopœias, and is used for the same purposes.

CARBONATE OF LEAD OINTMENT.

Unguentum Cerussæ. Bleiweissalbe.

Lard, 200 grammes (6 ounces, 211 grains).
Simple diachylon plaster, 40 “ (1 ounce, 139 “).

* Commentar zur siebenten Ausgabe der Oesterreichischen Pharmacopoe. Dritter Band. Text der siebenten Ausgabe in deutscher Uebersetzung mit Erläuterungen versehen von Dr. Fr. C. Schneider und Dr. Aug. Vogl. Wien, 1889.

These are melted together, and the mass, when cooled, is mixed, constantly stirring, with—

Finely-powdered carbonate of lead, 120 grammes (3 ounces, 412 grains).

This ointment contains a still larger proportion of lead than the corresponding German ointment. It fulfills the same indications, and may be easily reduced in strength whenever desirable.

DIACHYLON OINTMENT.

Unguentum Diachylon. Diachylonsalbe.

To 100 grammes (3 ounces, 105½ grains) of freshly prepared and still fluid diachylon plaster enough olive-oil, about 70 grammes (2 ounces, 120 grains), is added to make a soft ointment. With this is mixed—

Oil of lavender, 4 grammes (61¾ grains).

Instead of the olive-oil, the Hungarian Pharmacopœia directs 100 grammes (3 ounces, 105½ grains) of oil of sesamum to be used.

The indications of diachylon ointment have been detailed when treating of the American preparation of the same name. The American, German, and Austrian ointments agree closely in composition and strength.

EMOLLIENT OINTMENT.

Unguentum Emolliens. Erweichende Salbe. Crème Céleste.

White wax, 10 grammes (154½ grains).

Spermaceti, 20 “ (308¾ “).

Expressed oil of almond, 80 “ (2 ounces, 278 grains).

Melt, strain, and to the half-cooled mass add, constantly stirring,—

Rose-water, 20 grammes (308¾ grains).

Make into a white ointment.

The title of the above preparation sufficiently indicates the purpose for which it is intended. Its uses have been described in connection with the cold cream

or rose-water ointment of the Pharmacopœia of the United States, the composition of which it closely resembles. The unguentum leniens of the German Pharmacopœia, the Galen cerate, emollient ointment, and spermaceti pomade of the Italian Formulary, are all constructed upon the same plan, and are all of about the same strength and adapted to the same uses.

GLYCERIN OINTMENT.

Unguentum Glycerini. Glycerinsalbe.

Starch, 4 grammes (61¾ grains).

Mix gradually in a porcelain dish with—

Glycerin, 60 grammes (1 ounce, 432 grains);

stirring constantly. Heat gently until it becomes a gelatinous, transparent mass.

The Hungarian Pharmacopœia directs 1 part of powdered tragacanth rubbed up with 5 parts of alcohol, to be thoroughly mixed on a water-bath with 49 parts of glycerin. In the German Pharmacopœia, also, tragacanth is employed instead of starch.

Glycerin ointment is emollient. Its uses have been designated under the head of the German unguentum glycerini. It may be suitably employed, likewise, as a basis or vehicle for more active drugs or combinations.

MERCURIAL OINTMENT.

Unguentum Hydrargyri. Quecksilbersalbe.

Mercury,

Lanolin, of each, . . . 200 grammes (6 ounces, 211 grains).

The metal is rubbed constantly with the fat until no particles of mercury remain visible. Then it is gradually mixed with—

Simple ointment, . . . 200 grammes (6 ounces, 211 grains).

In the present (seventh) edition lanolin is substituted for suet and lard, and, after the mercury is extinguished,

the mass is mixed with simple ointment. The proportion of fatty matter and mercury, 2 to 1, is preserved.

According to the Hungarian Pharmacopœia, 300 parts of mercury are mixed with 150 parts of suet and 450 parts of lard. According to the German Pharmacopœia, 10 parts of mercury, 7 of suet, and 13 of lard are employed.

The quantity of mercury present in the ointment may be determined by treating it with ether, by which the fat is dissolved. The mercury left behind should amount to one-third by weight of the ointment.

The mercurial ointment of the American, British, French, and Italian Pharmacopœias is made with equal parts of mercury and fatty matter.

The cases benefited by the use of this preparation have been indicated under the head of the American unguentum hydrargyri.

JUNIPER OINTMENT.

Unguentum Juniperi. Wachholdersalbe.

Absinth-leaves, finely divided, . . . 60 grammes (1 ounce, 432 grains).
Dilute alcohol, 120 " (3 ounces, 413 ").

Digest the pulpy mass for six hours. Then heat with—

Lard, 500 grammes (16 ounces, 48 grains);
until all the moisture is evaporated. Melt in the straining—

Yellow wax, 100 grammes (3 ounces, 105½ grains).

Strain the melted mass and mix with the cooled ointment—

Oil of juniper, 50 grammes (1 ounce, 293 grains).

This resembles the juniper ointment of the Italian Pharmacopœia, and may be employed with the same objects in view.

ACETATE OF LEAD OINTMENT.**Unguentum Plumbi Acetici. Bleisalbe.**

Lard, 300 grammes (9 ounces, 317 grains).

White wax, 100 " (3 " 105½ ").

Melt, strain, and to the half-cooled mass add—

Acetate of lead, 6 grammes (92½ grains);

dissolved in

Distilled water, 20 grammes (309 grains).

Stir constantly until thoroughly mixed.

The Austrian acetate of lead ointment resembles the preparations of acetate and subacetate of lead officinal in the Pharmacopœias of the United States, Great Britain, Germany, and Italy. These vary as regards strength, but their general indications are the same.

ROSE OINTMENT.**Unguentum Rosatum. Rosensalbe. Unguentum Pomadinum.**

Lard, 300 grammes (9 ounces, 317 grains).

White wax, 75 " (2 " 197 ").

Melt, strain, and when half-cooled add—

Oil of bergamot, 1.5 grammes (23 grains).

Oil of rose, 0.5 gramme (7¾ ").

Mix thoroughly.

Under this title the Hungarian Pharmacopœia has an ointment which is prepared by mixing 20 grammes (309 grains) of oil of cacao, 30 grammes (463¼ grains) of oil of sesamum, and 10 grammes (154½ grains) of rose-water.

This is an excellent emollient, analogous to cold-cream or rose-water ointment of the American, the unguentum leniens of the German Pharmacopœia, as well as the Austrian unguentum emolliens, the Italian Galen cerate, emollient ointment, spermaceti pomate, and ointment of rose. They are all useful as a basis for ointments or to soothe an irritable skin.

CEVADILLA OINTMENT.**Unguentum Sabadillæ. Sabadillasalbe.**

Simple ointment, . . . 200 grammes (6 ounces, 211 grains).

Melt at a gentle heat and mix gradually with—

Powdered cevadilla-seeds, 50 grammes (1 ounce, 293 grains).

To the mass add—

Oil of lavender, 2 grammes ($30\frac{3}{4}$ grains).

Cevadilla ointment is useful in pediculosis capitis, but, as stated elsewhere, the ointment of veratrine, official in the United States Pharmacopœia, is preferable.

SIMPLE OINTMENT.**Unguentum Simplex. Einfache Salbe.**

Lard, 200 grammes (6 ounces, 211 grains).

White wax, 50 “ (1 ounce, 293 “).

Melt, strain, and make into an ointment by constant stirring.

This preparation is of the same strength as the simple ointment of the United States Pharmacopœia.

SULPHUR OINTMENT.**Unguentum Sulphuratum. Schwefelsalbe.**

Green soap,

Lard, of each, 60 grammes (1 ounce, 432 grains).

Melt and strain. To the mixture add—

Flowers of sulphur, 30 grammes ($463\frac{1}{4}$ grains).

Native carbonate of calcium, . 20 “ (309 “).

Passed through a sieve, and, finally,—

Tar, 30 grammes ($463\frac{1}{4}$ grains);

is added, and the mass brought to the consistence of an ointment.

The Austrian sulphur ointment combines the virtues of a sulphur and tar ointment, containing, as it does, equal parts of each substance. It is beneficial in scabies, psoriasis, chronic eczema, lupus vulgaris, etc., and approximates the composition of the well-known Wilkinson's ointment.

OXIDE OF ZINC OINTMENT.**Unguentum Zinci Oxydati. Zinksalbe. Unguentum Zinci Wilsoni.**

Benzoinated lard, . . 100 grammes (3 ounces, 105½ grains).

White wax, . . . 20 “ (309 grains)

Melt with a gentle heat, strain, and to the half-cooled mass add—

Oxide of zinc, 20 grammes (309 grains);

Oil of almonds, 10 “ (154½ “);

and bring to the consistence of an ointment.

This preparation fulfills the same indications as the oxide of zinc ointment of the American Pharmacopœia.

The Austrian ointment, however, is a somewhat weaker preparation.

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CHAPTER VIII.

OINTMENTS OFFICIAL IN THE ITALIAN PHARMACOPŒIA.

THE following list is selected from the Italian Formulary.*

ABBHEY DI BEC OINTMENT.

Unguento dell' Abbazia di Bec.

Burgundy pitch, <i>two hundred and fifty parts</i> ,	250
Resin, <i>eighty parts</i> ,	80
Naval pitch, <i>eighty parts</i> ,	80
Yellow wax, <i>one hundred parts</i> ,	100
Lard, <i>two hundred and forty parts</i> ,	240
Powdered olibanum (frankincense), <i>twenty parts</i> ,	20

Mix thoroughly.

The proportion of pitch and resin contained in this preparation is considerably larger than in the ceratum resinæ of the United States or the unguentum resinæ of the British Pharmacopœia. It consequently possesses more decided irritant and stimulant properties and forms a fitting and efficacious application to indolent ulcers, chronic eczema, and psoriasis.

ABORTIVE OINTMENT.

Sedative and Abortive Pomade. Pomata Sedativa ed Abortiva.

Neapolitan ointment, <i>eight parts</i> ,	8
Extract of belladonna, <i>four parts</i> ,	4
Opium, <i>four parts</i> ,	4

This is an excellent application in furuncle, abscess, and carbuncle. It limits the inflammatory action and tends to prevent the formation of pus. This ointment may also appropriately be spread upon engorged or inflamed breasts. It is servicable in cases of enlarged

* Farmacopea Italiana ossia Dizionario di Farmacia e di Terapeutica, etc. Tornio, 1887.

glands, ovaritis, and epididymitis. The large proportion of narcotics present renders it a very valuable anodyne preparation.

ACETATE OF LEAD OINTMENT.

Unguento d' Acetato di Piombo.

Olive-oil, <i>twenty-four parts</i>,	.	.	.	.	.	.	24
White wax, <i>three parts</i>,	.	.	.	.	.	.	3
Solution of acetate of lead, <i>six parts</i>,	.	.	.	.	.	.	6

Melt the wax in the oil, then add the acetate of lead solution, stirring the mixture until it is cold.

Acetate of lead ointment is analogous in composition to the American ceratum plumbi subacetatis, the British unguentum plumbi acetatis, and the German unguentum plumbi. Its indications, therefore, are the same as those of the above preparations.

GOULARD'S CERATE.

Cerato di Goulard.

Galen's cerate, <i>thirty-two parts</i>,	.	.	.	.	.	.	32
Extract of lead, <i>four parts</i>,	.	.	.	.	.	.	4

Mix.

This cerate does not markedly vary in composition from the acetate of lead ointment. Its virtues are sedative and astringent, and it is one of the most generally useful of external applications. Goulard's cerate may be applied advantageously in almost any acute inflammation of the integument,—dermatitis, herpes, eczema, urticaria, pemphigus, pompholyx, burns, chilblains, etc. It is a serviceable local application in erysipelas.

GALEN'S CERATE.

Cerato di Galeno.

Olive-oil or, preferably, almond-oil,	400 grammes (12 ounces, 412 grains).
White wax,	100 grammes (3 “ 105½ “).

Melt the wax with the oil in a well-cleaned tin vessel, stirring the mixture until it commences to thicken;

then wash with water, stirring briskly, renewing the water twice or thrice. Then wash with rose-water. Some processes prescribe the wax to be melted with the oil and 300 grammes (9 ounces, 317 grains), of rose-water, to stir the mixture briskly, and pour it into a marble mortar to cool.

Galen's cerate nearly corresponds to the cold-cream or rose-water ointment, *unguentum aquæ rosæ*, of our Pharmacopœia, and to the cold cream, *unguentum leniens*, of the German Pharmacopœia. Its uses have been described under the title of the American preparation.

According to the Italian formulary, cherry-laurel water may be substituted for the rose-water in the above combination, in which case it is known as Roux's sedative cerate, *cerato calmante di Roux*. If yellow be substituted for white wax it is called yellow cerate, *cerato giallo*. Nine parts of this yellow cerate (*cerato giallo*) mixed with 30 parts of Neapolitan ointment (*unguento napolitano*) form mercurial cerate (*cerato mercuriale*), largely used as a dressing to venereal ulcers. So, if to 30 parts of white or yellow Galen's cerate, 10 parts of laudanum be added, laudanum cerate (*cerato laudanizzato*) is produced.

The extract of lead used in making Goulard's cerate (*cerato di Goulard*) is the subacetate of lead.

BORIC ACID OINTMENT.

Unguento d' Acido Borico. Oleo-cerato d' Acido Borico.

Boric acid in fine powder, <i>one part</i>,	.	.	.	.	.	1
White wax, <i>one part</i>,	.	.	.	.	.	1
Paraffin, <i>two parts</i>,	.	.	.	.	.	2
Sweet almond-oil, <i>two parts</i>,	.	.	.	.	.	2

Melt the wax, paraffin, and oil together; then add the boric acid and stir constantly until cold.

This is rather stronger than *unguentum acidi borici*

of the British Pharmacopœia, but is applicable to the same diseases.

PHOSPHORIC ACID OINTMENT.

Unguento d'Acido Fosforico. Pomata d'Acido Fosforico.

Phosphoric acid of 45°, <i>three parts</i>,	. . . . .	3
Lard, <i>thirty parts</i>,	. . . . .	30

Mix thoroughly

The Italian Pharmacopœia advises the use of this ointment in cases of rachitis.

TANNIC ACID OINTMENT.

Unguento d'Acido Tannico. Pomata d'Acido Tannico.

Tannic acid, <i>three and six-tenths parts</i>,	. . . . .	3.6
Lard, <i>fifty parts</i>,	. . . . .	50

Mix thoroughly, adding the acid gradually and avoiding the use of an iron spatula.

This is a slightly weaker preparation than the unguentum acidi tannici of the American Pharmacopœia. It is available in precisely the same affections as the latter.

ACONITINE OINTMENT.

Unguento d'Aconitina.

Aconitine, <i>two parts</i>,	. . . . .	2
Alcohol, <i>six parts</i>,	. . . . .	6
Benzoinated lard, <i>ninety-two parts</i>,	. . . . .	92

Dissolve the aconitine in the alcohol, then mix thoroughly with the ointment.

This preparation is considerably stronger than the British unguentum aconitinæ. The Italian ointment is used for the same purposes, but will sooner produce the characteristic effects of tingling and numbness. Open surfaces should be sedulously avoided.

ANDREW DELLA CROCE'S OINTMENT.

Unguento di Andrea della Croce.

Resin, <i>eight parts</i>,	. . . . .	8
Elemi, <i>two parts</i>,	. . . . .	2
Turpentine, <i>one part</i>,	. . . . .	1
Laurel ointment, <i>one part</i>,	. . . . .	1

Mix thoroughly.

The composition of this ointment resembles that of the French onguent d'Arcæus and the British unguentum elemi. It may be used in the same class of diseases as those preparations.

ANTHELMINTIC OINTMENT.

Unguento Antelmintico.

Ox-gall, <i>five parts</i>,	.	.	.	.	.	.	.	.	5
Aloes, <i>five parts</i>,	.	.	.	.	.	.	.	.	5
Althea ointment, <i>forty parts</i>,	.	.	.	.	.	.	.	.	40

Mix thoroughly.

Anthelmintic ointment is recommended to be applied by friction to the abdomen. An ointment of this nature can seldom be needed, since we possess several more effective and direct remedies. It may, however, be used in connection with internal medication, and may occasionally be found useful when the stomach is rebellious.

PILE OINTMENT.

Unguento Antiemorroidale. Pomata Antiemorroidale.

Extract of stramonium-seeds, <i>two parts</i>,	.	.	.	.	.	2
Extract of hyoscyamus, <i>five parts</i>,	.	.	.	.	.	5
Poplar ointment, <i>ninety parts</i>,	.	.	.	.	.	90

Mix thoroughly.

This resembles the poplar ointment, onguent populeum, of the French Codex. Like that preparation, it may be used to relieve pain or spasm in neuralgia, herpes zoster, malignant disease, rheumatism, painful hæmorrhoids, etc.

ITCH OINTMENT.

Unguento Antipediculare.

Lard, <i>three hundred and seventy-five parts</i>,	.	.	.	.	.	375
Mercurial ointment, <i>sixty parts</i>,	.	.	.	.	.	60
Stavesacre, <i>ninety parts</i>,	.	.	.	.	.	90

Mix thoroughly.

This is a weaker preparation than the British unguentum staphisagriæ, but is used for the same purpose.

ARTHANITA OINTMENT.**Unguento d'Artanita.**

Juice of arthanita-root, <i>twenty-four parts</i> ,	.	.	.	24
Juice of wild watermelon, <i>twenty-four parts</i> ,	.	.	.	24
Butter, <i>twelve parts</i> ,	.	.	.	12
Olive-oil, <i>twenty-four parts</i> ,	.	.	.	24
Colocynth, <i>five parts</i> ,	.	.	.	5
Yellow wax, <i>nine parts</i> ,	.	.	.	9
Ox-gall, <i>one part</i> ,	.	.	.	1
Sagapenum, <i>one part</i> ,	.	.	.	1
Common salt, <i>one part</i> ,	.	.	.	1
Chamomile-flowers, <i>four parts</i> ,	.	.	.	4

Divide finely the colocynth and macerate it for twenty-four hours in the juices. Then boil until the mixture is reduced one-half; strain, and express the residue. Add the ox-gall and evaporate to the consistency of an extract. Mix the wax and butter melted in the oil, stirring constantly. Then mix the other ingredients, previously powdered, until a homogeneous ointment is obtained.

Arthanita-root and colocynth, both drastic, hydragogue cathartics, are the most active constituents of this preparation, which is intended to be rubbed upon the abdomen in cases of ascites.

BASILICON OINTMENT.**Unguento Basilico o Unguento Tetrafarmaco.**

Resin, <i>one part</i>,	.	.	.	.	.	.	1
Black pitch, <i>one part</i>,	.	.	.	.	.	.	1
Yellow wax, <i>one part</i>,	.	.	.	.	.	.	1
Olive-oil, <i>four parts</i>,	.	.	.	.	.	.	4

Mix thoroughly.

The proportions and ingredients of the Italian are the same as those of the French preparation, and differ but little from the German, British, and American ointments of the same title. In Italian pharmacy turpentine is sometimes substituted for the resin.

BENZOIN OINTMENT.**Unguento di Benzoino.**

Tincture of benzoin, <i>ten parts</i> ,	10
Lard, <i>ninety parts</i> ,	90

Melt the lard on a water-bath, and add the tincture of benzoin gradually, stirring until the alcohol is evaporated. Then allow to cool.

Or it may be made by thoroughly mixing 1 part of powdered benzoin with 50 parts of lard.

This is the same preparation as our adeps benzoinatus.

RHAZES' WHITE OINTMENT.**Unguento bianco di Rhasis.**

Simple cerate, <i>five parts</i> ,	5
Powdered carbonate of lead, <i>one part</i> ,	1

Mix thoroughly.

It should be made in small quantities at a time.

This contains the same proportion of carbonate of lead as the corresponding French unguent, the excipients differing slightly.

BOLE OINTMENT.**Unguento di Bolo.**

Oil of hypericum, <i>twenty-four parts</i> ,	24
Yellow wax, <i>eight parts</i> ,	8
Armenian bole, <i>six parts</i> ,	6
Dragon's blood, <i>one part</i> ,	1

Melt the wax in the oil, then add the bole carefully and afterward the dragon's blood, stirring the mixture until it has become cold and homogeneous.

The oil of hypericum is obtained from hypericum perforatum, the well known St. John's wort, by macerating the flowering tops in olive-oil. The plant contains tannic acid, resin, a volatile oil, and coloring matter. The latter is a resin of red color, and hence the oil of hypericum is known as red oil. Though well-nigh disused at the present day in this country, hypericum certainly possesses stimulant and astringent virtues.

Bole is the name given to an earthy mineral resembling clay, and consisting principally of hydrated silicate of aluminium with ferric hydrate. It is greasy to the touch, forms a paste with water, adheres to the tongue, varies in color, and has a resinous lustre. Armenian bole possesses a red color. It is prepared from various European earths in imitation of a variety which was formerly obtained from Armenia.

Dragon's blood, or gum dragon, is a resin derived from several species of East Indian palm. It exudes from the surface of the fruit. It is dark red and opaque in mass, of a bright-scarlet color when powdered, is devoid of odor or taste, but when burned emits an odor resembling that of benzoin. It contains benzoic acid, a resin, oxalate and phosphate of calcium.

An ointment containing these ingredients possesses stimulant and astringent properties. It is well adapted to the treatment of contused wounds, stimulating the local circulation, the absorbent vessels, the nervous vitality of the parts, and restraining inflammatory action. Bole ointment may appropriately be used upon enlarged glands with a view to securing absorption. As a counter-irritant it will prove serviceable in chronic rheumatism and synovitis, and lumbago. It is likely to be beneficial in chronic eczema and psoriasis.

BRYONIA OINTMENT.

Unguento di Brionia. Oleo-cerato di Brionia d'Agrippa.

Fresh squill, <i>one hundred and eighty parts</i> ,	. . .	180
Common iris-root, <i>one hundred and eighty parts</i> ,	. . .	180
Root of male fern, <i>one hundred and eighty parts</i> ,	. . .	180
Elaterium-juice, <i>seven hundred parts</i> ,	. . .	700
Bryonia-juice, <i>eleven hundred parts</i> ,	. . .	1100

Macerate for twelve hours, then boil. Strain and evaporate to the consistence of a soft extract, to which add—

White wax, <i>five hundred parts</i>,	. . . . .	500
Oil of mucilages, <i>fifteen hundred parts</i>,	. . . . .	1500

Mix thoroughly.

The following is the composition of the oil of mucilages :—

Flaxseed, <i>five hundred parts</i>,	. . . . .	500
Fenugreek, <i>five hundred parts</i>,	. . . . .	500
Althæa-root, <i>five hundred parts</i>,	. . . . .	500
Boiling water, <i>five hundred parts</i> ,	500

Digest for twelve hours, stir and add—

Olive-oil, <i>one thousand parts</i> ,	1000
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Heat until all the water is evaporated.

Common iris, which the formula prescribes, is the *Iris Germanica*, and grows abundantly in Northern Italy. Its rhizome is one of those known under the corrupt designation of orris-root.

The active ingredients of this preparation are possessed of a greater or less degree of acidity. They act as local irritants to unprotected surfaces. Recent bryonia-root is said to be capable of producing a blister. These substances exert an energetic effect upon the kidneys and intestinal glandulæ. Iris is likewise an efficient hepatic stimulant.

These powerful drugs are applied to the integument in cases where it is thought desirable to assist their internal administration, or where their internal administration is inadmissible or impossible on account of an irritable stomach. Bryonia ointment is used in Italy in order to reduce dropsy and invigorate circulation and absorption.

LARREY'S BROWN OINTMENT.

Unguento bruno di Larrey.

Basilicon ointment, <i>five hundred parts</i>,	. . . . .	500
Red oxide of mercury, <i>thirty parts</i>,	. . . . .	30

Mix thoroughly.

Larrey's ointment forms a good local stimulant to indolent ulcers, chancroids, chancres, chronic eczema, scleroderma, etc. Its composition assimilates to that of the unguentum hydrargyri oxidi rubri of the United States Pharmacopœia. The latter contains a much larger proportion of the mercurial, but the difference of strength is diminished by the fact that basilicon ointment is the excipient of the Italian preparation.

CALAMINE OINTMENT.

Unguento Calaminare.

Yellow wax ointment, <i>one hundred and sixty parts</i> ,	. 160
Prepared calamine, <i>thirty-two parts</i> ,	. 32

Mix thoroughly.

This is the same as the calamine ointment of our National Formulary. Like that preparation, its uses are those of the oxide of zinc ointment.

SEDATIVE OINTMENT.

Unguento Calamante. Glicerato di Solfato di Morfina.

Sulphate of morphine, <i>twenty-five hundredths of a part</i> ,	. 0.25
Glycerite of starch, <i>fifteen parts</i> ,	. 15.00

Sedative ointment is useful as a local narcotic in neuralgia, herpes, herpes zoster, or to relieve the pain caused by a morbid growth. It may be spread upon irritable ulcers or blistered surfaces if the absorbent area be not too large. It may be applied, with very good effect, upon a vesicated surface in acute gastritis, relieving both the pain and vomiting. Sedative ointment may also be used in order to relieve painful hæmorrhoids.

CALOMEL OINTMENT.

Unguento di Calomelano. Pomata di Calomelano.

Calomel,	10 grammes (154½ grains).
Benzoinated lard,	90 grammes (2 ounces, 470½ grains).

This is a slightly weaker ointment than that formerly official under the same name in the United States Pharmacopœia, but it is adapted to the same uses.

CANET'S OINTMENT.**Unguento di Canet. Emplastro di Canet.**

Simple diachylon cerate, <i>one hundred parts</i> ,	100
Gum-diachylon cerate, <i>one hundred parts</i> ,	100
Olive-oil, <i>twelve parts</i> ,	12
Yellow wax, <i>twelve parts</i> ,	12
Colcothar (anhydrous sesquioxide of iron), <i>twenty-five parts</i> ,	25

Melt, at a gentle heat, the diachylon cerates, the olive-oil, and the wax. Strain, incorporate the colcothar, and divide the mass into cylinders.

This is analogous to the French ointment of the same name, though it contains a much lower proportion of iron. It may be used, however, in the same class of cases.

CAMPHOR OINTMENT.**Unguento Canforato. Pomata Canforata.**

Lard,	90 grammes (2 ounces, 154½ grains).
White wax,	10 " (154½ grains).
Powdered camphor,	30 " (463¼ ").

Melt in a water-bath the wax and the lard. Then add the camphor, stirring until cold.

This preparation very nearly corresponds to the unguentum camphoræ of our National Formulary, and is available for the same purposes.

CANTHARIDAL OINTMENT.**Unguento Cantaridato. Pomata Cantaridata.**

Powdered cantharides, <i>one part</i> ,	1
Olive-oil, <i>four parts</i> ,	4
White wax, <i>two parts</i> ,	2

Digest the cantharides in the oil for eight days. Strain and filter. Melt, at a gentle heat, the wax in the filtered oil. This preparation is about equal in strength to the cantharidal ointment formerly official in the United States Pharmacopœia. Its uses, therefore, are precisely the same.

SORE-NIPPLE OINTMENT.**Unguento pei Capezzoli. Pomata Mirabile pei Capezzoli.**

Finely-powdered red oxide of mercury, <i>one part</i>,	. . . . . 1
Lard, <i>twenty parts</i>,	. . . . . 20

Mix thoroughly.

The strength of this preparation is rather less than half that of our official red oxide of mercury ointment. It is especially designed, as is indicated by its name, for the cure of fissured nipples. The nipples should be carefully washed and all traces of the ointment removed before the babe is allowed to nurse.

