Manual of Therapy

A brief description of some of the biological and pharmaceutical preparations manufactured by Parke, Davis & Co., with special emphasis on the therapeutic indications, mode of administration or application, and dose

THIRD EDITION, REVISED

Parke, Davis & Company

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Preface

The purpose of this book is to supply the medical practitioner with a concise, convenient and readable guide to the therapeutic application of some of the more important preparations of our manufacture.

A previous work of ours along somewhat the same general lines, *Manual of Therapeutics*, ran into two large editions and was accorded a flattering reception by physicians all over the world. That work has been out of print for the past nine years. The continuous and persistent requests which we have received through all this interval for a handbook giving practical, authentic therapeutic information on products of ours that are in demand in everyday practice have impelled us to publish the present volume.

The slight change in name to MANUAL OF THERAPY is, we feel, entirely justified, for this work is not a third edition of the Manual of Therapeutics; it is the crystallization of a new idea—quite distinct in conception and scope, and, needless to say, the text is new and original from cover to cover. No attempt has been made to write a text-book on therapeutics; with such text-books the physician is amply provided. Nor have we attempted to include all our products; the Fluid Extracts, Pills, Tablets, etc., have not been individually covered because their application is too well known. The aim has been rather to give the reader authentic information, sufficiently complete for all practical purposes, on a selected list of Parke, Davis & Company pharmaceuticals, chemicals and biologicals which clinical experience has shown to be exceptionally meritorious and concerning which he cannot be expected to remember all the details of composition, dose and administration.

The paper, the type, and the arrangement of the subject-matter have been chosen with a view to making the MANUAL

of the utmost utility to the reader. The text is divided into two major parts: the Biological Section and the Pharmaceutical Section. This is a classification to which our products readily lend themselves, and it facilitates reference by the reader to the subject he may have in mind. All immunological products such as Serums, Vaccines, etc., are, of course, Biological; and in this section fall also the Gland Products. Important Tinctures, Chemicals, Ampoules, Elixirs, etc., naturally belong to the Pharmaceutical Section.

In the Pharmaceutical Section the products are arranged alphabetically: Amyl Nitrite, Apothesine, Bismuth Paste, Caffeine Sodio-Benzoate, Digitalis, Emetine Hydrochloride, etc. In the Biological Section the first arrangement is by groups in alphabetic order (Bacterial Vaccines, Diagnostic Protein Extracts, Gland Products, Lactic Acid Bacillus Preparations, etc.), and then the products themselves in each group are described in alphabetic order.

There are three indexes. In the first, the materia medica index, the items are listed according to pharmacologic groupings, such as Astringents, Heart Stimulants, Laxatives, etc. In the second, the therapeutic index, they are listed under the headings of the pathologic conditions in which they are indicated. The third is a general index which is certain to be of service notwithstanding the guidance afforded by the other indexes and the logical and as far as possible alphabetic arrangement of the subject matter of the book.

About twenty-five tables of useful information have been included—tables of weights and measures, dose-table of all drugs, notes on infant feeding, obstetric table, and other data that must frequently be referred to.

We have done our best to put everything in the book in such readable form and in such small compass as to invite frequent consultation. May we not then express the hope that our readers will find this book useful enough to ensure

for it a convenient niche in the reference library or on the desk? And we take this opportunity to assure our readers that they may prescribe any of the therapeutic agents herein discussed with confidence in their peerless quality.

PARKE, DAVIS & COMPANY.

Detroit, Mich.,
June, 1924.

Standardization

One of the most important developments in pharmaceutical practice during the past fifty years, if indeed it may not be counted the most important, has been the establishment of definite standards for medicinal products on the basis of chemical or physiological assays. This is so generally recognized at the present time as a necessity that it is hard to realize that it is less than thirty years since we encountered strong opposition and violent criticism because of our introduction of chemical assay methods as a means of standardizing fluid extracts.

In September, 1879, with no flourish of trumpets and with little realization of what it heralded, we placed on the market "Liquor Ergotæ Purificatus," a fluid preparation of Ergot standardized by a simple form of assay so that each lot was of uniform character. The assay then used appears, in the light of our present-day knowledge, as very crude and inefficient, but it was simply the beginning, and any attempt to secure uniformity of strength was an advance on untraveled ground. According to the best researches of the time the activity of Ergot was supposed to lie chiefly in the sclerotic acid, and a crude estimation of this was made by precipitation with lead acetate.

With the introduction of this chemically assayed Fluid Extract of Ergot we began a systematic investigation of the possibility of supplying uniform fluid preparations of many drugs, with the result that in February, 1883, there was publicly announced a list of 20 "Normal Liquids," which were actually fluid extracts standardized by some form of assay, in most cases an estimation of the alkaloids which they contained. The process chiefly employed for the determination of the alkaloids was the now obsolete method of titration with Mayer's reagent, which long ago gave place

to more accurate methods of assay. It is a noteworthy fact that the number of drugs and their preparations standardized by means of either chemical or physiological assay and appearing in our price list has always been far in excess of the number for which standards were set in the Pharmacopœia.

The progress of our investigation along this line has never been permitted to lag. The work of our laboratories has enabled us not only to keep abreast of the most recent advances in pharmaceutical practice, but frequently to develop new methods and add to the general store of knowledge.

Time was when a numerical statement of our products standardized by chemical or physiological assay was the best criterion of our relative advance in this respect, but the list of 20 preparations of 1883 has grown to such an extent that today no substance comes into our laboratories to be used in the preparation of a medicinal product, nor does any finished compound go out, without having applied to it all the necessary tests that scientific investigation has so far devised to determine its purity and potency as a medicinal agent.

Crude drugs of every variety for medicinal use, coming from all parts of the world, are subjected to careful botanical examination, both macroscopic and microscopic, and those that contain highly potent active principles are tested and assayed by chemical or physiological means.

From one to forty samples of every one of the thousands of different lots of chemical substances purchased each year are subjected to rigid examination, ranging from the simplest inorganic tests to the most intricate organic analyses, and similar processes of careful inspection and analysis are of course applied to all outgoing preparations.

In short, the most exacting methods of chemical control are everywhere applied, that we may guarantee to the

medical and pharmaceutical professions the activity, uniformity and unexcelled quality of all our products.

As the recognized pioneers in applying chemical methods of assay to a wide range of pharmaceutical preparations, we also instituted the physiological standardization of certain important drugs not assayable chemically.

The first application of such a means of standardization was made by us in 1897. The details of the first general method (now known as the M. L. D. Frog Heart Method for standardizing preparations of the digitalis series of heart tonics) were presented in a paper read by Dr. E. M. Houghton, now director of our Research Laboratories, before the American Medical Association. The scope of physiological standardization has been very much broadened, until today it is the basis of control of no less than ten main types of drugs embracing over fifty preparations. Assay by physiological means has already received official recognition in the U. S. P. IX, a recognition which will undoubtedly be extended in future revisions.

Physiological standardization is the accurate quantitative and qualitative estimation of the activity of certain drug preparations by suitable reactions upon normal animals. These reactions are interpreted in terms of definite standards of activity and purity. Preparations standardized by these means are rightly regarded by physicians as being not only of assured potency, but also of uniform activity, at the time of manufacture. The importance of such assurance becomes at once apparent when the variability of the original drugs or glands from which the extracts are made is taken into consideration. The products which are assayed physiologically are derived from substances which may vary as much as several hundred percent in the degree of their activity, in spite of the care exercised in selecting the best quality and in the preparation of the extracts.

While the expense involved in conducting physiological

tests is far greater than that of chemical tests, we avail ourselves of this means of control for the reason that by it alone are we enabled to insure the reliability of certain widely used and clinically important products.

The following series of drugs and glandular extracts are standardized by physiological methods:

1. Heart Tonics of Digitalis Series.
2. Pituitary Gland.
3. Suprarenal Gland.
4. Ergot.
5. Cannabis Sativa.
6. Aconite.
7. Purgatives (Elaterium, etc.)
8. Serums and Antitoxins.
9. Blood Coagulants.
10. Mercurosal.

In addition to the actual assay, various forms of special pharmacological tests, such as tests for irritation, toxicity, and safety, are conducted on many other products, among which are Silvol, Apothesine, hypnotics, glandular extracts, and ampoule solutions in general.

Heart Tonics of the Digitalis Series

This group embraces a very important series of drugs of which digitalis is the most widely used. Other drugs, such as strophanthus, squill, convallaria, apocynum, adonis vernalis, etc., have been shown to have essentially the same properties and are usually included in the list of heart tonics of the digitalis series.

The active principles of the drugs of this series are probably all glucosides and it has been found that such bodies are completely and rapidly absorbed by cold-blooded animals. It is logical, therefore, that some of the methods advocated for standardizing this series of drugs should utilize the frog as the test animal.

The first method to be proposed was worked out in our own biological laboratories and reported by Houghton in 1898. In this test the quantitative toxic action of the drug is determined by injection of varying doses of a suitable dilution into the abdominal lymph sac of the frog. Serial doses are based upon the weight of the frog, and the results obtained are compared with a similar test of a standard preparation whose strength is constant and definitely known. This method is known as the M. L. D. Frog Heart Method and is very accurate when properly carried out.

The method of assay of the digitalis series most commonly used is known as the One Hour Frog Heart Method. It is a modification of the M. L. D. Method designed to eliminate some of the expense in time and materials necessary in the latter. It has been adopted as official in the U. S. P. IX for this series of heart tonics and will probably be continued with some slight changes in the forthcoming Tenth Revision. It consists essentially in ascertaining the dose of a preparation which will bring the heart of a standard size frog to systolic standstill in one hour. This method is open to the serious criticism, as pointed out by Hamilton and Rowe, that the end point of the reaction, namely the stopping of the frog's heart in systole in one hour, is very indefinite, chiefly because of the short period allowed for complete absorption of the drug.

The various drugs and their preparations standardized for uniformity and activity by the M. L. D. Frog Heart Method are the following:

Digitalis—Pressed Herb, Fluid Extract, Powdered Extract, Solid Extract, Tincture U. S. P., Tincture (fat-free), Tincture No. 111 in ounces, Digitalone Solution, Digitalone Tablets, Digitalin, Digitoxin.

Strophanthus—Crude Drug (seeds), Concentrated Tincture (20 to 1), Tincture U. S. P., Strophanthone (oral), Strophanthone (hypodermic), Strophanthin, Ouabain.

Squill—Fluid Extract, Special Concentrated Extract.
Convallaria—Fluid Extract.
Adonis Vernalis—Fluid Extract.

Veratrum Viride, though not a heart tonic, can be satisfactorily standardized by this method, and Veratrone, which is an aqueous preparation of Veratrum Viride, is definitely controlled by the use of this method.

Pituitrin

Since 1909, when Dr. W. B. Bell published the phenomenal clinical results of his use of pituitary extract in obstetric practice, the use of this extract by the physician and surgeon has greatly increased. It was soon realized that this important glandular extract would require some form of standardization, because the active content of different glands varies, and the activity of an extract is quickly destroyed by bacterial contamination or chemical manipulation.

The chemistry of pituitary extract is even now but little understood; there is no unanimity of opinion as to whether the extract contains only one active principle, or several. This uncertainty precludes the possibility of using a chemical test for the standardization of Pituitrin and makes more difficult the selection of a universally acceptable physiological method.

The Oxytocic and the Blood-Pressure methods are the ones which receive the most favorable consideration. The former was suggested by Dale and Laidlaw in 1912 and consists in determining the comparative quantitative action of solutions of known and unknown strength upon a strip of virgin guinea-pig uterus which has been quickly excised and placed in warm oxygenated Locke's solution. Results obtained by this method are certainly indicative, from a qualitative standpoint, of that action of pituitary extract which is utilized in obstetric cases, and for this reason the oxytocic test is applied in this laboratory.

The Blood-Pressure method as suggested by Hamilton is one that is designed to be quantitatively accurate; it consists in injecting into the blood stream of an anesthetized dog a dilution of pituitary extract which will cause a marked rise in the blood-pressure. This reaction is compared with that caused by a constant dose of standard solution whose strength is known. Variations in the amount of unknown solution injected are made until a dose is found which will produce exactly the same rise in blood-pressure as that produced by a unit dose of the standard. Computation of relative activity can then be easily made.

Pituitrin is standardized by the above method and supplied by us in three forms:

Pituitrin, in ampoules for obstetric use.

Pituitrin "S" (surgical) in ampoules.

Pituitrin in ½-oz. vials for oral use.

Suprarenal Preparations

In 1894 Oliver and Schäfer showed the influence of the soluble constituents of the suprarenal gland upon blood pressure. Three years later Bates made the surprising discovery that this gland contained a substance which had a most extraordinary property of lessening or preventing hemorrhage because of its constricting action on the local blood-vessels. Soon after this Takamine isolated the active principle, Adrenalin, in this laboratory.

The growing necessity of standardizing this active and increasingly popular drug was met by the blood-pressure method (suggested by Houghton) which is now almost universally accepted. This method, after which the pituitary pressor method was fashioned, consists in the alternate injection into the blood stream of an anesthetized dog, of definite amounts of dilute solutions of known activity (prepared accurately from c. p. Adrenalin) and of a solution of unknown strength. The rise in blood-pressure produced by

so dilute a solution of standard Adrenalin as 1 to 100,000 is so marked and yet so transient as to make this physiological reaction very well adapted to practical and accurate quantitative assay work.

Certain chemical colorimetric tests have been suggested which appear to be quantitative but which fall into the serious error of showing the presence of both dextrorotatory and levorotatory Adrenalin. The levorotatory Adrenalin is much the more active and is the only variety found naturally in the suprarenal gland. The levorotatory Adrenalin may, however, partially racemize into the dextro form when solutions are kept under certain improper conditions of temperature and light.

The following suprarenal preparations are assayed by the physiological method:

Desiccated Suprarenal Gland.
Capsules Suprarenal Gland.
Compressed Tablets Suprarenal Gland.
Adrenalin.
Adrenalin Chloride Solution, 1:1000.
Adrenalin Chloride Solution, 1:1000, 1:2600, and 1:10,000, in Ampoules.
Adrenalin Inhalant.
Adrenalin Ointment.
Adrenalin Suppositories.
Adrenalin Tablets.
Codrenin.
Locosthetic.

Ergot

Ergot is one of the older drugs, in use long before any form of standardization was suggested for its preparations.

The chemistry of this drug is now quite well established, due chiefly to the researches of Dale; but this knowledge

did not lead to a suitable chemical method of assay. However, the physiological reaction, whereby the combs of selected cocks show varying degrees of blackening following the absorption of suitable doses (as suggested by Houghton in 1897), has been utilized to make possible the production of comparatively uniform Ergot preparations.

The following Ergot preparations are controlled by the cock's comb method:

Fluid Extract Ergot, U. S. P.
Fluid Extract No. 658, Ergot.
Solid Extract Ergot.
Ergot Aseptic.
Ergone.

Cannabis Sativa

The activity of this drug is assumed to be due to the resins, but thus far no chemical test has been applicable.

Selected dogs of reasonable intelligence show degrees of muscular incoördination and drowsiness according to the amount of active drug which is absorbed. This physiological reaction is the means of controlling the activity of the following Cannabis preparations:

Fluid Extract. Solid Extract.
Powdered Extract. Tincture.

Aconite

For many years preparations of this drug were standardized by chemical determination of the amount of alkaloid present, for the activity of the drug was supposed to be due entirely to the aconitine present. More recently it has been recognized that certain constituents which do not react to the alkaloidal test are active clinically. Consequently a physiological test, in which the comparative toxicity of the preparation to guinea-pigs is determined, is taken as the index of activity, and results by this method are more nearly

accurate than the results of chemical standardization in their agreement with clinical observation.

Preparations of Aconite so standardized are as follows:

Fluid Extract.	Tincture.
Powdered Extract.	Aconitine.
Solid Extract.	

Purgatives

Drastic purgatives, particularly Elaterium, require some form of standardization because of the variability of the crude material. The administration of a minimum dose to dogs, with the resultant typical purgation if the drug is active, affords a definite check on the potency.

Mercurosal

This is a new mercurial, the disodium salt of hydroxy-mercuri-salicyl-acetic-acid, that has the advantage of being relatively non-toxic and non-irritating as compared with the other compounds of mercury which have been used in combating syphilis. The purity of this product is largely controlled by chemical tests such as the determination of the percentage of mercury, etc. However, some physiological check should be placed upon such an important drug which is so often used intravenously in fairly large doses. Every manufactured lot is therefore subjected to a test in which the immediately lethal intravenous dose of a 2% solution is determined upon a series of rabbits. This test indicates the comparative degree of shock which can be expected from large doses of different lots and is therefore indicative of the safety of the product. Any lot which does not conform within narrow limits to the standard set for this product is discarded.

The standardization of serums and antitoxins as well as blood coagulants is discussed in sections devoted to the description of these products.

Biological Section

Immunity

The essential principles underlying the preparation of biologic products and the practical application of those products to the prophylaxis and treatment of infections are based entirely on our present conception of the manner in which the body functionates in order to protect itself against diseases of microbic origin. In the laboratory the methods of Nature are adhered to as closely as possible, and the same or similar substances are produced artificially, quantitatively and aseptically, as are developed under natural conditions in individuals suffering from infections with the same microörganisms. In other words, infection is studied, and the protective processes it evokes are imitated.

An infection or an infectious disease is the result of the invasion and multiplication of some pathogenic microörganism in the tissues of the body; and if this condition were allowed to proceed unchecked, death would ensue. The fact that the individual recovers is evidence enough that something was formed in or produced by the tissues of the body to resist the invasion of the microörganisms or neutralize the poisons which were generated by them. This protective substance, which must have been stimulated in its formation by the microörganisms producing the infection, is called an antibody, and the invading organisms or their specific metabolic products are called antigens. This process of Nature, by which the offending substance provokes the formation of substances antagonistic to itself, is the basis upon which serum and vaccine theory has been constructed.

Immunity is essentially divided into two types—natural and acquired. All races, all individuals, and all animals possess more or less natural resistance to disease. Acquired immunity, on the other hand, is a condition developed dur-

ing the lifetime of the individual in one of two general ways. It may be the result of recovering from a natural infection, such as typhoid or diphtheria, one attack usually protecting the individual for life, or it may be produced by artificial means. The two classes of substances used for the artificial production of immunity are antigens and immune serums.

Immunity to disease, therefore, may be created by the injection of either an antigen or an antibody, and is more or less under direct control. The biochemical study of the many microörganisms involved in infectious processes of one type or another, by growing them in artificial culture media or in the animal body, has shown that no two of the bacteria are alike and that the methods of invasion and tissue destruction are almost as numerous as the bacteria themselves. It should be recognized, therefore, that the body must necessarily resort to more than one means of combating these organisms, just as an army must vary its scheme of defense in preparation for any offensive maneuver by a foe provided with undisclosed devices of attack. In order to assist the cells of the body, by artificial means, to resist these destructive agencies, a defensive program must be worked out in the laboratory for practically each known individual pathogenic microörganism. Diagnostic methods or agents must, at the same time, be elaborated for identifying the organisms responsible for the infection.

Some types of bacteria produce, in the media surrounding them (whether in the animal body or artificial culture media), various poisonous substances which have been termed toxins. Diphtheria and tetanus toxins are examples of this type of poison, because they can be found in the culture media after the organisms have been removed; their strength can be accurately estimated, and their action on the human subject determined by test on animals. In order to make possible recovery from an infectious disease such

as diphtheria, a substance must be formed somewhere in the body which will render the toxin inert or counteract its destructive action. This neutralizing substance, the presence of which can be demonstrated and its specific energy measured, is known as antibody (antitoxin). This same antitoxin can be produced in a similar way by injecting an animal with diphtheria toxin produced artificially in culture media, and the antibody can be found in the serum of the animal. When this immune serum is injected into an individual suffering from diphtheria, its specific antibody unites with and augments the antibody being formed by the tissues as a defense against the infection, and the resulting protective alliance (if the serum is given early enough and in sufficient quantity) will save the life of the patient.

Still other types of bacteria, such as the pneumococcus, streptococcus, gonococcus or meningococcus, produce symptoms the very nature of which suggests that they must be caused by toxins, although no specific toxins have been found in culture media to confirm this opinion. The toxins, if there are such substances, must be firmly bound to, or contained in, the bodies of the bacteria, and are liberated only upon the destruction of the organisms in the animal body. They are, therefore, called endotoxins in contradistinction to the true toxins (exotoxins), such as those of diphtheria or tetanus, which are found as excretions or secretions in the filtered culture media. This type of organism does not stimulate the body cells to produce an antitoxin, that is, a substance which neutralizes the toxin alone, but it does excite the cells to form other substances, demonstrable in the blood-serum, which act directly on the bodies of the bacteria, causing them to break up and become disintegrated. A serum containing this sort of antibody is called an antibacterial serum and is produced by the injection of the bacterial bodies, either dead or alive, into animals. Antipneumococcic, antistreptococcic,

antigonococcic, and antimeningococcic serums are of this type.

Immunity produced by the injection of an immune serum, whether antitoxic or antibacterial, is called passive artificially acquired immunity, while the immunity induced in the animal receiving the toxin, bacterial cells or other antigen is termed active artificially acquired immunity.

To recapitulate: Acquired immunity is of two types, naturally acquired and artificially acquired, and the artificially acquired immunity may be either active, resulting from the injection of an antigen, or passive, following the injection of either an antitoxin or an antibacterial serum.

In the production of active artificially acquired immunity we may inject, as antigens, live virulent bacteria, live but attenuated bacteria, the dead organisms, or bacterial products excreted in the culture medium or extracted from the bacteria by any one of several different ways. As a rule, the more nearly we approach the natural infection, in our methods of immunization, the more lasting will be the immunity. Extreme caution must be exercised, however, in the preparation and employment of bacteria for inoculation purposes, as injurious or fatal results are apt to follow the injection of live organisms. For this reason antigens for human use are usually killed bacteria or bacterial products. This type of antigen has at the same time other advantages; for example, its antigenic value can be standardized on animals and the proper dose can be accurately determined.

Live virulent organisms are used for experimental purposes and for the preparation of antibacterial serums. Attenuated microörganisms or viruses are present in smallpox vaccine. Bacterial vaccines (bacterins) are composed of dead organisms, killed by heat or by chemicals. Broth culture products, such as diphtheria toxin, are used for the preparation of antitoxin. Diphtheria toxin is also used for making the Schick test of susceptibility to diphtheria, and

as one of the ingredients of the prophylactic mixture (diphtheria toxin-antitoxin). Culture media filtered and otherwise treated, containing metabolic products other than true toxins, constitute the phylacogens and some of the tuberculins. Other tuberculins are prepared from bacterial bodies. The extracts of bacteria are used mostly for diagnostic purposes, such as the complement fixation test and other serological tests.

In the study of bacterial infection, and in the preparation of antibacterial serums by injection of microörganisms, either dead or alive, several different antibodies are known to be formed, and detailed consideration of these brings us to the question of the special phenomena of immunity. The great majority of microörganisms have not given evidence of the development of true extracellular toxins the action of which can readily be demonstrated, and for that reason we must study the action of these bacteria by means of the different antibodies produced by them. The best known and most widely studied antibodies resulting from the injection of bacterial bodies or their extracts are the agglutinins, precipitins, bacteriolysins and opsonins. These are of interest not only from a scientific point of view and for diagnostic purposes, but because they all seem to participate in the actual defense of the body against bacterial invasion. This conclusion is drawn from the fact that these antibodies are found in increasing amounts in individuals suffering from infection, as well as in animals experimentally inoculated with pathogenic bacteria. To what extent these various antibodies play their parts, individually or collectively, in the defensive program of the body tissues, is not known, although we have a pretty clear conception of many of their activities. In the preparation of bacterial antigens for prophylaxis and the treatment of disease, it is the aim of those undertaking the work to have the antigens standardized according to their capacity to

produce one or more of the antibodies. In like manner, in the preparation of antibacterial serums the attempt is made to have the products contain these antibodies in as high a degree as possible, and tests are made on animals to determine the titre for each.

Agglutination means clumping together, and the phenomenon, as applied to immunology, is characterized by the accumulation of bacteria or other cells, such as blood cells, in clusters suspended in a serum immune to that strain of bacteria or that kind of cell. The bacterial reaction, which takes from a few minutes to several hours to appear, depending upon whether live or dead organisms are used or whether carried out in the test tube or under the microscope, is specific and therefore of great value for diagnostic purposes. It is used clinically for the diagnosis of typhoid, paratyphoid and other infections, and experimentally for the differentiation of various species of bacteria.

The blood cell reaction has of late claimed the attention of clinicians as well as of laboratory workers, on account of its application to the typing of blood for transfusion purposes. It has been determined in this way that there are four types of human blood and that for transfusion the blood of the donor must correspond biologically to that of the patient.

The precipitin or precipitation reaction, another specific reaction used for diagnostic purposes, is somewhat analogous to the agglutination reaction and is carried out in a similar manner except that the specific activity of the antigen is due entirely to its protein content. When a solution containing a protein is mixed with the serum of an animal previously injected with the same protein, a precipitation takes place similar to the clumping of bacteria in the agglutination reaction. This reaction is not only used experimentally in the study of the specificity of bacterial species by their protein content, but is found of great practical

value in forensic medicine; and its reliability has been established for the differentiation of various proteins and for the detection of unknown substances, protein in nature, such as blood and other fluids from animals of different species. The reaction is carried out by injecting animals with various proteins and then mixing the serum from these animals with measured quantities of the unknown material in solution. A precipitation in any one of the mixtures will at once give a clue as to the nature or source of the substance in question.

Bacteriolysins are antibodies, present in antibacterial serums, which have the faculty of causing homologous bacteria to disintegrate, either in the animal body or in the test tube. The reaction, like the agglutination and precipitation reactions, is specific and is considered one of the most important protective measures possessed by the body. All antibacterial serums of any appreciable therapeutic value contain bacteriolysins; indeed, it is upon this characteristic "lytic" property that their chief value as therapeutic agents is supposed to depend.

To visualize the action of these various antibodies with any degree of satisfaction necessitates some knowledge of a theory of immunity propounded by Ehrlich several years ago. This theory is called the side-chain theory, on the assumption that the interaction between the antigens and body cells and the subsequent formation of antibodies is chemical in nature. It was developed from the idea that the body cells, like the benzol ring in chemistry, are composed of a central molecular nucleus, and that from this nucleus radiate a number of processes or side chains which in turn are supposed to have special affinities for certain foods or toxins.

It was found by Ehrlich that the toxin molecule consists of two parts or groups, the toxic part or toxophore group and the combining part or haptophore group. When the

toxin enters the circulation the haptophore group of the toxin molecule combines with its specific cell receptor, and the toxic part or toxophore group attacks the cell. As a result of the repeated bombardment of the cell by the toxin, as in a natural infection or following the injection of a toxin, the receptors are stimulated to form in excess. They are thrown off into the circulation, and, by combining with the toxin before it has a chance to reach the attached receptors, protect the cell. These cast-off receptors, functioning as protective substances, are known as antibodies; and when, by means of certain serological tests, they are shown to be present in the serum, they are recognized as antitoxins.

It was soon discovered that these receptors, which cover only the union of toxin and antitoxin, and which, when free in the circulation, are known as antitoxins, were not sufficient to explain the interaction between more complex substances and the body cells. The theory was then expanded in such a manner as to interpret practically all known forms of antigen-antibody activities. Three types or orders of receptors are assumed. The first order supplies only the antitoxins and antiferments. Receptors of the second order have, in addition to the power of combining with the toxin or antigen, a property which causes the already attached antigen to become subjected to further changes. In this order of receptors are found the agglutinins and precipitins. In explaining the phenomenon known as precipitation, the haptophore group is said to anchor the antigen to the specific receptor, which, by virtue of its zymophore property, causes the precipitation of the antigen. The third order of receptors possesses two combining potentialities, one for the antigen and one for an outside or intermediary substance, called the complement. In order, therefore, for a complete reaction of this order to take place, the complement must be available in sufficient

amount; if not normally so, it must be obtained from some other animal. The antibodies of this order are the bacteriolysins and hemolysins.

Opsonins or bacteriotropins, while they belong to the order of receptors, are defensive substances of a nature entirely different from any of the previously described antibodies. While, in common with other antibodies, they are antagonistic to bacteria, they are not in themselves injurious to them, but act upon them only in such a way as to render them more susceptible to the destructive action of the leucocytes. This defensive process of the leucocytes, called phagocytosis, consists in the ingestion and digestion of the offending bacteria; and the cells functioning in this way are called phagocytes. The opsonins are, therefore, only agents in the process. The final reaction of defense, the destruction of the bacteria, is carried on by the phagocytes. Phagocytes include not only certain of the leucocytes, the most important of which are the polymorphonuclears, but other body cells. The theory of phagocytosis, which includes not only the engulfing of the bacteria and their final destruction, but also the attraction of phagocytes to bacteria, or bacteria to phagocytes, a phenomenon called chemotaxis, was brought to our attention by Metchnikoff. The theory which explains the preparation of the bacteria for phagocytosis has been termed the opsonic theory, and was given to us by Wright. It was through Wright's efforts also that the method of determining the opsonic index was developed. The opsonic index is a comparison between the opsonizing power of an immune serum or any serum and the opsonizing power of a mixture or pool of normal serums.

There is still another type of body resistance which perhaps comes under the head of immunity, although not confined to diseases of bacterial origin; it is referred to as protein sensitization or anaphylaxis. Coming under the classification of protein sensitization, besides the well

recognized condition of serum sickness or serum anaphylaxis, there are personal idiosyncrasies to various foods, plant pollens and other substances. Sensitization to plant pollen is known as hay fever. For raising the resistance of the body against foreign proteins as such, antiserums have not proved to be of any advantage, and resort has been had to the antigens themselves. These are injected in gradually increasing amounts, starting with extremely small doses.

For the prophylaxis and treatment of hay fever the most important pollens are extracted, and these extracts, containing the protein constituents of the pollen, are the agencies employed for the desensitization or immunization of the patient. For determining the particular protein or proteins to which the patient is sensitized, use is made of the fact that a local reaction will occur within a few minutes when a very small amount of the protein involved is injected intracutaneously or rubbed into a slight scarification of the skin.

BACTERIAL VACCINES

(For Virus Vaccines—Rabies and Smallpox —see pages 103 to 110)

Successful active immunization with bacterial vaccines depends fundamentally on the ability of the body cells to respond to such stimulating inoculations and to produce specific antibodies in adequate quantities and with sufficient rapidity to cope with the pathologic process, whatever it may be. Bacterial vaccines have achieved their highest degree of success in prophylactic immunization and in the treatment of the more chronic types of infection, for the reason that under such conditions the body cells are commonly in a better condition to respond to stimulation, and there is adequate time for the evolution of antibodies in the tissues.

The cells of a patient who is suffering from the profound toxemia of an infectious process are incapable of satisfactorily responding to active immunizing measures, and in acute infections like pneumonia the time available for the response is too short.

Vaccines probably are of some value when used early in acute infections, in that they afford an initial stimulus to the immunizing mechanism of the patient, but if their administration is delayed their efficacy is very doubtful.

In acute infections running a protracted course, such as bronchitis and whooping cough, vaccines are undoubtedly of great service. Here, too, the earlier the treatment is instituted the more satisfactory will be the results.

In strictly localized acute infections the efficacy of vaccine treatment is very definite. In subacute and chronic infectious processes involving the skin, respiratory, gastro-intestinal and genito-urinary tracts, vaccine treatment has achieved a far-reaching importance.

Reaction

The reaction attending the administration of bacterial vaccines has been generally adopted as a guide in controlling the doses and the intervals between injections. The manifestations which constitute the reaction may be local, focal, or general. The reaction at the point of inoculation consists chiefly of redness and edema. At the focus of the infection, intensified pathologic activity may follow, such as increased secretions in infections of the respiratory tract, and pain and swelling of the joints in arthritis. General reactions are not very common, but may occur, with fever, headache, malaise, and occasionally gastro-intestinal disturbances. Blood examination usually shows leucocytosis.

Relation of Reaction to Dosage

Injections of bacterial vaccines should not be repeated in the presence of continued systemic reaction or until the local reaction has largely abated. Ordinarily the peak of the clinical reaction is reached during the first twelve hours. Reactionary manifestations rarely persist more than three or four days. Based on observation of the clinical reactions, the doses are spaced at intervals of three to five days; but in the case of certain vaccines, as Pertussis, the injections are frequently given at two-day intervals, and in the use of Typhoid Vaccine for prophylactic immunization the injections are given a week apart. In the application of vaccines for therapeutic effect, the development of a sharp clinical reaction is a contraindication to an increase in dosage. Indeed, an unusually severe reaction calls for a reduction in the size of the dose. In the absence of marked reaction, it is considered desirable to increase the dosage up to the point of individual tolerance as rapidly as possible, clinical evidence having conclusively proved that the best results in vaccine therapy are obtained by the use of fairly large doses.

There are several classifications of bacterial vaccines; for instance, stock and autogenous, monovalent and polyvalent, simple and combined. An autogenous vaccine is one that is prepared from cultures isolated from the particular case under treatment. Such vaccines are theoretically based on sound principles and have a certain practical field of usefulness. Cases are occasionally seen in which the results attending the application of autogenous vaccine are very striking.

But there are several drawbacks to their use. In acute infections they are rarely practical, for the reason that sufficient time is not available for their preparation. It takes approximately a week to make an autogenous vaccine, and in acute infectious conditions that is too long to wait. The greatest field for usefulness of autogenous vaccine appears to be in subacute conditions in which the time element is not a matter of vital importance. Certain technical difficulties must also be taken into account; cultures may be difficult to obtain, and skill and experience in handling them are frequently lacking. Moreover, unless a laboratory is close at hand, the organisms may not be viable at the time the specimen is received for cultural work.

These various objectionable features relegate autogenous vaccine to a comparatively unimportant place in the general scheme of vaccine therapy.

Stock vaccines are vaccines which are prepared from stock cultures of the particular organisms involved in a certain type of infection. Their value as antigens depends in no small measure upon the care and skill bestowed upon their preparation. The selection of cultures of high antigenic value must be particularly painstaking, because different strains of the same organism vary widely in this respect.

Constant effort must be put forth to rejuvenate these vaccines by the addition of freshly isolated active cultures.

A stock vaccine which incorporates these principles, which is conscientiously and skillfully prepared with a view of affording the highest possible immunizing effect, is undoubtedly more efficient in the vast majority of cases than an autogenous preparation.

Monovalent vaccines are those which represent a single strain of the particular organism or organisms represented in the formula.

Polyvalent vaccines are vaccines in which more than one, usually a large number, of strains of each species of bacteria are represented. Polyvalent vaccines have proved especially satisfactory in that the more strains they represent the more certain are they to meet the indications due to the particular strain of infection from which the patient is suffering.

Simple vaccines represent a single species of microörganism—for instance, typhoid vaccine representing only the typhoid bacillus, or pertussis vaccine which contains only the bacterium of pertussis. Such vaccines are especially useful for prophylactic immunization.

Combined or mixed vaccines represent more than one species. The different organisms present in the flora of the infection for the treatment of which vaccine is to be used are included in the constitution of a mixed vaccine. For instance, Catarrhal Vaccine (Respiratory) represents all the microörganisms which are commonly found in acute infections of the respiratory tract.

Preparation of Bacterial Vaccines

Bacterial vaccines are essentially suspensions of bacteria in sterile salt solution containing a small amount of preservative, usually cresol. The organisms are grown, each species separately, on suitable culture media. The kind of medium used and the period of incubation are naturally determined by the cultural characteristics of the particular

organism that is being cultivated. The usual practice is to grow the bacteria on solid culture media, the growth being washed off at its maturity with a small amount of salt solution. After the mother suspension has been examined microscopically and culturally to establish its purity, a bacterial count is made and the number of microörganisms per cubic centimeter determined. The organisms are then killed either by heating or, more commonly, by the addition of cresol, and diluted with physiologic salt solution to the desired strength, the content of cresol being adjusted at this time. In the case of mixed vaccines the combining is also done at the time of dilution.

In the following list, the number given in the title is the number of bacteria contained in each cubic centimeter of the vaccine.

Acne Vaccine (Combined)

2000 Million

This Vaccine contains Acne bacillus, Dip.ococcus acne, Staphylococcus pyogenes albus, and Staphylococcus pyogenes aureus.

It is indicated in the treatment of acne and has been found of special value in the pustular type. In order to obtain permanent results from the vaccine treatment of acne, it is necessary to continue treatment for several months. It is also important that the lesions be treated locally. Comedones should be expressed, pustules evacuated, and hyperemia induced by massage or rubbing with a Turkish towel. If anemia is present, it should be corrected by the use of appropriate hematinics. An initial dose of 0.1 cc of the vaccine may be given. Subsequent injections should be made at intervals of three to five days, the dose being increased by 0.1 to 0.2 cc at each administration, up to 1 cc. This maximum dose should be repeated at four- or five-day intervals for several months.

Acne Vaccine (Combined) is supplied in the following packages:

Bio. 186. Four 1-cc bulbs.
Bio. 185. 5-cc vial.
Bio. 189. 20-cc vial.

Catarrhal Vaccine (Respiratory)

1200 Million

This vaccine contains the common respiratory bacteria, Friedlander bacillus, Pneumococcus (4 types), Micrococcus catarrhalis, Streptococcus both hemolytic and non-hemolytic, Staphylococcus albus and aureus, Pseudo-diphtheria bacillus, and Influenza bacillus. Catarrhal Vaccine is indicated for both prophylactic and curative treatment of catarrhal infections involving the respiratory passages and accessory sinuses, whether acute or chronic in nature. It is particularly valuable for immunization against acute colds. Satisfactory results have also attended its use in rhinitis, laryngitis and bronchitis. An initial dose of 0.25 cc is usually given. Subsequent injections should be spaced at intervals of three to five days, the dose being increased by about 0.25 cc at each injection, in the absence of contraindications, up to a maximum dose of 1 cc.

Catarrhal Vaccine (Respiratory) is supplied in the following packages:

Bio. 610. Four 1-cc bulbs.
Bio. 612. Four 1-cc syringes.
Bio. 614. 5-cc vial.
Bio. 615. 20-cc vial.

Combined Bacterial Vaccine (Van Cott)

1500 Million

This vaccine is intended primarily for the treatment of puerperal sepsis, abscesses, endocarditis, erysipelas, and wound infections. It contains both the hemolytic and non-

hemolytic Streptococcus, Staphylococcus albus and aureus, Pneumococcus (4 types), and Colon bacillus. The usual initial dose is 0.25 cc. Subsequent injections are given at three- to five-day intervals, the dose being increased by 0.1 to 0.2 cc at each administration until a maximum dose of 1 cc has been reached. The 1-cc dose is repeated as often as may be necessary.

Combined Bacterial Vaccine (Van Cott) is supplied in the following packages:

Bio. 225. Four 1-cc bulbs.
Bio. 229. 5-cc vial.
Bio. 230. 20-cc vial.

Furunculosis Vaccine

2000 Million

This vaccine contains only Staphylococcus aureus and is intended for the treatment of boils and carbuncles. All of the cultures entering into its constitution are isolated from boils and carbuncles, to adapt it especially to the treatment of this class of cases. The initial dose of Furunculosis Vaccine is 0.1 or 0.2 cc, and the injections are given at intervals of three or four days, each dose being increased by about 0.1 cc over the preceding, up to 1 cc.

Furunculosis Vaccine is supplied in the following packages:

Bio. 255. Four 1-cc bulbs.
Bio. 258. 5-cc vial.
Bio. 259. 20-cc vial.

Gonococcus Vaccine

1000 Million

This is a vaccine containing cultures of the gonococcus only. Its chief field of usefulness lies in chronic types of gonorrheal infection, such as gonorrheal rheumatism, epi-

didymitis, and orchitis. The initial dose is 0.1 to 0.2 cc, subsequent injections being given at three- to six-day intervals, increased at each administration by 0.1 to 0.2 cc.

Gonococcus Vaccine is supplied in the following packages:

Bio. 271. Four 1-cc bulbs.
Bio. 274. 5-cc vial.
Bio. 275. 20-cc vial.

Gonorrheal Vaccine (Combined)

900 Million

This vaccine contains, in addition to the gonococcus cultures, Staphylococcus albus and aureus isolated from chronic gonorrheal infections. It is intended for the treatment of subacute and chronic gonorrhea in which the staphylococcus is suspected of being an active factor in the continuance of the disease. The initial dose is 0.2 cc, subsequent injections being given at three- to six-day intervals, increased serially by 0.1 cc to 0.2 cc, up to 1 cc.

Gonorrheal Vaccine (Combined) is supplied in the following packages:

Bio. 285. Four 1-cc bulbs.
Bio. 287. Four 1-cc syringes.
Bio. 289. 5-cc vial.
Bio. 290. 20-cc vial.

Influenza Vaccine (Combined)

1200 Million

This vaccine contains Influenza bacillus, Micrococcus catarrhalis, Pneumococcus (4 types), and hemolytic and non-hemolytic streptococci. It is intended for the treatment of epidemic influenza and is also used for "grippy" colds caused by the Micrococcus catarrhalis, pneumococci, and streptococci, and simulating, in their clinical characteristics, true influenza. The usual initial dose is 0.5 cc, subsequent

injections being given at intervals of one to three days, and the dose being increased as rapidly as possible at each injection up to 1 cc or more.

Influenza Vaccine (Combined) is supplied in the following packages:

Bio. 670. Four 1-cc bulbs.
Bio. 674. 5-cc vial.
Bio. 675. 20-cc vial.

Influenza-Pneumonia Vaccine (Prophylactic)

5000 Million

This vaccine is prepared according to a method recommended during the 1919 influenza epidemic, and all the cultures entering into its constitution were isolated from epidemic influenza and its pneumonic complications. The vaccine contains Pneumococcus (4 types), hemolytic Streptococcus, Influenza bacillus, and Staphylococcus aureus. It is intended solely as a prophylactic against influenza and complicating pneumonia. The chief value of the vaccine appears to lie in its ability to protect for a certain period of time against pneumonia rather than against the antecedent influenza. Abundant clinical evidence is available to establish the fact that both the case incidence and the mortality from pneumonia are markedly reduced by immunization with Influenza-Pneumonia Vaccine. The protection thus given, however, does not appear to last more than about two months. For adults the initial dose is 0.5 cc, second and third doses 1 cc and 1.5 cc respectively, given at weekly intervals. Young children receive 0.1 cc, 0.2 cc and 0.3 cc, the dosage for older children being governed by their age. It is customary in estimating doses of vaccine for children to be guided by the weight, figuring the adult weight at 150 pounds. A child weighing 50 pounds would receive, therefore, one-third the adult dose.

Influenza Pneumonia Vaccine (Prophylactic) is supplied in the following packages:

Bio. 632. Three 1-cc bulbs.
Bio. 635. 20-cc vial.

Pertussis Vaccine

4000 Million

Pertussis Vaccine is used for prophylactic purposes or for children who are suspected of being in the incubation stage. When unquestioned symptoms of pertussis exist, it is better to use a combined vaccine. The initial dose of Pertussis Vaccine may be from 0.25 to 0.5 cc, the second dose 0.5 to 1 cc, and the third 1 to 1.5 cc. Three injections are given, at intervals of two or three days. The prophylactic value of Pertussis Vaccine is not absolute, and certain children will develop whooping cough in spite of it. The course of the disease in such children is greatly modified. This applies also to children injected during the incubation period. Such immunization will not ordinarily protect against infection, but will decidedly modify the severity of the disease.

Pertussis Vaccine is supplied in the following packages:

Bio. 198. Four 1-cc bulbs.
Bio. 200. Four 1-cc syringes.
Bio. 201. 5-cc vial.
Bio. 202. 20-cc vial.

Pertussis Vaccine (Combined)

5000 Million

This is perhaps the most valuable agent available for the treatment of whooping cough. Its early application reduces both the frequency and severity of the paroxysms, lessens the vomiting and consequent inanition, and is a safeguard against complications, especially pneumonia. The importance of early administration of Pertussis Vaccine (Combined)

in whooping cough, especially in young children, cannot be overestimated. The usual initial dose is 0.25 cc. This may be increased by 0.1 or 0.2 cc at each administration, injections being given at two-day intervals.

Pertussis Vaccine (Combined) is supplied in the following packages:

Bio. 620. Four 1-cc bulbs.
Bio. 624. 5-cc vial.
Bio. 625. 20-cc vial.

Pneumococcus Vaccine

3000 Million

This is a simple vaccine containing only the Pneumococcus, 4 types in equal proportions. It is used chiefly for prophylaxis. Three injections are given at weekly intervals, consisting of 0.5, 1, and 1.5 cc, respectively. The immunity is by no means as complete and as lasting as in the case of immunization with Typhoid Vaccine. The vaccine may be used not only when pneumonia is prevalent, but also in the course of influenza, measles, or other respiratory infection in which danger of pneumonic complication exists.

Pneumococcus Vaccine is supplied in the following package:

Bio. 465. 5-cc vial.

Pneumonia Vaccine (Combined)

3000 Million

This product is intended for the treatment of pneumonic infection, especially of the catarrhal or bronchial type. The course of lobar pneumonia is usually too acute for vaccine to be of value. In cases of delayed resolution in lobar pneumonia, however, vaccines are sometimes of service.

Pneumonia Vaccine (Combined) contains pneumococci (4 types), hemolytic and non-hemolytic streptococci, and

Friedlander's bacillus. The initial dose is 0.25 to 0.5 cc, and the injections are repeated at intervals of two or three days. It is desirable to increase the dosage as rapidly as possible up to 1 cc. Twice the initial dose can usually be given at the second inoculation. Contraindications must, however, be respected.

Pneumonia Vaccine (Combined) is supplied in the following package:

Bio. 467. 5-cc vial.

Staphylococcus Vaccine (Combined)

2000 Million

This vaccine contains in equal proportions Staphylococcus aureus and Staphylococcus albus. It is indicated in the treatment of boils, carbuncles, abscesses, osteomyelitis, secondary infections of various kinds, in fact in all cases in which one or both types of Staphylococcus are found or suspected to be etiologic factors. The usual initial dose is from 0.1 to 0.2 cc, subsequent injections being given at three- to four-day intervals, the dose being increased with each administration by 0.1 cc up to a maximum dose of 1 cc.

Staphylococcus Vaccine (Combined) is supplied in the following packages:

Bio. 376. Four 1-cc bulbs.
Bio. 390. 5-cc vial.
Bio. 391. 20-cc vial.

Streptococcus Vaccine

500 Million

This vaccine contains both hemolytic and non-hemolytic streptococci. It is intended for the treatment of infections in which streptococci are known or suspected to be the

invading organisms. This includes many wound infections, erysipelas, puerperal fever, and tuberculous sinuses. The initial dose is 0.2 cc. Subsequent doses are increased by 0.1 to 0.2 cc up to 1 cc, injections being given at intervals of two or three days.

Streptococcus Vaccine is supplied in the following packages:

Bio. 411. Four 1-cc bulbs.
Bio. 458. 5-cc vial.
Bio. 459. 20-cc vial.

Streptococcus and Staphylococcus Vaccine (Combined)

1250 Million

This vaccine contains both hemolytic and non-hemolytic streptococci, Staphylococcus albus and Staphylococcus aureus. It is intended for the treatment of septic conditions, especially the secondary infections of tuberculous sinuses, chronic wounds, fistulæ, etc. The initial dose of Streptococcus and Staphylococcus Vaccine (Combined) is 0.1 to 0.2 cc, subsequent injections being given at three- or four-day intervals, increased by 0.1 cc at each injection. The vaccine is supplied in the following packages:

Bio. 650. Four 1-cc bulbs.
Bio. 654. 5-cc vial.
Bio. 655. 20-cc vial.

Typhoid Vaccine (Prophylactic)

1000 Million

The value of Typhoid Vaccine for prophylactic immunization against typhoid fever is so thoroughly established as to require little comment. The most convincing evidence of its efficiency is afforded by military statistics. Whereas in previous wars typhoid fever has decimated armies and

has been the greatest single menace to military operations, during the recent world war the use of typhoid vaccine practically eliminated the disease so far as the well disciplined and controlled armies were concerned. In the armies of the British Empire, the United States, Germany, France, and Italy, typhoid was a negligible factor, for the reason that vaccine treatment was systematically carried out. In the Russian and Serbian armies, on the contrary, where vaccine treatment was for the most part disregarded, typhoid fever ran rampant and exacted a tremendous toll of lives. In the British-Boer War and the Spanish-American War typhoid fever killed more soldiers than all other casualties combined. Systematic Typhoid Vaccine prophylaxis establishes an almost perfect control of the disease, conferring individual immunity which usually lasts for several years. The treatment consists of three injections, at weekly intervals, of vaccine containing 1000 million bacilli in each cubic centimeter, 0.5 cc for the first injection and 1 cc each for the second and third. The vaccine has also been used to some extent for curative effect, but has never achieved any particular importance in this respect.

Typhoid Vaccine (Prophylactic) is supplied in the following package:

Bio. 427. Three bulbs (1 course).

Typhoid-Paratyphoid Vaccine (Prophylactic)

2500 Million

This vaccine contains, in addition to typhoid bacilli, Paratyphosus A and B. It is used in the same way as typhoid vaccine, but in addition to conferring immunity to typhoid it also protects against paratyphoid infection. It is, therefore, the vaccine of choice in most sections of the world. An immunization course for an adult consists of three weekly injections—of 0.5 cc, 1 cc, and 1 cc.

Typhoid-Paratyphoid Vaccine (Prophylactic) is supplied in the following package:

Bio. 441. Three bulbs (1 course).

Urethritis Vaccine (Combined)

4000 Million

Urethritis Vaccine (Combined) is intended for the treatment of chronic urethritis in which the bacterial flora has become somewhat complicated. It includes the Micrococcus catarrhalis, Gonococcus, Staphylococcus albus and aureus, hemolytic and non-hemolytic streptococci, Colon bacillus, and Pseudo-diphtheria bacillus. It has proved very useful in the treatment of long-standing cases of urethritis. The usual initial dose is 0.1 to 0.2 cc, subsequent injections being given at three- to six-day intervals, the dose being increased by 0.1 cc with each injection up to 1 cc.

Urethritis Vaccine (Combined) is supplied in the following packages:

Bio. 690. Four 1-cc bulbs.
Bio. 694. 5-cc vial.
Bio. 695. 20-cc vial.

TOXINS

Coley's Mixed Toxins
(Erysipelas and Prodigiosus Toxins)

Coley's mixture consists of the unfiltered toxins from the streptococcus of erysipelas and the Bacillus prodigiosus, prepared according to the directions of Dr. William B. Coley, of the New York Skin and Cancer Hospital, for the treatment of inoperable sarcoma.

In the *Boston Medical and Surgical Journal* (March 4, 1915) Dr. T. W. Harmer, of Boston, tabulated 222 cases of sarcoma occurring in his own and Dr. Coley's practice, with a few from other sources. From these 222 cases he abstracted 134 of microscopically proved sarcoma, all inoperable and free from concurrent treatment (x-ray, radium, arsenic, etc.), the toxin treatment only having been given.

Analysis of the 134 cases according to the type of sarcoma, and as to the tissue of origin or anatomical situation, with apparent cures of the various types, are recorded as follows:

Spindle cell and fibro-sarcoma: 41 cases, with apparent cures in 26.

Round cell, small and large: 56 cases, with apparent cures in 28.

Melanotic: 6 cases, with apparent cure in one.

Giant cell: 14 cases, with apparent cure in 11.

Mixed cell: 13 cases, with apparent cure of 5.

Leiomyoma: 2 cases, with apparent cure of one.

Angiosarcoma: 1 case, with reduction in size of tumor.

Hypernephroma: 1 case, with apparent cure.

Coley's Mixture is administered hypodermically, in small doses diluted with normal salt solution. If injection is made into the tumor, the quantity should not exceed, at first, one-fourth minim. The injections are given daily. A tem-

perature reaction of 103° or 104° announces that the limit of increase above the initial dose has been reached. Decided improvement should appear within three weeks; otherwise it is not advisable to continue the treatment.

Coley's Toxins are supplied in packages of five 1-cc rubber-stoppered bulbs (Bio. 451) and in 15-cc vials (Bio. 455). They are not carried in stock by druggists, but will be ordered by any druggist on request. In the laboratory the toxins are kept under the most favorable conditions for their preservation. Every package is dated in accordance with Dr. Coley's specifications.

Toxin-Antitoxin Mixture
(Diphtheria Prophylactic)

This preparation is a mixture of diphtheria toxin and diphtheria antitoxin, prepared according to standards established by the U. S. Public Health Service. The antitoxin in the mixture nearly neutralizes the toxic property of the toxin without impairing its antigenic property. This means that there is no danger of producing any of the symptoms of diphtheria from the injection of the mixture, and yet the toxin, rendered harmless, awakens such a degree of physiologic resistance that three injections immunize the subject against diphtheria for a period of years, perhaps for life.

Diphtheria antitoxin confers passive immunity only, which is exhausted in the course of a week or two. But the toxin-antitoxin mixture, while much slower in its operation (six weeks to six months being required for the development of the complete immune response), will in the great majority of cases render further protection unnecessary, no matter how often exposure occurs or what the severity of the epidemic. For protection against immediate exposure diphtheria antitoxin should be used, since no physiologic reac-

tion is necessary in the establishment of immunity by this means. If it is considered desirable to follow up this passive immunity with a course of Toxin-Antitoxin, an interval of ten days to two weeks should first elapse; by that time the antitoxin, which might interfere with the reaction, will have been eliminated.

Most infants are naturally immune to diphtheria; their mothers are immune, and they inherit the immunity, but it is not lasting. At six months they may be susceptible, though most cases of diphtheria occur among children between one and five years of age. It is, therefore, children between one and five who most urgently require immunization with Diphtheria Prophylactic. Still, although as the child grows the susceptibility naturally diminishes, many are susceptible above five and even up to twenty or more. In fact, many adults are susceptible, though the majority are not. In all questionable cases the Schick test of susceptibility should be applied; but in any public institution harboring children it may be assumed without the test that all between one and five years of age are suitable subjects for immunization treatment.

The treatment consists in the hypodermic injection of 1 cc of the diphtheria toxin-antitoxin mixture, repeated after five days, and again after another interval of five days. The dose is the same for children as for adults.

Toxin-Antitoxin Mixture (Diphtheria Prophylactic) is supplied in packages of three 1-cc bulbs (Bio. 60) and in 20-cc vials (Bio. 65), each dose representing 3 L+ doses of toxin. It is also supplied in packages of three 1-cc bulbs (Bio. 67) and in 20-cc vials (Bio. 69), each dose representing 1/10 L+ dose of toxin.

DIAGNOSTIC PROTEIN EXTRACTS

It has long been known that certain individuals are affected in a peculiar manner by foods of which others partake with impunity; but more prevalent than this idiosyncrasy is a peculiar sensitiveness toward other substances than food. Ingestion of the food in question, or exposure to emanations from or contact with the other irritating substances, sets up a train of symptoms, such as skin eruptions, gastro-intestinal disturbances, difficulty in swallowing, or even dyspnea. The patient has been "sensitized" (though it is by no means clear how the sensitization was brought about) to a certain protein in the food or other substance. Among the various forms of this type of sensitization the three following are the most common:

1. *Food sensitization.*—Eggs, oysters, clams, lobsters, cheese, strawberries, buckwheat, and many other articles of food containing protein will produce certain phenomena in "sensitized" persons who partake of them. These phenomena may be localized or general, but usually take the form of asthma, acute gastro-intestinal disturbances, or skin eruptions such as urticaria, eczema, and others less easily recognized. Elimination of the offending substance from the diet results in a clearing up of the symptoms.

2. *Hay Fever.*—This is a more or less localized irritable condition following sensitization to the pollen of certain plants.

3. *Asthma.*—Many forms of asthma are now known to be due to sensitization to protein material of various kinds. Coming under this head are horse asthma, in individuals sensitized to horse hair or dander, asthma following sensitization to flour and other substances in a dry powdery form, and acute and chronic asthmatic conditions due to bacterial infection.

Our Diagnostic Protein Extracts are put out as pastes in collapsible tubes. Each tube contains approximately 1.5 grams—sufficient material for about 50 tests. The paste is ready for use just as it comes out of the tube. And as to keeping qualities, it is only necessary to add that pastes made up in an experimental way six years ago are still in perfect condition.

The advantages of the paste over liquid and powder preparations of diagnostic protein extracts will immediately appeal to the busy practitioner. Liquid or powder cannot be applied unless the field of operation is in a horizontal position, while the paste can be applied to any surface in any position. The upper part of the back is frequently used as the most convenient site for these tests, and the use of the paste allows the patient to sit in an upright posture. The use of the paste, too, makes for speed and ease of application.

A sterile toothpick will convey the Extract from the tube to the scarification, and the same toothpick can be used to rub the paste into the scarification. It should then be discarded. While powders are very likely to be blown from the site of scarification, the paste is of course sufficiently adhesive to stay where it is placed.

The cutaneous test with the paste is carried out as follows: The skin is first thoroughly cleansed with soap and water, and finally alcohol, and allowed to dry completely. A small abrasion is then made with a needle or a Von Pirquet scarifier. A small amount of the paste (about the size of a pinhead) is expressed from the collapsible tube, taken up on the flat end of a sterile wooden toothpick, and rubbed directly into the scarification. A positive reaction, appearing in from five to twenty minutes and lasting for a half to one hour, is indicated by the development of a well-defined urticarial wheal which is usually surrounded by a zone of erythema of varying intensity.

Following is our list of Protein Extracts, Diagnostic:

Food Proteins

No.		No.		No.	
101	Almond	134	Egg (all proteins)	167	Peppers, sweet
102	Apple	135	Egg white	168	Perch
103	Asparagus	136	Egg yolk	169	Pike
104	Banana	137	Eggplant	170	Pineapple
105	Barley	138	English walnut	171	Plum
106	Bean, Lima	139	Fig	172	Pork
107	Bean, navy	140	Garlic	173	Prune
108	Bean, string	141	Goose	174	Potato, sweet
109	Beef	142	Grapefruit	175	Potato, white
110	Beet	143	Guinea-hen	176	Pumpkin
111	Blackberry	144	Haddock	177	Radish
112	Black walnut	145	Halibut	178	Raspberry
113	Bluefish	146	Herring	179	Rhubarb
114	Brazil-nut	147	Hickory nut	180	Rice
115	Buckwheat	148	Lamb	181	Rye
116	Butternut	149	Lemon	182	Salmon
117	Cabbage	150	Lentil	183	Scallop
118	Cantaloupe	151	Lettuce	184	Shad
119	Carrot	152	Lobster	185	Shrimp
120	Cauliflower	153	Mackerel	186	Smelt
121	Celery	154	Milk (all proteins)	187	Sole
122	Cheese	155	Milk, human	188	Spinach
123	Cherry	156	Mutton	189	Squab
124	Chestnut	157	Oatmeal	190	Squash
125	Chicken	158	Onion	191	Strawberry
126	Clam	159	Orange	192	Tea
127	Cocoa	160	Oyster	193	Tomato
128	Codfish	161	Parsnip	194	Turkey
129	Coffee	162	Pea	195	Turnip
130	Corn	163	Peach	196	Veal
131	Crab	164	Peanut	197	Watermelon
132	Cucumber	165	Pear	198	Wheat
133	Duck	166	Pecan		

Pollen Proteins

No.		No.		No.	
201	Golden-rod	204	Oats	208	Rye
202	Juniper	205	Ragweed	209	Timothy
203	Mugwort (wormwood)	206	Red top	210	Oxeye daisy
		207	Russian thistle	211	Yellow daisy

Epidermal Proteins

No.		No.		No.	
211	Chicken feathers	215	Hair of cat	219	Hair of rabbit
212	Duck feathers	216	Hair of dog	220	Wool of sheep
213	Goose feathers	217	Hair of guinea-pig		
214	Hair of cattle	218	Hair of horse		

Bacterial Proteins

No.		No.	
251	Colon bacillus	260	Staphylococcus albus
252	Friedlander bacillus	261	Staphylococcus aureus
253	Gonococcus	262	Staphylococcus citreus
254	Micrococcus catarrhalis	263	Streptococcus, hemolytic
255	Micrococcus tetragenus	264	Streptococcus, non-hemolytic
256	Pneumococcus, type 1	265	Typhoid bacillus
257	Pneumococcus, type 2	266	Paratyphoid bacillus A
258	Pneumococcus, type 3	267	Paratyphoid bacillus B
259	Pseudodiphtheria bacillus		

Miscellaneous Proteins

No.		No.		No.	
231	Ginger	235	Pepper, red	238	Serum, beef
232	Mustard	236	Paprika	239	Serum, horse
233	Orris root	237	Sage	240	Tobacco
234	Pepper, black				

We also supply a tube of control material known as Protein Diagnostic Control (No. 100). This tube contains only the base with which the various specific proteins are mixed to produce our Diagnostic Extracts, so that the material may be used as a control alongside of the specific agents used.

While it is true that the physician is not under the necessity of making just one test at a time, but may apply a half-dozen or more proteins from different tubes in different locations, all at one session, this is not the last word in the economy of time and patience by any means. In addition to the individual tubes already enumerated, we are now prepared to supply tubes containing from three to six different protein extracts, so that a single application will enable the physician in search of a diagnosis to either exclude all of the proteins represented in the tube or assure himself that one or more of them is at fault. If the former, he makes another test with another group of proteins, continuing until he gets a positive reaction. If the latter, he will proceed to make individual tests with each of the proteins represented in the group, applying each in a separate scarification—at one and the same time if so disposed.

Necessarily these groups are more or less arbitrary; any

possible grouping would be; but they assist the physician greatly in simplifying the diagnosis. Each tube contains about 1.5 grams.