CARBONATE OF AMMONIUM OINTMENT.**Unguento di Carbonato Ammonico. Oleo-cerato di Carbonato Ammonico.**

Simple cerate, <i>eight parts</i>,	. . . . . 8
Carbonate of ammonium, <i>one part</i>,	. . . . . 1

Mix thoroughly.

Carbonate of ammonium is a local irritant, and an ointment into which it enters may be employed when stimulation is desirable, as in comedo, seborrhœa, chronic eczema, the later stages of dermatitis, frost-bite, etc.

TAR OINTMENT.**Unguento di Catrame. Pomata di Catrame.**

Tar, <i>ten parts</i>,	. . . . . 10
Lard, <i>thirty parts</i>,	. . . . . 30

Tar is defined by the Italian Pharmacopœia as "a resinous extract mixed with empyreumatic products obtained from various coniferæ, especially the pines, which furnish no more turpentine by incision. The wood and root, cut into small pieces, are subjected to distillation per descensum. Tar has the consistence of a turpentine, is of a dark-gray color, tenacious odor, and acrid taste. It commences to boil at about 87° C. (188.6° F.), and burns at 105° C. (221° F.), after having boiled for twelve minutes. It contains acetic acid, unaltered resin, paraffin, creasote, benzine, etc."

Tar ointment is valuable in the treatment of scrofulous indurations, psoriasis, chronic eczema, and lepra. Its applications have been fully described on pages 43 and 44.

CARBONATE OF LEAD OINTMENT.

Unguento di Cerussa. Oleo-cerato di Cerussa.

White wax, <i>three parts</i>,	.	.	.	.	.	.	3
Oil of rose, <i>twelve parts</i>,	.	.	.	.	.	.	12
Powdered carbonate of lead, <i>four parts</i>,	.	.	.	.	.	.	4

Mix thoroughly.

This preparation approaches the composition of the unguentum cerussæ of the German Pharmacopœia, and is used for the same purposes.

CUCUMBER OINTMENT

Unguento di Cetriuoli.

Cucumber-juice, <i>twelve hundred parts</i>,	.	.	.	.	.	1200
Lard, <i>one thousand parts</i>,	.	.	.	.	.	1000
Veal-suet, <i>six hundred parts</i>,	.	.	.	.	.	600
Rose-water, <i>ten parts</i>,	.	.	.	.	.	10
Balsam of Tolu, <i>two parts</i>,	.	.	.	.	.	2

Melt the fats in a water-bath; add the balsam of Tolu, previously dissolved in a little alcohol; then the rose-water. When the fats have become clear, decant into a tin basin, and add one-third of the juice, stirring continually for four hours. Decant the portion which separates, and repeat the operation with the remaining two-thirds of the juice. The fatty matter is then separated from the liquid by melting in a water-bath, and after a few hours the coagulum is removed. The ointment is then strained into vessels and kept in a cool place. Finally, it should be softened in a tin basin without entirely melting it, and beaten with a wooden spoon until its volume is doubled.

The composition and mode of preparation of this ointment are substantially the same as that of the unofficial cucumber ointment of this country, the formula and indications of which have been already given.

HEMLOCK OINTMENT.**Unguento di Cicuta. Pomata di Cicuta.**

Fresh leaves of conium maculatum and
of artemisia absinthium, . . . equal parts of each.
Oxygenated pomade,* . . . a sufficient quantity.

Bruise the leaves in a mortar with a sufficient quantity of water and extract the juice. To this add an equal weight of the pomade, and heat the mixture in a capsule until the water is evaporated and the pomade has acquired a homogeneous appearance.

Conium paralyzes the motor nerves and impairs likewise the function of the sensory nerves. It is, therefore, both anodyne and antispasmodic. Conium has long been reputed to possess resolvent properties in cases of enlarged glands. Wormwood, by virtue of the volatile oil it contains, is also capable of exerting a narcotic influence.

Hemlock ointment is an efficacious local remedy in painful maladies. It is capable of assuaging the intense pain of cancer, and may be applied with success over the seat of pain in neuralgia, in herpes zoster, chronic rheumatism, gout, or synovitis, to painful or irritable ulcers and painful hæmorrhoids. Discutient powers have been attributed to both conium and wormwood,—a fact which has suggested this combination. Enlarged scrofulous glands, tumefied mammary glands, goitre, enlarged liver and spleen, may be reduced in volume by the use of hemlock ointment. It may be spread upon the breast when the secretion of milk is excessive or requires suppression. It may be used upon the chest in order to supplement the effect of internal remedies in whooping-cough and asthma.

* Oxygenated pomade, pomata ossigenata d'alyon, or pomatum nitricum, consists of 1 part of nitric acid (35° Beaumé) to 8 parts of lard.

CITRINE OINTMENT.

Unguento Citrino. Pomata Citrina.

Pure mercury, <i>one part</i> ,	1
Nitric acid, of 32 degrees,* <i>two parts</i> ,	2

Place the acid and the mercury in a porcelain vessel, and subject them to a gentle heat without disturbing the reciprocal action until it spontaneously subsides. Melt separately in a porcelain capsule 12 parts of prepared lard, add gradually, until it is nearly cold, and stirring constantly the still warm mercurial solution. When the mixture approaches the consistence of cream, pour it into oblong paper molds, and when solidified divide it into square tablets.

Instead of using only lard, Guibort advises a mixture of equal parts of olive-oil and lard, and states that this prevents the ointment from becoming unduly hard from age.

This corresponds very closely to our unguentum hydrargyri nitratis, and is useful in the same diseases.

CREASOTE OINTMENT.

Unguento di Creasoto.

Creasote,	0.025 gramme ($\frac{1}{3}$ grain).
Lard,	60.000 grammes (1 ounce, $446\frac{1}{2}$ grains).

Mix thoroughly.

This is a very weak preparation. The cases in which creasote ointment are serviceable are specified under the unguentum creasoti of the British and United States Pharmacopœias.

DAPHNE OINTMENT.

Unguento di Dafnoide. Pomata Epispastica di Dafnoide.

Ethereal extract of daphne gnidium, <i>forty parts</i> ,	40
Lard, <i>nine hundred parts</i> ,	900
White wax, <i>one hundred parts</i> ,	100
Alcohol, <i>ninety parts</i> ,	90

Dissolve the extract in the alcohol, then add the lard

* According to Beaumé's areometer.

and the wax. Heat moderately in order to evaporate the alcohol; strain and stir until cold.

Daphne ointment is analogous to the unguentum mezerei of the United States Pharmacopœia and is used for the same purposes.

DEPILATORY OINTMENT.

Unguento Depilatorio.

Turpentine, <i>thirty-eight parts</i>,	. . . . .	38
Resin, <i>thirty parts</i>,	. . . . .	30

Melt the mixture and preserve in water.

This is an irritant preparation, the use of which is sufficiently indicated by its name.

STRONGER DIGESTIVE OINTMENT.

Unguento Digestivo Animato.

Purified storax, <i>one hundred parts</i>,	. . . . .	100
Simple digestive ointment, <i>one hundred parts</i>,	. . . . .	100

Mix thoroughly

The uses and indications of simple digestive ointment have been given in connection with the French preparation of the same name, which is identical in composition and strength with the Italian. The addition of an equal bulk of storax renders it an available agent in the treatment of scabies.

COMPOUND DIGESTIVE OINTMENT

Unguento Digestivo Composto.

Turpentine, <i>one hundred and twenty parts</i>,	. . . . .	120
Yelk of egg, <i>forty parts</i>,	. . . . .	40
Powdered myrrh, <i>twenty-five parts</i>,	. . . . .	25
Incense, <i>twenty-five parts</i>,	. . . . .	25
Mastic, <i>twenty-five parts</i>,	. . . . .	25

Incorporate the powders with the turpentine and the yelk of egg with the aid of heat. It is better to reduce the turpentine to 60 grammes, and add 60 grammes of lard. Incense is a substance of variable composition, the chief ingredient of which is olibanum, a gum-resin,

to which other fragrant gum-resins and balsams may be added. The local action of most of these materials is mildly stimulant.

Another formula for the same ointment is as follows :

Turpentine, <i>forty-eight parts</i> ,	48
Oil of hypericum, <i>nine parts</i> ,	9
Saffron, <i>one part</i> ,	1
Olibanum, <i>one part</i> ,	1
Myrrh, <i>one part</i> ,	1
Yelk of one egg.	

The turpentine and the egg are beaten up together, the oil is then incorporated, and, lastly, the other substances, previously reduced to powder. The indications for the use of compound digestive ointment are, in general, the same as those for the simple digestive ointment.

MERCURIAL DIGESTIVE OINTMENT.

Unguento Digestivo Mercuriale.

Simple digestive ointment, <i>one hundred parts</i> ,	100
Mercurial ointment, <i>one hundred parts</i> ,	100

Mix thoroughly.

This ointment is especially applicable to venereal ulcers, though it may be used to fulfill the objects of a stimulant unguent in non-venereal cases.

OPIATED DIGESTIVE OINTMENT.

Unguento Digestivo Opplaceo.

This is prepared by mixing laudanum with simple digestive ointment in the proportion of 1 part of the former to 8 of the latter. The addition of the opiate alleviates the pain which may be caused by the turpentine without impairing its efficiency.

SIMPLE DIGESTIVE OINTMENT.

Unguento Digestivo Semplice.

Turpentine, <i>forty parts</i> ,	40
Yelk of egg, <i>twenty parts</i> ,	20
Olive-oil, <i>ten parts</i> ,	10

Mix thoroughly.

For the olive-oil Orosi substitutes oil of hypericum. This formula is precisely the same as that of the French preparation of the same title.

RED DESICCANT OR DEFENSIVE OINTMENT.

Unguento Disseccativo Rosso o Unguento Difensivo.

Oil of rose,	.	.	500 grammes (16 ounces, 48 grains).
Yellow wax,	.	.	128 " (4 " 53 ").
Brown oxide of zinc,	.	.	96 " (3 " 38 ").
White oxide of lead,	.	.	80 " (2 " 273 ").
Litharge,	.	.	80 " (2 " 273 ").
Armenian bole,	.	.	96 " (3 " 38 ").
Camphor,	.	.	4 " (61¾ grains).

Mix thoroughly.

This is a good combination, possessing the astringent properties of the zinc and the bole, together with the sedative virtues of the lead. It forms a beneficial application in acute and subacute eczema, dermatitis, herpes, etc. It may also advantageously be spread upon ulcerated surfaces.

DIURETIC OINTMENT.

Unguento (pomata) Diuretico.

Powdered squill, <i>two parts</i>,	.	.	.	.	.	.	2
Mercurial ointment, <i>five parts</i>,	.	.	.	.	.	.	5

Mix.

The name of this preparation sufficiently indicates the purpose for which it is intended. It is to be applied, with friction, to the loins, and may be employed in aid of a diuretic given by the mouth.

DIVINE OINTMENT.

Unguento od Oleo-cerato Divino.

Olive-oil, <i>sixteen parts</i>,	.	.	.	.	.	.	16
Yellow wax, <i>sixteen parts</i>,	.	.	.	.	.	.	16
Carbonate of lead, <i>twelve parts</i>,	.	.	.	.	.	.	12
Powdered camphor, <i>one part</i>,	.	.	.	.	.	.	1

Add the carbonate of lead to the melted oil and wax, stirring constantly. Continue the heat until the mix-

ture becomes opaque, and, when it is nearly cold, add the camphor.

The class of cases in which a carbonate of lead ointment is efficacious have been described when treating of the official American ointment, *unguentum plumbi carbonatis*. The corresponding French, German, and Italian preparations are all of greater strength than the American or British, and are all about equal in strength. The *unguento divino* approximates the most closely to the German *unguentum cerussæ camphoratum*, which, as pointed out by its name, also contains a small proportion of camphor. The white ointment of Rhazes is of the same strength in the French Codex and Italian Formulary, and is 50 per cent. weaker than the divine ointment.

All the carbonate of lead ointments have practically the same indications.

DUKE'S OINTMENT.

Unguento del Duca.

Walnut oil, <i>eighty parts</i>,	.	.	.	.	.	.	80
Flowers of sulphur, <i>twenty parts</i>,	.	.	.	.	.	.	20
Lard, <i>eighty parts</i>,	.	.	.	.	.	.	80
Yellow wax, <i>ten parts</i>,	.	.	.	.	.	.	10

Melt the sulphur on a sand-bath in the oil until the mixture becomes red. Melt separately the lard and the wax, and then mix it in a mortar with the sulphur and oil, coloring the mixture with a sufficient quantity of alkanet.

Walnut-oil or nut-oil, as it is often termed, is a bland fixed oil obtained by expression from the fruit of the *Juglans regia*, or common walnut, of the south of Europe.

The proportion of sulphur present in this preparation is too small to render it an efficacious remedy in scabies. It is however, found beneficial as a stimulant

to chronic ulcers and in other cases in which stimulation is desirable, as chronic eczema, comedo, acne, etc.

SOLLEYSEL'S EGYPTIAN OINTMENT.

Unguento Egiziaco di Solleysel.

Verdigris, <i>one hundred and fifty parts,</i>	. . . . .	150
Litharge, <i>one hundred parts,</i>	. . . . .	100
Arsenious acid, <i>seven parts,</i>	. . . . .	7
Honey, <i>six hundred parts,</i>	. . . . .	600

Mix all the ingredients at a moderate temperature, stirring until the mass has acquired a deep-red color. In urgent cases the litharge and arsenious acid may be mixed with 800 grammes (25 ounces, 350 grains) of common Egyptian ointment.*

Egyptian ointment is an excellent astringent and somewhat escharotic ointment, well adapted to the treatment of chronic ulcers with callous margins.

ELEMI OINTMENT.

Unguento d'elemi.

Turpentine, <i>eighteen parts,</i>	. . . . .	18
Elemi, <i>eighteen parts,</i>	. . . . .	18
Lard, <i>twelve parts,</i>	. . . . .	12
Beef-suet, <i>twenty-four parts,</i>	. . . . .	24

Melt together at a gentle heat, strain the liquid mass, and stir until it is cold. This is the same preparation as the French ointment of Arcæus, except that beef-suet is substituted for mutton-suet. The proportions of the components are identical.

HELLEBORE OINTMENT.

Unguento Elleborato.

Rhizome of veratrum viride, powdered, <i>twelve parts,</i>	. . . . .	12
Powdered nitrate of potassium, <i>one part,</i>	. . . . .	1
Sublimed sulphur, <i>forty-five parts,</i>	. . . . .	45
Lard, <i>one hundred and forty-four parts,</i>	. . . . .	144
Domestic green soap, <i>forty-eight parts,</i>	. . . . .	48

* Plain Egyptian ointment is composed of : verdigris, 100 parts ; burnt alum, 1 part ; clarified honey, 32 parts ; best vinegar, 14 parts.

Mix thoroughly the powders with the melted lard and soap.

Hellebore ointment is calculated to be useful in painful affections, such as neuralgia, herpes zoster, myalgia, and chronic rheumatism.

WHITE HELLEBORE OINTMENT.

Unguento d'elleboro Bianco.

Rhizome of veratrum album, <i>sixty-four parts</i> ,	. . .	64
Lard, <i>two hundred and fifty parts</i> ,	. . .	250
Essence of lemon, <i>twenty drops</i> .		

This is a stimulant and counter-irritant preparation, available in the treatment of neuralgia and chronic inflammation. It may also be employed to stimulate the repair of chronic ulcers.

EMOLLIENT OINTMENT.

Unguento Emolliente. Cerato Cosmetico. Pomata Cosmetica. Pomata di Spermaceti. Cold Cream.

Oil of sweet almonds,	. 215 grammes (6 ounces, 437 grains).
Spermaceti, . . .	60 " (1 ounce, 437 ").
White wax, . . .	30 " (432 ").
Rose-water, . . .	60 " (1 " 437 ").
Essence of rose, . . .	6 drops.
Tincture of benzoin, . . .	4 drops.

Emollient ointment is prepared in the same manner as the cerate of Galen, cerato di Galeno. Some authors substitute essence of bergamot or cologne-water for the essence of rose. The formula may be further varied by the substitution of the essence of almond or of rosemary or camphor for the essence of rose.

It is a bland unguent, useful as an emollient application or as an ointment basis. It approaches the composition of Galen's cerate of the Italian Formulary, the unguentum leniens of the German Pharmacopœia, and the unguentum aquæ rosæ of the United States Pharmacopœia.

SPERMACETI POMADE.**Pomata di Spermaceti.**

Oil of sweet almonds,	75.00	grammes	(2 ounces, 197 grains).
Mutton-suet, . . .	25.00	"	(384 grains).
White wax, . . .	12.50	"	(193 ").
Spermaceti, . . .	12.50	"	(193 ").

Melt the fats in the oil and stir until entirely cold.

Spermaceti pomade is an analogous preparation to the spermaceti ointment of the British Pharmacopœia, and is available for the same purposes.

This ointment or pomade is made, according to another formula, by mixing 1 part of spermaceti with 4 parts of white wax and 8 parts of olive-oil.

A third formula is as follows :—

Oil of sweet almonds,	100	grammes	(3 ounces, 105½ grains).
White wax, . . .	25	"	(384 grains).
Spermaceti, . . .	25	"	(384 ").
Rose-water, . . .	25	"	(384 ").

Melt in a water-bath the wax and the spermaceti in the oil, add the rose-water, and stir until cold.

EPISPASTIC OINTMENT.**Unguento Epispastico.**

Poplar ointment, <i>thirty parts</i>,	. . . . .	30
Basilicon ointment, <i>thirty parts</i>,	. . . . .	30
Powdered cantharides, <i>one part</i>,	. . . . .	1

Mix thoroughly.

Epispastic ointment is useful in maintaining a blister. It may be employed as a counter-irritant in chronic visceral inflammations or may be applied to chronic ulcers.

ETHIOPIAN OINTMENT.**Unguento Etiopico. Pomata Mercuriale Solforata.**

Mercurial ointment, <i>two parts</i>,	. . . . .	2
Lard, <i>two parts</i>,	. . . . .	2
Sulphur, <i>one part</i>,	. . . . .	1

Mix thoroughly.

Ethiopian ointment may be serviceably employed in the treatment of pediculi, scabies, indolent ulcers, etc.

DOMESTIC OINTMENT.**Unguento Familiare.**

Mercurial ointment, <i>one part</i>,	. . . . .	1
Lard, <i>four parts</i>,	. . . . .	4

Mix thoroughly.

It should be prepared in small quantities at a time.

This is used to fulfill the indications of a weakened mercurial ointment.

NUT-GALL OINTMENT.**Unguento di Galla.**

Finely-powdered Aleppo galls, <i>one part</i>,	. . . . .	1
Benzoinated lard, <i>eight parts</i>,	. . . . .	8

Mix thoroughly.

The addition to 15 parts of this ointment of 1 part of powdered opium forms the opiated nut-gall ointment, unguento di galla oppiaceo.

This is a slightly stronger preparation than the nut-gall ointment of the United States Pharmacopœia, and, like it, is used for the same purposes as the ointment of gallic or of tannic acid.

JUNIPER OINTMENT.**Unguento di Ginepro. Cerato di Ginepro.**

Juniper-berries, bruised and washed with water, <i>two hundred and fifty parts</i>,	. . . . .	250
Lard, <i>five hundred parts</i>,	. . . . .	500
Yellow wax, <i>eighty parts</i>,	. . . . .	80
Oil of juniper, <i>twenty parts</i>,	. . . . .	20

Boil gently the berries in the lard until they cease to give off watery vapor; strain, add the wax, melt, strain anew, and mix the oil of juniper with the nearly-cold mass.

Juniper ointment is designed to be used in the same manner and for the same purposes as the diuretic ointment, unguento diuretico, of the Italian list.

HELMUND'S NARCOTICO-BALSAMIC OINTMENT.**Unguento Helimund Narcotico-Balsamico.**

Powdered acetate of lead, <i>ten parts</i> ,	10
Extract of conium, <i>thirty parts</i> ,	30
Simple cerate, <i>two hundred and forty parts</i> ,	240
Balsam of Peru, <i>thirty parts</i> ,	30
Tincture of opium, <i>five parts</i> ,	5

Mix the acetate of lead with the extract, add the mixture to the simple cerate; then add the balsam and the tincture, stirring until the mass is homogeneous.

This combination forms a sedative, astringent, and antiseptic medicament, well adapted to the treatment of unhealthy ulcers and wounds, inflammation of the breast, furuncle, carbuncle, etc.

HELMUND'S ARSENICAL OINTMENT.**Unguento Helimund Arsenicale.**

Helimund's narcotico-balsamic ointment, <i>eight parts</i> ,	8
Brother Cosimo's arsenical powder,* <i>one part</i> ,	1

Mix thoroughly.

Arsenical ointment may be used upon indolent and malignant ulcers, carefully watching for symptoms of the constitutional action of the conium or the arsenic.

COMPOUND SALICYLIC ACID OINTMENT.**Unguento Contro le Immondizie della Testa.**

Salicylic acid, <i>ten parts</i> ,	10
Powdered borax, <i>three parts</i> ,	3
Yellow wax, <i>fifty parts</i> ,	50
Lard, colored with some red coloring matter, <i>two hundred and fifty parts</i> ,	250
Peruvian balsam, <i>ten parts</i> ,	10
Essence of bergamot, <i>fifty drops</i> .	
Essence of anise, <i>twenty drops</i> .	
Rose-water, <i>thirty parts</i> ,	30

Add the salicylic acid and the borax to the melted lard and wax. Then add the other substances and mix thoroughly.

* This is essentially a mixture of cinnabar and arsenious acid.

This is an excellent germicide and parasiticide, valuable in the treatment of pediculosis, tinea circinata, erysipelas, unhealthy wounds, ulcers, dermatitis, and burns.

IODINE OINTMENT.

Unguento di Iodio. Pomata di Iodio.

Iodine,	. . . . .	1.92 grammes (29.64 grains).
Lard,	. . . . .	25.00 " (384.00 ").

Triturate the iodine with a little alcohol and then mix it with the fat.

The Italian is about double the strength of the American iodine ointment. Although the indications are the same, yet the former preparation may require dilution on account of its severe irritant action.

ODOFORM OINTMENT.

Unguento di Iodoformio. Pomata di Iodoformio.

Iodoform,	. . . . .	2 grammes (30¾ grains).
Lard,	. . . . .	2 " (30¾ ").

Mix thoroughly.

The uses to which iodoform ointment is applied have been enumerated under the iodoform ointment of the United States Pharmacopœia. The Italian preparation, however, is very much the stronger.

RED IODIDE OF MERCURY OINTMENT.

Unguento di Ioduro Mercurico. Pomata di Ioduro Mercurico.

Biniodide of mercury,	. . . . .	1 gramme (15½ grains).
Lard,	. . . . .	45 grammes (1 ounce, 211 grains).

The Italian ointment of the red iodide of mercury is considerably weaker than the British. It is adapted for use upon venereal ulcers. It may also be applied in cases of psoriasis, goitre, and enlarged spleen.

GREEN IODIDE OF MERCURY OINTMENT.

Unguento di Ioduro Mercurioso. Pomata di Ioduro Mercurioso.

Protiodide of mercury, <i>one part</i>,	. . . . .	1
Benzoinated lard, <i>twenty parts</i>,	. . . . .	20

Mix.

This ointment also is well adapted to the local treatment of venereal and syphilitic ulcers.

IODIDE OF LEAD OINTMENT.

Unguento di Ioduro di Piombo. Pomata di Ioduro di Piombo.

Iodide of lead, <i>ten parts</i>,	. . . . .	10
Benzoinated lard, <i>ninety parts</i>,	. . . . .	90

Finely powder and mix.

The Italian preparation corresponds exactly to the American unguentum plumbi iodidi.

IODIDE OF POTASSIUM OINTMENT.

Unguento di Ioduro di Potassio. Pomata di Ioduro di Potassio.

Iodide of potassium,	. . . . .	3.20 grammes (49½ grains).
Lard,	. . . . .	25.00 " (384 ").

Dissolve the iodide of potassium in a little water and mix it with the fat.

This preparation is of about the same strength as the unguentum potassii iodidi of the United States Pharmacopœia.

IODIDE OF SULPHUR OINTMENT.

Unguento di Ioduro di Zolfo. Pomata di Ioduro di Zolfo.

Iodide of sulphur,	. . . . .	1 gramme (15½ grains).
Lard,	. . . . .	20 grammes (308 ").

Triturate the iodide with a little alcohol and add the lard.

The Italian preparation is rather weaker than the official British iodide of sulphur ointment, but may be used in the same cases.

LAUREL OINTMENT.

Unguento Laurino.

Fresh leaves of laurus nobilis, <i>one part</i>,	. . . . .	1
Berries of laurus nobilis, <i>one part</i>,	. . . . .	1
Lard, <i>two parts</i>,	. . . . .	2

The leaves and the berries, well contused, are united to the lard and exposed to a moderate heat until the water of vegetation is evaporated. The mass is strained,

allowed to cool, the deposit separated and melted anew, and, when it is half cooled, poured into a pot.

This preparation is the same as the official French laurel ointment, *onguent de laurier*.

LIP OINTMENT.

Unguento per le Labra. Cerato per le Labra.

Spermaceti, <i>eighteen parts</i>,	. . . . .	18
Yellow wax, <i>one hundred parts</i>,	. . . . .	100
Almond-oil, <i>one hundred and fifty parts</i>,	. . . . .	150
Alkanet-root, <i>twelve parts</i>,	. . . . .	12
Essence of bergamot, <i>two parts</i>,	. . . . .	2
Essence of lemon, <i>two parts</i>,	. . . . .	2
Jessamine pomade, <i>four parts</i>,	. . . . .	4
Salicylic acid, <i>three parts</i>,	. . . . .	3

Mix thoroughly.

This is an emollient and desiccant ointment.

CHERRY-LAUREL OINTMENT.

Unguento di Lauroceraso. Pomata di Lauroceraso.

Essence of cherry-laurel, <i>one part</i>,	. . . . .	1
Lard, <i>eight parts</i>,	. . . . .	8

Mix thoroughly.

The anodyne virtues of cherry-laurel render its ointment useful as an application in painful affections, as neuralgia, chronic rheumatism, herpes zoster, and carcinoma.

LINARIA OINTMENT.

Unguento di Linaria. Pomata di Linaria.

Linaria incisa, <i>two parts</i>,	. . . . .	2
Lard, <i>ten parts</i>,	. . . . .	10
Alcohol, <i>one part</i>,	. . . . .	1

Macerate the linaria in the alcohol for several hours in a warm place. Then add the lard, and expose the mixture to a moderate heat in a water-bath until the alcohol is evaporated.

Linaria ointment is used as an application to hæmorrhoidal tumors.

LIQUORICE OINTMENT.**Unguento di Liquirizia. Pomata di Liquirizia.**

Powdered pulp of fresh liquorice-root, <i>four hundred and eighty parts</i> ,	480
Butter, <i>four hundred and eighty parts</i> ,	480
Oxide of zinc, <i>twenty-three parts</i> ,	23
Carbonate of lead, <i>ninety parts</i> ,	90
Camphor, <i>two and a half parts</i> ,	2½

Heat the liquorice-powder with the butter until all the moisture is evaporated, strain, and add the other ingredients.

Liquorice ointment is mildly astringent, and is a suitable application in erythema, dermatitis, erysipelas, fissured nipples, acute eczema, impetigo, pemphigus, superficial burns and scalds.

MOTHER THEKLA'S OINTMENT.**Unguento della Madre Tecla. Unguento della Madre. Unguento Bruno. Emplastro Bruno Bruciato.**

Lard, <i>one part</i> ,	1
Fresh butter, <i>one part</i> ,	1
Suet, <i>one part</i> ,	1
Olive-oil, <i>two parts</i> ,	2
Yellow wax, <i>one part</i> ,	1
Powdered litharge, <i>one part</i> ,	1

Melt the fats and the butter in the oil, and add the litharge, stirring continually. Then boil at a moderate heat until the mass has acquired a brown color, remove it from the fire, add the wax, stirring until it is sufficiently cold. Then pour it into a pot or paper molds.

The Italian ointment differs from the French of the same name only in the omission from the former of the pitch present in the latter.

MARSH-MALLOW OINTMENT.**Unguento Malvino. Pomata Malvina.**

Fresh marsh-mallow-leaves, <i>three parts</i> ,	3
Lard, <i>two parts</i> ,	2
Beef-suet, <i>one part</i> ,	1

Melt the fats, add the bruised leaves, and expose the mixture to a moderate heat until all the water of vegetation has been evaporated. Then strain, cool, and separate the ointment from the deposit. The ointment is of a green color.

This is an admirable emollient application, and may be employed wherever bland medication is desirable.

MARTIAL OINTMENT.

Unguento Marziale.

Aqueous solution of nitrate of iron (0.05 of iron), *eight parts*, 8
Extract of aloes, a sufficient quantity.

Make into a mass of the consistence of an ointment.

Martial ointment is an astringent, somewhat escharotic preparation, and is useful in the treatment of syphilitic vegetations and phagedenic chancres.

MATURATIVE OINTMENT.

Unguento Maturativo.

Acetic infusion of daphne gnidium, *fifty parts*, . . . 50
Molasses, *fifty parts*, 50
Olive-oil, *fifty parts*, 50
Basilicon ointment, *fifty parts*, 50
Ox-gall, *ten parts*, 10
Mother Thekla's ointment, *fifty parts*, 50
Powdered subnitrate of mercury, *four parts*, . . . 4

Mix and evaporate to the consistence of thick honey the infusion of daphne, molasses, oil, and ox-gall; then add the ointments, and finally the subnitrate.

Maturative ointment is an irritant, and employed when it is desired to produce suppuration.

MERCURIAL OINTMENT.

Unguento Mercuriale. Pomata Mercuriale. Unguento Napolitano, U. d'Idrargirio, U. Ceruleo, U. Doppio, U. della Metà.

Mercury, 1 kilogramme (2½ pounds troy).
Fresh beef-suet, . . . 0.300 "
Purified lard, 0.700 "

Beat the beef-suet in a marble mortar until it is reduced to a paste, and incorporate the mercury, adding, at a suitable time, half the lard, and continue to stir until the metal is completely extinguished. At this time the remainder of the lard is added. The ointment should be kept in a cool place.

This preparation corresponds to the unguentum hydrargyri of the United States, British, and German Pharmacopœias, and the onguent mercurielle à parties égales of the French Codex.

SIMPLE MERCURIAL OINTMENT.

Unguento Mercuriale Semplice. Unguento Biggio, U. Pedicolare, U. Ceruleo Mite.

Mercurial ointment, <i>one hundred and twenty-five parts,</i>	125
Lard, <i>three hundred and seventy-five parts,</i>	375

Mix thoroughly.

This, like the gray or simple mercurial ointment of the French Codex, is a weakened form of the ordinary mercurial or blue ointment, though the French preparation is somewhat stronger than the Italian.

COMPOUND MERCURIAL OINTMENT.

Unguento Mercuriale Composto.

Mercurial ointment, <i>thirty parts,</i>	30
Lime, <i>eight parts,</i>	8
Chloride of ammonium, <i>four parts,</i>	4
Sulphur, <i>four parts,</i>	4

Compound mercurial ointment possesses considerable stimulant and counter-irritant power, and is very well adapted to the treatment of syphilitic and chronic ulcers, syphilitic vegetations, etc.

MERCURY WITH CACAO-BUTTER OINTMENT.

Unguento Mercuriale col Burro di Cacao.

Cacao-butter, <i>four parts,</i>	4
Oil of sweet almonds, <i>one part,</i>	1
Mercury, <i>five parts,</i>	5

Place the cacao-butter and the oil in a heated marble mortar and add the mercury gradually, triturating until the mercury is completely extinguished. If the mass should become cold and hard, expose the pestle, with its adherent ointment, to heat, and then resume the trituration.

This formula is a modification of that of mercurial ointment, but the preparation is of the same strength and used for the same purposes.

MERCURY WITH CACAO-BUTTER AND CAMPHOR OINTMENT.

Unguento Mercuriale al Burro di Cacao e Canfora.

Mercury, <i>four parts</i>,	.	.	.	.	.	.	.	4
Camphor, <i>four parts</i>,	.	.	.	.	.	.	.	4
Honey, <i>four parts</i>,	.	.	.	.	.	.	.	4
Cacao-butter, <i>eight parts</i>,	.	.	.	.	.	.	.	8

The ointment is prepared in the same manner as the ointment of mercury with cacao-butter.

The above is an admirable preparation, uniting to the irritant, antiseptic, and resolvent properties of the mercury the local anodyne effects of the camphor. This ointment has, consequently, a very extended range of application. It stimulates ulcers, whether syphilitic or simple, to reparative action, promotes the cure of irritable ulcers, while it alleviates their exquisite sensibility. Mercury with cacao-butter and camphor ointment may be applied to syphilitic nodes, to periostitis, orchitis, or to enlarged glands. It is serviceable in subacute or chronic synovitis, chronic rheumatism, gout, myalgia, pleurodynia, neuralgia, and herpes zoster.

MERCURY WITH BELLADONNA OINTMENT.

Unguento Mercuriale alla Belladonna.

Mercurial ointment, <i>thirty parts</i>,	.	.	.	.	.	.	30
Alcoholic extract of belladonna, <i>four parts</i>,	.	.	.	.	.	.	4

Mix thoroughly.

The addition of belladonna to mercurial ointment renders it an anodyne as well as a resolvent to chronic, painful, inflammatory swellings and indurations. This preparation may be applied upon the abdomen in ovaritis, to engorged mammary glands, enlarged lymphatic glands, in erysipelas, lymphangitis, phlebitis, upon boils and carbuncles.

MEZEREUM OINTMENT.**Unguento di Mezereo.**

Alcoholic extract of mezereum-bark, <i>four parts</i> ,	4
Alcohol, <i>fifteen parts</i> ,	15
Lard, <i>two hundred and eighty parts</i> ,	280
White wax, <i>thirty parts</i> ,	30

Dissolve the extract in the alcohol, add the lard and melted wax, and stir until cold.*

MINIUM OINTMENT.**Unguento di Minio.**

White wax, <i>three parts</i> ,	3
Oil of rose, <i>twelve parts</i> ,	12
Red oxide of lead, in powder, <i>four parts</i> ,	4

Mix thoroughly.

The red oxide of lead is an ingredient of the compound lead or brown ointment of the American National Formulary. The minium ointment may be used in the same class of cases as the American preparation.

MONTPELLIER OINTMENT.**Unguento di Montpellier.**

Althæa ointment, <i>sixty parts</i> ,	60
Ointment of rose, <i>sixty parts</i> ,	60
Poplar ointment, <i>sixty parts</i> ,	60
Honey, <i>sixty parts</i> ,	60

Mix thoroughly.

The most active virtues of this compound are due to the presence of the poplar ointment, which resembles

* The uses of mezereum ointment have been described on page 43.

the preparation bearing the same name in the French Codex. Montpellier ointment is, therefore, anodyne and antispasmodic, and, though weaker, may be applied in the same cases in which the French poplar ointment is indicated.

NAPHTHALINE OINTMENT

Unguento di Naftalina. Pomata di Naftalina.

Naphthaline, <i>three parts</i>,	.	.	.	.	.	.	3
Lard, <i>fifty parts</i>,	.	.	.	.	.	.	50

Melt the mass at a gentle heat and stir until thoroughly mixed.

The uses of naphthaline ointment have been already described.

VELPEAU'S BLACK OINTMENT.

Unguento nero di Velpeau.

Mother Thekla's ointment, <i>fifteen parts</i>,	.	.	.	.	15
Oil of sweet almonds, <i>five parts</i>,	.	.	.	.	5

Mix at a gentle heat.

This is merely a modification of the unguento della Madre Tecla.

NOAH'S OINTMENT.

Unguento di Noè. Balsamo di Noè.

Basilicon ointment, <i>one part</i>,	.	.	.	.	.	1
Althæa ointment, <i>one part</i>,	.	.	.	.	.	1
Laurel ointment, <i>one part</i>,	.	.	.	.	.	1
Mercurial ointment, <i>one part</i>,	.	.	.	.	.	1
Poplar ointment, <i>one part</i>,	.	.	.	.	.	1
Oil of hypericum, <i>one part</i>,	.	.	.	.	.	1
Myrrh, <i>one part</i>,	.	.	.	.	.	1
Petroleum, <i>one part</i>,	.	.	.	.	.	1
Oil of lavender, <i>one part</i>,	.	.	.	.	.	1
Oil of turpentine, <i>one part</i>,	.	.	.	.	.	1

Mix thoroughly.

This combination is a striking instance of polypharmacy and deserves no commendation. Most of the constituents are of an irritant character; althæa and laurel ointments are demulcent, while poplar ointment is anodyne.

TOBACCO OINTMENT.**Unguento di Nicoziana. Pomata di Nicoziana.**

Fresh tobacco-leaves, <i>one part</i>,	. . . . .	1
Lard, <i>three parts</i>,	. . . . .	3

Add the bruised leaves to the melted lard and heat until the water is evaporated. Strain.

Tobacco ointment has been noticed under the head of Ointments Formerly Official in the United States Pharmacopœia.

OPHTHALMIC OINTMENT.**Unguento Oftalmico. Pomata Oftalmica.**

Red oxide of mercury, <i>two parts</i>,	. . . . .	2
Cod-liver oil, <i>forty parts</i>,	. . . . .	40
Simple cerate, <i>twenty parts</i>,	. . . . .	20

The application of red precipitate ointment has been alluded to under the head of the Unguentum Hydrargyri Oxidi Rubri of the United States Pharmacopœia.

OPIUM OINTMENT.**Unguento d'Oppio.**

Powdered opium,	. . . . .	3 grammes (46.32 grains).
Lard,	. . . . .	25 " (386.06 ").
Ox-gall,	. . . . .	sufficient quantity.

Triturate the opium with the ox-gall and then mix with the lard.

Opium ointment is designed for the relief of pain.

COMPOUND SAFFRON OINTMENT.**Unguento Ossicroceo. Empiastro Ossicroceo.**

Yellow wax, <i>six parts</i>,	. . . . .	6
Naval pitch, <i>six parts</i>,	. . . . .	6
Resin, <i>six parts</i>,	. . . . .	6
Turpentine, <i>two parts</i>,	. . . . .	2
Galbanum, diluted in vinegar, strained and concentrated,		
<i>two parts</i>,	. . . . .	2
Mastic, <i>two parts</i>,	. . . . .	2
Saffron, <i>one part</i>,	. . . . .	1
Myrrh, <i>one part</i>,	. . . . .	1
Olibanum, <i>one part</i>,	. . . . .	1

The first five substances on the list are melted together; then the other ingredients are added, except the saffron, which is the last to be incorporated.

This is a stimulant and antiseptic preparation, which promotes the healing of ulcers and exerts a resolvent effect upon chronic inflammatory deposits.

YELLOW OXIDE OF MERCURY OINTMENT.

Unguento d'Ossido Giallo di Mercurio. Pomata d'Ossido Giallo di Mercurio.

Yellow oxide of mercury, <i>one part</i>,	. . . . .	1
Ointment or simple cerate, <i>nine parts</i>,	. . . . .	9

Mix thoroughly.

The Italian preparation is of the same strength as the unguentum hydrargyri oxidi flavi of the United States Pharmacopœia. Its uses have been pointed out under the head of the latter.

OXIDE OF ZINC OINTMENT.

Unguento d'Ossido di Zinco. Pomata d'Ossido di Zinco.

Oxide of zinc, <i>ten parts</i>,	. . . . .	10
Benzoinated lard, <i>ninety parts</i>,	. . . . .	90

The Italian is but half the strength of the American oxide of zinc ointment, but is appropriately used in the same class of cases. It may be readily strengthened, if desirable, by the addition of oxide of zinc.

PECTORAL OINTMENT.

Unguento Pettorale.

Olive-oil, <i>twelve parts</i>,	. . . . .	12
Oil of sweet almonds, <i>twelve parts</i>,	. . . . .	12
Fresh butter, <i>twelve parts</i>,	. . . . .	12
Lard, <i>eight parts</i>,	. . . . .	8
White wax, <i>ten parts</i>,	. . . . .	10
Florentine iris, <i>three parts</i>,	. . . . .	3
Powdered saffron, <i>one part</i>,	. . . . .	1

Melt the butter, lard, and wax in the oils, strain and cool, then add the iris and saffron.

Pectoral ointment is an emollient compound, and may be employed wherever a bland unguent is indicated. Its name is traditional, and refers to the popular custom of inunction of the chest in thoracic inflammations.

POPLAR OINTMENT.**Unguento Populeo.**

Poplar-buds, <i>six parts</i>,	.	.	.	.	.	.	.	6
Fresh poppy-leaves, <i>two parts</i>,	.	.	.	.	.	.	.	2
Fresh hyoscyamus-leaves, <i>two parts</i>,	.	.	.	.	.	.	.	2
Fresh leaves of common house-leek, <i>four parts</i>,	.	.	.	.	.	.	.	4
Fresh leaves of solanum ortensum, <i>three parts</i>,	.	.	.	.	.	.	.	3
Lard, <i>twelve parts</i>,	.	.	.	.	.	.	.	12

Mix the bruised leaves with the lard at a gentle heat, evaporate the water of vegetation, add the bruised poplar-buds, and digest for twenty-four hours. Strain. Cool the ointment and separate it from the deposit. Then melt the ointment anew in order to pour it into a pot.

Though the ingredients and proportions are somewhat different, this ointment is formed upon the model of the poplar ointment, onguent populeum, of the French Codex. Its uses are, in the main, identical with those of the latter, although the presence of the house-leek may render the Italian preparation preferable to the French as an application to inflammatory affections.

Another formula for the preparation of poplar ointment is as follows:—

Poplar-buds, <i>three parts</i>,	.	.	.	.	.	.	.	3
Lard, <i>six parts</i>,	.	.	.	.	.	.	.	6

Digest the bruised poplar-buds in the lard for twenty-four hours. Then add—

Leaves of papaver erraticum, <i>one part</i>,	.	.	.	.	.	.	.	1
Belladonna-leaves, <i>one part</i>,	.	.	.	.	.	.	.	1
Hyoscyamus-leaves, <i>one part</i>,	.	.	.	.	.	.	.	1
Dulcamara-leaves, <i>one part</i>,	.	.	.	.	.	.	.	1

The bruised leaves are added to the fat and the water

of vegetation driven off by a gentle heat. Strain and pour into a pot.

RED PRECIPITATE OINTMENT.

Unguento di Precipitato Rosso. Pomata di Precipitato Rosso.

Red oxide of mercury, <i>one part</i>,	. . . . .	1
Lard, <i>sixteen parts</i>,	. . . . .	16

This is a considerably weaker preparation than the unguentum hydrargyri oxidi rubri of the United States Pharmacopœia.

COMPOUND RESIN OINTMENT.

Unguento Rasino.

Olive-oil, <i>twelve parts</i>,	. . . . .	12
Resin, <i>twelve parts</i>,	. . . . .	12
Turpentine, <i>twelve parts</i>,	. . . . .	12
Yellow wax, <i>eight parts</i>,	. . . . .	8

Mix thoroughly.

This is a strengthened resin ointment. It may be used for maintaining a blister and in other cases in which an irritant application is demanded.

RICOUR'S OINTMENT.

Unguento di Ricour.

Oil of rose, <i>one hundred parts</i>,	. . . . .	100
White wax, <i>eighty parts</i>,	. . . . .	80
Carbonate of lead, <i>forty parts</i>,	. . . . .	40
Litharge, <i>twenty parts</i>,	. . . . .	20
Liquid balsam of Peru, <i>five parts</i>,	. . . . .	5

Mix thoroughly. The balsam is added at the last.

Ricour's ointment is an excellent combination, and possesses the virtues characteristic of the saturnine preparations. It will be found efficacious in acute and subacute eczema, seborrhœa, dermatitis, paræsthesia, sycosis, and impetigo.

ROSE OINTMENT.

Unguento Rosato.

Lard, <i>twelve parts</i>,	. . . . .	12
White-rose petals, <i>four parts</i>,	. . . . .	4
Red-rose petals, <i>four parts</i>,	. . . . .	4
White wax, <i>one part</i>,	. . . . .	1

Pour the melted lard upon the rose-petals contained in a varnished earthenware jar. Cover the jar and digest on a water-bath for three days. Strain, and add the melted wax; cool, separate the ointment from the sediment, and stir until the mass is homogeneous.

Rose ointment is an admirable astringent preparation, serviceable in erythema, acute eczema, and dermatitis.

COMPOUND ROSEMARY OINTMENT.

Unguento (Pomata) di Rosmarino Composto o Unguento Nervino.

Lard, <i>sixteen parts</i> ,	16
Suet, <i>eight parts</i> ,	8
Yellow wax, <i>two parts</i> ,	2
Oil of nutmeg, <i>two parts</i> ,	2
Oil of rosemary, <i>one part</i> ,	1
Oil of juniper, <i>one part</i> ,	1

Mix thoroughly. The oil of rosemary and the oil of juniper are added to the mass when half cooled.

The composition, proportions, and uses of this preparation are the same as those of the compound rosemary ointment of the German Pharmacopœia.

RED OINTMENT.

Unguento Rosso. Glicerato di Precipitato Rosso.

Red oxide of mercury, <i>twenty-five hundredths part</i> ,	0.25
Glycerite of starch, <i>fifteen parts</i> ,	15

Mix thoroughly.

Red ointment is a weakened preparation, being but half the strength of the ophthalmic ointment of the Italian Formulary.

RUE OINTMENT.

Unguento (Pomata) di Ruta.

Fresh rue-leaves, <i>one part</i> ,	1
Fresh absinthe-leaves, <i>one part</i> ,	1
Fresh mint-leaves, <i>one part</i> ,	1
Lard, <i>eight parts</i> ,	8

Heat gently until all the moisture is expelled.

Strain, separate the ointment from the sediment, and stir until the mass becomes homogeneous.

This is an irritant preparation, and may be used in order to produce decided counter-irritation and to stimulate indolent ulcers.

SAVINE OINTMENT.

Unguento (Pomata) di Sabina.

Fresh savine-leaves, <i>twelve parts</i>,	. . . . .	12
Lard, <i>twenty-four parts</i>,	. . . . .	24
White wax, <i>six parts</i>,	. . . . .	6

Savine ointment is prepared in the same manner as the ointment of rue.

This ointment nearly corresponds to the unguentum sabinæ of the British Pharmacopœia. Its uses are the same.

ELDER OINTMENT.

Unguento (Pomata) di Sambuco.

Fresh elder-leaves, <i>three hundred parts</i>,	. . . . .	300
Lard, <i>four hundred parts</i>,	. . . . .	400
Suet, <i>two hundred parts</i>,	. . . . .	200

Elder ointment is prepared in the same manner as the ointment of rue.

This ointment is emollient, and is a suitable application to irritated or acutely inflamed surfaces.

SULPHATE OF QUININE OINTMENT.

Unguento (Pomata) di Solfato di Chinina.

Sulphate of quinine, <i>two to four parts</i>,	. . . . .	2 to 4
Lard, <i>twenty parts</i>,	. . . . .	20
Sulphuric acid, <i>one drop</i> .		
Alcohol, <i>sufficient quantity</i> .		

Mix thoroughly.

Quinine ointment has been employed as an adjuvant in the treatment of fever in children, being rubbed into the axilla four or six times daily.

LEAD WITH SOAP OINTMENT.**Unguento (Pomata) Saturnino Sapon.**

Soap, <i>two hundred and forty parts</i> ,	240
Extract of lead, <i>sixty parts</i> ,	60
Water, <i>two thousand parts</i> ,	2000
Camphor, <i>four parts</i> ,	4

Mix thoroughly.

This preparation may be employed as a substitute for diachylon ointment.

SULPHATE OF IRON OINTMENT.**Unguento (Pomata) di Solfato Ferroso.**

Sulphate of iron,	0.5 to 1 gramme (7½ to 15 grains).
Lard,	20 grammes (308.84 grains).

Dissolve the iron in a sufficient quantity of water and mix with the lard.

This is an astringent ointment which possesses no decided superiority to other preparations of the same class, and is attended with the disadvantage of staining the linen indelibly.

SULPHURIC ACID OINTMENT.**Unguento (Pomata) Solforico.**

Olive-oil, <i>eight parts</i> ,	8
Sulphuric acid, <i>five parts</i> ,	5

Add the acid gradually to the oil, stirring constantly. After twenty-four hours, wash in water until it does not change litmus-paper.

This ointment is found serviceable in chronic ophthalmia, psoriasis, and as an application to chronic ulcers.

STAVESACRE OINTMENT.**Unguento (Pomata) di Stafisagria.**

Lard, <i>thirty-six parts</i> ,	36
Mercury, <i>three parts</i> ,	3
Stavesacre, <i>eight parts</i> ,	8

Mix the mercury in the lard and then add the stavesacre.

This ointment is efficacious in pediculosis and scabies.

STEARATE OF QUININE AND SODA OINTMENT.

Unguento (Pomata) di Stearato di Chinina e Soda alla Glicerina.

Stearate of quinine, <i>four parts</i>,	. . . . .	4
Animal soap, <i>four parts</i>,	. . . . .	4
Pure glycerin, <i>thirty-two parts</i>,	. . . . .	32

Dissolve on a water-bath the soap in the glycerin, pour into a heated marble or porcelain mortar, then add the stearate of quinine and mix carefully, stirring until cold. Perfume with essence of bitter almond.

The oleates are a far preferable class of combinations to stearates, possessing more penetrative action. But, as stated in another portion of this work, I have failed to observe any constitutional effects from the use of the oleate of quinine.

STEARATE OF IRON OINTMENT.

Unguento (Pomata) di Stearato di Ferro.

Sulphate of iron, <i>five hundred parts</i>,	. . . . .	500
Marseilles soap, <i>one thousand parts</i>,	. . . . .	1000

Dissolve the sulphate and the soap each in 1500 parts of water. Melt, at a gentle heat, the deposit formed by the mixture of the two solutions and add 4 per cent. of the essence of lavender. Stir until entirely cold.

The "Farmacopea Italiana" states that the stearate of iron has been successfully employed in cases of chancre and phagedenic venereal ulcers.

STORAX OINTMENT.

Unguento di Storace.

Fresh walnut-oil, <i>twelve parts</i>,	. . . . .	12
Liquid storax, <i>four parts</i>,	. . . . .	4
Resin, <i>four parts</i>,	. . . . .	4
Elemi, <i>three parts</i>,	. . . . .	3
Yellow wax, <i>three parts</i>,	. . . . .	3

Melt the resin, wax, and elemi in the oil, then add the storax and stir until cold.

This ointment forms a serviceable application to

chronic ulcers and other conditions in which stimulation is required.

TARTAR EMETIC OINTMENT.

Unguento di Tartaro Emetico. Pomata di Tartaro Emetico.

Powdered tartar emetic, . . . 6.40 grammes (98 $\frac{3}{4}$ grains).
Lard, 25.00 “ (386 “).

Dissolve the tartar emetic in a small quantity of water of rose and then mix with the fat.

This is about the same strength as the German and the formerly officinal American ointment of tartar emetic.

TURPENTINE OINTMENT.

Unguento di Terebintina.

Yellow wax, Venice turpentine, essence of turpentine, *equal parts of each.*

Mix thoroughly.

This is an analogous preparation to the British turpentine ointment, though stronger. It may be used in psoriasis, but will often require to be weakened in that as in other affections.

CAMPHORATED TURPENTINE OINTMENT.

Unguento di Terebintina Canforato.

Olive-oil, *two hundred and forty parts*, 240
Turpentine, *eighty parts*, 80
Yellow wax, *forty parts*, 40
Powdered red saunders, *ten parts*, 10
Powdered camphor, *thirty parts*, 30

Dissolve, at a gentle heat, the turpentine and the wax in the oil, then add the red saunders; stir, and add the camphor to the mass when half-cold.

The indications of this preparation are the same as those of the turpentine ointment of the British Pharmacopœia

TUTTY OINTMENT

Unguento di Tuzia. Pomata di Tuzia.

Tutty, 8 grammes (123 $\frac{1}{2}$ grains).
Ointment of rose, 15 “ (231 $\frac{1}{2}$ “).
Butter, washed with rose-water, 15 “ (231 $\frac{1}{2}$ “)

Tutty is the impure oxide of zinc, obtained in the process of smelting lead ores containing zinc. It was formerly used in this country under the title of unguentum tutiæ, but has long since been replaced by the officinal oxide of zinc ointment. The Italian tutty ointment is of about the same strength as our oxide of zinc ointment, but the latter preparation possesses every advantage, the oxide being chemically pure and being reduced to a minute state of division.

WHITE VASELINE OINTMENT.

Unguento di Vaseline Bianco. Pomata di Vaseline Bianca.

Vaseline, <i>one thousand parts</i> ,	1000
Rose-water, <i>eighty parts</i> ,	80
Essence of bergamot, <i>ten parts</i> ,	10
Essence of citronella, <i>one and five-tenths parts</i> ,	1.5
Musk mixture, <i>three parts</i> ,	3

Musk mixture is made as follows:—

Essence of bergamot, <i>one hundred parts</i> ,	100
Essence of lemon, <i>fifty parts</i> ,	50
Essence of citronella, <i>twenty-five parts</i> ,	25
Musk, <i>two-tenths part</i> ,	0.2

Dissolved in forty parts of alcohol and after five days filtered through cotton.

RED VASELINE OINTMENT.

Unguento di Vaseline Rosso. Pomata di Vaseline Rossa.

Purified vaseline, <i>eight hundred and fifty parts</i> ,	850
Yellow wax, <i>one hundred and forty parts</i> ,	140
Rose-water, <i>sixty parts</i> ,	60
Essence of bergamot, <i>ten parts</i> ,	10
Musk mixture, <i>three parts</i> ,	3

Melt for some hours upon a water-bath the vaseline and the wax; strain, and then add the remaining ingredients, stirring until the mass becomes homogeneous.

These two vaseline preparations are to be regarded rather as elegant toilet pomades than medicaments.

GREEN OINTMENT.**Unguento Verde.**

Powdered verdegris, <i>one part</i>,	. . . . .	1
Basilicon ointment, <i>fifteen parts</i>,	. . . . .	15

Mix thoroughly.

The acetate of copper is an efficient parasiticide. Green ointment constitutes a good application in the various forms of tinea. It is also a useful stimulant to ulcerated surfaces.

BLISTERING OINTMENT.**Unguento Vesicatorio o Blister Officinale.**

Powdered euphorbium, <i>one hundred parts</i>,	. . . . .	100
Powdered cantharides, <i>one hundred parts</i>,	. . . . .	100
Burgundy pitch, <i>one hundred parts</i>,	. . . . .	100
Mastic, <i>fifty parts</i>,	. . . . .	50
Resin, <i>fifty parts</i>,	. . . . .	50
Diachylon plaster, <i>fifty parts</i>,	. . . . .	50
Oil of cantharides, <i>sufficient quantity</i> .		