The list follows:

Group 1: Meats
- Beef
- Lamb
- Pork
- Veal
- Mutton

Group 2: Egg and Milk
- Milk (all proteins)
- Egg (all proteins)
- Cheese
- Human milk

Group 3: Fish
- Codfish
- Haddock
- Halibut
- Herring
- Mackerel
- Smelt

Group 4: Fish
- Perch
- Pike
- Salmon
- Bluefish
- Shad
- Sole

Group 5: Fowl
- Chicken
- Duck
- Goose
- Turkey
- Squab
- Guinea-hen

Group 6: Shell Fish
- Clam
- Oyster
- Shrimp
- Scallop
- Lobster
- Crab

Group 7: Vegetables
- White potato
- Sweet potato
- Beet
- Turnip
- Carrot

Group 8: Vegetables
- Lima bean
- Navy bean
- String bean
- Peas
- Lentil

Group 9: Vegetables
- Celery
- Asparagus
- Onion
- Egg Plant
- Radish
- Garlic

Group 10: Vegetables
- Cabbage
- Cauliflower
- Lettuce
- Spinach
- Parsnip

Group 11: Vegetables
- Pumpkin
- Squash
- Cucumber
- Sweet peppers
- Tomato
- Rhubarb

Group 12: Nuts
- Chestnut
- Peanut
- Pecan
- Almond

Group 13: Nuts
Black walnut
Brazil nut
English walnut
Hickory nut
Butternut

Group 14: Cereal
Wheat
Rye
Buckwheat

Group 15: Cereal
Rice
Oatmeal
Barley
Corn

Group 16: Fruits
Apple
Pear
Prune
Plum
Fig

Group 17: Fruits
Cantaloupe
Watermelon
Peach
Cherry
Banana
Pineapple

Group 18: Fruits
Orange
Lemon
Grapefruit
Strawberry
Blackberry
Raspberry

Group 19: Beverages
Coffee
Tea
Cocoa

Group 20: Bacterial
Colon
Gonococcus
Staph. aureus
Staph. albus
Staph. citreus

Group 21: Bacterial
Friedlander
Mic. catarrhalis
Mic. tetragenus
Pseudo-diphtheria

Group 22: Bacterial
Pneumococcus I, II, III
Strep. hemolytic
Strep. non-hemolytic

Group 23: Bacterial
Typhoid
Paratyphoid "A"
Paratyphoid "B"

Group 24: Epidermal
Horse hair
Dog hair
Cat hair
Cattle hair

Group 25: Epidermal
Rabbit hair
Guinea-pig hair
Sheep's wool

Group 26: Epidermal
Goose feathers
Duck feathers
Chicken feathers

Group 27: Seasonings
Ginger
Mustard
Black pepper
Red pepper
Paprika
Sage

GLAND PRODUCTS

While gland therapy is as old as the history of medicine itself, the modern application of gland substances to the treatment of disease is practically a new development. And like many products recently introduced to the materia medica, this class of remedies suffers from violent swings of the pendulum of medical opinion: at times the gland products are promiscuously, enthusiastically prescribed; at others, blindly, intolerantly opposed.

But there is a rational middle course; properly prepared gland extracts, carefully chosen by the physician to suit the needs of the patient under consideration, produce unquestionable therapeutic results.

It is especially incumbent upon the prescriber to see to it that the gland desiccations or soluble extracts he orders come from a reliable source, because it is not an easy matter to standardize gland products. But when some characteristic property of the gland in question is such that it can be assayed, either chemically or physiologically, we, who introduced the principle of standardization to pharmacy and medicine, naturally are eager to apply that principle.

We standardize thyroid preparations by their iodine content; suprarenal preparations by the adrenalin content; and pituitary extract is tested physiologically by two methods, to ensure its pressor activity and its oxytocic action on the pregnant uterus.

But other gland products do not lend themselves to any simple method of appraisal, either chemical or physiological. Our aim then has been to produce, if possible, a soluble extract that can be administered hypodermically; or, if this is not at once feasible, to eliminate moisture and fat from the gland, securing as near an approach as possible to uniformity in successive lots of the finished product by

utilizing the glands from a large number of animals in each operation.

The task of the physician is as difficult as that of the manufacturer, for disturbance in the function of one gland may involve other glands, obscuring the origin of the trouble. The scientific course is to use the gland extracts singly, at least until the diagnosis is clear. Combinations can then be improvised to meet indications.

For the convenience of the reader the following gland products are briefly discussed in alphabetical order, regardless of certain natural groupings which might suggest themselves.

Mammary Gland

As a therapeutic agent desiccated mammary gland is the most effective antagonist of the ovary at our disposal. All types of dysmenorrhea caused by ovarian hyperactivity are promptly relieved by giving this preparation in doses of two or three grains three times a day. Cases of menorrhagia in which the flow is unduly prolonged can be immediately corrected by beginning the administration of mammary substance on the third day of the menstruation. In cases in which the menstrual flow comes on too soon, it can be deferred and made quite normal by prescribing mammary substance for a week before the expected menstruation.

The combined use of placenta and mammary substance in cases of excessive and irregular endocrine bleeding is referred to under the heading "Placenta." (See page 58.)

Preparations of the Mammary Gland

Mammary Substance, Desiccated. Contains portions of all the elements of the mammary gland from lactating cattle. Supplied as a powder in 1-ounce bottles, and in 5-grain tablets, bottles of 100.

The Ovaries

In employing ovarian and luteal products in therapeutics we have three kinds of preparations to choose from, and each has certain special indications. There is a preparation made from the whole gland, which is called Ovarian Substance; another is pure Corpora Lutea; and a third, made from the ovary after ablation of the corpora lutea, is called Ovarian Residue. Each of these is available in the form of a desiccated powder, and also in soluble extract form in ampoules.

Ovarian Substance (whole ovary). Ovarian Substance is indicated, in general, in hypo-ovarism, especially at puberty and the menopause, both natural and surgical. Thyroid preparations constitute a valuable addition to the prescriptions for ovarian products because of the close physiologic relationship existing between the two glands. The dose of ovarian substance is large in comparison with that of some of the other gland preparations. It is perfectly safe to give as much as 15 grains of the desiccated product during the twenty-four hours.

In the treatment of eunuchoidism, ovarian substance should be pushed to the limit; and while, of course, the peculiar skeletal anomaly will not be corrected, the physician will frequently be rewarded by seeing the unmistakable development of the secondary sex characters and normal sexual function.

Ovarian Residue (ovarian substance without corpora lutea). Ovarian Residue is indicated in general in those cases in which it is desired to cause ovarian stimulation without increased activity of the corpus luteum. Hence Ovarian Residue should be prescribed in all amenorrheas, oligomenorrheas and dysmenorrheas which are associated with any degree of asthenia. The administration of corpus luteum or ovarian substance (which includes corpus luteum) in such cases would be likely to aggravate the asthenia.

In dysmenorrhea associated with scanty flow, ovarian residue has given a splendid account of itself. Five-grain doses are given three times a day for two weeks before the expected menstruation. Here again it is well to combine the ovarian residue with thyroid.

In amenorrhea and oligomenorrhea, ovarian residue may be used in combination with small doses of whole pituitary and thyroid, and is often of great benefit without these aids.

In the hot flushes following surgical obliteration of the ovaries Dr. Graves states that ovarian residue acts as a specific palliative remedy, rarely failing to give some degree of relief.

Corpora Lutea. Corpus luteum is indicated in hyperemesis gravidarum, in delayed or scanty menstruation in sthenic cases, and in dysmenorrhea with a tendency to clotting of blood. If thyroid is combined with the corpus luteum, great care must be exercised to make the period over which the combination is administered a short one, because both drugs are potent and one of them decidedly depressant at times. The dose of corpus luteum is four to ten grains of the desiccated product daily, or if the hypodermic method of administration (Ampoule No. 97) is preferred, three injections a week are enough for most purposes.

Corpus luteum is used as a symptomatic remedy in hyperthyroidism and in functional high blood-pressure because it is capable of quieting the tachycardia in the one case and causing a marked fall in systolic pressure in the other.

Ovarian Preparations

Corpora Lutea. From the true corpora lutea of cattle and swine (pregnant). Each grain of the desiccated product represents 5 grains of fresh substance. Supplied in the following forms:

The desiccated powder in 1-ounce bottles.

Chocolate-coated tablets, 2 grains, bottles of 50 and 100.

Filled capsules, 5 grains, bottles of 50, 100 and 500.

Ampoules (Amp. No. 97) containing 1 cc of the soluble extract (equivalent to 3 grains of the desiccated powder), boxes of 6.

Ovarian Substance. From entire ovaries (mostly pregnant). One grain of the desiccated powder represents 6 grains of fresh gland. Supplied in the following forms:

The desiccated powder in 1-ounce bottles.

Chocolate-coated tablets, 5 grains, bottles of 100.

Ampoules (Amp. No. 147) containing 1 cc of the soluble extract (representing 5 grains of the desiccated powder), boxes of 12.

Ovarian Residue (ovarian substance without corpora lutea). This preparation represents only what remains of the ovaries after removal of the ripe corpora lutea. Each grain of the desiccated powder is equivalent to 6 grains of fresh ovarian tissue. Supplied in the following forms:

The desiccated powder in 1-ounce bottles.

Compressed tablets, 5 grains, bottles of 50.

Filled capsules, 5 grains, bottles of 50.

Ampoules (Amp. No. 148) containing 1 cc of the soluble extract, boxes of 12.

Parathyroid Glands

Among the indications for the use of parathyroid, probably the best known is paralysis agitans, but the results are, to say the least, doubtful. This disease is the result of sclerotic changes in the parathyroid glands coming on in the aged. The dose is 1/10 grain twice a day. It is well, whenever administering parathyroid, to combine with it one of the calcium salts. Calcium chloride or calcium iodide may be given in fairly large doses.

A frequent cause of parathyroid insufficiency is acci-

dental injury or extirpation of the glands in operations on the thyroid. The development of tetany after such an operation should always be taken as an indication that one or more of the parathyroids have been removed or injured. The therapeutic indication is clear: parathyroid 1/10 grain, calcium lactate 3 grains, in capsules three times a day. If calcium iodide is to be given, the condition of the thyroid must be taken into consideration.

Certain forms of epilepsy are caused by the absence or diminution of the calcium content of the blood, producing cerebral irritation. Here, too, the indication is parathyroid and calcium salts, but other gland extracts can often be advantageously added to the prescription. In children it is advisable to add thymus because the thymus gland is the keystone of the child's nutritional endocrine arch and in nearly all these cases a nutritional uplift is needed. If the case is one showing evidences of toxemia, especially such as would be produced by foci of infection in the nose or throat and accessory sinuses, the suggested addition to the parathyroid-calcium formula is desiccated thyroid in doses of 1/10 grain. Of course if there are signs of frank hypothyroidism the dose of thyroid would have to be larger. If the epilepsy develops at puberty or at the menopause or during any period in which there is a special strain, it is best to add ovarian or orchic substance in doses of 10 grains daily.

Along the same lines of reasoning, other conditions characterized by muscular twitchings and spasmodic contractions have been treated and often markedly benefited by the administration of parathyroid substance. Among these the most notable are eclampsia and chorea. In threatened eclampsia, especially, desiccated thyroid should be combined with the parathyroid, because a sluggish thyroid gland in pregnancy is a frequent cause of the toxemia that is always found in the eclamptic patient.

Osteomalacia, tuberculosis, and other conditions showing calcium impoverishment, such as repeated pregnancies and lactation, are all indications for parathyroid and calcium salts.

Two British authors (Grove and Vines) have reported some astounding results from the administration of 1/10-grain doses of desiccated parathyroid substance daily in cases of varicose ulcer. The effect of the medication was manifested at once, and reached its highest point in ten days; but the time required for complete healing varied with the extent of the ulcerative process. The authors explain the action of parathyroid substance in these cases by the observation that in the blood of the patients the ionized calcium was invariably low, causing irritation and ulceration. The administration of parathyroid raised the content of ionized calcium to normal, and following this blood change the ulcers healed.

More recently these authors (*British Medical Journal*, May 20, 1922) gave an account of the application of these views to a considerably wider field of disease. From this article it now appears that not only does parathyroid substance regulate the calcium metabolism, but it also stimulates general cellular nutrition. In this way parathyroid builds up the almost worn-out resistance to toxic irritants, especially in chronic cases. These facts take on added significance in the light of the observation of these authors that chronic absorption of toxins is accompanied by a fall in the concentration of the ionized calcium.

The following is given as a table of diseases which are amenable to treatment by parathyroid:

1. Chronic Toxemias.
   (a) Ulcerative. Varicose ulcer; gastric ulcer; duodenal ulcer; erosion of cervix uteri; gumma.
   (b) Suppurative. Nasal sinusitis; tonsillitis; pyorrhea; otitis media; bacilluria.

(c) Non-suppurative. Rheumatic group: Rheumatoid arthritis; osteo-arthritis; chronic rheumatism. Arteriosclerosis. Eczema; chlorosis; sciatica.

2. Conditions of Uncertain Cause.

Menorrhagia; prostatic hypertrophy; urticaria.

In this special report over one hundred cases are referred to, and throughout the entire series the remedy employed was Parathyroid Tablets (P. D. & Co.). The usual dose was gr. 1/10 night and morning for the first 4 to 7 days, and subsequently gr. 1/10 daily. The physician should not be alarmed at a temporary exacerbation of the symptoms which might occur as a result of the institution of this treatment. Here is an example of what might be expected.

A long-standing case with a small tuberculous sinus from the hip was found to have a marked deficiency in ionic calcium. After a week's parathyroid treatment (gr. 1/10 daily) the discharge increased until there was a quite severe local condition and the old healed tracts opened again. It took two months' parathyroid treatment to get the blood normal again, and then healing recommenced. At the time of writing, four months from the commencement of treatment, the sinus was about the same size as at the beginning, but there was evidence that the healing was progressive.

In their conclusions Grove and Vines emphasize the fact that parathyroid does not act specifically against any organisms. They maintain that its action is to raise the cell nutrition up toward the normal and thus re-establish the normal defensive powers.

Parathyroid Preparations

Parathyroid Glands, Desiccated. Each grain represents 10 grains of fresh parathyroid gland substance. Supplied in the form of compressed tablets, 1/10 grain each, bottles of 100.

Pineal Gland

The pineal gland we can dismiss with a word because its extract is used only on an experimental basis. The gland seems to have something to do with somatic and sexual development, but definite therapeutic results cannot be counted upon from the administration of pineal gland substance.

Pineal Gland Preparations

Pineal Gland, Desiccated. From absolutely fresh pineal glands of young cattle. Supplied in the form of compressed tablets, each representing ½ grain of fresh pineal gland substance; bottles of 100.

Pituitary Gland

Three varieties of pituitary preparations are used in therapeutics: the anterior lobe, usually in desiccated form; extract of the posterior lobe, in solution (Pituitrin); and the whole gland desiccated.

The Anterior Lobe. Theoretically, the anterior lobe ought to be of value in functional sexual impotence, and beneficial results from its use in this condition have been reported. On an entirely empirical basis the anterior lobe has been used in the treatment of asthma. It is usually given in combination with desiccated suprarenal in the proportions of one grain of anterior lobe to two grains of the suprarenal preparation, three times a day. Although the action of the anterior lobe in these cases has not yet been explained, there can be no question as to its beneficial nature. The anterior lobe has, of course, been used to promote growth in stunted individuals, and in several instances with apparent success, but the dose must be greatly increased—50 to 100 grains daily is not too much.

Pituitrin. When used judiciously for certain definite

indications in the practice of obstetrics, Pituitrin is one of our most reliable therapeutic agents, but it is capable of so much abuse that a word of admonition seems always timely. It should be used in inertia uteri in those cases in which there would have been a normal delivery had there been no inertia. This means that Pituitrin should be used in those cases of inertia uteri that present the following conditions: head engaged, cervix dilated, no disproportion between the size of the passages and the passenger, no mechanical obstruction to the delivery of the child, absence of high retraction ring.

If Pituitrin is used without regard to these prerequisites, there is always danger of rupture of the uterus and asphyxia neonatorum. The practice of giving Pituitrin as a routine measure before the second stage of labor is completed, or at any time merely to hasten the expulsion of the child, cannot be too strongly condemned. When properly given, the obstetric dose of Pituitrin should be small. Two or three minims to begin with is quite enough; then, if well tolerated, the dose may be repeated or even increased to a point at which the desired expulsive contractions are produced. We recommend the use of ½ cc rather than 1 cc as the secondary dose, as a 1-cc dose has been found to be seldom necessary.

Another use of Pituitrin which has been attended with most gratifying results is in the treatment of enuresis. Under the head of "Thyroid," reference is made to the administration of desiccated pituitary gland in combination with desiccated thyroid in the treatment of this condition. In cases in which it is possible to give hypodermic injections, Pituitrin will give much better and more rapid results. Since there is no gravid uterus to take into consideration, the dose of Pituitrin may be much larger than the obstetric dose. It is quite proper to give a child as much as ½ cc every day or every two days by hypodermic

injection. If this dose produces intestinal cramps it should be reduced, but if no untoward symptoms follow it may be continued for ten or twelve injections. By that time, or before, marked amelioration of the bladder condition should be noticed. The intervals between bed-wetting will be gradually lengthened until the child has perfect control over his bladder function.

Polyuria, or diabetes insipidus, is another indication for the use of Pituitrin. The dose (hypodermic) is ½ cc to 1 cc twice daily. Patients passing as much as 11 liters of urine in 24 hours have been restored to normal, as regards both the polyuria and the polydipsia, by means of Pituitrin. It does not appear, however, that the treatment can be discontinued without inviting a return of the diabetic condition.

Advantage is taken by surgeons of the stimulating action of Pituitrin on nonstriated muscle fiber to prevent the development of postoperative tympanites, and to relieve the distended bladder in cases of urine retention. For either purpose a full cubic centimeter may be given, and repeated a few times at intervals of four to six hours.

Hemorrhage after tonsillectomy or other surgical operations, when not due to defective coagulability of the blood, can in many cases be controlled by the hypodermic administration of 1 to 2 cc of Pituitrin, or 1 cc of Pituitrin "S" (surgical).

The Whole Gland. The outstanding indication for the administration of the desiccated substance of the whole gland is adipose genital dystrophy. This condition is due to insufficiency of the anterior lobe as well as of the posterior, and the rational substitution treatment, therefore, is to supply a preparation containing both lobes. The dose should be about six grains a day.

PITUITARY GLAND PREPARATIONS

Anterior Lobe of the Pituitary Body. Each grain represents 5 grains of fresh anterior lobe substance. Supplied in the following forms:

The desiccated powder in 1-ounce bottles.

Compressed tablets, 2½ grains and 5 grains, each in bottles of 50 and 100.

Antuitrin (soluble extract) in 1-cc ampoules (Amp. No. 128), boxes of 6.

Posterior Lobe of the Pituitary Body, Each grain represents 6 grains of fresh gland substance. Supplied in 1/10-grain tablets, bottles of 100.

Pituitrin (soluble extract of the posterior lobe of the pituitary body). Physiologically standardized. Supplied in ½-oz. vials (Pituitrin Oral); in ½-cc (Amp. No. 47) and 1-cc (Amp. No. 16) ampoules (for obstetric use) in boxes of 6; and in 1-cc ampoules of Surgical Pituitrin (Pituitrin "S"), boxes of 6. The Surgical Pituitrin is double strength.

Pituitary Substance, Whole Gland (anterior and posterior lobes), Desiccated. Each grain represents 5 grains of fresh gland substance. Pituitary Substance, Whole Gland, is supplied in 1-ounce bottles and in bottles of 100 1-grain tablets.

The Placenta

Based on the assumption that placenta antagonizes the posterior pituitary, desiccated placenta has been tried in cases of dysmenorrhea characterized by a peculiar gnawing, crampy sensation such as might be expected from a temporary excess of posterior pituitary activity. Whether or not the theory is correct, the therapeutic evidence is such as to warrant further trial of this product in this type of dysmenorrhea. The best way to administer it is in doses of

ten grains a day for two weeks before the expected menstruation.

In cases of menorrhagia and metrorrhagia, desiccated placenta may be relied upon to check the flow, and to shorten its duration if it is too long. Its activity is noticeably enhanced if it is administered in combination with mammary substance. In such cases it is best to begin the administration about one week before the expected flow and to continue it until the menstruation is over. About ten grains of each product should be given every twenty-four hours.

PLACENTAL PREPARATIONS

Placenta, Desiccated. From the placenta of cows; each grain represents 6 grains of fresh substance. Supplied as follows:

The desiccated powder in 1-ounce bottles.

Filled capsules, 5 grains, in bottles of 100.

Suprarenal Gland

For practical clinical purposes, and also histologically, the suprarenal gland is divided into two parts, the cortex and the medulla. The secretion of the medulla is the well-known Adrenalin; the secretion of the cortex has not been isolated, and therefore, when it is desired to administer preparations containing the cortex, desiccated suprarenal gland should be prescribed. We have not found it practicable to dissect out the cortex in quantities sufficient to supply this part alone.

Suprarenal Gland, Desiccated. The general indication for the administration of desiccated suprarenal gland is hypoadrenia. The drug is best given in doses of two or three grains, three times a day. Adrenalin would give more rapid and decisive results, but it is not feasible to use Adrenalin

in any condition in which it is likely to be needed for a protracted period, because to be effective it must be given by hypodermic injection; moreover, its effect is evanescent. The desiccated suprarenal gland is used to good effect as an adjuvant to ovarian substance and desiccated thyroid in certain cases of sexual infantilism. Such a combination should consist of ovarian substance, 3 grains; desiccated thyroid gland, 1/5 grain; desiccated suprarenal gland, 2 grains—to be given in capsules three times a day.

Adrenalin. The indications for Adrenalin (the secretion of the medullary portion of the suprarenal gland) are clearly defined. Adrenalin owes its therapeutic value to the fact that when given hypodermically it quickly stimulates the junctions of the sympathetic nerves with the muscles which they supply. The most pronounced effect of its administration, therefore, is a contraction of the peripheral arterioles and a rapid rise in blood pressure. It is a most valuable remedy in the treatment of surgical shock. The best way to give it in cases of shock is as a part of a saline intravenous infusion. It is useful in the treatment of hemorrhage because it contracts the lumen of the blood-vessels at the bleeding point, favoring the formation of a clot, and also because it shortens the coagulation time of the blood. It is a valuable addition to local anesthetics because it blanches the operative area, giving the surgeon a clear field, and it confines the local anesthetic to the area into which it is injected, thus prolonging and intensifying the anesthesia.

In the paroxysm of asthma it has a most striking effect. Three to eight minims of the 1:1000 solution injected hypodermically will give the gasping asthmatic almost instantaneous relief. There are very few patients who cannot be relieved of an asthmatic paroxysm by the injection of Adrenalin; but when such a patient is encountered, one who does not respond readily to the administration of Adrenalin,

this medicament should not be pushed. Its rapid action in asthmatic paroxysms is explained by the fact that on hypodermic injection it rapidly dilates the bronchioles.

Adrenalin has recently come into use as a diagnostic agent in suspected hyperthyroidism. The test is known as the Goetsch test, named after Professor Goetsch, who first described it. It is based on the fact that thyroid secretion sensitizes the body cells to the action of Adrenalin, and is carried out by injecting about ½ cc of the 1:1000 solution and then observing the changes in the subjective symptoms of the patient and the characteristic blood-pressure curve. In positive cases the systolic blood-pressure rises at least 10 points in the first 15 minutes; later it falls slightly, and again rises.

Adrenalin is of service in controlling epistaxis, gastric hemorrhage, hemorrhage from tooth extraction, intestinal hemorrhage, or other hemorrhagic condition not due to defective coagulation of the blood, when so applied as to be brought into direct contact with the bleeding vessel. In intestinal hemorrhage it is administered in a dilution of 1: 100,000, intravenously; in epistaxis subcutaneously near the bleeding vessel; and in gastric hemorrhage orally.

Suprarenal Gland Preparations

Suprarenal Glands, Desiccated. Represents the entire gland, the cortical as well as the medullary portion, differing in this respect from Adrenalin. Supplied in the following forms:

The desiccated powder in 1-ounce bottles.

Compressed tablets, 2 grains, bottles of 100.

Filled capsules, 2 grains, bottles of 100.

Adrenalin. The pressor principle of the medullary or interstitial portion of the suprarenal gland. Physiologically standardized.

Supplied in fine crystalline powder in vials containing

1 grain; in tablets containing 3/200 grain and 1/200 grain, vials of 25; as Adrenalin Chloride solution 1:1000 in 1-ounce bottles and 1-cc ampoules (Amp. No. 88); and as Adrenalin Chloride Solution 1:10,000 (Amp. No. 1) and 1:2600 (Amp. No. 2) in boxes of twelve 1-cc ampoules.

Adrenalin enters into the composition of Adrenalin Inhalant, Adrenalin Suppositories, Adrenalin Compound Suppositories, Adrenalin and Chloretone Suppositories, Adrenalin Ointment, Adrenalin and Chloretone Ointment, and Anesthone Cream. It is also an ingredient of Apothesine tablets, Locosthetic, and Codrenin. (See Pharmaceutical section, pages 113–115, 124, and 127).

The Testicles

Theoretically the indication for testicular extract or, as it is more commonly known, Orchic Substance, is plain. But unfortunately in actual practice orchic extract has been a serious disappointment. The use of orchic substance in medicine must for the present be considered as being in the experimental stage.

Testes Preparations

Orchic Substance, Desiccated. From the testicles of animals; each grain represents 7 grains of fresh gland. Supplied as follows:

The desiccated powder in 1-ounce bottles.

Compressed tablets, 5 grains, bottles of 100 and 1000.

Thymus Gland

The indications for thymus may be stated in general to be those conditions in childhood which are associated with defective nutrition. Mongolian idiocy is said to be benefited by the use of a pharmaceutical preparation of the thymus

gland. In the hands of some clinicians desiccated thymus has given good results as an antagonist to the ovaries in cases of menorrhagia and metrorrhagia. The dose is about six grains a day. It is best given in combination with twice that quantity of mammary substance, which has a definite sedative influence on the ovaries. In metabolic osteo-arthritis (arthritis deformans) good results are reported from the free administration of desiccated thymus.

THYMUS GLAND PREPARATIONS

Thymus Glands, Desiccated. Each grain represents 8 grains of fresh thymus gland. Supplied in the following forms:

The desiccated powder in 1-ounce bottles.

Chocolate-coated tablets, 2 grains, bottles of 100 and 1000.

Filled capsules, 2 grains, bottles of 100.

Thyroid Gland

Of course the most striking indications are cretinism and myxedema. In these conditions thyroid extract is a specific insofar as amelioration or even complete eradication of the symptoms is concerned; but as soon as it is withdrawn from the treatment the symptoms are likely to return. The thyroid gland in such cases has retrogressed to such a point that it is impossible to rouse it to its normal function. This kind of treatment, therefore, is called substitution treatment. We administer a pharmaceutical preparation of the thyroid gland as a substitute for the secretion which the thyroid ought normally to supply.

The dose of desiccated thyroid always depends upon the tolerance of the patient. In cretinism a good dose to begin with is three grains per day, divided into three or four doses, as the physician may prefer. The dose may be

gradually increased until certain signs of thyroid excess make themselves manifest. The most important sign to look for is tachycardia. When this occurs it is a signal that we have gone beyond the point of tolerance and the dose must be reduced to the maximum quantity that will not produce such symptoms.

In myxedema the same procedure is to be followed, with the exception that much larger doses will be required. It is usually perfectly safe to begin with six or eight grains a day, keeping an eye on the patient, as in the case of cretinism, to determine the quantity he can take comfortably and that will keep him in a fairly normal condition. The clinical improvement is always a little more prompt and pronounced if, besides the thyroid preparation, a small quantity of iodide be given, such as potassium or sodium iodide or, in patients who do not tolerate the ordinary iodides, Iodalbin. To a myxedematous patient who is getting eight grains of desiccated thyroid a day, it is advantageous to add three grains of sodium iodide or 10 grains of Iodalbin to the daily dose.

In most of the lesser degrees of hypothyroidism, thyroid therapy frequently results in the restoration of the thyroid gland of the patient to its former normal physiologic activity. This kind of treatment is called homostimulative and applies to any case to which the administration of an animal gland preparation stimulates the corresponding gland in the patient, either directly or by affording needed rest to the exhausted gland.

Aside from frank myxedema and cretinism, one sees many indications for the use of thyroid preparations.

The dry forms of eczema and indeed almost all skin diseases characterized by dryness or scaliness are benefited by thyroid treatment. In mentally defective children small doses of thyroid are useful, and are frequently used advantageously with desiccated thymus and pituitary.

The dose of desiccated thyroid in all subthyroid conditions except cretinism and myxedema should be very small to begin with. Thus, in the case of a mentally defective child who seems to show evidence of a need of thymus and pituitary stimulation as well as of thyroid, a combination something like the following might be given: Desiccated thyroid, 1/10 grain; desiccated thymus, 1 grain; pituitary, whole gland, 1 grain. This dose must be put up in capsule form and taken two or three times a day.

In certain cases of undernourishment in children, cases characterized by headache, poor appetite, poor circulation resulting in cold hands and feet, desiccated thyroid brings about a rapid improvement. Give about half a grain combined with half a grain of sodium iodide or 2 grains of Iodalbin, once a day.

In cases of nocturnal enuresis, thyroid combined with pituitary is of decided benefit. Give 1/5 grain of desiccated thyroid and ½ grain of pituitary substance, whole gland, three times a day.

In anemia and chlorosis the effect of iron is occasionally enhanced by the addition of small doses of thyroid. Especially in chlorosis the combination of one grain of reduced iron and ¼ grain desiccated thyroid, given three times a day, will be found particularly effective.

Delayed puberty and amenorrhea may be due, as is generally known, to defective thyroid secretion. The indication is plain: give some thyroid preparation in doses that are well tolerated; and in these cases too the judicious combination of thyroid with other gland preparations to meet special indications is to be commended. For instance, in cases of delayed puberty, half a grain of desiccated thyroid combined with three or four grains of ovarian substance would frequently be more effective than thyroid alone.

Thyroid Gland Preparations

Thyroid Glands, Desiccated, U. S. P. From the thyroid glands of healthy animals. Standardized to contain not less than 0.3 per cent of iodine in organic combination. Each grain is equivalent to 5 grains of fresh gland. Supplied in the following forms:

The desiccated powder in 1-ounce bottles.

Compressed tablets, 1/10 grain, 1 grain, and 2 grains, bottles of 100.

Chocolate-coated tablets, 1/5 grain, 1 grain, and 2 grains, bottles of 100 and 1000.

Filled capsules, 2 grains, bottles of 100.

Thyroprotein. A highly purified concentrated extract (in powder) of thyroid glands from healthy animals, standardized to contain 0.33 per cent of iodine in organic combination.

Supplied in the form of compressed tablets containing respectively 1/50 grain, 1/20 grain, and 1/10 grain of Thyroprotein, bottles of 50; and in 1-cc ampoules (Amp. No. 30) containing 1/50 grain each, in solution, boxes of 12.

LACTIC ACID BACILLUS PREPARATIONS

A review of the various species of lactic acid bacteria in relation to their therapeutic uses leads directly to a consideration of the normal bacterial flora of the intestine in comparison with the species that multiply under abnormal conditions and provoke symptoms due to the absorption of poisonous products of putrefaction.

Relatively few living bacteria pass from the healthy stomach into the duodenum. In health this portion of the intestine is nearly germ-free both during digestion and when food is absent. The secretions of the liver, pancreas and the duodenal wall are relatively free from bacteria.

Beginning at the upper end of the jejunum the number of bacteria increases progressively through the small intestine, and as the movements of the intestinal contents are delayed by reason of the larger lumen an enormous multiplication of bacteria occurs, giving the contents of the cecum and the rest of the large intestine a very high bacterial content.

The large intestine of man with its accumulation of waste matter becomes a nidus for bacteria which may produce harmful fermentation and putrefaction if bacteria of the putrefactive harmful types predominate. On the other hand, the effect of this bacterial activity may be for good if the so-called beneficial species are in the majority.

Among the common species found in the large intestine of the average individual are B. coli, Bact. Welchii, B. edematis, streptococci, staphylococci, spirochetes, B. bifidus of Tissier, and B. acidophilus (Moro). Of these, B. coli, B. Welchii and B. edematis are believed to split up the waste material with which they are associated, by-products of a poisonous nature resulting. There is an intimate relationship between these putrefactive changes and disturbances of the general health, such as disorders of the digestive

organs, the kidneys, the heart and blood-vessels, the brain and nervous system, and the skin.

There is little doubt that the character of the contents of the large intestine materially influences the multiplication of the harmful species. Excessive feeding of starchy foods and meat stimulates an abundant growth of the strict anaerobes, especially those of the B. Welchii group. A milk diet, on the other hand, favors an increase in growth of the lactic acid forms, with a resultant diminution in the putrefactive forms.

As recently as the first years of the present century, studies of Metchnikoff and other keen observers revealed a direct relationship between the longevity of certain peoples and their constant milk diet. History records that for centuries their own peculiar form of fermented milk constituted a major portion of the diet of these peoples of simple habits and plain living.

In Egypt a food known as "leben raib," which is a soured milk prepared from the milk of buffalo, kine or goats, has been used from remotest antiquity; "Yohourt," a soured milk containing the Bulgarian bacillus, has been consumed extensively by the peoples of the Balkan peninsula; "Kephir," the native drink of the mountaineers of the Caucasus, the Ossetes and some other tribes, while alcoholic, also contains lactic acid bacteria; "Koumiss," another soured milk containing alcohol, was used by the tribes of Asiatic Russia. Other preparations of soured milk, notably "prostokwacha" in Russia and "Matzoon" in Armenia, are consumed in great quantities.

Not until 1902 was a definite explanation given of the apparent beneficial effect of the liberal consumption of soured milk, when Tissier and Martelly demonstrated that lactic acid in the nascent state exerts a strong inhibiting effect on putrefactive bacteria. This discovery stimulated widespread interest in sour milk products as a

therapeutic measure to combat intestinal putrefaction, auto-intoxication, and their sequelæ.

During the past twenty years different species of lactic acid bacteria have been made the subjects of extensive laboratory and clinical study. These studies have been directed very largely at the cultural characteristics and the action of different species, with particular reference to their therapeutic value in supplanting harmful intestinal bacteria. The early investigations were largely confined to studies on the commoner lactic acid species, by reason of the greater ease and certainty with which these species were handled. The principal species involved in these early efforts are recognized as Bact. acidi lactici, Bacillus paralacticus, and Strep. lacticus. These species are found in great numbers in the ordinary milk supply and predominate in naturally soured milk unless extensive growth of other species has occurred from gross contamination with stable dust or fecal matter.

These common species are responsible for the pleasing flavor of cottage cheese and buttermilk; and undoubtedly they exert a definite hygienic influence by reason of their cumulative action through long continued consumption as an item in the daily diet of those who have acquired a liking for sour milk preparations.

Bacillus Bulgaricus Tablets

The Bacillus bulgaricus, types A and B, is grown in sterile milk, and the culture dried *in vacuo* and compressed into tablets with a suitable base to ensure palatability. These tablets are intended for direct oral administration to inhibit the multiplication and to favor the gradual elimination of the microörganisms of putrefaction in the intestine. They are indicated in infantile diarrhea from gastro-enteritis or enterocolitis, and in auto-intoxication.

The bacillus bulgaricus is reported to have been used successfully in certain cases of diabetes, infantile summer diarrhea, skin diseases due to intestinal auto-intoxication, certain types of neurasthenia, gout, chronic arthritis, arteriosclerosis, flatulent dyspepsia, chronic diarrhea, colitis, and atonic constipation.

Dose: 2 to 3 tablets, to be repeated according to indications.

These tablets are furnished in screw-cap vials of 50 tablets, and carry a dating of six months.

Bacillus Bulgaricus Liquid Culture

It is sometimes desired to administer pure cultures of Bacillus bulgaricus in liquid form or in a vehicle that will mask their peculiar taste. The liquid cultures are well adapted to this form of administration and may be mixed with milk, water, fruit juices, or liquid foods.

The liquid culture may be obtained in packages of 10 5-cc vials, with a six months dating, and should be kept constantly in a cold chamber.

Lactone

Buttermilk Tablets. Pure cultures of selected strains of Bact. acidi lactici are grown in sterile milk and reduced to complete dryness *in vacuo* preparatory to being compressed into tablets. The strains are selected with reference to the pleasing flavor and the smooth character they impart to the loppered milk.

Strictly speaking, it is not buttermilk that results from the action of Lactone on sweet milk, for buttermilk is one of the by-products of butter-making, whereas Lactone milk contains the butter fat as well as the casein of the milk. Lactone milk is richer than buttermilk, for the reason just

stated—so rich indeed that, though it is one-fourth to one-third water, further dilution is desirable when the sweet milk used is particularly rich in butter fat. The sweet milk is all there; that is the first point. The second point is that there are no foreign microörganisms present, as there are likely to be in buttermilk. As a consequence, Lactone milk is not only much more nutritious than buttermilk, it is of a better flavor and it keeps better. It is agreeably acid, not piercingly so; and it remains in this condition for days together if kept, as it should be, in a covered receptacle and in a cool place.

Babies who do not thrive on sweet milk will often do well on Lactone milk, which does not have the same tendency to form into hard masses in the stomach, and which is digested with comparative ease by the infant. Cream, water or sugar of milk may be added, as in the preparation of sweet milk for the bottle-fed baby.

Lactone Tablets may be obtained in bottles of 10, 25 and 100, and carry a dating of one year. One tablet will convert a quart of fresh sweet milk into 1⅓ to 1½ quarts of excellent buttermilk in 24 to 48 hours.

Directions for use are supplied in each package.

Lactic Acid Bacillus Suppositories, Vaginal

(See page 190)

PHYLACOGENS

Phylacogens are specific bacterial derivatives, antigenic in nature. They are prepared by growing the bacteria in artificial culture media, filtering out the bacteria, and combining the filtrates in definite proportions. Phylacogens are culture filtrates of pathogenic bacteria. Of these products there are six, enumerated in the following pages.

As it is recognized that infectious processes are frequently the result of the invasion of the tissues by several types of organisms, each phylacogen is prepared from two or more species of bacteria—the species commonly represented in the pathological condition for the treatment of which that particular phylacogen is recommended. The bacterial derivatives from these cultures are combined in proportions corresponding as nearly as possible to the relationship the organisms bear to each other in the pathological condition to be treated.

The phylacogens may be administered either subcutaneously or intravenously, but the initial dose should invariably be given subcutaneously, to gauge the resistance of the patient; and this method of administration may be continued to the end of the treatment or until the phylacogen is so well borne that intravenous administration is suggested for greater efficiency. For the average adult the injections (subcutaneous) should be repeated daily, beginning with 1 to 2 cc, and increasing each day by 1 cc, up to 8 or 10 cc. It is believed by some that the intravenous method, after the patient's tolerance has been established, is superior to the subcutaneous, and there is no doubt that the most striking results have been obtained by this method. The first intravenous dose (which should always be preceded by at least one subcutaneous injection, to determine whether or not the patient has been previously sensitized) should not be more than ⅛ to ¼ cc; but, as in subcutaneous

treatment, the intravenous injections are given daily, and the dose is increased each day, up to about 1 cc on the fourth day. Then if the patient tolerates the injections, the daily increase may be advanced to 1 cc until a single injection of 5 cc is being given; the 5-cc dose may then be repeated daily as long as the treatment continues. Severe constitutional reactions from excessive doses must be guarded against.

Intramuscular injections are not recommended. One rule of dosage—that just outlined—applies to all the phylacogens.

To obtain the best results from phylacogens in the treatment of acute infections it is urged that the appropriate phylacogen be used as early in the course of the disease as possible.

Typhoid Phylacogen

Typhoid Phylacogen is prepared from B. typhosus and B. paratyphosus A and B, and is recommended for the treatment of typhoid or paratyphoid fever. Should the temperature exceed 103° at any time, the best antipyretic is tepid or cool water, externally applied.

Pneumonia Phylacogen

This Phylacogen is prepared from various strains of each of the four types of pneumococcus isolated from typical pneumococcic infections. It is indicated not only in pneumonia but in any infection where the pneumococcus is primarily involved, epidemic influenza for example. Instead of beginning with 1 cc subcutaneously, in pneumonia it may be advisable in some cases to give ¼ cc every four hours during the day for the first two days, and larger daily injections thereafter.

Gonorrhea Phylacogen

The organisms most frequently found associated with the gonococcus are the Staphylococcus aureus and albus, Streptococcus hemolytic and non-hemolytic, and Micrococcus catarrhalis; and derivatives of these organisms in suitable combination with the Micrococcus gonorrhœæ make up Gonorrhea Phylacogen. This Phylacogen is indicated in the following diseases of the genito-urinary system due to the gonococcus: urethritis, epididymitis, orchitis, vesiculitis, cystitis, vulvo-vaginitis, metritis, endometritis, and salpingitis. One of the most important conditions for which Gonorrhea Phylacogen is especially recommended is gonorrheal rheumatism or arthritis.

Erysipelas Phylacogen

This product is composed of derivatives of streptococci, hemolytic and non-hemolytic (both of these organisms being primary etiologic factors in erysipelas), as well as Staphylococcus aureus and albus (frequently coincidental invaders). The cultures are obtained from cases of erysipelas.

Rheumatism Phylacogen

As with erysipelas, the streptococcus, either hemolytic or non-hemolytic, is the important etiological factor in rheumatism, while Staphylococcus aureus and albus are secondary. In the preparation of this phylacogen, as well as of the preceding, the streptococci utilized are specific, being isolated only from cases of acute arthritis. Rheumatism Phylacogen is indicated in all cases of arthritis, both acute and chronic, that are caused by the streptococcus, as well as in cases of neuralgia, myalgia, lumbago, iritis, sciatica and

other conditions recognized as belonging to the rheumatic group.

Mixed Infection Phylacogen

The organisms represented in this product are Staphylococcus albus and aureus, Streptococcus hemolytic and non-hemolytic, Colon bacillus, and four types of pneumococci (Diplococcus pneumoniæ). The phylacogen is used in the treatment of septic conditions of uncertain etiology, abscess formation, surgical infections, puerperal septicemia, otitis media, mastoiditis, appendicitis, empyema, carbuncle, mastitis, osteomyelitis, gangrene, septic phlebitis, tonsillitis, asthma and hay fever. The success of the treatment in any case is contingent upon the correspondence between the nature of the infection and the bacteria represented in the phylacogen.

POLLEN EXTRACTS

Pollen extracts are aqueous extracts of the pollen of certain plants, and contain in solution the proteins of the pollen. These extracts, which are put up in three dilutions —10, 100 and 1000 units per cubic centimeter—are used for the prophylaxis and treatment of hay fever, both Spring and Fall types, and also for determining the particular pollen to which the individual is susceptible.

The *rationale* of pollen extract therapy depends upon two well recognized facts. First, hay fever is the result of a sensitization of the individual to the protein of the pollen of certain plants, and an irritation of the mucous membrane of the nasal cavity results when the pollen liberates its protein on this surface. Second, immunity may be produced against that particular protein by a process known as desensitization. The acquisition of this tolerance to the protein is brought about by the hypodermic injection of graduated doses of the protein in dilute solution, and the protection is usually so pronounced that the pollen itself will have little or no effect when coming in contact with the previously sensitive nasal mucous membrane.

In the preparation of these extracts the pollens most frequently responsible for the hay fever symptoms were selected. For the spring type of hay fever, the pollen of timothy grass was chosen, and for the fall or autumnal type of the disease the pollen of ragweed. These plants are the best representatives of their respective families and are abundantly found in practically all localities with the exception of the western part of the country. Tests have also shown that 90 per cent. of all hay fever sufferers in the eastern section of the United States are sensitive to either timothy or ragweed pollen.

In the prophylaxis and treatment of hay fever the first

essential is the diagnosis, after which the treatment is more or less of a routine measure.

If, by means of a localized cutaneous test, the patient is found to be sensitive to either timothy or ragweed, prophylactic treatment should be instituted at least six weeks before the date of the usual onset of the symptoms, and should be continued until there is no longer any evidence of sensitization. This usually requires the full amount of extract contained in one package.

The method of arriving at the diagnosis is by utilizing the cutaneous or intracutaneous test, which will take from ten minutes to half an hour, after which it is usually a safe procedure to give as an initial dose 0.1 cc to 0.2 cc of the 10-unit solution (1 to 2 units). The subsequent doses should be gradually increased until 1 cc of the 1000-unit extract is given. This will take from ten to fifteen injections, administered at intervals of three to five days, depending upon the local reaction and the constitutional symptoms.

When given as a therapeutic agent the same procedure should be carried out, but the doses should be increased with more caution, as the patient is already suffering from the presence of the pollen, and too large a dose might aggravate the already disagreeable symptoms to a dangerous degree.

Packages designed for complete courses of treatment contain three vials of extract and one vial of diluent. The diluent is used only for the purpose of making the dose measurably large, as when less than ½ cc of extract is to be administered. Beginning the treatment with a dose of 2 units and increasing in the ratio of about 50%, the subjoined table can be followed. Anything like a severe reaction following a single dose should be construed as a warning to "go slow."

Dose	Amount of Extract	Units	
1st	0.2 cc from Vial No. 1	2	Strength of extract in Vial No. 1 = 10 units per cc.
2nd	0.3 cc from Vial No. 1	3	
3rd	0.5 cc from Vial No. 1	5	
4th	0.7 cc from Vial No. 1	7	
5th	1. cc from Vial No. 1	10	
6th	0.2 cc from Vial No. 2	20	Strength of extract in Vial No. 2 = 100 units per cc.
7th	0.3 cc from Vial No. 2	30	
8th	0.5 cc from Vial No. 2	50	
9th	0.7 cc from Vial No. 2	70	
10th	1. cc from Vial No. 2	100	
11th	0.2 cc from Vial No. 3	200	Strength of extract in Vial No. 3 = 1000 units per cc.
12th	0.3 cc from Vial No. 3	300	
13th	0.5 cc from Vial No. 3	500	
14th	0.7 cc from Vial No. 3	700	
15th	1. cc from Vial No. 3	1000	

The extracts are put up in diagnostic packages also—capillary tubes for single applications, five tubes in a package. The extract contained in the tubes is of 1000-unit strength, the same thing precisely as that contained in vial No. 3 of the complete package. The diagnosis can therefore be made without the diagnostic package, simply by using a drop or two of the extract from vial No. 3. The object in offering the diagnostic package is to enable the physician to determine first whether the prophylactic or therapeutic package is needed, for unless the patient reacts positively to the 1000-unit extract it is not at all likely that a prophylactic or therapeutic course would be of any service.

The various packages of timothy and ragweed pollen extract supplied are designated with Bio. numbers as in the following schedule:

Timothy Pollen Extract

Bio. 685. Five tubes, with scarifying needle, for diagnosis.

Bio. 687. Three 5-cc vials of extract (10, 100, and 1000 units per cc, respectively) and a 5-cc vial of diluent.

Bio. 688. No. 2 vial, 5 cc, 100 units per cc.

Bio. 686. No. 3 vial, 5 cc, 1000 units per cc.

Ragweed Pollen Extract

Bio. 680. Five tubes, with scarifying needle, for diagnosis.

Bio. 682. Three 5-cc vials of extract (10, 100 and 1000 units per cc, respectively) and a 5-cc vial of diluent.

Bio. 683. No. 2 vial, 5 cc, 100 units per cc.

Bio. 681. No. 3 vial, 5 cc, 1000 units per cc.

We can also supply Russian thistle pollen extract in the same form and in packages corresponding to Bios. 681, 682 and 683 above, although we do not list it in our general catalogue.

For diagnosis, we have not only the above liquid extracts (which are suitable for prophylactic and therapeutic use also), but diagnostic extracts in paste form (see page 43) of both timothy and ragweed pollens, and of the pollens of red top, goldenrod, Russian thistle, wormwood (mugwort), juniper, rye, oats, yellow daisy, and oxeye daisy. Individuals who are sensitized to any of these pollens, as shown by the diagnostic test, or to other proteins, such as horse-hair, chicken feathers, etc., may be relieved of *the symptoms that are due to the pollen of timothy, ragweed or Russian thistle* by the hypodermic injection of the appropriate pollen extract in liquid form.

SERUMS AND ANTITOXINS

Anti-Anthrax Serum

Anthrax (woolsorter's disease or malignant carbuncle), a disease of sheep and cattle, is communicable to man. Until recently no cure was known, but the use of a specific preventive (anthrax vaccine) in animals, and of a specific remedy (anti-anthrax serum) also, has led to a trial of the latter in human practice. The serum appears to be as efficacious in man as in the lower animals. By the time, however, that the infection is definitely diagnosed, heroic doses of serum may be necessary.

Anti-Anthrax Serum is supplied in 50-cc syringe containers, ready for injection. The serum is to be administered intravenously in doses of 50 to 100 cc, according to the progress and malignancy of the case, and the injections repeated daily or oftener until the symptoms subside.

Anti-Anthrax Serum for human use is supplied in syringe containers, 50 cc in each (Bio. 45).

Antigonococcic Serum

Owing to the decidedly localized nature of infections due to the Micrococcus gonorrhœæ, the development of a specific biological agent for the treatment of gonorrhea and its sequelæ is beset with serious obstacles. In the acute form of the disease the gonococcus invades the epithelial tissues only and continues as a local infection unless the patient's resistance is lowered sufficiently to permit the microörganism to penetrate the protecting armies of leucocytes, thereby gaining access to the blood stream, which carries it to other regions of the body, usually the joints. In such a condition, commonly referred to as systemic or

semi-systemic invasion by the gonococcus, a constitutional remedy is indicated.

The gonococcus does not produce a toxin in the true sense of the term. The by-products of its development are for the most part endotoxins which are liberated by the autolysis of the organisms following proliferation. These by-products do not possess the power to immunize the patient against subsequent fresh infections with the gonococcus. It is, however, possible to stimulate the formation of certain antibacterial substances in the blood stream of rabbits, sheep, goats and horses by the repeated injection of increasing doses of living young cultures of the gonococcus. These injections administered intravenously stimulate the elaboration of measurable antibacterial substances in the blood of an animal in a comparatively short time. These substances are recognized in biological literature as agglutinins, bacteriolysins, tropins, precipitins, and antibody measurable by complement fixation.

Clinical application of Antigonococcic Serum has demonstrated that the symptoms attending semi-systemic or systemic invasion of the body by the gonococcus may be quickly alleviated by the administration of small doses subcutaneously or, better still, large doses intravenously. It has further been shown that this serum is not indicated for the alleviation of acute infection. The only value to be derived from the use of the serum in the acute stage of the disease lies in its power to prevent the occurrence of sequelæ.

Antigonococcic Serum has been used with decidedly gratifying results in arthritis, salpingitis, gonorrheal septicemia, and in stubborn cases of posterior urethritis in which the coccus has penetrated the tissues beyond reach of local medication.

This antibacterial serum is standardized by the agglutination test. The comparative value of different lots of

serum is also determined by the complement fixation test. A 1:50 dilution of the serum should show complete fixation of complement as compared with no fixation in the case of normal horse serum.

Antigonoccoccic Serum is furnished in boxes of three 2-cc bulbs (Bio. 95), intended for subcutaneous use, and in boxes of one 12-cc bulb (Bio. 96) for intravenous injection. The packages carry a dating of six months. The recommended dose of Antigonococcic Serum is 2 to 12 cc subcutaneously, or 12 cc or more intravenously, repeated as the reaction and the symptoms of the patient indicate.

Antimeningococcic Serum

Diplococcus meningitidis is recognized as the cause of epidemic cerebrospinal meningitis. Among the strains isolated from spinal fluid in typical cases, four types have been differentiated by means of variations in their cross serological reactions, particularly on the agglutination, complement fixation and inter-absorption tests. It is apparent that a specific antibacterial serum for combating the disease should be prepared from the four types.

Pure cultures of the meningococcus representative of one of the four types may be readily isolated from the spinal fluid taken from patients suffering from the acute stage of the disease. Laboratory experiments have demonstrated conclusively that fresh cultures of this organism are killed readily when suspended in dilutions of blood serum obtained from a rabbit immunized against the meningococcus. These earlier findings, by reason of the clear demonstration of the bactericidal powers of antimeningococcic serum, suggested the commonly accepted method of using this antibacterial serum, namely, by intraspinal injection. Later work, however, has demonstrated that the organism may also be isolated from the blood stream and that quite as satis-

factory results may be obtained from the intravenous administration of the serum.

Cultures of the meningococcus quite readily undergo autolysis; the substances liberated into the surrounding medium from this natural dissolution of the cell are recognized as endotoxins. A definite minimum fatal dose cannot be determined for a solution containing these by-products of autolysis; this renders them decidedly unlike true toxins. Neither do they possess antigenic properties in sufficient quantity to create hyperimmunity. On the other hand, antibacterial substances may be created in definite amount in the blood stream of rabbits, sheep, goats and horses, if fresh young cultures of meningococcus are washed free of soluble substances and injected at once intravenously. The elaboration of antibacterial substances in the blood of an animal under treatment may be accomplished in a comparatively short time by injections of washed suspensions at intervals of one week, the antibacterial substances being recognized as agglutinins, bacteriolysins, tropins, precipitins, and antibodies susceptible of detection by the complement fixation test.

In the production of the antimeningococcic serum of commerce, horses are injected intravenously with gradually increased doses of washed living cultures of the meningococcus. Cultures representative of the four types of the organism are employed in approximately equal quantities. The injections are continued until the serum is shown to contain agglutinin against the four standard types of the serum on a par with a control serum supplied by the Hygienic Laboratory.

Antimeningococcic serum is of recognized value in the treatment of epidemic cerebro-spinal meningitis provided the serum is used in sufficient quantity early in the course of the disease. The generally accepted mode of application is by the intraspinal route, preceded by the removal of intra-

spinal fluid in sufficient quantity to relieve the pressure and allow the flow of serum into the spinal canal. The serum is injected from a syringe, or it may be allowed to flow into the canal by gravity. The intravenous method is preferred by some, as alluded to above.

Antimeningococcic Serum is supplied in packages containing two 15-cc syringes (Bio. 170), with attachments and stylet needle suitable for making direct injection into the spinal canal or for administration by gravity. The serum is also furnished in 50-cc syringe containers (Bio. 172), with needle and long flexible tube suitable for intravenous injection by either pressure or gravity. The serum is subject to quite rapid deterioration, hence the packages carry a dating of only six months. We recommend that Antimeningococcic Serum be administered in doses of 15 to 30 cc intraspinally and 50 cc or more intravenously.

Antipneumococcic Serum, Polyvalent

This serum is obtained from horses immunized to various virulent strains of the four types of the Diplococcus pneumoniæ, and is recommended for use in the treatment of any case due to the pneumococcus, whether the type has been determined or not. It is an antibacterial serum, and contains protective substances in the form of bacteriolysins and bacteriotropins. The serum is standardized against type 1 pneumococcus, to protect white mice against one hundred million fatal doses of the organism, and in addition it contains antibodies against the other types in extremely high titres.

The package is a syringe container of 50 cc.

The dose is 50 cc to 100 cc, to be given intravenously every six to eight hours. The serum may be injected undiluted or mixed with equal parts of sterile physiologic salt solution.

The mortality rate in cases of lobar pneumonia due to

pneumococci, type 1, not treated with serum, has been shown to be from 25 to 30 per cent or higher. On the other hand, Cole reports 195 cases treated with serum in the Hospital of the Rockefeller Institute, in which only eighteen deaths occurred, a case mortality rate of but 9.2 per cent. Reports of 300 additional cases treated with serum have been collected from the literature, making a total of 495 cases; mortality rate, 10.5 per cent.

If there is any question as to the sensitiveness of the patient toward horse serum, this should be ascertained and in case of a positive reaction corrected (see page 93).

Antistreptococcic Serum, Polyvalent

This serum is prepared from the blood of horses immunized with increasing doses of various strains of the Streptococcus, both hemolytic and non-hemolytic. The organisms are obtained from typical cases of acute streptococcus infection, making it a truly representative polyvalent serum. It is an antibacterial serum with bacteriolytic and bacteriotropic properties, and is indicated as a therapeutic agent in cases in which the streptococcus is the predominating etiologic factor, such as general septicemia, endocarditis, erysipelas, puerperal septicemia, streptococcus tonsillitis, scarlet fever, and wound infections. It is also indicated in other conditions in which the streptococcus is suspected of being the cause although its presence has not been determined.

Antistreptococcic Serum Polyvalent may be injected subcutaneously, intramuscularly, or intravenously. It is supplied in 10-cc bulbs and in 10-cc and 20-cc syringe containers for subcutaneous or intramuscular injection, and in 50-cc syringes for intravenous injection. If this serum is to be given intravenously the usual precautions applying to the intravenous injection of serum must be observed.

If there is any doubt as to sensitization to horse serum this should be determined (see page 93), and, if thought advisable, the serum should be diluted with sterile salt solution.

Diphtheria Antitoxin

(Concentrated Antidiphtheric Serum, Globulin)

Diphtheria Antitoxin is prepared from antidiphtheric serum by a process of precipitation and purification so that most of the protein constituents of the serum which are apt to produce unfavorable results have been removed, leaving only those constituents which contain the antitoxin.

This product is a typical antitoxic serum, producing passive immunity. It is indicated for both prophylactic and curative effect. It may be administered subcutaneously, intramuscularly, or intravenously. In most cases the intramuscular injection will suffice, but for quick and abundant protection the intravenous method is to be preferred. An intravenous dose is four times as effective as the same dose given subcutaneously.

In severe cases of croup and all suspicious cases of tonsillitis the antitoxin should be administered at once, a culture being taken from the throat at the same time for bacteriologic examination. This obviates delay in case the diagnosis is positive; the earlier the antitoxin is injected the more favorable will be the result.

The average protective dose is 1000 units, and the average curative dose (if it can be said that there is any average dose) is 10,000 units. The physician must be governed by the apparent requirements, bearing in mind that one dose of, say, 20,000 units is much more effective than two doses of 10,000 units on successive days.

As the serum produces passive immunity, the protection afforded lasts but two or three weeks; therefore, for prophylactic effect in cases in which the patient is not or has

not recently been exposed, Diphtheria Prophylactic (toxin-antitoxin mixture) is to be preferred. When there has been or is exposure the antitoxin may be given, and the toxin-antitoxin mixture for more prolonged effect later on. Diphtheria Prophylactic produces an active immunity that lasts for years. (See Diphtheria Prophylactic, page 40.)

Diphtheria Antitoxin is supplied in the following syringe containers:

Bio. 16, 1000 antitoxic units.
Bio. 18, 3000 antitoxic units.
Bio. 20, 5000 antitoxic units.
Bio. 22, 10000 antitoxic units.
Bio. 23, 20000 antitoxic units.

Hemostatic Serum

Physiologists explain the normal fluidity of the blood by assuming the presence of a substance, antithrombin, which prevents the formation of thrombin from prothrombin, a constant constituent of the blood. Without thrombin, fibrinogen (another constant constituent of the blood) cannot assume the insoluble sponge-like form of fibrin, the immediate antecedent of the coagulum or clot. Antithrombin is supposed to be formed in the liver, whence it is constantly poured into the blood stream.

Blood that escapes from the vascular system through injury to the vessel walls is deprived of its fresh supply of antithrombin; in other words, the check upon the conversion of prothrombin into thrombin is removed, and at the same time the so-called "tissue coagulins" or thrombokinase from the injured tissues mix with the escaping blood, hastening the formation of fibrin.

There are, however, a number of conditions which may to a certain extent interfere with the natural sequence of reactions and either prevent or delay the formation of the

clot. If antithrombin is in great excess or if prothrombin is deficient, the changes are delayed, as they are also by deficiency in either thrombokinase or calcium.

But though the blood may be perfectly normal in every respect, if an operation is impending or if an accident has occurred of so serious a character that extensive hemorrhage endangers life, the processes leading to clot-formation should be stimulated or reinforced.

Various substances have been suggested and used for shortening the coagulation time of the blood. Among these, normal horse and rabbit serums have been used for many years with more or less satisfaction. They contain thrombin in some form, and also calcium, and this may be all that is needed. Fresh human blood also has been employed with success, but obviously its use in a general way is not practicable.

Three substances suggest themselves as logical constituents of a well rounded ideal hemostatic agent, namely, prothrombin, thrombokinase, and something that will harmlessly neutralize the antithrombin that may be preventing the free play of the coagulating principles present in the patient's blood. To this neutralizing substance, which is not a constituent of normal blood, we have given the name "anti-antithrombin."

All three essential ingredients, prothrombin, thrombokinase and anti-antithrombin, are so balanced in Hemostatic Serum that they remain unchanged for at least three years, thus ensuring the specific activity of the serum for that length of time.

It is, fortunately, very difficult seriously to disturb the equilibrium which maintains the intravascular fluidity of the blood. Extensive experiments have proved that neither Hemostatic Serum nor anti-antithrombin alone, when intravenously administered even in relatively large doses, will bring about intravascular clotting.

The following method of standardizing Hemostatic Serum has been adopted. The animal, preferably a dog, is anesthetized, one of the femoral veins and one of the carotid arteries are opened, and cannulæ are inserted. A sample of blood (3 or 4 cc) is drawn into a clean dry test tube, and its coagulation time observed. The normal coagulation time for each animal is based on the results obtained with three or more samples, the blood tubes being placed in water at body temperature and observed at one-minute intervals. The end-point is the time when the blood is no longer fluid and the tube can be inverted without more than a trace of fluid appearing. When the normal coagulation time has been established, Hemostatic Serum is injected into the femoral vein. In about 15 minutes the shortening of the coagulation period begins to be apparent. Our standard requires that this period be reduced by two-thirds; that is to say, if the normal coagulation time of the test animal is nine minutes, a dose of Hemostatic Serum will shorten the period to three minutes. The return to normal —that is, the passing of the effect of the coagulant—is usually very gradual, although the maximum effect may not persist very long.

This method of testing Hemostatic Serum was adopted because it so closely parallels the clinical use of the agent and because it demonstrates so graphically the action of the serum in shortening the coagulation time of blood in its natural condition.

It must be apparent to the reader that Hemostatic Serum meets the indications only in so far as they involve coagulation of the blood. It acts upon the blood alone, not upon the blood-vessels; and in some cases of hemorrhage it is the atonic condition of the blood-vessels that prevents a timely cessation of the flow of blood. In these cases Adrenalin or Pituitrin should be used.

Aside from cases of hemophilic hemorrhage, in which

Hemostatic Serum is clearly and unmistakably indicated, it is employed to advantage in pulmonary hemorrhage, purpura hemorrhagica, intestinal bleeding, hemorrhage of the new-born, and hemorrhages incidental to various surgical procedures, such as bone operations, intracranial surgery, herniotomy, tonsillectomy, hysterectomy, and amputations. Even when the coagulating properties of the patient's blood are perfectly normal, Hemostatic Serum may, by bringing the bleeding to an earlier close, save the patient's life.

Hemostatic Serum is of special interest to the dentist, since he encounters hemophiliacs among those who come to him for treatment. A full dose of the serum should be administered in such cases before the operation, and another afterward if necessary; in fact, the dose can be repeated as often as the urgency of the case requires.