Melt, at a gentle heat, the Burgundy pitch, resin, and diachylon plaster; add the powders, stir briskly, and add enough oil of cantharides to form a homogeneous paste.

Another formula is as follows:—

Oil of cantharides, <i>two parts</i>,	. . . . .	2
Yellow wax, <i>twenty-five parts</i>,	. . . . .	25
Turpentine, <i>eight parts</i>,	. . . . .	8
Powdered cantharides, <i>thirty-five parts</i>,	. . . . .	35

Mix thoroughly.

BLISTERING OINTMENT.**Unguento Vesicatorio.**

Poplar ointment, <i>two hundred and fifty parts</i>,	. . . . .	250
Basilicon ointment, <i>ninety-six parts</i>,	. . . . .	96
Yellow wax, <i>sixty-four parts</i>,	. . . . .	64
Powdered cantharides, <i>one part</i>,	. . . . .	1

Mix thoroughly.

The purpose of this combination is sufficiently indicated by its name. The presence of poplar ointment

diminishes the pain of the application and lessens the tendency to strangury.

Another formula, into which cantharides does not enter, is as follows :—

Lard, <i>five hundred parts</i>,	. . . . .	500
Yellow wax, <i>one hundred and ninety parts</i>,	. . . . .	190
Olive-oil, <i>sixty-four parts</i>,	. . . . .	64
Fresh savine-leaves, <i>one hundred and twenty-eight parts</i> ,		128
Rhus toxicodendron-leaves, <i>sixteen parts</i>,	. . . . .	16
Aromatic essence, <i>sufficient quantity</i> .		

Mix thoroughly.

BLISTERING OINTMENT.

Unguento Vesicatorio Senza Cantaridi.

Powdered mustard, <i>five parts</i>,	. . . . .	5
Powdered pellitory, <i>four parts</i>,	. . . . .	4
Powdered stavesacre, <i>four parts</i>,	. . . . .	4
Powdered pepper, <i>four parts</i>,	. . . . .	4
Powdered euphorbium, <i>four parts</i>,	. . . . .	4
Basilicon ointment, <i>one hundred and twenty parts</i>,	. . . . .	120

Mix thoroughly.

The association of these powerful irritants produces a vesicant as capable as an ointment of Spanish fly, and free from the liability of inducing strangury.

CHAPTER IX.

OINTMENTS IN SPANISH PHARMACY.

THE list of ointments familiar to Spanish pharmacy* is as follows:—

CARBONATE OF AMMONIA OINTMENT.

Ungüento Amoniacal. Unguentum Ammoniatum.

Carbonate of ammonium, . . .	4 grammes (61¾ grains).
Ointment of rose, . . .	30 “ (463¼ “).
Essence of jasmine, . . .	4 drops.

This nearly corresponds to the carbonate of ammonia ointment of the Italian Pharmacopœia. The Spanish is, however, a somewhat stronger preparation.

EDINBURGH ITCH OINTMENT.

Ungüento Antipsórico de Edinburgo. Unguentum Antipsoricum Edinburgense.

Black pitch, . . .	500 grammes (16 ounces, 48 grains).
Lard, . . .	1000 “ (32 “ 96 “).
Precipitated sulphur, .	1000 “ (32 “ 96 “).

This preparation contains a larger proportion of sulphur than the sulphur ointment officinal in the United States Pharmacopœia. The addition of black pitch enhances its irritant properties. While, therefore, its general indications are the same as those of the American ointment, it requires caution in its use.

BASILICON OINTMENT.

Ungüento Basilicon. Unguentum Basilicum. Unguentum Tetrapharmacum.

Black pitch, . . .	100 grammes (3 ounces, 105½ grains).
Resin, . . .	100 “ (3 “ 105½ “).
Yellow wax, . . .	100 “ (3 “ 105½ “).
Olive-oil, . . .	400 “ (12 “ 422 “).

*Dorivault: Recetario Farmacéutico. This is an adaptation of Dorivault's great work, L'Officine au Répertoire Général de Pharmacie Pratique.

The Spanish basilicon ointment is precisely the same as the Italian unguento basilico or unguento tetrafarmaco, and the onguent basilicum of the French Codex. The German, British, and American ointments of the same name differ but slightly in composition or strength. The pitch is omitted in the latter preparations. The Italian ointment of the Abbey di Bec is of similar composition to the Spanish and Italian basilicon ointments, with the addition of frankincense.

PERUVIAN BALSAM OINTMENT.

Ungüento Balsamico Peruviano. Uguentum Balsamicum Peruvianum.

Olive-oil,	690	grammes (22 ounces, 96 grains).
Yellow wax,	345	" (11 " 48 ").
Carbonate of lead,	230	" (7 " 192 ").
Litharge,	115	" (3 " 336 ").
Greek pitch,	115	" (3 " 336 ").
Castile-soap,	115	" (3 " 336 ").
Carbonate of zinc,	58	" (1 " 216 ").
Liquid balsam of Peru,	58	" (1 " 216 ").

Melt the wax and the pitch with the oil and strain the mixture. Add the coarsely-powdered soap and the remaining solid substances, finely powdered. Heat the mass, stirring continually until it has acquired a bright chestnut color and the consistence of a syrup. Remove from the fire, and, when half-cooled, add the Peruvian balsam. Then pour into paper molds.

The Spanish ointment of Peruvian balsam is of kindred composition to the Ricour ointment of the Italian Pharmacopœia. The former is a more stimulant preparation, as it contains a larger proportionate quantity of Peruvian balsam, and, in addition, pitch and soap. It is an admirable astringent and antiseptic combination, suitable in cases of unhealthy ulcers, dermatitis, subacute and acute eczema, seborrhœa, sycosis, and impetigo.

PILE OINTMENT.

Ungüento Contra las Hemorroides. Unguentum ad Hæmorrhoides.

Poplar ointment, . . .	90 grammes (2 ounces, 432 grains).
Litharge ointment, . . .	90 " (2 " 432 ").
Saffron, in powder, . . .	6 " (92½ grains).
Crude opium, . . .	1 gramme (15½ ").
Yelks of 3 eggs.	

The addition of litharge ointment communicates astringency to this preparation, which resembles, in other respects, as regards its composition, the pile ointment and the poplar ointment of the Italian Pharmacopœia. These, in their turn, are founded upon the poplar ointment of the French Codex.

The Spanish ointment is an excellent application to irritable ulcers, painful hæmorrhoids, herpes zoster, and all painful inflammatory conditions of the integument and subcutaneous cellular tissue.

TINEA OINTMENT.

Ungüento Contra la Tiña. Unguentum ad Tineam Capitis.

Lard,	480 grammes (15 ounces, 211 grains).
Pulverized charcoal, 125	" (4 " 14½ ").
Sulphur,	125 " (4 " 14½ ").
Soot,	60 " (1 " 432 ").

CHARITÉ TINEA OINTMENT.

Ungüento Contra la Tiña, de la Caridad. Unguentum ad Tineam Capitis. Onguent Contre la Teigne, de la Charité.

White vinegar, . . .	150 grammes (4 ounces, 398 grains).
Wheaten flour, . . .	25 " (386 grains).
Black pitch,	25 " (386 ").
White pitch,	25 " (386 ").

Melt the pitch; dissolve the flour in the hot vinegar and mix thoroughly with the pitch.

The use for which the three preceding preparations are intended is sufficiently indicated by their titles. They are, however, far inferior to more modern modes of medication in trichophytosis, notably to the oleate of

copper or of mercury and to ointments containing corrosive sublimate, acid nitrate of mercury, oil of cade, thymol, or resorcin in proper quantities.

HENKE'S TINEA OINTMENT.

Ungüento Contra la Tiña de Henke. Unguentum ad Tineam Capitis ex Henke.

Althæa ointment, . . .	60 grammes (1 ounce, 432 grains.)
Juniper ointment, . . .	60 " (1 " 432 ").
Hydrochloric acid, . . .	15 " (231½ grains).

Juniper ointment (unguento de enebro, unguentum juniperi) consists of—

Juniper-leaves,	1 gramme (15½ grains).
Resin cerate,	6 grammes (92½ ").

PEDICULOSIS OINTMENT.

Ungüento Contro los Piojos. Unguentum Pediculorum. Unguentum Staphisagriæ cum Mercurio.

Lard,	375 grammes (12 ounces, 38 grains).
Mercurial ointment, . . .	60 " (1 ounce, 432 ").
Powdered stavesacre, . . .	90 " (2 ounces, 432 ").

This preparation is efficient in pediculosis and scabies.

COMPOUND CORROSIVE-SUBLIMATE OINTMENT.

Ungüento de Cloruro Mercurico Compuesto. Unguentum Chloruri Mercurici Compositum.

Beef-suet,	115 grammes (3 ounces, 336 grains).
Turpentine,	29 " (448 grains).
Oil of rose,	29 " (448 ").
Carbonate of lead, . . .	72 " (2 ounces, 149 grains).
Corrosive sublimate, . .	7 " (108 grains).
Dried alum,	7 " (108 ").
Citric acid,	6 " (92½ ").
Yelks of 2 eggs.	

Mix the finely-powdered salts in a stone mortar. Add the citric acid dissolved in about 50 grammes (1 ounce, 293 grains by weight) of water, and then the yelks. When these are well mixed, incorporate gradually the lard, turpentine, and oil, previously melted at gentle heat. Stir the mixture from time to time for two or three days and preserve for use.

Each 30 grammes ($463\frac{1}{4}$ grains) of the ointment contain 0.60 gramme ($9\frac{1}{4}$ grains).

This forms a powerful stimulant, antiseptic, and parasiticide application, serviceable in scabies, chronic eczema, purpura, bromidrosis, trichophytosis, and lupus vulgaris. It may also be spread upon chronic ulcers. The ointment must be watched carefully on account of the danger of mercurial intoxication. It may be employed likewise as a resolvent to promote the absorption of plastic exudations. The same preparation may be of service in ulcerated epithelioma and in syphilitic ulcers.

ACETATE OF LEAD OINTMENT.

Ungüento de Acetato de Plomo. Unguentum Tenuis Acetatis Plumbi.

Solution of acetate of lead, .	100 grammes (3 ounces, $105\frac{1}{2}$ grains).
Olive-oil,	100 " (3 " $105\frac{1}{2}$ ").

Mix in a stone mortar and stir constantly until the mass is of the consistence of a liniment.

The indications of this oleaginous preparation are similar to those of the American ceratum plumbi subacetatis and the British unguentum plumbi acetatis. Analogous combinations are found in the German and Italian Pharmacopœias.

NUT-GALL AND MORPHINE OINTMENT.

Ungüento de Agallas y Morfina. Unguentum Gallarum cum Morphina.

Morphine,	1 gramme ($15\frac{1}{2}$ grains).
Olive-oil,	72 grammes (2 ounces, 149 grains).
Zinc ointment,	280 " (9 ounces).
Powdered nut-gall,	36 " (1 ounce, 77 grains).

This preparation is analogous to the British unguentum gallæ cum opio. It is used for the same purpose in the treatment of painful hæmorrhoids.

ALTHÆA OINTMENT.**Ungüento de Altea. Unguentum Althææ.**

Oil of fenugreek, . . .	800 grammes (25 ounces, 350½ grains).
Yellow wax, . . .	200 " (6 " 211 ").
Resin, . . .	100 " (3 " 105½ ").
Turpentine . . .	100 " (3 " 105½ ").

Melt the wax and resin with the oil of fenugreek.

This is the same preparation as the onguent dit d'Althæa of the French Codex.

ARCÆUS OINTMENT.**Ungüento de Arceo. Unguentum Arcæi.**

Mutton-suet, . . .	200 grammes, (6 ounces, 211 grains).
Turpentine, . . .	150 " (4 ounces, 398½ ").
Elemi, . . .	150 " (4 " 398½ ").
Lard, . . .	100 " (3 " 105½ ").

This corresponds exactly to the French onguent d'Arcæus.

COMPOUND MYRTLE OINTMENT.**Ungüento de Arrayan Compuesto. Unguentum Myrtinum Compositum. Ungüento de la Condesa. Unguentum Comitissæ.**

Oil of myrtle, . . .	345 grammes (11 ounces, 48 grains).
Yellow wax, . . .	29 " (448 grains).
Powdered myrtle-berries, . . .	7 " (108 ").
Powdered cypress-fruit, . . .	7 " (108 ").
Powdered pomegranate-bark, . . .	7 " (108 ").
Powdered nut-gall, . . .	86 " (2 ounces, 369½ grains).
Powdered sumach, . . .	29 " (448 grains).
Powdered mastic, . . .	14 " (216 ").

Melt the wax in the oil at a gentle heat; then withdraw the mixture from the fire, add the powders, and stir until the mass is nearly cold and has acquired the consistence of an ointment.

Compound myrtle ointment is a powerful vegetable astringent preparation. It is beneficial in the same conditions as the tannic acid ointment of the United States Pharmacopœia.

COMPOUND ARTHANITA OINTMENT.

Ungüento de Artánita Compuesto. Unguentum Arthanitæ Compositum.

Compound oil of arthanita,	. 690 grammes (22 ounces, 96 grains).
Beef-suet,	. . . . 230 " (7 " 192 ").
Yellow wax,	. . . . 230 " (7 ounces, 192 ").
Purified sagapenum,	. . . . 14 " (216 grains).
Ox-gall,	. . . . 14 " (216 ").
Powdered scammony,	. . . . 14 " (216 ").
Powdered jalap,	. . . . 14 " (216 ").
Powdered colocynth,	. . . . 14 " (216 ").
Powdered aloes,	. . . . 14 " (216 ").
Powdered mezereon-leaves,	. . . . 14 " (216 ").
Powdered chloride of sodium,	. . . . 7 " (108 ").
Powdered euphorbium,	. . . . 7 " (108 ").
Powdered myrrh,	. . . . 7 " (108 ").
Powdered allspice,	. . . . 7 " (108 ").
Powdered ginger,	. . . . 7 " (108 ").
Powdered chamomile-flower,	. . . . 7 " (108 ").

Dissolve the wax and the beef-suet in the oil at a gentle heat, add the sagapenum and the ox-gall, and when these are mixed withdraw from the fire. Then incorporate the powders, stirring constantly until the mass is entirely cold.

The compound oil of arthanita (aceite de artanita compuesto, oleum arthanitæ compositum) contains the following substances :—

Strong decoction of arthanita-root,	. . . . 690 grammes (22 ounces, 96 grains).
Decoction of cucumber,	. . . . 230 " (7 " 192 ").
Fresh oil of orris,	. . . . 690 " (22 " 96 ").
Colocynth,	. . . . 58 " (1 ounce, 216 ").
Polypodium,	. . . . 86 " (2 ounces, 369½ ").
Euphorbium,	. . . . 7 " (108 grains).

The compound arthanita ointment bears a resemblance to the arthanita ointment of the Italian Formulary. The Spanish preparation, however, is considerably more complex than the Italian. It must be looked upon

as a survival from the times in which polypharmacy was prevalent. It was intended to be rubbed upon the abdomen with friction, in order that it might act by absorption, and was employed in ascites or general dropsy, and also among children, as an anthelmintic.

BRYONIA OINTMENT.

Ungüento de Brionia. Ungüento de Agripa. Unguentum Bryoniæ Agrippæ.

Fresh squill, . . .	180 grammes (3 ounces, 384 grains).
Common iris-root, .	180 " (5 " 384 ").
Root of male fern, .	180 " (5 " 384 ").
Elaterium-juice, .	700 " (22 " 249½ ").
Bryonia-juice, .	1100 " (35 " 192 ").

Macerate for twelve hours, then boil. Strain and evaporate to the consistence of a soft extract, to which add—

White wax, . . .	500 grammes (16 ounces, 48 grains).
Oil of mucilages, .	1500 " (48 " 144 ").

The Spanish preparation is identical with the bryonia ointment of the Italian Formulary. The composition of the oil of mucilages was given when treating of the latter ointment.

CUCUMBER OINTMENT.

Ungüento de Calabaza. Unguentum Cucurbitæ.

Cucumber,	500 grammes (16 ounces, 48 grains).
Purslane-leaves,	500 " (16 " 48 ").
Violet-leaves,	500 " (16 " 48 ").
Powdered arrow-root, . .	500 " (16 " 48 ").
Leaves of black nightshade, .	500 " (16 " 48 ").

Bruise the leaves in a stone mortar. Then macerate for two days in a warm place with—

Olive-oil,	2500 grammes (80 ounces, 240 grains).
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Heat until all the moisture is evaporated. Strain, and with the clear oil which is expressed mix—

Wax,	500 grammes (16 ounces, 48 grains).
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The Spanish cucumber ointment differs considerably from the Italian and the unofficial American preparation of the same name. Purslane is the *Portulaca oleracea*, a plant growing near the sea-shore in tropical and sub-tropical countries. The leaves contain a large quantity of mucilage. Violet-leaves are likewise emollient. The common garden or black nightshade possesses, though to a less degree, the anodyne virtues of the more powerful members of the solanaceous group, such as belladonna and stramonium. Like those, it has been applied in ointment form to mitigate the pain of inflammation or of malignant disease. Its presence renders the ointment under discussion serviceable in neuralgia, herpes zoster, irritable ulcers, painful hæmorrhoids, and bed-sores.

CANTHARIDAL OINTMENT.

Ungüento de Cantáridas. Unguentum Cantharidum.

Finely-powdered cantharides,	32 grammes (494 grains).
Distilled water,	125 " (4 ounces, 14½ grains).
Resin ointment,	125 " (4 " 14½ ").

Boil the cantharides in the water until the quantity is reduced one-half; filter the liquid; incorporate the resin ointment, and evaporate to the consistence of an ointment.

The name and composition of this preparation sufficiently indicate its use.

The fifth edition of the Spanish Pharmacopœia prescribes the following formula:—

Resin ointment,	86 grammes (2 ounces, 369½ grains).
Yellow wax,	14 " (216 grains).
Powdered cantharides, 43	" (1 ounce, 144 grains).

Mix the wax with the ointment at a gentle heat. When the mixture has become liquid withdraw it from the fire. Then add the powdered cantharides and stir the product until it acquires, in cooling, a semi-solid consistence.

DEOBSTRUENT HEMLOCK OINTMENT.

Ungüento de Cicuta Deopilativo. Unguentum Cicutæ
Deopilativum.

Hemlock-leaves, . . .	375 grammes (12 ounces, 38½ grains).
Celery-leaves, . . .	375 " (12 " 38½ ").
Dwarf elder, . . .	375 " (12 " 38½ ").
Parsley-leaves, . . .	375 " (12 " 38½ ").
Savine-leaves, . . .	375 " (12 " 38½ ").
Bark of caper-bush root, .	180 " (5 " 384 ").
Iris-root, . . .	180 " (5 " 384 ").
Bryonia-root, . . .	180 " (5 " 384 ").
Olive-oil, . . .	2250 " (72 " 216 ").

Cut up and bruise the leaves and roots, and digest them in the oil for four days. Then heat until all the moisture is evaporated. Strain and set aside until a sediment forms; separate this by decantation. Then mix at a gentle heat—

Yellow wax, 560 grammes (18 ounces).

As soon as the mass is melted remove it from the fire. When partly cooled add—

Powdered ammoniac, . . . 60 grammes (1 ounce, 432 grains).
Powdered root of aristolochia longa, 60 " (1 " 432 ").

Stir with a spatula until the whole is perfectly mixed.

This formula is much more complex than that of the Italian hemlock ointment. The leaves of the celery-plant, *Apium graveolens*, Nat. Ord. Umbelliferæ, exert a diuretic influence. Parsley, *Petroselinum sativum*, Nat. Ord. Umbelliferæ, is a kindred plant. Its leaves are stimulant and resolvent, and are popularly employed in Spain in order to relieve turgescence of the mammary glands. Parsley possesses aperient, diuretic, and emmenagogue properties. The dwarf elder, *Sambucus ebulus*, Nat. Ord. Caprifoliaceæ, is emetic and hydragogue. The properties of savine, iris, and bryonia have been elsewhere described. Aristolochia has likewise an emmenagogue action. Caper-bush root is diuretic.

This combination is employed in the hope of producing absorption of inflammatory products, hyperplasia of tissue, neoplastic formations, transudations or effusions. It is, therefore, available in the treatment of enlarged lymphatic glands, hypertrophy of the liver or spleen, œdema, erysipelas, chronic arthritis, swollen mammæ, and bronchocele.

VERDIGRIS OINTMENT.

Ungüento de Cobre. Unguentum Cupratum.

Powdered verdigris, 1 gramme (15½ grains).
 Basilicon ointment, 15 grammes (231½ “).

This is precisely the same preparation as the Italian green ointment, *unguento verde*.

DIAPALMA OINTMENT.

Ungüento de Diapalma. Unguentum Diapalmæ.

Diapalma plaster, . 375 grammes (12 ounces, 38½ grains).
 Oil of rose, . . . 250 “ (8 “ 24 “).
 Turpentine, . . . 60 “ (1 “ 432 “).

The formula of diapalma plaster is as follows:—

Simple plaster, . 800 grammes (25 ounces, 350½ grains).
 White wax, . . . 50 “ 1 “ 293 “).

Melt and add—

Sulphate of zinc in saturated solution, . 25 grammes (386 grains).

Heat until all moisture is expelled, stirring constantly.

According to the fifth edition of the Spanish Pharmacopœia, diapalma plaster is made by melting together—

Simple lead plaster, . 1035 grammes (33 ounces, 139 grains).
 White wax, . . . 86 “ (2 “ 369½ “).
 Resin, 58 “ (1 “ 216 “).

The name “diapalma” is derived from the fact that anciently the preparation contained a decoction of palm-leaves, which was reckoned as one of the most active ingredients.

The uses of diapalma ointment correspond very closely to those of the diachylon ointment of the United States Pharmacopœia, than which, however, it is rather more irritant.

DUKE'S OINTMENT.

Ungüento del Duque. Unguentum Ducis.

Walnut-oil, 250 grammes (8 ounces, 24 grains).

Flowers of sulphur, . . 6 " (1 ounce, 432 ").

Dissolve in a sand-bath, and add—

Lard, 250 grammes (8 ounces, 24 grains).

Yellow wax, . . . 30 " (463¼ grains).

Color the mixture with a sufficient quantity of alkanet, strain through linen, and triturate in a marble mortar in order to thoroughly mix the oil.

The Spanish preparation is almost identical with the Duke ointment of the Italian Formulary, the only difference being that the proportion of sulphur present is slightly less in the Spanish preparation.

MOTHER THEKLA'S OINTMENT.

Ungüento de la Madre Tecla. Unguentum Oxydi Plumbi Fuscum.

Olive-oil, 1000 grammes (32 ounces, 96 grains).

Lard, 500 " (16 " 48 ").

Beef-suet, 500 " (16 " 48 ").

Mutton-suet, . . . 500 " (16 " 48 ").

Yellow wax, . . . 500 " (16 " 48 ").

Powdered litharge, . . 500 " (16 " 48 ").

Purified black pitch, . 100 " (3 " 105½ ").

Melt the fats in a large copper boiler, heating them until they begin to give off vapors. Then add the litharge gradually, stirring constantly until the mixture acquires a dark-brown color. Then add the purified black pitch, and when the mass is half cooled pour it into paper molds.

This is the same preparation as that bearing the same name in the French Codex.

In the fifth edition of the Spanish Pharmacopœia

the pitch is omitted from the above formula, making the preparation identical with the Italian ointment of the same name.

STORAX OINTMENT.

Ungüento de Estoraque. Unguentum Styracis.

Olive-oil, . . .	150 grammes (4 ounces, 398½ grains).
Resin, . . .	180 " (5 " 384 ").
Liquid storax, . . .	100 " (3 " 105½ ").
Elemi, . . .	100 " (3 " 105½ ").
Yellow wax, . . .	100 " (3 " 105½ ").

This is precisely the same as the storax ointment of the French Codex.

Melt together at a gentle heat the wax, elemi, and resin. Withdraw from the fire, add the storax and, finally, the oil. Strain through linen and stir until the mass is cold.

The fifth edition of the Spanish Pharmacopœia modified the preceding formula by reviving the use of walnut-oil, which had been discarded, and substituting it for olive-oil. Walnut-oil is used in the preparation of the corresponding Italian ointment.

Storax ointment, combined with charcoal, camphor, and myrrh, forms—

RUST'S DISINFECTANT POMADE.

Pomada Desinfectante de Rust. Pommatum ad Ulcera Fœtida ex Rust.

Storax ointment, . . .	30 grammes (463¼ grains).
Charcoal, . . .	30 " (463¼ ").
Camphor, . . .	7 " (108 ").
Myrrh, . . .	7 " (108 ").
Essence of turpentine, . . .	a sufficient quantity.

MUCILAGINOUS MARROW OINTMENT.

Ungüento de Medula Mucilaginoso. Unguentum Medullæ Mucilagineum.

White wax, . . .	180 grammes (5 ounces, 384 grains).
Beef-marrow, . . .	180 " (5 " 384 ").
Lard, . . .	180 " (5 " 384 ").
Flaxseed-oil, . . .	150 " (4 " 398½ ").

Melt at a gentle heat, and when half-cooled add—
Very thick flaxseed mucilage, 180 grammes (5 ounces, 384 grains).

Stir until the mucilage is thoroughly mixed, and stir during several days in order that no mold may form upon the surface.

This is simply an emollient preparation.

MONTPELLIER OINTMENT.

Ungüento de Montpellier. Unguentum Mons-pessulani.

Althæa ointment, . . .	60 grammes (1 ounce, 432 grains).
Ointment of rose, . . .	60 " (1 " 432 ").
Poplar ointment, . . .	60 " (1 " 432 ").
Honey,	60 " (1 " 432 ").

The Spanish is identical with the Italian Montpellier ointment.

RED OXIDE OF MERCURY OINTMENT.

Ungüento de Óxido Mercúrico. Unguentum Oxydi Hydrargyrici.

Resin ointment, . . .	58 grammes (1 ounce, 216 grains).
Red oxide of mercury, 4 "	(61¾ grains).

Powder finely the red oxide, add the ointment gradually, and mix thoroughly.

This nearly corresponds to the red precipitate ointment of the Italian Formulary. Both are considerably weaker than the red precipitate ointment of the United States Pharmacopœia. Both are of about the same strength as Larrey's brown ointment common to the Italian and Spanish Formularies.

PIDÉRIT'S OINTMENT.

Ungüento de Pidérit. Unguentum ex Pidérit.

Honey,	220 grammes (7 ounces, 38½ grains).
Boiled onion-bulb, . .	220 " (7 " 38½ ").
Yellow wax,	42 " (1 ounce, 179 ").
Resin,	42 " (1 " 179 ").
Black soap,	42 " (1 " 179 ").

This preparation is recommended for use in subacute or chronic rheumatism.

DEPILATORY OINTMENT.

Ungüento Depilatorio. Unguentum Depilatorium.

Turpentine, . . .	38 grammes (1 ounce, 105½ grains).
Resin,	30 “ (463¼ grains).

This corresponds exactly to the Italian ointment of the same name.

LIQUORICE OINTMENT.

Ungüento de Regaliz. Unguentum Liquiritiæ.

Powdered pulp of fresh liquorice-root, . . .	480 grammes (15 ounces, 211 grains).
Butter,	480 “ (15 “ 211 “).