The average dose for a non-hemophiliac is 2 cc; for a hemophiliac, 5 cc. As has been already stated, the serum has no coagulating effect upon the blood in the blood-vessels; it acts only upon the coagulating "mechanism," so-called; hence the dose may be repeated to the point of efficiency in any case, due regard being had to the fact that the blood-vessels themselves may need toning up.

The serum may be administered subcutaneously, intravenously, or intraspinally, or applied locally on cotton to control capillary oozing.

It is supplied in 2-cc bulbs (Bio. 70) and 5-cc bulbs (Bio. 72).

Tetanus Antitoxin

(Concentrated Antitetanic Serum, Globulin)

This is a typical antitoxic serum produced by injecting horses with increasing doses of tetanus toxin. The serum, as in the case of Diphtheria Antitoxin, is precipitated and

purified, as much as possible of the non-essential ingredients being eliminated.

While the serum produces passive immunity only, its greatest value is as a prophylactic agent. It should be administered hypodermically immediately after any injury which may give rise to tetanus, such as gun-shot wounds or wounds contaminated with dirt, especially dirt from around stables, or manured soil. The prophylactic dose is 1500 units, administered subcutaneously. The wound should be at the same time thoroughly cleansed, cauterized or excised. In the case of extensive or heavily contaminated wounds the dose should be repeated in one week.

Fur curative effect the antitoxin must be injected at the first sign of the disease, for the tetanus toxin soon forms such a fixed combination with the nerve ganglia as to render later attempts at neutralization with antitoxin futile. The serum, in doses of at least 20,000 units, should be injected intravenously to neutralize the toxin in the circulating blood and lymph, and intraspinally to combat the toxin that may be in the spinal cord and medulla. The intravenous injection should be repeated at least once about 24 hours after the first injection, while the intraspinal injection should be repeated daily until signs of improvement appear; then the intervals may be lengthened and the dose reduced as the condition of the patient warrants.

Tetanus Antitoxin is supplied for subcutaneous or intramuscular injection in the following packages:

Bio. 147. 1500 units in bulb.
Bio. 141. 1500 units in syringe.
Bio. 142. 3000 units in syringe.
Bio. 143. 5000 units in syringe.

and for intravenous and intraspinal injection:

Bio. 146. 10,000 units in syringe with rubber connection.

Thyroidectin
Thyroidectomized Horse Serum

In Graves' disease (exophthalmic goiter) there is too much thyroid secretion circulating in the blood. One of the functions of the thyroid is believed to be the combustion or destruction of the products of protein metabolism that are being constantly thrown into the blood stream by the life processes. In hyperthyroidism there is more than enough secretion to neutralize the waste products in the blood; and the excess of thyroid secretion in circulation, failing to find the material with which to combine, becomes a disturbing, even a toxic element. An effort was made about twenty-five years ago to put this idea to a practical test by administering to patients with exophthalmic goiter the milk or the blood of animals that had been subjected to the operation of thyroidectomy—removal of the thyroid gland. It was assumed that the absence of the thyroid would permit excessive accumulation of waste products in the blood and that the blood of these treated animals administered to hyperthyroid patients would render the excess of thyroid secretion in the blood of the latter harmless through combination with the waste products thus supplied.

So encouraging were the first reports on the use of milk from thyroidectomized goats and the blood-serum of thyroidectomized dogs that in 1904 we placed on the market a preparation of dried blood from thyroidectomized horses, to be administered in capsule form, following a few years later with a blood-serum from animals similarly treated. The first is called Thyroidectin, and the later product Thyroidectomized Horse Serum. No doubt the characteristic properties of the former are derived from the serum, though the product itself represents the whole blood.

Thyroidectin is administered in capsules, each capsule

containing 5 grains; the dose is one or two capsules three times a day.

Thyroidectomized Horse Serum may be administered either orally or hypodermically. The dose by mouth is 1 to 2 cc t. i. d., to be increased by one or two minims per dose until an effect upon the pulse and the tremor is observed; then the dose may be slightly reduced. Hypodermically the usual dosage is 1 to 2 cc every second or third day.

Thyroidectin is supplied in the form of 5-grain capsules in bottles of 50. Thyroidectomized Horse Serum is supplied in 30-cc rubber-stoppered vials (Bio. 85).

* * *

SERUM SENSITIVENESS

In the use of the various therapeutic serums the question of possible hypersensitiveness or allergie, with risk of anaphylactic manifestations on the administration of the usual dose of serum, occasionally arises, especially when large doses, as of antipneumococcic serum, are necessary. Sensitiveness is determined by placing two or three drops of a 1:10 dilution of the serum or of normal horse serum just under the outer layer of the skin. If the patient is hypersensitive to a foreign serum, urticaria at the site of the application of the diluted serum will appear promptly, usually within five minutes, the wheal expanding gradually to a diameter of an inch or more, and being surrounded by a zone of erythema. To overcome this sensitiveness the serum must be administered fractionally, beginning in severe cases with not more than half a drop subcutaneously, and doubling the dose at short intervals until the full dose can be borne; or in moderate cases by giving 0.5 to 1 cc subcutaneously a few hours before giving the full dose.

TUBERCULINS

Essentially, tuberculin is a preparation made from an artificial culture of the Bacterium tuberculosis. It is used for the diagnosis of questionable cases, since the presence of tubercular foci in the patient so sensitizes him to the tubercle products that tuberculin applied cutaneously or subcutaneously in small amounts elicits a distinct local or general reaction, whereas it has no effect in non-tuberculous individuals. Tuberculin is also used for the treatment of tuberculosis.

In Diagnosis

For diagnosis, in human subjects, tuberculin is usually applied by any one of four methods: By inunction with Tuberculin Ointment (the Moro method); by applying the tuberculin to a scarified area on the skin (the Von Pirquet method); by instilling the tuberculin in the conjunctiva (the Calmette method); or by subcutaneous injection (the Koch method).

The Moro method is obviously the simplest, but it is not considered quite so reliable as the sacrification method of Von Pirquet. A small piece of Tuberculin Ointment (a piece about the size of a pea) is rubbed into the skin of the chest or abdomen in a space of about four square inches (2 inches each way). If tubercular, the patient will react by developing on the second day a number of small papules at the spot treated.

The Von Pirquet test is usually applied to the inner aspect of the forearm. Ether is applied, and Tuberculin Old is dropped on the skin in two places about four inches apart. Then with a vaccinating lancet with a chisel point a scarification is made between these two drops and through the drops themselves; a little cotton is placed on the drops to prevent them from flowing, and allowed to remain there

five minutes. No dressing is applied. In about 24 hours, if the patient is tubercular, the control spot should show no sign, but the other two will be more or less raised and inflamed.

In the ophthalmic test a 1-per-cent dilution of Tuberculin Old (easily prepared by dissolving one of our purified tuberculin discs in 5 cc. of distilled water) is instilled in one eye of the patient, the other serving as control. Tuberculosis is indicated by redness, lacrimation and swelling, and the appearance of a fibrinous exudate at the caruncle of the treated eye. This reaction does not follow immediately upon the application of the tuberculin, but usually begins to appear in the course of three or four hours, reaching its height in six to twelve hours, after which it gradually disappears.

The Koch test is made by injecting subcutaneously 0.0001 to 0.001 (1/10,000 to 1/000) cc of Tuberculin Old, according to the general condition of the patient (for it is not known, of course, whether he is tubercular or not), and repeating with twice this amount in two days if no rise of temperature follows the first injection. This process may be repeated again and again, the dose being doubled each time, until a single dose of 0.01 cc is finally given. Should any injection be followed by a slight increase in temperature, the next injection should not be increased at all; the reaction following a repetition of the same dose will be more pronounced than the first reaction if the patient is tubercular. The presence of tuberculosis is indicated by an appreciable rise in temperature.

This test should never be made in cases showing beforehand any persistent elevation of temperature, however slight.

The value of the diagnostic test is somewhat vitiated by the fact that persons with healed tubercular lesions may react. But there is this difference: In using the Von

Pirquet test, for example, an active lesion in the lung or elsewhere will almost certainly ensure a cutaneous reaction to the tuberculin in the course of 24 to 36 hours, whereas in case of a healed or inactive lesion the reaction is usually delayed beyond this period. The promptness of the reaction is more significant than its extent; that is to say, even though the reaction may be slight, if it comes on within 24 hours the case is one of tuberculosis demanding treatment.

When the clinical signs are clear, there is of course no occasion for making the tuberculin test.

In Treatment

The reason why professional opinion is divided in regard to the value of tuberculin therapy is that the therapy itself demands a degree of individualization in the handling of different cases that appeals to the specialist only. Tuberculin, properly employed, is one more resource added to the others, all too few, which are available to the average tubercular patient.

As might have been anticipated, tuberculin therapy is most successful in strictly localized tubercular affections, as of the glands and bones. In pulmonary tuberculosis the treatment is generally believed to be suited only to the early stages, as a rule, though patients vary to such an extent that it should be considered in all but hopeless cases. Some successful immunologists declare that there are no contra-indications—none, that is, that cannot be dealt with by means at the disposal of the profession.

Tuberculin therapy is an edged tool which absolutely demands expertness on the part of the operator. But the problem is not too formidable for the instructed physician to attack, once he thoroughly understands that the line which divides danger from deliverance is discoverable by the simple method of beginning with a very small dose of T. O. or B. F. (the clinical signs as well as the tuber-

culin test being taken into consideration) and working up until some slight reaction is perceptible (such as rise of temperature, malaise, pains in the back, etc.). The therapeutically effective dose is the amount which just falls short of producing a distinct reaction; and the level of the patient's resistance must then be gradually pushed up by geometrical or arithmetical increases in the dose, to be checked whenever a decided reaction occurs. A scheme of dosage of T. O. (Old Tuberculin) has been worked out as follows:

First, 5 cc or more of diluting fluid (physiologic salt solution containing 1 per cent of carbolic acid). Next, five empty vials. (One-tenth of a cubic centimeter of Tuberculin Old will fill all these vials.) An all-glass tuberculin syringe graduated in hundredths of a cubic centimeter is also needed. Draw into the syringe 0.9 cc of diluent and enough tuberculin to make it 1 cc (in other words, 0.1 cc). Place this *in vial No. 1;* the diluent, being last to leave the syringe, washes off the last trace of tuberculin. Then draw another 0.9 cc of diluent into the syringe and 0.1 cc of diluted tuberculin from vial No. 1, and place this mixture in vial No. 2. This process is continued until the five vials are all supplied, each successive one with a tuberculin ten times as dilute as that contained in the preceding vial.

The tuberculin in vial No. 5 is 1/100,000 of the concentration of the original. One cubic centimeter contains 1/100,000 cc of tuberculin; and 0.1 cc, the initial dose to be used in determining what the dose for the particular patient under consideration should be, contains only one-millionth of a cubic centimeter of tuberculin.

The second dose, injected two or three days later, is 0.12 cc of this fifth dilution, the third dose 0.14 cc, and succeeding doses are increased by *increasing the rate of increase by 0.02 cc at each third injection* until the patient is receiv-

ing 0.8 cc, when the next dose will be 0.1 cc from vial No. 4. The same course is followed with this as with vial No. 5, the first dose being 0.1 cc, the second 0.12 cc, and so on. A typical routine chart of doses would be as follows: 0.10, 0.12, 0.14, 0.18, 0.22, 0.28, 0.34, 0.42, 0.50, 0.60, 0.70, 0.82; and then 0.1 cc of the next dilution. But every dose is subject to reduction if the preceding dose has caused a definite constitutional reaction. The injections are given at intervals of three or four days, lengthened to a week in case of constitutional reaction.

The dilutions should not be preserved from day to day, though vial No. 1 may be kept for two or three weeks in a cool place, the other dilutions being made from this one for that length of time.

When the patient is able to take 1 cc of the dilution in vial No. 1, one of the bacillary tuberculins may be substituted for Tuberculin Old. The tolerated dose will have to be determined in the same way, though not necessarily by making serial dilutions, for both B. E. and T. R. are available in hypodermic tablet form for making up doses varying from 1/100,000 milligram (tubercle solids) to 1 milligram.

The bouillon tuberculins, properly administered, decrease the patient's sensitiveness to the toxins by building up resistance, but resistance to the bacilli themselves can best be established after T. O. has been used, by means of one of the bacillary products.

Dr. Owen F. Paget, of Perth, Australia, states* that better results are obtainable in tuberculosis by placing the pulverized tuberculin in the upper air passages of the nose (the ethmoid and upper turbinate region) than by hypodermic administration of liquid tuberculin. His practice is to begin the treatment in cases with a temperature above 100° F. by the administration, intranasally, of 1/6000 milligram of tuberculin B. E. obtained by crushing one of our

*A Simple Treatment for Tuberculosis. Wm. Wood & Co., New York.

1/1000-milligram tablets and dividing the powder into six doses. For placing the tuberculin in the nose, as described, a bent glass tube and a Politzer bulb are used. The tube is of small caliber, bent at right angles, and shaped to a narrow opening at the point which is to enter the nostril. The dose is first placed in the appliance, where it rests at the elbow, and the upright arm is carefully inserted in the nostril until the outer projection rests upon the patient's upper lip, against which it is pressed as the bulb is attached, and pressure, rapidly applied, drives the powder home.

The doses are repeated at intervals of two or three days, and are increased to 1/500 milligram as the temperature falls below 100°. The 1/500-milligram dose is secured by dividing a crushed 1/100-mg. tablet into five parts. Later, the dose may be increased to 1/40 milligram, a 1-mg. or 0.1-mg. tablet being used.

Dr. Paget has treated upward of one thousand cases by this means, and reports uniformly favorable results, very promptly manifested in early cases. All forms of tuberculosis, pulmonary, glandular, and osseous, are treated by this method.

It is claimed that the upper turbinate cells are peculiarly capable of developing antibodies, and that tuberculin applied as described has much greater antigenic power than when administered in any other way.

Tubercular infection not only invites complications, but it is occasionally itself a complication of pyogenic infection. Tuberculin acts specifically, as do vaccines; one will not take the place of the other, though the appropriate use of either will retard the progress of the subsidiary infection. In other words, streptococcic or other infection following invasion of the tissues by the tubercle bacillus will be minimized by specific treatment of the tubercular infection; and, on the other hand, if it is the streptococcus or some other organism that prepares the body tissues for the tubercle

bacillus, the elimination of this primary infection will reduce the virulence of the tubercle germ. The fever that is by many believed to be a contraindication to the use of tuberculin as a therapeutic agent may be due to streptococci or staphylococci. If so, it should be dealt with by the use of an appropriate vaccine, to be followed by tuberculin for the tubercular infection.

Tuberculin therapy is especially indicated in tubercular affections of the glands and in bone tuberculosis. The general condition of the patient has a bearing on the safety of the initial dose of T. O. in these cases, for only when conditions are quite bad is it necessary to begin with the fifth dilution. However, if there is any question on this point, the smallest dose should initiate the treatment. In bone tuberculosis the local circulation of blood is impaired, with consequent breaking down of tissue cells; hence the indication for the induction of hyperemia by the Bier method.

Tuberculin is employed in both diagnosis and treatment in these cases.

Forms and Packages

Our various tuberculins, in liquid, ointment, and tablet form, are available as follows:

For Diagnosis

Tuberculin Old, made by growing tubercle bacilli in bouillon for several months, filtering out the bacilli, and concentrating the culture filtrate over flowing steam to one-tenth its original volume. As the culture medium contained in the first place 5% of glycerin, the finished product contains 50%. Supplied as follows:

Ointment for Moro Test, 2 grams in collapsible tube (Bio. 520).

Liquid for Von Pirquet Test, 3 sealed glass tubes and 3 tubes of control material (Bio. 530).

Ophthalmic Discs, 10 in tube (Bio. 460). Dissolve one disc in 5 minims of water to make a 1% solution.

Tuberculin Old for subcutaneous test or for treatment, 1 cc in bulb with rubber diaphragm top (Bio. 491).

For Treatment

Tuberculin Old, as above (Bio. 491).

Tuberculin B. F. (Human), made by the same process as Tuberculin Old except that the culture filtrate is not concentrated. Contains a small amount of cresol as a preservative. It is used like T. O. in treatment, but the doses are larger. Supplied in packages of six 1-cc sealed glass bulbs (Bio. 480).

Tuberculin B. F. (Bovine), made by the same process as the preceding, but from bovine tubercle bacilli. In certain cases is less disturbing in the same dose than B. F. Human. Supplied in packages of six 1-cc sealed glass bulbs (Bio. 485).

Tuberculin B. E., made from cultures grown in the same way as those that are used in the preparation of Tuberculin Old, but instead of utilizing the filtrate, as in the case of Tuberculin Old, the bacilli themselves, separated from the culture fluid by filtration, are used. These bacilli are ground in a ball mill for months, until they are completely pulverized, as examination under the microscope shows. They are then made up into a glycerin emulsion, each cubic centimeter of which contains one milligram of the dry tubercle solids.

Tuberculin B. E. is supplied in glass bulbs, rubber-stoppered, 1 cc in each bulb (Bio. 470), and in tablets containing from 1/10,000 milligram to 1 milligram of the tubercle substance. A list of the tablets follows:

Vials No. 1 to No. 5, each vial containing ten tablets (Bio. 473).

Vial No. 1, ten tablets, 1/10,000 milligram* in each (Bio. 474).
Vial No. 2, ten tablets, 1/1000 milligram* in each (Bio. 475).
Vial No. 3, ten tablets, 1/100 milligram* in each (Bio. 476).
Vial No. 4, ten tablets, 1/10 milligram* in each (Bio. 477).
Vial No. 5, ten tablets, 1 milligram* in each (Bio. 478).

Directions for the conversion of the tablets into solutions for hypodermic administration accompany each package.

Tuberculin T. R., made by grinding the tubercle bacilli, as in the case of B. E., eliminating the water-soluble portion, and emulsifying the residue with glycerin.

Supplied as a liquid in concentrated and dilute forms, the former in glass bulbs containing 1 cc of the undiluted liquid (1 milligram of tubercle solids) (Bio. 510), and the latter in packages of six 1-cc sealed glass bulbs, each of which contains 1/1000 milligram of tubercle solids (Bio. 500).

Also in the form of tablets as follows:

Vials No. 1 to No. 5, each containing ten tablets (Bio. 503).
Vial No. 1, ten tablets, 1/10,000 milligram* in each (Bio. 504).
Vial No. 2, ten tablets, 1/1000 milligram* in each (Bio. 505).
Vial No. 3, ten tablets, 1/100 milligram* in each (Bio. 506).
Vial No. 4, ten tablets, 1/10 milligram* in each (Bio. 507).
Vial No. 5, ten tablets, 1 milligram* in each (Bio. 508).

Directions for the conversion of the tablets into solutions for hypodermic administration accompany each package.

*This refers to the amount of tubercle solids present.

VIRUS VACCINES

(For Bacterial Vaccines, see pages 23 to 37)

Rabies Vaccine (Cumming)

Rabies is an infectious disease affecting chiefly dogs, but to which all mammals are susceptible. The disease is communicated usually by the bites of canines and, in Russia, of wolves, the virus being present in the salivary secretion. It prevails in all countries except England, where the importation of dogs has been prohibited and the infection has been practically unknown for many years.

In 1903 Negri described certain characteristic intracellular bodies which he regarded as protozoa and the etiologic factor in rabies. These bodies are found in various parts of the nervous system, especially in Ammon's horn.

Rabies is invariably fatal. After the symptoms appear and the disease is well established, all efforts to produce a cure are unsuccessful.

Pasteur first demonstrated the success of prophylactic treatment. The incidence of the disease following suspicious animal bites, which had been as high as 30%, was reduced to 0.7% in the Pasteur Institute during the first five years after the introduction of the immunization method. Among those untreated during the same five years, the official record shows a case incidence and a mortality of 20%.

Since the introduction of the Pasteur method of prophylactic vaccination against rabies, modifications of this treatment have been proposed and used in certain localities with varying degrees of success. It may be stated that all methods depend upon the injection of rabies tissue which has been subjected to some form of attenuation.

In employing the original Pasteur method, portions of the spinal cord of a rabbit killed by an injection of fixed rabies virus are dried at a temperature of 22° C. for differ-

ent periods of time—from three to twenty-one days. The first injection is made with an emulsion of cord substance which has been dried the maximum number of days and in which the virus is therefore attenuated to the greatest degree. Each subsequent injection is made with cord substance which has been attenuated for a shorter time than the last preceding dose. The last injection of the course is made with material that has been desiccated only three days.

Hogyes' method was based on the attenuation of fixed virus by dilution so that all the injections might be given without danger of infecting the patient. The highest dilution is used for the first inoculation, followed by more concentrated suspensions for the succeeding ones.

Other methods of attenuating fixed virus include exposure to heat, cold, gastric juice, glycerin, or carbolic acid. A mixed treatment of antirabic serum and vaccine has also been employed to a very limited extent.

Among the modifications of the original Pasteur method that have been most successful in the prevention of rabies the method originated by Dr. J. G. Cumming is of particular significance by reason of the comparative ease and safety of its administration. After searching tests to determine the effect of various germicides on ground rabies cord and brain tissue from rabbits killed with fixed virus, Dr. Cumming was able to show that the infective principle of a suspension of brain could be entirely removed by dialysis in celloidin sacs. Dialysis of the suspension removes the infective principle without robbing the virus of its power to produce immunity against fixed virus in experimental animals.

In the production of Rabies Vaccine (Cumming), full-grown rabbits are inoculated intracranially with fixed virus. At death the brain is removed, with aseptic precautions, and ground to a fine consistency in a mortar

with sterile quartz sand. The ground material is then suspended in sterile water and placed in celloidin sacs and dialyzed against running distilled water for 22 hours. The contents of the sacs are then mixed in a common receptacle and 0.2% cresol added as a preservative.

Judging by the effect of this vaccine on rabbits and guinea-pigs, a series of 12 daily injections of the standard dialyzed vaccine gives the same degree of immunity as is obtained by the intensive Pasteur treatment, which consists of 21 daily injections.

Experimental trials with the original Pasteur vaccine and with vaccine prepared according to Hogyes' method have demonstrated that it is possible to infect experimental animals by giving as preliminary doses those intended for later injection. It is possible, therefore, that serious error may result through the general distribution of such vaccines for use by those who are not experienced in the administration of the original Pasteur material.

Rabies Vaccine (Cumming) possesses the highest degree of safety by reason of the fact that all doses are of the same standard strength, and there is no danger of conveying infection. Rabies Vaccine may be administered by the family physician with absolute safety and without that uncertainty as to the sequence of dosage which pertains to other methods.

Rabies Vaccine (Cumming) is supplied in packages of seven 2-cc syringes ready for immediate use. In mild cases, those in which the wound is slight and remote from the brain—that is, on the lower extremities, the hands, or the forearms—it is recommended that fourteen injections at 24-hour intervals be given. Twenty-one injections are recommended in severe cases, including those of bites or lacerations about the head, and also in slighter wounds in any region of the body when other cases in the locality indicate an unusual virulence of the infection.

For all patients over four years of age, a dose consists of the contents of one syringe, 2 cc. Children under four may be given 1 cc, or one-half the contents of each syringe.

This vaccine carries a dating of six months, and should always be stored at refrigerator temperature.

On receipt of an order, one package containing seven doses will be supplied direct from our refrigerator, and the other one or two packages, as specified, at intervals of six days.

Smallpox Vaccine

Smallpox vaccination may be defined as the artificial production of immunity against smallpox in man by inoculation with virus from vaccinia or cowpox. The use of cowpox virus for producing such immunity dates back to the observations of Jenner during the latter half of the 18th century, but artificial means of immunizing against smallpox were resorted to in certain eastern countries, notably China, at a much earlier period.

It seems altogether probable that cowpox and smallpox have a common origin, but in the absence of definite knowledge as to the causative organism in either, this point must remain undecided. The efficacy of cowpox virus to protect against smallpox, however, is established beyond doubt. The vaccine now used is made by inoculating animals, usually heifers, with "seed virus" originally obtained from cowpox infection. After seven or eight days the animals are slaughtered and the pustules along the lines of inoculation are scraped off. This pustular material is emulsified with glycerin, ground to a uniform consistency, and aged for a sufficient period of time to destroy or thoroughly attenuate the bacteria accidentally present. The conditions under which the virus is produced must be carefully controlled to insure both purity and potency.

After being aged, the virus is tested and then put up in capillary glass tubes for clinical application.

While the majority of children are not vaccinated until they enter school, the best time for such inoculation is during the first year of life. As soon as an infant shows a steady gain in weight it may be safely vaccinated; usually between the third and fifth month may be considered a suitable time. There is a great deal of uncertainty as to the average duration of immunity, but countries in which vaccination is compulsory during the first and tenth years remain practically free from smallpox.

There are certain contra-indications to vaccination. In general, children who are ill, or infants who are poorly nourished and not gaining in weight, should not be vaccinated unless there is a definite danger of exposure. An exception to the above rule may be found in whooping cough; in this condition smallpox vaccination appears to exert a favorable effect. Children who are suspected of being in the incubation period of any of the exanthematous diseases should not be vaccinated; nor should a child be vaccinated during the febrile course of an infectious disease. Furunculosis, purulent skin diseases, and extensive eczema are contra-indications. Because of the risk of secondary infection, children suffering from otitis, abscesses or suppurative wounds should usually not be vaccinated. Other conditions which are considered contra-indications are leukemia and pernicious anemia, and severe constitutional diseases such as advanced tuberculosis. It must always be borne in mind, however, that in case of actual exposure of an unvaccinated individual these contra-indications are usually overruled because the disease is much more to be feared than the vaccination.

The technic of vaccination is very simple—in fact, the simpler the better. The general tendency is to over-scarify. Scarification should be neither deep nor extensive.

A very slight scarification will permit sufficient absorption for the development of a satisfactory pustule. Extensive scarification favors both secondary infection and the development of large unsightly scars. The use of antiseptics in preparing a vaccination site is both unnecessary and undesirable. If they are used, the arm should be thoroughly cleansed afterwards, as a very small amount of antiseptic may prevent the typical reaction. All the preparation that is necessary is to scrub the arm thoroughly with soap and water, dry, and apply a little alcohol, allowing the alcohol to evaporate completely before vaccinating.

In making the inoculation, a drop of the virus may be expressed from the capillary tube and a slight scarification, not over ⅛ inch in length, made with the needle through this drop of virus. The virus should then be rubbed in thoroughly with the side of the needle and allowed to stand (without wiping off the excess vaccine) for ten to fifteen minutes. If the scarification has been sufficient, there will be a slight elevation indicating the absorption of the vaccine. The arm may then be wiped dry with sterile gauze or cotton. If this elevation is noted, regardless of how slight the scarification may be, a satisfactory pustule will develop in non-immune patients. In the usual course of successful vaccination a small papule appears on the third or fourth day. The appearance of this papule may occur later, sometimes even after a week. During the four or five days succeeding the development of the papule, it gradually changes into a vesicle, reaching its maturity about the eighth day. A red inflammatory areola surrounds the vesicle, usually reaching its maximum intensity on the ninth or tenth day. By this time the lymph first found in the vesicle has become purulent, and the vesicle itself depressed and umbilicated. Ordinarily by the fourteenth day the vesicle has become converted into a scab, which gradually dries and drops off about the twentieth day.

While the inflammatory areola ordinarily appears about the fifth day, the patient rarely complains of much pain during the first week. The entire reaction reaches its peak on the ninth or tenth day, after which the condition steadily improves. In addition to the local reaction, there is some involvement of the cellular tissue surrounding the area of vaccination, and almost always considerable swelling and tenderness of the axillary lymph nodes.

While this is the characteristic course of the vaccine reaction, many variations are noted even in uncomplicated cases, and the course in individuals who have been previously vaccinated is especially likely to show variations.

In the treatment of the vaccine wound, as in the application of the vaccine, the simplest methods are the best. Ordinarily the arm can be left entirely alone. Heavy dressings and shields are not only unnecessary but actually harmful, as they produce just the conditions which should be avoided, namely heat and moisture. All the protection that is required in most cases is afforded by pinning a square of sterile gauze in the sleeve. Daily applications of tincture of iodine to the pustule from the sixth to the tenth day minimize the risk of secondary infection and help to dry up the scab. Punched-out ulcerated areas occurring as a result of knocking off the scab may be satisfactorily treated by the application of a simple antiseptic solution (wet dressing), such as may be made from Germicidal Discs. During the acute period of the reaction, the arm should be kept as quiet as possible—if necessary it should be put in a sling.

Vaccine Virus (Smallpox Vaccine) is supplied in the following packages:

Bio. 560. Package of five capillary glass tubes (five vaccinations), with rubber bulb for ejecting and five needles for scarifying.

Bio. 561. Package containing one capillary glass tube

(one vaccination), with rubber bulb for ejecting and needle for scarifying.

Toxin-Antitoxin Mixture

(See page 39)

Pharmaceutical Section

Adrenalin

(See Adrenalin in Chapter on Gland Products, page 60)

Adrenalin Inhalant

This preparation contains one part of Adrenalin Chloride in 1000 parts of an aromatized bland oil base, with 3 per cent. of Chloretone. It is used as an application to inflamed mucous membranes. In rhinitis, coryza, chronic nasal catarrh, hay fever, pharyngitis, tonsillitis, laryngitis, etc., it is applied by spray with the aid of a good hand nebulizer (such as the P. D. & Co. "glaseptic" instrument) or the stationary office outfit. It may be diluted to any extent desired with olive oil, but liquid petrolatum should not be used for this purpose. As a lubricant for urethral instruments it facilitates the introduction of catheter, sound or cystoscope by reducing the turgescence of the mucosa. Supplied in 1-ounce glass-stoppered bottles.

Adrenalin Ointment

This is a combination of a bland non-irritating oleaginous base with Adrenalin Chloride, in the proportion of 1000 to 1. Its astringent action is more prolonged than that of an Adrenalin spray, hence it may sometimes be preferred in stubborn cases of coryza, rhinitis or hay fever, or in asthma with nasal obstruction. It is especially useful in urethral stricture, and in rectal conditions, such as proctitis, internal bleeding hemorrhoids, ulceration, fissure, etc. The Ointment has been said to have a prompt ameliorative effect in neuritis when applied at the site of the painful nerve.

Supplied in ½-ounce collapsible tin tubes with elongated nozzle.

Adrenalin and Chloretone Ointment

Each ounce contains: Adrenalin Chloride, 2/5 grain (1:1000); Chloretone, 20 grains (5%).

Adrenalin and Chloretone Ointment is astringent and antiseptic in effect, and is indicated in simple and infectious inflammations of mucous membranes. It may be applied to the conjunctiva after the use of silver nitrate or copper sulphate, and in the treatment of either purulent or simple catarrhal inflammations. In turbinal hypertrophy and in acute and chronic inflammations of the nasal structures it is employed with advantage as an antiseptic and styptic application. It is highly recommended in gynecologic and genito-urinary work, and in the medical treatment of proctitis, fissure in ano, hemorrhoids, and rectal ulcers, especially when a combined antiseptic, anesthetic, astringent and hemostatic effect is required. It is supplied in ½-ounce collapsible tin tubes with elongated nozzle.

Adrenalin Suppositories

Each suppository contains one part of Adrenalin Chloride combined with 1000 parts of oil theobroma as a base. The suppositories are conical, with a flat base, and, owing to both size and form, are easily introduced. They are recommended in proctitis, bleeding hemorrhoids, rectal ulceration, and the hemorrhage of rectal cancer. In rectal irritation the insertion of one of the suppositories will sometimes facilitate the administration and retention of nutrient and medicinal enemata. Supplied in boxes of one dozen.

Adrenalin and Chloretone Suppositories

Each suppository contains: Adrenalin, 3/200 grain (1:1000); Chloretone, 3 grains (20 per cent.). These

suppositories have the same therapeutic properties as the plain Adrenalin Suppositories, with the additional advantage of the antiseptic and mildly anesthetic effects of the Chloretone. (See Chloretone, page 149.)

In piles, proctitis, pruritus, fissure, and practically all conditions of rectal congestion and ulceration attended with pain and bleeding, these suppositories are exceedingly serviceable. They are conical in shape, with a flat base, and of such size as to be easily inserted; the cacao-butter base, melting at body temperature, coats over the mucous surface and allows prolonged contact of the medicaments with the diseased tissues. One suppository should be introduced at night and another in the morning, after cleansing the anal region, and in severe cases the intervals may be shortened to four or five hours.

The suppositories are supplied in boxes of one dozen.

Adrenalin Compound Suppositories

Each suppository contains: Adrenalin, 1/300 grain (1:6000); Apothesine, ½ grain (about 3%); Formidine, 1 grain; Extract Hamamelis, 1 grain—with cacao-butter base. These suppositories are astringent on account of the Hamamelis, and anesthetic because of the Apothesine. The Formidine has a germicidal and alterative action; and congestion or bleeding is controlled by the Adrenalin. The therapeutic indications are the same as for Adrenalin Suppositories (see page 114). They are supplied one dozen in a box.

Agar

This dry mucilaginous substance extracted from several species of seaweed grown along the eastern coast of Asia is marketed in the form of granules, pale buff in color and practically odorless and tasteless. Its use in the treatment

of constipation was first suggested by Prof. LaFayette B. Mendel, of Yale University. He suggested that since Agar has the properties of increasing in bulk by absorbing moisture and remaining pultaceous it ought to be an excellent remedy in certain cases of constipation. There is no longer any doubt that Agar has fulfilled these expectations.

Agar is indicated especially in cases of constipation characterized by the passage of dry feces of insufficient bulk to stimulate peristalsis. In these cases Agar mixes with the intestinal contents, absorbs moisture from the secretions, and gives the intestinal walls sufficient bulk upon which to contract to make peristalsis effective. This kind of constipation is frequently attributable to lack of exercise, and a diet consisting of concentrated foods. Agar should be administered in doses of about one tablespoonful once or twice a day, preferably mixed with cereal. It may also be sprinkled on bread or other food, or it may be mixed with milk or fruit juices. As a rule it is prescribed in daily doses of one tablespoonful, to be taken with the breakfast cereal or with plenty of milk. This treatment can be continued indefinitely, since no habit is induced. Children require smaller doses in proportion to their age.

Agar is supplied in cartons of ¼-pound and one pound.

Agar, Laxative Chocolate

To each ounce of Granular Agar 20 minims of Cascara Evacuant are added, the whole being flavored with a superior quality of pure chocolate. The granules are light brown in color because of their content of cascara and chocolate.

The physiologic action of Chocolate Agar is the same as that of plain granular agar except that the cascara is released gradually by the agar as it traverses the intestine, thus producing a continuous laxative effect. Laxative

Chocolate Agar is especially adapted to the treatment of cases of constipation requiring a little more laxative stimulus than is afforded by the mechanical effect of plain agar. See Cascara Evacuant, page 144.

The dose, method of administration and therapeutic application are the same as for Granular Agar (see page 116).

Chocolate Agar is supplied in cartons of ¼-pound and 1 pound.

Alophen Pill
(Pill Alophen)

This is a small, ovoid, chocolate-coated pill containing:

Aloin	¼ grain
Strychnine (powd.)	1/80 grain
Ext. Belladonna Leaves	1/12 grain
Powd. Ipecac	1/15 grain
Phenolphthalein	½ grain

For many years the high rank of the laxative combination known as the Aloin, Strychnine and Belladonna Pill was undisputed. The pill had the endorsement of the medical faculty and was liberally prescribed by physicians everywhere. But it acted rather too slowly, and there was some objection to the amount of belladonna it contained; moreover, it was not in all cases free from the depressing effects of purgatives in general.

Pill Alophen is based on the old A. S. and B. formula; but it contains a trifle more aloin (¼ grain instead of 1/5 grain), a little more strychnine (1/80 grain instead of 1/120 grain), and a little less belladonna (1/12 grain instead of ⅛ grain); moreover, it contains ipecac and phenolphthalein, neither of which was represented in the original pill.

The aloin, belladonna and phenolphthalein are synergistic—they promote peristalsis. The ipecac and phenolphthalein promote secretion. The belladonna prevents

griping. The strychnine counteracts the tendency of purgative drugs to depress the nerve tone and the circulation.

Pill Alophen is not intended for use as a brisk cathartic, but rather to relieve constipation due to torpidity of the lower bowel. Its effect is that of a gently acting purgative.

At bedtime one or at most two pills may be taken with the expectation of a satisfactory result the next morning. As a rule a single pill is a sufficient dose. If the colon is much distended and atonic, one pill may be given at noon and a second at night, thus ensuring a continuous mild effect.

The combined use of Fluid Extract of Cascara Sagrada or Cascara Evacuant in divided doses during the day, with one or two Alophen Pills at night, is an effectual means of combating the most obstinate cases of chronic constipation.

Pill Alophen is supplied in bottles of 100 and 500, and is also obtainable in bulk packages.

American Oil

(Known in Canada as Liquid Petrolatum, Heavy)

This product is called American Oil to distinguish it from the Russian Oil that was so freely prescribed prior to the great war. It is in every respect equal to the foreign article. Chemically it belongs to the naphthene series of mineral oils. In the purification of the crude oil from which it is obtained, all unsaturated hydrocarbons are completely removed, as well as any other substance that might cause gastro-intestinal irritation.

American Oil is colorless, odorless, and tasteless, of unusually high specific gravity and viscosity. It can be taken by any one who can tolerate oils of any kind in any form.

Most paraffin oils are affected by low temperatures, be-

coming cloudy through separation of small particles of the oil. While this is no indication of inferiority, for the oil becomes transparent again as soon as it is warmed, and the temperature of the body is always sufficient to keep it in this condition, the naphthene oils possess the esthetic advantage of being clear and transparent at any temperature above 14° F., 18 degrees below the freezing point of water.

American Oil is indicated as a bland mechanical laxative in cases in which vegetable cathartics, aloin or other purgatives would prove too energetic or too irritating. It is, therefore, applicable particularly in cases of hemorrhoids, as it causes no tenesmus or rectal congestion; in the constipation of pregnancy; in spastic constipation, in which ordinary cathartics are contra-indicated; and in cases of mucous colitis for its emollient effect.

The oil is purely mechanical in its action. It passes *in toto* through the intestine; does not form chemical compounds with any of the intestinal contents; nor is it absorbed to any extent whatever from the intestinal walls. In a word, American Oil oils the bowel and its contents; it is a lubricant pure and simple, with no reactionary effect.

The usual dose is one to four tablespoonfuls during each 24-hour period. This may be given in divided portions, one-half hour before meals; or one tablespoonful may be given at night and another on rising in the morning. After the desired effect has been established it may be maintained by giving one daily dose at bed time. Teaspoonful doses are usually sufficient for children.

American Oil is supplied in 16-ounce bottles and in gallon cans.

Ampoules

The preparation of sterile solutions in ampoules for subcutaneous or intravenous injection demands from the manufacturer careful attention to many important details,

if the finished product is to be altogether satisfactory to the physician.

First *the glass* must be specially selected; it must be free from alkali and soluble iron salts, so that no chemical reaction harmful to the solution contained in the ampoule may occur; and if possible it should be devoid of excessive brittlesness, that cracks and breakage may be avoided. Our ampoules meet all these requirements, being made from a glass of special composition.

The ingredients of the solution that is to be enclosed in the ampoule must of course be of the highest purity, and specially tested for quality.

Sterility must be assured. This is obtained by the application of heat when heat will not injure the medicinal principles of the solution that is being treated; or it is obtained by careful filtration through germ-proof porcelain filters, followed by the filling of the ampoule under aseptic conditions. Some substances may be boiled without injury. Others must be heated for short periods on several successive days at lower temperatures. Others may only with safety be sterilized by filtration. After sterilization, samples taken at random from each lot are carefully tested for sterility.

Accuracy of dosage must be attained by extreme care in determining the quantity of solution to be placed in each ampoule. A very slight excess over the labeled amount is placed in each of our ampoules, to allow for what may be lost by adhesion to the glass and in filling a syringe.

The packages are designed for the best protection of the ampoules from the effects of light and from breakage during shipment. Each package contains a small file, which is to be used in opening the ampoules. This has been found to be better than file-marking the ampoules before packing, for ampoules thus marked will sometimes break in shipment.

In short, in the preparation of these ampoules for the use of the physician every possible precaution is taken to ensure safety, accuracy, convenience, and complete reliability.

Following is our list of Ampoules, those designed for intravenous use being followed in the list by the word "intravenous;" the page numbers indicate where the description and therapeutic indications of each Ampoule Solution will be found:

Amyl Nitrite
(Ampoule No. 50)

Amyl Nitrite is made from amylic alcohol subjected to treatment with nitric oxide. When swallowed or inhaled in any but the smallest quantity, the drug produces staggering, fullness in the head, headache, and perhaps syncope. The heart beats very rapidly and forcibly, and the respiration becomes gasping.

Nitrite of amyl is a powerful vaso-dilator. It is used as an emergency remedy in angina pectoris and in some forms of epilepsy. Patients should be instructed to carry the ampoules with them.

Amyl Nitrite is administered by inhalation in doses of 3 to 5 minims. The ampoule should be crushed or broken when the Amyl Nitrite is needed, and the fumes inhaled—but no longer than necessary to obtain the desired result. Each ampoule is enclosed in a knitted covering of absorbent material, and has a file mark in the center to secure clean fracture.

These ampoules are supplied in boxes of 12, each ampoule containing 5 minims of Amyl Nitrite.

Analgesic Balm

Analgesic Balm consists of a lanolin and petrolatum base in which methyl salicylate (synthetic oil of wintergreen) and menthol are incorporated. The ointment base ensures ready penetration of the outer skin by the medicinal ingredients without any rubbing or friction.

Analgesic Balm, applied at the seat of inflammatory pain, secures for the patient, besides the antirheumatic effect of the salicylate, the cooling antiphlogistic effect of the volatile menthol. No doubt the intense action of the acid salicylate and the menthol has more or less of a counter-

irritant effect as well, thus relieving the inflammatory pains reflexly.

The first indication for its use is rheumatic pain; the application of the ointment usually gives prompt relief. Good results are to be expected in simple acute cases, or in any case of acute inflammatory pain, whether rheumatic, neuralgic, or from sprains or bruises.

Analgesic Balm is of service in the early stages of tonsillitis or bronchitis (by external application, of course) and in incipient pulmonary congestion—though very little time should be lost in experimentation with this or other local applications in serious cases.

The severe pains of pleurisy and the dull pain of lumbago can be ameliorated by the free application of Analgesic Balm, followed by a dressing of absorbent cotton.

Analgesic Balm is applied to the forehead and temples for the relief of headache, and the relief is often prompt and satisfactory. Headaches are, however, due to various causes, and no external application can be offered unqualifiedly as a headache remedy.

Analgesic Balm is useful in some cases of enlarged glands, as of the neck—partly, no doubt, by virtue of its counter-irritant properties.

Apply with gentle massage, or for a more pronounced effect more vigorously, repeating as often as may be necessary, the skin being dry when the ointment is applied. Application should not be made to cutaneous lacerations or breaks of any kind; and care must be taken that the fingers, after rubbing the ointment on, are not brought in contact with the eye or near it.

Analgesic Balm does not irritate, blister or stain the skin, though if excessive quantities are used and the ointment is thoroughly rubbed in over a wide area, or even if a comparatively small amount is applied to the warm, perspiring skin, a sensation of heat may ensue, persisting for

some little time, but finally disappearing without leaving any trace.

Analgesic Balm is supplied in collapsible tin tubes containing respectively about ⅝ ounce and 1½ ounces, and in 1-pound cans. All packages should be promptly closed after the amount required is removed, to avoid evaporation of the menthol.

Anesthone Cream

This is an anesthetic ointment for the relief of hay fever especially; adapted also to the symptomatic treatment of rhinitis or any irritable condition of the nasal mucous membrane. It contains 10 per cent. of para-amido-ethyl benzoate (anesthesin) and a very small proportion of Adrenalin (1:60,000). The anesthesin has a mild but very persistent local anesthetic effect, without reactionary pain or irritation of any kind, and does not, so far as known, lend to the formation of a habit. We know of no other local anesthetic of which this can be said; all others have more or less of a reactionary effect, and cocaine especially a habit-forming tendency. The Adrenalin in the ointment tends to tone up the mucous membrane—a desideratum that is very much in evidence in hay fever and severe rhinitis.

To control the excessive secretion and the persistent itching and pain of hay fever, Anesthone Cream is applied to the nasal fossæ either by inserting the nozzle of the tube or by using the finger, and the patient insufflates the melting Cream to carry it as far back in the nares as possible. A small piece of the Cream may also be placed under the eyelid to restrain the excessive weeping that is so characteristic of severe attacks of hay fever.

The same principles apply, of course, in milder forms of rhinitis and conjunctivitis.

No pretense is made that Anesthone Cream will cure hay

fever or other nasal infection; but the relief it affords is most gratefully accepted by the patient who has not taken immunizing treatment or in whom such treatment has not been altogether successful.

Anesthone Cream is supplied in a ½-ounce collapsible tube with nasal nozzle.

Apothesine

Apothesine is a synthetic local anesthetic, chemically the hydrochloride of gamma-diethyl-amino-propyl cinnamate. It occurs in the form of small white crystals that melt at 137° C. (279° F.), are very soluble in water, readily soluble in alcohol, and only slightly soluble in acetone or ether. It is a very stable compound; will keep indefinitely if reasonably protected from light, air, and moisture. The solution in distilled water is neutral to litmus. Alkalies and ordinary alkaloidal reagents precipitate Apothesine from solution. No decomposition occurs on heating Apothesine solution to 100° C.; the solution can therefore be sterilized by boiling whenever this is considered necessary. It has been shown (by Macht, Satani and Schwarz, of Johns Hopkins) that Apothesine solution is positively germicidal in even as weak a concentration as 1 per cent.

Apothesine is not a derivative of cocaine or other narcotic drug. It is not subject to the provisions of antinarcotic laws. It is not habit-forming. Its toxicity is about one-fifth that of cocaine.

On contact with the sensory nerves, Apothesine produces practically the same anesthetic effect as cocaine in the same strength of solution, and this effect lasts longer than that of cocaine on account of the slower diffusibility of the synthetic product. It does not cause mydriasis or any disturbance of accommodation, when placed in the eye, nor does it increase intraocular pressure.

On topical application, as to the cornea, Apothesine is not so rapidly absorbed as cocaine and therefore does not produce the same obtundent effect; in fact, like other synthetic anesthetics, it may prove irritating to the eye. But in the nares or the urethra, where it is not washed away by the natural secretions but can be retained in place for several minutes, it has been found efficient as a local anesthetic. Its general use is, however, by subcutaneous or submucous injection.

Apothesine has been used in minor surgical operations of all kinds and also for many major operations. In such operations as appendectomy one application after another may be made as the tissues to be incised are brought into view, without danger of toxic effect.

The strength of solution commonly employed is 1 per cent., but for circumcision and operations on the extremities it should not exceed 0.25 to 0.5 per cent. In dentistry 1.5- and 2-per-cent. solutions are used.

In addition to the topical and hypodermic methods of application, Apothesine is applied intraspinally, 1 to 2 grains in saline solution, spinal fluid being first withdrawn to balance the volume of anesthetic solution to be injected.

When Apothesine is applied topically or hypodermically, Adrenalin may be added as a precaution against excessive hemorrhage and to prolong the local anesthetic effect. The proportion of Adrenalin should never be more than 1:40,000, and from this down to 1:100,000. The two drugs are combined in all but one of the hypodermic tablets of Apothesine.

Packages

Apothesine is supplied in the following forms and packages:

Crystalline Powder, in ½-ounce vials.

Apothesine Solution, 1½ per cent., containing chloretone 0.5 per cent., in 2-oz. vials.

Hypodermic Tablet 216, Apothesine, 1¼ grains. Tubes of 20 and vials of 100. One tablet makes 60 minims (4 cc) of a 2% solution.

H. T. 217: Apothesine and Adrenalin. Tubes of 25 and vials of 100. Each tablet contains 3/5 grain Apothesine and 1/1600 grain Adrenalin. One tablet makes 60 minims (4 cc) of a 1% solution of Apothesine containing Adrenalin 1:100,000.

H. T. 218: Apothesine and Adrenalin. Tubes of 20. Each tablet contains 1/3 grain Apothesine and 1/2500 grain Adrenalin. One tablet makes 16 minims (1 cc) of a 2% solution of Apothesine containing Adrenalin 1:40,000. For dental use.

H. T. 221 (Rx "B"): Apothesine and Adrenalin. Tubes of 10. Each tablet contains 4.8 grains Apothesine and 1/200 grain Adrenalin. One tablet makes one ounce (30 cc) of a 1% solution of Apothesine containing Adrenalin 1:100,000.

H. T. 225: Apothesine and Adrenalin. Cylindrical, for pressure anesthesia in dentistry. Tubes of 25. Each tablet contains 1/6 grain Apothesine and 1/2500 grain Adrenalin.

V. H. T. 557: Apothesine and Adrenalin. For veterinary use. Vials of 10. Each tablet contains 4½ grains Apothesine and 1/500 grain Adrenalin. One tablet will make 60 minims (4 cc) of an 8% solution of Apothesine containing Adrenalin 1:30,000, or ¼ ounce (7½ cc) of a 4% solution of Apothesine containing Adrenalin 1:60,000.

Compressed Tablet No. 653: Apothesine, ½ grain. For oral administration as an antinauseant. Bottles of 100.

C. T. 652: Apothesine, Bismuth Subnitrate and Cerium Oxalate. (Nausea, Improved.) For oral administration. Bottles of 100. Each tablet contains ¼ grain Apothesine, 2 grains bismuth subnitrate, and 2 grains cerium oxalate.

Apothesine Ointment

This is an emollient, slightly astringent ointment, intended for use as a symptomatic remedy for hay fever, and for the relief of nasal, urethral, vaginal, rectal or other pain from injury, inflammation or operation. It contains Apothesine, 10%; Menthol, 0.5%; Adrenalin, 1:60,000. Painful varicose ulcer is benefited by the application of Apothesine Ointment; and after hemorrhoidectomy or other operation on mucous membrane the ointment produces a prolonged soothing and anodyne effect. It makes a very satisfactory dressing for wounds that require drainage, not only allaying the pain but preventing adhesion of the gauze to the wound.

Apothesine is but slowly absorbed by the intact mucous membrane, and when there is much pain the relief upon application of the ointment may not be immediate, but the anesthetic effect, when it does develop, continues for a long time—even beyond the period of complete solution or disappearance of the ointment.

The menthol in the formula has a soothing effect, and the Adrenalin tends to overcome the congestion and control the catarrhal symptoms.

Apothesine Ointment is supplied in small collapsible tubes with elongated nozzle, in boxes of one dozen.

Apothesine Tablets, Oral

Apothesine has been found to have a pronounced sedative effect upon the irritated stomach, and for this reason is prescribed in tablet form in cases of nausea not due to gastric disease, such as nausea of pregnancy and seasickness. Our Compressed Tablet No. 653 contains ½ grain of Apothesine. It is supplied in bottles of 100 only.

Apothesine is also an ingredient of our "Nausea Improved" tablet, C. T. No. 652 (see page 127).

Argentide Suppositories, Vaginal

Each suppository contains 5% of Argentide, a 20% glycerin solution of silver iodide. The silver is present in minute subdivision, giving the suppositories very great value in gonorrheal vaginitis and urethritis, as well as in minor infections.

These suppositories are made with a glycero-gelatin base and are enclosed in soft tin capsules for their better preservation in hot weather. Before removing the capsule, the suppository can be hardened by immersion in cold water for a few minutes. The capsule is so folded that it can be easily clipped off with scissors.

One suppository is to be inserted in the vagina at night on retiring, this procedure being repeated as often as may be necessary.

The suppositories are supplied in boxes of one dozen.

Astringent Suppositories, Vaginal

Each suppository contains: Ext. hyoscyamus, 1 grain; ext. hamamelis (witch-hazel), 1 grain; tannic acid, 1 grain; thymol, 1/32 grain; ext. helonias, ½ grain; salicylic acid, 1 grain; boric acid, 5 grains; alum, 1 grain; eucalyptol, 1/16 minim; cacao butter, q. s. The suppositories are individually wrapped in waxed tissue and tinfoil.

They are very serviceable in the treatment of leucorrhea, one suppository being inserted in the vagina at night on retiring.

The suppositories are supplied in boxes of one dozen.

Astringent Suppositories, Rx "B," Vaginal

This suppository differs from the preceding in two particulars only. It contains no alum, and the base is

glycero-gelatin instead of cacao butter. This means that the suppositories are enclosed in soft tin capsules instead of being wrapped in tissue and tinfoil. The soft tin capsules are explained under the heading "Argentide Suppositories," page 129.

Astringent, R "B," is used for the same purpose as the preceding, and, like it, is marketed in boxes of one dozen.

Bacillus Bulgaricus Cultures

(See Lactic Acid Preparations, page 69)

Benzyl Benzoate

(Soluble Gelatin Capsules)

Benzyl benzoate is the benzyl alcohol ester of benzoic acid, a new synthetic drug prepared and advocated by Macht of Johns Hopkins University. It is a colorless oily liquid, odorless or faintly aromatic, and has a sharp burning taste.

Benzyl benzoate quiets pain and relaxes unstriped muscle. In this action it resembles opium, but it has the advantage of not producing the characteristic narcotic effect of opium. It is not habit-forming.

Benzyl benzoate has been employed for all conditions due to spasm of unstriped muscles. It is useful in dysmenorrhea, intestinal colic, spastic constipation, whooping cough, asthma, and the vascular spasm of angina pectoris. It is used for the symptomatic relief of high blood-pressure.

Owing to the disagreeable taste of benzyl benzoate, it is best administered in the form of soluble gelatin capsules. The dose is one or two capsules (5 or 10 minims) every hour until the desired effect is produced.

Each capsule contains 5 minims of benzyl benzoate diluted with 5 minims of vegetable oil. In boxes of 1 dozen and 100.

Bismuth Paste
(Formula of Dr. Beck)

One part bismuth subnitrate to two parts yellow petrolatum.

This paste was first employed by Dr. Carl Beck, of Chicago, for the radiographic diagnosis of fistulous tracts—bismuth being opaque to the x-ray; and Dr. Emil G. Beck, brother of Carl, in his demonstration work with the paste soon discovered that in addition to the diagnostic value of the injections some therapeutic effect was obtained; in fact from a single application some of the patients were entirely cured. Bismuth Paste was thus introduced to the medical profession as a remedy for tuberculous sinuses, fistulæ, abscesses, bone tuberculosis, and chronic suppurative conditions in general.

The paste is injected into the sinus, fistula, or suppurative tract by means of a strong glass syringe with a conical pointed nozzle, similar in shape to the ordinary urethral syringe but much larger. (This instrument is not supplied by us, but can be obtained from any dealer in surgical supplies.)

Before being transferred to the syringe, the paste should be warmed by placing the jar in hot water, and then thoroughly stirred up, being finally drawn or poured into the warmed syringe.

The opening of the fistula is cleansed with 95-per-cent. alcohol, and the warm paste is then injected slowly and under considerable pressure until the patient begins to complain of pressure pain. The syringe is then removed and a pledget of cotton quickly placed against the opening and held there until the paste has set. An ice-bag may be applied if necessary to hasten the congealing of the paste.

The presence of the paste in the sinus or fistula does not prevent the escape of pus, for the melting point of the

paste is such that the temperature attending the formation of pus will melt it sufficiently to allow of a passage for the purulent material.

As a rule, the injections are painless, but they may be attended by a rise of temperature due either to excitement or to the temporary retention of pus; the temperature usually subsides in 24 to 48 hours.

A part of the bismuth is excreted in the dressings, but the bulk of it is gradually absorbed without giving rise to any symptoms. However, bismuth poisoning is not impossible. Not more than 100 grams of the paste as marketed should be injected at any one time—that is to say, 33 grams of bismuth in petrolatum. The proportion of petrolatum may be increased indefinitely if necessary to fill the sinus and all its bifurcations, so long as not more than 30 to 35 grams of bismuth is introduced.

If bismuth poisoning is feared, or upon the appearance of the first symptoms of it, olive oil as warm as can be borne should be poured in through a rubber tube; it soon forms a very fluid bismuth emulsion, which can be easily withdrawn from the sinus by suction with the syringe.

But poisoning is not to be feared when the paste is used with due regard to its properties and to the fact that the good results are due partly to the petrolatum as well as to the bismuth. The aim of the practitioner should be to fill the cavity completely, so that there will be no room therein for bacteria to thrive on the natural secretions. The effect of the introduction of the paste is to imprison the bacteria, to deprive them of their pabulum and thus prevent their multiplication, and to supply in the bismuth subnitrate a destructive action which the bacteria in this helpless situation cannot resist.

Bismuth Paste is used successfully in the sinuses and abscesses following operations for empyema, in suppurative diseases of the nose and ear, in tubercular sinuses (of the

spine, ribs, hip joint, femur and other long bones), and in chronic suppurative conditions generally.

One injection is often all that is required. With the disappearance of the infective factor the sinuses heal and the bismuth gradually disappears.

Borol

An alkaline antiseptic liquid, each fluid ounce of which contains:

Sodium borate	16 grs.
Sodium bicarbonate	8 grs.
Sodium benzoate	5 grs.
Glycerin	90 mins.
Eucalyptol	¼ min.
Thymol	$\frac{5}{16}$ gr.
Menthol	⅛ gr.
Oil Pinus Pumilio	q. s.

Borol is glycerinated, as the formula shows, and contains certain aromatic oils; it is a smooth, altogether pleasing accessory to the daily toilet of the mouth, to which it imparts not only a feeling of cleanliness, but a peculiar renovating sense of refreshment. As a mouth-wash and gargle it is used in dilute form—one part of Borol to three or four parts of water. Diluted Borol, warmed to body temperature, may be sprayed into the nose with any good atomizer or nebulizer, and here it has, of course, the same antiseptic effect as in the mouth. These sprays are advised at the very outset of catarrhal attacks or in the presence of influenza epidemics. Instead of spraying, the liquid can be insufflated from the hollow of the hand, or applied by means of a nasal douche.

Borol is of a bright ruby-red color, distinguishing it from other antiseptic liquids of our manufacture for toilet use.

It is supplied in 4-ounce, 16-ounce and 1-gallon bottles.

Boro-Chloretone

This is a colorless, odorless dressing powder made up of equal parts of boric acid and chloretone in an inert diluent. Each ounce contains 110 grains of each of the active ingredients named. Boro-Chloretone is emollient and antiseptic. The chloretone dissolves slowly and continuously in the wound secretions, exerting in contact with the nerve terminals a mild local anesthetic action; while both chloretone and boric acid contribute to the antiseptic effect, (see Chloretone, page 149). The powder is used as a dressing for lacerated wounds, surgical wounds, ulcers, burns, scalds, chilblains, and in general as a dry dressing that possesses no objectionable features. Tissues sensitized by severe burns may possibly be irritated by the application of Boro-Chloretone—in which case Chloretone Emollient should be used (see page 152).

The packages are oval flint bottles with aluminum sprinkler tops (small and medium sizes), and 1-lb. bottles.

Boroseptic Ointment

This ointment contains boric acid, zinc oxide, and eucalyptol, combining therefore antiseptic with protective and healing properties. It is suitable for application in subacute inflammatory conditions of the skin, pimples, rashes and other skin eruptions, chilblains, insect bites, ivy poisoning, bruises, lacerations and slow-healing ulcers, being applied freely and as often as may be necessary, and retained in place by means of a bandage.

It is supplied in 1-lb. opal jars and in bulk packages of 5 lbs. or over

Brometone

Brometone is a definite chemical compound resulting from the action of caustic alkalies upon bromoform and acetone. It is known in chemistry as tri-brom-tertiary-

butyl alcohol. It is a white crystalline substance, suggesting camphor in odor and taste. It is volatile and is soluble in oils, glycerin, alcohol, benzine, and glacial acetic acid, but is only sparingly soluble in water. It contains 77 per cent. of bromine.

The physiologic action of Brometone is similar to that of the older bromides, as potassium bromide, sodium bromide, etc.; and it may therefore be used as a substitute for these drugs. It has the advantage of giving full bromide sedation without the likelihood of producing symptoms of bromism.

Brometone is indicated in all diseases in which the bromides have been customarily given, such as nervous excitement, epilepsy, hysteria, nervous symptoms in pregnancy and the menopause, headaches, convulsions in children, seminal emissions, whooping cough, laryngeal crises in locomotor ataxia, etc. It is a valuable addition to prescriptions containing quinine, to lessen or even obviate cinchonism.

Brometone is efficacious in small doses, varying from 5 to 10 grains, best given in capsules on an empty stomach.

It is supplied in crystalline form in ounce bottles, and in 5-grain capsules in bottles of 100.

Caffeine Sodio-Benzoate Solution
(Ampoule No. 3)

Each ampoule contains 0.5 gm. (7½ grs.) of Caffeine Sodio-Benzoate in 2 cc of distilled water.

This is not a chemical compound, but an official mixture or combination of caffeine and sodium benzoate in approximately equal proportions. In its use the patient obtains primarily the effects of caffeine, which is very soluble in the presence of the sodium salt of benzoic acid. Caffeine is known as a reliable heart stimulant which has a sustaining effect upon the motor nerves and secondarily a stimulating

effect upon kidney function. The benzoate has more or less of a urinary antiseptic effect, due in some measure to the fact that it renders alkaline urine acid.

The solution is administered in the failing heart of pneumonia (especially in the aged) and other diseases, in cardiac dropsy, in circulatory collapse, and in chronic nephritis.

The dose is 1 to 2 cc, to be repeated according to the indications. Administration may be subcutaneous, intramuscular, or intravenous, the latter being of course the most rapid and certain in action.

The ampoules are supplied in boxes of 12, each ampoule in an individual carton.

Calcium Chloride Solution
(Ampoule No. 213)

Each ampoule contains 1 gram (15½ grains) of calcium chloride in 10 cc of distilled water. The solution is intended for intravenous administration.

Available calcium chloride is lacking in the blood in certain pathological conditions, among which may be mentioned tetany, slow healing ulcers (varicose and others), and the hemorrhagic diathesis. Contrary to expectations, an excess of calcium is frequently found in rickets, the difficulty here being the conversion of the calcium present into calcium phosphate—in other words, a phosphorus defect or a defect in calcium metabolism. To a greater or less degree this is true of other conditions in which calcium is suggested; at the same time it is important that the patient should have a sufficient supply of this indispensable element in all the pathological conditions named above, and in epilepsy, chorea, tuberculosis, and doubtless other and more or less obscure constitutional disturbances.

In varicose and other forms of ulcer, concurrent medication should consist of daily doses of desiccated parathy-

roids, 1/10 grain; in hemorrhage due to slow coagulation Hemostatic Serum should be given in addition to the calcium chloride; and in epilepsy and other convulsive disorders it may be necessary to resort to bromine in its most acceptable form (Brometone) while at the same time the patient is given the benefit of the calcium medication.

It is apparent that for prompt and certain results, when calcium is required by the tissues, the intravenous administration of the chloride is not only unobjectionable but rather more likely to yield expected results than other methods of administration.

The packages are boxes of six ampoules.

Calisaya
(Esencia de Calisaya)

An agreeable preparation of cinchona calisaya bark, each fluid ounce representing 24 grains. Not only the antimalarial effect of quinine, but the bitter tonic effects of this and the other alkaloidal ingredients of cinchona bark, are obtained by the use of Esencia de Calisaya. Languor, anorexia and general asthenia may indicate no more radical treatment than a short course of cinchona, the most acceptable preparation of which is the product under present consideration.

Esencia de Calisaya can be taken by patients of all ages, and the medication continued with daily increasing satisfaction. The dose, one to four fluid drachms, may be taken with meals or repeated at more frequent intervals.

Esencia de Calisaya is supplied in 14-fluidounce bottles only.

Calobarb

(Compressed Tablet No. 627)

Calobarb is a combination of calomel, phenolphthalein, and rhubarb, supplied in the form of compressed tablets of the following formula:

Mercurous chloride, mild	1 gr.
Phenolphthalein	2 grs.
Powdered rhubarb	2 grs.

Calomel (mercurous chloride, mild) is used chiefly in cases of "biliousness" or subacute gastro-duodenitis, as a stimulant to the flow of bile, and as an intestinal antiseptic. Phenolphthalein has a well merited reputation as a laxative and purgative. Rhubarb, in small doses, is a tonic and astringent; it improves the appetite, digestion, and intestinal tone. Following its use the stools are soft and stained a yellowish brown, due undoubtedly to its action in exciting the flow of bile.

Calobarb is used as a laxative in the treatment of constipation, especially when a single large evacuation is desirable. It is indicated when the tongue is furred and the stools are putty-colored. It is prescribed in the summer diarrheas of infants and children for the purpose of ridding the bowel of irritating fermenting products. It is useful in cases of liver engorgement and biliousness.

Usually one Calobarb tablet at bedtime will produce a satisfactory result. For children over ten years of age half a tablet will probably be sufficient. In fact, many adults will not require more than half a tablet at a dose. In cases requiring a very pronounced effect the tablets may be given two or more times daily if necessary.

Calobarb tablets are supplied in bottles of 100 and 1000.

Calomelettes

Calomelettes are oblong blocks of cacao butter, each block weighing 100 grains and containing 50 grains of calomel finely subdivided and evenly distributed throughout the mass. The mixture is delicately perfumed and tinted pink. Each Calomelette is wrapped in tinfoil.

In the treatment of syphilis by inunction, one-quarter to one Calomelette may be rubbed into a selected area daily, or every other day, a new site being chosen each time. The axillæ and groins are available regions. The friction should be continued for fifteen minutes, or until complete absorption has occurred. Repeat for six days, then omit for three or four days, and resume as before. Continue this program until six or eight courses (thirty-six to forty-eight treatments) have been taken.

When less than one Calomelette is to be used, the block can be cut with a sharp knife without removing the tinfoil.

Calomelettes have been thoroughly tested clinically, with the accumulation of conclusive evidence that this preparation is fully as efficacious as mercurial ointment, while its elegance appeals at once to the patient.

Calomelettes are supplied in boxes of six. (See Mercurettes, page 194.)

Camphor in Oil

(Ampoules Nos. 4, 45, 150)

The pure vegetable oil that serves as a menstruum for the camphor in these ampoules is rapidly absorbed from the subcutaneous tissues; there is no danger, as with mineral oils, of abscess formation or retention of the camphor solution at the point of injection.

The solution is used as a diffusible heart stimulant in nervous depression, hysteria or mania, slow convalescence from acute or chronic disease (such as typhoid), and in the

crisis of lobar pneumonia. The larger doses are believed to have more or less of a specific effect in pneumonia, either upon the pneumococcus itself or upon the blood that is loaded with the bacterial toxins and insufficiently oxygenated. As much as 36 grains every twelve hours has been administered hypodermically in cases of pneumonia, with excellent results. For children the dose is halved.

Except in pneumonia for its antipneumococcic effect, camphor is administered in a dose of 3 to 10 grains according to the indications.

Ampoule No. 4 contains 3 grains in 1 cc; Ampoule No. 150, 10 grains in 5 cc; Ampoule No. 45, 36 grains in 10 cc.

Ampoule No. 4 is supplied in boxes of 1 dozen; Nos. 45 and 150 in boxes of six.

Capsolin

The name Capsolin is formed from "capsicum" and "liniment." Capsolin is a liniment in ointment form containing capsicum as one of its important ingredients; the other ingredients are camphor and the oils of cajuput, turpentine, and croton—a veritable battery of counter-irritants, but subdued to harmlessness by dilution in the ointment base.

The principle of counterirritation is as well established in medicine as catharsis or antisepsis, for example, and the benefits attending the judicious application of this principle are beyond question.

Capsolin is not essentially different from the mustard draft, but it is much more convenient. It is applied for the relief of pain; this is the broad indication for its use; but the nature of the pain determines the success of the application. Instances in point are the so-called "rheumatic" or twinging pains that affect the joints and muscles, and the pressure pain of a "cold in the chest." The relief

afforded is an effect of reflex stimulation of the nerves controlling the blood supply, whereby congestion is abated, and with it the impingement upon the sensory nerves that caused the pain. There is no direct or indirect effect upon bacterial factors such as are present in true rheumatism or pneumonia.

Capsolin is an anodyne and a prophylactic agent of great value, which the physician can safely recommend to his patients for emergency use—not, of course, as a substitute for professional skill.

It should be applied only to the unbroken skin, and is not to be vigorously rubbed in unless a very pronounced effect is desired.

Properly used, Capsolin may impart a rather uncomfortable warmth to the skin, but it does not vesicate. The hands should be scrubbed with soap and water after handling the ointment, to prevent accidental contact with the eye.

Capsolin is put up in collapsible tubes of about two ounces, and in 1-lb. and 5-lb. cans.

Carbon Tetrachloride
(Soluble Gelatin Capsules)

Carbon Tetrachloride is a clear, colorless, mobile liquid with a characteristic ethereal odor. It is almost tasteless.

Carbon tetrachloride has recently come into use in the treatment of hookworm disease. It also removes other intestinal parasites, such as Oxyuris vermicularis, Ascaris lumbricoides, and Trichocephalus dispar, but it is less effective against these than oil of chenopodium. A single dose will in many instances result in the elimination of about 95 per cent. of the hookworms, and occasionally 100 per cent.

The best results are obtained by administration in water

or milk or in gelatin capsules, on an empty stomach, followed in three hours by a purge of magnesium sulphate. In constipated patients a mild laxative should be given on the previous day. A second dose of carbon tetrachloride should not be given within three weeks. *Alcohol should not be taken during treatment.*

Dose: For adults, 40 minims (two 20-minim capsules). For children, 2 minims for each year of age up to 20 years.

For children under ten the capsule should be punctured with a needle or pin, and the contents expressed into a spoon or other receptacle, to be measured for dosage and perhaps mixed with water or milk preparatory to administration. Patients over ten and under twenty may take 20 minims in the capsule and the remainder expressed and measured as above.

Supplied in 20-minim sealed capsules, in boxes containing 12 and 100.

Cascara

Fluid Extract Cascara Sagrada

This is the original bitter extract of the drug, improved and perfected as time has gone on. It is this particular product, marketed under our label for more than forty years, which has given Cascara Sagrada the reputation among physicians which it enjoys today. It is scientifically made from carefully selected and cured bark, botanically identified as the true Rhamnus Purshiana.

It is understood, of course, that Cascara Sagrada is not primarily a cathartic or purgative in the usual acceptance of these terms. It is essentially a tonic laxative, and its chief purpose is to serve in the treatment of chronic constipation.

Cascara Sagrada has a peculiarly characteristic effect upon the longitudinal and circular muscle fibers of the intestinal structure. It mildly stimulates peristalsis and

promotes hepatic and intestinal glandular activity, thus virtually restoring normal function without overexcitation. In short, it is tonic and it is laxative.

When administered systematically its effect is gradually exerted just where it is most needed. It has been found by long experience that the continued use of Cascara Sagrada does no harm. The patient's condition is improved, and the natural daily action of the bowels is gradually re-established.

Cascara is the best drug available for the treatment of chronic constipation. The desired result is more likely to be secured by continuing the treatment persistently, small doses being given at short intervals rather than large doses occasionally. The dose ranges from 5 to 30 minims.

In the administration of the bitter Fluid Extract the patient may procure a supply of empty gelatin capsules, and drop the prescribed dose into the capsule as required, using an ordinary medicine dropper for the purpose. It may also be taken in the ordinary way, diluted with water, or prepared beforehand by dilution with glycerin and water —one part each of fluidextract and glycerin, and two parts water.

As the dose is gradually increased to the point of maximum efficiency, and the desired effect of the drug is observed, its use should not be discontinued. Perseverance at this juncture often determines a degree of success that cannot be otherwise attained. When finally a fixed dose ensures a daily normal stool, the dose should not be abruptly broken off, but gradually reduced to prevent a relapse into the old condition.

Fluid Extract Cascara Sagrada (F. E. No. 116) is supplied in ounce, 4-ounce, 16-ounce, and gallon bottles.

Cascara Evacuant

Cascara Evacuant is an active and palatable preparation of genuine Rhamnus Purshiana from which the bitter glucoside has been removed by a special process. In the manufacture of Cascara Evacuant, only seasoned bark is used—that is, a bark that has been stored for a period of two years to allow the griping ferment sufficient time to exhaust itself. Hence this product is non-griping. Cascara Evacuant is not to be confused with the so-called aromatic cascaras. Cascara Evacuant owes its palatability, without sacrifice of the characteristic Cascara effect, to the addition of a small amount of flavoring material and more especially to the fact that the bitter principle of the drug has been removed by a manufacturing process elaborated by us after years of intensive study and experience.

Cascara Evacuant represents the laxative action of Cascara Sagrada to excellent advantage. It acts effectively yet gently, and is acceptable to all classes of patients, even young children. In constipation, especially the chronic type, it stimulates the liver and intestinal glands to renewed activity and increases peristaltic action. Good results are obtained by its use in the constipation of infancy, of pregnancy, of anemia, and of old age.

Cascara Evacuant is not a purgative, but a most efficient laxative. The best results are secured when it is administered in small doses two or three times during the day. The patient does not gain a tolerance to the drug from its continued use.

The usual dosage is: for infants, 5 drops; for children one to ten years of age, 6 to 10 drops; for adults, 20 to 30 drops—morning and evening; or a single larger dose may be given at bedtime.

Cascara Evacuant is supplied in 4-ounce, 8-ounce, 16-ounce and gallon bottles.

P. D. & Co. Quality Merits Specification.

Cascara Tonic-Laxative Capsules

Each capsule (hermetically sealed) contains 3 grains of the bitter glucoside of Cascara Sagrada (Cascarin, P. D. & Co.), combined with a bland oil and aromatics.

The physiologic action is the same as that of the bitterless glucoside, except that in certain cases of constipation the bitter glucoside is thought to have a better tonic effect. The bitter taste, objectionable to many patients, has been overcome by enclosing the cascarin in a sealed gelatin capsule.

Cascara Tonic-Laxative Capsules are indicated in any case in which a mild tonic laxative is desired, especially in the treatment of patients who object to taking bitter liquids.

The dose is one or two capsules on retiring.

The capsules are supplied in boxes of 12 and 100.

Castor Oil in Capsules

Two things are demanded by highly sensitive patients who need castor oil. One is that the castor oil flavor shall be completely absent, not simply masked by aromatics. The other is that there shall be no oil at all to trickle over the oral glands, crypts and taste-buds as the dose is taken. These patients object even to absolutely tasteless oils; the sensation of oil in the mouth offends, and the offense is doubled when to the sensation of oil in the mouth is added the peculiar flavor of castor oil.

Many methods of camouflaging the taste of castor oil have been tried, such as mixing it with orange juice, floating the dose on wine or lemonade, incorporating it in sodas or other soft drinks, etc., and these might be successful if it were not for the imagination of the patient which cannot rid itself of the impression that it is castor oil after all that is in the mouth and in contact with the palate.

The best way to meet the conditions imposed by this extreme sensitiveness is to encapsulate the castor oil—not in a hard capsule with a fitted cap, but in a soft flexible gelatin enclosure sealed with gelatin after the oil is placed within. It is true that a full dose of the oil for an adult cannot be put in a capsule that the average patient can swallow; but our castor oil capsules cont in as much as 5 grams, or 80 minims, nearly 1½ teaspoonfuls, and the capsules are so elastic and so smooth that they take the form of the esophagus as they reach it and glide down without an effort. To secure practically automatic deglutition of the capsule, have the patient dip it in warm water before placing it in the mouth; then he can't help swallowing it; and after he finds out how easily the capsule goes down he will very willingly take another, and as many more as are required to make up a full dose. Even young children do not consider it an ordeal to take castor oil in this way.

Our list of soluble gelatin capsules of Castor Oil follows:

No. 4—10 minims No. 167—15 minims No. 8—20 minims	In boxes of 12 and 100
No. 60—2½ grams (40 minims) No. 61—5 grams (80 minims)	In boxes of 6, 12 and 50.

Chenopodium Oil

This is American wormseed, an anthelmintic that ranks with or above thymol as a remedy for hookworm. In amounts that can be safely taken, the oil so paralyzes the intestinal parasite that it is readily passed out with the feces following a dose of castor oil or magnesium sulphate. In Sumatra the oil of chenopodium has been administered over 300,000 times without a record of death or any unto-

ward symptoms. It is the practice in that country to place no dietary restrictions on the patient, and to keep the oil in tightly stoppered bottles until required, when it is transferred to capsules and administered in doses of 1 cc at one-hour intervals until three doses have been taken, a dose of 20 grams of castor oil following the last dose by an interval of 1½ hours.

In this country the ready-filled capsules, hermetically sealed, are used, and the oil is administered in the morning, the patient fasting or taking only a glass of milk, tea or coffee for breakfast. One 10-minim capsule is administered at 7 o'clock, another at 8, and another at 9. At 10 o'clock a full dose of castor oil or Epsom salts is given.

Should this first course of treatment fail, an interval of not less than ten days should be allowed to elapse before it is repeated. A second course will often succeed after the first has failed.

The oil is used for the expulsion of roundworms as well as hookworms.

In the treatment of children the 5-minim capsule is used instead of the 10-minim, the technic being otherwise precisely the same. The cathartic (castor oil or magnesium sulphate) after the third capsule has been taken is important, and should never be omitted unless there is a free movement of the bowel with delivery of the worm before the time arrives for giving the cathartic.

Chenopodium oil is supplied in 5-minim and 10-minim soluble gelatin capsules, gelatin-sealed, in packages of nine, or sufficient for three treatments, and in packages of 100.

Chlor-Anodyne

Each fluid ounce of Chlor-Anodyne contains: Morphine hydrochloride, 2⅞ grains; fluid extract cannabis, U. S. P., 46 minims; chloroform, 46 grains; oil peppermint, 1½

minims; tincture capsicum, U. S. P., ¾ minim; diluted hydrocyanic acid, 9 minims.

This preparation, owing to the fact that it contains morphine in more than the legally exempted proportion, is subject to the operation of the narcotic law; but, unlike other preparations in our list which have been discontinued because of the irksomeness of the law as applied to them, Chlor-Anodyne is in such demand that its discontinuance is out of the question.

The original of this formula was evolved by Dr. J. Collis Browne, of the British army in India, in 1848, as a remedy for cholera. So successful was "chlorodyne" (for that was the name of the original preparation) in the hands of Dr. Browne that it rapidly acquired professional favor, notwithstanding the fact that its composition was kept a profound secret. The London Board of Health in 1864 expressed its approval of the preparation as a remedy for cholera in the following language: "So strongly are we convinced of the immense value of this remedy that we cannot too forcibly urge the necessity of adopting it in all cases."

Then began the era of pharmaceutical guesses as to the formula of chlorodyne. Twenty years later more than twenty different chlorodynes were on the market. In so far as these formulæ, or the majority of them, agree, they were made the basis of our open formula preparation, Chlor-Anodyne, and to this groundwork we added tincture capsicum and fluid extract cannabis for their anodyne and carminative effects.

Chlor-Anodyne is prescribed in cholera infantum, cholera morbus, diarrhea, dysentery, biliary or renal colic, neuralgia, and pain in general, particularly abdominal pain of a paroxysmal character.

It must of course be borne in mind that pain has a certain diagnostic value, and that its immediate relief may not be so important as a rational interpretation of its significance.

There is no reason, however, why it should not be dealt with from both points of view.

The usual dose of Chlor-Anodyne, for an adult, is 15 minims, to be repeated in half an hour if necessary. In severe diarrhea, dysentery, cholera, or colic, it may be necessary to increase the dose to 25 or 30 minims. Dilute the dose freely with water. The solution has a very pleasing flavor.

Chlor-Anodyne is supplied in 1-ounce, 4-ounce and 16-ounce bottles.

Chloretone

Chemically, Chloretone is tri-chlor-tertiary-butyl alcohol, or chlorbutanol, a derivative of chloroform and acetone, $C_4H_7OCl_3$ being the chemical formula. It is a white, crystalline, volatile compound with a camphoraceous odor and taste.

Chloretone is a hypnotic, nerve sedative, antispasmodic, and antinauseant.

It induces natural, restful sleep, without depressing the heart or respiration or causing digestive disturbance. Wilcox says that it is the closest approximation to the theoretical hypnotic toward which we have been led through a study of the working hypothesis of the sleep-phenomenon. One to four 5-grain capsules are administered on retiring, or in divided doses. It has been found to be notably successful as a hypnotic in cases of maniacal excitement.

Chloretone is employed for its quieting, antispasmodic effect in epilepsy, chorea, asthma, pertussis, persistent hiccough, and delirium tremens. The dose varies from 3 to 30 grains, repeated according to the indications. No reactionary effect follows, as a rule, nor is a drug habit formed by the frequent use of Chloretone.

To control tetanic convulsions the dose is 40 to 60 grains, per rectum, the crystals being first dissolved in olive oil with the aid of gentle heat. This dose may be repeated as often as is found necessary to control the convulsions. The prospects of the patient are materially improved by the symptomatic relief which the Chloretone injections afford; but the specific treatment is of course Tetanus Antitoxin in full doses. (See Tetanus Antitoxin, page 90.)

In protracted labor, especially in primiparæ, Chloretone has the happy effect of enabling the patient to relax completely between the "pains," thus conserving her strength; at the same time it takes the cutting edge off the pains themselves, without interfering with the force of the rhythmic contractions. It is to be administered in the first stage of labor in a dose of 10 grains, subsequent doses of 5 grains being given, if necessary, as the case progresses.

This use of Chloretone does not interfere with the action of Pituitrin when the latter drug is indicated.

The sedative and antinauseant effects of Chloretone are manifested strikingly under two diverse conditions: first, in hospital practice prior to surgical operations; and second, on sea voyages, as the vessel begins to swing. In the hospital it subdues the nervous excitement of the patient, diminishes the quantity of ether required, and controls post-operative nausea. At sea, it soothes the traveler into tranquil indifference. The dose as a pre-operative measure is 10 to 20 grains; in threatened sea-sickness 5 to 15 or 20 grains in single or divided doses.

Many physicians are using Chloretone in doses of ten grains, instead of morphine, codeine, or tincture of opium, for the relief of pain. Its prompt effect, the fact that it does not lock up the secretions, and the absence of disagreeable sequelæ, commend it as an analgesic.

Chloretone may be prescribed in suspension with syrup or glycerin, but preferably in capsules. It volatilizes readily,

particularly in warm weather, and should not be dispensed in powders.

Chloretone is supplied in capsules of three and five grains, bottles of 100 and 500; also in ounce vials.

Chloretone Compound Suppositories, Vaginal

Each suppository contains: Chloretone, 1 grain; acetanilid, 1 grain; zinc borate, ½ grain; fluid goldenseal, colorless, 2 minims; Euthymol, 15 minims; boric acid or boroglyceride, q. s.

Vaginitis, leucorrhea and atonicity of the vagina suggest the direct application of a combined emollient, antiseptic, and astringent or tonic combination, such as is rendered available in this suppository. The Chloretone is both antiseptic and anesthetic; the goldenseal and zinc supply a tonic and astringent factor; the Euthymol is a positive antiseptic which of itself, freely diluted, is of great value as a vaginal douche; and the acetanilid and boric acid add to the general emollient effect.

The suppositories are put up with a glycero-gelatin base which renders them quite soft in warm weather, and which therefore necessitates the use of a capsule of tin for preserving their shape during the heated term or in tropical climates at all seasons.

The suppositories are prepared for use in warm weather by immersing them in cold water for a few minutes and then clipping off with a pair of scissors the folded sides of the capsule. In cold weather or when the suppositories are kept in a cold place this hardening process is of course dispensed with.

The marketed packages are boxes of one dozen suppositories.

Chloretone Emollient

Each fluid ounce contains 5 grains of Chloretone (1-per-cent.), and camphor and menthol in proper proportions. The vehicle is pure liquid petrolatum. It differs from Chloretone Inhalant (see below) principally in the absence of oil of cinnamon from its formula.

Chloretone Emollient is intended especially for the treatment of burns and is applicable also to the skin in the treatment of insect bites and stings, ivy poisoning, sunburn, frost-bites, etc. It is applied directly to the affected part, being non-irritating in the vast majority of cases in which its use is called for. It may, if necessary, be diluted with liquid petrolatum.

The immediate indications in the treatment of burns are: relief of the severe pain, and protection of the denuded tissues. Chloretone is an anodyne; and while the proportion present in Chloretone Emollient is only one per cent., the action is persistent, so that in burns even of the second degree the relief afforded by application of the Emollient is most gratifying. The action of the Chloretone in this respect is seconded by the camphor and menthol in the mixture. Complete protection from the air is afforded by the liquid petrolatum. For most satisfactory effect the Emollient, on application, should be lightly covered with absorbent cotton, which may be held in place, if necessary, by a roller bandage or adhesive tape.

Chloretone Emollient is marketed in 16-ounce and 1-gallon bottles.

Chloretone Inhalant

Each 100 grams of this preparation contains 1 gram of Chloretone, 2½ grams of camphor, 2½ grams of menthol, ¼ gram of cinnamon oil, and 93¾ grams of refined liquid petrolatum.

Three distinct therapeutic properties are blended in Chloretone Inhalant. The first is furnished by the petrolatum base, which, when the Inhalant is applied to either mucous membrane or skin, makes a perfect though almost invisible insulation for the irritated tissues. It affords ideal protection against atmospheric or other external influences. Although there is not very much Chloretone in the Inhalant, the 1 per cent. present has an obtundent, local anesthetic effect, and this effect is seconded by the antiphlogistic action of the camphor and the menthol. Pain is relieved, not only negatively by protection of the irritated tissues, but positively by modifying the sensitiveness of the nerve endings and reducing the inflammation. But these effects are not sufficient when there is bacterial infection. Chloretone is antiseptic, as are also menthol and the oil of cinnamon.

As the name indicates, Chloretone Inhalant was designed for inhalation in the treament of rhinitis, pharyngitis, laryngitis, and bronchitis. It is especially efficacious in the early treatment of these affections, before the sinuses have become inflamed and infected. It is applied, full strength or diluted, by means of a good oil atomizer operated by hand or air pressure; our Glaseptic Nebulizer is recommended. For diluting the Inhalant, use Liquid Petrolatum, Light.

Chloretone Inhalant is applied to the skin for the relief of burns (see Chloretone Emollient, page 152), the bites and stings of insects, ivy poisoning, and fissured nipples. If the skin is broken or destroyed it may be necessary to dilute the Inhalant, since the cinnamon oil may otherwise prove irritating; but in many instances, even of extensive burns or other skin lesions, it can be applied undiluted.

The packages are 2-ounce, 4-ounce, 16-ounce and 1-gallon bottles.

Chloroform Throat Lozenges

These lozenges contain chloroform, cubeb, capsicum, anise, licorice, acacia, linseed, peppermint, and sugar. They are intended for the relief of hoarseness, bronchial irritation, and laryngitis, and their value has been demonstrated in thousands of cases. The lozenges are thin discs about the size of a dime, and act directly upon the throat as they dissolve in the mouth and the medicaments bathe the irritated tissues. They may be used freely, as often as required.

They are supplied in 1-lb. cork-stoppered bottles, 5-lb. tins, and screw-cap vials containing about 60.

Cholelith
(Pill Cholelith)

Pill Cholelith is composed of a soft, pliable mass covered with a thin chocolate coating. It contains:

Acid sodium oleate	1½ grs.
Sodium salicylate (from salicylic acid, natural)	1½ grs.
Phenophthalein	1/3 gr.
Menthol	1/10 gr.

For the treatment of cases in which the foregoing pill is too laxative on account of the phenolphthalein which it contains, we supply Pill Cholelith, ℞ "B," which differs in formula from the first pill only in that it contains 2½ grains of Uritone (hexamethylene tetramine), the urinary antiseptic, instead of phenolphthalein.

Acid sodium oleate is said to stimulate the action of the liver, augmenting the flow of bile and possibly softening concretions of cholesterin.

Salicylic acid is cholagogue in action, increasing the quantity of bile and bile salts. It is also an antiseptic, and so tends to check infectious processes in the biliary system and intestinal tract.

Salicylic and oleic acids are probably excreted by the

epithelial cells lining the interlobular bile ducts, thereby producing the threefold effect of disinfection of the biliary passages, stimulation of the biliary flow, and softening of the biliary concretions. This would explain the action of Pill Cholelith in relieving the local congestion and other symptoms.

Phenolphthalein is a dependable and satisfactory purgative; it produces copious evacuation of the bowels, usually without griping or other unpleasant effect.

Menthol is added to the formula for its carminative effect.

Pill Cholelith is essentially a cholagogue and biliary antiseptic. It is employed in the treatment of those inflammations of the hepatic, cystic and common bile ducts which are recognized as the cause of cholelithiasis, as well as in the treatment of cholelithiasis itself. It is indicated also in biliary stasis unattended by the formation of calculi, a condition frequently seen in cases of hepatic torpidity. The usual dose is three or four pills, followed by copious draughts of hot water (8 to 16 ounces) on arising in the morning and on retiring at night.

To increase the cholagogue effect, bile salts or ox-gall may be administered separately. We have an enteric-coated tablet of bile salts and cascarin.

Pill Cholelith is supplied in bottles of 100 and 500.

Cocillana

(Syrup Cocillana Compound)

Each fluid ounce contains: Tincture cocillana, 40 minims; tincture euphorbia pilulifera, 120 minims; syrup wild lettuce, 120 minims; syrup squill compound, 24 minims; cascarin (P. D. & Co.), 8 grains; diacetyl morphine hydrochloride, ⅛ grain; menthol, 8/100 grain.

This formula is designed to control the bronchial irritation that attends incipient bronchitis with little or no

expectoration—a condition which is not confined to acute cases, but often characterizes subacute and chronic cases as well, and which has been denominated "dry bronchitis," because there seems to be no bronchial secretion notwithstanding the irritating tendency to cough. It gives gratifying relief in the cough of phthisis and the croupy cough of childhood. The Syrup supplies a powerful sedative influence and at the same time a stimulus to the natural secreting mechanism of the bronchi, so that the exciting factors that are prolonging the irritation may be dislodged and the mucous lining of the canal may resume its normal action, keeping the parts not only cleansed but lubricated.

The ordinary dose, one fluid drachm, contains only 1/64 grain of heroin (diacetyl morphine hydrochloride), and it may be necessary in some cases to double this dose; in so doing, the patient does not receive an excessive dose of any of the other ingredients. The intervals between doses should be not less than three or four hours. In any case in which it is known that the coughing comes on at a certain hour, the Syrup should be administered beforehand; only thus can its full sedative or expectorant effect be secured.

For children the dose should be reduced according to age and with due regard to the fact that the Syrup contains an opium derivative. The cocillana in the formula may contraindicate its use in very young patients who are susceptible to its ipecac-like effect.

The packages are 16-fluidounce and 1-gallon bottles.

Codeine Cough Sedative

Each fluid ounce represents: Codeine phosphate, 1 grain; extract cannabis, U. S. P., ½ grain; white pine bark, 32 grains; wild cherry, 32 grains; eriodictyon, 16 grains; balsam poplar buds, 4 grains; chloroform, 2 grains; glycerin, 120 minims.

The codeine is of assayed purity, and though present in comparatively small amount has a distinctively sedative effect in cases of bronchial irritation. The other ingredients of the formula contribute to the same end, notably the cannabis, the eriodictyon, or yerba santa, and the chloroform. Of course no cough remedy can meet the requirements in all cases; but this is not only one of the best, but one of the safest from a narcotic point of view. It does not require a "narcotic" order, but a record of sales must be kept for Federal inspection.

Codeine Cough Sedative is an anodyne expectorant and is especially indicated in cases of bronchitis characterized by excessive or convulsive cough with inadequate expectoration. The average dose is one to two fluid drachms at intervals of four or five hours.

The packages are 16-fluidounce and 1-gallon bottles.

Cod-liver Oil in Capsules

The capsules containing the cod-liver oil are elastic, the oil being sealed in the capsule by fusion, and as a consequence it is comparatively easy for the patient to swallow even a 5-gram capsule, for the capsule conforms to the shape of the esophagus as it enters this passage in the act of swallowing. To those whose objections to cod-liver oil are based upon the taste and the oily sensation it imparts to the mouth, these capsules afford a very satisfactory means of administering it. And for certain purposes, as is well understood, cod-liver oil is the one reliably efficient therapeutic agent. (See Emulsion Metagen and Cod-Liver Oil, page 201.)

The capsules are supplied in the following sizes: 10 minims, 20 minims, 2½ grams, and 5 grams. The 10- and 20-minim capsules are supplied in boxes of 12 and 100, and the 2½- and 5-gram sizes in boxes of 6, 12 and 50.

Cod-liver Oil, Egg Emulsion, Improved

This preparation contains 40 per cent. of pure Norwegian cod-liver oil, emulsified with fresh eggs by a special process, and agreeably flavored.

There is no oil that is more easily taken care of by the economy than cod-liver oil. Moreover, cod-liver oil contains an abundant quantity of one of the groups of indispensable vitamins, the fat-soluble group; while the eggs that are combined with it in this emulsion contain both fat-soluble and water-soluble vitamins. The eggs are kept in their original prime condition by the process of manufacture.

The emulsion contains no deleterious material whatever; it is all nutriment, and the patient who can take cod-liver oil at all does not tire of it.

As a concentrated and appropriable medicinal nutrient of special value in rickets, recurrent bronchitis, and conditions of low vitality generally, this emulsion commends itself. It is supplied in 16-ounce bottles.

See also Metagen and Cod-liver Oil Emulsion, page 201.

Cod-liver Oil Emulsion, Improved (with Hypophosphites)

Each fluid ounce contains: Cod-liver oil, 40%; calcium hypophosphite, 6 grains; sodium hypophosphite, 3 grains.

The "improvement" consists in the modification of the formula of cod-liver oil emulsion to secure permanence and palatability—so far as these qualities are obtainable in a preparation of this kind. This is one of our most satisfactory cod-liver oil emulsions, and the added ingredients render it especially applicable in neurotic cases and cases of general debility. The emulsion is adapted to the treatment of rickets, scrofulous conditions, recurrent bronchitis,

and the phthisical diathesis. Dose, 2 to 4 fluid drachms three or four times a day.

This Emulsion is supplied in 16-fluidounce and 1-gallon bottles.

Cod-liver Oil, Phosphorized

This is pure Norwegian Cod-liver Oil, each fluid ounce of which contains 1/25 grain of phosphorus.

Phosphorus, like iron, is a substitution remedy; it supplies the lack of organic phosphorus which exhibits itself in neurasthenic and osteomalacic conditions. Experimental and clinical evidence has established the fact that the presence of phosphorus in the body is essential to the development and calcification of the bones. While sunlight is of great importance in the prophylaxis of rickets, the presence of the phosphate ion in the blood in proper quantity also seems to be essential. So far as can be determined there is rarely if ever a lack of sufficient calcium; but as this substance occurs in bone as calcium phosphate, it is necessary that there be enough phosphorus in the blood to make possible its combination with the calcium.

One other factor must be borne in mind in considering the etiology and treatment of rickets. A certain amount of the fat-soluble group of vitamins must be present in the diet to prevent the disease. It is perhaps because of its great content of this vitamin that cod-liver oil has come to be regarded as a specific in the prevention as well as cure of rickets.

Phosphorized Cod-liver Oil is a rational remedy in rickets and allied pathological conditions. The medicinal activity of phosphorus is here combined with the therapeutic virtues of a pure cod-liver oil of high vitamin content. Anemic, debilitated, and neurasthenic patients, and children who are subject to rickets, scoliosis, or other manifestation of osseous defect, are all benefited by its administration.

One fluid drachm of this preparation contains 1/200 grain of phosphorus; the dosage may therefore be ½ to 1 teaspoonful twice daily for infants; 1 to 2 teaspoonfuls for older children; and ¼ to ½ tablespoonful for adults—three times a day.

Phosphorized Cod-liver Oil is supplied in 16-fl.oz. bottles.

Codrenin

This is a solution of cocaine and adrenalin for use as a local anesthetic. The composition of each fluid ounce is: Cocaine hydrochloride, 9 1/5 grains (2%); Adrenalin chloride, 1/36 grain (1:15,000); Chloretone, 2¼ grains (0.5%).

As is well known, cocaine in solution is quite rapidly diffusible in the subcutaneous tissues and thence to the vascular system; hence to avoid this and to prolong the local anesthetic effect, adrenalin is added. Experience has demonstrated that very little adrenalin is required for this purpose; still it is desirable that there be sufficient adrenalin in the combination to have some effect in controlling operative or post-operative bleeding. The proportion present in Codrenin meets with general professional approval, as witnessed by the constant demand for this product. The chloretone in the formula serves one purpose only; it is not supposed to have any appreciable local anesthetic effect, but it protects the solution from the fungoid growths which are apt to form on alkaloidal solutions in general.

Codrenin may be diluted if a 2% solution of cocaine is considered too concentrated; it is only necessary to add the required amount of sterile water to so much of the solution as is to be used at the time. The 2% product, as marketed, is suitable for dental use, while in general surgery a 1% solution may be preferable, especially if it necessary to use a considerable amount of solution, as in abdominal opera-

tions. Still weaker solutions are recommended for circumcision or minor operations on the extremities.

Codrenin spares the practitioner the necessity of dissolving cocaine tablets in water when an anesthetic solution is required, and of adding to the solution a suitable percentage of adrenalin. It is ready for use as wanted. Water-white when fresh, after a long time discoloration may occur, indicating oxidation of the adrenalin. Should the solution become dark in color, due to age or exposure, it should be discarded.

Codrenin is supplied in a 1-ounce vial, glass-stoppered.

Colchicine and Methyl Salicylate

(Soluble Gelatin Capsules)

Each capsule (an oval envelope of gelatin) encloses: Colchicine, 1/250 grain; Methyl Salicylate, 3 minims.

Colchicine is specifically indicated in gout, and the salicylates in rheumatism. These capsules, therefore, are suggested in cases in which the patient is suffering from both gout and rheumatism, and also in cases in which the diagnosis as between the two affections is in doubt. The uric acid is reduced by the salicylates, whether associated with gout or with rheumatism; and the salicylates have a well known anodyne effect. Colchicine has been said to be of no value in rheumatism, but only in gout, but it is frequently prescribed in combination with other drugs in rheumatic cases.

The capsules can be taken freely, five to fifteen during the course of the day, or according to the urgency of the symptoms. The dose should be accompanied by plenty of water to avoid undue irritation of the stomach by the medicaments in concentrated form.

The packages are bottles of 50, 500, and 1000 capsules.

Creosote Carbonate in Capsules

In many cases requiring creosote the carbonate is better borne than creosote itself, and it is of equal therapeutic value. Creosote is a powerful disinfectant, in small volume, and especially valuable for internal administration because, while a part of it is eliminated by way of the intestine, to the benefit of the intestinal tract, another avenue of escape is the respiratory tract. Creosote cannot be expected to cure tuberculosis, but it has a very beneficial effect in cases of subacute and chronic bronchitis.

Creosote carbonate at one time was extensively prescribed in cases of lobar pneumonia for a supposed direct effect on the lungs. While such an effect is imaginary, creosote carbonate is a rational prescription in pneumonia (and other acute infections) for the control of tympanites.

The usual dose of the carbonate is 5 grains three times a day.

Each capsule (an oval envelope of gelatin) encloses 5 grains of Creosote Carbonate. The packages are bottles of 50 and 500 capsules.

Cresylone

Cresylone is a cresylic acid preparation resembling the Liquor Cresolis Compositus of the U. S. P.; the major difference between the two is that Cresylone is standardized. It contains 50 per cent. of cresylic acid, and is twice as active germicidally as pure carbolic acid. A 2½-per-cent. solution is not more than one-fourth as toxic or irritating as a 5-per-cent. carbolic solution, though equivalent to it in germicidal activity. Cresylone mixes freely with water in all proportions, making transparent solutions in concentrations of 2 per cent. to 50 per cent.

It is used for disinfecting the hands of surgeons and their attendants, for cleansing wounds and ulcers, for

irrigating infected or contaminated areas (as the vagina in cases of uterine cancer), for the disinfection of instruments and rubber apparatus, and in general as a substitute for carbolic acid on account of its greater safety and its effect upon the hands, to which it imparts a feeling not only of cleanliness but of velvety smoothness.

The solutions commonly employed are 1 to 2 per cent. in strength.

Cresylone is supplied in pints and gallons only.

Dentalone

This is a saturated solution of chloretone in a liquid composed of the oil of cloves, oil of gaultheria, and oil of cassia. It contains upwards of 30 per cent. of chloretone, and is used in dentistry as an obtundant. (See Chloretone, page 149.)

In the treatment of odontalgia it is applied on lint or cotton, without dilution, after the cavity has been cleaned out.

In root extraction, drilling, crowning, bridge-work, etc., the free application of Dentalone is recommended. In treating sensitive dentine, the application of hot air after the Dentalone has been in place for a few minutes is believed to favor the deeper penetration of the Dentalone into the bony tissue and thus enhance the anesthetic effect.

Mixed with zinc oxide for the filling of root canals, Dentalone exerts both an antiseptic and a locally anesthetic action.

Dentalone may be used as a solvent for arsenic paste in pulp devitalization; it counteracts the pain without interfering with the chemical action of the arsenic upon the pulp.

Being a saturated solution of chloretone Dentalone may become a little cloudy or sedimented under the influence of a low temperature, a small percentage of the crystals being

thrown out of solution. It will assume its usual transparent appearance when the temperature becomes normal.

Dentalone is supplied in one-ounce glass-stoppered bottles only.

Diarrhea Cordial

In this preparation a number of well known therapeutic agents are combined to form a pleasantly flavored anti-diarrheal mixture. Each fluid ounce represents:

Chloretone	4 grs.
Camphorated tincture Opium, U. S. P.	40 mins.
Krameria	40 grs.
Rubus	40 grs.
Ginger	24 grs.

It contains but a small amount of opium, the anodyne influence of which is amply supplemented by the presence in each teaspoonful of one-half grain of Chloretone. This drug does not have the least disturbing effect upon the digestive apparatus, and may therefore be used with freedom in the treatment of intestinal disorders. Moreover, it has a direct sedative effect upon the stomach and thus aids very materially in controlling nausea and vomiting.

Diarrhea Cordial is used in the treatment of simple and catarrhal diarrhea, summer complaint, dysentery, colic, cramps, and similar disorders.

The dose for a child under ten years of age is 10 to 30 minims. Over ten years, 30 to 60 minims. For adults, one to four teaspoonfuls after each evacuation of the bowels.

After the administration of castor oil for the purpose of ridding the bowels of undigested food materials, Diarrhea Cordial is especially useful to allay irritation, control pain, and check excessive peristaltic action. In the summer diarrhea of children it is effective, yet mild, in its action.

Diarrhea Cordial is supplied in 8-ounce, 16-ounce, and gallon bottles.

Dibromin

(Dibrom-malonyl-ureide)

This is a synthetic chemical compound, the result of laboratory research and experiment to improve upon the chlorine compounds that have been used so extensively for the prevention and control of superficial or otherwise accessible infectious processes. It contains 56 per cent. of bromine, and has a somewhat peppery taste. In dry form it is perfectly stable, and aqueous solutions retain their activity for some little time, according to the strength of the solution.

It is soluble in water to the extent of 3 or 4 per cent.—that is, freely soluble in any degree of concentration ever required; soluble in glycerin, ether and alcohol; but insoluble in oils. Dibromin is incompatible with alkalies and reducing agents, and most organic substances are slowly attacked by it.

As compared with other oxidizing agents used for the same purpose, Dibromin is, in the first place, much easier to prepare for use, being promptly soluble in water and ready, as marketed, for this change; in the second place, it is comparatively non-irritating to the skin or mucous membrane when applied in the strength required, in many cases altogether free from irritating effect; in the third place, it is one of the most powerful germicides known, its phenol coefficient being 105.

Dibromin is used in solutions of 1:1000 to 1:10,000. One capsule of Dibromin (6 grains) makes one gallon of a 1:10,000 solution, 2 quarts of a 1:5000 solution, and of course any lesser quantity of stronger solution (up to 1:30) that may be desired.

The solutions are used as antiseptic and germicidal wet dressings, douchings or irrigations in extensive wounds, burns, surgical infections, abscesses, ulcers, boils, car-

buncles, infected fistulæ and sinuses, cellulitis, osteomyelitis, suppurating glands, endometritis, cystitis, urethritis, tonsillitis, chancre and chancroid—in fact, in any case indicating the direct application of an antiseptic or germicidal solution.

The packages are bottles of 50 capsules, each containing 6 grains.

Digitalis Tincture

(Tincture No. 111, in 1-ounce vials)

There is hardly a drug in the Pharmacopœia that is the occasion of so much concern to the pharmacist and the physician as digitalis. While it is universally recognized as the most dependable heart tonic, it is at the same time an extremely unstable drug in all forms.

Many physicians have been forced to try one preparation after another in the hope that they might find one that would exhibit a reasonably uniform activity. An ordinary tincture of digitalis, made according to Pharmacopœial directions from average drug, might, in the course of six months or a year, assay below standard and therefore fail to act in the way the physician has been led to expect it to act. Under certain unfavorable conditions of light, heat, and exposure to air, the rate of deterioration will be even more rapid.

All this makes for deplorable confusion and uncertainty; and, to clarify the situation, we are offering a specially prepared Tincture of Digitalis. There are several features of the manufacturing and packaging of this product that will immediately appeal to the clinician.

In the first place, the digitalis leaves that enter into the preparation of this tincture are not the so-called average drug, but are specially selected leaves known to assay at least 200 per cent. in activity.

Then, too, in making this tincture, the fats have been removed, thus eliminating one of the usual nauseating factors and still further fortifying the product against deterioration. The bottles in which the tincture is put up are charged with carbon dioxide. Displacement of the oxygen in this way enhances the keeping qualities of the tincture.

Now in order to estimate the probable activity of a digitalis preparation, the physician should know not only the quality of the drug from which it is made but also the age of the preparation. For this reason the date of manufacture is printed on the label.

The product is physiologically assayed to show 150% activity as compared with the U. S. P. standard, and the full effect of tincture digitalis in the usual doses may therefore be expected if it is used at any time within a year from the date of manufacture stated on the label. After a year has elapsed, reasonable care should be exercised to offset a possible loss in activity.

The therapeutic uses of digitalis are based upon its effect in strengthening the action of the heart, prolonging the diastole, and increasing the blood-pressure. Valvular disease of the heart *per se* is not an indication for the administration of the drug; but when such a lesion is accompanied by broken compensation and cardiac dilatation, digitalis is the best remedy available. In cases of mitral disorders in which the circulation has been dammed back, resulting in pulmonary congestion, hepatic enlargement, gastric and intestinal vascular stasis, and exudates from venous engorgement, digitalis slows and rests the heart and relieves the symptoms. In the treatment of cases of aortic regurgitation, nothing can be gained (and much harm may be done) by too great reduction in the pulse-rate. In aortic stenosis, digitalis is indicated only to improve the coronary circulation (which, in turn, benefits cardiac nutrition) and to

strengthen the heart when signs of circulatory embarrassment appear. Small doses should be given.

Digitalis is considered a specific in auricular fibrillation, and in these cases should be administered in large doses. Care should, however, be taken to differentiate this condition from the rapid heart of advanced myocarditis, in which the drug should be given in very small doses if at all.

Opinions differ as to the value of digitalis in pneumonia. In the early stage with weak heart, prune juice sputum, and evidences of passive pulmonary congestion, it is probably of benefit when pushed until the pulse rate is reduced. But many clinicians feel that digitalis should be given early in all cases of pneumonia to "sensitize" the heart to its action; then the administration of the drug in an emergency later in the disease will be met by satisfactory response.

There are a number of diverse conditions dependent upon venous congestion which are promptly and effectually remedied by the cardiac stimulation which digitalis produces. In cases of tuberculosis in which there is slight but constant oozing of blood, digitalis improves the pulmonary circulation and frequently stops the hemorrhage. Amenorrhea due to uterine anemia, and menorrhagia resulting from vascular engorgement, are both benefited by this drug.

Exudates in the body cavities and edema of the extremities, due to a failing heart, are effectively reduced by digitalis in full doses.

Digitalis has a promptly salutary effect in cases of cardiac weakness accompanied by symptoms of depression, lassitude, faintness, cold extremities, and disinclination toward bodily movement. In such cases the improvement in general muscular tone and in the nourishment of the various tissues of the body by the heightened blood-pressure results in marked benefit to the patient and imparts a sense of well-being.

In general, it may be said that the heart is strengthened

by digitalis, but the drug is contra-indicated in cases of fatty degeneration of the heart muscle and also in cases of irregular heart with a slow pulse. In endocarditis and pericarditis it is of value only when the heart is laboring. The tachycardia of hyperthyroidism is usually not amenable to its influence. Heart block and coronary disease are absolute contra-indications to its administration.

The average dose of our special Tincture of Digitalis is 10 minims, repeated every four hours.

This product is put up only in one-ounce vials. We have preferred not to give it a special name; the simple Pharmacopœial designation is retained: Tincture of Digitalis (P. D. & Co.) in 1-oz. vial, or Tincture No. 111, P. D. & Co.

Digitalone

This is a superior aqueous preparation of digitalis, suitable for either oral or hypodermic administration.

The pharmacy of digitalis is beset by two major difficulties: first, the active principles are glucosides which are apt to be destroyed in the manufacturing processes; second, the presence and activity of these glucosides cannot be established by chemical means. It is necessary, therefore, if a reliable preparation of digitalis would be supplied, that the manufacturing processes be such as to preserve unimpaired and at the least risk of future deterioration the digitalin and digitoxin to which the activity of the drug is due, and in the second place to assay the finished product by some reliable physiologic method.

Digitalone has proved, by clinical practice, to be one of the most permanent of digitalis preparations; and the method of assay which we apply to it, the lethal frog test, originated in our biological laboratory, is considered by us to be as accurate and reliable as any available to manufacturing pharmacy.

Digitalone represents digitalis leaves, fat-free, in a pharmaceutical form that admits of any method of administration the practitioner may prefer or the exigency of the case demand. There is no alcohol in the finished product. In liquid form it is of the same strength as Tincture Digitalis, U. S. P.; in tablet form 1 grain represents 2 cc of tincture digitalis, U. S. P.

Digitalone is supplied in 1-cc ampoules (Amp. No. 130), boxes of 12; in the form of hypodermic tablets containing respectively 1/10, ¼, and ½ grain; and in the form of a tablet triturate containing 1/5 grain.

Diphtheria Antitoxin

(See Chapter on Serums and Antitoxins, page 86)

Emetine Hydrochloride

(Ampoules Nos. 40, 76, 80, 133, and Hypodermic Tablets)

Emetine is the alkaloidal principle in ipecac that destroys the Endameba hystolytica on contact in a solution as weak as 1:10,000, and prevents its growth in a 1:100,000 solution. It is practicable, therefore, to administer emetine hydrochloride hypodermically in a dosage sufficient to kill the amebæ accessible in amebic dysentery, notwithstanding the fact that the emetine is toxic in a daily dosage of more than one grain. Amebic dysentery, hepatitis, and other manifestations of invasion of the tissues by the endameba, respond to hypodermic doses of 1/3 grain, one injection the first day, two on the second day, and three on the third and following days until a total of 8 grains has been given. Should one course of treatment not suffice, a second and shorter course may be given after an interval of eight

to ten days, during which colonic irrigations of 1:1000 quinine solution are given once or twice daily.

Emetine is also used to some extent in the local treatment of pyorrhea, the root of the tooth being bathed in a 0.5 % solution of the hydrochloride. In well advanced cases surgical treatment is of course necessary.

Emetine hydrochloride is supplied in hypodermic tablet form (a ½-grain tablet in tubes of 10—H.T. No. 207) and in ampoules containing respectively 1/3 grain in ½ cc of physiologic salt solution (Amp. No. 40), ½ grain in 1 cc of salt solution (Amp. No. 76), and 5 cc of a 0.5% solution (Amp. No. 80).

Emollientine

This is an ointment containing aluminum hydrate, carbolic acid, isarol, lead oxide, corrosive sublimate, and zinc sulphocarbolate.

Applied to the skin in eczema, dermatitis, superficial burns, scalds, bruises, sprains, and inflammatory conditions, it reduces the inflammation by a threefold action—upon the congestion, which it tends to disperse; upon the irritated skin, which it protects; and upon the infection, if there is any, by the active antiseptics it contains.

Emollientine is supplied in collapsible tubes containing about 2 ounces, in 1-lb. decorated tin cans, and in 5-lb. cans.

Ergone

This ergot preparation was developed in our laboratory in 1903—a non-alcoholic product preserved with chloretone, and suitable for either oral or hypodermic administration. It is standardized on animals to a degree of activity corresponding to that of the official fluid extract made from a

prime quality of crude drug. Other preparations of ergot bearing the P. D. & Co. label are available, and all are standardized, but this is the only one in liquid form that is adapted to any method of administration that the physician may prefer or the exigency of the situation suggest.

Ergone is employed principally to check hemorrhage after childbirth and miscarriages. But in addition, it is of value in delirium tremens, in cerebral edema, in the intestinal stasis following laparotomy, and in acute shock or collapse from whatever cause characterized by clammy skin, blue lips and pulmonary edema. Asthma with nervous irritability, hyperthyroidism, hysteria, and diabetes insipidus have been likewise favorably influenced; and the use of Ergone has frequently obviated the need for morphine in acute cerebrospinal meningitis.

The usual internal dose is 30 to 60 minims, repeated as indicated; the hypodermic dose 15 to 30 minims.

The packages, consisting of a 1-ounce vial and a 4-ounce bottle, are dated as finished, so the practitioner can tell at a glance the age of the product in hand.

Ergot Aseptic

(Ampoule No. 29)

This is a preparation of ergot especially designed for hypodermic administration in cases of inertia uteri and postpartum hemorrhage. It contains a minimum of ergotinic or sclerotic acid (which was at one time considered an essential constituent of ergot, but is now known to have no effect whatever upon the uterus, but, on the other hand, to depress the nerve centres and the spinal cord), and is carefully freed from extractive matter which would render its hypodermic administration irritating. Ergot

Aseptic contains in each cubic centimeter the equivalent of two grams of prime ergot and 5 milligrams of chloretone. It is, therefore, just twice the strength of the official fluid extract when the latter is made from the best quality of drug. In these hermetically sealed ampoules it retains its activity much better than fluid extract ergot in the ordinary packages.

Ergot Aseptic is standardized physiologically, and marketed in packages containing respectively three and six 1-cc ampoules, each ampoule containing an ordinary dose. The ampoules are to be opened by fracture at the neck, the contents being withdrawn into an ordinary hypodermic syringe.

No unusual precautions are necessary in injecting Ergot Aseptic. It is desirable, in order to secure prompt effects, to thrust the needle deeply into the muscular tissue, as of the gluteal region.

Ferroarsine

This is a combination of iron peptonate and manganese with arsenic and strychnine, in liquid form. It contains 0.6% of iron and 0.1% of manganese, with 8/50 grain of arsenic peptonate and 8/100 grain of strychnine sulphate in each fluid ounce. The availability of the iron is enhanced by the presence of the manganese and by combination with peptones. The arsenic also, as will be noted, is in the form of a peptonate.

It is indicated especially in the anemia and chlorosis of young women, and is of value in conditions of low vitality generally when the etiology is obscure but the patient is evidently in need of tonic treatment.

The usual dose is one to two fluid drachms thrice daily.

The packages are 16-fluidounce and 1-gallon bottles.

Ferrocascarin

This solution contains 0.6% of iron, as iron peptonate, and 0.1% of manganese, with the equivalent of 40 grains of cascara sagrada in each fluid ounce.

The indications are clear from the composition of the product. As in our other iron and manganese preparations, the iron is combined with peptones to favor its assimilability; and the oral administration of the liquid has no injurious effect upon the teeth. Since many cases of anemia in which iron is indicated suffer more or less from constipation, and iron itself is said to be constipating, the role of the cascara in the combination is apparent.

The dose is one to two fluid drachms three times a day or according to the laxative effect.

The packages are 16-fluidounce and 1-gallon bottles.

Ferrochonine

A solution of iron peptonate (0.6%) and manganese (0.1%) containing in each fluid ounce the equivalent of 40 grains of cinchona together with 8/200 grain of strychnine sulphate. This is a hematinic and tonic combination of a high order, indicated especially in cases of anemia with lingering malarial symptoms and persistent anorexia. Like the other iron and manganese solutions in our list, this preparation is pharmaceutically elegant and as palatable as its therapeutic ingredients permit.

The dose is one to two fluid drachms three times a day or as the indications may suggest.

The packages are 16-fluidounce and 1-gallon bottles.

Ferrosenicum

This preparation is the same as Ferroarsine (see page 173) except that it contains no strychnine; the ingredients are

iron peptonate, manganese, and arsenic peptonate. It is especially indicated in anemic conditions in which the digestive organs are in fair condition, but there is some dermatosis due to defective nutrition of the skin. The arsenic supplies an alterative factor that is often of great service in severe anemias; in fact, it is quite as important as the iron in these cases. One fluid drachm contains 1/50 grain of arsenic peptonate and about 1/3 grain of iron.

The dose is one to two fluid drachms three times a day.

The packages are 16-fluidounce and 1-gallon bottles.

Formidine

Formidine is a true chemical compound obtained by subjecting a condensation product of salicylic acid and formaldehyde to iodization. It contains approximately 50 per cent. of iodine. It is without objectionable taste or odor; a permanent powder, insoluble in alcohol, dilute acids, or water, but slowly soluble in alkaline liquids.

Externally it is applied in the same manner as iodoform, to which it is superior on both esthetic and clinical grounds. A striking effect of the use of Formidine on granulating surfaces is the prompt subsidence of pus-formation. Ulcers that have progressed very slowly toward healing will often take a sudden turn for the better when Formidine is applied, soon closing over completely. This is explained by the effect of the powder on the bacteria that are preventing normal granulation, and by the protection afforded by the impalpable dressing.

Formidine does not irritate the skin or raw surfaces; its application is painless; it absorbs wound secretions; and it has not been known to produce toxic effects.

Formidine is supplied in sprinkler-top bottles containing about 5 drachms.

Germicidal Discs

Germicidal Discs are, as the name implies, discs or circular tablets, to be dissolved in water to form a germicidal solution. They contain mercuric iodide for its germicidal effect, an equal amount of potassium iodide to promote solution, and sodium bicarbonate to render the solution alkaline.

The Discs are designed especially for the convenient preparation of solutions to be used as disinfectant douches, washes, or instrument baths. The solution can also be used for cleansing infected wounds, or for any other purpose to which mercury salts are applied as topical germicides. A 1:5000 solution of mercuric iodide, prepared from one or more of the discs, will not combine with albumin or chlorides at the site of application, nor corrode steel or nickel; at the same time it is at least equal to a 1:1000 bichloride solution in its destructive effect upon pathogenic micro-organisms, and much more active than mercuric cyanide or oxycyanide.

One large disc (No. 1) dissolved in one pint of water, or one Disc No. 2 in four ounces of water, makes mercuric iodide 1:5000, the optimum dilution for the disinfection of instruments. For disinfectant douches the percentage strength should be materially reduced. Do not keep the solutions over from day to day.

Disc No. 1 contains 1½ grains of mercuric iodide; it is supplied in bottles of 25 and 100. Disc No. 2 contains ⅜ grain mercuric iodide: it is supplied in oval screw-cap vials of 25 and in bottles of 100.

Germicidal Soap

This is a high-grade soap, neutral in reaction, containing a small percentage of mercuric iodide. To the mercuric iodide is added an equal amount of potassium iodide, the object being to enhance the solubility and

diffusibility of the mercury salt. The soap is supplied in several forms, ranging in strength from ¼ per cent. to 2 per cent.—the figures referring, of course, to the content of mercuric iodide.

Taking carbolic acid (phenol) as the standard of comparison, Germicidal Soap 1 per cent. has been shown to be thirty times as active (Hygienic Laboratory test). A 1-per-cent. solution of this soap is therefore equal to a 30-per-cent. solution of carbolic acid, or six times as active as a 5-per-cent. carbolic solution. The soapy lather formed in washing the hands is a solution of approximately this strength.

Such a solution is non-irritating to the skin—non-irritating, indeed, to exposed and lacerated tissues that may be suspected of being infected. Moreover, the soap has no corrosive action on steel or nickeled instruments.

For application to suppurative wounds, ulcers, etc., it is especially valuable, since the saponaceous vehicle prevents precipitation of the mercury and the tissue albumins as mercury albuminate; the full value of the mercuric iodide is preserved.

On account of its exceptional penetrating power, Germicidal Soap does its work quickly; prolonged application is unnecessary and if persisted it may irritate and roughen sensitive skins. As a rule, applications lasting from two to five minutes will suffice. After proper application the soap should be rinsed off the skin or hair.

All soaps, when freely dissolved in water, gradually decompose; therefore solutions made from Germicidal Soap should be used within a reasonable time after they have been prepared. The soap itself, undissolved, is practically permanent.

Germicidal Soap is a sterilizer, a cleanser, and a lubricant, in one.

It is useful for sterilizing hands, instruments, and the site of a proposed surgical operation; also for lubricating

sounds, specula, catheters, cystoscopes and other instruments that require lubrication.

It is excellent for vaginal douching, as it tends to dissolve pus, blood and mucus, whereas most other germicides coagulate them.

It serves well as a disinfectant wash after attendance upon cases of communicable disease; also in certain surface lesions associated with fetid discharge, and skin infections of parasitic origin.

It is suitable for shampooing the scalp and other hairy surfaces which are infested with lice, fleas, or similar organisms.

It is used effectively for cleansing cuspidors, bedpans, and other articles about the sick-room.

Whatever other disinfectant measures are applied to bed or body linen, handkerchiefs, napkins, or other woven fabrics that have been in contact with a case of infection, the washing should be done with Germicidal Soap.

One medical author says that long standing acne, cryptogenic infections, erysipelas, and in fact the whole realm of superficial skin infections, respond remarkably to the action of mercuric iodide in potassium iodide solution. The application of compresses wet with a 1-per-cent. solution of potassio-mercuric iodide is said to alter entirely the prolonged progress of these cases. In boils and felons there appears to be much evidence of some power of penetration which the mercury possesses.

A 1-per-cent. dilution of mercuric iodide with potassium iodide is supplied in Germicidal Soap, 1-per-cent., which may be moistened and applied directly to incipient boils, felons, and other skin eruptions; and the Soap in solution may be used in the treatment of acne, erysipelas, etc., being applied by means of compresses.

Germicidal Soap is supplied in the following forms:

Germicidal Soap, Mild (1%), containing 1 per cent. of

mercuric iodide. In large cakes, one in a box; and in small cakes segmented into thirds, five cakes in a box. A segment from a small cake dissolved in one pint of hot water makes a solution containing approximately one part of the antiseptic in 10,000 of water.

Germicidal Soap, 2%—containing 2 per cent. of mercuric iodide. In large cakes, one in a box.

Germicidal Soap, Soft—containing 1 per cent. of mercuric iodide. Being miscible with oils, as those of the skin, this preparation may be applied directly to the hands or other parts for disinfecting, without the necessity of first scrubbing with hot water. Supplied in collapsible tubes with screw-cap.

Germicidal Soap, Liquid—containing 0.25 per cent. of mercuric iodide. In gallon bottles only.

Glycerophosphate Compound

(Ampoule No. 35)

Each ampoule contains: Sodium glycerophosphate, 0.1 gram (1½ grains); strychnine cacodylate, 0.0005 gram (1/125 grain); iron cacodylate, 0.01 gram (1/6 grain); in 1 cc (16 minims) of distilled water, with 0.5% chloretone as a preservative.

As will be noted, this is a combination of iron, arsenic and strychnine, with an average hypodermic dose of sodium glycerophosphate added. It is of particular value as a reconstructive tonic in anemia, neurasthenia, tardy convalescence, and general debility, being administered, according to the urgency of the case, daily, on alternate days, or twice a week. The cacodylates, presenting arsenic in its most efficient form, cannot be given satisfactorily by mouth, but are usually unobjectionable when administered hypodermically. For obvious reasons the serviceableness of the glycerophosphates is enhanced by avoidance of the alimentary tract; and the iron and strychnine cer-

tainly forfeit none of their effectiveness by prompt absorption from the subcutaneous or muscular tissues.

The ampoules are supplied in boxes of 1 dozen.

Glycerophosphates Compound
(Elixir No. 141)

This Elixir contains the glycerophosphates of calcium, sodium, iron, and potassium, in the following proportions: in each fluid ounce 4 grains of each of the two first mentioned, and 2 grains of each of the last two—in all, 12 grains.

This is tissue food. When the patient is suffering from lack of phosphorus or phosphates, either because of inadequate assimilation or because of too rapid elimination, the glycerophosphates supply the lack or restore the balance better, probably, than any of the inorganic phosphorus compounds. Not only the nerve and brain cells, but the blood cells, and in fact all the cells of the body, demand phosphorus in assimilable form; and when the bodily mechanism is impaired so that the phosphorus is wasted or otherwise sacrificed, medication becomes largely a matter of replenishment, which in turn has a stimulating effect so that after a relatively short course of treatment further medication becomes unnecessary.