Heat until all the moisture is evaporated, strain, and add—

Oxide of zinc, . . .	23 grammes (355 grains).
Carbonate of lead, . .	90 grammes (2 ounces, 432 grains).
Camphor,	2.5 “ (38½ grains).

This preparation is identical with the Italian liquorice ointment.

RICOUR'S OINTMENT.

Ungüento de Ricourt. Unguentum ex Ricourt.

Oil of rose,	100 grammes (3 ounces, 105½ grains).
Wax,	80 “ (2 “ 29 “).
Carbonate of lead, . .	40 “ (1 ounce, 134½ “).
Litharge,	20 “ (308¾ grains).

Heat together, and then add—

Liquid balsam of Peru, 5 grammes (77¼ grains).

This is the same preparation as the Italian ungüento di Ricour.

SULPHIDE OF MERCURY OINTMENT.

Ungüento de Sulfuro de Mercurio. Unguentum Sulphuri Hydrargyri Rubrum.

Litharge,	125 grammes (4 ounces, 141½ grains).
Calomel,	8 “ (123½ grains).
Carbonate of lead, . .	45 “ (1 ounce, 216 grains).
Sulphide of mercury, .	60 “ (1 “ 432 “).
Oil of rose,	750 “ (24 ounces, 77 “).
Yellow wax,	180 “ (5 “ 384 “).

Melt the wax in the oil. Then withdraw from the

fire and add the metallic salts, stirring the mixture until cold.

The ointment prepared according to the above formula will prove of especial service in venereal ulcerations.

TOBACCO OINTMENT.

Ungüento de Tabaco. Unguentum Nicotinæ.

Yellow wax,	45 grammes	(1 ounce, 216 grains).
Resin,	45 " (1 " 216 ")	
Oil of myrrh,	125 " (4 ounces, 14½ ")	

Melt and add—

Tobacco-juice,	90 grammes	(2 ounces, 433 grains).
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The uses and the disadvantages of an ointment containing tobacco have been considered under the head of the tobacco ointment formerly officinal in the Pharmacopœia of the United States.

KNACHSTEDT'S ZINC AND MYRRH OINTMENT.

Ungüento de Zinc con Mirra de Knachstedt. Unguentum Oxidi Zinci ex Knachstedt.

Oxide of zinc,	8 grammes	(123½ grains).
Calamine,	8 " (123½ ")	
Lycopodium,	8 " (123½ ")	
Acetate of lead,	2 " (31 ")	
Powdered myrrh,	2 " (31 ")	
Lard washed with rose-water,	45 " (1 ounce, 216 grains).	

The uses of this preparation are essentially those of the oxide of zinc ointment officinal in the United States Pharmacopœia.

SIMPLE DIGESTIVE OINTMENT.

Ungüento Digestivo Simple. Unguentum Digestivum Simplex.

Turpentine,	40 grammes	(1 ounce, 139 grains).
Yolk of egg,	20 " (309 grains).	
Olive-oil,	10 " (154½ ")	

The formula for the simple digestive ointment is the same as that for the preparation of the ointment of the same name officinal in the French Codex.

STRONGER DIGESTIVE OINTMENT.**Ungüento Digestivo Animado. Unguentum Digestivum Animatum.**

Simple digestive ointment, . 100 grammes (3 ounces, 105½ grains).

Liquid storax, . . . 100 " (3 " 105½ ").

This corresponds exactly to the Italian ointment of the same name.

MERCURIAL DIGESTIVE OINTMENT.**Ungüento Digestivo Mercurial. Unguentum Digestivum Mercuriale.**

Simple digestive ointment, . 100 grammes (3 ounces, 105½ grains).

Mercurial ointment, . . 100 " (3 " 105½ ").

The mercurial digestive ointment is the same in the Spanish and Italian Pharmacopœias.

OPIATED DIGESTIVE OINTMENT.**Ungüento Digestivo Opiado. Unguentum Digestivum Oplatum.**

One part of Sydenham's laudanum, vinum opii, added to 8 parts of simple digestive ointment forms the opiated digestive ointment. The Italian preparation of the same name differs from the Spanish only in using the tincture instead of the wine of opium.

The Formulary of the Hospitals of Madrid modifies the composition of the simple digestive ointment in the following manner :—

Turpentine, . . . 30 grammes (463¼ grains).

Yellow ointment, . . . 30 " (463¼ ").

Oil of hypericum, . . . 15 " (231½ ").

Yelks of 2 eggs.

The fifth edition of the Spanish Pharmacopœia prescribes the following formula :—

Turpentine, . . . 58 grammes (1 ounce, 216 grains).

Oil of hypericum, . . 14 " (216 grains).

Yelks of 2 eggs.

ETHIOPIAN OINTMENT.**Ungüento Etiópico. Unguentum e Sulphure Hydrargyrato.**

Sulphur, . . . 1 gramme (15½ grains).

Mercurial ointment, . . . 2 grammes (31 ").

Lard, . . . 2 " (31 ").

The formula for the Spanish is the same as that for the Italian Ethiopian ointment.

EPISPASTIC OINTMENT.

Ungüento Epispástico. Unguentum Epispasticum.

Basilicon ointment, .	125 grammes (4 ounces, 14½ grains).
Mustard-seed, . . .	15 " (231½ grains).
Stavesacre, . . .	4 " (61¾ ").
Allspice, . . .	4 " (61¾ ").
Pellitory, . . .	4 " (61¾ ").
Euphorbium, . . .	1.20 " (18½ ").
Turpentine, . . .	sufficient quantity.

This ointment bears a close resemblance, both as regards ingredients and proportions, to the Italian blistering ointment without cantharides, *unguento vesicatorio senza cantaridi*, and its uses are the same.

OPIATED RESOLVENT OINTMENT.

Ungüento Fundente Opiado. Unguentum Minii Opiatum.

Oil of flaxseed, .	1000 grammes (32 ounces, 96 grains).
Red oxide of lead, .	250 " (8 " 24 ").
Carbonate of lead, .	250 " (8 " 24 ").
Yellow wax, . . .	250 " (8 " 24 ").
Turpentine, . . .	90 " (2 " 432 ").
Powdered opium, .	30 " (463¼ grains).

This belongs to a class of preparations formerly much used, now almost abandoned. They were thought to act beneficially in causing retrogression, absorption, resolution, or discussion of morbid growths. This ointment, by virtue of the lead it contains, may restrain inflammatory action, and thus lead to the reduction of glandular tumors, but we should not expect it to diminish the bulk of a neoplasm.

CANQUOIN'S MATURATIVE OINTMENT.

Ungüento Madurativo de Canquoin. Unguentum Maturans ex Canquoin.

Acetic infusion of daphne gnidium, .	45 grammes (1 ounce, 216 grains).
Sugar,	45 " (1 " 216 ").
Olive-oil,	45 " (1 " 216 ").
Ox-gall,	3 " (46 grains).

Evaporate to the consistence of honey and add—

Basilicon ointment, . . .	45 grammes	(1 ounce, 216 grains).
Mother Thekla's ointment, 45	"	(1 " 216 ").
Subnitrate of mercury, . . 4	"	(61¾ grains).

This is substantially the same preparation as the maturative ointment of the Italian Formulary.

MARTIAL OINTMENT.

Ungüento Marcial. Unguentum Martiale.

Solution of nitrate of iron, ⅓ of iron, . . .	8 grammes	(123½ grains).
Aloes,	sufficient quantity.	

Make into a mass of the consistence of an ointment.

This preparation is the same as the martial ointment of the Italian Formulary.

VELPEAU'S BLACK OINTMENT.

Ungüento Negro de Velpeau. Unguentum Nigrum ex Velpeau.

Mother Thekla's ointment, . . .	15 grammes	(231½ grains).
Oil of sweet almonds,	5 grammes	(309 ")

Mix at a gentle heat.

This corresponds exactly to the Italian ointment of the same name.

NERVINE OINTMENT.

Ungüento Nervino. Unguentum Nervinum.

Suet,	100 grammes	(3 ounces, 105½ grains).
Oil of laurel-berries, . 150	"	(4 " 398½ ").
Oil of turpentine, . . 15	"	(231½ grains).
Oil of peppermint, . . 2	"	(31 ").
Rectified oil of amber, . 8	"	(123½ ").
Oil of rosemary, . . . 2	"	(31 ").
Ammonia, 10	"	(154½ ").

Melt the suet, then add the oils and the ammonia.

Nervine ointment is formed upon the same model as the compound rosemary or nervine ointment of the Italian Formulary, the compound rosemary ointment of the German Pharmacopœia, the aromatic ointment of the Austrian Pharmacopœia, the nervine ointment of the Mexican and Chilian Pharmacopœias. They

are all used to fulfill the same indications, which have been given under the title of the German compound rosemary ointment.

LAUREL OINTMENT.

Ungüento de Bayas de Laurel. Unguentum Baccarum Lauri.

Suet,	16 grammes (247 grains).
Oil of turpentine,	1 gramme (15½ ").
Oil of laurel-berries,	24 grammes (370½ ").

Laurel ointment, prepared according to the above directions, nearly resembles the laurel ointment of the French Codex. It is, however, more stimulant, since it is largely composed of a volatile oil, and contains, also, a certain quantity of oil of turpentine. Spanish pharmacy employs the oil of laurel-berries on account of the difficulty of procuring, at all seasons of the year, fresh laurel-leaves and berries.

ACETATE OF LEAD OINTMENT.

Ungüento Nutrido. Unguentum Nutritum. Unguentum Plumbi Acetatum.

Olive-oil,	9 grammes (139 grains).
Litharge,	3 " (46 ").
Vinegar,	3 " (46 ").

Mix in a glazed earthenware dish and heat gently until the mixture has acquired the consistence of a soft ointment.

An ointment prepared according to the above formula is useful in the cases already mentioned under the heads of the British unguentum plumbi acetatis and unguentum glycerini plumbi subacetatis.

The fifth edition of the Spanish Pharmacopœia prescribes the following proportions :—

Finely-powdered litharge,	345 grammes (11 ounces, 47 grains).
Olive-oil,	1035 " (30 " 139 ").
White vinegar,	460 " (14 " 383 ").

LARREY'S BROWN OINTMENT.

Ungüento Pardo de Larrey. Unguentum Fuscum ex Larrey.

Basilicon ointment, . . . 30 grammes (463¼ grains).
 Red oxide of mercury, . . . 2 " (31 ").

To be prepared only as needed.

This ointment is a trifle stronger than the Italian preparation of the same name, but is used in the same cases.

MERCURIAL RESOLVENT OINTMENT.

Ungüento Resolutivo Mercurial. Unguentum Hydrargyri Resolutivum.

Mercurial ointment, . . 30 grammes (463¼ grains).
 Soap, . . . 60 " (1 ounce, 432 grains).
 Camphorated alcohol, . 90 " (2 ounces, 432 ").

Mix thoroughly.

This ointment is used in the treatment of chronic glandular enlargements.

SULPHURIC ACID OINTMENT.

Ungüento Sulfurico. Unguentum Sulphuricum.

Olive-oil, . . . 8 grammes (123½ grains).
 Sulphuric acid, . . . 5 " (309 ").

This preparation is exactly the same as the Italian sulphuric acid ointment, unguento solforico.

VERMIFUGE OINTMENT.

Ungüento Vermifugo. Unguentum Vermifugum.

Root of male fern, . . 45 grammes (1 ounce, 216 grains).
 Bryonia-root, . . . 45 " (1 " 216 ").
 Garlic, . . . 45 " (1 " 216 ").
 Southern wood, . . . 8 " (123½ grains).
 Absinth, . . . 8 " (123½ ").
 Tansy, . . . 8 " (123½ ").
 Olive-oil, . . . 500 " (16 ounces, 48 grains).

Heat until all the moisture is evaporated. Strain and add—

Yellow wax, . . . 45 grammes (1 ounce, 216 grains).
 Aloes, . . . 30 " (463¼ grains).
 Colocynth, . . . 15 " (231½ grains).
 Ox-gall, . . . 60 " (1 ounce, 432 grains).

This powerful compound is directed to be rubbed upon the abdomen in the neighborhood of the umbilicus three times a day. Its name indicates the purpose for which it is used.

MERCURIAL OINTMENT.

Pomada Mercurial. Unguentum Hydrargyri Cœruleum Fortius.

Mercury,	500 grammes (16 ounces, 48 grains).
White wax,	40 " (1 ounce, 139 ").
Benzoated lard,	460 " (11 ounces, 48 ").

Melt the lard and the wax. Place the mercury with part of the melted fat in an iron pot and heat gently, so that the product is maintained under the form of a semi-fluid mass. Triturate until the mercury is entirely extinguished. Then add the remainder of the fat.

OLEATE OF QUININE POMADE.

Pomada Oléica de Quinina. Pomatum Quininae Oleicum.

Sulphate of quinine,	1 gramme (15½ grains).
Stearic acid,	2.50 grammes (38½ ").
Oleic acid,	7.50 " (116½ ").

OLEATE OF VERATRINE POMADE.

Pomada Oléica de Veratrina. Pomatum Veratrinæ Oleicum.

Veratrine,	0.05 gramme (¾ grain).
Oleic acid,	3.00 grammes (46 grains)
Stearic acid,	1.00 gramme (15½ ").

My experiments upon animals, detailed in another portion of this work, as well as careful observation of patients, have convinced me that the oleates, much less the stearates, do not act by systemic absorption, but by penetration of the follicles of the area upon which they are spread, or by influencing the superficies to which they are applied.

CHAPTER X.

OINTMENTS OFFICIAL IN THE MEXICAN PHARMACOPŒIA.

THE Mexican Pharmacopœia* includes sixteen official ointments. They are as follow :—

YELLOW OR BASILICON OINTMENT.

Ungüento Amarillo.

This preparation is similar to the basilicon ointment of the other pharmacopœias.

RHAZES' WHITE OINTMENT.

Ungüento Blanco Simple. Pomada de Rhazis de Carbonato de Plomo.

This is essentially the same as the ointment of the same name in the French Codex.

BROWN OINTMENT.

Ungüento Bruno.

Brown ointment consists of—

Red oxide of mercury, <i>twenty parts</i> ,	20
Alum, <i>ten parts</i> ,	10
Basilicon ointment, <i>one hundred and fifty parts</i> ,	150

COMPOUND CARBONATE OF LEAD OINTMENT.

Ungüento contra Escabia. Pomada de Carbonato de Plomo Compuesta.

This is prepared from—

White wax, <i>one hundred and twenty parts</i> ,	120
Turpentine, <i>two hundred and fifty parts</i> ,	250
Lard, <i>one thousand parts</i> ,	1000
Pure carbonate of lead, <i>three hundred and eighty parts</i> ,	380
Lemon-juice, <i>two hundred and fifty parts</i> ,	250
Corrosive sublimate, <i>fifteen parts</i> ,	15
Alum, <i>fifteen parts</i> ,	15
Yelk of egg, <i>six parts</i> ,	6

*Nueva Farmacopea Mexicana de la Sociedad Farmacéutica de Mexico. Segunda edicion. Mexico, 1884.

ALTHEA OINTMENT.
Ungüento de Altea.

The formula for the Mexican resembles that of the French onguent d'Althæa.

Ungüento de Arceo.

This is the French onguent d'Arcæus.

STORAX OINTMENT.
Ungüento de Estoraque.

Similar to the French onguent de styrax.

GREEN OINTMENT.
Ungüento de Isis. U. Verde. U. Digestivo Verde. Unguentum cum Acetate Cuprico.

An acetate of copper ointment.

SOAP OINTMENT.
Ungüento de Jabon. Unguentum Saponis.

Soap ointment contains—

Finely-powdered hemlock, <i>thirty-six parts</i> ,	.	.	.	36
Soap, <i>sixty parts</i> ,	.	.	.	60
Mercurial ointment, <i>thirty parts</i> ,	.	.	.	30
Lard, <i>one thousand parts</i> ,	.	.	.	1000

MERCURIAL OR BLUE OINTMENT.
Ungüento de Mercurio Doble. U. Napolitano. Onguent Mercuriel Double.

This is made from—

Mercury, <i>five hundred parts</i> ,	.	.	.	500
Storax, <i>forty parts</i> ,	.	.	.	40
White wax, <i>sixty parts</i> ,	.	.	.	60
Lard, <i>four hundred parts</i> ,	.	.	.	400

OSORIUS'S OINTMENT.
Ungüento de Osorio.

The formula is :—

Suet, <i>five hundred parts</i> ,	.	.	.	500
Lard, <i>one thousand parts</i> ,	.	.	.	1000
Strained storax, <i>one hundred and twenty parts</i> ,	.	.	.	120
Oil of lavender, <i>twenty-five parts</i> ,	.	.	.	25

SUET OINTMENT.**Ungüento de Todos Sebos.**

Suet ointment is made from—

Suet, <i>one hundred and twenty-five parts</i>,	. . . . .	125
Simple plaster, <i>fifteen parts</i>,	. . . . .	15
Lard, <i>five hundred parts</i>,	. . . . .	500

CORDIAL OINTMENT.**Ungüento del Corazon. Pomade de Sandolo Alcanforado.**

This preparation contains—

Finely-powdered red saunders, <i>thirty parts</i>,	. . . . .	30
Aromatic powder of rose, <i>twelve parts</i>,	. . . . .	12
Powdered camphor, <i>four parts</i>,	. . . . .	4
Lard, <i>five hundred parts</i>,	. . . . .	500

COUNTESS'S OINTMENT.**Ungüento de la Condesa. Unguentum Comitissæ.**

Finely-powdered nut-gall, <i>thirty parts</i>,	. . . . .	30
Powdered cypress-fruit, <i>thirty parts</i>,	. . . . .	30
Finely-powdered pomegranate-bark, <i>thirty parts</i>,	. . . . .	30
Finely-powdered myrtle, <i>fifty parts</i>,	. . . . .	50
Lard, <i>six hundred parts</i>,	. . . . .	600

An astringent preparation. Its composition is similar to that of the Countess's or compound myrtle ointment of the Spanish Formulary.

RED OXIDE OF LEAD OINTMENT.**Ungüento Encarnativo. Unguentum cum Plumbico Rubro.**

Red oxide of lead, <i>sixty parts</i>,	. . . . .	60
Lard, <i>five hundred parts</i>,	. . . . .	500

NERVINE OINTMENT.**Ungüento Nervino.**

Fresh rosemary-leaves, <i>two hundred and fifty parts</i>,	. . . . .	250
Fresh laurel-leaves, <i>two hundred and fifty parts</i>,	. . . . .	250
Lard, <i>eight hundred and seventy-five parts</i>,	. . . . .	875
Suet, <i>three hundred and eighty-six parts</i>,	. . . . .	386
Yellow wax, <i>ninety-eight parts</i>,	. . . . .	98
Oil of brick, <i>fifteen parts</i>,	. . . . .	15
Oil of rosemary, <i>fifteen parts</i>,	. . . . .	15
Oil of juniper, <i>fifteen parts</i>,	. . . . .	15

ZINC AND COPPER OINTMENT.**Ungüento Santo. Pomada con Oxido de Zinc y Cardenilla.****Unguentum cum Oxido Zincico et Subacetate Cuprico.**

Prepared tutty, <i>thirty parts</i>,	.	.	.	.	.	.	30
Acetate of copper, <i>eight parts</i>,	.	.	.	.	.	.	8
Lard, <i>five hundred parts</i>,	.	.	.	.	.	.	500

OINTMENTS OFFICIAL IN THE CHILIAN PHARMACOPŒIA.

Five ointments are enumerated in the Chilian Pharmacopœia * :—

YELLOW OR BASILICON OINTMENT.**Ungüento Amarillo. Unguentum Flavum.**

This resembles the Mexican ointment of same name.

Ungüento Diapalma. Unguentum Diapalmum.

Simple plaster, <i>three hundred parts</i>,	.	.	.	.	.	300
Oil of rose, <i>three hundred parts</i>,	.	.	.	.	.	300
Yellow wax, <i>twenty parts</i>,	.	.	.	.	.	20
Sulphate of zinc, <i>ten parts</i>,	.	.	.	.	.	10
Turpentine, <i>sixty parts</i>,	.	.	.	.	.	60

Ungüento de Arceo. Unguentum Arcei.

This corresponds to the French onguent d'Arcæus

NERVINE OINTMENT.**Ungüento Nervino. Unguentum Nervinum.**

Prepared lard, <i>one thousand parts</i>,	.	.	.	.	.	1000
Yellow wax, <i>one hundred parts</i>,	.	.	.	.	.	100
Turpentine, <i>ten parts</i>,	.	.	.	.	.	10
Fresh rosemary-leaves, <i>fifty parts</i>,	.	.	.	.	.	50
Fresh mint-leaves, <i>fifty parts</i>,	.	.	.	.	.	50
Fresh rue-leaves, <i>fifty parts</i>,	.	.	.	.	.	50
fresh fennel-leaves, <i>fifty parts</i>,	.	.	.	.	.	50
Fresh sage-leaves, <i>fifty parts</i>,	.	.	.	.	.	50
Essence of turpentine, <i>six parts</i>,	.	.	.	.	.	6
Essence of lavender, <i>five parts</i>,	.	.	.	.	.	5
Essence of juniper, <i>five parts</i>,	.	.	.	.	.	5
Essence of thyme, <i>five parts</i>,	.	.	.	.	.	5

* Farmacopea Chilena. Leipsic, 1886.

ALTHEA OINTMENT.

Ungüento de Altea. Unguentum Althææ.

Prepared lard, <i>one hundred parts,</i>	.	.	.	.	.	100
Yellow wax, <i>twenty parts,</i>	.	.	.	.	.	20
Resin, <i>twenty parts,</i>	.	.	.	.	.	20
Venice turpentine, <i>fifteen parts,</i>	.	.	.	.	.	15

PART II.
THE OLEATES.

CHAPTER I.

HISTORY AND ORIGIN.

WHEN Chevreul, in 1811, proclaimed the chemistry of fats and oils, and isolated fatty acids from their bases, the first step in the direction of a more thorough understanding of their nature and action had been taken. Quickly following this discovery it was proved that fatty acids, especially the oleic acid, could be united to other bases as well as the original one.

This is undoubtedly the first comprehensive knowledge we had of a class of remedial substances which forms the subject of this treatise, and which are known as oleates. While as such they had been in use for centuries previous to this period, they were applied empirically without a knowledge of their constituents. Thus, we had lead plaster, soaps, etc., but they were only known as such, and not as salts or combinations of a fatty acid with metallic or alkaline bases, which stamped them, respectively, as lead oleo-palmitates and sodium, or potassium oleo-palmitates or stearates.

Their medicinal application, in various ways, by using oleic acid as a solvent for alkaloidal substances, was subsequently agitated by Professor Attfield, in 1862; and a paper on their use in medicine, by Dr. John Marshall, ten years later, brought them prominently before the medical profession. Dr. Marshall's valuable communication and its suggestions soon attracted attention, and efforts were made to further perfect both the acid and its products. It was about this time that Dr. L. Wolff, a well-known chemist of Philadelphia, was

experimenting on oleic acid and its derivatives, and interested me in his investigations, which we afterward pursued together.

The oleic acid of the market of that period was an unsightly, dark, and rancid body, of very offensive odor, known to the trade as the red oil of the candle-maker,—the refuse, after the separation of most of the stearic acid,—which is utilized for illuminating purposes. It represented a combination of oxyoleic and stearic acids, along with numerous volatile fatty products, and if it were, either alone or otherwise, applied to the skin, it proved an irritant rather than a mild vehicle of medicinal substances.

Purification of this acid availed very little, and to this day its use, though advocated by manufacturers, is often accompanied, as I shall point out hereafter, with unpleasant and injurious results.

As the oleates, as then known, were at best only oleic solutions, or solutions of some oleate in a large excess of oleic acid, the disappointments they caused in their action seriously interfered with their successful introduction and use by the profession. While oleic acid sufficiently pure to overcome these objections could be had, and was so produced by Dr. Wolff, the price, in consequence of the manner of its production, was such that it precluded its extensive use in hospital or general practice. It now became our principal object to make an acid sufficiently pure and at a reasonable cost. This object was accomplished by using oil of sweet almonds—which contains a large amount of olein—and saponifying it with litharge, in the same manner as is employed in the process of making ordinary lead plaster, and dissolving the mixture in petroleum benzine at a low boiling-point, which left the lead palmitate undis-

solved. The clear solution of lead oleate, decanted from its palmitate, was then put into an agitator and thoroughly shaken with dilute hydrochloric acid (1 in 8), and on settling, when it gave no longer evidence of the presence of lead on the introduction of a stream of hydrogen sulphide, the benzine was distilled off from it, in the presence of water, so as to obviate the possibility of the oxidation of the acid. The acid was now deprived of the odor of the heavier coal-oil products by introducing a current of steam, and was kept under a surface covering of water all the time in order to prevent oxidation. It was subsequently separated from the water, and filtered in an apparatus admitting of no access of atmospheric air.

The oleic acid so obtained contains no palmitic acid (or almost none); is of very light color; has a specific gravity of 0.800 at 19° C. (66.2° F.); mixes in its proportions with stronger alcohol without giving rise to turbidity, proving the absence of olein; it begins to solidify only at -4° C. (24.8° F.), and not + 4° C., as often erroneously stated, which it does only when considerable quantities of palmitic acid are in it; has a specific odor without being acrid, and readily dissolves the principal metallic oxides and alkaloids. This acid can be produced at a moderate expense, and was by us subsequently employed in making the oleates as directed by Attfield and Marshall.*

Messrs. Saytzeff have recently described a solid isomer of oleic acid, obtained, together with ordinary oleic acid, by treating with alcoholic potash the iod-stearic acid produced by the action of hydriodic acid

* See paper on Oleates, with discussion, read before the Section of Pharmacology and Therapeutics at the Fifty-second Annual Meeting of the British Medical Association, in the *British Medical Journal*, October 18, 1884, pp. 749-754.

upon ordinary oleic acid. The same compound is formed during the distillation of oxystearic acid produced by the successive action of sulphuric acid, and water upon ordinary oleic acid. The isoleic acid, or solid oleic acid, is said to be insoluble in water, freely soluble in alcohol and ether, and melting at 44° to 45° C. (111.2° to 113° F.).*

Granval and Valser have lately announced that the commercial oleic acid of the present day is largely adulterated with linoleic acid, which is made from linseed-oil by saponification. "In testing for the adulterant, comparative experiments should be made on commercial oleic acid of good quality. 1. The impure acid has a yellowish-brown tint, paler than the standard. 2. The density is higher, say 0.912 to 0.919 in various samples at 15° , whilst the standard never exceeds 0.905. As the impure sample is clotty at 15° , it is necessary to take the specific gravity at a higher temperature, and add 0.00064 for each degree above 15° . 3. On heating the impure acid to 50° , it becomes more consistent after cooling, and this change is accentuated each time the operation is repeated up to a certain point. 4. Fifty grammes dissolved in 450 cubic centimetres of 85-per-cent. alcohol produces, on shaking, a glistening precipitate, whilst pure oleic acid dissolves completely; other oils give deposits, but not of the same character. The precipitate is collected, washed with alcohol, dried, and is then found to melt at about 47° . It is easily saponified, yielding a soda soap completely soluble in water, with which it forms a jelly on cooling when only present to the amount of 1 to 100. 5. If Poulet's reagent be applied to the impure acid, the mass remains more or less liquid, whilst the oleic acid be-

* *Pharmaceutical Journal and Transactions*, June 2, 1888.

comes solid by the following day. -6. A thin film of impure acid soon becomes resin-like, whilst the oleic remains almost unchanged. 7. If a few drops of impure acid are added to soda-lye, an intense yellow color is produced, whilst the pure acid gives a grayish tint only." *

Oleates are remedies of which I spoke in my paper presented to the State Medical Society† in 1879, and the use of which I advocated at that time, and suggested that it was a subject worthy of further investigation and improvement.