Not only organic phosphates, but essential minerals, are supplied in Elixir Glycerophosphates Compound.

The indications are: asthenic nervous maladies, obesity with diminished oxidation, tuberculosis, hepatic torpor, hysteria, rickets, osteomalacia, and chronic neuralgia. The glycerophosphates have been used with benefit in tic, sciatica, lumbago, and the pains of tabes.

Dose of Elixir Glycerophosphates Compound, one to two fluid drachms, three times a day.

Supplied in 16-fluidounce and 1-gallon bottles.

Granulogen

This is a special preparation of paraffins, with a low melting-point (about 115° F.) and containing 5 per cent. of chloretone and 0.5 per cent. of cresylic acid.

Granulogen is used in the treatment of burns, especially extensive burns of the second and third degree; indolent ulcers; superficial wounds and cutaneous lesions that heal slowly.

Liquefy the Granulogen in the original container, or as much of it as may be required in a clean cup or dish, on a water bath. When it melts it is ready for application. If too hot its application may be painful and some loss of the volatile chloretone will occur. Very little heat is necessary in liquefying the paraffins, which melt at a temperature slightly above that of the body.

Cleanse the surface to be treated with an appropriate antiseptic solution, and dry thoroughly. Apply the liquid by painting it smoothly over the entire area and a little beyond upon the sound skin. The fluid quickly solidifies, forming a soft, flexible protective coating which effectively excludes air and bacteria and keeps the wound moist. Should a thicker or more rigid dressing be required, a thin layer of absorbent cotton, gauze or lint may be laid upon the coated surface, and a second application of the liquid Granulogen made over the lint. Always finish the dressing with a compress and bandage. If only a little pus forms, the dressing need not be reapplied more frequently than once in two days, or at longer intervals as healing progresses. To remove the dressing, loosen the edges adherent to the dry skin and it will readily separate from the moist surface of the wound or ulcer.

Granulogen is supplied in ¼-lb. and 1-lb. tin cans, one pound being the minimum sales unit.

Hematic Hypophosphites

Each fluid ounce contains: Potassium hypophosphite, 1½ grains; manganese hypophosphite, 1 grain; strychnine hypophosphite, ⅛ grain; ferrous hypophosphite, 1¼ grains; calcium hypophosphite, 1 grain; quinine hypophosphite, 7/16 grain.

This is a permanently clear syrup, and palatable to the average patient. It is intended for general use in the treatment of neurasthenic and anemic conditions—not, of course, to the exclusion of more specific treatment if such is indicated. In this form, neither the iron nor any other ingredient of the formula undergoes change with age. Manganese is believed to assist in the physiological appropriation of the iron. Calcium and potassium supply needed elements in many cases of anemia and general debility, with special application to scrofulous and rachitic symptoms. The quinine and strychnine are tonics. And both nerve hunger and blood hunger for phosphorus are appeased by the presence of this element in all the ingredients of the formula.

The dose is 1 to 2 fluid drachms, three or four times a day.

Hematic Hypophosphites is supplied in 16-fluidounce and 1-gallon bottles.

Hemostatic Serum

(See Serums and Antitoxins, page 87)

Hexamethylene Tetramine

(See Uritone, page 246)

Inhalone

This is a solidified preparation of phenol, menthol, and eucalyptol, in a bland oleaginous base, agreeably aromatized, for application to the nares to abort cararrhal infec-

tion, open up the intranasal passages and the eustachian tube, and stimulate the mucous membrance. The ointment is applied to the nares directly from the tip of the long nozzle, or with the tip of the finger. The melting point of the ointment is so low that on contact with the mucosa it becomes liquid and is easily diffused throughout the nares by the act of insufflation, repeated as the passages open up from the first attempt.

Inhalone is prescribed for emergency use, the patient being instructed to keep a supply on hand so that at the first sign of coryza or rhinitis it may be applied. Later on it is of less service.

It is put up in collapsible tin tubes equipped with a special nasal nozzle.

Iodalbin

Iodalbin is an iodo-proteid compound containing about 22 per cent. of iodine; it is a reddish powder, nearly tasteless, insoluble in water, acids, alcohol, and other ordinary solvents, but readily soluble in alkaline liquids.

Iodalbin passes into the intestine unchanged, and gastric irritation is thereby obviated. In the alkaline secretions of the small intestine it is decomposed, the iodine being liberated and then slowly absorbed. The alterative, resolvent and eliminative effects of Iodalbin suggest its use under the same conditions as those in which potassium or sodium iodide is indicated.

In the treatment of syphilis, Iodalbin has produced brilliant results, even when the inorganic iodides had proved ineffective. In cases of chronic metallic poisoning, as with lead, zinc, arsenic or mercury, in which the long continued administration of iodine may be necessary, it is to be preferred to potassium iodide. In subacute and chronic rheumatism, when the joints are swollen and the case

obstinate, Iodalbin should be given in 5- to 10-grain doses, thrice daily, for a prolonged period. In parenchymatous nephritis, marked improvement has been obtained from the systematic use of Iodalbin. In the bronchial type of asthma, with pulmonary emphysema, Iodalbin is of service in controlling the expectoration and relieving the dyspnea. It is also of value in simple goiter.

The usual dose is five grains, to be taken one-half to one hour after food, three or more times a day. This method may be continued until the desired effect is obtained, or the dose may be cautiously increased. In the treatment of secondary and tertiary syphilis, large doses, 10 to 15 grains, are readily tolerated.

Iodalbin is best given in capsules, though being tasteless it may be given in powder, or stirred into water, coffee, or any beverage or food not alkaline. It should not be given when the stomach is empty.

Iodalbin is supplied in 1-ounce and ¼-lb. bottles, and in capsules containing 5 grains, bottles of 100, 500 and 1000.

Iodalbin and Mercurol

(Chocolate-coated Tablets)

The two drugs that together constitute the so-called "mixed treatment" of tertiary syphilis are here presented in organic form—a form eminently suited to therapeutic effectiveness and prolonged administration. Each tablet contains 5 grains of Iodalbin and 1 grain of Mercurol. Mercurol is nucleide of mercury—a combination of mercury and nucleinic acid. In syphilitic cases the usual dose is one tablet two or three times a day, to be continued for two or three weeks if well borne, or reduced in frequency should the least sign of mercurialism appear. The patient must not become overloaded with either iodine or mercury, particularly the latter; hence the desirability

of allowing intervals of rest between successive courses. The medication should be pushed as energetically as possible for a few weeks, and then suspended for a week or ten days, to be repeated until recovery is assured.

The tablets are supplied in bottles of 100 and 500.

Iron Arsenite Solution

(Ampoules Nos. 8 and 87)

This chemical compound represents approximately one part of arsenous acid to twelve parts of metallic iron. Iron and arsenic co-operate in restoring hemoglobin to the blood and activity to the glandular tissues that have so much to do with metabolic processes and general physical tone.

Iron arsenite is used in the treatment of dry, scaly forms of cutaneous disease such as eczema and psoriasis, especially in anemic subjects; in chlorosis; in the anemia of chronic intestinal disease or of malarial intoxication; in leucocythemia and pseudoleukemia; and in pernicious anemia. The dose of this solution, 1 cc, may be repeated daily and the treatment continued until the full hematinic effect is manifested.

Ampoule No. 8 contains one grain of Iron Arsenite; Ampoule No. 87, 1/6 grain—in each instance in 1 cc (16 minims) of distilled water, with a little quinine and urea hydrochloride for its local anesthetic effect. The ampoules are supplied in boxes of one dozen.

Iron Arsenite and Manganese Solution

(Ampoule No. 113)

Each ampoule contains ¾ grain iron arsenite and 1/100 grain manganese citrate in 1 cc (16 minims) of distilled water containing 0.5% of quinine and urea hydrochloride for its local anesthetic effect. Iron is believed to be en-

hanced in its therapeutic effect by the presence of manganese; and the pain which is so apt to attend the hypodermic administration of iron is not merely mitigated for a moment by the quinine salt, but subdued until the next injection is due. This solution makes a most efficient and acceptable combination of iron and arsenic, valuable in anemic conditions and especially when disturbance in the nutrition of the patient has resulted in skin lesions such as eczema and psoriasis. It is frequently used as a tonic in tuberculosis. The dose is one ampoule daily or on alternate days. Supplied in boxes of one dozen.

Iron Arsenite and Strychnine Solution

(Ampoules Nos. 9, 119, 120)

Ampoule No. 9 contains 1 grain of iron arsenite and 1/65 grain of strychnine nitrate. Ampoule No. 119 (℞ "B") contains ¾ grain of iron arsenite and 1/65 grain of strychnine nitrate. Ampoule No. 120 (℞ "C") contains ¼ grain of iron arsenite and 1/100 grain of strychnine nitrate.

The diluent in each case is distilled water, 1 cc (16 minims) in each ampoule, and quinine and urea hydrochloride is present in the proportion of 0.5% for its local anesthetic effect.

What is said under the heading "Iron Arsenite" applies, of course, to the strychnine combinations also. The various Blaud combinations (in pill form) for good reasons include one or more of iron, arsenic and strychnine; and these ampoules merely supply the well known formulæ in a form suitable for hypodermic administration. The usual indications are: atonic dyspepsia with anemia; chlorosis, anorexia, and general debility.

The dose is the contents of one ampoule, ¼ grain, ¾ grain, or 1 grain, as preferred.

The ampoules are all supplied in boxes of one dozen.

Iron Cacodylate Solution

(Ampoules Nos. 27 and 207)

Ampoule No. 27 contains ½ grain iron cacodylate in 1 cc (16 minims) distilled water; it is supplied in boxes of one dozen. Ampoule No. 207 contains 1 grain iron cacodylate in 5 cc physiologic salt solution, *for intravenous administration;* it is supplied in boxes of six.

Arsenic in the form of the cacodylates is extremely well borne, and, since it is often indicated in conjunction with iron for the tonic and hematinic effects of the latter, a demand has arisen for a preparation of iron cacodylate for hypodermic and intravenous administration. In view of the essentially irritating character of iron when placed under the skin, Ampoule No. 27 is commended on account of its comparative freedom from irritating effect; but if this feature would be entirely avoided and the intravenous method of administration is favored, Ampoule No. 207 should be used.

Iron cacodylate is indicated in anemia, chlorosis, pernicious anemia, lymphadenitis, and leukemia.

Iron Citrate Solution

(Ampoules Nos. 7, 25, 118)

Iron and Ammonium Citrate, ¼ grain (Amp. No. 118), ¾ grain (Amp. No. 25), and 1½ grains (Amp. No. 7); in each case in 1 cc of distilled water containing 0.5% of quinine and urea hydrochloride for its local anesthetic effect.

For hypodermic administration the most satisfactory inorganic ferric preparation is the iron and ammonium citrate. It causes very little pain, being freely soluble in water, and it promptly produces the therapeutic effects of chalybeate medication, as noted in the patient's condition and on examination of the blood. The smallest dose of

the three above named should be given first, and the larger doses later if necessary. It must be borne in mind that, though the amount of iron represented in a single dose is small, none of it is lost as in oral administration, and the demands of the organism for iron, while imperative, are not what can be called voracious. Very little suffices.

The outstanding indication for these ampoules is anemia.

One injection may be given daily or on alternate days, intramuscularly by preference.

All three of the ampoules are supplied in packages of one dozen.

Iron Citrate and Manganese Solution

(Ampoule No. 114)

Each ampoule contains ¾ grain of iron and ammonium citrate and 1/100 grain of manganese citrate, in 1 cc (16 minims) of distilled water containing 0.5% of quinine and urea hydrochloride for its local anesthetic effect. What is said under "Iron Citrate" applies to this ampoule also, with the added qualification that the effect of the iron is enhanced by the presence of the manganese, and any tendency there may be to the development of pain is counteracted by the quinine and urea in the combination. Dose, the contents of one ampoule, repeated according to the indications.

The ampoules are supplied in boxes of one dozen.

Iron Glycerophosphate Solution

(Ampoule No. 152)

Each ampoule contains 1 grain of iron glycerophosphate in 1 cc of distilled water.

This solution is offered for the painless hypodermic administration of iron, and not particularly because of

the phosphorus in the compound, although that too is in its favor, since a great many cases that require iron are in need of phosphorus also. One of the difficulties of the manufacturing chemist has been to find or invent metallic combinations that could be injected subcutaneously or intramuscularly without pain. The intramuscular method is to be preferred in the use of this solution, as of others, or the solution can be given by vein if the physician prefers. In intramuscular administration the needle should be thrust deeply and quickly into the muscle, and the solution expelled gradually—not too rapidly, for fear of accumulation at the site of injection.

Iron Glycerophosphate Solution is indicated in anemia, neurasthenia, and a general run-down condition suggesting tonic treatment. Dose, the contents of one ampoule twice a week or according to indications.

The packages of Iron Glycerophosphate Solution are boxes of one dozen ampoules.

Iron Peptonate and Manganese Solution

This preparation contains 0.6 per cent. of iron and 0.1 per cent. of manganese. The iron is in the form of a peptonate, or in other words so combined with peptones as to ensure the simultaneous absorption of both, and, in all probability, the assimilation and therapeutic effect of the iron in greater measure than if an inorganic compound were administered. The manganese is believed to enhance the tonic effect of the iron, especially in the treatment of chlorotic conditions. The solution has no effect on the teeth. Dose for an adult, one teaspoonful to one tablespoonful three times a day.

Supplied in 16-ounce and 1-gallon bottles.

See also Ferroarsine, Ferrocascarin, Ferrochonine, and Ferrosenicum, pp. 173-174.

Kreso

Kreso is a coal-tar product; it is essentially a solution of a resin soap in creosote oil; the soap renders the oil miscible with soft water, making a milky emulsion. Compared with carbolic acid, Kreso is six to seven times as active germicidally and of a much more agreeable odor. Kreso is standardized chemically and bacteriologically.

Kreso is used as a general disinfectant about the house, barns, stables, henneries, sties and cellars, as a dressing for wounds met with in veterinary practice, and as a parasiticide. It may also be used for sterilizing surgical instruments, as it does not affect nickel or steel. The dilutions employed range in strength from 1:50 to 1:250.

Kreso is pre-eminently a household disinfectant. Roaches, ants and flies keep away from it, while on the other hand its tarry odor is not only unobjectionable but refreshingly agreeable to most people. Sprayed about the outer doors it keeps the flies away; sprayed over the garbage can it prevents the spawning of these insects in what would otherwise be their favorite resort. It drives ants and roaches away from the places where they breed, or destroys them. In the toilet, sink or drain-trap it disinfects and deodorizes.

It is supplied in 4-ounce, 16-ounce, quart, gallon and 5-gallon cans.

Lactic Acid Bacillus Suppositories, Vaginal

These suppositories contain pure cultures of lactic acid bacteria.

Mineral antiseptics, even in quite attenuated dilutions, may injure the normal flora of the vaginal tract, thus robbing the tissues of a natural defense while supplying an artificial one. No such effect is produced by lactic acid or by the organisms which generate it. And experience has

demonstrated that in the vagina the growth of pathogenic organisms is hindered by the presence of the lactic acid bacteria.

Excessive vaginal secretion, purulent or mucous, due perhaps to some remote cause, but favored by the presence of the bacteria which it invites, may often be remedied by the use of these lactic acid suppositories. Particularly encouraging reports are made in cases of leucorrhea in old women.

The treatment consists in first cleansing the vaginal tract with a warm douche just before retiring, and then inserting one of the suppositories. If the patient is confined to her bed during the day, the use of the suppositories need not be limited to the sleeping hours.

The suppositories are supplied in boxes of one dozen.

Lactone

(See Lactic Acid Bacillus Preparations, page 71)

Liquor Sedans

Each fluid ounce of this preparation represents: Viburnum prunifolium, 60 grains; hydrastine from 30 minims of fluid extract hydrastis; Jamaica dogwood, 30 grains.

The taste of the combination is masked as completely as possible with inert aromatics, so that the majority of patients find it acceptable; there is no lingering bitterness or other disagreeable sensation in the mouth after the dose is taken.

For those who object to the taste of the liquid we supply the same combination in soluble elastic capsules; and we have also a tablet called "Sedans" which contains the equivalent of one drachm of the liquid, or one ordinary dose.

Viburnum prunifolium (black haw) has become a classic

remedy for dysmenorrhea. It diminishes reflex activity, having a decided sedative influence over the ovarian nerves.

Hydrastis, and in particular the white alkaloid hydrastine, is tonic to mucous membrane. It is incorporated in the formula of Liquor Sedans for its effect in controlling uterine hemorrhage, giving value to the combination in the treatment of menorrhagia and metrorrhagia, as in prolonged or excessive mensturation.

Jamaica dogwood is a sedative drug; it reduces the heightened sensibility of dysmenorrhea, menorrhagia, and other utero-ovarian disturbances.

In the treatment of dysmenorrhea Liquor Sedans may be administered in doses of one drachm in hot water every half-hour, hot fomentations being at the same time applied to the lower abdomen.

In severe cases of menorrhagia, fluid extract ergot or Ergone may be added to the dose of Liquor Sedans, one drachm of the latter at intervals of one or two hours. The same directions apply to controllable metrorrhagia.

In threatened abortion Liquor Sedans should be administered in doses of 30 minims to one drachm at intervals of one or two hours. In women who abort habitually, a pregnancy may be safely completed with the aid of the systematic administration of Liquor Sedans, one drachm three times a day.

In subinvolution after labor, Liquor Sedans is given alone or combined with ergot or small doses of Pituitrin.

Liquor Sedans is supplied in 16-fluidounce and 1-gallon bottles.

Male Fern and Kamala
(Soluble Gelatin Capsules)

Male fern is one of the fern family botanically known as Aspidium Filix-mas, the oleoresin of which is official and included in the U. S. P. as Oleoresin Aspidium.

Kamala is a reddish-brown powder which consists of the minute glands and hairs obtained from the surface of the fruits of Mallotus Philippinensis. It contains two or more substances which have been termed kamalin, rotterlin or mallotoxin, and which are probably neutral bodies like kosotoxin, but it is not known which of these is the active constituent.

Male fern and kamala are employed in medicine as teniacides. An overdose of either may produce harmful effects. In some cases where large quantities of male fern are administered, or conditions favor the absorption and retention of an unusually large amount of the active constituents, grave and even fatal symptoms may supervene. These consist in vomiting and purging, with acute pain in the abdomen, muscular weakness, confusion and somnolence, with occasional twitching of the muscles, or slight convulsive movements, collapse, coma and death.

Capsules of Male Fern and Kamala are indicated in cases of tapeworm. They are also valuable for the treatment of uncinariasis. When given in therapeutic doses, the oleoresin of male fern, as a general rule, passes through the bowel without causing any symptoms whatever. The quantity of active substance dissolved, while sufficient to destroy the parasite, is too small to produce any effects on the patient, and escapes with the other contents of the bowel, or if absorbed does not cause any symptoms. The administration of male fern should not be preceded, accompanied or followed by castor or other oils, as they increase the absorbability of the drug and tend to develop symptoms of poisoning.

The average adult dose of this combination of Male Fern and Kamala is five capsules. This is equivalent to 35 minims of oleoresin male fern and 20 grains of kamala. The oleoresin of male fern should never be given in doses

of more than 1½ drachms. Kamala may be used in cases of tapeworm in doses up to 30 grains.

The patient should be instructed to fast for at least ten hours. Then one capsule should be taken every fifteen minutes until five have been taken, and this dose should be followed in two hours with a full dose of sulphate of magnesium. This has been found to be the most practical way of dispensing male fern or any of its combinations in the treatment of tapeworm or uncinariasis.

The combination of Male Fern and Kamala is furnished in soft elastic capsules, each containing the following:

Oleoresin Aspidium.....7 minims
Kamala, sifted.....4 grains

These capsules are marketed in boxes of one dozen and 100.

Mercurettes

These are oblong blocks of cacao-butter containing mercury—a superior mercurial ointment in fact. Each Mercurette contains 50 grains of metallic mercury. The Mercurettes are delicately perfumed, slate colored, and wrapped in waxed paper and tinfoil. On applying the ointment, no tell-tale ointment odor remains.

They are used in the treatment of syphilis. It is advisable to have the patient do the anointing himself. A whole Mercurette, or a part of it if a smaller dose of mercury is desired, is rubbed into a selected area every day or on alternate days until a course of six inunctions has been taken. Then, after a rest of three or four days, repeat for six days and continue in this way for about six courses or until the patient gets the full therapeutic effect of the drug. The mouth and teeth must of course be cared for, to prevent the possibility of mercurialism. Syphilitics, however, usually can take large doses of mercury without having their gums "touched." The Mercurettes must not be

rubbed into the same part of the body in successive inunctions; the site is changed from day to day.

If less than one complete Mercurette is to be used, cut the Mercurette, with its wrappings, into two or more parts.

Mercurettes are supplied in boxes of six.

Mercurette Suppositories

Each suppository contains 7½ grains of metallic mercury in a suitable base for insertion into the rectum. These suppositories, intended for the treatment of syphilis, afford the most convenient means of administering mercury. All that is necessary is to place one of them in the rectum at night on retiring, repeating the operation daily for about a week or ten days or until some premonitory sign of mercurialism makes its appearance. That the mercury is absorbed has been shown repeatedly by the production of characteristic therapeutic effects, or on excessive dosage by the usual symptoms of mercurialism.

Mercurette Suppositories are supplied in boxes of one dozen.

Mercuric Iodide Solution

(Ampoules Nos. 10, 11, 107)

Ampoule No. 10 contains 1/6 grain of mercuric iodide red (biniodide) and the same amount of sodium iodide, in 1 cc (16 minims) of physiologic salt solution. (A 1% aqueous solution.)

Ampoule No. 11 contains 1/6 grain of mercuric iodide red and the same amount of potassium iodide, as well as 2% of chloretone for its local anesthetic effect, in 1 cc (16 minims) of pure vegetable oil. (A 1% oil solution.)

Ampoule No. 107 contains 1/3 grain of mercuric iodide red and the same amount of sodium iodide, in 1 cc (16 minims) of distilled water. (A 2% aqueous solution.)

Injected intramuscularly, the aqueous solution of mercuric iodide is promptly absorbed, the oil solution not so promptly. Intramuscular administration is much to be preferred to subcutaneous, and the gluteus maximus is the favorite site, the injections being made first on one side and then on the other.

It has been found that the oil solution of mercuric iodide can be drawn into the syringe through a small-calibered needle, and the smaller the needle, of course, the less the pain of injection.

For administering mercuric iodide intramuscularly an all-glass syringe and platinum-iridium needles are recommended, inasmuch as the solution corrodes steel.

Like other mercurials, the iodide is administered as an antisyphilitic agent. The usual dose is the contents of one ampoule, to be repeated according to the requirements.

All the above ampoules are supplied in boxes of one dozen.

Mercurosal

Mercurosal is a definite chemical compound, di-sodium-mercuri-salicyl-acetate, from salicyl-acetic acid and mercuric acetate. It contains approximately 43 per cent. by weight of metallic mercury. It is a white amorphous powder, freely soluble in water, making a faintly alkaline solution.

While Mercurosal contains four-sevenths as much mercury as the bichloride, it is only one-seventh as toxic. Its low toxicity has been shown conclusively in a series of animal experiments.

Mercurosal does not precipitate blood serum, and it may be used repeatedly by the intravenous route without danger of causing obliteration of the vein. Its freedom from corrosive effect makes it suitable for a continuous course of intravenous injections; and on intramuscular administration it seldom causes nodulation or severe pain.

Mercurosal is not a substitute for arsphenamine, but takes the place of other less desirable forms of mercury in the treatment of syphilis. By employing Mercurosal the physician is enabled to give larger doses of mercury intravenously without toxic effects than it is possible to give by the use of any other mercurial.

The usual intravenous dose is 0.1 gram dissolved in 5 cc of sterile water. For intramuscular administration the standard dose is 0.05 gram dissolved in 2 cc of water. In beginning the use of Mercurosal it may be advisable to halve the dose in order to test the patient's susceptibility.

If the bowel is peculiarly sensitive to mercury, a good way to protect it is to give bismuth subnitrate or Milk of Bismuth by mouth when Mercurosal is injected intravenously.

The intervals between doses in the majority of cases should be two days, and a full course of Mercurosal treatment should consist of ten to twenty injections. Some syphilographers, after giving the patient a fortnight's rest, start weekly injections of arsphenamine or neoarsphenamine and continue until six doses have been given. The courses of Mercurosal and arsphenamine may be repeated after an interval of four to six weeks regardless of the Wassermann findings—that is, even if the Wassermann reaction is negative. For the institution of subsequent courses of treatment the Wassermann reaction is a fairly reliable guide.

Mercurosal is put up in glass tubes, 12 in a box, as a dry amorphous powder from which fresh solutions can be readily made as needed; also in solution ready for use. There are three Mercurosal packages: ℞ 1, "intravenous," each tube containing 0.1 gram of the dry powder; ℞ 2, "intramuscular," each tube containing 0.05 gram of the dry powder; and Ampoule No. 215, 5 cc of an aqueous solution of 0.1 gm. Mercurosal, for intravenous use, six ampoules in a package.

Mercury Cyanide Solution

(Ampoule No. 85)

Each ampoule contains 1/6 grain of mercury cyanide in 1 cc (16 minims) of physiologic salt solution.

Inject intramuscularly the contents of one ampoule at intervals of three or four days. These ampoules are used in the treatment of syphilis.

They are supplied in boxes of one dozen.

Mercury Salicylate Solution

(Ampoules Nos. 108 and 109)

Each Ampoule No. 108 contains 1 grain of mercury salicylate in 1 cc (16 minims) of purified goose-oil containing apothesine for its local anesthetic effect.

Each Ampoule No. 109 contains 2 grains of mercury salicylate in 1 cc (16 minims) of purified goose-oil containing apothesine for its local anesthetic effect.

The ampoules are double-pointed to facilitate transfer of the contents to the syringe. Adeps anserinus (goose-fat) is fluid at comparatively low temperatures, and merely holding the ampoule in the hand for a moment will liquefy it; this should be done, or artificial heat applied, and the ampoule shaken, before the tips are broken off. When ready to use, make a file mark near each point with the small file supplied in each package; then break off one point and tip the opened end into the barrel of the syringe from which the piston has been removed; then break off the other point.

Inject intramuscularly the contents of one ampoule every three or four days, in cases of syphilis.

The ampoules are supplied in boxes of one dozen.

Mercury Succinimide Solution
(Ampoule No. 56)

Each ampoule contains 1/6 grain of mercury succinimide in 1 cc (16 minims) of distilled water.

Inject intramuscularly the contents of one ampoule at intervals of three or four days. These ampoules are used in the treatment of syphilis.

Supplied in boxes of one dozen.

Metagen

Metagen is a preparation of concentrated vitamins in convenient form for therapeutic administration. Accumulated evidence indicates that vitamins are essential factors in promoting metabolism and maintaining health. While their mode of action is not definitely understood, their absence from or deficiency in the diet is known to be followed invariably by certain symptom complexes, the specific nature of which depends upon the type of vitamin group that is lacking.

For want of a better classification, the known vitamins are named antiophthalmic, antirachitic, antineuritic, and antiscorbutic. The first two are also referred to as fat-soluble, the latter two as water-soluble.

There is convincing evidence to support the belief that rickets, pellagra, xerophthalmia and dental caries are dependent, in part at least, upon a deficiency in the fat-soluble group of vitamins. In the production of rickets a lack of phosphorus is possibly associated with a deficiency in the fat-soluble vitamin group as the causative factor. Deficiency in the water-soluble group of vitamins is known to be the direct cause of beriberi or polyneuritis, while a condition similar to human scurvy can be produced in animals by feeding them on a diet complete in every way

except that it contains no water-soluble antiscorbutic vitamin.

The practitioner is not to assume that Metagen is of value only in the treatment of the extreme manifestations of specific vitamin defect. Many groups of symptoms which cannot as yet be called by a specific name are doubtless due to a lack of vitamins. A most important therapeutic bearing of our knowledge of vitamins is in relation to growth, general tone, and resistance. In periods of stress, such as pregnancy, lactation, and the course of and convalescence from infectious diseases, a lack of vitamins is quite likely to assert itself. Loss of appetite and general weakness may be due in many cases to vitamin deficiency and would accordingly be benefited by the administration of Metagen. Extracted vitamins seem to stimulate growth in children more readily than the vitamins found in natural foods, according to Eddy.

Summarizing these therapeutic indications, it may be said that Metagen, which contains water-soluble and fat-soluble vitamins, can be used (1) for its direct action in deficiency diseases—beriberi, marasmus, and malnutrition; (2) as a supplemental therapeutic agent in rickets and pellagra; (3) as a metabolic stimulant in ill-defined disorders of nutrition; and (4) in the nutritional treatment of wasting diseases and anemia.

The usual dose of Metagen for an infant is half the contents of a five-grain capsule, mixed with a small quantity of water, two or four times daily, between feedings.

In children three to ten years of age, one-half to one capsule should be given three times daily, before meals; for children of ten to sixteen years the number of capsules may be increased to four daily. If necessary, the contents of the capsules may be removed and mixed with a small portion of food, provided it is not hot; but most patients over five will prefer to swallow the capsule.

The adult dose is two capsules two or three times daily, before or after meals.

Metagen is supplied in powder form in ounce bottles, and in 5-grain capsules in bottles of 50 and 500. It is also an ingredient of the Emulsion described below.

Metagen and Cod-liver Oil

(Emulsion Metagen and Cod-liver Oil)

Emulsion Metagen and Cod-liver Oil contains approximately 40% of Norwegian cod-liver oil, emulsified with fresh eggs, a small amount of phosphoric acid, and Metagen (an active concentrated vitamin extract) ten grains to the ounce.

The therapeutic value of vitamins (as contained in Metagen) is suggested by convincing experimental evidence that the cause of rickets, pellagra and dental caries is, in part at least, a deficiency of the fat-soluble group of vitamins; and an insufficient amount of the water-soluble groups is the direct cause of beriberi (polyneuritis) and retarded growth.

In considering the medicinal value of cod-liver oil it must be borne in mind that, as a fat, it is easily digested and readily assimilated, that it contains a small amount of phosphorus, known to be beneficial in rickets, and that the discovery of the high fat-soluble vitamin content of this oil has placed the use of the oil in the specific treatment of rickets on an entirely rational basis. The cod-liver oil in this Emulsion is standardized physiologically to contain 4000 curative vitamin units (fat-soluble) in each ounce.

Emulsion Metagen and Cod-liver Oil is indicated in disorders of nutrition varying in severity from those manifesting the mildest symptoms, such as pallor, loss of appetite, vague pains, weakness, etc., to the more extreme pictures of rickets and malnutrition. These deficiencies are ex-

tremely common, and the physician must be ever on the alert to recognize the minor and incipient forms.

The Emulsion may be used in the treatment of bottle-fed infants to promote calcification of the bones, eruption of the teeth, and general growth, and to prevent rickets. Owing to the fact that vitamin-starved mothers secrete milk deficient in antirachitic and antiscorbutic properties, many breast-fed infants may exhibit the same requirements as those artificially fed. This preparation is, therefore, beneficial as a prophylactic against rickets and for the treatment of malnutrition in both bottle-fed and breast-fed infants. Should there be any signs of infantile scurvy, the simplest and most direct remedy is a little orange juice.

On a limited diet necessitated by gastric or intestinal disorders a child does not, as a rule, get a sufficient quantity of vitamins. Vitamins are known to promote absorption. Their presence in too small amount therefore limits the quantity of food absorbed, which in turn still further reduces the vitamin intake, and a vicious circle is established. Emulsion Metagen and Cod-liver Oil interrupts this circle and builds up the assimilative powers of the child, at the same time supplying a medicament of decided food value. The concentrated vitamins (such as presented in Emulsion Metagen and Cod-liver Oil) are more active than those found in food, according to Eddy.

Older children showing signs of poor nourishment on account of irregular habits exhibit at times astonishing gains in weight and improvement in general appearance under the administration of the Emulsion. In persons recovering from acute and chronic diseases the appetite is poor and the food is assimilated with difficulty. In such cases the Emulsion acts as a reconstructive tonic—the vitamins in the preparation hasten the absorption of nutriment, and the fresh eggs and cod-liver oil supply an easily assimilable food. This combination is valuable in the

nutritional treatment of tuberculosis and may be prescribed with gratifying results to women during pregnancy and especially during lactation.

It is generally advisable to begin cod-liver oil preparations with small doses and to increase the amount gradually until the required dose has been reached.

Emulsion Metagen and Cod-liver Oil is a palatable preparation and is unobjectionable to most patients. The dose for infants is one-half teaspoonful three or four times a day; for children one to three teaspoonfuls; and for adults one tablespoonful—immediately after meals.

Supplied in 16-fluidounce bottles.

Methylene Blue Compound
(Soluble Gelatin Capsules)

Each capsule contains: Methylene blue, 1 grain; methyl salicylate, ½ minim; copaiba, 1½ minims; oil santal, 1½ minims.

The capsules are used in the treatment of gonorrhea and rheumatism. Methylene blue has some reputation as a gonococcide, and copaiba and santal oil are old established antigonorrheal remedies. Nevertheless in all cases of gonorrheal urethritis it is essential to give the patient the benefit of local applications of a reliable silver preparation—such as Nargol, Silvol, or Neo-Silvol.

The dose of the capsules is 1 to 4, two or three times a day.

They are supplied in boxes of one dozen and one hundred.

See also Santal Oil, page 226.

Milk of Bismuth

Milk of Bismuth is a suspension, in distilled water, of the hydrated oxide of bismuth, with traces of the subcarbonate. It contains no glycerin, mucilage, sugar or other substance

to increase the density of the aqueous medium. Each fluid drachm of Milk of Bismuth represents the bismuth equivalent of 5 grains of bismuth subnitrate. Every trace of arsenic or other impurity is removed.

Inflammation of the mucous membrane of the gastro-intestinal tract is the chief indication for the administration of Milk of Bismuth. It is prescribed in doses of 1 to 4 drachms in the following diseases, for its astringent and sedative effect especially: acute, subacute and chronic gastritis, gastro-enteritis, enterocolitis, cholera infantum, emesis gravidarum, diarrhea and dysentery. As an antacid it may be advantageously employed in cases of hyperchlorhydria.

In the treatment of gastric ulcer single large daily doses are recommended—as much as one to two fluid ounces, or the equivalent of 40 to 80 grains of bismuth subnitrate. Milk of Bismuth is best given on an empty stomach in cases of gastric ulcer and intestinal inflammation, whereas in simple diarrheas the best time is one to two hours after meals.

Milk of Bismuth is used externally in the treatment of superficial burns, intertrigo, and as a protective dressing for excoriated surfaces in infants and adults. It is applied on a piece of lint or cotton to the axillæ, nates, or other region, and allowed to dry before replacing the clothing. In surgical practice Milk of Bismuth is used in the treatment of ulcers, skin lesions, and sinuses. It is also used in the treatment of vaginal leucorrhea and simple and specific urethritis. In gastric ulcer (see dose) the patient should be instructed to change his posture from side to side at intervals of three or four minutes, to distribute the fluid thoroughly over the walls of the stomach.

Milk of Bismuth is supplied in 16-fluidounce and 1-gallon bottles. It should be dispensed in wide-mouth prescription vials.

Milk of Magnesia

Milk of Magnesia is a suspension in distilled water of magnesium hydrate in a state of very fine subdivision. Each fluid ounce contains about 32 grains of the hydrate. Milk of Magnesia is an alkali with mild laxative properties. Not only does it neutralize acids in the mouth and stomach, but it also produces gentle bowel movement, especially in children.

Milk of Magnesia is used in the treatment of gastro-intestinal disorders of the heated term, in adults and children. It corrects excessive acidity of the stomach (hyperchlorhydria), being preferred in many cases to sodium bicarbonate, as it does not produce gastric distention from evolved carbon dioxide. It allays pyrosis, nausea and irritability of the stomach, especially when given alternately with Milk of Bismuth.

The usual dose is one to four fluid drachms, in water or milk. To intensify the laxative effect in adult cases, a glass of lemonade may be taken after the dose of Milk of Magnesia. For its antacid effect the dose may be repeated at short intervals (30 minutes) until relief is obtained.

In the treatment of oral acidity it is used as a mouth-wash or as a dentifrice.

Milk of Magnesia is supplied in 8-ounce, 16-ounce and gallon bottles.

Mineral Oil

(See American Oil, page 118)

Morphine and Atropine Solution

(Ampoules Nos. 12 and 13)

Ampoule No. 12 contains ¼ grain of morphine sulphate and 1/100 grain of atropine sulphate, in 1 cc (16 minims) of physiologic salt solution.

Ampoule No. 13 contains ⅛ grain of morphine sulphate and 1/200 grain of atropine sulphate in 1 cc (16 minims) of physiologic salt solution.

The outstanding indications for the administration of this combination of morphine and atropine are pain and spasm. The atropine is added principally because it counteracts the depressing effect of morphine on the respiratory center. Atropine has the additional advantage of controlling spasmodic contractions of non-striated muscle.

The severe pain of acute neuralgia, neuritis and some inflammatory conditions is amenable to morphine and atropine in small doses. Care should be taken in diseases that are likely to be prolonged to avoid the formation of a habit; therefore the drug should be given only after all other measures have been tried.

The combination of morphine and atropine is of the greatest value in spasmodic conditions accompanied by severe pain. In renal and hepatic colic a large dose should be given—¼ to ½ grain of morphine—to be followed in one hour by a smaller amount if necessary. After the passage of the calculus the intense soporific effect upon the pain-free patient should be counteracted by suitable measures.

The neuralgia present in uremia at times requires morphine for relief. Intestinal colic, including that of lead poisoning, may well be treated with this drug. Diarrhea and nausea and vomiting are sometimes so severe that immediate relief is demanded while awaiting the effect of more slowly acting remedies. In these conditions morphine is beneficial in small doses.

When paroxysms of asthma fail to yield to Adrenalin, it may be necessary to resort to a hypodermic injection of morphine and atropine. Great care is required here to avoid the formation of habit. In some cases of dysmenorrhea the pain is so great that morphine must be given. Here, too, it should be made the remedy of last resort, and

the identity of the drug being given should be kept from the patient. This drug is likewise necessary when prompt relief is not obtained from nitroglycerin and amyl nitrite in angina pectoris. Its administration serves the double purpose of controlling pain and relieving the anxiety of the patient.

The advantage of morphine in counteracting the ill-effects of restlessness and apprehension on the part of the patient is well seen in hemoptysis. Doses should be only large enough to gain the desired end, not sufficiently large to dull the patient's reflexes and so allow the blood to flood the lungs.

In incurable cancer and sarcoma morphine should be employed in sufficient quantities to abolish pain; the possibility of habit-formation is for obvious reasons not to be considered. This drug is likewise a boon to the patient in the last stages of tuberculosis when the cough taxes his strength and the air-hunger is extreme.

Morphine has been of great value in the early stage of pneumonia when the pain was unusually severe. The same is true of the pain of pleurisy, pericarditis and peritonitis. In the last named condition when shock is present this drug frequently counteracts it to a remarkable degree.

Both ampoules are supplied in boxes of one dozen.

Nargol

This is an organic compound of silver—a silver nucleide. It contains 10 per cent. of silver, and is used exclusively for the preparation of solutions for topical application, as in the treatment of conjunctivitis, urethritis, etc., having a more penetrating effect than silver nitrate and being very much less irritating. In corneal ulceration and gonorrheal conjunctivitis it may be necessary to use as concentrated a solution as 5%, but in milder cases 0.25 to 1% solutions

suffice. Antral empyema is treated successfully with a solution as weak as 0.25%. In the treatment of gonorrheal urethritis solutions of 0.5 to 3% are used for injection, and perhaps 8% for deep instillation. The solutions are made by adding the required quantity of Nargol to the water and stirring.

Nargol is put up for the market in ounce vials.

Neo-Silvol

Neo-Silvol is a colloidal combination of silver iodide, (20%) with a soluble protein base. It occurs in the form of cream-colored, glistening granules, which are soluble in water in all proportions up to 50 per cent.

To make solutions up to 25 per cent. strength, merely add the granules to the water, and shake. In making stronger solutions the mixture should be stirred with a glass rod to prevent clumping of the granules. Fresh solutions should be prepared at least once a week.

Neo-Silvol is slowly soluble in glycerin, but is insoluble in oil. Aqueous solutions appear opalescent by reflected light and milky by transmitted light. They are not precipitated by sodium chloride, by urine of either acid or alkaline reaction, or by dilute alcohol. These important qualities enable the physician to inject Neo-Silvol solutions into abscess cavities which have been irrigated with physiologic salt solution, and into the urinary bladder even when markedly acid or alkaline urine is present, without loss of material or sacrifice of germicidal effect. Light has little or no effect on Neo-Silvol.

Neo-Silvol solutions are practically non-staining. They do not perceptibly discolor the skin or mucous membrane, but if allowed to dry on the linen a faint yellow discoloration persists. This can be effaced by means of soluble

mercurial salts such as the bichloride or by sodium hypochlorite.

Silver nitrate or local anesthetics should not be added to solutions of Neo-Silvol; the one causes precipitation, the others result in obscure and complicated chemical changes.

Solutions do not cause pain or irritation when applied to mucous membranes, and do not coagulate albumin, yet Neo-Silvol has been found to be fully as effective as pure carbolic acid in its action on the bacteria used in laboratory tests.

A 10-per-cent. solution may be sprayed into the nasal chambers in cases of coryza, or brought into contact with the congested mucous membrane by means of a nasal douche. Chronic rhinitis can best be controlled with 10- to 25-per-cent. solutions, but pharyngitis and laryngitis require 20- to 25-per-cent. solutions, preferably applied by means of an applicator. After tonsillectomy the fauces may be repeatedly swabbed with a 20-per-cent. solution of Neo-Silvol with decided comfort and benefit to the patient.

Blepharitis, simple and purulent conjunctivitis, and the epidemic form of conjunctivitis known as "pink-eye," are all benefited by the instillation of a few drops of 10- to 20-per-cent. Neo-Silvol solution every four hours. Gonorrheal ophthalmia warrants the employment of solutions of 25 to 50 per cent. strength.

In dental caries, especially in children, a 20-per-cent. solution of Neo-Silvol may be applied on cotton and allowed to remain in place for twenty-four hours, when it should be renewed.

As an antiseptic in post-extraction sockets apply a 10-per-cent. solution of Neo-Silvol. Erosions and exposed roots should be painted with a 50-per-cent. solution. As a detergent preparation for the irrigation of infected antra and sinuses, Neo-Silvol may be employed in a solution of

5-per-cent. strength or less. To the usual treatment of pyorrhea alveolaris may be added with advantage the use of 10-per-cent. Neo-Silvol solution, flooded about the root of the tooth and kept in contact with the infected tissues for five minutes, after which the mouth should be rinsed with warm water.

In the early stage of anterior urethritis of gonorrheal origin, a 5-per-cent. solution of Neo-Silvol may be injected by means of a hand-syringe. After the acute symptoms have subsided, stronger solutions, 10- or 15-per-cent., may be resorted to. The solution should be retained in the urethra for at least ten minutes. Combined with the injection treatment, copious irrigations with a 1-per-cent. Neo-Silvol solution have been suggested. These irrigations may be continued in chronic anterior urethritis until no gonococci are found in the secretion.

In acute and chronic posterior urethritis, injections are advisable only in the mildest cases and in these conditions a 10-per-cent. solution of Neo-Silvol is best. In the treatment of cystitis 5 to 10 cc of a 10-per-cent. solution may be injected into the emptied bladder; and even though not long retained it has a marked affect in subduing the inflammation. In pyelitis a 5-per-cent. solution is introduced by way of the ureter.

In vaginitis, cervicitis, and other inflammatory conditions of the female genito-urinary tract, apply a 5-per-cent. solution by means of tampons. In chronic cervicitis 50-per-cent. solutions may be painted over the interior of the cervical canal by means of a suitable applicator.

Neo-Silvol is supplied in ounce bottles and in 6-grain capsules, bottles of 50. By dissolving the contents of one capsule in one drachm of water a 10-per-cent. solution is made, and (of course) stronger or weaker solutions by varying the number of capsules or the quantity of water.

Neo-Silvol Suppositories, Vaginal

Each suppository contains 5 per cent. of Neo-Silvol, a non-staining silver preparation equal in germicidal power to pure carbolic acid, and twenty times as active against the gonococcus. The suppositories are intended especially for the topical treatment of gonorrheal vaginitis and urethritis in the female. They are of service also in leucorrhea or any form of vaginitis due to bacterial infection.

The container is a soft tin capsule with folded edges that can be readily clipped off with a pair of scissors when the suppository is to be used. Meantime the metallic capsule preserves the shape of the suppository (which has a glycero-gelatin base) in the warmest weather. To harden, place the suppository in cold water and allow it to remain for a few minutes; then clip off the capsule.

Supplied in boxes of one dozen.

Nuclein Solution No. 1

(Ampoule No. 26)

This ampoule contains 1 cc (16 minims) of a 5% solution of highly purified nucleinic acid.

Nuclein, or nucleinic acid, contains a high percentage of organic phosphorus, and for this reason it is employed in the treatment of neurasthenia, slow convalescence from infectious diseases, and conditions of low vitality generally. It acts as a tonic or nutrient to the nervous system. Another effect is the stimulation of phagocytosis. Nuclein increases very decidedly the number of polymorphonuclear leucocytes in the blood. This means that it adds new recruits by the thousands to the standing army of defense against bacterial invasion. This alone is sufficient in many cases to turn the tide of battle in tonsillitis, furunculosis, and various septic conditions. Good results have also been

reported from the use of Nuclein in scrofulosis or glandular hypertrophy.

Dose, 1 cc daily or on alternate days.

The ampoules are supplied in boxes of one dozen.

Nutritive Liquid Peptone

This is a combination of beef extract and malted barley. The extract of beef consists of prime lean beef digested with bromelin, a ferment found in pineapple juice. All the nutritive elements of the beef are present. The malt has a decided diastatic action.

Nutritive Liquid Peptone is intended for improving the appetite and supplying easily assimilated nutriment in concentrated form. It is indicated in wasting diseases, malnutrition during the course of and convalescence from acute infectious diseases, and after surgical operations.

The dose is one to two tablespoonfuls.

Supplied in 16-fluidounce and 1-gallon bottles.

Nutritive Liquid Peptone with Creosote

The basic ingredients of this preparation are beef and malt—the former digested by means of bromelin from pineapple juice, and hence free from bitterness; the malt a product of selected barley, of maximum amylolytic activity. Each ounce contains in addition 1¼ minims of creosote from beechwood, and ¾ minim of guaiacol.

While the predigested beef contained in this preparation renders it a useful invalid food, it is much more; the malt gives it diastatic value, and the creosote and guaiacol make it serviceable in the treatment of subacute and chronic bronchitis, as well as in the flatulence and intestinal fermentation that so often attend or follow acute disease.

Dose, one or two tablespoonfuls after meals.

It is supplied in 16-fluidounce and 1-gallon bottles.

Palatol

"Palatol" is a name we have given to a palatable extract of cod-liver oil with the addition of medicaments that are frequently indicated in cases that require the cod-liver oil. The ingredients are: Gaduol, from 250 minims of cod-liver oil; Hematic Hypophosphites, 90 minims; Malt Extract, 60 minims; Syrup of Wild Cherry, 120 minims—in each fluid ounce.

This is a general tonic, of special value in the treatment of chronic bronchial irritation, with one "cold" coming on after another, and in the meantime a fickle appetite that fails to keep up the patient's weight and strength. The gaduol is believed to have more or less of an alterative effect, while the hypophosphites supply not only phosphoric acid but iron, quinine, manganese, potassium, calcium, and strychnine, in assimilable form. The wild cherry is sedative, astringent and expectorant.

The usual dose of Palatol is one teaspoonful to one tablespoonful three times a day.

It is supplied in 16-ounce and one-gallon bottles.

Palatol Compound

This preparation is the same as the foregoing, with the addition of 4 minims of creosote and 2 minims of guaiacol to each ounce. While not quite so pleasant to take as the plain Palatol, it is to be preferred in resistant cases of bronchitis and winter cough.

It is supplied in 16-ounce and one-gallon packages.

Pancreatin, U. S. P.

This is an extract of the pancreas—a complex substance containing three distinct digestive ferments: (1) amylopsin, which liquefies starch; (2) steapsin, which emulsifies fats;

(3) trypsin, which peptonizes albumin. It acts in either neutral or alkaline media, and may be administered during or immediately after meals, or added to the food beforehand to "peptonize" it.

Pancreatin is indicated in cases of intestinal indigestion.

The internal dose is 1 to 5 grains. For peptonizing milk, make a solution of sodium bicarbonate, 20 grains to 4 ounces of tepid water, add 5 grains of Pancreatin, and to this mixture add after about fifteen minutes a pint of warm milk; let stand in a warm place for half an hour to an hour, then cool quickly. In the refrigerator the peptonized milk will keep for twenty-four hours.

Pancreatin, U. S. P., is supplied in ounce vials and in ¼-lb. and 1-lb. bottles.

Pancreatin, Liquid

Two fluid drachms will peptonize a pint of fresh milk in one-half to one hour, under conditions specified on the label of the bottle.

It is supplied in 8-ounce, 16-ounce and 1-gallon bottles.

Pepsin

Pepsin, made from hog stomachs, has taxed the ingenuity of manufacturing chemists from the time the first specimen, nearly forty years ago, was placed upon the market. The aim, of course, has been to produce an active product free from objectionable features. There was a time when a pepsin that would digest 300 times its weight of disintegrated albumen was considered a triumph of manufacturing skill; now we can supply a 1:10,000 product, though the general demand is for the U. S. P. strength, 1:3000; our line runs from 1:2000 to 1:10,000.

Pepsin is supplied in powder and in spongy granules, the

latter on orders which do not specify the purchaser's preference. Spongy pepsin is the latest to be developed in our laboratory, and exhibits this digestive agent at its very best—practically without odor, color or taste, and almost as soluble as snow.

Pepsin is supplied in 1-ounce vials and ¼-lb., ½-lb. and 1-lb. bottles; also in tablets and as the active agent in Pepsin Cordial and Essence of Pepsin (see below).

Pepsin Cordial

One teaspoonful of Pepsin Cordial will digest 4000 grains of coagulated and disintegrated egg albumen. Seldom or never will a proteolytic agent of greater activity be required. Taken after eating, or whenever gastric discomfort is experienced as a result of the tardy digestion of proteids, Pepsin Cordial will usually give prompt relief. The appearance and taste of the Cordial are beyond criticism—a permanently clear liquid, with a palatable tang that involves no suggestion of the presence of an animal extract.

It is supplied in 16-fluidounce and 1-gallon bottles.

Pepsin, Essence of

This preparation contains a high grade of pepsin. One teaspoonful will digest 4000 grains of coagulated and disintegrated egg albumin, or curdle a quart of warm milk. It is indicated in gastric disorders dependent upon the failure of the peptic glands to supply a sufficient amount of pepsin. Its pleasant flavor makes it useful as a vehicle for ill-tasting drugs such as bromides, iodides, ipecac and valerian. In the feeding of infants and invalids, milk may be predigested by adding one or two teaspoonfuls of Essence of Pepsin to a quart of milk that has been warmed to 115° F.

Allow the peptonized milk to stand for 30 minutes and then place it on ice.

The dose of Essence of Pepsin is one to four teaspoonfuls.

Supplied in 16-fluidounce and 1-gallon bottles.

Pepsin Tablets

Each tablet contains 1, 2, 3, or 5 grains, specified on the label, of Pepsin 1:3000 (P. D. & Co.), and is sugar-coated to facilitate administration. The pepsin itself is not objectionable to the taste, being refined to the highest point of excellence, but the smooth, sweet coating is nevertheless an advantage.

The dose is one tablet, to be taken about half an hour after meals, for the relief of dyspepsia due to defective gastric secretion. For more certain effect the dose should be accompanied by a little dilute hydrochloric acid.

The tablets are put up in bottles of 100 and 1000.

Peptone, Bacteriologic

This preparation is intended solely for the use of bacteriologists, as an addition to culture media, which it enriches to a remarkable degree, containing as it does an unusual percentage of amino-acids, or end-products of digestion, which are greedily appropriated by the bacteria. Bacteriologic Peptone, P. D. & Co., is in constant service in our laboratory, and is equal or superior to any other on the American market or imported from abroad.

Supplied in 1-lb. bottles and 5-lb. and 10-lb. cans.

Phenol Disinfectants

The phenol or coal-tar disinfectants are so named because of their similarity in action to phenol and their derivation from coal tar.

In coal tar are to be found an immense number of hydrocarbons, including pure benzol and phenol, as well as aromatic compounds built up on these basic bodies—germicides, perfumes, dyes, and many important medicinal compounds.

The part containing the germicidal constituents is known as creosote oil, from its similarity to the creosote of wood tar. This part of the coal tar has boiling points ranging from 180° to 300° C.; the phenols are to be found only in the oils distilling between these two extremes. Each phenol has its own distillation point. Occurring with the phenols are certain neutral hydrocarbons of approximately the same boiling points and therefore not separable by distillation. Separation is accomplished by chemical means.

Phenol proper, commonly known as carbolic acid, is the simplest and best known of the phenol compounds. One other, and only one, has any commercial importance, and this is not a single compound but a mixture of three isomeric compounds known chemically as methyl phenol and popularly as cresol, cresols, or tricresol. The germicidal value of each of these cresols is about three times that of phenol. Tricresol, therefore, is said to have a phenol coefficient of 3.

The other phenols of coal tar are commercially important, not as separated products, but in crude form, associated with the neutral oils that distill over at the same temperature. They are used as disinfectants, particularly in the animal industries. The peculiar advantages of this series of disinfectants are: cheapness, efficiency, low toxicity, and freedom from corrosive action when properly prepared and used.

On account of the difficulty of separating and identifying the individual phenols present in these coal tar disinfectants, and in view of the fact that the product itself gives no indication in its physical properties as to whether or not it con-

tains more than a minimum amount of phenols, an official statement of efficiency is indispensable. The first of such disinfectants to appear on the market were really efficient; but there soon followed a flood of apparently similar preparations which were of little value, and no ready means were available for measuring their values and eliminating the unfit.

Recognizing the need of standardization, we applied a method of assay based on the time required for a given dilution of the disinfectant to kill a suspension of a test organism grown in a liquid medium.

The disinfectant to be tested and the standard—pure phenol (Merck)—are each diluted with distilled water to such an extent that they will just kill the test organism in suspension in a specified period of time. A number of dilutions are prepared, some of them strong enough to kill the organism in less than five minutes and some so dilute that the organism is not killed within fifteen minutes.

The organism used in the test is B. typhosus, and the final result is based on the results observed after five, ten, and fifteen minutes, respectively. Different dilutions of the disinfectant are mixed with a suspension of the typhosus culture, the mixture is thoroughly shaken, and after five minutes a subculture is made by transferring a loopful of the mixture to a tube of sterile medium, which is then placed in the incubator and allowed to remain for forty-eight hours. During this time any organism not killed by the five minutes contact with the diluted disinfectant will grow sufficiently to make the medium cloudy. After the disinfectant and the original culture have been in contact for ten minutes, a second loopful of the mixture is removed and a second subculture made. After a third five-minute interval the final subculture is planted.

The results are deduced by noting the greatest dilution of the disinfectant and of the standard (phenol), respectively,

which killed the test organism at five, ten, and fifteen minutes, respectively. This can be made clear by an illustration of the testing of Kreso.

Kreso Dilutions	Time—minutes 5	10	15
1:500	—	—	—
1:600	+	—	—
1:700	+	+	—
1:800	+	+	+
1:900	+	+	+
Phenol Dilutions			
1:80	—	—	—
1:90	+	—	—
1:100	+	+	—
1:110	+	+	+
1:120	+	+	+

The 1:500 dilution of Kreso and the 1:80 dilution of phenol were the highest that killed the test organism in five minutes. At ten minutes, 1:600 and 1:90 were the highest effective dilutions. At fifteen minutes, 1:700 and 1:100 were the highest effective dilutions.

Then $\frac{500}{80} + \frac{600}{90} + \frac{700}{100} \div 3 = 6.6$, which is the phenol coefficient of Kreso.

In the above illustration the minus sign (–) signifies no growth (the sterile tubes of medium remained sterile because the organisms transferred to them were dead), while the plus sign (+) indicates that growth occurred in the medium because there were live organisms in the loopful of culture and disinfectant placed in it.

See Kreso, page 190; and Cresylone, page 162.

Physiologic Salt Solution
(Ampoule No. 42)

Each ampoule contains: Sodium chloride, 0.009 gm.; Potassium chloride, 0.0001 gm.; Calcium chloride, 0.00025 gm.; water to make 1 cc. This is known as Locke's solution; it is the combination of chlorides suggested by Dr. F. S. Locke, of the Department of Physiology of Harvard University. It is isotonic with the blood, and therefore suitable for making solutions of drugs intended for hypodermic administration.

The ampoules are supplied in boxes of 12.

Pituitrin
(See Pituitrin in Chapter on Gland Products, page 55)

Pollen Extracts
(See Biological Section, page 76)

Proposote Capsules

Proposote is a chemical combination of creosote and phenylpropionic acid which possesses two advantages over creosote itself. The first is that it passes through the stomach unchanged—not as creosote, but as Proposote—without giving rise to any gastric symptoms. The second advantage is that when it is decomposed, as it is in the small intestine, it consists of two therapeutic agents instead of one—for phenylpropionic acid, like creosote, is an antitubercular agent, a drug that is prescribed under the name of hydrocinnamic acid in the treatment of tuberculosis.

Proposote is the most acceptable form in which creosote is to be had. It is of special practical value in intestinal fermentation and subacute and chronic bronchitis. Being partially excreted by way of the bronchial tubes, it comes into direct contact with the infecting micro-organisms.

Not only in bronchitis (and in the early stages of tuberculosis), but in the pre-whooping stage of pertussis, Proposote is a valuable medicament, being capable of often cutting short the attack and preventing the development of the "whoop" with its attendant possibilities of dissemination of the infective material. Children of five years or over can take the globules without difficulty, and for younger patients the Proposote may be removed from the capsule by puncture and mixed with simple syrup or, better, Syrup Yerba Santa Aromatic.

The dose is 5 to 10 minims thrice daily, or as indicated, and should be taken when the reaction of the stomach contents is unquestionably acid—that is to say, about half an hour after eating.

Proposote is supplied in sealed gelatin capsules containing 5 minims and 10 minims respectively. The marketed containers are cardboard boxes of 12 and 100.

Protein Extracts

(See Diagnostic Protein Extracts, page 41)

Quinine

Quinine is prescribed for its stomachic, antipyretic and antiperiodic effects; but since other stomachics and antipyretics are available its chief value is as a remedy for malaria. It acts directly upon the malarial parasite, the plasmodium malariæ in the blood, and should be administered in large doses at about the time the malarial paroxysm is due, or shortly before, so that it may be present in the blood in force at the time of the parasitic sporulation and before the spores have had time to attack the red cells. In the milder cases the systematic administration of smaller doses (2 to 3 grains) will have practically the same effect.

Quinine in doses of 2 grains every two hours has been

given with good effect to relieve the headache that is so frequently encountered in patients recovering from influenza.

Some patients are peculiarly susceptible to the action of quinine, which, through its effect upon the nervous system, may set up a train of cerebral disturbances (cinchonism) such as headache, tinnitus, slight deafness, or even vertigo. Such symptoms can be averted by prescribing small doses (5 grains t.i.d.) of Brometone with the quinine. In pregnancy, if it is necessary to give quinine, the disturbing effect of the drug upon the uterus can be averted by the simultaneous prescription of Liquor Sedans.

Quinine Dihydrochloride Solution

(Ampoules Nos. 18, 34, 46, 204, 205)

These ampoules contain respectively 3¾ grains, 7½ grains, and 15 grains of quinine dihydrochloride for subcutaneous or intramuscular administration, and 5 grains and 10 grains for intravenous administration, in the treatment of malaria. Ampoule No. 18 contains 3¾ grains in 1 cc of distilled water; No. 34, 7½ grains in 1½ cc of distilled water; and No. 46, 15 grains in 2 cc; all three are marketed in boxes of 12 ampoules. For intravenous use Ampoules Nos. 204 and 205 are supplied, containing respectively 5 grains and 10 grains of quinine dihydrochloride in 10 cc and 20 cc, respectively, of physiologic salt solution. These two ampoules are marketed in boxes of 6.

The dose is one ampoule, repeated as frequently as the type of malaria under treatment requires, and so timed as to place at the disposal of the body defenses the full dose just prior to the sporulation of the plasmodia.

Quinine Hydrobromide
Neutral

Aside from the use of this quinine salt in the treatment of malaria, its principal use is as a sedative in exophthalmic goiter. Good results are reported by Forchheimer of Cincinnati, Jackson and Mead of Boston, and others. Dr. Forchheimer is the originator of the treatment. Drs. Jackson and Mead, commenting on fifty-six cases in the Massachusetts General Hospital treated with quinine hydrobromide, state that 76 per cent. of these cases were entirely relieved, the relief continuing for at least two years. Of the remaining 24 per cent. about half were benefited to some extent, while the treatment seemed to have no effect on the remaining six cases—11 per cent. of the total number. The usual dose is 3 to 5 grains three or four times daily, to be intermitted on the appearance of signs of cinchonism. The treatment may have to be continued for months. Rest, good food, and freedom from anxiety are perhaps the most important factors in the non-surgical treatment of these cases. (See Thyroidectin, page 92.)

Quinine Hydrobromide, neutral, is supplied in pills of 2 grains (Pill No. 541), bottles of 100 and 500; tablets of 5 grains (Chocolate-coated Tablet No. 484), bottles of 100 and 1000; and soluble gelatin capsules containing 5 grains (Soluble Gelatin Capsule No. 206), boxes of 100.