While they possessed great advantages over many of the ointments then in use, they were by no means perfect, and, on account of their instability and their indefinite chemical character, often gave negative and discouraging results. This became evident in the so-called mercuric oleate, which has had the most extensive use, and was, in our terminology, not even treated as an oleate, but only as a solution of mercuric oxide in oleic acid, the former being referred to by the percentage in which it was added to the latter and misnamed an oleate of so much strength. Although it possessed valuable properties, representing those of the oxide, it failed to show them very long, as, by its chemical nature, the acid very quickly oxidized at the expense of the oxide, reducing and precipitating the latter both as a mercurous oxide and metallic mercury. This is unavoidable, as oleic acid is a readily oxidizable body, the replaceable hydrogen of which, when not fully saturated, is sure to produce like results with oxides of diads.

* American Journal of Pharmacy, September, 1889.

† Transactions of the Medical Society of the State of Pennsylvania, vol. xii, p. 707.

The oleates of the alkaloids prepared in this way contain large excesses of acid, and represent, according to their chemical character, a more stable class of remedies. As many of the alkaloids, however, are not entirely freed from their acid radicals, and the latter are not displaced by the weaker oleic acid, their production is not always easily accomplished, and the desire of the manufacturer to produce clear oleates creates the danger of removing by filtration some, or even a greater part, of the alkaloid which they contain; or even if fully dissolved by heat or other solvents they are very apt to re-crystallize or separate from their solutions on standing. These oleates of the alkaloids, as they are termed, are little else than acid solutions, or, as implied by their name, they are regarded as such by the manufacturers, as proved by their statement of the percentage of the alkaloid held in solution by the oleic acid. Thus, while 25-per-cent. quinine oleate contained 45.3 per cent. of the oleate, it also contained 54.7 per cent. of free oleic acid; 2-per-cent. aconitine oleate, 3 per cent. of oleate, 97 per cent. free acid; 2 per-cent. atropine oleate, 3.94 per cent. oleate and 96.06 per cent. acid; 5-per-cent. morphine oleate, 6.5 per cent. oleate and 93.5 per cent. of the acid; 2-per-cent. veratrine oleate, 2.94 per cent. oleate and 97.06 per cent. acid; 2-per-cent. strychnine oleate, 3.68 per cent. oleate and 96.32 per cent. of acid. It will thus be readily seen that there is a vast difference between oleic solutions of alkaloids and the oleates thereof. While in other salts we lose sight of the acid radical or the base, which we consider to have lost their identity in the chemical reaction of their constituents, we have most unscientifically upheld a series of preparations which, while we have termed them chemically, we have treated as mechanical mixtures altogether. To

imply that only alkaloidal substances give force to such preparations is to frame a theory which would upset our present knowledge that two bodies, on entering a true chemical combination, lose their identity in forming a third at variance with its components. Even the oleates of the alkaloids, if they are to be used in medicine, must be considered as oleates only, and be lost sight of as a mixture of alkaloid and acid.

Impressed with the many defects, disadvantages, and the instability of the oleates as then made, we worked toward the end of getting oleates that would be what their name implied—stable, such as could be relied on for their action. To accomplish this it is, first of all, necessary to have an oleic acid both in nature and name, next to combine it fully, *i.e.*, saturate it with the base to be used, and thus produce neutral and chemical oleates having neither base nor acid in excess.

This was effected, as described in a brief and incomplete manner in my paper presented to the Pennsylvania Medical Society in 1882, by first using the above-described oleic acid in making a sodium oleate as the source for all the other oleates, and the manufacture of which I shall now proceed to describe.

CHAPTER II.

PROCESS OF MANUFACTURE.

SODIUM OLEATE. $\text{NaC}_{18}\text{H}_{33}\text{O}_2$. M. W. 304.

SODIUM OLEATE is perhaps one of the oldest, if not the oldest, oleates known. It does not occur in a pure state in commerce, the substance representing it being known as the soap of the market. That the sodium is combined with not only oleic acid, but also palmitic, stearic, and other acids, making it an oleo-palmitate or oleo-stearate, or both, is well known; also, that in the process of saponification a great deal of the oleic acid is changed into oxyoleic acid. To make a pure and true sodium oleate, therefore, is easily effected by saponifying oleic acid, as I have stated, with a solution of sodium hydrate or potassium hydrate, on the saturation of which water is added and heat applied until a clear solution of the sodium oleate is obtained. This, if it were neutral, might at once be utilized to make the oleates; but as this cannot practically be accomplished, and an excess of alkali would reduce the salts used for their precipitation, or an excess of oleic acid would again cause an excess of acid, which was found of such disadvantage in the earlier oleates, it is therefore necessary to have, in the process of making the sodium oleate, the alkali slightly in excess, and then by the salting-out process of the soap-maker to separate the oleate from its solution. This accomplished, it is strained from the liquid, well expressed, and then allowed to dry. As yet, however, it contains salt and water and other admixtures, which are best removed by dissolving the mass in stronger

alcohol, filtering it, and recovering the alcohol in it by distillation. The pure sodium oleate so derived is a diaphanous, almost colorless body, readily soluble in warm and only slowly soluble in cold water. A solution of this in 8 parts of water is what I shall term hereafter the sodium-oleate solution, by means of which all oleates are to be made.

The manufacture of oleates from the sodium-oleate solution is very simple and easily accomplished. A neutral solution of a salt of the substance to be derived as an oleate is added to the sodium-oleate solution until the latter is completely decomposed, a degree to be ascertained with a little experience in the manipulation, and most readily detected when, on rapid stirring, no froth appears on the surface or bubbles cease to form. As some of the salts, however, on addition of water, not only decompose but fail to yield oleates, and their purification, besides, is a matter of difficulty, I will treat the process employed for each separately, giving, however, first a synopsis of the general plan to be adopted for making oleates of the alkaloids.

Mr. G. M. Beringer, Ph.G., has published (*American Journal of Pharmacy*, December, 1889) a series of formulæ by which the oleates may be produced by double decomposition. Sodium oleate is the substance which he generally makes use of, adding a solution of it to a solution of the salt of whose base an oleate is desired. On account of the difficulty of preparing a neutral soap with an aqueous solution of an alkali, he recommends the use of hydro-alcoholic solutions of the alkaline hydrate and finds that, with proper manipulation, the quantity of alcohol can be reduced to a comparatively small amount.

As many of the salts of the alkaloids are not readily

soluble in water, their solution is accomplished by the addition of a slight excess of their acids, which, upon being filtered, are added to a warm solution of sodium oleate. The amount of the salts so used is to be noted, and the corresponding amount of their alkaloids computed from their molecular weights, along with the necessary amount of oleic acid necessary for complete saturation. The separated oleate, deprived of its water, is then weighed and the result in excess of the computed oleate is set down as free oleic acid. As the oleates of these preparations are at present principally used as acid solutions (a method which I do not recommend, however), sufficient oleic acid is added to bring it up to the requisite percentage, the true alkaloidal oleate serving as a base.

ALUMINIUM OLEATE. $\text{Al}_2(\text{C}_{18}\text{H}_{33}\text{O}_2)_3$. M. W. 397.

This is a substance of a yellowish color, of the consistence of a soft plaster mass, but elastic to the touch, resembling hardened gelatin both in consistence and appearance. It is often manufactured of a white color, and streaked with yellow and brown or spotted with foreign ingredients. This is due to the fact that it has not been purified or deprived of the water it holds inclosed in the spongy mass as first precipitated. If pure and true, it should readily and without turbidity dissolve in ether, chloroform, or petroleum benzine, should make a clear solution with fats or oils when melted with them over a water-bath, and should be very tenacious. It is best prepared by precipitating the sodium-oleate solution with a solution of aluminium sulphate. The white, spongy precipitate should be first expressed, then freed from the adhering water at a temperature not exceeding 100°C. , after which it is dis-

solved in good and very volatile petroleum benzine. The benzine solution is then filtered and the benzine allowed to evaporate or distilled off. The aluminium oleate thus derived, well heated over a water-bath to rid it of any adhering petroleum odor, is then ready, and presents the condition and appearance that I have noted.

Aluminium oleate, according to its molecular weight, contains about 3.1 per cent. metallic aluminium, equivalent to about 17.9 per cent. aluminium hydrate.

Mr. Louis Genois informs me that, as prepared from aluminium sulphate, aluminium oleate becomes, in time, so tough and stiff that it can scarcely be spread or softened. Even after liquefaction by heat it cannot be satisfactorily manipulated. He has found that if made from aluminium acetate it is of much more convenient consistence, and can be handled with comparative ease.

ARSENICUM OLEATE. $A_3(C_{18}H_{33}O_2)_3$. M. W. 918.

This oleate, if properly prepared, is of a reddish-brown color, of a solid, somewhat wax-like consistence, breaks on bending, and melts at about 85°C . (185°F .). As generally offered in the market, and by some very good manufacturers, too, it is not an oleate, but simply a mixture of oleic acid, chloride of sodium, and arsenious acid (to the latter of which its apparent effect has been due), and is readily miscible with alcohol, yielding therewith a clear solution. If a portion of this be treated with ether, or, still better, petroleum benzine, and this, by filtration or separation, be separated from the underlying aqueous layer, and into it a current of hydrogen sulphide be led, no precipitate occurs, showing the total absence of arsenicum oleate. The arsenicum oleate, besides possessing the characteristics and appearance as above stated, should be insoluble in

alcohol, but readily and entirely soluble in petroleum benzine. When a current of hydrogen sulphide is introduced into the latter solution, after filtration it gives a copious yellow precipitate of arsenicum sulphide.

In my last paper on the "Oleates and Oleo-palmitates in Skin Diseases," already referred to, I gave in brief simply a few hints as to how arsenicum oleate may be obtained, with no attempt at accuracy or detail, and I am therefore not surprised at the failure of many manufacturers with it, in view of the fact that the arsenicum chloride is at once decomposed into arsenious acid and hydrochloric acid on the addition of water. If the arsenicum chloride be simply added to the sodium-oleate solution, the result will be invariably a pseudo-oleate, as already pointed out, and I therefore give the method employed by Dr. Wolff, which he describes as follows: "A solution of arsenicum chloride is made in the usual way, and then diluted with about four times its bulk of glycerin. Instead of the sodium-oleate solution, I use the alcoholic solution before the alcohol is distilled from it. This alcoholic sodium-oleate solution is mixed with the glycerin solution of arsenicum chloride until the former is fully decomposed. After the precipitate is strained off, washed well with alcohol to get rid of any adhering glycerin, the washed precipitate dissolved in benzine and the benzine fully evaporated, the residue will present a chemically true and pure arsenicum oleate. According to computation it contains about 8.16 per cent. of metallic arsenic, representing about 21.5 per cent. of arsenious acid."

BISMUTH OLEATE. $\text{Bi}(\text{C}_{18}\text{H}_{33}\text{O}_2)_3$. M. W. 1053.

This is a soft, unguent body, of a pearly-gray color, and should be termed, chemically, a bismuthous oleate,

as bismuthyl does not enter into combination with oleic acid, a fact which is overlooked by many in endeavoring to make a direct union of bismuth oxide with that acid. Ointments so named simply hold the oxide in suspension, but contain none of it in solution or chemical combination. It should, when properly prepared, be semi-diaphanous, and on being rubbed on the skin should present no evidence of any solid particles suspended therein, *i.e.*, it should leave no white mark on the skin or its crevices. It parts very reluctantly with the water it holds in suspension, and many of the articles of this name in the market have a watery, sponge-like appearance. When first precipitated it is very white, and on manipulation a great deal of water may be liberated; while in this state it does not readily mix or dissolve in benzine, but on driving off all the water by evaporation it fully dissolves, yielding an almost clear solution. Its preparation is not quite so easy as some of the others, as it requires, first of all, the formation of bismuthous nitrate in crystals. This is accomplished by treating purified metallic bismuth with nitric acid, evaporation, and subsequent crystallization. The crystals thus derived are first drained off, dried between bibulous paper, and then dissolved in glycerin. This glycerole of bismuthous nitrate is then decomposed with the solution of sodium oleate, yielding a bulky white precipitate, as before remarked. Bismuthous nitrate cannot be dissolved in water, as it yields then the bismuthyl nitrate. Any bismuth oleate made in that way is little more than a suspension of bismuthyl nitrate (bismuth subnitrate) in oleic acid. The precipitate should be well washed with copious repetitions of hot water until no traces of sodium nitrate are detected in the washing. It is then trans-

ferred to a water bath and evaporated until samples taken from it dissolve in benzine without turbidity. The true and pure bismuth oleate contains about 19.9 per cent. metallic bismuth in combination with oleic acid, that amount of bismuth representing about 44.3 per cent. bismuth oxide.

Mr. Beringer prefers to boil together oxide of bismuth and oleic acid. As commercial subnitrate of bismuth is a substance of variable composition, he employs an oxide dried at 212° F. The formula is as follows:—

Take of bismuth oxide dried at 100° C.

(212° F.) until it ceases to lose water, 1 troy ounce.

Oleic acid, 3 troy ounces, 295 grains.

Water, a sufficient quantity.

Rub the oxide of bismuth to a fine powder, and thoroughly mix it with the oleic acid in a capacious vessel, add 2 pints of water, and boil the mixture, replacing the water as it evaporates, and stirring frequently until complete saponification has taken place and a small quantity of the mass dropped into cold water yields an ointment-like mass without any separation of oleic acid. Decant the water from the oleate, and work the mass with a horn or wooden spatula to free it from retained water.

CADMIUM OLEATE. $\text{Ca}(\text{C}_{18}\text{H}_{33}\text{O}_2)_2$. M. W. 673.8.

It is of a waxy consistence, yellowish white, and dissolves readily in benzine. If dissolved in petroleum fats it gives a solution of great brilliancy, which, on cooling, assumes a semi-diaphanous appearance. It is readily made by precipitating the sodium-oleate solution with an aqueous solution of cadmium sulphate. The precipitate should be well washed out with warm water until the washings fail to show any sulphate if tested with barium-chloride solution. It is then dried well

over the water-bath or between bibulous paper. It contains about 16.5 per cent. of metallic cadmium.

COPPER OLEATE. $\text{Cu}(\text{C}_{18}\text{H}_{33}\text{O}_2)_2$. M. W. 625.4.

This is a beautiful, green, waxy substance of the cupric group, resembling on drying slight efflorescence of cupric salts. It dissolves readily and without turbidity in benzine, ether, and chloroform, oil of turpentine imparting to these solutions its beautiful dark-green color. On account of its easy method of manufacture it is generally obtained in a good and pure condition, provided that the oleic acid used in the process of making sodium oleate is pure and devoid of oxyoleic and other irritant impurities. It is readily made by precipitating the sodium-oleate solution with a solution of cupric sulphate, the precipitate well washed with hot water until freed from the sodium sulphate formed in the decomposition, then dried between bibulous paper and subsequently air-dried. So made, it contains about 10.1 per cent. of copper.

Mr. Beringer advises the following method :—

Take of Oleic acid,	. . . . .	1000 grains.
Soda, . . . . .	. . . . .	160 “ or q. s.
Alcohol, . . . . .	. . . . .	6 fluidrachms.
Copper sulphate,	. . . . .	442 grains.
Water, a sufficient quantity.		

Saponify the oleic acid as directed in the formula for zinc oleate and dissolve the resulting soap in three pints of water. Dissolve the copper sulphate in one pint of warm water and filter. Warm the solutions to about 140° to 150° F., and slowly add the copper solution to the oleate of soda solution, stirring constantly; warm until the copper oleate fuses into a mass, decant the clear supernatant liquid, wash several times with warm water, and finally dry on the water-bath.

IRON OLEATE. $\text{Fe}(\text{C}_{18}\text{H}_{33}\text{O}_2)_2$. M. W. 617.9.

This is a dark, reddish-brown, plaster-like substance, of a distinctively ferruginous odor. As generally found, it meets all indications, excepting that impure oleic acid still further renders its odor more disagreeable. It is prepared by precipitating the sodium-oleate solution with a solution of ferrous sulphate. When first precipitated it is of a greenish-white color, which, upon boiling and exposure to the atmosphere, changes to a reddish and subsequently to a dark, reddish-brown color. It should be well washed in the usual way to remove the sodium sulphate of the decomposition process, as well as the ferrous sulphate used in excess in the precipitation. It contains about 9.4 per cent. of metallic iron.

LEAD OLEATE. $\text{Pb}(\text{C}_{18}\text{H}_{33}\text{O}_2)_2$. M. W. 669.

This is one of the oldest-known oleates, antedating as such even the knowledge of oleic acid and its compounds. It represents as such a purer state of the lead plaster of the pharmacopœias. It is of a yellowish-white color, of plaster consistence, though harder than the ordinary lead plaster, and devoid of the slippery feeling conveyed to the latter owing to the presence of glycerin. It should be readily soluble in benzine with slight turbidity, and, after filtration of the solution and evaporation of the latter, leaves a semi-diaphanous plaster body, which, on exposure to the air, assumes at first a yellowish color, giving way to a pure white. It is readily and easily prepared by precipitating the sodium-oleate solution with a solution of the neutral lead acetate. In its precipitation there is always some lead hydrate and carbonate formed, which, however, as a contamination, is not objectionable. After precipitating it should be well washed with warm water until the

washings come off pure, and, if desired to obtain it absolutely pure, it should be dissolved in benzine after being thoroughly pressed out and dried. The benzine should then be allowed to evaporate. It contains about 26.7 per cent. of metallic lead. The following is the formula given by Mr. Beringer:—

Take of Oleic acid,	1000 grains.
Soda,	160 “ or q. s.
Alcohol,	6 fluidrachms.
Lead acetate,	675 grains.
Water, a sufficient quantity.	

Saponify the oleic acid as directed in the formula for zinc oleate, and dissolve the resulting soap in three pints of warm water and filter. Dissolve the lead acetate in two pints of water, adding a few drops of acetic acid, if necessary, to produce a clear solution, and filter. Warm the solutions and add the lead-acetate solution slowly to the soap solution, stirring constantly. Collect the mass on a strainer wash, and dry.

MANGANESE OLEATE.

Dr. Franklin H. Martin, of Chicago, gives the following description of the mode of preparation of manganese oleate:—

A solution of sulphate of manganese was made in distilled water, and to it a solution of sodium oleate was added. On mixing these two solutions gradually, and with constant stirring, a precipitate of oleate of manganese resulted. This precipitate, upon heating, changed to a putty-like mass. This was thoroughly washed several times with warm distilled water to remove the sodium sulphate, and the resulting putty-like mass was the pure oleate of manganese. This oleate, when dissolved in oleic acid to the required percentage, is ready for use.

MERCURIC OLEATE. $\text{Hg}(\text{C}_{18}\text{H}_{33}\text{O}_2)_2$. **M. W. 762.**

This oleate is by far the most important one, and up to the present time has been the most extensively used. It is of a yellow color, of a somewhat tenacious ointment consistence, and of the general odor of all oleates. As usually found in the market it has a greenish-gray color, owing to the fact that its mercuric component is reduced to a mercurous oxide and metallic mercury, and has an excess of oleic acid favoring the reduction process. If pure and properly made, it will show no sign of this excess; it should be insoluble in alcohol, but readily soluble without turbidity in benzine. Mixed with several times its weight of stronger alcohol, and the oleate allowed to deposit in this solution, it will give the amount of mercuric oleate in the latter after all the alcohol is evaporated, while the evaporated alcoholic washings will give the amount of free oleic acid. A bright strip of copper immersed in the oleate will speedily be covered with a film of metallic mercury.

It has been the custom to use as mercuric oleates oleic solutions thereof, to the detriment of the preparation, as, by its oxidizing tendency, the oleic acid soon deoxidizes the mercuric oxide entering into its composition and deposits it in such solutions as mercurous oxide, as well as globular metallic mercury. That such solutions, when used, fail to give satisfaction in results is, therefore, not to be wondered at, and I feel satisfied that none of the so-called oleates, or rather oleic solutions, contain, after standing for some time, any appreciable or serviceable amount of mercuric oleate. The utmost care has been exercised by chemists to overcome this, both by using purer acids as well as by nicety of manipulation, but to no purpose, as the fault lies in the excess of the acid which will never admit the keeping

of such an unobjectionable preparation. The process of making mercuric oleate may be conducted in two ways: The direct one is to unite the pure acid directly with the mercuric oxide in its chemical proportions, *i. e.*, 71.65 parts of oleic acid with 28.35 parts of mercuric oxide. But this process is subject to the excess of either one or the other, which, however, can be remedied by washing with stronger alcohol in order to remove any excess of acid. To remove any undecomposed particles of mercuric oxide which would become detrimental as local irritants, dissolve the oleate so derived in benzine, filter the benzine solution, and allow the benzine to evaporate. Care must be taken in the direct process to conduct it entirely under water and only with a moderate heat, else the process of reduction will begin before the entire reaction has taken place.

The second, and by far the most simple and rapid of the two, as well as that admitting of a better product, is by the double decomposition of sodium oleate and mercuric nitrate. The mercuric nitrate for that purpose is made by the action of strong nitric acid on mercuric oxide in sufficient quantities to entirely dissolve the latter, taking care to use as little acid in excess as possible. The solution so obtained is diluted with some water, an excess being avoided, and is then decomposed by additions to it of solutions of sodium oleate until the latter is in excess, which will be the case when the characteristic froth of soap is observed on the surface. The heavy precipitate so formed is next drained off and washed with warm water to remove all traces of soap and potassium nitrate, and, when this is accomplished and it is free from water, it is mixed with alcohol, which dissolves the free oleic acid from the oleate, caused by the excess of nitric acid in the mercuric

nitrate solution, and after this is decanted the alcohol is evaporated from the oleate. The washings containing oleic acid can be distilled and the alcohol recovered for use in similar subsequent proceedings. The mercuric oleate so prepared is a pure and true oleate, permanent under all ordinary atmospheric conditions, and can be relied on for its action. If to be diluted, it is best done with a neutral fatty body which will not cause its decomposition. A neutral mercuric oleate thus prepared contains about 26.2 per cent. of metallic mercury, equivalent to about 28.35 per cent. of mercuric oxide.

A third and rapid process for the preparation of mercuric oleate is to effect direct combination by gently heating the acid and mercuric oxide (yellow) on a water-bath, having previously deprived the oxide of any adherent moisture present. The most favorable temperature is about 150° F., and immediately after the oleate is formed it should be transferred to a well-closed vessel.

In order to prepare mercuric oleate, Mr. Beringer uses the following formula:—

Take of Oleic acid,	1000 grains.
Potassa,	220 “ or q. s.
Red oxide of mercury,	383 “
Nitric acid,	323 “ or q. s.
Alcohol,	6 fluidrachms.
Water, a sufficient quantity.	

Saponify the oleic acid with the potassa as directed in the formula for zinc oleate, dissolve the resulting soap in 2 pints of warm water, and filter. Mix the nitric acid with the 2 fluidounces of water, heat to boiling, and add the mercuric oxide, previously reduced to powder. Boil until it is entirely dissolved, adding, if necessary, a few drops of nitric acid additionally.

Dilute the solution of mercuric nitrate with 4 fluid-ounces of water. Warm both solutions to 66° C. (150° F.), and add the oleate of potassium solution to the mercury solution, stirring constantly. Decant the aqueous solution and wash the precipitate with warm water not exceeding 150° F.

MERCUROUS OLEATE. $\text{Hg}_2(\text{C}_{18}\text{H}_{33}\text{O}_2)_2$. M. W. 962.

This is an oleate not generally known or used, and only recently brought out by me. It is a whitish-gray, granular, sticky substance, which is very prone to decompose, forming mercuric oleate and mercurous oxide, also globular mercury. It is at once so decomposed if boiled or treated with hot water, and should be washed out cold only to free it from the adhering sodium nitrate, and then freed from adhering water between bibulous paper. It is quite distinct, both in appearance as well as in effect, from the mercuric oleate, and, on account of its ready decomposition and the liberation of free mercury, it is apt to produce the same effect as the mercurial ointment of the Pharmacopœia. It makes a turbid solution with benzine, and dissolves readily and clear in warm fats and in the petroleum ointments. It is prepared from crystallized mercurous nitrate, which, in turn, is prepared by treating metallic mercury in excess with nitric acid, evaporating the solutions crystallizing the same, and drying the drained crystals between bibulous paper. This aqueous solution, decomposed with sodium oleate, gives at first a whitish precipitate, which, if washed with hot and boiling water, yields a grayish-blue ointment, representing mercurial plaster both in appearance and physical properties. In that form it represents a mercuric-mercurous oleate, and combines both the sorbefacient effect of the mercuric

oleate with the constitutional impression of the mercurial ointment. Its advantage is that it contains double the amount of mercury of the preceding mercuric oleate, which amounts to about 41.5 per cent. of the metal.

NICKEL OLEATE. $\text{Ni}(\text{C}_{18}\text{H}_{33}\text{O}_2)_2$. M. W. 621.

This is another new oleate recently brought out and investigated by me. It is of a beautiful, blended light-green color, a glossy, waxy appearance, and plaster consistence. It mixes readily with fats and oils and dissolves in benzine. It is made by decomposing sodium-oleate solution with a solution of nickel sulphate, washing the precipitate with warm water and expressing and drying it at an ordinary temperature. It contains about 9.5 per cent. metallic nickel.

SILVER OLEATE. $\text{Ag}\cdot\text{C}_{18}\text{H}_{33}\text{O}_2$. M. W. 389.

The silver oleate is a grayish-brown pulverulent body, of an odor resembling oleic acid. It differs from the other oleates in the respect that it is not, by itself, soluble in either benzine or neutral fats, but needs an excess of oleic acid to render it so. That it is an oleate, which might be doubted from what is said above, can readily be substantiated by burning it on platinum foil, when it will give off profuse vapors, of an acrid odor, of a fatty, empyreumatic nature, while a small quantity of silver oxide will be left behind. It is easily prepared by precipitating a solution of the silver nitrate with the solution of sodium oleate, washing the precipitate with warm, distilled water, excluding light while conducting the process to prevent darkening of the precipitate, and also expressing and drying it with exclusion of light. It, however, soon changes color, getting darker, and therefore should be preserved in either blue or, better still, amber-colored bottles. It contains about 27.6 per

cent. of metallic silver, equivalent to about 59.3 per cent. of silver oxide.

TIN OLEATE. $\text{Sn}(\text{C}_{18}\text{H}_{33}\text{O}_2)_2$. M. W. 680.

This is a new oleate that I had occasion to introduce. It is an unguent body of soft consistence and brownish-gray color, has a characteristic metallic odor and a very fine, greasy touch. It readily dissolves in benzine, and makes a clear solution when mixed with warm, fatty substances or petroleum products. It is prepared by decomposing a solution of tin chloride with sodium-oleate solution. As, however, a certain amount of tin oxide is separated in this process, it should, after separating it from the liquids of decomposition and washing, be dissolved in benzine. The solution, after filtration, leaves, on the evaporation of the benzine, the tin oleate. It contains about 17.3 per cent. of metallic tin.

ZINC OLEATE. $\text{Zn}(\text{C}_{18}\text{H}_{33}\text{O}_2)_2$. M. W. 629.9.