Quinine and Urea Hydrochloride Solution
(Ampoules Nos. 17, 39, 90, 91)

Two purposes are served by these ampoules. Nos. 17 and 39 contain a 1-per-cent. solution of quinine and urea hydrochloride, and Nos. 90 and 91 7½ grains and 15 grains, respectively, of the double salt, without particular regard to the percentage strength of the solution. The 1-per-cent. solution is intended for use as a local anesthetic, especially

for the anesthetization of submucous tissues, as in dental and rectal surgery. The anesthesia, though rather slow in developing, is not only complete. but lasting—a desideratum in the removal of deeply embedded dental roots, to prevent post-operative as well as operative pain, and in tonsillectomy or any operation upon the rectum. Not only in this class of cases, but in almost any minor surgical operation, quinine anesthesia is altogether satisfactory; but for subcutaneous application a 0.25 to 0.5% solution is preferred by many to the full 1% strength, for the reason that the latter may cause exudation of fibrin, with consequent thickening and induration of the tissues, interfering with the healing of the surgical wound. Especially in operations upon the fingers or toes, and in circumcision, should weak solutions be employed.

The fibrinous exudation following injection of quinine and urea hydrochloride in 1-per-cent. or stronger solutions has led to the use of this compound for obliterating simple internal hemorrhoids by interference with the blood supply. A 5% solution is injected deeply into the pile, as recommended by Dr. E. H. Terrell, of Richmond, Va. Such a solution can be readily prepared by diluting the contents of one of our ampoules No. 90 with 150 minims (2½ fluid drachms) of distilled water, or by dissolving a hypodermic tablet of quinine and urea hydrochloride 7/10 grain in 14 minims of water. The amount required is not more than a few drops for each hemorrhoid, and only one is injected at a seance. Dr. Chas. D. Aaron, of Detroit, Mich. (*N. Y. Med. Jour. and Med. Record*, Dec. 20, 1922), instead of injecting each hemorrhoid with a few drops of the 5% solution, injects 1 to 5 cc of the solution in each quadrant of the rectum above the internal sphincter, at intervals of one week. An oblique anoscope is used, to render easily accessible each quadrant in succession.

The 7½- and 15-grain ampoules of Quinine and Urea

Hydrochloride solution are intended for the treatment of malaria, the dose being injected intramuscularly or, after suitable dilution, intravenously.

Ampoule No. 17 is supplied in boxes of six, each ampoule containing 5 cc of a 1% solution; Ampoule No. 39 in boxes of twelve, each ampoule containing 2 cc of a 1% solution.

Ampoule No. 90 (7½ grains in 1½ cc of distilled water) and Ampoule No. 91 (15 grains in 2 cc) are supplied in boxes of one dozen each.

Ringer Tablets

Each tablet contains: Sodium chloride, c. p., 50 milligrams; Potassium chloride, c. p., 2 milligrams; Calcium chloride, c. p., 4 milligrams.

One tablet dissolved in 10 cc of distilled water containing sufficient Apothesine or other local anesthetic to make a 2% solution, yields a liquid isotonic with the blood and possessing a minimum of irritating property when injected into the gum or other tissue.

The tablets are especially convenient for the dentist who has to use a local anesthetic frequently, and who wishes to avoid all unnecessary pain to the patient as well as all unnecessary risk of infection. Kept in the stoppered tube or bottle, the tablets are protected from contamination; but if there should be any question on this score, or if the local anesthetic in tablet form has been exposed, the solution may be boiled for a few minutes without injury to the chlorides or to the Apothesine or Adrenalin in the mixture.

The tablets are supplied in tubes of 25 and in bottles of 100.

Sal-Ethyl
(Soluble Gelatin Capsules)

Sal-Ethyl is a chemically pure ethyl salicylate, transparent, colorless, and volatile, with a pleasant character-

istic odor and taste. The ethyl chemical structure seems to be less toxic than the methyl, as is clearly shown in the relative toxicities of ethyl and methyl alcohols; and experiments have demonstrated that ethyl salicylate is less likely to disturb the stomach than is methyl salicylate.

Sal-Ethyl Capsules are used in the same class of cases as other salicylates—disorders of a rheumatic nature, including acute rheumatic fever, subacute rheumatic arthritis, and neuralgias, neuritis, headaches, and other symptoms apparently dependent upon the "rheumatic diathesis."

The dose is 20 to 80 or more minims a day.

The Capsules contain 5 minims, and are supplied in bottles of 50 and 500.

Santal Oil

(Soluble Gelatin Capsules)

Santal oil, administered by mouth, is excreted by way of the kidneys and the upper air passages. It acts as a stimulant and disinfectant of the mucous membranes with which it comes in contact, and is therefore of value in bronchitis, as well as in gonorrhea and other genito-urinary affections. It may, however, prove irritating in the acute inflammatory stage; the best results are obtained in subacute and chronic cases. Not pleasant to the taste, it is administered on sugar or in capsule form.

Santal oil is subject to adulteration in the market. All the santal oil we offer is identified as genuine by conclusive chemical tests.

The dose of santal oil is, as a rule, 3 to 5 minims. In bronchitis a few small doses will often put an end to the irritation, but treatment may have to be somewhat protracted in genito-urinary affections—pyelitis, cystitis, gonorrheal urethritis, prostatitis, etc.

Other drugs that have a tonic or disinfectant effect upon the genito-urinary tract are combined with santal oil in certain preparations of ours, a few of which are named in the following list:

SOLUBLE ELASTIC CAPSULES IN BOXES OF 12 and 100

Santal Oil, 5 minims (No. 89).

Santal Oil, 10 minims (No. 46).

Santal and Salol (No. 22). Santal oil, 5 minims; salol, 5 grains.

Santal and Methylene Blue Compound (No. 16). Oil santal, 1 minim; methylene blue, 1 grain; oleoresin cubeb, 1 minim; salol, 2 grains; copaiba, 3 minims; oleoresin matico, 1 minim; oil of cloves, ¼ minim.

Scarlet Red Emulsion

This is an emulsion containing 4 per cent. of the same scarlet red as that used in our Scarlet Red Ointment (*q. v.*). It has been demonstrated that Scarlet Red Emulsion is of special value in the treatment of atrophic rhinitis and ozena. Its outstanding quality is its adhesiveness, particularly in contact with mucous membranes. The Emulsion is to be preferred to the Ointment for application to mucous surfaces for the reason stated. It is not poisonous. In applying the Emulsion to ulcerations of mucous membrane, the parts to be treated should first be thoroughly cleansed with warm boric acid or other antiseptic solution, and the Emulsion applied with gentle massage. A sufficient amount should be used to completely cover the affected region, making a thin layer. This procedure should be repeated on alternate days, though as the case progresses to recovery these intervals may be extended to three or four days.

Scarlet Red Emulsion is supplied in 1-oz. glass-stoppered bottles.

Scarlet Red Ointment

Scarlet red, incorporated in this ointment, is a dark-colored powder, soluble in water, and is chemically the sodium salt of amido-azo-benzene-disulphonic-acid-azo-beta-naphthol.

Scarlet Red Ointment is an epithelial stimulant. It causes healing, not by the formation of scar tissue, but by producing a high grade of normal skin, which can be demonstrated by section, and which very soon becomes freely movable on the underlying tissue. The return of sensation in the healed area extends from the periphery inward, instead of upward from the underlying tissue; and, in the dark races, the deposit of pigment comes from both sources.

In the treatment of ulcers following burns, infection and trauma, and in varicose ulcers, syphilitic ulcers, bedsores, and in fact whenever slow-healing breaks in the continuity of the skin occur, Scarlet Red Ointment will be found of great value. It may also be applied beneficially in cases in which skin grafting has been resorted to.

The Ointment may be applied over the whole surface of the ulcer or only to the growing epithelial edge. It may be applied directly, or a thin layer may be spread on perforated strips of cloth, preferably old linen, and these laid on the raw area. An ordinary dressing is then applied. In many cases it is advisable to cover the surrounding skin to within one centimeter (1/3 inch) of the edge of the ulcer with a bland ointment to prevent extensive irritation. The portion of the wound not covered with the Ointment may be dressed in any suitable manner.

The applied Scarlet Red Ointment, in the absence of indications to the contrary, should be left undisturbed for twenty-four to forty-eight hours, then followed for a like period by a bland ointment. Patients should be informed of the fact that the dressings will be stained red, to forestall

unnecessary alarm from the belief that hemorrhage has occurred. They should also be apprised of the fact that stains left on linen are very difficult to eradicate. Large ulcers, measuring several inches in diameter, should have only their edges anointed. Clean healthy granulations should be bathed in boric acid solution and dried before the application of the Ointment. Hydrogen peroxide may be used to cleanse unhealthy granulations, as a preliminary treatment, and the nitrate-of-silver stick may be freely used where needed. Acute ulcers following burns should be exposed to scarlet red only after all irritation from the primary injury has subsided. It is inadvisable, in any case, to allow the wound to remain for several days without being redressed.

Scarlet Red Ointment is supplied in five-per-cent. and ten-per-cent. strengths. The former is marketed in 1-oz. collapsible tubes, the latter in ½-lb. jars.

Sedans Tablet

(Compressed Tablet No. 226)

Each tablet represents: Black haw, 7½ grains; Jamaica dogwood, 3¾ grains; hydrastis, 7½ grains. In other words, one tablet is the equivalent of one fluid drachm of Liquor Sedans, except that it contains a double portion of hydrastis. The liquid is objectionable to some patients, though quite satisfactory to the majority. Those who find it so unpleasant to the taste as to interfere with its systematic use when it is required can be easily persuaded to substitute either this tablet or our soluble gelatin capsule Liquor Sedans, which contains the exact equivalent of one fluid drachm of Liquor Sedans. (See Liquor Sedans, page 191).

The tablets are supplied in bottles of 100 only.

Silvol

This is a suspension of silver in colloidal form in an alkaline proteid, forming an antiseptic silver preparation, non-irritating even to inflamed mucous membranes. It occurs as brown lustrous scales which are freely soluble in water.

Solutions of Silvol do not coagulate albumin as found in cellular protoplasm; they do not precipitate tissue chlorides; the stains they leave on skin or membranes may be washed off, unless allowed to dry, when they are readily removed with solutions of soluble mercury salts, such as the bichloride.

Blepharitis, simple conjunctivitis, and acute contagious conjunctivitis (pink eye) are all favorably influenced by a few drops of a 20-per-cent. solution instilled into the eye every three hours. In cases in which gonorrheal ophthalmia has developed, 20-per-cent. solutions should be employed.

In coryza a 10-per-cent. solution sprayed on the nasal mucous membrane or applied by means of a nasal douche is beneficial. Gratifying relief to the patient may be obtained in cases of pharyngitis and tonsillitis by swabbing the throat and tonsils with a 10- to 20-per-cent. solution every few hours. After tonsillectomy a 25-per-cent. solution is useful as a daily application to the denuded surface.

In dental caries, especially in children, pledgets of cotton saturated with a 20-per-cent. solution of Silvol may be retained in the cavity for 24 to 48 hours. A 10-per-cent. solution, flooded into the pockets and allowed to remain for five minutes, is beneficial in pyorrhea alveolaris. The mouth is then rinsed with warm water. Silvol in 10-per-cent. solution is an antiseptic and detergent application to post-extraction sockets, while for painting erosions and exposed roots a 50-per-cent. solution is not too strong. Weaker solutions, about 2-per-cent., are indicated as irrigations for infected antra and other sinuses.

In simple uncomplicated gonorrheal urethritis treatment may be begun with a 5-per-cent. solution, injected every four hours. It is desirable to have the solution distend the folds of the urethra in order that it may come in contact with the entire mucous surface. As the acute symptoms subside, the strength of the Silvol injections may be gradually increased to 10 per cent. or 15 per cent. Injections of Silvol should be retained in the urethra for at least ten minutes. In addition copious daily irrigations with a 1-per-cent. solution may be given; these are especially valuable in chronic anterior urethritis, and are to be continued as long as gonococci are found in the secretion.

In posterior urethritis, both acute and chronic, the applicability of the injection treatment is limited to the mildest cases. Ten-per-cent. solutions are usually employed in these cases.

In cases of ulcers and sinuses in which healing is delayed because of continued infection, Silvol in 20-per-cent. solution is a useful antiseptic application.

Silvol is put up in one-ounce vials of the scales, and in bottles of fifty 6-grain capsules. The contents of one capsule (6 grains) dissolved in one drachm of water will make a 10-per-cent. solution. Solutions of other strengths may be prepared by varying the number of capsules and the amount of water. This makes for convenience so that fresh solutions can be easily prepared at frequent intervals.

Silvol Ointment

This is an ointment containing five per cent. of Silvol, applicable in cases of acute conjunctivitis, blepharitis, traumatic ulcer, acute rhinitis, ulcer of the nasal septum, hypertrophic rhinitis, trachoma, sinusitis, muco-purulent catarrh, pannus, corneal ulcer, iritis, gonorrheal conjunctivitis, and nasal ulceration.

Silvol Ointment five-per-cent. is supplied in 1-drachm and 10-drachm collapsible tubes provided with an elongated nozzle for applying the ointment directly to the part to be treated.

Silvol Suppositories, Vaginal

Each suppository contains 5% of Silvol in a glycero-gelatin base. That the suppositories may retain their shape in hot weather, each of them is enclosed in a soft tin capsule with folded edges that can be clipped off with scissors when the suppository is to be used. By first immersing in cold water, the suppository is hardened sufficiently to be handled. These suppositories are adapted to the treatment of gonorrheal vaginitis. One suppository is to be inserted in the vagina at night on retiring.

Silvol Suppositories are supplied in boxes of one dozen.

Sodium Cacodylate Solution

(Ampoules Nos. 20, 21, 22, 23, 37, 122, 126, 201, 202, 203)

The one unassailable claim that can be made for sodium cacodylate is that it is better borne, much better borne, than other arsenicals, and that it produces the characteristic alterative effects of arsenic. The tolerance of the patient for this form of arsenic makes it possible for the practitioner to push the medication vigorously; but at the same time it is necessary to avoid cumulative effects, just as it is in the administration of other arsenicals. Sodium cacodylate has been extensively employed in the treatment of syphilis; and though it cannot be said to destroy the spirochete directly, as arsphenamine is supposed to do, it has a prompt effect upon the external lesions, particularly of the mucosa.

The dose ranges from ¾ grain to 15 grains. As much as 20 grains has been administered at a single dose without apparent ill effect. Small doses should initiate the treat-

ment in any case, though in syphilitic cases 3 grains is usually as small a dose as the condition of the patient requires; from this amount the dose may be gradually increased up to 15 grains if necessary, one injection daily or on alternate days until fifteen to twenty have been given. Time should then be allowed for the patient to rid himself of the accumulated arsenic. Sodium cacodylate is not a substitute for mercury.

The other indications for the use of sodium cacodylate are the same as for other preparations of arsenic: anemia, psoriasis, pemphigus, eczema, malaria that does not yield to quinine, and generally as an alterative agent to accelerate metabolism.

The following ampoules of sodium cacodylate, intended for subcutaneous or intramuscular use, are supplied in boxes of one dozen. With the exception of No. 126, 15 grains, they contain 1 cc of aqueous solution; No. 126 contains 2 cc:

No. 20, ¾ grain; No. 21, 1½ grains; No. 122, 2 grains; No. 22, 3 grains; No. 37, 5 grains; No. 23, 7 grains; No. 126, 15 grains.

The following are intended for intravenous use and are supplied in boxes of one-half dozen. The menstruum in each case is distilled water:

No. 201, 3 grains in 5 cc; No. 202, 7 grains in 5 cc; No. 203, 15 grains in 10 cc.

Sodium Citrate Solution

(Ampoule No. 206)

For use in the transfusion of blood

Each ampoule contains 50 cc of a 2½% solution of sodium citrate.

In blood transfusion, when the blood is not transferred directly from the vein of the donor to that of the patient,

it is prevented from coagulating in the vessel into which it is drawn by the presence of sodium citrate solution.

The solution is first placed in a sterile glass vessel, 50 cc of the 2½% solution being sufficient to keep ten times this amount of blood in a fluid condition. One pint (500 cc) of the donor's blood is then drawn directly into the vessel containing the sodium citrate solution, and the mixture is subjected to constant agitation with a sterile glass rod until everything is in readiness for the transfer of the blood to the vein of the patient. As short a time as possible should elapse between the withdrawal of the donor's blood and its injection, a biological comparison of the two bloods having been made beforehand so that there will be no question of compatibility when the final tapping is made.

The ampoules are supplied singly and in boxes of six.

Sodium Glycerophosphate Solution

(Ampoule No. 38)

Each ampoule contains 1½ grains of sodium glycerophosphate in 1 cc (16 minims) of distilled water.

The glycerophosphates supply phosphorus to the cells and tissues of the body in an easily assimilable form. Since pure phosphorus in organic combination is one of the basic elements of nerve and brain tissue, the problem in the treatment of neurasthenia or nerve exhaustion has always been the placing of available phosphorus at the command of the famishing nerves. In other words, what is the best form of phosphorus to administer?

Foods rich in phosphorus do not answer the question as conclusively as one might think, for everything taken into the stomach in the form of food has to be digested—taken apart—before its ultimate amino-acids can be assimilated by the tissues. Without placing any burden on the digestive organs—without even recognizing the stomach at all—

a phosphorus compound as supplied in Ampoule No. 38 can be introduced into the blood for prompt utilization by the tissues.

The glycerophosphates resemble in form the product of one of the last stages of digestion, prior to assimilation; and clinical experiment has shown that among the glycerophosphates the sodium salt is one of the most serviceable when the object is to "build up" the nervous system.

Frequently the neurasthenic patient is suffering from the physiological consequences of diminished phosphorization of the nerve cells. The metabolic processes are slowed down; uric acid accumulates; the temperature tends toward a subnormal level on account of imperfect oxidation; and a general cachectic condition ensues.

Sodium glycerophosphate is indicated in chlorosis and other forms of anemia; in nervous breakdown from overwork or from long exposure to a debilitating climate, as in tropical countries; in obesity of the asthenic type; in lingering convalescence from influenza or other acute disease; and in chronic tuberculosis, to retard demineralization of the cells. It is also of value in rickets, osteomalacia, or any affection of the bones due to phosphate defect, though here the glycerophosphate of calcium may perhaps be more urgently indicated.

It is said that the pains of sciatica, tic, tabes and lumbago will often respond in a gratifying manner to glycerophosphate medication.

The dose of Solution Sodium Glycerophosphate is one ampoule, daily or on alternate days, as indicated by the response of the patient.

The ampoules are supplied in boxes of one dozen.

For combinations of sodium glycerophosphate with cacodylates and with other glycerophosphates, see Glycerophosphate Compound (Amp. No. 35) and Glycerophosphates Compound (Elixir No. 141).

Sodium Iodide Solution

(Ampoules Nos. 208 and 211)

Each Ampoule No. 208 contains 1 gram (15½ grains) of sodium iodide in 10 cc of distilled water.

Each Ampoule No. 211 contains 2 grams (31 grains) of sodium iodide in 20 cc of distilled water.

Both solutions are intended for intravenous administration.

Sodium iodide intravenously is indicated in bronchial asthma, simple goiter (hypothyroid), adenitis, exudates and effusions of various kinds, especially syphilitic, and subacute and chronic arthritis. Better results are to be expected in arteriosclerosis from large doses intravenously than from prolonged medication by mouth.

The dose of the solution is 10 to 20 cc, the contents of one ampoule, repeated daily or on alternate days.

The ampoules are supplied in packages of six.

Sodium Salicylate Solution

(Ampoule No. 217)

Each ampoule contains 20 grains of sodium salicylate in 10 cc of distilled water, for intravenous administration.

Intensive salicylate treatment is necessary in many cases of rheumatism, but in large doses the salicylates are apt to disturb the stomach; hence the advantage of this specially prepared solution for intravenous use. One injection may be given daily until the symptoms disappear.

While other conditions suggesting salicylate medication may not require the intravenous administration of the drug, in extreme cases this method of treatment is perfectly justified.

The ampoules are supplied in boxes of six.

Storaxol

An antiparasitic, antipruritic ointment containing storax, resorcin, carbolic acid (5%), lac sulphur, menthol, and camphor. Useful in dermatitis, eczema, psoriasis, pruritus ani, pruritus vulvæ, scabies, varicose ulcer, and parasitic scalp diseases. The ointment is destructive of low forms of life such as are frequently responsible for pruritic and inflammatory conditions of the skin, but must be so applied as to reach the larval nests if present, as in scabies and other pruritic conditions. In the treatment of scabies the parts should be bathed in warm water, then rubbed with a towel until thoroughly dry, when the ointment should be applied and allowed to remain until time for the next application. The free use of water should be avoided in cases of moist eczema.

In psoriasis and other stubborn skin affections the patient should be given the benefit of constitutional treatment at the same time; on general principles there is nothing better than sodium cacodylate hypodermically administered (see Sodium Cacodylate, page 232). Skin diseases due to sensitization toward certain articles of diet may not respond to Storaxol or even to the combined treatment suggested; in such cases a protein diagnosis should be made and the offending article omitted from the diet. (See Diagnostic Protein Extracts, page 41.)

Storaxol is supplied in collapsible tubes containing about two ounces, in 2-ounce jars, and in 1-lb. and 5-lb. tins.

Strophanthone

This is a preparation of strophanthus seed which has been so far purified that, when protected absolutely from atmospheric contact, it is suitable for subcutaneous or intravenous administration. It is available not only in

ampoule form (as Strophanthone Dilute) for this method of use, but in more concentrated form for oral administration.

Strophanthus differs from digitalis in two respects: It does not raise the blood pressure to the same extent, neither does it accumulate in the tissues or the blood as digitalis does. It is, therefore, of great service as a heart tonic in cases of decompensation or myocardial weakness when the blood-pressure is already high, or after digitalis (though not immediately after, for fear of excessive stimulation of the heart) when a prolonged sustaining effect is desired.

Strophanthone is administered by mouth in a dose of 2 to 10 minims. A diluted solution is available for hypodermic use (see below).

Packages: One-ounce and four-ounce glass-stoppered amber bottles.

Strophanthone Dilute

(Ampoule No. 24)

Each ampoule contains 0.15 cc (2½ minims) of Strophanthone, diluted to 1 cc with physiologic salt solution containing 0.5% chloretone. Strophanthone Dilute is standardized to one-thirteenth the activity of Tincture Strophanthus, U. S. P., made from prime drug. The contents of one ampoule represent 100 heart tonic units, assayed by the frog heart method. For the therapeutics of Strophanthone, see preceding note.

The subcutaneous dose of Strophanthone Dilute is 1 cc; the intravenous dose ½ cc. Particular care should be taken, in the intravenous administration of this solution, to inject the small dose with great deliberation, in order to avoid a too pronounced effect upon the heart.

The ampoules are supplied in boxes of one dozen.

Strychnine Sulphate Solution

(Ampoules Nos. 63 and 64)

Ampoule No. 63 contains 1/64 grain of strychnine sulphate in 1 cc of physiologic salt solution.

Ampoule No. 64 contains 1/32 grain of strychnine sulphate in 1 cc of physiologic salt solution.

Strychnine is a stimulant to the glands, the muscles, the nerve centers, and the central nervous system, especially the motor tracts. Better appetite, increased secretion by the gastro-intestinal glands, and accelerated peristalsis after the administration of this drug, all tend to improve nutrition and general metabolism. The circulation is strengthened in many cases by its use.

In irritability of the nerves or inflammatory states of the brain or cord, the action of strychnine is undesirable. The same is frequently true in cases of nervous debility when rest is required, as its effect here is that of a whip applied to the reserve nervous force. Paralyses of various kinds, on the other hand, are benefited by its powerful stimulating action, especially when its use is combined with massage and electricity.

The sweats of tuberculosis and acute diseases yield to strychnine, this effect being obtained in patients in whom the tissues are relaxed. In convalescence also, when the nervous tension is lowered, the patient drowsy and listless, the gland functions sluggish, and the metabolic processes slowed, strychnine may be expected to cause improvement.

Ampoules of strychnine will be found especially useful in acute collapse and shock, and in faintness and other emergencies arising from a weakened circulation. But large repeated doses are unjustifiable in profound shock because strychnine frequently does not stimulate the failing heart and relaxed vessels. Likewise, unsatisfactory results are frequently met in cases of heart failure in the

later stages of acute diseases. In collapse from chloroform and ether anesthesia a single large hypodermic injection may be tried, not to be repeated.

It must be borne in mind that strychnine when too frequently repeated or given in too large doses has a tendency to cause the heart to become rapid and to prevent the rest that is gained during normal diastole. Caution should always be exercised in the administration of this drug.

Both our ampoules of strychnine sulphate are supplied in boxes of one dozen.

Surgical Lubricant

Instead of vaselin and other oily lubricants, the gynecologist and surgeon are offered in this product a preparation consisting of pure glycerin and boric acid, with a base of tragacanth, and agreeably aromatized, for lubricating the hands and instruments in gynecological and surgical examinations. It is a sterilized and self-sterilizing mixture. It forms a perfect film or glove for the hands, protecting them from natural and pathological secretions in all kinds of exploratory work, and its consistency is such that sounds, specula, etc., can be coated with it most expeditiously and completely. It is very easily removed from the hands or instruments after use.

Supplied in collapsible tubes and in 1-lb. jars.

Syrup Cocillana Compound

(See Cocillana, page 156)

Taka-Diastase

Taka-Diastase is a diastatic ferment obtained from the fungus Aspergillus oryzæ grown on sterilized wheat bran. Minute crystals of diastase form in the hyphæ of the fungus, which spread over the surface of the bran. The

diastase is dissolved out in water, from which it is precipitated with alcohol. From the resulting precipitate the various forms in which Taka-Diastase is marketed are prepared.

By means of careful colorimetric comparisons it can be easily demonstrated that one part of Taka-Diastase will, in ten minutes, completely liquefy 300 parts of starch, the starch having been weighed dry, then boiled into a paste and cooled to 96° F. or less. The end products of the Taka-Diastase reaction are practically identical with those which result from the digestive action of the ptyalin of the saliva.

Taka-Diastase is indicated in all cases of amylaceous dyspepsia, regardless of the age of the patient.

It should be taken during or immediately after meals, in order that it may act upon the gastric contents during the twenty or thirty minutes that elapse before the acid wave sets in. It acts best in a neutral or faintly acid medium. However, the secretion of hydrochloric acid in the stomach after eating does not interfere with the action of Taka-Diastase so long as albuminous materials are present with which the acid can combine—and this may be the condition of things for an hour or more after an ordinary meal.

The usual dose is 2½ to 5 grains in powder or tablet, or one or two teaspoonfuls of Liquid Taka-Diastase. For children the powder may be sprinkled over cooked rice, oatmeal or other cereal just before it is eaten, care being taken to see that the food is sufficiently cool not to interfere with the action of the ferment—that is, not above blood heat.

Although Taka-Diastase acts best in a neutral or slightly acid medium, it has proved to be of great value in gastric hyperacidity and even proteid indigestion. By hastening the liquefaction of the starches it enables the HCl to combine promptly with the proteins as they arrive. To ensure

this rapid action on the starches, it is desirable in cases of this kind to increase the dose of Taka-Diastase somewhat beyond the usual amount—up to 10 grains perhaps—or to prescribe a preliminary dose of Milk of Magnesia to modify the extreme acidity.

Intestinal indigestion or fermentative dyspepsia is an indication for the use of Taka-Diastase, which anticipates the action of the amylopsin of the pancreas.

Taka-Diastase is not offered as a substitute for a rational dietary or the proper mastication of the food. It is essentially an emergency remedy, but one for which there is a constant demand because of the symptomatic relief its employment affords.

Liquid Taka-Diastase is a most acceptable vehicle for unpalatable drugs, and is frequently prescribed in combination with iodides, salicylates, nux vomica, etc. The added medicament should not be either distinctly alkaline or distinctly acid in reaction.

Taka-Diastase in powder form is supplied in ½-ounce, 1-ounce, 4-ounce and 1-pound bottles, and in tablets containing 2½ grains each, in bottles of 25, 100 and 500.

Liquid Taka-Diastase contains 2½ grains of the ferment in each fluid drachm; it is supplied in 8-ounce, 16-ounce and 1-gallon bottles.

Combinations

Taka-Diastase and Pancreatin in tablet form. Each tablet contains 2 grains of Taka-Diastase and 3 grains of Pancreatin. Bottles of 25 and 100.

Taka-Diastase, Pancreatin, and Nux Vomica. This combination is supplied in tablet and capsule form (C.C.T. 375, Capsule 426). Each tablet or capsule contains 2 grains of Taka-Diastase, 3 grains of Pancreatin, and ⅛ grain of Extract Nux Vomica. In bottles of 25 and 100, the capsules in bottles of 500 also.

Taka-Diastase, Pepsin, and Pancreatin, in tablet and capsule form (C.C.T. 296, Capsule 427). Each tablet or capsule contains 2 grains of Taka-Diastase, 1 grain of Pepsin, P. D. & Co. (1:3000), and 2 grains of Pancreatin. In bottles of 25 and 100, the capsules in bottles of 500 also.

Taka-Diastase, Pepsin, and Strychnine, in tablet and capsule form (C.C.T. 278, Capsule 428). Each tablet or capsule contains 2 grains of Taka-Diastase, 2 grains of Pepsin, P. D. & Co. (1:3000), and 1/100 grain of Strychnine phosphate. In bottles of 25 and 100, the capsules in bottles of 500 also.

Tartar Emetic, 1% Solution
(Ampoule No. 209)

Each ampoule contains 5 cc (80 minims) of a 1-per-cent. aqueous solution of antimony and potassium tartrate (tartar emetic).

The solution is intended for intravenous administration in the treatment of so-called tropical ulcer, or granuloma inguinale. No other successful method of treatment is known. While tropical ulcer is comparatively unknown outside of tropical and subtropical regions, a case is occasionally encountered in ports of entry for southern trading vessels.

Treatment may be begun with 2 cc, to be gradually increased at intervals of three or four days; or the entire 5 cc may be given at a single injection, to be repeated as often as necessary. Inject slowly.

The packages of Tartar Emetic Solution are boxes of six ampoules.

Tetanus Antitoxin
(See Chapter on Serums and Antitoxins, page 90)

Thermofuge

The principal ingredient of Thermofuge is aluminum silicate, to which is added the antiseptics boric acid, menthol, thymol, and eucalyptus oil, together with glycerin and ammonium iodide. It is an aseptic substitute for poultices, fomentations, etc., being intended for external application only. When applied hot its effect is to reduce swelling and inflammation and to allay pain, soreness, and throbbing, thus assisting in the restoration of normal nutrition and tone to the congested area.

Soften and heat the paste by placing the can in hot water, and stirring; then apply liberally, as hot as can be comfortably borne, and cover with a dry cotton cloth.

Thermofuge is supplied in ½-lb. and 1-lb. cans and in bulk lots of 5 lbs. and 10 lbs.

Thiodine

Thiodine is an antiseptic and antiphlogistic combination, the chief ingredient of which is ammonium sulphichthyolate (ichthyol), but which contains in addition carbolic acid, iodine, boric acid, and hydrastis. The exact formula is: Ammonium sylphichthyolate, 6 parts; tincture iodine, U. S. P., 2 parts; boroglyceride solution, 20 parts; glycerite of hydrastine, 10 parts; carbolic acid, 3 parts; glycerin, 59 parts.

Thiodine is used in the treatment of inflammatory conditions of the uterus and adnexa, pelvic cellulitis, etc., being applied by tampon or in the form of a vaginal suppository. It is also applied to the skin in the treatment of eczema, psoriasis, and other inflammatory affections, to the throat in pharyngitis, to the mastoid and external auditory canal in otitis media and incipient mastoiditis.

Supplied in 4-ounce, 16-ounce and 1-gallon bottles.

Thiodine Suppositories, Vaginal

These suppositories contain 10% of Thiodine, an ichthyolated liquid for the direct treatment of inflammatory conditions of various kinds. (See Thiodine, page 244.) The suppositories are intended especially for the treatment of cervicitis and vaginitis. The antiseptic, antiphlogistic properties of these suppositories are such as to make them useful in all conditions requiring vaginal antisepsis and in the treatment of pelvic inflammations generally.

The suppositories are in two forms: elastic, with glycerogelatin base, each suppository enclosed in tinfoil; and of more solid consistency, with cacao-butter base, each suppository wrapped in paper. The tin envelope holds the soft suppository in shape during warm weather, and is so folded that it can be easily clipped off with scissors when the patient is ready to use the suppository. Before clipping, the suppository may be hardened if necessary by being placed in cold water for a few moments.

Both forms of Thiodine Suppositories are put up for the market in packages of one dozen.

Thyroidectin

(See Biological Section, page 92)

Trifolium

(Syrup Trifolium Compound)

Syrup Trifolium Compound is one of the best of the old-time alterative combinations, a preparation which the physician can conscientiously prescribe in what were formerly called scrofulous cases—cases of enlarged or lethargic glands, a pimply skin, recurrent boils, torpid liver, furred tongue, headache, whimsical appetite, constipation, and general lack of ambition. It is also employed, with very good effect, in secondary or tertiary syphilis, as an aid to

more direct antiluetic treatment. Each fluid ounce contains 8 grains of potassium iodide, and as much more as the physician cares to prescribe can be added without rendering the syrup unpalatable. The other ingredients are: In each fluid ounce: Red clover blossoms (trifolium), 32 grains; prickly ash bark (xanthoxylum), 4 grains; burdock root (lappa), barberry (berberis), queen's root (stillingia), poke root (phytolacca), and cascara amarga, of each 16 grains.

The usual dose is one to two fluid drachms—in other words, 1 to 2 grains of potassium iodide in association with some of the best known and most highly regarded of vegetable alteratives.

Syrup Trifolium Compound is supplied in 16-ounce and 1-gallon bottles.

Uritone
(Hexamethylene Tetramine)

Uritone is a urinary antiseptic, derived from formaldehyde and ammonia. It occurs in white transparent crystals rhomboid or prismatic in shape; is without odor at ordinary temperature; and has a sweet taste, with bitterish aftertaste. It is freely soluble in water; less so in alcohol and ether. To ensure permanence in the crystalline form, Uritone must be kept dry. In aqueous solution it has a feebly alkaline reaction. Uritone acts as an antiseptic in the renal pelvis and the kidneys, as well as in the bladder, ureters, and posterior urethra. Its principal field of action is the genito-urinary tract.

Among the more important indications for the administration of Uritone are: Cystitis, pyelitis, purulent inflammation of the prostate, pyuria, and phosphaturia. It is also recommended in renal and vesical calculi, incontinence of urine, and bacilluria. It certainly checks, if it does not altogether inhibit, the multiplication in the gall-

bladder and the urine of the bacilli of typhoid fever, and thus tends to limit the spread of the disease. It is also claimed by many clinicians that its administration through the course of typhoid fever diminishes the number of bacilli in the stools.

The dose is 5 to 15 grains, three times a day. Dissolve the crystals in water, or, if the capsules are preferred, follow by a liberal draught of water; otherwise the medicament may irritate the stomach. Hematuria has been occasionally noted as a consequence of the administration of hexamethylene tetramine in peculiarly susceptible patients.

Uritone is supplied in the following forms:

Uritone Tablets: 5 grains (C. T. No. 525); 7½ grains (C. T. No. 423); bottles of 100 and 1000. Protect from moisture.

Elixir Uritone (No. 149). Each fluid ounce contains 40 grains of Uritone. Dose, one to two fluid drachms. Supplied in 16-fluidounce and 1-gallon bottles.

Elixir Uritone Compound (No. 154): Each fluid ounce represents: Uritone (hexamethylene tetramine), 10 grains; sandalwood, 30 grains; cornsilk, 120 grains; sabal (saw palmetto berries), 120 grains. The corn silk is extracted when perfectly fresh, so no loss of therapeutic property occurs; and the other ingredients are of guaranteed quality. Aside from the Uritone, this elixir is a duplication of our Elixir Saw Palmetto and Santal Compound, prescribed for its tonic effect upon the genito-urinary tract in cases of sexual atony with or without prostatic hypertrophy. The addition of the Uritone renders the elixir especially useful in septic conditions, either of the kidneys or of the bladder or urethra. If the prostate is enlarged as a result of inflammatory processes, this elixir or Elixir No. 164 (containing more Uritone) is indicated. The dose is one to two fluid drachms three times a day. The elixir is supplied in 16-fluidounce and 1-gallon bottles.

Elixir Uritone Compound, ℞ "B" (No. 164) differs from No. 154 in one respect only; each fluid ounce contains 40 grains of Uritone instead of 10 grains, making 5 grains to the average dose (one fluid drachm). It is supplied, like our other elixirs, in 16-fluidounce and 1-gallon bottles.

Uritone is also supplied in 1-ounce vials and 1-lb. bottles; and in the form of a solution for intravenous use (see below).

Uritone (Hexamethylenamin) Solution
(Ampoule No. 212)

Each ampoule contains 2 grams (31 grains) of Uritone (hexamethylenamin) in 5 cc of distilled water.

Uritone has long been prescribed as a urinary disinfectant, in particular for the treatment of pyelitis; and it has been supposed that its insolubility in alkaline media limited its usefulness, to some extent, in these cases; but the intravenous method of administration, at first experimentally on animals, has shown that the alkalinity of the medium is a relative matter; the blood has a higher degree of hydrogen-ion concentration than Uritone, and is therefore acid by comparison. Tests made of the blood after the Uritone has been administered demonstrate the presence of formaldehyde, a result of the decomposition of the Uritone. The formaldehyde is carried to all parts of the body in the blood, and exerts its peculiar disinfectant action wherever it goes.

Uritone intravenously seems to be especially serviceable in dysuria and anuria, post-operative or other; it restores to the urine its original power of so stimulating the contractile mechanism of the bladder as to empty that organ normally.

It has also proved to be of greater value in pyelitis than when given by mouth; and good results are also reported from its use in pneumonia, cholecystitis, and hepato-renal spirochetosis.

It has been claimed that larger doses of Uritone can be given intravenously than by mouth. The usual dose is 5 cc of a 40-per-cent. solution (representing 2 grams of the drug), but smaller doses are preferred by some practitioners.

The packages of Ampoule No. 212 (Uritone) are boxes of six.

Vaginal Suppositories

For the treatment of relaxed and catarrhal conditions of the vagina, minor infections, and even gonorrheal vaginitis and urethritis, we have devised a number of vaginal suppositories, the importance of which can be estimated from a study of the formula in each instance. Astringents, anodynes, antiseptics and germicides are represented in the following list, which is addressed to the judgment of physicians who are frequently called upon to treat not only specific infections of the genito-urinary tract in women, but less serious and yet very annoying and persistent aberrations in this region of the female anatomy. "Female weakness" is too frequently left to the tender mercies of the quack and the nostrum-vender. To prevent disastrous consequences later, any irregularity occurring in any part or section of the reproductive system should receive early professional attention.

Following is a list of our vaginal suppositories:

Argentide—containing 5% of Argentide, a preparation of the iodide of silver. See page 129.

Astringent—containing hyoscyamus, witch hazel, tannic acid, thymol, and other drugs. See page 129.

Astringent, ℞ *"B"*—differing slightly from the foregoing. See page 129.

Chloretone Compound—containing chloretone, acetanilid and other drugs. See page 152.

Lactic Acid Bacillus—a viable culture. See page 190.

Neo-Silvol, 5%—a preparation of colloidal silver iodide

(see Neo-Silvol, page 211). These suppositories are made with a glycero-gelatin base, and are enclosed in soft tin capsules. Each suppository contains 5% of Neo-Silvol.

Silvol, 5%—a preparation of colloidal silver. See page 227.

Thiodine—a preparation of ammonium sulphichthyolate (ichthyol) and other drugs. See page 232.

Veratrone

This is a refined and physiologically tested preparation of Veratrum viride, one of the most powerful arterial and spinal depressants known. Veratrum is used for the control of spastic conditions, and especially in puerperal eclampsia for subduing the extreme irritation of the muscles caused by the bacterial toxins present. In the first stage of frank pneumonia, or in any condition in which true sthenic arterial excitement is to be combated (barring gastritis and peritonitis), it is said to be a safe and efficient remedy. In excessive cardiac hypertrophy, digitalis being contraindicated, veratrum may be cautiously prescribed. The qualification "sthenic," as applying to the cases in which veratrum is indicated, should always be borne in mind. The safety of the drug is to a certain extent conditioned upon the use of a standardized product, such as Veratrone.

The dose of Veratrone to be taken by mouth is 15 to 30 minims, repeated until the desired effect is obtained; the hypodermic dose is 10 to 15 minims.

Veratrone is supplied in 1-ounce glass-stoppered bottles. Every package is stamped with the date of manufacture.

Yellow Oxide of Mercury Ointment

This ointment is unique. It is made by what is known as the "wet" process. That is to say, as the crystals of the yellow oxide are formed and precipitated in the solution they are incorporated in the ointment base, not being

allowed to become dry at all. The dry crystals can never be reduced to perfect smoothness; no matter how long they are subjected to pulverization in the mortar, they are still sharp and irritating, and this property is not lost when they are made up in ointment form. The "wet" process is the only one which ensures the production of a non-irritating ointment.

The ointment is used in ophthalmology for combating infections and inflammations such as blepharitis, conjunctivitis, and keratitis.

It is supplied in two strengths, 1% and 2%. The former (Ointment No. 26) is put up for the market in dispensing packages—small collapsible long-nozzled tubes in individual cartons with detachable label—and also in ¼-lb. collapsible tubes; the latter (the 2% ointment, No. 40) in the dispensing package only.

Yellow oxide of mercury ointment in bulk quickly discolors when exposed to the air.

Reference Tables

Apothecaries' Weight

1 pound (lb.) = 12 ounces or 5760 grains.
1 ounce (℥) = 8 drachms or 24 scruples or 480 grains.
1 drachm (ʒ) = 3 scruples or 60 grains.
1 scruple (℈) = 20 grains.

Apothecaries' Fluid Measure

1 gallon (C) = 8 pints or 128 fluid ounces or 61440 minims.
1 pint (O) = 16 fluid ounces or 128 fluid drachms or 7680 minims.
1 fluid ounce (f℥) = 8 fluid drachms or 480 minims.
1 fluid drachm (fʒ) = 60 minims.

Avoirdupois Weights and Measures

1 pound (lb.) = 16 ounces or 7000 grains.
1 ounce (oz.) = 437½ grains.
1 drachm (dr.) = 27.34375 grains.

As between apothecaries' and avoirdupois weights, the grain is the same in both, but the pound differs by 1240 grains, the ounce by 42½ grains, and the drachm by 32.65625 grains.

Domestic Measures

These are subject to considerable elasticity of interpretation owing to the varying sizes of the utensils in use, but the following are understood to be the quantities intended when the popular names are employed:

A teaspoonful	1 fluid drachm
A dessertspoonful	2 fluid drachms
A tablespoonful	½ fluid ounce
A wineglassful	2 fluid ounces
A teacupful	4 fluid ounces
A tumblerful	8 fluid ounces

The Metric System

The metric system of weights and measures will doubtless, sooner or later, supersede all other systems. Its basis is the meter, which is the ten-millionth part of the distance from the pole to the equator—equivalent to 39.37 inches. From this linear unit are derived the metric unit of weight, the gram, and that of fluid measure, the liter. The system is arranged on a decimal scale—that is, all the divisions are connected by the multiple 10; the names given to the subdivisions of any unit are formed in each case by prefixing the numerals deci, centi and milli to the unit, meaning respectively one-tenth, one-hundredth, and one-thousandth. The multiples are expressed by prefixing the numerals deka, hekto and kilo, meaning respectively ten, one hundred, and one thousand. To write prescriptions in terms of grams is not difficult if the following approximate equivalents be kept in mind:

1 grain (gr.) equals 0.065 gram.

1 drachm (ʒ) equals 4 grams.

1 ounce (℥) equals 31 grams.

Therefore:

To convert grains (or minims) into grams, multiply by 0.065.

To convert drachms (or fl ʒ) into grams, multiply by 4.

To convert ounces (or fl ℥) into grams, multiply by 31.

The results obtained are accurate enough for ordinary purposes.

PERCENTAGE SOLUTION TABLE

By ALFRED I. COHN, Phar. D.

(From Merck's Report)

Quantity of solution to be made.	GRAINS OF SALT OR DRUG REQUIRED TO MAKE SOLUTIONS OF PERCENTAGE STRENGTH INDICATED.																	
	0.5%	1%	2%	3%	4%	5%	6%	8%	10%	15%	20%	25%	50%	1:500	1:1000	1:2000	1:3000	1:4000	1:5000
½ fl. oz.	1.15	2.3	4.6	6.9	9.3	11.7	14.1	19	24	36.8	50.2	65	151.2	0.46	0.23	0.12	0.075	0.06	0.05
1 fl. oz.	2.3	4.6	9.2	13.9	18.6	23.4	28.2	37.9	47.9	73.5	100.3	130	302.5	0.91	0.46	0.23	0.15	0.12	0.09
2 fl. oz.	4.6	9.2	18.4	27.8	37.2	46.8	56.4	75.8	95.8	147	200.6	260	605	1.8	0.91	0.46	0.3	0.23	0.18
3 fl. oz.	6.9	13.8	27.6	41.7	55.8	70.2	84.6	113.7	143.7	220.5	301	390	907.5	2.7	1.37	0.68	0.46	0.34	0.27
4 fl. oz.	9.2	18.4	36.8	55.6	74.4	93.6	112.8	151.6	191.6	294	401.2	520	1210	3.64	1.82	0.91	0.61	0.46	0.36
5 fl. oz.	11.5	23	46	69.5	93	117	141	189.5	239.5	367.5	501.5	650	1512.5	4.55	2.28	1.14	0.76	0.57	0.46
6 fl. oz.	13.8	27.6	55.2	83.4	111.6	140.4	169.2	227.4	287.4	441	601.8	780	1815	5.46	2.74	1.37	0.91	0.68	0.55
8 fl. oz.	18.4	36.8	73.6	111.2	148.8	187.2	225.6	303.2	383.2	588	802.4	1040	2420	7.28	3.65	1.82	1.22	0.91	0.73
10 fl. oz.	23	46	92	139	187	234	282	379	479	735	1003	1300	3025	9.1	4.56	2.28	1.52	1.14	0.91
12 fl. oz.	27.5	55	110.4	166.8	223.2	280.8	338.4	454.8	574.8	882	1203.6	1560	3630	10.92	5.47	2.74	1.82	1.37	1.09
16 fl. oz.	36.7	73	147.2	222.4	297.6	374.4	451.2	606.4	766.4	1176	1604.8	2080	4840	14.56	7.3	3.65	2.43	1.82	1.46
32 fl. oz.	73.5	146	294.4	444.8	595.2	748.8	902.4	1212.8	1532.8	2352	3209.6	4160	9680	29.12	14.6	7.3	4.86	3.65	2.91

Note: The first column indicates the volume of the finished product and not the amount of water used.

Temperature

The temperature is normally one degree higher under the tongue than in the axilla. It is *highest* upon awakening in the morning; *lowest* at midnight.

A rise of one degree in temperature usually marks an increase of the pulse from six to ten beats per minute.

Continued temperature above 98.6° indicates *prostration and illness;* 101° to 105°, severe fever; 105° to 108°, *danger;* 108° to 109°, *impending death.*—This is not to say, however, that in an ephemeral fever the high degree must necessarily be dangerous. It sometimes happens, especially in intermittent fevers, that the temperature rises as high as 106° or 108°, persisting, however, only for a short period of time, in which case it must be considered idiosyncratic rather than dangerous.

A temperature of 105° or 106° on first day of illness is *prima facie* evidence of ephemeral fever; it is *not typhoid or typhus.*

Though the typical evidences of *pneumonia* are present, if the thermometer fails to reach 101.7° it may be concluded no soft infiltration of lungs is present.

A high temperature after the eruption of measles has faded indicates complications. An evening typhoid temperature of 103.5° indicates a mild course of fever; 105° in the evening or 104° in the morning, in the third week, indicates danger. A temperature of 104° and upwards in pneumonia indicates a severe attack. A temperature of 104° is always alarming in acute rheumatism—look for cardiac complications. In jaundice a rise of temperature is unfavorable. A rise of temperature in a puerperal female indicates the approach of pelvic inflammation. An increase of temperature in tuberculosis shows an advance of the disease or rise of complications.

Daily fluctuations of temperature are associated with malarial fever, typhus, typhoid, exanthemata, rheumatism, pyemia, pneumonia, and acute tuberculosis. An even temperature from morning until evening is *favorable.* A high temperature from evening until morning is *unfavorable.* A falling temperature from evening until morning is *favorable.* A rising temperature from evening until morning is *dangerous.* The temperature of the body must be normal before convalescence begins.

Table of Thermometric Equivalents

Centigrade and Fahrenheit Scales

Centigrade	Fahrenheit	Centigrade.	Fahrenheit.	Centigrade.	Fahrenheit.	Centigrade.	Fahrenheit.	Centigrade.	Fahrenheit.
100	212.	74	165.2	48.	118.4	34	93.2	8	46.4
99	210.2	73	163.4	47.	116.6	33	91.4	7	44.6
98	208.4	72	161.6	46.	114.8	32	89.6	6	42.8
97	206.6	71	159.8	45.	113.	31	87.8	5	41.
96	204.8	70	158.	44.	111.2	30	86.	4	39.2
95	203.	69	156.2	43.	109.4	29	84.2	3	37.4
94	201.2	68	154.4	42.	107.6	28	82.4	2	35.6
93	199.4	67	152.6	41.66	107.	27	80.6	1	33.8
92	197.6	66	150.8	41.11	106.	26	78.8	0	32.
91	195.8	65	149.	41.	105.8	25	77.	–1	30.2
90	194.	64	147.2	40.55	105.	24	75.2	–2	28.4
89	192.2	63	145.4	40.	104.	23	73.4	–3	26.6
88	190.4	62	143.6	39.44	103.	22	71.6	–4	24.8
87	188.6	61	141.8	39.	102.2	21	69.8	–5	23.
86	186.8	60	140.	38.89	102.	20	68.	–6	21.2
85	185.	59	138.2	38.33	101.	19	66.2	–7	19.4
84	183.2	58	136.4	38.	100.4	18	64.4	–8	17.6
83	181.4	57	134.6	37.78	100.	17	62.6	–9	15.8
82	179.6	56	132.8	37.50	99.5	16	60.8	–10	14.
81	177.8	55	131.	37.22	99.	15	59.	–15	5.
80	176.	54	129.2	37.	98.6	14	57.2	–17.78	0.
79	174.2	53	127.4	36.66	98.	13	55.4	–20	–4.
78	172.4	52	125.6	36.11	97.	12	53.6	–25	–13.
77	170.6	51	123.8	36.	96.8	11	51.8	–30	–22.
76	168.8	50	122.	35.55	96.	10	50.	–35	–31.
75	167.	49	120.2	35.	95.	9	48.2	–40	–40.

To reduce Centigrade degrees to those of Fahrenheit:
Multiply by 9, divide by 5, and add 32.

To reduce Fahrenheit degrees to those of the Centigrade scale:
Subtract 32, multiply by 5, and divide by 9.

Medical Latin Translated

Common Abbreviations

Abbreviation.	Latin word.	English word.
aa	Ana	Of each
Ad	Ad	To
Ad saturand.	Ad saturandum	Until saturated
Ad lib.	Ad libitum	At pleasure
Aq. tepid.	Aqua tepida	Warm water
Aq. ferv.	Aqua fervens	Hot water
Aq. dest.	Aqua distillata	Distilled water
Aq. font.	Aqua fontana	Spring water
Bull.	Bulliat	Boil it
C.	Congius	A gallon
Cap.	Capiat	Take it
Chart.	Chartula	A small paper (powder)
Coch.	Cochleare	A spoonful
Coch. mag.	Cochleare magnum	A tablespoonful
Coch. parv.	Cochleare parvum	A teaspoonful
Collyr.	Collyrium	An eye-water
Comp.	Compositum	Compounded
Contus	Contusus	Bruised or broken
Div.	Divide	Divide
F. *or* ft.	Fiat *or* fiant	Let there be made
Fol.	Folium *or* folia	A leaf or leaves
Garg.	Gargarisma	A gargle
Gr.	Granum *or* grana	A grain or grains
Gtt.	Gutta *or* guttæ	A drop or drops
Haust.	Haustus	A draught
Infus.	Infusum	An infusion
M.	Misce	Mix
Mass.	Massa	A mass
Mist.	Mistura	A mixture
O.	Octarius	A pint
Pil.	Pilula *or* pilulæ	A pill or pills
P. R. N.	Pro re nata	As demanded
Pulv.	Pulvis *or* Pulveres	A powder or powders
Q. S. *or* q. s.	Quantum sufficit	A sufficient quantity
R.	Recipe	Take
S. *or* Sig.	Signa	Write
Ss.	Semis	The half
Tinct.	Tinctura	A tincture

Notes on Feeding

Junket is an excellent milk-food for invalids and convalescents. To prepare it, add to one pint of fresh milk, previously heated to a point which barely permits it to be comfortably taken into the mouth, one teaspoonful of Essence of Pepsin; after mixing, allow to stand until a firm curd forms. It may be served with sugar or grated nutmeg, or flavored, if desired, with lemon or vanilla.

Whey is essentially the foregoing after the curds have been removed by straining through a coarse cotton cloth. It contains the soluble albuminous bodies of milk, the several phosphates, and milk sugar.

Buttermilk is a very satisfying means of sustenance in typhoid fever and many other conditions. Made from Lactone tablets it is of high nutritive value and is well borne. One tablet will convert a quart of fresh milk into 1⅓ to 1½ quarts of pure, rich buttermilk.

Peptonized Milk is often acceptable when ordinary cow's milk is rejected. To prepare it, add to a quart of fresh milk, previously heated to about 108° F., 10 grains of pancreatin and 12 grains of sodium bicarbonate, stirring vigorously. Set in a warm place for fifteen minutes and then transfer to a refrigerator.

For predigesting gruels and dishes containing rice, tapioca and other starchy foods, *Taka-Diastase* is invaluable. A nutritious and digestible gruel is made in this way: Add 1 to 3 teaspoonfuls of barley flour, previously stirred in a little cold water, to a pint of boiling water; cook for ten minutes; set in a vessel of cold water to cool, stirring constantly; when cool, stir in 5 grains of Powdered Taka-Diastase and allow to digest for twenty minutes to an hour before serving. Any kind of flour may be so treated and salt or sugar or beef extract added to suit the taste. This starch gruel may be served without milk or used as a diluent for milk, which it tends to render digestible.

In *rectal feeding* not more than two ounces should be given at a time and injections should not be repeated more frequently than four times in twenty-four hours. The nutrient enema ought to be warmed to body temperature and may be predigested by means of Taka-Diastase or Pancreatin.

Diet Tables

Atonic Constipation

Allowed.—Meat broths; all kinds of fish; all fresh meats; poultry and game; Nutritive Liquid Peptone; hominy; oatmeal; brown bread; bran gems; gingerbread; all vegetables if fresh or watery; boiled spinach; onions; stewed prunes and figs; dates; tamarinds; baked apples; melons and grapes; oranges on rising in the morning; water abundantly and especially after meals; hot water an hour before meals; Lactone buttermilk; coffee, if half milk; malt extract.

Forbidden.—All salt or smoked fish or meat; milk; peas and beans; nuts; all milk compounds; pickles; pastry; tea; cheese.

Diabetes

Allowed.—All meat soups, meat and fish; clams, lobsters, and shrimps; poultry and game; bacon; bread, biscuit, pancakes or porridge made of bran, aleuronat, soya, or peanut flour; cabbage, spinach, watercresses, lettuce, mushrooms, celery, string beans, cucumbers, olives, asparagus, truffles, radishes, young onions or other green vegetables; custard without sugar; eggs in all forms; cheese; butter; all nuts except chestnuts; water; Lactone buttermilk; kumiss; grape fruit and similar acid fruits; lemonade, unsweetened; tea or coffee with milk or cream but without sugar.

Note.—Saccharin may be used in place of sugar; ¼ grain will sweeten a cup of coffee or tea.

Forbidden.—Liver; white bread, biscuit and toast; farinaceous vegetables such as potatoes, rice, cornmeal, sago, tapioca, and arrowroot; saccharine vegetables such as turnips, parsnips, carrots, peas, beans, and beets; all preserves; candies and chocolate; pastry, puddings, honey, and ice cream; sweet wines.

Diarrhea

Allowed.—Sweetbreads; dry toast; whole wheat crackers; macaroni; rice; tapioca; eggs, soft-boiled; peptonized milk; junket; custard; buttermilk; tea.

Note.—Reduce the amount of fruits. Eat at rare intervals. In severe cases restrict the diet to the plainest articles.

Forbidden.—Soups; fresh bread; vegetables and fruits; fried dishes; saccharine foods; fish, veal, lamb, and pork.

Dyspepsia

Allowed.—Beef broth; Nutritive Liquid Peptone; raw oysters; beef, mutton, and lamb, preferably boiled; chicken and venison; meat pulp;

eggs, soft boiled or poached; corn bread; rice cakes; buttered toast; macaroni; sago; tapioca; whole wheat crackers; spinach; turnips; celery; lettuce; string beans; asparagus; oranges, pears, and prunes; apples, stewed; junket; water abundantly; hot water an hour before meals; egg-nog; Lactone buttermilk; whey; peptonized milk; tea.

Forbidden.—Rich soups and all fried foods; veal; pork; hashes; stews; turkey; sweet potatoes; all starchy and sugary foods; gravies; sauces; pies; pastry; puddings; ice cream; uncooked vegetables.

Fevers

Allowed.—Mutton and chicken broth; corn and oatmeal gruel (if diarrhea is absent); water abundantly; lemonade; orange juice; egg-nog; junket; milk, plain or peptonized; kumiss; Nutritive Liquid Peptone; Lactone buttermilk.

Forbidden.—All solids until after crisis; in typhoid no solid food should be given until a week after the temperature becomes permanently normal.

Gout

Allowed.—All vegetable soups except pea or bean; fresh fish, raw oysters and clams; beef, mutton, chicken, ham, and bacon; whole wheat and rye bread; crackers; oatmeal; zweiback; toast; rice; potatoes; fresh vegetables; custards and milk puddings; milk junket; fruits of all kinds in moderation if not too acid; eggs; water plentifully; milk; tea or coffee in moderation.

Forbidden.—Meat soups; gravies; spices; sweetbreads; liver; turkey; pies, pastry, and rich puddings; confections; tapioca; peas; beans; all acid fruits; alcohol in any form.

Malnutrition

Allowed.—Thick meat, cereal and milk soups; fish and raw oysters; beef, mutton, and chicken; Nutritive Liquid Peptone; cheese; eggs, soft boiled, poached, or scrambled; whole wheat bread; all kinds of ripe and well cooked vegetables; custards and milk puddings; all ripe fruits; junket; milk and cream; malt extract; tea.

Forbidden.—Pork and veal; salt meats except ham; hashes and stews; cooked oysters or clams; turkey; pickles and spices; pies, pastry, and preserves; thick gravies.

Nervous Affections

Allowed.—Mutton and beef broth; chicken, oyster or clam soups; raw oysters and clams; fish, all kinds; beef and mutton; chicken; butter; eggs; Nutritive Liquid Peptone; whole wheat bread; rice;

oatmeal; wheaten grits; baked potatoes, sparingly; spinach; cabbage; cresses; lettuce; peas; asparagus; fresh fruits; junket; water freely; cocoa and chocolate; milk, plain or peptonized; cream; tea or coffee in moderation; Lactone buttermilk.

NOTE.—In convulsive diseases it is wise to allow meat only once a day or even to exclude it altogether. When the nervous condition arises from faulty digestion and assimilation the diet should consist of a few simple things which are least prone to ferment and are easiest of digestion.

Forbidden.—Stews; hashes; sweet potatoes; starches except as above; gravies; pies; pastry and puddings; chocolate; strawberries, raspberries and currants.

NEPHRITIS

Allowed.—Eggs and meat in moderation; whole wheat bread; junket; water abundantly. Milk is the ideal food in both acute and chronic nephritis; two or three quarts a day may be taken, to the exclusion of all other food, except, perhaps, in the chronic cases, fruits and juicy vegetables, or cereals with cream and sugar.

Forbidden.—Beef tea; pies and cakes; all spices and highly seasoned dishes.

OBESITY

Allowed.—Beef, mutton and chicken broth; fish, all kinds; lean beef and mutton; asparagus, cauliflower, and other green vegetables; stale bread and toast; grapes, oranges, grape-fruit, cherries; skim milk; tea or coffee without cream or sugar. Eat sparingly.

Forbidden.—Potatoes; rice; beets; carrots; corn; parsnips; oatmeal; puddings, pies, cakes, and confections.

RHEUMATISM

Allowed.—Fish, all kinds; raw oysters; beef; mutton; chicken; eggs; whole wheat bread; cornmeal mush; rice; brown bread; green vegetables generally; custards; sago pudding; fruits; old cheese; milk; Lactone buttermilk; coffee or tea.

NOTE.—Meats and nitrogenous foods are to be taken in moderation. An absolute milk diet is sometimes necessary.

Forbidden.—Fried fish; liver; veal and pork; baked beans; gravies and spiced dishes.

Modifying Milk for Infants

The table below is suggested by leading authorities on the subject of infant feeding. The formulas given will not meet the requirements of every case; slight changes may be advised by the attending physician. In the main, however, these directions will be found serviceable. Only enough modified milk should be prepared to meet the requirements of one day. The prepared milk should be placed in a bottle stoppered with cotton. The unused portion should be kept cold, preferably on ice, but it must be served warm.

	AGE					
	Up to 2 Weeks	Up to 1½ Mos.	Up to 3 Mos.	Up to 5 Mos.	Up to 9 Mos.	Up to 12 Mos.
Milk	1 oz	1¾ ozs	2½ ozs	7 ozs	12 ozs	24 ozs
Cream	1 oz	1¾ ozs	2½ ozs	3 ozs	4½ ozs	3 ozs
Lime water	½ oz	1 oz	1 oz	1 oz	1½ ozs	None
Milk sugar	½ oz	1 oz	1 oz	1¼ ozs	2 ozs	1¼ ozs
Water	7½ ozs	11½ ozs	14 ozs	13 ozs	14 ozs	13 ozs barley gruel
Daily quantity according to weight of baby	10 to 20 ozs	16 to 24 ozs	20 to 28 ozs	24 to 36 ozs	32 to 48 ozs	40 to 48 ozs
Number of feedings a day	10	10	8	7	7	5 to 6
Intervals	2 hrs	2½ hrs	3 hrs	3 hrs	3 to 4 hrs	4 hrs

Substances Excreted in Milk

Many substances taken by the mother are excreted in the milk. Among these are ammonia and certain aromatic and volatile oils (such as the oils of anise, cumin, dill, wormwood, garlic, turpentine, and copaiba); the purgative principles of rhubarb, senna, castor oil, and scammony; opium, iodine, antimony, arsenic, bismuth, iron, lead, mercury, and zinc. The therapeutic actions of certain drugs administered to the mother may thus be observed in the child. Among these are opium, mercury, arsenic, potassium iodide, senna, castor oil and some other purgatives.

Substances which increase the flow of milk: Jaborandi, pilocarpine, rich foods, stimulants, and probably thyroid gland substance.

Substances which lessen the flow of milk: White agaric, belladonna, atropine, ergot, potassium iodide, and sodium iodide.

Time Required for Digestion of Various Articles of Diet

Indicated in hours and minutes.

Apples, sweet, raw, ripe	1.30	Ducks, wild	4.50
Apple dumpling	3.	Eggs, raw, whipped	1.30
Barley, boiled	2.	Eggs, boiled hard	3.30
Barley, soup	1.30	Eggs, soft	3.
Bass, striped, fresh	3.	Eggs, fried	3.30
Bass, black	2.30	Gelatin, boiled	2.30
Beans, string, boiled	2.30	Hashed meat and potatoes	2.30
Beans, Lima, stewed	3.45	Milk	2.30
Beef, boiled, fresh	3.	Milk, boiled	2.
Beef, boiled, salt	2.45	Mutton, broiled	3.15
Beef, roasted, rare	3.	Mutton, boiled	3.
Beef, roasted, dry	3.30	Mutton roast	3.30
Beef, fried	4.	Mutton stew	3.15
Beef soup with vegetables	4.	Mutton soup	3.
Beef suet, boiled	5.30	Oysters, raw	2.50
Beef tendon and scragg	5.30	Oysters, fried	3.15
Beets, boiled	3.45	Oysters, stewed	3.30
Bread, fresh	3.45	Pork, stewed, salt	3.
Bread, stale	3.	Pork roast	5.
Bread, corn	3.15	Pork chop, broiled	3.15
Butter, melted	3.30	Parsnips, boiled	2.30
Cake, sponge	2.30	Potatoes, baked	2.30
Cake, corn, baked	3.	Rice, boiled	1.
Cabbage, pickled	2.30	Sago, boiled	1.45
Cabbage, boiled	4.30	Succotash, boiled	3.45
Chicken, fricasseed	2.40	Salmon, salted	4.
Chicken, roasted	4.	Tapioca, boiled	2.
Cheese	3.30	Trout, fried	1.30
Codfish, salt, boiled	2.	Turkey, roasted	2.30
Custard, baked	2.45	Veal, broiled	4.
Ducks, domestic	4.	Venison, broiled	1.30

The Urinary Solids

In order to determine the quantity of solids passed in any urine, bear in mind that in health the patient should pass about 6 grains for every pound of the weight of his body. If he weighs 150 pounds he should pass about 900 grains. If the last two figures of the specific gravity be multiplied by the number of ounces passed in 24 hours, the result represents a quantity of solids equal to that many grains. To illustrate: If the specific gravity of a specimen is 1.020, and 45 ounces are passed in 24 hours, the 20 of the sp. gr. multiplied by the 45 equals 900 grains. This rule can be applied to all quantities and specific gravities.

Important Abnormal Constituents in Urine

Albumin.—Present in parenchymatous nephritis, Bright's disease, poisoning by certain substances, rheumatism, infectious fevers, after violent exercise, etc.

Sugar.—Present in diabetes; small quantity may be present temporarily after pneumonia, typhus, rheumatism, affections of the brain and spinal cord, etc.

Leucin and Tyrosin.—In acute atrophy of liver, and in poisoning by phosphorus.

Pus.—Present in pyelitis, renal abscess, urethritis, cystitis, prostatitis, or discharge into the urinary canal of a peri-nephritic, pelvic or other abscess. May also be of vaginal origin (in gonorrhea).

Blood.—From hemorrhage in urethra, neck of bladder, ureters, kidneys, genital tract, or external sources.

Acetone.—In diabetes, rabies, and certain febrile conditions.

Diacetic Acid.—Mental diseases with excitement, inanition, carcinoma, and particularly diabetes.

Indican.—Minute quantities present in normal urine, but greatly increased by intestinal obstruction, diseases of liver which interfere with bile formation, etc.; also by use of sulphur baths, in Addison's disease, and in early stages of cholera.

Ammonium Carbonate.—Vesical catarrh.

Hydrogen Sulphide.—Sometimes present in albuminous urine from decomposition of albuminous matter within the bladder.

Bile.—Defective bile excretion; jaundice, hepatic congestion and cirrhosis, malarial and other high fevers.

Respiration

Two months to two years	35 per minute
Two to six years	23 per minute
Six to twelve years	20 per minute
Twelve to fifteen years	18 per minute
Fifteen to twenty-one years	16 to 18

Respiration in the adult female is usually a trifle faster than in the male, especially during pregnancy.

Normal Pulse at Various Ages

In utero, 140 to 150 per minute; of new born, 130 to 140; first year, 115 to 130; second year, 106 to 115; third year, 95 to 105; fifth to twelfth year, 80 to 90; thirteenth to twenty-first year, 75 to 85; twenty-first to sixtieth year, 70 to 75; in old age, 75 to 85.

Average Weights and Measurements of Adult Human Organs

Heart: Weight, male, 10 to 12 ounces; female, 8 to 10 ounces. Measurement, 5 by 3½ by 2½ inches.

Lungs: Weight, right 23 ounces, left 19 ounces; very variable.

Stomach: Weight, 4½ to 5 ounces. Measurement, 10 to 12 by 4 by 5 inches.

Liver: Weight, 45 to 60 ounces. Measurement, transverse 10 to 12 inches, antero-posterior 6 to 7 inches.

Pancreas: Weight, 3 ounces. Measurement, 6 to 8 inches long, 1½ inches broad.

Spleen: Weight, 5 to 7 ounces. Measurement, 5 by 3 by 1½ inches.

Kidney: Weight, 4½ to 5½ ounces. Measurement, 4 by 2½ by 1½ inches.

Brain: Weight, male, 50 ounces; female, 44 ounces.

The average weight and size of all these organs are less in the female than in the male.

Average Heights and Weights

Table A.—Average weight of the healthy male child during the first year of life:

	lbs.		lbs.
At birth	6.8	At seven months	13.4
At one month	7.4	At eight months	14.4
At two months	8.4	At nine months	15.8
At three months	9.6	At ten months	16.8
At four months	10.8	At eleven months	17.8
At five months	11.8	At twelve months	18.8
At six months	12.4		

It should be noted that some slight loss of weight commonly occurs during the first few days after birth.

Table B.—Average weight for height of a man of thirty, dressed. The weight tends in middle life to increase with age, so that about ¾ lb. should be deducted for each year under 30 and added for each year above 30:

Height ft.	Height in.	Weight	Chest Circumference, inches	Height ft.	Height in.	Weight	Chest Circumference, inches
5	0	112 lbs.	33½	5	7	148 lbs.	38
5	1	116 lbs.	34	5	8	155 lbs.	38½
5	2	126 lbs.	35	5	9	162 lbs.	39
5	3	133 lbs.	35	5	10	169 lbs.	39½
5	4	139 lbs.	36	5	11	174 lbs.	40
5	5	142 lbs.	37	6	0	178 lbs.	40½
5	6	145 lbs.	37½	6	1	182 lbs.	41

Table C.—Average weight for height of a woman, dressed:

Height ft.	Height in.	Weight	Height ft.	Height in.	Weight	Height ft.	Height in.	Weight
4	10	98 lbs.	5	2	114 lbs.	5	6	139 lbs.
4	11	102 lbs.	5	3	121 lbs.	5	7	148 lbs.
5	0	105 lbs.	5	4	128 lbs.	5	8	158 lbs.
5	1	110 lbs.	5	5	135 lbs.			

Up to about 5 ft. 7 in. it will be seen that women tend to weigh less for their height than men. Above this height they weigh usually as much or more, and in late middle life not uncommonly very much more.

Notes on Hypodermic Medication

Usually the dose of any drug hypodermically is one-half of the ordinary dose administered by the mouth. In special cases this should be reduced to one-third or even one-fourth of the ordinary dose.

The object of hypodermic medication is to obtain immediate and decided results. The syringe and needles should be aseptic, and the syringe should be in good working order. To test the condition of the syringe, place the index finger of one hand over the nozzle and draw out the piston to its full length with the other hand. If the syringe is air-tight the piston will at once return to its former position when released. (Do not allow piston of glass syringe to return violently to former position, for fear of breaking.)

The needle point should be as sharp as possible, and a small wire should be inserted in the needle immediately after use, to prevent clogging of the tube.

After filling the syringe it should be held with the needle upward and any air that may be in the needle expelled.

Subcutaneous injections should be made in some portion of the body where the integument is loose, such as the outer side of the arm or forearm, the thigh, or the abdomen. The injection is given by pinching up a fold of the skin between the thumb and finger of the left hand, and thrusting the needle quickly and in a slanting direction through the elevated triangular area thus formed. The point of the needle should be freely movable in the subcutaneous cellular tissue. After the injection the needle should be quickly withdrawn and the finger should be pressed lightly over the puncture for a few seconds, to prevent escape of the fluid.

Care should be taken to avoid nerve trunks, veins, bony prominences, or inflamed areas.

Intramuscular injection is in many instances preferable to subcutaneous, especially when the drug is one that is only slowly absorbed from the subcutaneous tissues. In intramuscular injections the needle should be plunged deeply into the muscle, as of the gluteal region, and the syringe emptied as rapidly as possible.

Aside from perfect asepsis, there are just two things to be kept constantly in mind in placing a medicinal solution into the *vein*. These are: exclusion of air, and slow injection. Air in the vein is much more dangerous than in the subcutaneous tissues. And the direction of the flow of the venous blood is such that intravenous injection is practically the same thing as instillation into the heart; hence the necessity of employing dilute solutions, or introducing the medicament very slowly, or both.

The skin over the median basilic or median cephalic vein, just below the flexure of the elbow, should be sponged with alcohol—having been cleansed beforehand with soap and water if necessary. Massage the forearm firmly with a downward stroke, and apply an Esmarch bandage, a bandage of cotton or linen, or a flexible metal compressor to the arm above the elbow. The bandage, if of cotton or linen, should not be tied, but merely held tightly by twisting, so that it may be instantly loosened by the assistant; or it may be held in a strong artery forceps with the same idea in view.

The syringe needle should be no larger than 26 gauge and no longer than $\frac{5}{8}$ inch.

The operator grasps the arm of the patient firmly with his left hand, and, with the filled syringe in his right, places the shaft of the needle directly over the center of the vein and in line with it, holding it nearly flat. Firmly, but gently, the point of the needle is then forced through the skin, with a lifting motion, until a sudden lack of resistance indicates to the sense of touch that the point of the needle has entered the vein. In the act of inserting the needle into the vein the syringe is held in the palm of the right hand—not in injecting form; there is no pressure on the piston.

When the needle is thought to be in the vein, the syringe should be held perfectly still for a few seconds; a small stream of dark blood will back up from the vein into the syringe if the needle is in the vein, thus indicating that everything is in readiness for the injection to proceed. Some operators withdraw the piston of the syringe slightly, to make room, as they think, for the entrance of the venous blood into the syringe, but this is very seldom necessary.

The medicament should be injected with extreme deliberation and slowness, at the rate of not more than 1 cc in one minute. Experience will soon enable the operator to dispense with the watch in timing the injection.

Usually the patient should lie or sit still for a few minutes after an intravenous injection; but something will depend upon the nature of the medicament introduced.

Eruptions Caused by Drugs

Antipyrine.—A red papular eruption, not unlike measles, more rarely an urticaria, accompanied by itching.

Antitoxin.—An erythema, seen occasionally.

Arsenous Acid and Preparations.—Urticarial or papular eruptions, and if long continued a brown pigmentation.

Belladonna and Atropine.—A general red rash resembling that of scarlatina.

Boric Acid and Borax.—A rash of scarlet color, erythematous, punctiform in places, in others running into irregular patches and giving the skin a mottled appearance.

Bromides.—Pustular eruptions on the face, chest, and back; a number of spots may coalesce and form large patches.

Chloral Hydrate.—A dark red papular rash affecting chiefly the face, neck and limbs.

Copaiba and Cubebs.—A profuse rash (roseola balsamica) consisting of red, slightly raised spots, discrete or confluent, and affecting the trunk, limbs and face.

Croton Oil (*externally*).—Acute eczematous rash leaving well-marked cicatrices.

Cyanide Gauze.—A papular rash beginning in the hair follicles. The papules rapidly become pustular (12 to 36 hours) and burst, leaving a moist raw surface. The pus is said to be free from organisms.

Iodides.—Rashes of various kinds, the most important of which is "acne," a crop of pustules similar to that produced by bromides, but more pointed.

Mercurial Preparations.—In rare cases diffuse swelling with redness.

Mustard and similar irritants (*externally*).—Erythema, perhaps followed by brown staining.

Opium and Morphine.—A red papular eruption resembling measles or scarlet fever.

Quinine.—A rash like scarlet fever or a papular one like measles.

Silver Nitrate.—A peculiar slate-gray color of the skin, which deepens and becomes permanent on exposure to light.

Sodium Salicylate.—Various rashes have from time to time been found to follow the use of this drug.

Stramonium.—A macular eruption.

Tar (*externally*).—An acne.

Turpentine and Terebene.—Redness, papules, or even vesicles with intense itching.

Antagonisms

The drugs mentioned below are therapeutically antagonistic, but this does not imply chemical incompatibility.

Acid Hydrocyanic.—Atropine, but it is too slowly diffused.

Aconite.—Alcohol, Ammonia, Ether, Digitalis, Turpentine, Veratrum Viride.

Ammonia and its Preparations.—Veratrum Viride, Aconite, Digitalis.

Amyl Nitrite.—Belladonna, Brucine, Digitalis, Ergot, Strychnine, Chloroform, Opium and compounds in large doses.

Antimony and its Preparations.—Alcohol, Coffee, Ether, Opium, Tea, Coca, and Cacao.

Arnica.—Ammonia, Alcoholic Stimulants, Camphor, Opium.

Belladonna.—Bromides, Calabar Bean, Conium, Digitalis, Gelsemium, Jaborandi, Nitrite of Amyl, Opium, Tartar Emetic.

Bromides.—Belladonna, Digitalis, Ergot, Hyoscyamus, Stramonium.

Caffeine.—Antimony, Opium.

Camphor.—Arnica, Coffee, Arterial Sedatives.

Cannabis, American and Indian.—Strychnine, Faradism.

Chloral.—Alcohol, Amyl Nitrite, Atropine, Belladonna, Strychnine, Galvanism, Coca.

Cimcifuga.—Stimulants.

Cinchona and its Alkaloids.—Iodine, Iodides, Salts of Copper, Lead, Mercury and Zinc.

Colchicum.—Alcoholic Stimulants, Opium, Veratrum Viride.

Conium.—Atropine, Brucine, Nux Vomica, Strychnine.

Digitalis.—Aconite, Amyl Nitrite, Atropine, Bromides, Gelsemium, Lobelia, Pulsatilla, Veratrum Viride.

Ergot.—Aconite, Bromides, Amyl Nitrite, Veratrum Viride, Tobacco, Lobelia.

Ether.—Oxygen, Quinine, Strychnine, Tetanizing Alkaloids.

Gelsemium.—Ammonia, Alcoholic Stimulants, Belladonna, Digitalis, Chloroform.

Gentian.—Alcohol, Opium, Strychnine.

Grindelia.—Alcohol, Opium, Strychnine.

Iodine and Iodides.—Quinine, Digitalis, and Potassic Bromide.

Jaborandi.—Belladonna, Opium.

Lobelia.—Alcohol, Ammonia, Belladonna, Digitalis, Ergot, Strychnine.

Opium.—Amyl Nitrite, Antimony, Arnica, Atropine, Belladonna, Coffee, Colchicum, Pulsatilla, Sanguinaria, Strychnine, Tea.

Physostigma.—Atropine, Daturine, Chloral, and Tetanizing Agents.

Phytolacca.—Alcohol, Ether, Digitalis, Strychnine, Opium.

Potassium and its Preparations.—Cold, Ergot, Digitalis, Belladonna.
Pulsatilla.—Alcohol, Digitalis, Opium.
Resorcin.—Nux Vomica, Ignatia, Strychnine.
Serpentaria.—Arterial Sedatives, Ergot.
Tobacco.—Alcoholic Stimulants, Ammonia, Belladonna, Digitalis.
Trimethylamine.—Belladonna, Digitalis, Opium, Stimulants.
Valerian.—Digitalis, Ergot, Quinine.
Veratrum, Album and Viride.—Alcoholic Stimulants, Ammonia, Amyl Nitrite, Digitalis, Opium.

Percentage Composition of Various Foods

The following table gives the percentage composition of some principal food-stuffs:

	Water	Proteid	Starch	Sugar	Fat	Salts
Bread	37	8	47	3	1	2
Wheat Flour	15	11	66	4.2	2	1.7
Oatmeal	15	12.6	58	5.4	5.6	3
Rice	13	6	79	.4	.7	.5
Peas (split)	15	23	55	2	2	2
Potatoes	75	2	18	3	.2	.7
Milk	86	4	..	5	4	.8
Cheese	37	33	..	..	24	5
Lean Beef	72	19	..	..	3	5
Fat Beef	51	14	..	..	29	4
Mutton	72	18	..	..	5	5
Veal	63	16	..	..	16	4
White Fish	78	18	..	..	3	1
Salmon	77	16	..	..	5.5	1.5
Egg	74	14	..	..	10.5	1.5
Butter	15	..	..	..	83	2

Obstetrical Table

Jan.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Oct.	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Nov.**
Feb.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29			
Nov.	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**1**	**2**	**3**	**4**	**5**	**6**			**Dec.**
Mar.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Dec.	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**1**	**2**	**3**	**4**	**5**	**Jan.**
Apr.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
Jan.	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**1**	**2**	**3**	**4**		**Feb.**
May	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Feb.	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**2**	**3**	**4**	**5**	**6**	**7**	**Mar.**
June	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
Mar.	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**1**	**2**	**3**	**4**	**5**	**6**		**Apr.**
July	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	23	23	24	25	26	27	28	29	30	31	
Apr.	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**May**
Aug.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
May	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**June**
Sept.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
June	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**1**	**2**	**3**	**4**	**5**	**6**	**7**		**July**
Oct.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
July	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Aug.**
Nov.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
Aug.	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**1**	**2**	**3**	**4**	**5**	**6**		**Sept.**
Dec.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Sept.	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Oct.**

N. B.—As labor occurs in the larger proportion of cases between 270 and 290 days from the last menstruation, it is usual to reckon on the first day of this period, taking as a mean 280 days. The above table gives at a glance the beginning (in light-face type) and ending (in black-face type) of every period of 280 days for every day in the year. For instance, if the last menstruation occurred August 15, 1922, the black figures immediately below that date give the time of expected confinement, viz.: May 22, 1923; or, if last menstruation occurred January 31, confinement may reasonably be expected to occur somewhere about November 7 of the same year.

Differential Diagnosis of Eruptive Fevers

NAME	PERIOD OF INCUBATION	OCCURRENCE OF ERUPTION	CHARACTER OF ERUPTION	FADING OR DISAPPEARANCE OF ERUPTION	DURATION OF ILLNESS
*Scarlatina**	4 to 10 days.	Usually second or third day of fever (within thirty-six hours from actual commencement of illness).	Bright scarlet and diffused.	Fifth day of fever, commonly.	8 to 15 days.
Measles	10 to 14 days.	Fourth day of fever, or after seventy-two hours of illness.	Small red dots like flea-bites; crescentic.	On seventh day of fever.	6 to 10 days.
Rotheln	7 to 14 days.	Fourth to sixth day.	Like measles, but less distinct; patches more irregular and brightest near center.	Fourth day after appearance. Often desquamates in bran-like scales, but is uncertain.	8 to 10 days.
Variola	12 days.	Third day of fever.	Small red pimples, becoming vesicular and subsequently pustular; umbilicated.	Pustules mature on eighth or ninth day; scabs follow on tenth or twelfth, falling off two days later.	14 to 21 days.
Varicella	4 days.	Second day of fever.	Small rose pimples, becoming vesicles.	Slight scabs form on fourth day of fever.	6 or 7 days.
Erysipelas	3 to 7 days.	Second or third day.	Diffuse redness and swelling.	Uncertain.	Uncertain.
Typhus Fever	1 to 12 days.	Fourth to eighth day.	Mulberry color usually over abdomen.	Uncertain.	14 to 21 days.
Typhoid Fever	10 to 14 days or (sometimes) suddenly.	Seventh to fourteenth day.	Rose-colored spots, few in number and far apart.	Uncertain (may be wholly wanting).	20 to 30 days.

*Scarlatina presents a great variety of irregular forms; hence the practitioner should ever be on his guard.

Poisons and Antidotes

Stomach pump to be employed when available.

Acids, Mineral.—Chalk; magnesia (plaster off wall in emergency); solution carbonate of soda; emollient drinks; fixed oils.

Aconite.—Emetics; stimulants externally and internally.

Antimony.—Vegetable acids; tannic acid; catechu.

Arsenic.—Moist peroxide of iron (perchloride of iron and calcined magnesia); charcoal; ammonia; artificial respiration; cold affusion.

Atropine.—See Belladonna.

Argenti Nit.—Solution of common salt in demulcent fluid.

Belladonna.—Emetics; cold to head; active cathartics; ammonia and other stimulants externally and internally; opium.

Cannabis Indica.—Hot brandy or whiskey; vegetable acids; vinegar, etc.; allow patient to sleep.

Cantharides.—Emetics; emollient drinks; opiates by mouth and rectum. Follow with 15-grain doses of eucalyptus oil or parsley.

Carbolic Acid.—Fixed oils; egg albumen; alcohol.

Chlorine Water.—Albumen; milk; flour.

Chloroform.—Artificial respiration; galvanism to pneumogastric and through diaphragm; brandy and ammonia enemata; amyl nitrite. Tracheotomy has been successful. The hypodermic injection of 1/10 gr. digitalin, followed four hours after by 1/10 gr. atropine, has been known to restore a patient after galvanism had failed.

Colchicum.—Emetics, followed by demulcent drinks. If *coma* supervenes, brandy; ammonia; coffee.

Conium.—Emetics, followed by stimulants externally and internally.

Corrosive Sublimate.—Albumen; white of egg (4 grs. sublimate require white of one egg); flour; milk; protochloride of tin.

Croton Oil.—Emetics, followed by mucilaginous fluids containing opium.

Digitalis.—Recumbent posture after emetics; stimulants internally and externally.

Elaterium.—Demulcent drinks and enemata; small doses of opium, and the warm bath.

Hydrocyanic Acid.—Artificial respiration, with cold affusion; freshly precipitated oxide of iron with an alkaline carbonate, or Stewart's succinate.

Hyoscyamus.—Emetics; stimulants externally and internally; lemon juice.

Iodine.—Emetics and demulcent drinks—starch or flour diffused in water.

Lead Salts.—Sulphate of sodium or magnesium, followed by emetics; milk and demulcent drinks.

Lobelia.—Stimulants externally and internally.

Morphine.—Same as Opium.

Nux Vomica.—Enema, ½ oz. of tobacco to 20 ozs. of boiling water, to be given till spasms abate; nicotine (1 drop) in warm sherry and water; vinegar.

Opium.—Emetics; stimulants externally and internally; coffee; cold affusion; galvanism; artificial respiration; forced, prolonged active exercise; belladonna or atropine.

Phosphorus.—Magnesia; turpentine; emetics and purgatives.

Potash and Soda Salts.—Dilute acetic acid; vegetable acids; fixed oils; demulcents.

Stramonium.—See Belladonna.

Strychnine.—Chloroform; belladonna; amyl nitrite; tincture aconite; morphine; tobacco; chloral in drachm doses; 8 grs. morphine antidotes 1 gr. strychnine; also vinegar.

Tobacco.—Emetic; stimulants externally and internally; strychnine.

Zinc Salts.—Carbonate of soda; emetics; warm demulcent drinks.

MISCELLANEOUS

Serpent Poison.—Mechanical respiration; active exercise, enforced at point of stick if need be; cupping of wound after laying open freely and ligating the limb; injections of iodine; stimulants.

Yellow Iodide of Mercury; or in connection with Potass. Iodide.—Same as Aconite. Albumen in this instance is useless.

Oils of Tansy, Cedar and Pennyroyal.—Stimulants; amyl nitrite.

Poison-Oak or Ivy.—Paint with solution of chloral; Ethereal Antiseptic Soap.

Reportable Diseases

(*From Principles of Therapeutics—Osborne*)

All communicable diseases, as soon as diagnosed, must be reported to the local board of health, or to the health officer of the district. While the list of reportable diseases and the rules for the prevention of the infection of others vary in the different states and cities, the following lists are complete, and represent those diseases that should be reported: All of the so-called infectious diseases of children, such as chickenpox, diphtheria, German measles, measles, mumps, scarlet fever, and whooping cough. Such special infections as cerebrospinal meningitis,

favus, infectious conjunctivitis (pink eye), ophthalmia neonatorum, poliomyelitis, and trachoma. The general infections of dysentery (amebic and bacillary), gonorrhea, influenza, malaria, pneumonia, septic sore throat, smallpox, syphilis, tetanus, tuberculosis (all forms), and typhoid, paratyphoid and typhus fevers. Also the unusual conditions of anthrax, Asiatic cholera, glanders, leprosy, pellagra, plague, rabies, yellow fever, and sleeping sickness.

Many communities do not consider it necessary to report chickenpox, infectious conjunctivitis (pink eye), influenza, malaria, mumps, and pneumonia, but certainly, with the recent experience with influenza and pneumonia, at least these diseases should be reported.

Doses Proportionate to Age

According to Young's rule the dose is obtained by dividing the age by 12 plus the age. Thus, for a child of 3 years $\frac{3}{3+12} = \frac{3}{15}$ or 1/5. Cowling's rule is to divide the number of the next birthday by 24. Thus, for a child 5 year sold, $\frac{6}{24} = \frac{1}{4}$. Of narcotics not more than one-half of this proportion should be prescribed, while of cathartics this dose may be exceeded two or three times. Here is Gaubin's dose table, based on 1 grain for the adult dose:

Under 1 year	1/12 gr.
Under 2 years	1/8 gr.
Under 3 years	1/6 gr.
Under 4 years	1/4 gr.
Under 7 years	1/3 gr.
Under 14 years	1/2 gr.
Under 20 years	2/3 gr.

From 21 to 60 years, the full dosage.

What the Doctor Ought to Know About the Harrison Act

Every doctor who dispenses or prescribes opium or coca leaves or any compound, manufacture, salt, derivative or preparation thereof, must, before the first day of July in each year, register with the Collector of Internal Revenue of the District his name or style, place of business, and place or places where such business is to be carried on, and pay an annual fee of three dollars. If the doctor has no office, his residence is considered to be his place of business. The special stamp tax obtained upon registration must be conspicuously posted in the doctor's office.

Section 2 of the Act makes it "unlawful for any person to sell, barter, exchange or give away any of the aforesaid drugs except in pursuance of a written order of the person to whom such article is sold, bartered, exchanged or given, on a form to be issued in blank for that purpose by the Commissioner of Internal Revenue. These forms are issued in duplicate and charged for at the rate of $1.00 per hundred. The doctor should apply to the Collector of his District for such number of forms as he deems he will require in order to make his purchases. The doctor must keep his duplicate orders on file for a period of two years."

Section 2, however, does not apply to drugs dispensed by physicians in the course of their professional practice, provided the physician "keep a record of all such drugs dispensed or distributed, showing the amount dispensed or distributed, the date, and the name and address of the patient"; but such record is not required with respect to such drugs as are dispensed or distributed to a patient upon whom the physician personally attends away from his office. This record must be kept for a period of two years subject to inspection.

Physicians must keep record of any such drugs left with a nurse attending their patients, and see that unused portions are returned to them.

The provision for record does not apply to drugs dispensed upon the written prescription of a physician who has registered under the Act, provided the prescription is dated as of the day on which signed, is signed by the physician, gives the name and address of the patient, and the physician's registry number (which number is obtained from the Collector when paying the tax), and his address.

Prescriptions must be written in ink, indelible pencil, or typewritten, and signed in ink or with indelible pencil.

There shall be levied, assessed, collected, and paid upon opium, coca leaves, any compound, salt, derivative, or preparation thereof, produced in or imported into the United States, and sold, or removed for con-

sumption or sale, an internal revenue tax at the rate of 1 cent per ounce, and any fraction of an ounce in a package shall be taxed as an ounce, such tax to be paid by the importer, manufacturer, producer, or compounder thereof, and to be represented by appropriate stamps, so affixed to the bottle or other container as to securely seal the stopper, covering, or wrapper thereof.

It shall be unlawful for any person to purchase, sell, dispense, or distribute any of the aforesaid drugs except *in* the original stamped package or *from* the original stamped package; and the absence of appropriate tax-paid stamps from any of the aforesaid drugs shall be prima facie evidence of a violation of this section by the person in whose possession same may be found; and the possession of any original stamped package containing any of the aforesaid drugs by any person who has not registered and paid special taxes as required by this section shall be prima facie evidence of liability to such special tax; *Provided*, That the provisions of this paragraph shall not apply to any person having in his or her possession any of the aforesaid drugs which have been obtained from a registered dealer in pursuance of a prescription, written for legitimate medical uses, issued by a physician, dentist, veterinary surgeon, or other practitioner registered under this Act; and where the bottle or other container in which such drug may be put up by the dealer upon said prescription bears the name and registry number of the druggist, serial number of prescription, name and address of the patient, and name, address, and registry number of the person writing said prescription; or to the dispensing or administration or giving away of any of the aforesaid drugs to a patient by a registered physician, dentist, veterinary surgeon, or other practitioner in the course of his professional practice, and where said drugs are dispensed or administered to the patient for legitimate medical purposes, and the record kept as required by this Act of the drugs so dispensed, administered, distributed, or given away.

All unstamped packages of the aforesaid drugs found in the possession of any person, except as herein provided, are subject to seizure and forfeiture, and all the provisions of existing internal-revenue laws relating to searches, seizures, and forfeitures of unstamped articles apply to the articles taxed under this Act and the persons upon whom these taxes are imposed.

Section 6 provides: That the provisions of the Act shall not be construed to apply to the manufacture, sale, distribution, giving away, dispensing, or possession of preparations and remedies which do not contain more than two grains of opium, or more than one-fourth of a grain of morphine, or more than one-eighth of a grain of heroin, or more than

one grain of codeine, or any salt or derivative of any of them, in one fluid ounce, or, if a solid or semisolid preparation, in one avoirdupois ounce; or to liniments, ointments, or other preparations which are prepared for external use only, except liniments, ointments and other preparations which contain cocaine or any of its salts or alpha or beta eucaine or any of their salts or any synthetic substitute for them: *Provided*, That such remedies and preparations are manufactured, sold, distributed, given away, dispensed, or possessed as medicines and not for the purpose of evading the intentions and provisions of this Act: *Provided further*, That any manufacturer, producer, compounder, or vendor (including dispensing physicians) of the preparations and remedies mentioned in this section shall keep a record of all sales, exchanges, or gifts of such preparations and remedies in such manner as the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, shall direct. Such record shall be preserved for a period of two years in such a way as to be readily accessible to inspection by any officer, agent, or employee of the Treasury Department duly authorized for that purpose; and every such person so possessing or disposing of such preparations and remedies shall register as required in section 1 of this Act and, if he is not paying a tax under this Act, he shall pay a special tax of $1 for each year, or fractional part thereof, in which he is engaged in such occupation, to the Collector of Internal Revenue of the district in which he carries on such occupation as provided in this Act. The provisions of this Act as amended shall not apply to decocainized coca leaves or preparations made therefrom, or to other preparations of coca leaves which do not contain cocaine.

Rare Synonyms

Aabam	Lead.
Abric	Sulphur.
Acetated volatile alkali	Liq. ammon. acet.
Acid, acetosella Acid, saccharum	Oxalic acid.
Acid, borussicum	Hydrocyanic acid.
Acid, catholicon	Sulphuric acid.
Acid, chloro-hydrargyricum	Corrosive sublimate.
Acid of sugar	Oxalic acid.
Acid, seytodephicum	Tannic acid.
Acusto	Nitrate of potash.
Adipsos	Licorice.
Ærugo	Subacetate of copper.
Alkalized mercury	Mercurial chalk.
Alumen Romanum Alumen rubrum	Rock salt.
Aqua kali puri	Liquor potassæ.
Aqua naphæ	Orange flower water.
Aquila alba	Calomel.
Alegar	Vinegar.
Axungia	Hog's lard.
Bacher's pills	Hellebore and myrrh.
Balm of life Balsam, traumaticum	Comp. tr. benzoin.
Baker's salt	Carb. ammonia.
Baume de vie	Comp. decoct. aloes.
Bitter chips	Quassia.
Black draught	Comp. senna mixt.
Black Wadd	Peroxide of manganese.
Blanc de Troyes	Prepared chalk.
Blue copperas	Sulphate of copper.
Calcitea or calcitrea	Sulphuric acid.
Calx viva	Quicklime.
Camphor julep	Camphor water.
Carron oil	Liniment of lime.
Caustic barley	Cevadilla.
Cauterium potentiale	Caustic potash.
Ceratum epuloticum	Calamine ointment.
Ceratum geleni	Cold cream.
Cerussa acetata	Acetate of lead.
Chalybeated tartar	Potassio-tartrate of iron.
Chalybis rubigo præp	Hydrated peroxide iron.
Chloramide of mercury	Ammoniated mercury.
Cibus deorum	Asafetida.
Cinnabar of antimony	Sulphuret of mercury.
Coagulated mercury	Red oxide of mercury.
Comitissæ palmæ pulvis	Carbonate of magnesia.
Commander's balsam	Comp. tr. benzoin.
Confectio cardiaca	Aromatic chalk powder.
Confectio damacrotis	Comp. confec. catechu.

Confectio Raleighana	Aromatic confection.
Crow-fig	Nux vomica.
Drago mitigatus	Calomel.
Eau de Broccherai	Solution of creosote.
Eau des carmes	Aq. melissa comp.
Eau de Javelle	Sol. chloride soda.
Eau de luce	Aromatic spirit of ammonia.
Eau de sedatif	Sol. boric acid in aqua ammonia.
Electrum	Amber.
Elixir salutis	Comp. tr. senna.
Emulsio communis	Mistura amygdalæ.
Essentia bina	Caramel.
Ferri rubigo	Hydrated peroxide of iron.
Fixed air (*aer fixus*)	Carbonic acid gas.
Fossil alkali	Carbonate of soda.
Friar's balsam	Comp. tr. benzoin.
German tinder	Amadou.
God's grace	Haarlem oil.
Goulard powder	Acetate of lead.
Goulard water	Dilute sol. lead acetate.
Gregory's mixture	Comp. rhubarb powder.
Hepar sulphuris	Sulphuret of potassa.
Hiera picra	Pulv. aloes et canella.
Homberg's sedative salt	Boric acid.
Hydrargyrus calcinatus	Red oxide of mercury.
Hyperoxymuriate of potash	Chlorate of potash.
Jaggary	Crude sugar.
Jesuits' drops	Comp. tr. benzoin.
Jesuits' bark	Cinchona rubra.
Lady's blush	Carmine.
Lapis amianthus	Asbestos.
Lapis infernalis	Fused nitrate of silver.
Lapis infernalis alkalinus	Caustic potash.
Lincture	Electuary.
Liq. aquilegius	Spirit of wine.
Liver of sulphur	Sulphuret of potash.
Lixivium sapona rium	Liquor potassæ.
Magistery of bismuth	Subnitrate of bismuth.
Manna metallorum	Calomel.
Martial ethops	Magnetic oxide of iron.
Minium	Red oxide of lead.
Neapolitan ointment	Ung. hydrarg.
Oil of grain	Fusel oil.
Oil of swallow	Oil of elder.
Oleum omphacinum	Impure olive oil.
Oleum nervinum	Neat's-foot oil.
Ol. petræ Ol. Terræ	Crude petroleum.
Opodeldoc	Soap liniment.
Panchymagogum minerale	Calomel.
Phenic acid	Carbolic acid.
Pilulæ e gummi	Pil. galbanum comp.
Pilulæ rufi	Pil. aloes et myrrh.

Red borax	Ferri oxidum rubrum.
Red dominion	Emplastrum ferri.
Regulus of antimony	Antimony.
Rochi gallis	Rock alum.
Roman vitriol	Sulphate of copper.
Rufur pill	Pil. aloes et myrrha.
Sacchari fœx	Theriaca.
Sal anglicum	Sulphate of magnesia.
Sal diureticus	Acetate of potash.
Sal enixum	Bisulphate of potassa.
Sal prunella	Fused nitrate of potassa.
Salt wormwood	Carbonate of potash.
Scott's ointment	Compound mercurial ointment.
Soapstone Steatite	French chalk.
Steel drops	Tr. iron perchloride.
Stercus diaboli Stinkasant	Asafetida.
Syrupus balsamicus	Syrup of tolu.
Terra japonica	Ext. of acacia catechu.
Tinct. mæconii	Tinct. opium
Tinct. steel	Tinct. iron perchloride.
Tinct. stomachica	Comp. tinct. cardamom.
Torrington's drops	Comp. tr. benzoin.
Trooper's ointment	Dilute ung. hydrarg.
Tully powder	Licorice, camphor and morphine.
Turner's cerate	Calamine ointment.
Toothache	Hyoscyamus seeds.
Tutty	Impure oxide of zinc.
Unction Unguentum or Anguintum	Dilute mercurial ointment.
Unguentum saturnicum	Acetate-of-lead ointment.
Vegetable salt	Tartrate of potash.
Water of kali	Liquor potassa.
Water of Saturn	Dilute solution of lead acetate.
Waken beggar	Pulv. hellebore alba.
Yellow basilicon	Resin ointment.

Table of Adult Doses

The titles of the preparations are printed in the Latin, with the English equivalent beneath, for the benefit of the prescriber who now and then may be at a loss to recall the correct Latin name of some preparation he desires to use.

The doses specified are average adult doses, stated in both metric and apothecaries' systems.

This table includes all of the official U. S. P. preparations that are administered internally. Preparations that have fallen into disuse and others that are not sufficiently well known to merit general recognition have been omitted.

The object has been to supply the practitioner with a thoroughly up-to-date, accurate list of scientific therapeutic agents.

Name	Metric	Apothecaries'
Acetanilidum		
Acetanilid	0.2 gm.	3 grs.
Acetophenonum		
Acetophenone: Hypnone	0.3 cc	5 mins.
Acetopyrinum		
Acetopyrin: Acopyrin	0.65 gm.	10 grs.
Acetphenetidinum		
Acetphenetidin: Phenacetin	0.3 gm.	5 grs.
Acetum Lobeliæ		
Vinegar of Lobelia	1.5 cc	22 mins.
Acetum Opii		
Vinegar of Opium	0.5 cc	8 mins.
Acetum Sanguinariæ		
Vinegar of Sanguinaria	1.5 cc	22 mins.
Acetum Scillæ		
Vinegar of Squill	1 cc	15 mins.
Acidum Aceticum Dilutum		
Diluted Acetic Acid	2 cc	30 mins.
Acidum Acetylsalicylicum		
Acetylsalicylic Acid	0.75 gm	12 grs.
Acidum Arsenosum		
Arsenous Acid. (See Arseni Trioxidum.)		
Acidum Benzoicum		
Benzoic Acid	0.5 gm.	8 grs.
Acidum Boricum		
Boric Acid	0.5 gm.	8 grs.
Acidum Camphoricum		
Camphoric Acid	1 gm.	15 grs.
Acidum Citricum		
Citric Acid	0.5 gm.	8 grs.

Name	Metric	Apothecaries'
Acidum Gallicum		
Gallic Acid	1 gm.	15 grs.
Acidum Hydriodicum Dilutum		
Diluted Hydriodic Acid	0.5 cc	8 mins.
Acidum Hydrobromicum Dilutum		
Diluted Hydrobromic Acid	1 cc	15 mins.
Acidum Hydrochloricum		
Hydrochloric Acid	0.3 cc	5 mins.
Acidum Hydrochloricum Dilutum		
Diluted Hydrochloric Acid	1 cc	15 mins.
Acidum Hydrocyanicum Dilutum		
Diluted Hydrocyanic Acid	0.1 cc	1½ mins.
Acidum Hypophosphorosum		
Hypophosphorous Acid	0.05 cc	1 min.
Acidum Hypophosphorosum Dilutum		
Diluted Hypophosphorous Acid	0.5 cc	8 mins.
Acidum Lacticum		
Lactic Acid	2 cc	30 mins.
Acidum Nitricum		
Nitric Acid	0.2 cc	3 mins.
Acidum Nitricum Dilutum		
Diluted Nitric Acid	2 cc	30 mins.
Acidum Nitrohydrochloricum		
Nitrohydrochloric Acid	0.2 cc	3 mins.
Acidum Nitrohydrochloricum Dilutum		
Diluted Nitrohydrochloric Acid	1 cc	15 mins.
Acidum Osmicum		
Osmic Acid	0.001 gm.	1/60 gr.
Acidum Phosphoricum		
Phosphoric Acid	0.25 cc	4 mins.
Acidum Phosphoricum Dilutum		
Diluted Phosphoric Acid	2 cc	30 mins.
Acidum Picricum		
Picric Acid	0.03 gm.	½ gr.
Acidum Salicylicum		
Salicylic Acid	0.75 gm.	12 grs.
Acidum Sulphuricum		
Sulphuric Acid	0.2 cc	3 mins.
Acidum Sulphuricum Aromaticum		
Aromatic Sulphuric Acid	1 cc	15 mins.
Acidum Sulphuricum Dilutum		
Diluted Sulphuric Acid	1 cc	15 mins.
Acidum Sulphurosum		
Sulphurous Acid	2 cc	30 mins.
Acidum Tannicum		
Tannic Acid	0.5 gm.	8 grs.

Name	Metric	Apothecaries'
Acidum Tartaricum		
Tartaric Acid	0.5 gm.	8 grs.
Acidum Trichloraceticum		
Trichloracetic Acid		
Astringent and hemostatic	2% solution	
Acidum Valerianicum		
Valerianic Acid	0.2 cc	3 mins.
Aconitina		
Aconitine	0.00015 gm.	1/400 gr.
Aconitum		
Aconite	0.03 gm.	½ gr.
Adonidinum		
Adonidin	0.011 gm.	1/6 gr.
Adrenalini Chloridum		
Adrenalin Chloride	0.00065 gm.	1/100 gr.
(See also Liquor Adrenalini Chloridi.)		
Æther		
Ether	1 cc	15 mins.
Æther Aceticus		
Acetic Ether	1 cc	15 mins.
Æthylis Carbamas		
Ethyl Carbamate: Urethane	1 gm.	15 grs.
Æthylmorphinæ Hydrochloridum		
Ethylmorphine Hydrochloride	0.015 gm.	¼ gr.
Agar		
Agar	10 gm.	2½ drs.
Agaricinum		
Agaricin	0.033 gm.	½ gr.
Agurinum		
Agurin: Sodio-Theobromine Acetate	0.65 gm.	10 grs.
Aloe		
Aloes	0.25 gm.	4 grs.
Aloe Purificata		
Purified Aloes	0.25 gm.	4 grs.
Aloinum		
Aloin	0.015 gm.	¼ gr.
Alumen		
Alum	0.5 gm.	8 grs.
Ammonii Benzoas		
Ammonium Benzoate	1 gm.	15 grs.
Ammonii Bromidum		
Ammonium Bromide	1 gm.	15 grs.
Ammonii Carbonas		
Ammonium Carbonate	0.3 gm.	5 grs.
Ammonii Chloridum		
Ammonium Chloride	0.3 gm.	5 grs.

Name	Metric	Apothecaries'
Ammonii Iodidum		
Ammonium Iodide	0.3 gm.	5 grs.
Ammonii Phosphas		
Ammonium Phosphate	1 gm.	15 grs.
Ammonii Picras		
Ammonium Picrate	0.02 gm.	1/3 gr.
Ammonii Salicylas		
Ammonium Salicylate	0.5 gm.	8 grs.
Ammonii Valeras		
Ammonium Valerate	0.5 gm.	8 grs.
Amylis Nitris		
Amyl Nitrite	0.2 cc	3 mins.
Amylis Salicylas		
Amyl Salicylate: Amylenol	0.5 gm.	8 grs.
Analgenum		
Analgen: Quinalgen	0.65 gm.	10 grs.
Anisum		
Anise	0.5 gm.	8 grs.
Antimonii et Potassii Tartras		
Antimony and Potassium Tartrate:		
Expectorant	0.005 gm.	1/12 gr.
Emetic	0.03 gm.	½ gr.
Intravenously	0.003 gm.	1/20 gr.
Antipyrina		
Antipyrine	0.3 gm.	5 grs.
Antipyrinæ Salicylas		
Antipyrine Salicylate: Salipyrine	0.65 gm.	10 grs.
Apiol. See Oleoresina Petroselini.		
Apocodeinæ Hydrochloridum		
Apocodeine Hydrochloride	0.032 gm.	½ gr.
Apocynum Cannabinum		
Canadian Hemp	0.75 gm.	12 grs.
Apomorphinæ Hydrochloridum		
Apomorphine Hydrochloride:		
Expectorant and sedative	0.003 gm.	1/20 gr.
Emetic by mouth	0.01 gm.	1/6 gr.
Emetic by hypo	0.005 gm.	1/12 gr.
Aqua Ammoniæ		
Ammonia Water	1 cc	15 mins.
Aqua Camphoræ		
Camphor Water	10 cc	2½ fl. drs.
Aqua Chlori: Aqua Chlorata		
Chlorine Water	8 cc	2 fl. drs.
Aqua Creosoti		
Creosote Water	10 cc	2½ fl. drs.
Arecolini Hydrobromas		
Arecoline Hydrobromide	0.006 gm.	1/10 gr.

Name	Metric	Apothecaries'
Argenti Iodidum Silver Iodide	0.016 gm.	¼ gr.
Argenti Lactas Silver Lactate	0.05 gm.	¾ gr.
Argenti Nitras Silver Nitrate	0.01 gm.	1/6 gr.
Argenti Oxidum Silver Oxide	0.06 gm.	1 gr.
Arseni Bromidum Arsenous Bromide	0.002 gm.	1/30 gr.
Arseni Iodidum Arsenous Iodide	0.005 gm.	1/12 gr.
Arseni Trioxidum Arsenic Trioxide: Arsenous Acid	0.002 gm.	1/30 gr.
Asafœtida Asafetida	0.25 gm.	4 grs.
Aspidium Aspidium	4 gm.	60 grs.
Aspidosperma Quebracho	4 gm.	1 dr.
Atropina Atropine	0.0005 gm.	1/120 gr.
Atropinæ Sulphas Atropine Sulphate	0.0005 gm.	1/120 gr.
Auri et Sodii Chloridum Gold and Sodium Chloride	0.005 gm.	1/12 gr.
Balsamum Peruvianum Balsam of Peru	1 gm.	15 grs.
Balsamum Tolutanum Balsam of Tolu	1 gm.	15 grs.
Barii Chloridum Barium Chloride	0.032 gm.	½ gr.
Belladonnæ Folia Belladonna Leaves	0.06 gm.	1 gr.
Belladonnæ Radix Belladonna Root	0.045 gm.	¾ gr.
Benzaldehydum Benzaldehyde	0.03 cc	½ min.
Benzonaphthol Benzonaphthol	0.4 gm.	6 grs.
Benzosulphinidum Benzosulphinide: Saccharin	0.2 gm.	3 grs.
Benzylis Benzoas Benzyl Benzoate	0.3 cc	5 mins.
Berberina Berberine	0.4 gm.	6 grs.

Name	Metric	Apothecaries'
Berberinæ Hydrochloridum		
Berberine Hydrochloride	0.4 gm.	6 grs.
Berberinæ Sulphas		
Berberine Sulphate	0.4 gm.	6 grs.
Berberis		
Berberis	2 gm.	30 grs.
Betanaphthol		
Betanaphthol	0.25 gm.	4 grs.
Bismuthi Betanaphtholas		
Bismuth Betanaphtholate	0.5 gm.	8 grs.
Bismuthi Citras		
Bismuth Citrate	0.125 gm.	2 grs.
Bismuthi et Ammonii Citras		
Bismuth and Ammonium Citrate	0.125 gm.	2 grs.
Bismuthi Salicylas		
Bismuth Salicylate	0.6 gm.	10 grs.
Bismuthi Subcarbonas		
Bismuth Subcarbonate	0.5 gm.	8 grs.
Bismuthi Subgallas		
Bismuth Subgallate	0.5 gm.	8 grs.
Bismuthi Subnitras		
Bismuth Subnitrate	0.5 gm.	8 grs.
Bismuthi Subsalicylas		
Bismuth Subsalicylate	0.5 gm.	8 grs.
Bismuthi Tannas		
Bismuth Tannate	0.5 gm.	8 grs.
Brometonum		
Brometone	0.25 gm.	4 grs.
Bromoformum		
Bromoform	0.2 cc	3 mins.
Brucina		
Brucine	0.003 gm.	1/20 gr.
Buchu		
Buchu	2 gm.	30 grs.
Caffeina		
Caffeine	0.15 gm.	2½ grs.
Caffeina Citrata		
Citrated Caffeine	0.3 gm.	5 grs.
Caffeina Citrata Effervescens		
Effervescent Citrated Caffeine	4 gm.	60 grs.
Caffeina Sodio-Benzoas		
Caffeine and Sodium Benzoate	0.3 gm.	5 grs.
Calamus		
Calamus	1 gm.	15 grs.
Calcii Bromidum		
Calcium Bromide	1 gm.	15 grs.

Name	Metric	Apothecaries'
Calcii Carbonas Præcipitatus		
Precipitated Calcium Carbonate	1 gm.	15 grs.
Calcii Chloridum		
Calcium Chloride	0.5 gm.	8 grs.
Calcii Glycerophosphas		
Calcium Glycerophosphate	0.25 gm.	4 grs.
Calcii Hypophosphis		
Calcium Hypophosphite	0.5 gm.	8 grs.
Calcii Lactas		
Calcium Lactate	0.5 gm.	8 grs.
Calcii Phosphas Præcipitatus		
Precipitated Calcium Phosphate	1 gm.	15 grs.
Calcii Sulphidum		
Calcium Sulphide	0.06 gm.	1 gr.
Calx Chlorinata		
Chlorinated Lime: Chlorinated Calcium Oxide	0.25 gm.	4 grs.
Cambogia		
Gamboge	0.125 gm.	2 grs.
Camphora		
Camphor: by mouth	0.2 gm.	3 grs.
by hypo	0.1 gm.	1½ grs.
Camphora Monobromata		
Monobromated Camphor	0.125 gm.	2 grs.
Cannabis		
Cannabis, U. S. P.	0.06 gm.	1 gr.
Cantharis		
Cantharides	0.03 gm.	½ gr.
Capsicum		
Capsicum	0.06 gm.	1 gr.
Carbo Ligni		
Charcoal	1 gm.	15 grs.
Carbonis Disulphidum		
Carbon Disulphide	0.025 cc	½ min.
Cascara Evacuans		
Cascara Evacuant	0.6 cc	10 mins.
Cascara Sagrada		
See Fluidextractum Cascaræ Sagradæ.		
Cascarenna		
Cascarenna	1.25 cc	20 mins.
Cerii Oxalas		
Cerium Oxalate	0.2 gm.	3 grs.
Chirata		
Chirata	1 gm.	15 grs.
Chloralformamidum		
Chloralformamide	1 gm.	15 grs.

Name	Metric	Apothecaries'
Chloralum Hydratum Hydrated Chloral	0.5 gm.	8 grs.
Chloranodynum Chlor-Anodyne	0.6 cc	10 mins.
Chloretonum Chloretone	0.65 gm.	10 grs.
Chloroformum Chloroform	0.3 cc	5 mins.
Chrysarobinum Chrysarobin	0.03 gm.	½ gr.
Cimicifuga Cimicifuga	1 gm.	15 grs.
Cinchona Cinchona	1 gm.	15 grs.
Cinchona Rubra Red Cinchona	1 gm.	15 grs.
Cinchonidinæ Sulphas Cinchonidine Sulphate	0.15 gm.	2½ grs.
Cinchoninæ Sulphas Cinchonine Sulphate	0.15 gm.	2½ grs.
Cinnaldehydum Cinnamic Aldehyde	0.05 cc	1 min.
Citrophenum Citrophen	0.5 gm.	7½ grs.
Cocaina Cocaine	0.015 gm.	¼ gr.
Cocainæ Hydrochloridum Cocaine Hydrochloride	0.015 gm.	¼ gr.
Codeina Codeine	0.03 gm.	½ gr.
Codeinæ Phosphas Codeine Phosphate	0.03 gm.	½ gr.
Codeinæ Sulphas Codeine Sulphate	0.03 gm.	½ gr.
Colchici Cormus Colchicum Corm	0.25 gm.	4 grs.
Colchici Semen Colchicum Seed	0.2 gm.	3 grs.
Colchicina Colchicine	0.0005 gm.	1/120 gr.
Colocynthidina Colocynthidine	0.015 gm.	¼ gr.
Colocynthina Colocynthin	0.03 gm.	½ gr.
Colocynthis Colocynth	0.06 gm.	1 gr.

Name	Metric	Apothecaries'
Confectio Sennæ		
Confection of Senna	4 gm.	60 grs.
Coniina		
Coniine	0.0015 gm.	1/45 gr.
Conium		
Conium	0.2 gm.	3 grs.
Convallamarina		
Convallamarin	0.08 gm.	1¼ grs.
Convallaria		
Convallaria	0.5 gm.	7½ grs.
Copaiba		
Copaiba	1 cc	15 mins.
Corpus Luteum Siccum		
Desiccated Corpus Luteum	0.3 gm.	5 grs.
Cotarninæ Hydrochloridum		
Cotarnine Hydrochloride	0.06 gm.	1 gr.
Cotoina		
Cotoin	0.125 gm.	2 grs.
Creosotum		
Creosote	0.25 cc	4 mins.
Creosoti Carbonas		
Creosote Carbonate	1 gm.	15 grs.
Cresol		
Cresol	0.05 cc	1 min.
Creta Præparata		
Prepared Chalk	1 gm.	15 grs.
Cubeba		
Cubeb	1 gm.	15 grs.
Cupri Acetas		
Copper Acetate	0.02 gm.	1/3 gr.
Cupri Arsenis		
Copper Arsenite	0.0009 gm.	1/75 gr.
Cupri Sulphas		
Copper Sulphate: As an emetic	0.25 gm.	4 grs.
Curara		
Curare	0.005 gm.	1/12 gr.
Cypripedium		
Cypripedium	1 gm.	15 grs.
Dermatolum		
Dermatol. (See Bismuthi Subgallas.)		
Diacetyl-Morphinæ Hydrochloridum		
Diacetyl Morphine Hydrochloride	0.003 gm.	1/20 gr.
Diastasum		
Diastase	0.5 gm.	8 grs.
Digitalinum		
Digitalin	0.005 gm.	1/10 gr.

Name	Metric	Apothecaries'
Digitalis		
Digitalis	0.06 gm.	1 gr.
Digitalonum		
Digitalone (in solution and tablet):		
Hypodermic	0.5 cc	8 mins.
Internal	0.03 gm.	½ gr.
Diuretinum		
Diuretin	1 gm.	15 grs.
Elaterinum		
Elaterin	0.003 gm.	1/20 gr.
Elaterium		
Elaterium	0.01 gm.	1/6 gr.
Elixir Aromaticum		
Aromatic Elixir	4 cc	1 fl. dr.
Emulsum Amygdalæ		
Emulsion of Almond	120 cc	4 fl. ozs.
Emulsum Asafœtidæ		
Emulsion of Asafetida	15 cc	4 fl. drs.
Emulsum Chloroformi		
Emulsion of Chloroform	8 cc	2 fl. drs.
Emulsum Olei Morrhuæ		
Emulsion of Cod Liver Oil	15 cc	4 fl. drs.
Emulsum Metageni et Olei Morrhuæ		
Emulsion of Metagen and Cod Liver Oil	8 cc	2 fl. drs.
Emulsum Olei Terebinthinæ		
Emulsion of Oil of Turpentine	2 cc	½ fl. dr.
Ergonum		
Ergone:		
Hypodermic	1.3 cc	20 mins.
Internal	2 cc	30 mins.
Ergota		
Ergot	2 gm.	30 grs.
Ergotinum		
Ergotin	0.3 gm.	5 grs.
Eriodictyon		
Eriodictyon	1 gm.	15 grs.
Eucalyptol		
Eucalyptol	0.3 cc	5 mins.
Eucalyptus		
Eucalyptus	2 gm.	30 grs.
Eudoxinum		
Eudoxine	0.25 gm.	4 grs.
Euonymina		
Euonymin	0.2 gm.	3 grs.
Euonymus		
Euonymus	0.5 gm.	8 grs.

Name	Metric	Apothecaries'
Eupatorium		
Eupatorium: Boneset	2 gm.	30 grs.
Exalginum		
Exalgin: Methyl Acetanilid	0.25 gm.	4 grs.
Extractum Aconiti Radicis		
Extract of Aconite	0.01 gm.	1/6 gr.
Extractum Aloes		
Extract of Aloes	0.125 gm.	2 grs.
Extractum Belladonnæ Foliorum		
Extract of Belladonna Leaves	0.015 gm.	¼ gr.
Extractum Cannabis		
Extract of Cannabis, U. S. P.	0.01 gm.	1/6 gr.
Extractum Cascaræ Sagradæ		
See Extractum Rhamni Purshianæ.		
Extractum Cimicifugæ		
Extract of Cimicifuga	0.25 gm.	4 grs.
Extractum Colchici Cormi		
Extract of Colchicum Corm	0.06 gm.	1 gr.
Extractum Colocynthidis		
Extract of Colocynth	0.03 gm.	½ gr.
Extractum Colocynthidis Compositum		
Compound Extract of Colocynth	0.25 gm.	4 grs.
Extractum Digitalis		
Extract of Digitalis	0.01 gm.	1/6 gr.
Extractum Ergotæ		
Extract of Ergot	0.25 gm.	4 grs.
Extractum Euonymi		
Extract of Euonymus	0.125 gm.	2 grs.
Extractum Fellis Bovis		
Extract of Ox Gall	0.1 gm.	1½ grs.
Extractum Gelsemii		
Extract of Gelsemium	0.01 gm.	1/6 gr.
Extractum Gentianæ		
Extract of Gentian	0.25 gm.	4 grs.
Extractum Glycyrrhizæ		
Extract of Glycyrrhiza	1 gm.	15 grs.
Extractum Glycyrrhizæ Purum		
Pure Extract of Glycyrrhiza	1 gm.	15 grs.
Extractum Hæmatoxyli		
Extract of Hematoxylon	1 gm.	15 grs.
Extractum Hydrastis		
Extract of Golden Seal	0.5 gm.	8 grs.
Extractum Hyoscyami		
Extract of Hyoscyamus	0.06 gm.	1 gr.
Extractum Krameriæ		
Extract of Krameria	0.5 gm.	8 grs.

Name	Metric	Apothecaries'
Extractum Leptandræ		
Extract of Leptandra	0.25 gm.	4 grs.
Extractum Malti		
Extract of Malt	15 cc	4 fl. drs.
Extractum Nucis Vomicæ		
Extract of Nux Vomica	0.015 gm.	¼ gr.
Extractum Opii		
Extract of Opium	0.03 gm.	½ gr.
Extractum Physostigmatis		
Extract of Physostigma	0.008 gm.	⅛ gr.
Extractum Quassiæ		
Extract of Quassia	0.06 gm.	1 gr.
Extractum Rhamni Purshianæ		
Extract of Cascara Sagrada	0.25 gm.	4 grs.
Extractum Rhei		
Extract of Rhubarb	0.25 gm.	4 grs.
Extractum Scopolæ		
Extract of Scopola	0.01 gm.	1/6 gr.
Extractum Stramonii		
Extract of Stramonium	0.01 gm.	1/6 gr.
Extractum Sumbul		
Extract of Sumbul	0.25 gm.	4 grs.
Extractum Taraxaci		
Extract of Taraxacum	1 gm.	15 grs.
Extractum Viburni Prunifolii		
Extract of Black Haw	0.5 gm.	8 grs.
Fel Bovis		
Oxgall	0.5 gm.	8 grs.
Ferri Carbonas Saccharatus		
Saccharated Ferrous Carbonate	0.25 gm.	4 grs.
Ferri Chloridum		
Ferric Chloride	0.06 gm.	1 gr.
Ferri Citras		
Ferric Citrate	0.25 gm.	4 grs.
Ferri Glycerophosphas		
Iron Glycerophosphate:		
Internal	0.2 gm.	3 grs.
Intramuscular	0.06 gm.	1 gr.
Ferri Cacodylas		
Iron Cacodylate:		
Intramuscular	0.03 gm.	½ gr.
Intravenous	0.06 gm.	1 gr.
Ferri et Ammonii Citras		
Iron and Ammonium Citrate	0.25 gm.	4 grs.
Ferri et Ammonii Sulphas		
Ferric Ammonium Sulphate	0.5 gm.	8 grs.

Name	Metric	Apothecaries'
Ferri et Ammonii Tartras Iron and Ammonium Tartrate	0.25 gm.	4 grs.
Ferri et Potassii Tartras Iron and Potassium Tartrate	0.25 gm.	4 grs.
Ferri et Quininæ Citras Iron and Quinine Citrate	0.25 gm.	4 grs.
Ferri et Strychninæ Citras Iron and Strychnine Citrate	0.125 gm.	2 grs.
Ferri Hydroxidum Ferric Hydroxide; in arsenical posisoning one tablespoonful.		
Ferri Hydroxidum cum Magnesii Oxido Ferric Hydroxide with Magnesium Oxide	120 cc	4 fl. ozs.
Ferri Hypophosphis Ferric Hypophosphite	0.2 gm.	3 grs.
Ferri Phosphas Ferric Phosphate	0.25 gm.	4 grs.
Ferri Pyrophosphas Solubilis Soluble Ferric Pyrophosphate	0.25 gm.	4 grs.
Ferri Sulphas Ferrous Sulphate	0.1 gm.	1½ grs.
Ferri Sulphas Exsiccatus Exsiccated Ferrous Sulphate	0.06 gm.	1 gr.
Ferri Sulphas Granulatus Granulated Ferrous Sulphate	0.1 gm.	1½ grs.
Ferrum Reductum Reduced Iron	0.06 gm.	1 gr.
Fluidextractum Absinthium Fluidextract of Wormwood	0.3–4 cc	5–60 mins.
Fluidextractum Aconiti Fluidextract of Aconite	0.03 cc	½ min.
Fluidextractum Adonidis Fluidextract of Adonis	0.13 cc	2 mins.
Fluidextractum Aletridis Fluidextract of Aletris	2 cc	30 mins.
Fluidextractum Altheæ Radicis Fluidextract of Marshmallow Root	4–8 cc	1–2 fl. drs.
Fluidextractum Angelicæ Radicis Fluidextract of Angelica Root	2 cc	30 mins.
Fluidextractum Anisi Fluidextract of Anise	1 cc	15 mins.
Fluidextractum Apocyni Fluidextract of Apocynum	0.75 cc	12 mins.