This, one of the most important of this series of preparations, is, in its most useful form, an impalpable white powder, of a fine, soapy touch, somewhat oily odor, and if heated it melts into a homogeneous yellow liquid, which, on cooling, hardens into a mass presenting a crystalline fracture, with a specific gravity of 1.0663. In powder form, while not entirely soluble in benzine, it readily dissolves, if warmed over the water-bath, with fat oils or petroleum fats, which is requisite in order to test its purity; for, if zinc oxide is present, warmed fats will not affect it. If burnt on platinum-foil it should burn off to a large extent, leaving but a small, white residue soluble in concentrated mineral acids. Its complete solubility in warmed fats, absence of a disagreeable, smoky odor, and combustion are the surest

tests of its purity. While it is easily prepared, it requires some skill to obtain it as an impalpable, perfectly white powder. This is accomplished by using a dilute solution of zinc sulphate and decomposing it while cold with the sodium-oleate solution. It is of importance that the solutions should be cold and the zinc solution perfectly neutral, else an oleate will result that is coarse, granular, and soft, unfit for any other use than making ointments. The more dilute the zinc-sulphate solution, the finer and whiter the oleate will be. After thoroughly washing it with cold water it should be expressed, and the cake air-dried and ultimately powdered, which is easily accomplished. It contains about 10.4 per cent. of metallic zinc, in combination with oleic acid, which is equal to about 12.9 of zinc oxide. Mr. Beringer's formula is as follows :—

Take of Oleic acid,	1000 grains.
Soda,	160 “ or q. s.
Alcohol,	6 fluidrachms.
Zinc sulphate,	550 grains.
Water, a sufficient quantity.	

Warm the oleic acid in a capacious vessel on the water-bath to a temperature of 60° to 66° C. (140° to 150° F.), and, having dissolved the soda in a mixture of the alcohol and 2 fluidounces of water, slowly add the soda solution, stirring constantly until the acid is entirely neutralized and a small portion of the resulting soap dissolved in alcohol yields but a faint-pink tint on the addition of a few drops of alcoholic solution of phenol phthaleine. Dissolve the resulting soap in three pints of warm water and filter if necessary. Dissolve the zinc sulphate in one pint of water and filter. Warm the solutions to 43° C. (110° F.), and slowly add the zinc-sulphate solution to the soap solution,

stirring constantly. Collect the precipitate upon a moist filter, wash thoroughly with distilled water, and finally dry on bibulous paper at a temperature not exceeding 38° C. (100° F.).

CHAPTER III.

PHYSIOLOGICAL ACTION OF THE OLEATES.

WITH a view of determining whether the oleates are absorbed into the blood when applied to the skin, and thus produce systemic effects, the following experiments were made by Dr. L. Wolff, Dr. Brubaker, and myself.

In all instances the observations were made upon rabbits, and were conducted in the same way, viz.: After being properly secured on a Czermak holder, the hair was carefully removed from the abdomen so as to present as clean a surface as possible for the action of the drug. The animals were then placed in a large glass jar, so that the excretion might be collected and examined chemically, to determine whether the drug had been absorbed. The first oleate experimented with was the—

QUININE OLEATE (25 per cent.).

One ounce was thoroughly rubbed over the abdomen for a period of five minutes. At the end of twenty-four hours the urine was carefully examined, but no trace of quinine could be detected. In all other respects the animal was in a normal condition.

In the second rabbit 2 drachms of the same oleate were injected into the abdominal cavity. At the end of six hours no apparent effect had been produced, but in eighteen hours it was dead. Post-mortem examination showed evidences of irritation and congestion of the peritoneal membrane, while the coagulated oil was found over the viscera and in the peritoneal cavity. In this case no quinine was discernible in the urine.

THE MERCURIC OLEATE

was next experimented with in the same way. Two drachms were applied over the skin of the abdomen. At the end of twenty-four hours the fæces had lost their hard character, and had become soft and of a yellowish-brown color. The fæces and urine were both examined, but no mercury could be obtained. The change in the consistency of the fæces might have been due to the rubbing of the abdomen. The animal exhibited no other evidences of the action of mercury.

THE COPPER OLEATE

was next applied. Two drachms, softened with oleic acid, were rubbed upon the abdomen thoroughly. The rabbit remained in an apparently normal condition; at the end of twenty-four hours the urine did not contain a trace of copper.

THE ZINC OLEATE

(one-half ounce) was applied in an exactly similar manner. At the end of twenty-four hours the subject was decidedly stupid, and almost helpless as regards motion. Upon killing it with ether and then opening the abdomen, a thick layer of gelatinous material was found just beneath the skin. The blood-vessels of the skin were enlarged. The irritability of the nerves and muscles remained normal, as was shown by stimulation with electricity. The urine, which was drawn from the bladder, contained no zinc.

THE STRYCHNINE OLEATE

(two drachms, containing $2\frac{1}{2}$ grains of strychnine) was rubbed along the groin and inner surface of the thigh for five minutes; no effect had been observed during forty-eight hours after thoroughly applying the oleate to the abdominal walls.

THE ACONITINE OLEATE

was applied in a similar manner. Two drachms, containing $2\frac{1}{2}$ grains of aconitine, were rubbed along the groin and inner surface of the thigh for five minutes. At the end of twenty-four hours no effect had been observed. The animal was in a normal condition.

It thus appears, from the foregoing experiments, that the supposition that the oleates were directly absorbed and taken up by the lymphatics and conveyed into the blood is entirely erroneous; on the contrary, they prove that the oleates at no time can penetrate deeper than the epidermis and its continuation into the glands and follicles. Herein consists, in fact, the advantage that oleates have over ordinary ointments: that they can enter into minute openings of the glands and follicles, on account of being dissolved in the fatty base and vehicle; whereas, in the ordinary ointments, no matter how minutely subdivided, the medicating agents would be prevented from acting in this way, the fatty vehicle alone being filtered off and entering. All the suppositions and hypotheses, setting forth how the oleates are absorbed and enter into the blood at once, are erroneous, and have not been confirmed by practical results, the most powerful of the oleates scarcely showing any of their physiological effects. By what physiological process or manner the advocates of such theories would demonstrate their assertions is to me unaccountable. Thus, when a prominent writer claims that, on brushing oleic acid or oleates lightly over the epidermic surface, it disappears with an astonishing rapidity, equalling that of some evaporant, I can only account for it by supposing he is endowed with extraordinary powers of observation, or has made his statements without observation and on the most favorable basis of his own expectations.

While there is plenty of room and use for the oleates, the worst that can be done by their friends or advocates is to claim for them what they do not or can not possess. The principal advantage of the oleates is their solubility in the fatty vehicles by which they are enabled to penetrate, not through the skin and the walls of the vessels, as might be inferred from the writings of some authors, but into the natural openings of the skin, the glands, and follicles; there they may, by osmosis, be interchanged with some of the systemic fluids and be absorbed to a certain extent; but physiological experiments seem to make even this unlikely. The only instance in which this might be the case is with the mercurous oleate, which is so loosely attached to its fatty radical as easily to give it up in exchange for other acids, forming salts with them, which are more readily absorbed and assimilated, producing then the characteristic effects and symptoms of the drug. Mercuric oleate, on the contrary, while easily, by its own constitution, decomposing into mercurous oleate, will not in itself so readily exchange its acid radical for another of the sudorific excretion. That oxide of zinc is not carried into the follicle is quite as well understood as that white or red precipitate should or could not do so. Take the ointment of either of these precipitates and melt it, and then place it on filtering paper, and you will readily see the unguent base permeating the porous tissue, while the suspended substance is retained on its folds. Dissolve an oleate in any of the fatty vehicles, and you will find that it passes through the porous substance undecomposed and in its entirety, and is thus able to act on the follicle and gland, both by its action on the nearly lying cutis as well as by the possibility of an osmotic process. In this, and in this alone, consists the advan-

tage of the oleates, and a material advantage it is. Thus, while the ointments of white and red precipitate will destroy the conidia and mycelium of superficial fungi in trichophytosis, chromophytosis, etc., the mercury and copper oleates alone can dip into the follicles and there exert a like destructive action. It might be said that if their principal value consisted in their solubility, as much could be accomplished by watery solutions applied to the surface; but such is not the case. Water or aqueous solutions have a tendency to swell up the epiderm, and by so doing completely to occlude the orifices of glands and follicles; while fats or oils, and fatty acids, as well as their derivatives, produce the opposite effect, and are, for that reason, enabled to enter into those structures.

CHAPTER IV.

THERAPEUTIC ACTION OF THE OLEATES.

BEFORE entering into detail on the medicinal action of the individual oleates, I would dwell on the proper method of preparing them for use. There has been some misconception as to their nature from the fact that one or two of them can be used to great advantage in their pulverulent state, owing to their mechanical action, besides the chemical influence they exercise not on the unbroken surface, but on denuded and pathologically-affected skin. Thus, we find that the zinc oleate, in its powdered state, is a very excellent agent on account of its capacity to lessen friction, and, at the same time, to contract the congested and tumefied integument.

Again, we see, in the application of the powdered silver oleate to denuded and ulcerating surfaces, a most useful measure to coagulate the albumen locally, and to lead to the formation of a protective covering over these surfaces. In an attempt, however, to extend the use of powders to the other oleates we simply lose sight of the one great advantage that is of such importance with this class of preparations,—their solubility in vehicles that can penetrate into the depression of the epidermic covering. That some of the oleates occur as powders, and some as plasters, and others as ointments, is part of their physical constitution, which the chemist, by admixtures, should not try to pervert. Their principal use must always be as ointments, and it is, therefore, that I would speak here of them and their proper preparations. While I omit now the proportions to be used,—to which I will refer under their respective

headings,—I can say that, as a general rule, the ointments should be made by melting the oleates with the fatty substance intended for their bases at as low a temperature as possible to effect solution, which is, as a rule, best accomplished by a water-bath, in which the vehicle is first melted and then the oleate introduced and stirred therewith until completely dissolved. This is done without much trouble and difficulty by any one, either physician or chemist, and holds good for all save the ointment of the silver oleate; and for its preparation more specific directions will be given hereafter. The fatty vehicles intended for ointment bases are a matter of choice, according to the indications of the case. While no doubt the most elegant preparations can be made with the petroleum fats as bases, they form, in my opinion and in that of others, the least desirable substances for such use.* I stated in my paper read before the Medical Society of the State of Pennsylvania (*loc. cit.*), that I considered the petroleum products as objectionable for such a purpose, and Dr. Robson, of England, has made a similar observation in the use of vaseline as a surgical dressing. I also consider them to possess a feebler power, if any at all, to penetrate than animal fats, which have more affinity for the integument. They always contain some stimulant constituent left after their manufacture, which prevents them from having an emollient action,—a great objection to their use as external remedies if you desire to soothe and allay active inflammation. Irritant ointments of veratrine and other like substances, which I had made respectively of paraffinates and simple ointments, proved, in the former, almost inert, while the activity of that

* See an article on the "Irritation of the Skin following the Application of Vaseline" in the London Lancet of November 8, 1884.

made with simple ointment very soon became evident. Dr. J. G. Kiernan, of Chicago, who repeated my experiments with the petroleum products (as have also several others), both upon himself and the lower animals, arrived at the same conclusion. I am also confirmed in my opinion by Dr. Herman Hager, who, in his celebrated work on *Pharmaceutical Practice*, states that the use of vaseline (or cosmoline, or whatever their pseudonyms may be) in place of lard, or an ointment of such mixtures containing a remedial agent intended for absorption by the skin, should be discouraged, as vaseline (cosmoline, etc.) prevents absorption. In fact, the experiments of Drs. Randolph and Dixon* have shown that vaseline, or cosmoline, is not even absorbed by the gastro-intestinal mucous membrane, which certainly offers less obstruction to absorption than the integument.

Although this has been disputed by some, who, however, constitute no medical authority, having only a commercial interest in the sale of their goods, and for pharmaceutical reasons lay more stress on their handsome appearance than on their utility, I think this matter should rest with the physician to decide rather than with the biased vender.

All of the oleates, if desired in a very concentrated form, can be rendered thin and pliable by the addition of a small quantity of oleic acid, which, if warmed and melted with them, readily renders their consistence fit for the purpose of inunction. As a diluent, when either the oleate itself or its oleic dilution would make them too powerful, I know of nothing better than good fresh lard, lard ointments, lanolin, or one of the fatty bases of animal origin recommended in the first part of this

* "On the Behavior of Petroleum in the Digestive Tract." Notes from Physiological Laboratory of University of Pennsylvania, 1885.

work. Again, under no circumstances, however, should ointments of the oleates be prepared by simply rubbing them up with the diluent, nor should any of them be accepted by the physician which are not perfectly homogeneous.

The advantages of these ointments may be set forth as being economical, as they need only be used in small quantities, and, if properly applied and well rubbed into the dry skin, there will be very little adherent to the surface that can be rubbed off or soil the clothing,—a very desirable property. If, however, they are used, as was evidently done by some who raised objections to them on that point, by daubing them on in large quantities, on the principle that if a little does good more will be better, they may fail to accomplish the purposes they are intended for, and exert their influence on the patient's clothing alone. Such persons evidently forget the anatomy of the integument, and imagine the minute glands and follicles to possess the capacity of much larger organs. Where, for reasons of contact and surface action, the ointment has to be applied copiously, as in the instance of the iron-oleate ointment to arsenical ulcers, the ointment has to be secured by protective measures, both to prevent soiling the clothing as well as to insure its continued action on the parts affected.

To proceed to the consideration of the individual oleates, their remedial action and indication for use, I will take up first the—

ACONITINE OLEATE.

Aconitine oleate has been lauded for its rapid constitutional effect, which the writer has failed to observe even after a number of careful experiments pursued for years. It has a slight local action, but the effect is very

feeble; it can be used in mild cases of neuralgia owing to its weak anæsthetic impression.

Dr. M. R. Richard, however, reports,* before the Harlem Medical Association, a case of severe constitutional poisoning from the external application of small quantities of aconitine oleate.

ATROPINE OLEATE.

Atropine oleate has a mild action upon the integument, the toxic effect of the drug being almost impossible, except it be applied freely over a large surface.

ALUMINIUM OLEATE.

Aluminium oleate, melted with an equal proportion of lard and some fatty substance, represents the ointment of aluminium oleate.

The aluminium-oleate ointment coagulates the albumen of the parts to which it is applied, constricts the vessels, checks and corrects all secretion, and has marked styptic as well as antiseptic action. It has a decidedly astringent effect, and is very serviceable in checking muco-purulent discharges that occur in dermatitis and in eczema. It can be applied with advantage over the flexor surfaces, and upon those parts that have an excessive discharge from friction or apposition of two portions of integument. It is also well adapted to cases in which the axilla, groin, and buttocks of infants and children become involved, its application often rapidly checking the profuse secretion and restoring the integument to a normal condition. In hyperidrosis it lessens and frequently removes the excessive secretion, while in bromidrosis the fetid discharge will either be entirely overcome by its use or very much diminished in its activity. It is both beneficial and useful employed as a

* New York Medical Journal, May 10, 1890.

dressing to foul ulcers, abscesses, sinuses, chilblains, and burns.

Formulary.

- Take of Ergotin, 1 drachm.
 Ointment of aluminium oleate, . . . 3 drachms.
 Mix. For hyperidrosis, bromidrosis, ulcers, and pustular eczema.
- Take of Extract of arnica, 10 grains.
 Ointment of aluminium oleate, . . . 3 drachms.
 Mix. For dermatitis, eczema, chilblains, and burns.
- Take of Sublimed sulphur, 15 grains.
 Ointment of aluminium oleate, . . . $\frac{1}{2}$ ounce.
 Mix. Useful in fissured eczema, especially about the nose, lips, and genital organs.
- Take of Camphor, 5 grains.
 Creasote, 2 drops.
 Ointment of aluminium oleate, . . . $\frac{1}{2}$ ounce.
 Mix. Excellent for seborrhœa oleasa, rosacea, and sycosis.

ARSENICUM OLEATE.

Arsenicum oleate, melted in the proportion of 1 part to 9 parts of lard as an unguent base, or 1 part in 4, according to the strength desired forms the ointment of arsenic oleate.

It is both a valuable alterative and escharotic, but should always be used with caution. Applied to the skin in the natural state, little or no change is produced, but when used moderately strong on abrasions, wounds, and ulcerating and granulating surfaces, it acts as an escharotic, exciting active inflammation and destroying the tissue to some depth. On the other hand, it will have a most excellent alterative impression on the integument in the form of a very weak ointment. In ulcerating epithelioma it is one of the very best remedies, by reason of its being better borne for a longer period in its application than any other form of arsenic. In lupus it is especially serviceable, destroying, by its constant use, cell infiltration in a comparatively mild

and painless manner. In the erythematous and tubercular forms of lupus the parts, however, should be thoroughly scraped, in order to bring the oleate in contact with the abraded surface. In old ulcers, especially those of a scrofulous nature, the arsenic-oleate ointment is of great utility. It is, likewise, of value as an alterative in the form of a weak ointment, either alone or combined with other remedies, in chronic sycosis, seborrhœa, and in some of the chronic varieties of eczema. It can be employed, after scraping or puncturing the surface, to destroy warts, corns, horns, condylomata, old granulations, and nævi. It can also be combined with such preparations as opium, belladonna, hyoscyamus, arnica, arrow-root, naphthol, etc., either to lessen its activity or enhance its effect by the additional impression of one or more of these remedies.

Formulary.

Take of Hydrochlorate of cocaine,	. . . . .	3 grains.
Sulphate of morphine,	. . . . .	2 “
Powdered starch,	. . . . .	1 drachm.
Ointment of arsenic oleate,	. . . . .	½ ounce.

Mix. Valuable in epithelioma and lupus vulgaris.

Take of Sulphate of atropine,	. . . . .	2 grains.
Chloride of zinc,	. . . . .	20 “
Powdered arrow-root,	. . . . .	1 drachm.
Ointment of arsenic oleate,	. . . . .	½ ounce.

Mix. Useful in old ulcers, horns, warts, and condylomata.

Take of Extract of hyoscyamus,	. . . . .	10 grains.
Extract of arnica,	. . . . .	1 scruple.
Ointment of arsenic oleate,	. . . . .	½ ounce.

Mix. For scrofuloderma and old granulations.

BISMUTH OLEATE.

The ointment of bismuth oleate, a pearl-gray, soft, bland substance, possesses an emollient and slightly-astringent action, and is useful in soothing and relieving cutaneous irritation. It is a valuable remedy in all

pustular eruptions lightly penciled over the surface. In sycosis it relieves the engorgement of the parts, often aborts the pustules, and will lessen or remove the distressing itching and pricking that is so wearing to the patient. It allays and often overcomes the high inflammation in erysipelas and sunburn. In acne and rosacea it soothes the hyperæmic skin, relieves the engorgement of the glands, frequently subduing some of the most intractable cases, and consequently giving ease and comfort where prolonged suffering formerly existed. In some of the more obstinate forms of acne and rosacea, however, I always deplete the parts thoroughly, first by puncturing them with a needle-knife and afterward penciling the surface with the ointment.

This oleate is not only an important but also a useful remedy in the treatment of the different varieties of acute eczema, soothing and arresting rapidly the irritated integument. It is generally an effective agent for cracked and sore nipples, used either alone or in combination with opium and belladonna and arnica, the dry and excoriated condition of the parts yielding on its application.

Formulary.

Take of Extract of witch-hazel, 10 grains.

Bismuth oleate, $\frac{1}{2}$ ounce.

Mix. For acne, sycosis, rosacea, and seborrhœa.

Take of Creasote, 2 drops.

Carbonate of zinc, $\frac{1}{2}$ drachm.

Bismuth oleate, $\frac{1}{2}$ ounce.

Mix. For erysipelas, acute eczema, and erythema.

Take of Sulphate of atropine, 1 grain.

Bismuth oleate, 3 drachms.

Mix. Useful in cracked and sore nipples and sycosis.

Take of Camphor, 3 grains.

Aristol, 5 "

Bismuth oleate, $\frac{1}{2}$ ounce.

Mix. For fissured eczema, chronic acne, and rosacea.

Take of Extract of belladonna,	1 scruple.
Tannic acid,	1 “
Sulphate of morphine,	2 grains.
Bismuth oleate,	½ ounce.

Mix. For eczema of the anus, genital organs, and in boils and carbuncles.

CADMIUM OLEATE.

The ointment of cadmium oleate has had, as yet, but little practical use. It is a very strong stimulant, having an almost caustic action upon the denuded integument, resembling, in this respect, very much the action of the ointment of nickel oleate. It has been used, with some advantage, in enlarged glands, especially in scrofulous subjects, stimulating to renewed activity the dormant absorbents, and thus removing the abnormal condition from the tissue. It has also been serviceable at times in cases of chronic eczema with great infiltration, exuberant granulations, and old ulcers.

Formulary.

Take of Citrine ointment,	2 drachms.
Ointment of cadmium oleate,	2 “

Mix. For chronic eczema and psoriasis.

Take of Chrysarobin,	10 grains.
Ointment of cadmium oleate,	3 drachms.

Mix. For chronic ulcers and enlarged glands, especially from scrofula.

COCAINE OLEATE.

Cocaine oleate (6-per-cent. alkaloid) has a slight anæsthetic action upon the integument. The decided effect, however, that has been claimed by some on its application to the skin has not been observed in my experience, even after repeated experiments with it in operations on warts, corns, horns, cancer, lupus, and the removal of superfluous hairs. Squibb* states, in a contribution, that when applied to the skin it should be

* An Ephemeris of Materia Medica, etc., January, 1885.

somewhat effective. On the contrary, I have found, by clinical experience, that its action is so weak as to make it of little practical value. It has been recommended in mild cases of neuralgia, local spots of eczema, and in painful ulcers. Keys* reports that he has relieved with it, temporarily, mild anal pruritus. Jackson† also relates that by its application the pain under the operation for the removal of superfluous hairs is somewhat lessened.

Lustgarten‡ employs oleate of cocaine in the treatment of pruritus ani, acute and subacute eczema. This same alkaloidal oleate§ has been used for the relief of herpes and pruritus of the vulva.

Formulary.

Take of Lanolin, 1 ounce.

Cocaine oleate (6-per-cent. alkaloid), . . . 1 "

Mix. Employ in pruritus of the genital organs, papular eczema, and in chilblain.

Take of Carbonate of lead, $\frac{1}{2}$ ounce.

Cocaine oleate (6-per-cent. alkaloid), . . . 2 ounces.

Mix. For burns and irritable ulcers, and itching of the skin.

COPPER OLEATE.

Copper oleate, melted with either 4 or 9 parts of fat or lard, gives, respectively, a 20 or 10 per cent. of the ointment of copper oleate. Applied in this form to the unbroken skin it has no visible effect on the surface, but penetrates deeply into the follicles, causing slight stimulation. If brought into contact with the broken skin it has both an astringent and stimulating effect, and an insoluble albuminate is formed which coats over the surface, thus supplying the place of the abraded skin. It

* Journal of Cutaneous and Venereal Diseases, January, 1885.

† *Loc. cit.*

‡ Wiener Med. Wochenschrift, November, 12, 1887.

§ Gaz. Hebd. des Sci. Med. de Montpellier, January 14, 1888.

condenses the tissues, constricts the blood-vessels, and thus lessens the determination of blood to the part. It acts as an irritant to any delicate surface, causing inflammation and pain. It is a most effective application to arrest bleeding, particularly in irritable sores and indolent ulcers. Obstinate granulations will often yield to the ointment of the copper oleate after resisting the usual applications. It is a most excellent antiseptic, as well as an antiparasitic agent. The most successful results, however, have followed its use upon vegetable parasitic affections, both in my own experience and in that of Sawyer and Startin,* of England. The last-named observer gives the following testimony concerning the copper oleate:† “I have been using the drug for two years, and am so satisfied with its results that I recommended it to my colleagues, who also expressed their satisfaction on trying it. An impure oleate will irritate the skin, but the oleate now made by a process of double decomposition is perfectly pure, and in my opinion a very reliable application in ringworm. I have never had complaints, either by hospital or private patients, from its use, and I have used it to some hundreds.” Many American physicians have also reported very effective results from its use in their practice. My attention was directed to the curative action of the ointment of copper oleate in parasitic affections, by the remarks of some of my patients; and I believe I was the first to recommend it for its antiparasitic effects in a paper read before the Pennsylvania State Medical Society, already referred to, and from which I quote: “For several years I have had patients tell me, at the hospital and in my

* See an interesting paper on “Oleate of Copper in Ringworm,” by James Startin, surgeon, of England, read before the Willan Society, December, 1881.

† British Medical Journal, January 10, 1885.

private practice, that they cured this or that member of their family of ringworm by putting an old copper penny in vinegar and applying the liquid to the patches. Some, however, resisted the treatment, and members of the latter class were brought to me with the statement that if other children had been cured by putting a copper penny in vinegar and applying the infusion, how was it that it did not in this particular case do any good! After due thought it occurred to me that this coppery liquid might destroy the fungus on the surface, but if the parasite after a time passed into the follicles at its lowest depth and invaded the hair-bulbs, it could not affect it in any way; and, also, if the copper solution had the power to kill the parasite on the surface, why could it not do the same within the follicles, providing it could be carried there? Acting upon this idea, and remembering the great penetrating action of oleic acid, I had it combined with copper and mixed with a fatty base. The ointment thus prepared I applied to an inveterate and extensive case of ringworm on the scalp of a child that had been treated with numerous remedies without benefit, and in the period of six weeks the patient was completely cured. Other cases, both of ringworm on the scalp and body, were afterward treated likewise with equally good results."

Dr. Joseph Adolp says:* "To combat ringworm, I find oleate of copper generally efficacious; I employ 60 grains of the oleate amalgamated with 1 or 2 drachms of lard, rubbing into the diseased surface thoroughly. Success depends alike upon the strength of the medicament and the persistence with which it is employed."

In *tinea versicolor*, or *chromophytosis*, it acts in a

* *Medical Age*, April 10, 1890.

most decided manner, rapidly removing the parasite from the surface, as also the one which penetrates deep into the follicles. The red, yellowish, and often dark-brown desquamating spots will clear up generally quicker and better from the applications of the ointment of copper oleate than by the use of any other remedy. It is equally effective in favus, which yields quickly to its application. In all vegetable parasitic affections to which it is applied care should be taken to avoid the too frequent use of water to the parts, which may prevent the copper oleate from penetrating to the lowest depth of the follicle, and thus interfere with its action on the fungus. In fact, I always, at the present time, continue the application of the oleate alone until all evidence of the fungus has disappeared, interdicting water entirely during the treatment, which, I believe, assists in nourishing the parasite, thus making it more active. In case it becomes necessary to clean the parts, the use of oleic acid, alcohol, boric acid, or betanaphthol solutions, or ether, will fully accomplish the purpose.

In using the ointment of copper oleate in parasitic affections, it is not required to epilate or pluck out the diseased hairs, as the deep and effective action of the remedy will usually alone complete a cure, without following the old routine plan, which I have for some time abandoned as painful and unnecessary. Copper oleate, melted and spread as plaster, will relieve, and very often cure, hard and horny warts, corns, bunions, and thickened conditions of the epidermis to which it is applied. The ointment of copper oleate is a useful remedy for freckles and other yellowish-brown or blackish patches of the skin.