Name	Metric	Apothecaries'
Fluidextractum Arnicæ Foliorum Fluidextract of Arnica Flowers	0.1 cc	1½ mins.
Fluidextractum Arnicæ Radicis Fluidextract of Arnica Root	0.3–1.2 cc	5–20 mins.
Fluidextractum Aromaticum Fluidextract Aromatic, U. S. P.	1 cc	15 mins.
Fluidextractum Asafœtidæ Fluidextract of Asafetida	0.6–2 cc	10–30 mins.
Fluidextractum Asari Canadensæ Fluidextract of Canada Snakeroot	1–2 cc	10–30 mins.
Fluidextractum Asclepiadis Fluidextract of Asclepias (Pleurisy Root)	2 cc	30 mins.
Fluidextractum Aspidospermatis Fluidextract of Aspidosperma	4 cc	1 fl. dr.
Fluidextractum Aurantii Amari Fluidextract of Bitter Orange Peel	1 cc	15 mins.
Fluidextractum Avenæ Sativæ Fluidextract of Avena Sativa (Oats)	1.5 cc	20 mins.
Fluidextractum Baptisiæ Fluidextract of Baptisia	1 cc	15 mins.
Fluidextractum Belladonnæ Foliorum Fluidextract of Belladonna Leaves	0.06–0.25 cc	1–4 mins
Fluidextractum Belladonnæ Radicis Fluidextract of Belladonna Root	0.05 cc	1 min.
Fluidextractum Berberidis Fluidextract of Berberis	2 cc	30 mins
Fluidextractum Boldi Fluidextract of Boldo	0.5 cc	8 mins.
Fluidextractum Bryoniæ Fluidextract of Bryonia	0.6–4 cc	10–60 mins
Fluidextractum Buchu Fluidextract of Buchu	2 cc	30 mins.
Fluidextractum Calami Fluidextract of Calamus	1 cc	15 mins.
Fluidextractum Calendulæ Fluidextract of Calendula	1 cc	15 mins.
Fluidextractum Calumbæ Fluidextract of Calumba	2 cc	30 mins.
Fluidextractum Cannabis Fluidextract of Cannabis, U. S. P.	0.1 cc	1½ mins.
Fluidextractum Capsici Fluidextract of Capsicum	0.05 cc	1 min.
Fluidextractum Cardamomi Fluidextract of Cardamom	0.3–1 cc	5–15 mins.

Name	Metric	Apothecaries'
Fluidextractum Cascaræ Sagradæ Fluidextract of Cascara	1 cc	15 mins.
Fluidextractum Cascarillæ Fluidextract of Cascarilla	2–4 cc	½–1 fl. dr.
Fluidextractum Castaneæ Fluidextract of Chestnut Leaves	4 cc	60 mins.
Fluidextractum Catechu Fluidextract of Catechu	0.6–3 cc	10–45 mins.
Fluidextractum Caulophylli Fluidextract of Caulophyllum	0.5 cc	8 mins.
Fluidextractum Cereus Grandiflorus Fluidextract of Cereus Grandiflorus	0.12–0.3 cc	2–5 mins.
Fluidextractum Chelidonii Fluidextract of Garden Celandine	2–4 cc	½–1 fl. drs.
Fluidextractum Chenopodii Fluidextract of Wormseed, American	1–4 cc	¼–1 fl. dr.
Fluidextractum Chimaphilæ Fluidextract of Chimaphila	2 cc	30 mins.
Fluidextractum Chionanthi Fluidextract of Chionanthus	2 cc	30 mins.
Fluidextractum Cimicifugæ Fluidextract of Cimicifuga	1 cc	15 mins.
Fluidextractum Cinchonæ Fluidextract of Cinchona	1 cc	15 mins.
Fluidextractum Cocæ Fluidextract of Coca	2 cc	30 mins.
Fluidextractum Cocculi Fluidextract of Cocculus	0.016–0.05 cc	¼–1 min.
Fluidextractum Cocillanæ Fluidextract of Cocillana	0.6–2 cc	10–30 mins.
Fluidextractum Colchici Cormi Fluidextract of Colchicum Corm	0.2 cc	3 mins.
Fluidextractum Colchici Seminis Fluidextract of Colchicum Seed	0.2 cc	3 mins.
Fluidextractum Collinsoniæ Fluidextract of Stone-root	2–4 cc	½–1 fl. dr.
Fluidextractum Colocynthi Fluidextract of Colocynth	0.02–0.3 cc	2–5 mins.
Fluidextractum Condurango Fluidextract of Condurango	4 cc	60 mins.
Fluidextractum Conii Fluidextract of Conium	0.2 cc	3 mins.
Fluidextractum Convallariæ Fluidextract of Convallaria	0.5 cc	8 mins.

Name	Metric	Apothecaries'
Fluidextractum Coriandri Fluidextract of Coriander	0.6–2 cc	10–30 mins.
Fluidextractum Corydalis Fluidextract of Corydalis	0.6 cc	10 mins.
Fluidextractum Cratægi Fluidextract of Hawthorn Berries	0.6–1 cc	10–15 mins.
Fluidextractum Cubebæ Fluidextract of Cubeb	1 cc	15 mins.
Fluidextractum Cypripedii Fluidextract of Cypripedium	1 cc	15 mins.
Fluidextractum Damianæ Fluidextract of Damiana	2 cc	30 mins.
Fluidextractum Digitalis Fluidextract of Digitalis	0.05 cc	1 min.
Fluidextractum Dioscoreæ Fluidextract of Dioscorea	4 cc	1 fl. dr.
Fluidextractum Dulcamaræ Fluidextract of Bittersweet	4 cc	1 fl. dr.
Fluidextractum Echinaceæ Fluidextract of Echinacea	1 cc	15 mins.
Fluidextractum Ergotæ Fluidextract of Ergot	2 cc	30 mins.
Fluidextractum Eriodictyi Fluidextract of Eriodictyon	1 cc	15 mins.
Fluidextractum Eucalypti Fluidextract of Eucalyptus	2 cc	30 mins.
Fluidextractum Euonymi Fluidextract of Euonymus	0.5 cc	8 mins.
Fluidextractum Eupatorii Fluidextract of Eupatorium	2 cc	30 mins.
Fluidextractum Euphorbiæ Piluliferæ Fluidextract of Euphorbia Pilulifera	2 cc	30 mins.
Fluidextractum Frangulæ Fluidextract of Frangula	1 cc	15 mins.
Fluidextractum Gelsemii Fluidextract of Gelsemium	0.03 cc	½ min.
Fluidextractum Gentianæ Fluidextract of Gentian	1 cc	15 mins.
Fluidextractum Geranii Fluidextract of Geranium	1 cc	15 mins.
Fluidextractum Glycyrrhizæ Fluidextract of Glycyrrhiza	2 cc	30 mins.
Fluidextractum Gossypii Corticis Fluidextract of Cotton-root Bark	2 cc	30 mins.

Name	Metric	Apothecaries'
Fluidextractum Grindeliæ		
Fluidextract of Grindelia	2 cc	30 mins.
Fluidextractum Guaiaci		
Fluidextract of Guaiac	1–4 cc	15–60 mins.
Fluidextractum Guaranæ		
Fluidextract of Guarana	2 cc	30 mins.
Fluidextractum Hamamelidis Foliorum		
Fluidextract of Hamamelis Leaves	2 cc	30 mins.
Fluidextractum Heloniadis		
Fluidextract of Helonias,	2 cc	30 mins.
Fluidextractum Humuli		
Fluidextract of Hops	2 cc	30 mins.
Fluidextractum Hydrangeæ		
Fluidextract of Hydrangea	2 cc	30 mins.
Fluidextractum Hydrastis		
Fluidextract of Hydrastis	2 cc	30 mins.
Fluidextractum Hyoscyami		
Fluidextract of Hyoscyamus	0.2 cc	3 mins.
Fluidextractum Ignatiæ		
Fluidextract of Ignatia	0.06–0.6 cc	1–10 mins.
Fluidextractum Inulæ		
Fluidextract of Elecampane	2–4 cc	½–1 fl. dr.
Fluidextractum Ipecacuanhæ		
Fluidextract of Ipecac, U. S. P.:		
Emetic	1 cc	15 mins.
Expectorant	0.05 cc	1 min.
Fluidextractum Jalapi		
Fluidextract of Jalap	1 cc	15 mins.
Fluidextractum Eugeniæ Jambolanæ Seminis		
Fluidextract of Jambul Seed	0.6 cc	10 mins.
Fluidextractum Juglandis		
Fluidextract of Juglans	4 cc	1 fl. dr.
Fluidextractum Juniperi		
Fluidextract of Juniper Berries	4 cc	1 fl. dr.
Fluidextractum Kavæ		
Fluidextract of Kava	1 cc	15 mins.
Fluidextractum Kolæ		
Fluidextract of Kola	4 cc	60 mins.
Fluidextractum Krameriæ		
Fluidextract of Krameria	1 cc	15 mins.
Fluidextractum Lactucæ Canadensis		
Fluidextract of Wild Lettuce	1.3 cc	20 mins.

Name	Metric	Apothecaries'
Fluidextractum Lactucarii		
Fluidextract of Lactucarium	0.2–1 cc	4–15 mins.
Fluidextractum Lappæ		
Fluidextract of Lappa	2 cc	30 mins.
Fluidextractum Lappæ Seminis		
Fluidextract of Burdock Seed	0.6–4 cc	10–60 mins.
Fluidextractum Leptandræ		
Fluidextract of Leptandra	1 cc	15 mins.
Fluidextractum Lobeliæ		
Fluidextract of Lobelia	0.15 cc	2½ mins.
Fluidextractum Lupulini		
Fluidextrect of Lupulin	0.5 cc	8 mins.
Fluidextractum Manacæ		
Fluidextract of Manaca	0.6–4 cc	10–60 mins.
Fluidextractum Marrubii		
Fluidextract of Marrubium	2–4 cc	½–1 fl. drs.
Fluidextractum Matico		
Fluidextract of Matico	4 cc	1 fl. dr.
Fluidextractum Matricariæ		
Fuidextract of Chamomile, German	2–4 cc	½–1 fl. dr.
Fluidextractum Mitchellæ		
Fluidextract of Squaw-vine	2–4 cc	½–1 fl. dr.
Fluidextractum Muirapuamæ		
Fluidextract of Muirapauma	1–4 cc	¼–1 fl. dr.
Fluidextractum Myrrhæ		
Fluidextract of Myrrh	0.6–2 cc	10–30 mins.
Fluidextractum Nucis Vomicæ		
Fluidextract of Nux Vomica	0.05 cc	1 min.
Fluidextractum Oxydendronis		
Fluidextract of Sourwood Leaves	2–8 cc	½–2 fl. drs.
Fluidextractum Pareiræ		
Fluidextract of Pareira	2 cc	30 mins.
Fluidextractum Passifloræ		
Fluidextract of Passion Flower	1–4 cc	15–60 mins.
Fluidextractum Physostigmæ		
Fluidextract of Physostigma	0.05–0.25 cc	1–4 mins.
Fluidextractum Phytolaccæ		
Fluidextract of Phytolacca:		
Emetic	1 cc	15 mins.
Alterative	0.1 cc	1½ mins.
Fluidextractum Phytolaccæ Fructi		
Fluidextract of Poke Berries	0.6–4 cc	10–60 mins.
Fluidextractum Pilocarpi		
Fluidextract of Pilocarpus	2 cc	30 mins.

Name	Metric	Apothecaries'
Fluidextractum Pini Albæ Fluidextract of White Pine Bark	2–4 cc	½–1 fl. dr.
Fluidextractum Piscidiæ Fluidextract of Jamaica Dogwood	2–8 cc	½–2 fl. drs.
Fluidextractum Podophylli Fluidextract of Podophyllum	0.5 cc	8 mins.
Fluidextractum Populi Gemmæ Fluidextract of Balsam Poplar Buds	2–4 cc	½–1 fl. dr.
Fluidextractum Pruni Virginianæ Fluidextract of Wild Cherry	2 cc	30 mins.
Fluidextractum Pulsatillæ Fluidextract of Pulsatilla	0.06–0.3 cc	1–5 mins.
Fluidextractum Quassiæ Fluidextract of Quassia	0.5 cc	8 mins.
Fluidextractum Quercus Fluidextract of Quercus	1 cc	15 mins.
Fluidextractum Quillajæ Fluidextract of Soap-tree Bark	0.2 cc	3 mins.
Fluidextractum Rhamni Catharticæ Fluidextract of Rhamnus Cathartica	1 cc	15 mins.
Fluidextractum Rhamni Purshianæ See Fluidextract of Cascara Sagrada.		
Fluidextractum Rhei Fluidextract of Rhubarb	1 cc	15 mins.
Fluidextractum Rhois Aromaticæ Fluidextract of Rhus Aromatica	0.3–2 cc	5–30 mins.
Fluidextractum Rhois Glabræ Fluidextract of Rhus Glabra	1 cc	15 mins.
Fluidextractum Rhois Toxicodendri Fluidextract of Poison Oak	0.3–1.3 cc	5–20 mins.
Fluidextractum Rosæ Fluidextract of Rose	2 cc	30 mins.
Fluidextractum Rubi Fluidextract of Rubus	1 cc	15 mins.
Fluidextractum Rumicis Fluidextract of Rumex	4 cc	1 fl. dr.
Fluidextractum Rutæ Fluidextract of Rue	0.6–2 cc	10–30 mins.
Fluidextractum Sabal Fluidextract of Saw Palmetto	1 cc	15 mins.
Fluidextractum Sabinæ Fluidextract of Savin	0.3 cc	5 mins.
Fluidextractum Salicis Nigræ Corticis Fluidextract of Black Willow Bark	1–4 cc	¼–1 fl. dr.

Name	Metric	Apothecaries'
Fluidextractum Sanguinariæ		
Fluidextract of Sanguinaria	0.1 cc	1½ mins.
Fluidextractum Santali		
Fluidextract of Sandalwood	2–8 cc	½–2 fl. drs.
Fluidextractum Sarsaparillæ		
Fluidextract of Sarsaparilla	2 cc	30 mins.
Fluidextractum Sarsaparillæ Compositum		
Compound Fluidextract of Sarsaparilla	2 cc	30 mins.
Fluidextractum Sassafras		
Fluidextract of Sassafras	2–4 cc	½–1 fl. dr.
Fluidextractum Scillæ		
Fluidextract of Squill	0.1 cc	1½ mins.
Fluidextractum Scoparii		
Fluidextract of Scoparius	4 cc	1 fl. dr.
Fluidextractum Scopolæ		
Fluidextract of Scopola	0.05 cc	1 min.
Fluidextractum Scutellariæ		
Fluidextract of Scutellaria: Skullcap	1 cc	15 mins.
Fluidextractum Senecionis		
Fluidextract of Senecio	4 cc	1 fl. dr.
Fluidextractum Senegæ		
Fluidextract of Senega	1 cc	15 mins.
Fluidextractum Sennæ		
Fluidextract of Senna	2 cc	30 mins.
Fluidextractum Serpentariæ		
Fluidextract of Serpentaria	1 cc	15 mins.
Fluidextractum Silphii Laciniati		
Fluidextract of Rosin-weed	2–4 cc	½–1 fl. dr.
Fluidextractum Solani		
Fluidextract of Horse-nettle Berries	4 cc	60 mins.
Fluidextractum Sorghi Seminis		
Fluidextract of Broom-corn Seed	4 cc	1 fl. dr.
Fluidextractum Spigeliæ		
Fluidextract of Spigelia	4 cc	1 fl. dr
Fluidextractum Staphisagriæ		
Fluidextract of Staphisagria	0.05 cc	1 min.
Fluidextractum Stillingiæ		
Fluidextract of Stillingia	2 cc	30 mins.
Fluidextractum Stramonii		
Fluidextract of Stramonium	0.05 cc	1 min.
Fluidextractum Sumbul		
Fluidextract of Sumbul	2 cc	30 mins.

Name	Metric	Apothecaries'
Fluidextractum Symplocarpi Fluidextract of Skunk Cabbage	0.6–2.5 cc	10–40 mins.
Fluidextractum Taraxaci Fluidextract of Taraxacum	10 cc	2½ fl. drs.
Fluidextractum Thujæ Fluidextract of Thuja	2 cc	30 mins.
Fluidextractum Thymi Fluidextract of Thyme	4 cc	1 fl. dr.
Fluidextractum Tongæ Fluidextract of Tonga	2–4 cc	30–60 mins.
Fluidextractum Trifolii Fluidextract of Trifolium	1 cc	15 mins.
Fluidextractum Trillii Fluidextract of Trillium	2 cc	30 mins.
Fluidextractum Tritici Fluidextract of Triticum	10 cc	2½ fl. drs.
Fluidextractum Uvæ Ursi Fluidextract of Uva Ursi	2 cc	30 mins.
Fluidextractum Valerianæ Fluidextract of Valerian	2 cc	30 mins.
Fluidextractum Veratri Viridis Fluidextract of American Hellebore	0.1 cc	1½ mins.
Fluidextractum Verbasci Foliorum Fluidextract of Mullein Leaves	4 cc	1 fl. dr.
Fluidextractum Viburni Opuli Fluidextract of Viburnum Opulus	2 cc	30 mins.
Fluidextractum Viburni Prunifolii Fluidextract of Viburnum Prunifolium	2 cc	30 mins.
Fluidextractum Xanthoxyli Fluidextract of Xanthoxylum	2 cc	30 mins.
Fluidextractum Zeæ Fluidextract of Corn-silk	4 cc	1 fl. dr.
Fluidextractum Zingiberis Fluidextract of Ginger	1 cc	15 mins.
Fœniculum Fennel	1 gm.	15 grs.
Frangula Frangula	1 gm.	15 grs.
Galla Nutgall	0.5 gm.	8 grs.
Gambir Gambir	1 gm.	15 grs.
Galsemium Gelsemium	0.03 gm.	½ gr.

Name	Metric	Apothecaries'
Gentiana		
Gentian	1 gm.	15 grs.
Geranium		
Geranium	1 gm.	15 grs.
Glonoinum		
Glonoin. (See Spiritus Glycerylis Nitratis)		
Glycerinum		
Glycerin: Glycerol	4 cc	1 fl. dr.
Glyceritum Acidi Tannici		
Glycerite of Tannic Acid	2 cc	30 mins.
Glyceritum Hydrastis		
Glycerite of Hydrastis	2 cc	30 mins.
Glyceritum Phenolis		
Glycerite of Phenol	0.3 cc	5 mins.
Glycyrrhiza		
Glycyrrhiza: Licorice Root	2 gm.	30 grs.
Glycyrrhizinum Ammoniatum		
Ammoniated Glycyrrhizin	0.25 gm.	4 grs.
Gossypii Cortex		
Cotton-Root Bark	2 gm.	30 grs.
Granatum		
Pomegranate	2 gm.	30 grs.
Grindelia		
Grindelia	2 gm.	30 grs.
Guaiacol		
Guaiacol	0.5 cc	8 mins.
Guaiacolis Carbonas		
Guaiacol Carbonate	1 gm.	15 grs.
Guaiacum		
Guaiac	1 gm.	15 grs.
Guarana		
Guarana	2 gm.	30 grs.
Hæmatoxylon		
Hematoxylon	2 gm.	30 grs.
Hamamelidis Cortex		
Hamamelis Bark	2 gm.	30 grs.
Hamamelidis Folia		
Hamamelis Leaves	2 gm.	30 grs.
Hedeoma		
Hedeoma	8 gm.	120 grs.
Heroina		
Heroin	0.003 gm.	1/20 gr.
Heroinæ Hydrochloridum		
Heroin Hydrochloride	0.003 gm.	1/20 gr.

Name	Metric	Apothecaries'
Hexamethylenamina		
Hexamethylenamin: Uritone:		
Internal	0.25 gm.	4 grs.
Intravenous	2 gm.	31 grs.
Homatropinæ Hydrobromidum		
Homatropine Hydrobromide	0.0005 gm.	1/120 gr.
Hydrargyri Chloridum Corrosivum		
Corrosive Mercuric Chloride	0.003 gm.	1/20 gr.
Hydrargyri Chloridum Mite		
Mild Mercurous Chloride:		
Laxative	0.15 gm.	2½ grs.
Alterative	0.015 gm.	¼ gr.
Hydrargyri Iodidum Flavum		
Yellow Mercurous Iodide	0.01 gm.	1/6 gr.
Hydrargyri Iodidum Rubrum		
Red Mercuric Iodide	0.003 gm.	1/20 gr.
Hypodermically	0.01–0.06 gm.	1/6–1 gr.
Hydrargyri Salicylas		
Mercury Salicylate	0.004 gm.	1/15 gr.
Hypodermically	0.06–0.12 gm.	1–2 grs.
Hydrargyrum cum Creta		
Mercury with Chalk	0.25 gm.	4 grs.
Hydrastina		
Hydrastine	0.01 gm.	1/6 gr.
Hydrastinæ Hydrochloridum		
Hydrastine Hydrochloride	0.01 gm.	1/6 gr.
Hydrastinæ Sulphas		
Hydrastine Sulphate	0.01 gm.	1/6 gr.
Hydrastininæ Hydrochloridum		
Hydrastinine Hydrochloride	0.03 gm.	½ gr.
Hydrastis		
Hydrastis	2 gm.	30 grs.
Hyoscinæ Hydrobromidum		
Hyoscine Hydrobromide	0.0003 gm.	1/200 gr.
Hyoscyaminæ Hydrobromidum		
Hyoscyamine Hydrobromide	0.0003 gm.	1/200 gr.
Hyoscyaminæ Sulphas		
Hyoscyamine Sulphate	0.0003 gm.	1/200 gr.
Hyoscyamus		
Hyoscyamus	0.25 gm.	4 grs.
Hypnalum		
Hypnal	0.65 gm.	10 grs.
Hypnonum		
Hypnone. (See Acetophenonum)		
Infusum Digitalis		
Infusion of Digitalis	4 cc	1 fl. dr.

Name	Metric	Apothecaries'
Infusum Pruni Virginianæ		
Infusion of Wild Cherry	60 cc	2 fl. ozs.
Infusum Sennæ Compositum		
Compound Infusion of Senna	120 cc	4 fl. ozs.
Iodoformum		
Iodoform	0.25 gm.	4 grs.
Iodolum		
Iodol	0.005 gm.	1/12 gr.
Iodum		
Iodine	0.005 gm.	1/12 gr.
Ipecacuanha		
Ipecac:		
Expectorant	0.06 gm.	1 gr.
Emetic	1 gm.	15 grs.
Iridina: Irisina		
Iridin: Irisin	0.2 gm.	3 grs.
Jalapa		
Jalap	1 gm.	15 grs.
Leptandrina		
Leptandrin	0.2 gm.	3 grs.
Liquor Acidi Arsenosi		
Solution of Arsenous Acid	0.2 cc	3 mins.
Liquor Adrenalina Chloridi (1-1000)		
Solution Adrenalin Chloride	0.65 cc	10 mins.
Liquor Ammonii Acetatis		
Solution of Ammonium Acetate	15 cc	4 fl. drs.
Liquor Antisepticus		
Antiseptic Solution	4 cc	1 fl. dr.
Liquor Arseni et Hydrargyri Iodidi		
Solution of Arsenous and Mercuric Iodides	0.1 cc	1½ mins.
Liquor Calcis		
Lime Water: Solution of Calcium Hydroxide	15 cc	4 fl. drs.
Liquor Chlori Compositus		
Compound Solution of Chlorine: Chlorine Water	4 cc	1 fl. dr.
Liquor Ferri Chloridi		
Solution of Ferric Chloride	0.1 cc	1½ mins.
Liquor Ferri et Ammonii Acetatis		
Solution of Iron and Ammonium Acetate	15 cc	4 fl. drs.
Liquor Ferri Subsulphatis		
Solution of Ferric Subsulphate	0.2 cc	3 mins.
Liquor Hydrogenii Dioxidi		
Peroxide of Hydrogen	4 cc	1 fl. dr.
Liquor Hypophysis		
Pituitrin	0.25–0.5 cc	4 to 8 mins.

Name	Metric	Apothecaries'
Liquor Iodi Compositus Compound Solution of Iodine	0.2 cc	3 mins.
Liquor Magnesii Citratis Solution of Magnesium Citrate	350 cc	12 fl. ozs.
Liquor Potassii Arsenitis Fowler's Solution: Solution of Potassium Arsenite	0.2 cc	3 mins.
Liquor Potassii Citratis Solution of Potassium Citrate	15 cc	4 fl. drs.
Liquor Potassii Hydroxidi Solution of Potassium Hydroxide	1 cc	15 mins.
Liquor Sedans Liquor Sedans	4 cc	1 fl. dr.
Liquor Sodæ Chlorinatæ Solution of Chlorinated Soda	1 cc	15 mins.
Liquor Sodii Arsenatis Solution of Sodium Arsenate	0.2 cc	3 mins.
Liquor Sodii Glycerophosphatus Solution Sodium Glycerophosphate	0.35 cc	6 mins.
Liquor Sodii Hydroxidi Solution of Sodium Hydroxide	1 cc	15 mins.
Liquor Sodii Phosphatis Compositus Compound Solution of Sodium Phosphate	8 cc	2 fl. drs.
Lithii Benzoas Lithium Benzoate	1 gm.	15 grs.
Lithii Bromidum Lithium Bromide	1 gm.	15 grs.
Lithii Carbonas Lithium Carbonate	0.5 gm.	8 grs.
Lithii Citras Lithium Citrate	0.5 gm.	8 grs.
Lithii Citras Effervescens Effervescent Lithium Citrate	8 gm.	120 grs.
Lithii Salicylas Lithium Salicylate	1 gm.	15 grs.
Lobelia Lobelia	0.15 gm.	2½ grs.
Magma Bismuthi Milk of Bismuth	4 cc	1 fl. dr.
Magma Magnesii Milk of Magnesia	10 cc	2½ fl. drs.
Magnesii Benzoas Magnesium Benzoate	0.5 gm.	8 grs.
Magnesii Carbonas Magnesium Carbonate	3 gm.	45 grs.

Name	Metric	Apothecaries'
Magnesii Oxidum		
Magnesium Oxide: Magnesia	2 gm.	30 grs.
Magnesii Oxidum Ponderosum		
Heavy Magnesium Oxide: Heavy Magnesia	2 gm.	30 grs.
Magnesii Sulphas		
Magnesium Sulphate	15 gm.	½ oz.
Magnesii Sulphas Effervescens		
Effervescent Magnesium Sulphate	15 gm.	½ oz.
Mangani Citras		
Manganese Citrate	0.33 gm.	5 grs.
Mangani Dioxidum Præcipitatum		
Precipitated Manganese Dioxide	0.25 gm.	4 grs.
Mangani Hypophosphis		
Manganese Hypophosphite	0.2 gm.	3 grs.
Mangani Sulphas		
Manganese Sulphate	0.25 gm.	4 grs.
Manna		
Manna	15 gm.	½ oz.
Marrubium		
Marrubium	2 gm.	30 grs.
Massa Ferri Carbonatis		
Mass of Ferrous Carbonate: Vallet's Mass	0.25 gm.	4 grs.
Massa Hydrargyri		
Mass of Mercury: Blue Mass	0.25 gm.	4 grs.
Mastiche		
Mastic	2 gm.	30 grs.
Mentha Piperita		
Peppermint	4 gm.	1 drachm
Mentha Viridis		
Spearmint	4 gm.	1 drachm
Menthol		
Menthol	0.06 gm.	1 gr.
Mercurosal		
Intravenous	0.1 gm.	1½ grs.
Intramuscular	0.05 gm.	¾ gr.
Methylis Salicylas		
Methyl Salicylate	0.75 cc	12 mins.
Methylthioninæ Hydrochloridum		
Methylthionine Hydrochloride: Methylene Blue	0.15 gm.	2½ grs.
Mezereum		
Mezereum	0.5 gm.	8 grs.
Mistura Cretæ		
Chalk Mixture	15 cc	4 fl. drs.
Mistura Ferri Composita		
Compound Iron Mixture	15 cc	4 fl. drs.

Name	Metric	Apothecaries'
Mistura Glycyrrhizæ Composita Compound Mixture of Glycerrhiza	10 cc	2½ fl. drs.
Mistura Rhei et Sodæ Mixture of Rhubarb and Soda	4 cc	1 fl. dr.
Morphina Morphine	0.008 gm.	⅛ gr.
Morphinæ Acetas Morphine Acetate	0.008 gm.	⅛ gr.
Morphine Hydrochloridum Morphine Hydrochloride	0.008 gm.	⅛ gr.
Morphinæ Sulphas Morphine Sulphate	0.008 gm.	⅛ gr.
Myrrha Myrrh	0.5 gm.	8 grs.
Naphthalenum Naphthalene	0.125 gm.	2 grs.
Neurodinum Neurodin	1 gm.	15 grs.
Nitroglycerinum Nitroglycerin. (See Spiritus Glycerylis Nitratis)		
Nosophenum Nosophen: Iodophen	0.5 gm.	7½ grs.
Nux Vomica Nux Vomica	0.06 gm.	1 gr.
Oleoresina Aspidii Oleoresin of Aspidium (one full dose)	2 gm.	30 grs.
Oleoresina Capsici Oleoresin Capsicum	0.03 gm.	½ gr.
Oleoresina Cubebæ Oleoresin of Cubeb	0.5 gm.	8 grs.
Oleoresina Lupulini Oleoresin of Lupulin	0.2 gm.	3 grs.
Oleoresina Petroselini Oleoresin Parsley: Apiol	0.5 cc	8 mins.
Oleoresina Piperis Oleoresin of Pepper	0.03 gm.	½ gr.
Oleoresina Zingiberis Oleoresin of Ginger	0.03 gm.	½ gr.
Oleum Amygdalæ Amaræ Oil of Bitter Almond	0.03 cc	½ min.
Oleum Amygdalæ Expressum Expressed Oil of Almond	30 cc	1 fl. oz.
Oleum Anisi Oil of Ainse	0.2 cc	3 mins.

Name	Metric	Apothecaries'
Oleum Auranti Corticis Oil of Orange Peel	0.2 cc	3 mins.
Oleum Betulæ Oil of Betula	0.75 cc	12 mins.
Oleum Cajuputi Oil of Cajuput	0.5 cc	8 mins.
Oleum Cari Oil of Caraway	0.2 cc	3 mins.
Oleum Caryophylli Oil of Cloves	0.2 cc	3 mins.
Oleum Chenopodii Oil of Chenopodium	0.65 cc	10 mins.
Oleum Cinnamomi Oil of Cinnamon: Oil of Cassia	0.2 cc	3 mins.
Oleum Copaibæ Oil of Copaiba	0.5 cc	8 mins.
Oleum Coriandri Oil of Coriander	0.2 cc	3 mins.
Oleum Cubebæ Oil of Cubeb	0.5 cc	8 mins.
Oleum Erigerontis Oil of Erigeron	1 cc	15 mins.
Oleum Eucalypti Oil of Eucalyptus	0.5 cc	8 mins.
Oleum Fœniculi Oil of Fennel	0.2 cc	3 mins.
Oleum Gaultheriæ Oil of Gaultheria	0.75 cc	12 mins.
Oleum Hedeomæ Oil of Hedeoma	0.2 cc	3 mins.
Oleum Juniperi Oil of Juniper	0.2 cc	3 mins.
Oleum Lini Linseed Oil	30 cc	1 fl. oz.
Oleum Menthæ Piperitæ Oil of Peppermint	0.2 cc	3 mins.
Oleum Menthæ Viridis Oil of Spearmint	0.2 cc	3 mins.
Oleum Morrhuæ Cod Liver Oil	10 cc	2½ fl. drs.
Oleum Myristicæ Oil of Myristica	0.2 cc	3 mins.
Oleum Olivæ Olive Oil	30 cc	1 fl. oz.
Oleum Picis Liquidæ Oil of Tar	0.2 cc	3 mins.

Name	Metric	Apothecaries'
Oleum Ricini Castor Oil	15 cc	4 fl. drs.
Oleum Sabinæ Oil of Savin	0.05 cc	1 min.
Oleum Santali Oil of Santal	0.5 cc	8 mins.
Oleum Sassafras Oil of Sassafras	0.2 cc	3 mins.
Oleum Terebinthinæ Oil of Turpentine	0.3 cc	5 mins.
Oleum Terebinthinæ Rectificatum Rectified Oil of Turpentine	0.3 cc	5 mins.
Oleum Thymi Oil of Thyme	0.2 cc	3 mins.
Oleum Tiglii Croton Oil	0.05 cc	1 min.
Opii Pulvis Powdered Opium	0.06 gm.	1 gr.
Opium Opium	0.06 gm.	1 gr.
Opium Deodoratum Deodorized Opium	0.06 gm.	1 gr.
Opium Granulatum Granulated Opium	0.06 gm.	1 gr.
Osmii Tetroxidum Osmium Tetroxide. (See Acidum Osmicum)		
Pancreatinum Pancreatin	0.5 gm.	8 grs.
Papaya Papain: Papayotin: Papoid: Caroid	0.33 gm.	5 grs.
Paracotoina Paracotoin	0.13 cc	2 grs.
Paraformaldehydum Paraformaldehyde	0.5 gm.	8 grs.
Paraldehydum Paraldehyde	2 cc	30 mins.
Parathyroideum Siccum Desiccated Parathyroid Gland	0.006 gm.	1/10 gr.
Pareira Pareira	2 gm.	30 grs.
Pelletierinæ Tannas Pelletierine Tannate	0.25 gm.	4 grs.
Pepo Pepo	30 gm.	1 oz.
Pepsinum Pepsin 1:3000	0.5 gm.	8 grs.

Name	Metric	Apothecaries'
Petrolatum Liquidum		
Liquid Petrolatum	15 cc	4 fl. drs.
Phenacetinum		
Phenacetin. (See Acetphenetidinum)		
Phenocolli Hydrochloridum		
Phenocoll Hydrochloride	0.65 gm.	10 grs.
Phenol		
Phenol	0.06 gm.	1 gr.
Phenol Liquefactum		
Liquified Phenol	0.05 cc	1 min.
Phenolphthaleinum		
Phenolphthalein	0.15 gm.	2½ grs.
Phenylis Salicylas		
Phenyl Salicylate: Salol	0.3 gm.	5 grs.
Phosphorus		
Phosphorus	0.0005 gm.	1/120 gr.
Physostigma		
Physostigma	0.1 gm.	1½ grs.
Physostigminæ Salicylas		
Physostigmine Salicylate	0.001 gm.	1/60 gr.
Physostigminæ Sulphas		
Physostigmine Sulphate	0.001 gm.	1/60 gr.
Phytolacca		
Phytolacca		
Emetic	1 gm.	15 grs.
Alterative	0.125 gm.	2 grs.
Pilocarpinæ Hydrochloridum		
Pilocarpine Hydrochloride:		
By mouth	0.01 gm.	1/6 gr.
Hypodermic	0.005 gm.	1/12 gr.
Pilocarpinæ Nitras		
Pilocarpine Nitrate:		
By mouth	0.01 gm.	1/6 gr.
Hypodermic	0.005 gm.	1/12 gr.
Pilulæ Alopheni		
Pill Alophen (P. D. & Co.)	1 pill	
Pilulæ Asafœtidæ		
Pills of Asafetida	2 pills	
Pilulæ Catharticæ Compositæ		
Compound Cathartic Pills	2 pills	
Pilulæ Cholelithica		
Pill Cholelith (P. D. & Co.)	3 pills	
Pilulæ Ferri Carbonatis		
Pills of Ferrous Carbonate	2 pills	
Pilulæ Ferri Iodidi		
Pills of Ferrous Iodide	2 pills	

Name	Metric	Apothecaries'
Pilulæ Phosphori Pills of Phosphorus	1 pill	
Pilulæ Rhei Compositæ Compound Pills of Rhubarb	2 pills	
Pinealis Glandula Sicca Desiccated Pineal Gland	0.03 gm.	½ gr.
Piperazina Piperazine	0.5 gm.	8 grs.
Piperinum Piperine	0.2 gm.	3 grs.
Pituitrinum Pituitrin	0.25–0.5 cc	4–8 mins.
Pix Liquida Tar	0.5 gm.	8 grs.
Plumbi Acetas Lead Acetate	0.06 gm.	1 gr.
Plumbi Iodidum Lead Iodide	0.03 gm.	½ gr.
Podophyllin (Resin) See Resina Podophylli.		
Podophyllum Podophyllum	0.5 gm.	8 grs.
Potassii Acetas Potassium Acetate	1 gm.	15 grs.
Potassii Bicarbonas Potassium Bicarbonate	1 gm.	15 grs.
Potassii Bitartras Potassium Bitartrate	2 gm.	30 grs.
Potassii Bromidum Potassium Bromide	1 gm.	15 grs.
Potassii Carbonas Potassium Carbonate	1 gm.	15 grs.
Potassii Chloras Potassium Chlorate	0.25 gm.	4 grs.
Potassii Citras Potassium Citrate	1 gm.	15 grs.
Potassii Citras Effervescens Effervescent Potassium Citrate	4 gm.	60 grs.
Potassii Cyanidum Potassium Cyanide	0.01 gm.	1/6 gr.
Potassii Dichromas Potassium Dichromate	0.01 gm.	1/6 gr.
Potassii Ferrocyanidum Potassium Ferrocyanide	0.5 gm.	8 grs.
Potassii Hypophosphis Potassium Hypophosphite	0.5 gm.	8 grs.

Name	Metric	Apothecaries'
Potassii Iodidum		
Potassium Iodide	0.3 gm.	5 grs.
Potassii Nitras		
Potassium Nitrate	0.5 gm.	8 grs.
Potassii Permanganas		
Potassium Permanganate	0.06 gm.	1 gr.
Potassii et Sodii Tartras		
Potassium and Sodium Tartrate	10 gm.	150 grs.
Potassii Sulphas		
Potassium Sulphate	2 gm.	30 grs.
Prunus Virginiana		
Wild Cherry	2 gm.	30 grs.
Pulvis Cretæ Compositus		
Compound Chalk Powder	2 gm.	30 grs.
Pulvis Effervescens Compositus		
Compound Effervescing Powder	1 set of two powders	
Pulvis Glycyrrhizæ Compositus		
Compound Powder of Glycyrrhiza	4 gm.	60 grs.
Pulvis Ipecacuanhæ et Opii		
Powder of Ipecac and Opium	0.5 gm.	8 grs.
Pulvis Jalapæ Compositus		
Compound Powder of Jalap	2 gm.	30 grs.
Pulvis Rhei Compositus		
Compound Powder of Rhubarb	2 gm.	30 grs.
Pyrethrum		
Pyrethrum	2 gm.	30 grs.
Pyridina		
Pyridine (by inhalation)	0.35 cc	5 mins.
Quassia		
Quassia	0.5 gm.	8 grs.
Quinalgenum		
Quinalgen. (See Analgenum)		
Quinidinæ Sulphas		
Quinidine Sulphate:		
Antiperiodic	2 gm.	30 grs.
Tonic	0.35 gm.	5 grs.
Quinina		
Quinine:		
Tonic dose	0.1 gm.	1½ grs.
Antimalarial: per day, not less than	1 gm.	15 grs.
Quininæ Bisulphas		
Quinine Bisulphate:		
Tonic dose	0.1 gm.	1½ grs.
Antimalarial: per day, not less than	1 gm.	15 grs.
Quininæ Dihydrochloridum		
Quinine Dihydrochloride:		
Hypodermic: single dose in one day	1 gm.	15 grs.

Name	Metric	Apothecaries'
Quininæ Hydrobromidum		
Quinine Hydrobromide:		
Tonic dose	0.1 gm.	1½ grs.
Antimalarial: per day, not less than	1 gm.	15 grs.
Quininæ Hydrochloridum		
Quinine Hydrochloride:		
Tonic dose	0.1 gm.	1½ grs.
Antimalarial: per day, not less than	1 gm.	15 grs.
Quininæ Salicylas		
Quinine Salicylate:		
Tonic dose	0.1 gm.	1½ grs.
Antimalarial: per day, not less than	1 gm.	15 grs.
Quininæ Sulphas		
Quinine Sulphate:		
Tonic dose	0.1 gm.	1½ grs.
Antimalarial: per day, not less than	1 gm.	15 grs.
Quininæ Tannas		
Quinine Tannate	0.2 gm.	3 grs.
Quinina et Urea Hydrochloras		
Quinine and Urea Hydrochloride:		
Local anesthetic	0.5 to 1% solution	
Antimalarial: Hypodermic	1 gm.	15 grs.
Resina		
Rosin	0.25 gm.	4 grs.
Resina Jalapæ		
Resin of Jalap	0.125 gm.	2 grs.
Resina Podophylli		
Resin of Podophyllum:		
Purgative	0.01 gm.	1/6 gr.
Laxative	0.006 gm.	1/10 gr.
Resina Scammonii		
Resin of Scammony	0.2 gm.	3 grs.
Resorcinol		
Resorcinol: Resorcin	0.125 gm.	2 grs.
Rhamnus Purshiana		
Cascara Sagrada	1 gm.	15 grs.
Rheum		
Rhubarb	1 gm.	15 grs.
Rhus Glabra		
Rhus Glabra	1 gm.	15 grs.
Rubidii Iodidum		
Rubidium Iodide	0.165 gm.	2½ grs.
Rubidii et Ammonii Bromidum		
Rubidium and Ammonium Bromide	0.65 gm.	10 grs.
Rubus		
Rubus	1 gm.	15 grs.

Name	Metric	Apothecaries'
Sabal		
Sabal	1 gm.	15 grs.
Sabina		
Savin	0.5 gm.	8 grs.
Saccharina		
Saccharin	0.2 gm.	3 grs.
Safrolum		
Safrol	1.3 cc	20 mins.
Salacetolum		
Salacetol: Salantol: Salicylacetol	2 gm.	30 grs.
Salicinum		
Salicin	1 gm.	15 grs.
Salipyrinum		
Salipyrine. (See Antipyrinæ Salicylas)		
Salol (See Phenylis Salicylas)		
Salophenum		
Salophen	0.5 gm.	8 grs.
Salvia		
Salvia: Sage	2 gm.	30 grs.
Sanguinaria		
Sanguinaria	0.125 gm.	2 grs.
Santoninum		
Santonin	0.06 gm.	1 gr.
Sarsaparilla		
Sarsaparilla	2 gm.	30 grs.
Sassafras		
Sassafras	10 gm.	150 grs.
Scammonium		
Scammony	0.25 gm.	4 grs.
Scilla		
Squill	0.1 gm.	1½ grs.
Scoparius		
Scoparius	1 gm.	15 grs.
Scopola		
Scopola	0.045 gm.	¾ gr.
Scopolaminæ Hydrobromidum		
Scopolamine Hydrobromide: Hypodermic	0.0003 gm.	1/200 gr.
Scutellaria		
Scutellaria: Skullcap	1 gm.	15 grs.
Senega		
Senega	1 gm.	15 grs.
Senna		
Senna	4 gm.	60 grs.
Serpentaria		
Serpentaria	1 gm.	15 grs.

Name	Metric	Apothecaries'
Serum Antidiphthericum		
Diphtheria Antitoxin:		
Average dose	10,000 units	
Immunizing dose	1000 units	
Serum Antitetanicum		
Antitetanic Serum:		
Average dose, intravenous	30,000 units	
Immunizing dose, subcutaneous	1500 units	
Sinapis Alba		
White Mustard (emetic)	10 gm.	150 grs.
Sinapis Nigra		
Black Mustard (emetic)	10 gm.	150 grs.
Sodii Acetas		
Sodium Acetate	1 gm.	15 grs.
Sodii Arsenas		
Sodium Arsenate	0.005 gm.	1/12 gr.
Sodii Arsenas Exsiccatus		
Exsiccated Sodium Arsenate	0.003 gm.	12/0 gr.
Sodii Benzoas		
Sodium Benzoate	1 gm.	15 grs.
Sodii Benzosulphinidum		
Soluble Saccharin	0.2 gm.	3 grs.
Sodii Bicarbonas		
Sodium Bicarbonate	1 gm.	15 grs.
Sodii Bisulphis		
Sodium Bisulphite	0.5 gm.	7½ grs.
Sodii Boras		
Sodium Borate	0.75 gm.	12 grs.
Sodii Bromidum		
Sodium Bromide	1 gm.	15 grs.
Sodii Cacodylas		
Sodium Cacodylate: Hypodermic	0.2 gm.	3 grs.
Sodii Carbonas Monohydratus		
Monohydrated Sodium Carbonate	0.25 gm.	4 grs.
Sodii Chloras		
Sodium Chlorate	0.25 gm.	4 grs.
Sodii Chloridum		
Sodium Chloride (emetic)	15 gm.	½ oz.
Sodii Cinnamate		
Sodium Cinnamate	0.015 gm.	¼ gr.
Sodii Citras		
Sodium Citrate	1 gm.	15 grs.
Sodii Glycerophosphas		
Sodium Glycerophosphate	0.25 gm.	4 grs.
Sodii Glycocholas		
Sodium Glycocholate	0.65 gm.	10 grs.

Name	Metric	Apothecaries'
Sodii Hypophosphis Sodium Hypophosphite	1 gm.	15 grs.
Sodii Iodidum Sodium Iodide	0.3 gm.	5 grs.
Sodii Nitras Sodium Nitrate	1 gm.	15 grs.
Sodii Nitris Sodium Nitrite	0.06 gm.	1 gr.
Sodii Perboras Sodium Perborate	0.06 gm.	1 gr.
Sodii Phenolsulphonas Sodium Phenolsulphonate	0.25 gm.	4 grs.
Sodii Phosphas Sodium Phosphate	4 gm.	60 grs.
Sodii Phosphas Effervescens Effervescent Sodium Phosphate	10 gm.	150 grs.
Sodii Phosphas Exsiccatus Exsiccated Sodium Phosphate	2 gm.	30 grs.
Sodii Pyrophosphas Sodium Pyrophosphate	2 gm.	30 grs.
Sodii Salicylas Sodium Salicylate	1 gm.	15 grs.
Sodii Sulphas Sodium Sulphate	15 gm.	½ oz.
Sodii Sulphis Sodium Sulphite	1 gm.	15 grs.
Sodii Thiosulphas Sodium Thiosulphate	1 gm.	15 grs.
Sparteinæ Sulphas Sparteine Sulphate	0.01 gm.	1/6 gr.
Spigelia Spigelia	4 gm.	60 grs.
Spiritus Ætheris Spirit of Ether	4 cc	1 fl. dr.
Spiritus Ætheris Compositus Compound Spirit of Ether	4 cc	1 fl. dr.
Spiritus Ætheris Nitrosi Spirit of Nitrous Ether: Sweet Spirit of Nitre	2 cc	30 mins.
Spiritus Ammoniæ Spirit of Ammonia	1 cc	15 mins.
Spiritus Ammoniæ Aromaticus Aromatic Spirit of Ammonia	2 cc	30 mins.
Spiritus Amygdalæ Amaræ Spirit of Bitter Almond	0.5 cc	8 mins.

Name	Metric	Apothecaries'
Spiritus Anisi		
Spirit of Anise	4 cc	1 fl. dr.
Spiritus Camphoræ		
Spirit of Camphor	1 cc	15 mins.
Spiritus Chloroformi		
Spirit of Chloroform	2 cc	30 mins.
Spiritus Cinnamomi		
Spirit of Cinnamon	2 cc	30 mins.
Spiritus Gaultheriæ		
Spirit of Gaultheria	2 cc	30 mins.
Spiritus Glycerylis Nitratis		
Spirit of Glyceryl Trinitrate:		
Spirit of Nitroglycerin	0.05 cc	1 min.
Spiritus Juniperi		
Spirit of Juniper	2 cc	30 mins.
Spiritus Juniperi Compositus		
Compound Spirit of Juniper	10 cc	2½ fl. drs.
Spiritus Lavandulæ		
Spirit of Lavender	2 cc	30 mins.
Spiritus Menthæ Piperitæ		
Spirit of Peppermint	2 cc	30 mins.
Spiritus Menthæ Viridis		
Spirit of Spearmint	2 cc	30 mins.
Staphisagria		
Staphisagria	0.06 gm.	1 gr.
Stillingia		
Stillingia	2 gm.	30 grs.
Stramonium		
Stramonium	0.06 gm.	1 gr.
Strontii Bromidum		
Strontium Bromide	1 gm.	15 grs.
Strontii Iodidum		
Strontium Iodide	0.3 gm.	5 grs.
Strontii Salicylas		
Strontium Salicylate	1 gm.	15 grs.
Strophanthinum		
Strophanthin:		
By mouth	0.001 gm.	1/60 gr.
By hypodermic	0.00075 gm.	1/80 gr.
Strophanthone		
Strophanthone	0.3 cc	5 mins.
Strophanthone Dilute		
Subcutaneous	1 cc	15 mins.
Intravenous	0.5 cc	8 mins.
Strophanthus		
Strophanthus	0.06 gm.	1 gr.

Name	Metric	Apothecaries'
Strychnina		
Strychnine	0.0015 gm.	1/40 gr.
Strychninæ Nitras		
Strychnine Nitrate	0.0015 gm.	1/40 gr.
Strychninæ Sulphas		
Strychnine Sulphate	0.0015 gm.	1/40 gr.
Styrax		
Storax	1 gm.	15 grs.
Sulphonethylmethanum		
Sulphonethylmethane: Trional	0.75 gm.	12 grs.
Sulphonmethanum		
Sulphonmethane: Sulphonal	0.75 gm.	12 grs.
Sulphur Lotum		
Washed Sulphur	4 gm.	60 grs.
Sulphur Præcipitatum		
Precipitated Sulphur	4 gm.	60 grs.
Sulphur Sublimatum		
Sublimed Sulphur	4 gm.	60 grs.
Sumbul		
Sumbul	2 gm.	30 grs.
Suprarenalum Siccum		
Suprarenal Gland, Desiccated	0.25 gm.	4 grs.
Syrupus Acidi Hydriodici		
Syrup of Hydriodic Acid	4 cc	1 fl. dr.
Syrupus Amygdalæ		
Syrup of Almond	4 cc	1 fl. dr.
Syrupus Calcii Lactophosphatis		
Syrup of Calcium Lactophosphate	10 cc	2½ fl. drs.
Syrupus Cocillanæ Compositus		
Syrup Cocillana Comp. (P. D. & Co.)	4 cc	1 fl. dr.
Syrupus Ferri Iodidi		
Syrup of Ferrous Iodide	1 cc	15 mins.
Syrupus Hypophosphitum		
Syrup of Hypophosphites	10 cc	2½ fl. drs.
Syrupus Ipecacuanhæ		
Syrup of Ipecac:		
Expectorant	1 cc	15 mins.
Emetic	15 cc	4 fl. drs.
Syrupus Lactucarii		
Syrup of Lactucarium	10 cc	2½ fl. drs.
Syrupus Picis Liquidæ		
Syrup of Tar	4 cc	1 fl. dr.
Syrupus Pruni Virginianæ		
Syrup of Wild Cherry	4 cc	1 fl. dr.
Syrupus Rhei		
Syrup of Rhubarb	10 cc	2½ fl. drs.

Name	Metric	Apothecaries'
Syrupus Rhei Aromaticus		
Aromatic Syrup of Rhubarb	10 cc	2½ fl. drs.
Syrupus Sarsaparillæ Compositus		
Compound Syrup of Sarsaparilla	15 cc	4 fl. drs.
Syrupus Scillæ		
Syrup of Squill	2 cc	30 mins.
Syrupus Scillæ Compositus		
Compound Syrup of Squill	2 cc	30 mins.
Syrupus Senegæ		
Syrup of Senega	4 cc	1 fl. dr.
Syrupus Sennæ		
Syrup of Senna	4 cc	1 fl. dr.
Syrupus Tolutanus		
Syrup of Tolu	15 cc	4 fl. drs.
Syrupus Trifolii Compositus		
Syrup of Trifolium Compound	8 cc	2 fl. drs.
Syrupus Zingiberis		
Syrup of Ginger	15 cc	4 fl. drs.
Taka-Diastasum		
Taka-Diastase	0.165 gm.	2½ grs.
Tannalbinum		
Tannalbin	4 gm.	60 grs.
Tannigenum		
Tannigen	0.4 gm.	6 grs.
Taraxacum		
Taraxacum	10 gm.	2½ drs.
Terebenum		
Terebene	0.25 cc	4 mins.
Terebinthina		
Turpentine. (See Oleum Terebinthinæ.)		
Terpini Hydras		
Terpin Hydrate	0.25 gm.	4 grs.
Theobrominæ Sodio-Salicylas		
Caffeine and Sodium Salicylate	1 gm.	15 grs.
Thioformum		
Thioform	0.5 gm.	7½ grs.
Thymol		
Thymol:		
Antiseptic	0.12 gm.	2 grs.
Anthelmintic (for hookworm), one treatment	1–3 gm.	15–45 grs.
Thyroidectinum		
Thyroidectin	0.33 gm.	5 grs.
Thyroideum Siccum		
Desiccated Thyroids	0.1 gm.	1½ grs.

Name	Metric	Apothecaries'
Tinctura Aconiti Tincture of Aconite	0.3 cc	5 mins.
Tinctura Aloes Tincture of Aloes	2 cc	30 mins.
Tinctura Arnicæ Tincture of Arnica	1 cc	15 mins.
Tinctura Asafœtidæ Tincture of Asafetida	1 cc	15 mins.
Tinctura Aurantii Amari Tincture of Bitter Orange Peel	4 cc	1 fl. dr.
Tinctura Aurantii Dulcis Tincture of Sweet Orange Peel	4 cc	1 fl. dr.
Tinctura Belladonnæ Foliorum Tincture of Belladonna Leaves	0.75 cc	12 mins.
Tinctura Benzoini Tincture of Benzoin	1 cc	15 mins.
Tinctura Benzoini Composita Compound Tincture of Benzoin	2 cc	30 mins.
Tinctura Calendulæ Tincture of Calendula	2 cc	30 mins.
Tinctura Calumbæ Tincture of Calumba	4 cc	1 fl. dr.
Tinctura Cannabis Tincture of Cannabis, U. S. P.	0.75 cc	12 mins.
Tinctura Cantharidis Tincture of Cantharides	0.1 cc	1½ mins.
Tinctura Capsici Tincture of Capsicum	0.5 cc	8 mins.
Tinctura Cardamomi Tincture of Cardamom	2 cc	30 mins.
Tinctura Cardamomi Composita Compound Tincture of Cardamom	4 cc	1 fl. dr.
Tinctura Cimicifugæ Tincture of Cimicifuga	4 cc	1 fl. dr.
Tinctura Cinchonæ Tincture of Cinchona	4 cc	1 fl. dr.
Tinctura Cinchonæ Composita Compound Tincture of Cinchona	4 cc	1 fl. dr.
Tinctura Cinnamomi Tincture of Cinnamon	2 cc	30 mins.
Tinctura Colchici Seminis Tincture of Colchicum Seed	2 cc	30 mins.
Tinctura Digitalis Tincture of Digitalis	0.5 cc	8 mins.
Tinctura Ferri Chloridi Tincture of Ferric Chloride	0.5 cc	8 mins.

Name	Metric	Apothecaries'
Tinctura Gallæ		
Tincture of Nutgall	4 cc	1 fl. dr.
Tinctura Gambir Composita		
Compound Tincture of Gambir	4 cc	1 fl. dr.
Tinctura Gelsemii		
Tincture of Gelsemium	0.25 cc	4 mins.
Tinctura Gentianæ Composita		
Compound Tincture of Gentian	4 cc	1 fl. dr.
Tinctura Guaiac		
Tincture of Guaiac	4 cc	1 fl. dr.
Tinctura Guaiaci Ammoniata		
Ammoniated Tincture of Guaiac	2 cc	30 mins.
Tinctura Hydrastis		
Tincture of Hydrastis	4 cc	1 fl. dr.
Tinctura Hyoscyami		
Tincture of Hyoscyamus	2 cc	30 mins.
Tinctura Iodi		
Tincture of Iodine	0.1 cc	1½ mins.
Tinctura Ipecacuanhæ et Opii		
Tincture of Ipecac and Opium	0.5 cc	8 mins.
Tinctura Kino		
Tincture of Kino	4 cc	1 fl. dr.
Tinctura Krameriæ		
Tincture of Krameria	4 cc	1 fl. dr.
Tinctura Lactucarii		
Tincture of Lactucarium	2 cc	30 mins.
Tinctura Lavandulæ Composita		
Compound Tincture of Lavender	2 cc	30 mins.
Tinctura Lobeliæ		
Tincture of Lobelia	1 cc	15 mins.
Tinctura Moschi		
Tincture of Musk	4 cc	1 fl. dr.
Tinctura Myrrhæ		
Tincture of Myrrh	1 cc	15 mins.
Tinctura Nucis Vomicæ		
Tincture of Nux Vomica	0.5 cc	8 mins.
Tinctura Opii		
Tincture of Opium: Laudanum	0.5 cc	8 mins.
Tinctura Opii Camphorata		
Camphorated Tincture of Opium: Paregoric: adult dose	4 cc	1 fl. dr.
Tinctura Opii Deodorati		
Tincture of Deodorized Opium	0.5 cc	8 mins.
Tinctura Physostigmatis		
Tincture of Physostigma	1 cc	15 mins.

Name	Metric	Apothecaries'
Tinctura Quassiæ		
Tincture of Quassia	2 cc	30 mins.
Tinctura Rhei		
Tincture of Rhubarb	4 cc	1 fl. dr.
Tinctura Rhei Aromatica		
Aromatic Tincture of Rhubarb	2 cc	30 mins.
Tinctura Sanguinariæ		
Tincture of Sanguinaria	1 cc	15 mins.
Tinctura Scillæ		
Tincture of Squill	1 cc	15 mins.
Tinctura Serpentariæ		
Tincture of Serpentaria	4 cc	1 fl. dr.
Tinctura Stramonii		
Tincture of Stramonium	0.5 cc	8 mins.
Tinctura Strophanthi		
Tincture of Strophanthus	0.5 cc	8 mins.
Tinctura Tolutana		
Tincture of Tolu	2 cc	30 mins.
Tinctura Valerianæ		
Tincture of Valerian	4 cc	1 fl. dr.
Tinctura Valerianæ Ammoniata		
Ammoniated Tincture of Valerian	2 cc	30 mins.
Tinctura Veratri Viridis		
Tincture of Veratrum Viride	0.5 cc	8 mins.
Tinctura Zingiberis		
Tincture of Ginger	2 cc	30 mins.
Trinitrinum		
Trinitrin. (See Spiritus Glycerylis Nitratis.)		
Trinitrophenol		
See Acidum Picricum.		
Trionalum		
Trional. (See Sulphonethylmethanum.)		
Triticum		
Triticum	8 gm.	120 grs.
Trituratio Elaterini		
Trituration of Elaterin	0.03 gm.	½ gr.
Uranii Nitras		
Uranium Nitrate	0.01 gm.	1/6 gr.
Urethanum		
Urethane. (See Æthylis Carbamas.)		
Uritonum		
Uritone. (See Hexamethylenamina.)		
Uva Ursi		
Uva Ursi, Bearberry	2 gm.	30 grs.
Valeriana		
Valerian	2 gm.	30 grs.

Name	Metric	Apothecaries'
Veratrum Viride		
Veratrum Viride	0.06 gm.	1 gr.
Viburnum Opulus		
Viburnum Opulus: Cramp Bark	2 gm.	30 grs.
Viburnum Prunifolium		
Viburnum Prunifolium: Black Haw	2 gm.	30 grs.
Vinum Antimonii		
Wine of Antimony	1 cc	15 mins.
Vinum Cocæ		
Wine of Coca	15 cc	4 fl. drs.
Vinum Colchici Seminis		
Wine of Colchicum Seed	2 cc	30 mins.
Vinum Ergotæ		
Wine of Ergot	8 cc	2 fl. drs.
Vinum Ferri		
Wine of Iron	8 cc	2 fl. drs.
Vinum Ferri Amarum		
Bitter Wine of Iron	8 cc	2 fl. drs.
Vinum Ipecacuanhæ		
Wine of Ipecac	1 cc	15 mins.
Vinum Opii		
Wine of Opium	0.5 cc	8 mins.
Xanthoxylum		
Xanthoxylum	2 gm.	30 grs.
Zinci Acetas		
Zinc Acetate	0.125 gm.	2 grs.
Zinci Bromidum		
Zinc Bromide	0.125 gm.	2 grs.
Zinci Iodidum		
Zinc Iodide	0.06 gm.	1 gr.
Zinci Oxidum		
Zinc Oxide	0.25 gm.	4 grs.
Zinci Phenolsulphonas		
Zinc Phenolsulphonate: Zinc Sulphocarbolate	0.125 gm.	2 grs.
Zinci Phosphidum		
Zinc Phosphide	0.008 gm.	1/8 gr.
Zinci Sulphas		
Zinc Sulphate (emetic)	1 gm.	15 grs.
Zinci Valeras		
Zinc Valerate	0.125 gm.	2 grs.
Zingiber		
Ginger	1 gm.	15 grs.

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Morphine and Atropine Ampoules, 205.
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Antistreptococcic Serum, 85.
Dibromin, 165.
Mixed Infection Phylacogen, 75.
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Benzyl Benzoate, 130.
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Iron Cacodylate Ampoules, 187.
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Caffeine Sodio-Benzoate Ampoules, 135.
Digitalis Tincture, 166.
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Morphine and Atropine Ampoules, 205.
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Storaxol, 237.
Thiodine, 244.
Thyroid, 63.

Puerperal Eclampsia (See Eclampsia)

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Antistreptococcic Serum, Polyvalent, 85.
Combined Bacterial Vaccine (Van Cott), 28
Mixed Infection Phylacogen, 75.
Streptococcus Vaccine, 34.

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Adrenalin, 59.
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