The ointment of copper oleate should not be em

ployed too strong, inasmuch as it may cause irritation, like all the copper salts, if brought under such circumstances in contact with the skin. More or less irritation, and even inflammation and the formation of furuncles on the skin, have been reported* from the application of an ointment containing a large quantity of the salt. From 5 to 20 grains of the copper oleate should first be prescribed to the ounce of the fatty base. The quantity of the salt employed should always vary according to the condition of the skin, whether in the normal condition or inflamed, as well as the locality to which it is to be applied. For instance, on the face, especially of some persons possessing freckles, the skin is very delicate, and therefore the quantity of the copper oleate used in the ointment should, in the beginning of the application, be very small, from 5 to 10 grains to the ounce of the base being, as a rule, the quantity to employ. On the other hand, on scalp, back, elbows, knees, hands, and feet, the integument is much thicker and the quantity of salt to the fatty base can be much stronger. Examples of the above combinations will be added for the reader in the formulary. Lastly, the physician should always obtain copper oleate made from good oleic acid, otherwise the resulting salt may not only be unserviceable but absolutely injurious by readily irritating or inflaming the skin. Several cases† have come under my observation, not alone with copper oleate but also with other of the oleates in which the ointments made from the salts improperly prepared produced unpleasant and harmful results, in place of good effects, upon the diseased skin.

* E. Borscheim, *Journal of Cutaneous and Venereal Diseases*, New York, September, 1883.

† See letter by author to the *Journal of Cutaneous and Venereal Diseases*, New York, November, 1883.

Formulary.

- Take of Ointment of oxide of zinc, $\frac{1}{2}$ ounce.
 Ointment of copper oleate, $\frac{1}{2}$ "
 Mix. For ulcers, chronic eczema, and psoriasis.
- Take of Creasote, 8 drops.
 Ointment of copper oleate, $\frac{1}{2}$ ounce.
 Mix. Valuable in ringworm of the scalp, face or barbers' itch, and the body ; also in favus and tinea versicolor.
- Take of Resin ointment, 3 drachms.
 Ointment of copper oleate, 3 "
 Mix. Useful in corns, callosities, and warts.
- Take of Salicylic acid, $\frac{1}{2}$ drachm.
 Ointment of copper oleate, $\frac{1}{2}$ ounce.
 Mix. For chronic eczema of the hands and feet.
- Take of Carbonate of zinc, 1 drachm.
 Oil of eucalyptus, 8 drops.
 Ointment of copper oleate, $\frac{1}{2}$ ounce.
 Mix. Use in hyperidrosis and bromidrosis.
- Take of Lanolin, $\frac{1}{2}$ ounce.
 Oil of chamomile, 5 drops.
 Ointment of copper oleate, $\frac{1}{2}$ ounce.
 Mix. For lentigo, or freckles, and chloasma, or yellowish-brown patches on the skin.
- Take of Boric acid, $\frac{1}{2}$ drachm.
 Ointment of copper oleate, $\frac{1}{2}$ ounce.
 Mix. Beneficial in favus, tinea versicolor, and ringworm of all parts of the body.
- Take of Beta-naphthol, 1 scruple.
 Ointment of copper oleate, $\frac{1}{2}$ ounce.
 Mix. For chronic acne, chronic sycosis, and old syphilitic and scrofulous ulcers.
- Take of Carbonate of lead, 1 drachm.
 Carbonate of zinc, 1 "
 Carbolic acid, 3 grains.
 Camphor, 3 "
 Ointment of copper oleate, $\frac{1}{2}$ ounce.
 Mix. For pustular eczema, boils, impetigo, and sycosis.

IRON OLEATE.

Iron oleate is readily soluble in fats. Experiments with this oleate, mixed with the various fats and given

internally, have not brought about any good results. The use of the ointment of iron oleate by the inunction method has no apparent constitutional effect, for the reasons that have already been cited under their physiological action. It was thought by the writer, after some clinical experiments, which were presented in a former paper, and in which the inunction of iron oleate appeared to be of systemic value in anæmic and scrofulous cases, that it would be an invaluable remedy for those diseases, but subsequent and more extended experience has shown its action on the system to be of no value. The action of iron oleate, like all the other oleates of the metals and alkaloids, is mainly upon the parts to which it is applied. The ointment of iron oleate is a valuable styptic and astringent. In the inflammatory form of eczema, in which the surface has become denuded, red, raw, and bleeding, the application of a weak ointment of iron oleate or the oleate itself used in other soothing and slightly astringent combinations for the same affection will prove of the greatest value, its styptic and astringent action having the happiest effect upon the parts. It has marked effect in pustular eczema, sycosis, furuncles, and in scrofulous ulcers and sinuses.

The iron oleate, mixed with oil of ergot or any of the ordinary oils, can be used with advantage in dry seborrhœa and in certain forms of alopecia that result from an irritable condition of the glands of the parts. The first and second stages of acne rosacea are vastly benefited and often entirely relieved by the application of a weak ointment of iron oleate. The lesions that result from arsenical poisoning, especially the pustules and ulcers, are more amenable to the action of this ointment than any other remedy that I have used in such conditions. A number of cases of arsenical poisoning

have come under my observation, particularly in workmen in several large chemical establishments, and in all cases the pustules and deep and angry ulcers that were present, and upon which other remedies had failed, rapidly yielded to its application.

Formulary.

Take of Thymol, 5 grains.

Ointment of iron oleate, $\frac{1}{2}$ ounce.

Mix. For idiopathic hæmorrhage of the skin resulting from wounds and the bites of insects.

Take of Sublimed sulphur, 1 scruple.

Ointment of iron oleate, $\frac{1}{2}$ ounce.

Mix. For acne, rosacea, and sycosis.

Take of Ointment of oxide of zinc, $\frac{1}{2}$ ounce.

Iodol, 10 grains.

Ointment of iron oleate, $\frac{1}{2}$ ounce.

Mix. For pustular eczema, impetigo, and sycosis.

Take of Carbolic acid, 3 grains.

Ointment of iron oleate, $\frac{1}{2}$ ounce.

Mix. For ulcers, especially those following arsenical poisoning.

LEAD OLEATE.

Lead oleate, melted with equal parts of lard or lard-oil, or a mixture of the two, according to the season, to present it in ointment form, gives a cream-colored semi-solid ointment of the consistence of simple cerate. It is more easily and cheaply prepared than either Goulard's cerate or Hebra's litharge ointment, or any of the later modifications, and is also more readily absorbed, and is superior to all of them. Unna and many other physicians who have tested the action of the ointment of lead oleate report excellent results from its use.

The ointment of lead oleate, when applied to the denuded skin, has both an astringent and sedative action, arresting by this effect morbid discharges and allaying irritation. It soothes effectually the intense irritation that is often present in papular eczema, and in those

forms of the same disease that appear in the flexures of the joints, around the axillæ, the inner part of the thighs, and perinæum. Pustular eczema of young infants, which is so annoying to the little sufferers, is often benefited, and the inflammation, discharge, and itching entirely checked by its free application; it is equally beneficial in fissured eczema of the palmar and plantar surfaces. If the inflammation and cracking, however, be severe and deep, and require a certain amount of stimulation, the addition of naphthol, oil of chamomile, or oil of cade will increase very much its curative action. This ointment is a useful remedy in hard and indurated papules, in acne of the face, neck, and back, and in rosacea. Thymol, carbolic acid, naphthol, and many other stimulating or soothing agents can sometimes with advantage be combined with it.

Formulary.

Take of Hydrochlorate of cocaine, 3 grains.
 Camphor, 5 "
 Ointment of lead oleate, ½ ounce.

Mix. For acne, rosacea, and papular eczema.

Take of Menthol, 5 grains.
 Carbonate of zinc, 1 drachm.
 Creasote, 3 drops.
 Ointment of lead oleate, ½ ounce.

Mix. Useful in subacute eczema and fissured eczema, particularly that which occurs around the nose, mouth, and genital organs.

Take of Beta-naphthol, 10 grains.
 Ointment of oxide of zinc, ½ ounce.
 Ointment of lead oleate, ½ "

Mix. Employ in seborrhœa, acne, rosacea, and sycosis.

MANGANESE OLEATE.

Dr. Franklin H. Martin* has proposed the use of this combination as a remedy in functional amenorrhœa, menorrhagia, and metrorrhagia. The permanganate of

* Medical Record.

potassium is held to be difficult of administration and irritant to the stomach. The binocide of manganese has also, on account of its insolubility, proved to be almost inert. He therefore recommends that 1 drachm of a 20-per-cent. solution of the oleate should be applied by friction to the abdomen of the patient, and in amenorrhœa should be made every night for a week before the expected period. In menorrhagia or metrorrhagia it may be employed in smaller quantities every night until the desired effect is produced. The writer is of the opinion, by his experiments with the various oleates of the metals and alkaloidal solutions of the oleates, that none of them have any appreciable systemic action to warrant their use. These experiments are referred to under the physiological action of the oleates, and are to the writer sufficient evidence of negative constitutional action of manganese oleate. If any result has followed the application of this oleate with friction over the abdomen in any of the diseases referred to, it is due, beyond all question, to the action of the massage employed upon the parts.

MERCURIC OLEATE.

The ointment of mercuric oleate is a yellowish chemical combination having a fatty smell, and is of an unctuous consistence. It has a stimulating, resolvent, and alterative impression used on the integument, especially upon tumors, glandular enlargements, indurations, and thickening of the skin. In some of the old cases of eczema, in which the skin becomes greatly infiltrated, the twofold action of the ointment of mercuric oleate is often attended with happy effects. It is an acceptable and, at the same time, beneficial agent in obstinate ulcers and indolent papules, tubercles, and in infiltration that often is attendant upon or follows

abscesses, in inflammation of the hair-follicles of the beard, and scrofuloderma. It can be used with success in the excess and deficiency of pigment that occur, either as a disease, from applications, or from an effect of disease. It is a useful remedy in both the animal and vegetable parasitic affections. In animal parasitic disease, especially in phtheiriasis, or lousiness, the ointment of mercuric oleate has alike the effect of destroying both the parasite and nits, which are not always reached by other mercurial preparations. In all varieties of vegetable parasites it is not only effective on the surface, but possesses the power of penetrating into the hairs, the follicles, and sebaceous glands, and thus killing the fungus that has pushed into these parts.

In the treatment of parasitic affections, 1 per cent. of picrotoxin, the active principle of *cocculus Indicus*, may be combined very serviceably with mercuric oleate.

The advantages of the ointment of mercuric oleate over the old mercurial ointments for its topical use are:—

1. Its chemical combination, which makes it more easily absorbed, gives greater penetrating action, and thus manifests itself in more prompt remedial effect.

2. It possesses the advantage of being free from rancidity,—so objectionable a feature in the ointments of other mercurial combinations.

3. It is both economical and clean.

In concluding the description of the ointment of mercuric oleate, I wish to call attention to the fact that, while it is more rapidly absorbed, yet, for the reasons already mentioned, it is slow under its physiological action to give rise to systemic effect. Large quantities can be applied over the general surface, either in children or adults, with great impunity, its toxic or con-

stitutional effect seldom following in the majority of cases in which it is used.

Formulary.

Take of Oil of cade, $\frac{1}{2}$ drachm.

Ointment of mercuric oleate, $\frac{1}{2}$ ounce.

Mix. For psoriasis and chronic eczema, especially of the palms of the hands and soles of the feet.

Take of Beta-naphthol, 5 grains.

Camphor, 5 "

Ointment of mercuric oleate, $\frac{1}{2}$ ounce.

Mix. Use in chronic acne, syphilis, and alopecia circumscripta.

Take of Picrotoxin 1 grain.

Ointment of mercuric oleate, 1 ounce.

Mix. For animal and vegetable parasitic diseases, as scabies, pediculi, trichophytosis, and tinea versicolor.

MERCUROUS OLEATE.

The ointment of mercurous oleate is very much stronger in mercury than that of mercuric oleate. In the ratio of 41.6 to 26.2, or about one and a half times as strong, it has marked stimulating action bordering on congestion on the integument, and has a decided resolvent and alterative effect. It is therefore applicable to the same class of affections in which the ointment of mercuric oleate is used, particularly if it is desirable to make a more decided impression.

Having had repeated failures with the ointment of mercuric oleate in the inunction treatment of syphilis, I requested Dr. L. Wolff to make me a stronger preparation, and the result was the development of the ointment of mercurous oleate.

In the inunction treatment of syphilis this oleate is far superior to either the ordinary blue ointment or the mercuric oleate. It is a very powerful agent, and should be applied cautiously, as it possesses deeply-penetrating

power, and its quick diffusion will often bring about rapid constitutional effects. Its advantages over the ordinary blue ointment are its cheapness and the cleanly manner of its application. A piece about the size of a bean can be gently rubbed in the axillæ, as well as the same quantity on each limb or on each side of the trunk. It will be quickly absorbed, may leave a reddened surface, but will neither stain nor discolor the linen, nor occasion the annoyance that follows the old inunction treatment of syphilis. An eczematous condition that is often feared, and that has been referred to as an objection in the inunction treatment of syphilis by Dr. John Ashurst, in his paper on the "Treatment of Syphilis," presented to the Philadelphia County Medical Society, can always be avoided by having the patient use vapor and hot-air baths every second or third day; and I regard the constant use of these baths now as essential to success. I would further add that, after some years' experience, the constant application of the ointment of mercurous oleate for a short length of time, or any fatty substance, to the skin will attract dust and dirt to the parts, the glands and follicles will become distended, both with the substance applied and the foreign material, and the parts must be opened up very often by baths; otherwise, any form of mercurial combination suspended in a fatty vehicle would naturally fail to pass in, and would consequently set up an inflammation on the surface.

The ointment of mercurous oleate is a most effective application in old spots of psoriasis and in chronic palmar and plantar eczema, in which the integument becomes thickened, harsh, dry, and cracked. In these lesions the oleate can be used alone, or it can be advantageously combined with some form of tar or naphthol.

Formulary.

Take of Green soap, 3 ounces.

Ointment of mercurous oleate, . . . 3 "

Mix. For the inunction treatment of syphilis.

Take of Oil of juniper, $\frac{1}{2}$ drachm.

Oil of eucalyptus, 8 drops.

Ointment of mercurous oleate, . . . 1 ounce.

Mix. For chronic eczema, psoriasis, and pigmentary spots on the skin.

MORPHINE OLEATE.

Morphine oleate has, like all the alkaloidal oleates, a feeble action, and only upon the part to which it is applied. It can be employed in all irritable conditions of the integument, but many other stronger sedatives are preferable.

NICKEL OLEATE.

Nickel oleate mixed with a fatty base, in the proportion of from 1 to 60 grains to the ounce, has a very decided astringent action, almost bordering upon the effect of a caustic on abraded surfaces. The ointment of nickel oleate, of a weak strength, from 5 to 20 grains to the ounce of lard, acts at times very well in epithelial ulcerations. It is often effective in exuberant granulations and in old callous ulcers. In some chronic cases of eczema, especially of the extremities, in which the skin is deeply infiltrated, hard, and of a leathery state, if it be applied in the proportions named, it will generally be attended with good results.

Formulary.

Take of Chrysarobin, 10 grains.

Ointment of nickel oleate, $\frac{1}{2}$ ounce.

Mix. For callous ulcers and chronic psoriasis.

Take of Citrine ointment, 3 drachms.

Oil of cade, $\frac{1}{2}$ drachm.

Ointment of nickel oleate, 3 drachms.

Mix. Useful in eczema of the palms of the hands and soles of the feet.

QUININE OLEATE.

Quinine oleate, both from physiological experiments which have heretofore been given and from repeated clinical experience has proved with me of little if of any service. Cases have been reported in the medical journals in which its use has been extolled as an invaluable remedy in cases of intermittent fever, in debility, and, in fact, wherever quinine is indicated and is not well borne by the alimentary canal. In my service in the Philadelphia Hospital for Skin Diseases, the Medico-Chirurgical Hospital, and in private practice, I have used large quantities of quinine oleate from all the prominent manufacturers, and have as yet to observe a single case that has had any decided constitutional effect from its topical application. I have repeatedly employed it freely in intermittent fever, both with children and adults, but without the desired result, the paroxysms returning unless arrested by some other means.

SILVER OLEATE.

Silver oleate, applied in its natural form to the abraded skin or sores, combines with the albumen and fibrin of the parts, forming a coat and thus excluding the air. It likewise causes a powerful contraction of the blood-vessels, and condenses and superficially destroys the tissue. Silver oleate, sprinkled over ulcers, bed-sores, and exuberant granulations, will set up a healthier action of the surface. When previously dissolved with an equal amount of oleic acid and then mixed with lard in the proportion of from 5 to 60 grains to the ounce, it forms a dark-brown, soft, and pliable ointment. The ointment of this oleate is a safe and efficacious remedy applied over the inflamed surface of erysipelas, or around the margins to prevent the inflammation from

spreading. In superficial lupus, if kept constantly applied to the parts, it lessens the cell infiltration and thus reduces the active inflammation. In boils and carbuncles it is serviceable, and often arrests pustulation in its early stage. Eczema that occurs around the mucous outlets, especially the anus and genitalia, attended with an intolerable itching, will frequently be quickly relieved by applying the ointment of silver oleate, either alone or combined with opium, belladonna, or hyoscyamus. Its deep penetration, stability, and prompt action, together with its comparatively painless and mild effect, are the advantages it possesses over the ordinary silver ointments.

Formulary.

Take of Creasote,	4 drops.
Powdered starch,	$\frac{1}{2}$ drachm
Ointment of silver oleate,	$\frac{1}{2}$ ounce.

Mix. For erysipelas and lupus vulgaris.

Take of Extract of belladonna,	1 scruple.
Extract of opium,	1 “
Ointment of silver oleate,	$\frac{1}{2}$ ounce.

Mix. For eczema of the anus and genitalia.

Take of Iodol,	1 scruple.
Ointment of silver oleate,	$\frac{1}{2}$ ounce.

Mix. For chronic sycosis and old ulcers.

STRYCHNINE OLEATE.

Strychnine oleate can be applied to the integument in large quantities and for some time without producing any systemic action of the drug. Its local impression is weak, and it is a remedy of but little use or value.

TIN OLEATE.

Tin oleate, mixed with lard or a fatty base, in the proportion of from 10 to 60 grains of the former to 1 ounce of the latter, forms a grayish-brown ointment, possessing an astringent and nutritive action. It is of

value and service in papular and fissured eczema. The ointment of tin oleate is of the greatest utility in diseases of the nails, or when they are abnormal or deficient in growth. It assists in such cases in overcoming the brittle, split, and soft conditions that result from injury to the parts or that follow certain affections of the skin. The ointment of tin oleate, especially when combined with a little carmine, forms an elegant article of toilet for the nails and surrounding parts, giving them a beautiful lustre. Agnail, or the ragged and attenuated skin of the base of the nail that is so frequently observed from neglecting these appendages, can be relieved or checked by the astringent action of this ointment.

Formulary.

Take of Powdered cochineal,	. . . . .	5 grains.
Rose-water ointment,	. . . . .	2 drachms.
Ointment of tin oleate,	. . . . .	2 "

Mix. Excellent for atrophy of the nail.

Take of Ointment of mercuric oleate,	. . . . .	1 drachm.
Rose-water ointment,	. . . . .	1 "
Ointment of tin oleate,	. . . . .	1 "

Mix. For excessive growth of the nail, in all irritable conditions of the matrix, and in thickened and friable state of the nail.

Take of Camphor,	. . . . .	10 grains.
Prepared suet, or lanolin,	. . . . .	2 drachms.
Ointment of tin oleate,	. . . . .	1 drachm.

Mix. For agnail.

Take of Beta-naphthol,	. . . . .	10 grains.
Citrine ointment,	. . . . .	3 drachms.
Ointment of tin oleate,	. . . . .	3 "

Mix. Useful in papular and fissured eczema.

Take of Prepared suet,	. . . . .	2 drachms.
Subnitrate of bismuth,	. . . . .	1 scruple.
Thymol,	. . . . .	1 grain.
Ointment of tin oleate,	. . . . .	3 drachms.

Mix. For lentigo and chloasma.

Take of Iodol,	1 scruple.
Oxide of zinc ointment,	1½ ounces.
Ointment of tin oleate,	½ ounce.
Mix. For pustular eczema, sycosis, and excessive secretion.	

VERATRINE OLEATE.

Veratrine oleate has a valuable action as a counter-irritant when used upon the integument.

ZINC OLEATE.

Zinc oleate occurs as a fine, pearl-colored powder, with a soft, soapy feeling, very much like powdered French chalk. It has both an astringent and stimulating action. In hyperidrosis and osmidrosis, or excessive sweating, fetid or otherwise, it is one of the very best remedies for topical use. It is especially applicable to those who suffer from an increased flow of sweat around the axillæ, genitalia, and palmar and plantar surfaces. It is to the latter unfortunate and distressing class of cases, in which the epidermis often macerates, leaving a tender and exposed skin, attended with a disagreeable odor, that it can be used for relief and at times with permanent good results. Dr. William Murrell, in the *London Medical Record* of November 15, 1883, also calls attention to the value of the zinc oleate in local sweating. He reports that the zinc oleate mixed with thymol (1 in 500), and used as a dusting powder, forms an excellent application in many varieties of local sweating. He also states that he has used it with much success in the night-sweating of phthisis.

Dr. Jamieson speaks of its use in sudamina as a dusting powder, combined with an equal quantity of French chalk and 3 per cent. of salicylic acid. He also recommends the zinc oleate in the treatment of comedo. If a paste has been applied during the night, he directs that it shall be washed off in the morning and

the face dusted with equal parts of oleate of zinc and finely-powdered talc.

In acute vesicular eczema, in which the parts become covered with small vesicles, swollen, hot, inflamed, or raw, weeping, and attended with intense itching, the combined protecting, astringent, and stimulating action of the zinc oleate will usually cause all the inflammatory symptoms to abate, the discharge to dry up, and the swollen skin to resume its normal condition. Dr. McCall Anderson has referred to its utility in eczema, especially of the nares, in an article published in the *Journal of Cutaneous and Venereal Diseases*. The great advantage and value of the zinc oleate among the same class of cutaneous affections has been referred to by Dr. James Sawyer in a communication to the *British Medical Journal* of February 10, 1883, and also in another to the *Birmingham Medical Review*, published a year later.

Dr. Sawyer, in speaking of this and other oleates used in the same form, adds that "they can be employed in those troublesome, acute, and discharging affections of the skin in which greasy preparations of any kind cannot be borne." Zinc oleate will cling to the skin, and will not fall or brush off like ordinary dusting powder, and is, therefore, of very great value in seborrhœa oleosa. It forms a most excellent and useful toilet-powder for ladies who are troubled with shining faces or seborrhœa oleosa, dusted over the parts either alone or mixed with an equal quantity of arrow-root, bismuth, subnitrate, or lead carbonate, and scented with the oil of verbena or rose. It likewise acts in a most efficacious manner dusted on an inflamed surface that is hot and tumid, in cases of erythema about the groins and axillæ, and is also beneficial in herpes and herpes zoster. One

part of the powdered zinc oleate melted with 4 parts of a fatty vehicle yields the ointment which can be used in the same class of affections just enumerated, and in acne, rosacea, and in subacute and chronic forms of eczema.*

Dr. Bernard, in the *Gazette de Gynecologie*, describes his employment of the zinc oleate in gynæcological practice. In cancerous ulceration of the cervix uteri it diminishes the pain, discharge, and offensive odor. It lessens turgescence of the mucous membranæ, and hence is of service in endometritis. He applies it either by insufflation or by tampon. In order to secure a decided antiseptic action, Haslam recommends its mixture with iodoform, either in equal parts or in proportion of 1 part zinc to 2 of iodoform.

Formulary.

Take of Subnitrate of bismuth, 2 drachms.
Powdered oleate of zinc, 2 "

Mix. For excessive sweating and in seborrhœa oleosa.

Take of Powdered arrow-root, 3 drachms.
Powdered impure carbonate of zinc, 3 "
Powdered oleate of zinc, 3 "
Oil of rose, 1 drop.
Oil of verbena, 3 drops.

Mix. A valuable dusting powder for toilet purposes. Especially useful for greasy and shining state of the skin of the face.

Take of Carbonate of lead, 3 drachms.
Powdered starch, 3 "
Powdered oleate of zinc, 4 "

Mix. Useful in acute erythematous and vesicular eczema.

Take of Beta-naphthol, 1 scruple.
Carbonate of bismuth, ½ ounce.
Powdered oleate of zinc, ½ "

Mix. For excessive and fetid sweating, ulcers, sinuses, and sycosis within the nares.

*See report on "Oleate of Zinc in Eczema," by Dr. A. A. Wells, Boston, Mass., in the *New England Medical Monthly*, January, 1885.

Take of Sublimed sulphur,	. . . . .	1 scruple.
Oil of eucalyptus, .	. . . . .	5 drops.
Hydrochlorate of cocaine,	. . . . .	4 grains.
Oleate of zinc ointment,	. . . . .	1 ounce.

Mix. Serviceable in subacute and chronic eczema, acne, rosacea, herpes, and herpes zoster.

Take of Calomel,	. . . . .	10 grains.
Camphor,	. . . . .	10 “
Oil of chamomile, .	. . . . .	5 drops.
Oleate of zinc ointment,	. . . . .	1 ounce.

Mix. For erythema, sycosis, infantile eczema, and lupus.

I have now described in detail the special effect of each individual oleate, and the deductions that have been drawn from a personal and most careful observation during the past fifteen years in laboratories with the chemist and physiologist, and from my private practice and clinical service. A large number of practitioners, who have used the oleates in the manner in which they should be employed, have reported highly favorable and practical results from them. Others have been unfortunate enough to apply impure or improperly-prepared oleates, and the results in such cases have generally been either negative or irritating and injurious to the parts. A very few unfortunate, careless, and injudicious observers, skeptics in therapeutics, who only believe in the older and oft-tried remedies, have taken up the oleates for fashion or popularity's sake, and, after a very limited experience in their application, condemn them without a fair trial. The communications that have appeared from the latter class speak of their action disparagingly and their effects as problematical, but are devoid of research, which appears when they speak of quinine oleate being limited to inunctions for its systemic impression, showing an absence of practical experience or proper deductions from their results.

In concluding my remarks, I would sum up by stating that, although the oleates have not been found to fill the place they were originally intended for by those who introduced them, they have made for themselves a most prominent place among the more scientific means we possess for treating affections of the cutaneous covering. They have opened up a new branch for therapeutics, and occupy a position which has not been held either by ointment or lotion, and which they will occupy, not in a transitory manner, but permanently, and in increased ratio as their nature, use, and effect shall become more thoroughly understood and known.

In the following papers will also be found much of instructive interest in regard to the oleates :—

“Oleates,” by Prof. John Marshall, *American Journal of Pharmacy*, 1872, p. 317; “*Acidum Oleicum*,” by Charles Rice, *American Journal of Pharmacy*, 1873, p. 1; “*Acidum Oleicum*,” by E. C. Sanders, *New Remedies*, June, 1880; “Falsification of Oleic Acid by Linoleic Acid,” by Granval and Vulser, *Journal Chemical Society*, August, 1889; “Oleates,” by L. Wolff, *American Journal of Pharmacy*, 1881, p. 545; “Working Formula for the Oleates,” by Henry B. Parson, *Druggists’ Circular and Chemical Gazette*, January, 1885; “Oleates,” by F. C. J. Bird, *London Pharmaceutical Journal and Transactions*, January 3, 1885; “Neutral Oleate of Mercury,” by Charles R. C. Tichborne, LL.D., *London Medical Press*, September 24, 1884; “*Acidum Oleicum* and Oleates,” by Dr. Squibb, *Ephemeris*, 1882 and 1885; “Oleate of Mercury,” by R. C. Harrison, *The London Pharmaceutical Journal and Transactions*, November 30, 1889; “Oleates,” by G. M. Beringer, Ph.G., *The American Journal of Pharmacy*, December, 1889.

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