This prescription was submitted to us with the statement that it produced, on standing, a dense yellow precipitate. This was not the case when compounded in various ways. The expected separation of the ginger resins takes place with an additional interaction between the antipyrin and the chloral hydrate, and the separation of a peculiar oily precipitate. This latter separation occurs when, upon mixing the solutions of chloral hydrate and antipyrin, we reach the stage where the antipyrin is no longer in great excess. There is no precipitation in the presence of half the prescribed amount of chloral hydrate. The addition of 10 percent of alcohol partially corrects the difficulty and there is apparently no subsequent separation after standing.

PRESCRIPTION NO. 8.

Ammonium iodide	2 drachms.
Ammonium carbonate	8 grains.
Syrup of wild cherry	1 fluidounce.
Water, to make	3 fluidounces.

An unsightly mixture is the result of compounding this formula as it stands. This is due to a reaction which results between the ammonium iodide and the carbonate, and also with the tannin of the syrup of wild cherry. Strangely enough, ammonium iodide and ammonium carbonate are incompatible, because of the frequent presence of calcium iodide in the ammonium iodide with the consequent precipitation of calcium carbonate, on mixing solutions of these compounds. Then again, ammonium compounds form with tannic and gallic acids a peculiar flaky precipitate. The iodide also disagrees with tannic acid. The addition of some glycerine in place of part of the water ameliorates but does not correct the incompatibility.

PRESCRIPTION NO. 9.

Corrosive chloride of mercury	1/3 grain.
Tincture of chloride of iron	2 fluidrachms.
Lemon juice	5 fluidrachms.
Syrup of wild cherry, to make	2 fluidounces.

There is no incompatibility here, due to the foresight of the prescriber, who prevents the reaction between the iron and tannin of the wild cherry syrup by the intervention of the lemon juice. It is quite possible, however, to have varying intensities of color, depending upon the order in which the mixing is done, as well as upon the amount of citric acid in the lemon juice. This is the type of prescription where the variability of the lemon juice in its acid content makes the dispensing of a uniform article difficult.

The prescriptions were discussed by Messrs. Lascoff, Gray, Scoville and others. A special vote of thanks was given the authors, and they were requested to arrange a similar paper for next year.

"NON-SECRET" VERSUS "SECRET" REMEDIES.*

BY GEORGE E. ÉWE.

The employment of secrecy regarding the identity of the potent ingredients of medicines is a ragged remnant of the ancient mantle of mysticism, with which the medieval alchemists and apothecaries encircled their "potions."

* Presented to Section on Education and Legislation, A. Ph. A., City of Washington meeting, 1920.

A considerable portion of the lay public unfortunately still persists in allowing itself to be influenced by the mystic secrecy with which the manufacturers of some preparations for the treatment of the sick surround their products, but this proportion is decreasing gradually but surely under the steady enlightening efforts being made by the best elements of the medical and pharmaceutical professions. Unfortunately, too, some members of the medical and pharmaceutical professions are misled by this influence of secrecy. On the other hand, usually no objection can be raised to the marketing of any preparation for the treatment of the sick, whatsoever, as long as the label enumerates the potent constituents either qualitatively or quantitatively, and no exaggerated or untrue claims are made for the product.

The stock of practically every retail pharmacist contains preparations for the treatment of the sick, the potent ingredients of which are not stated on the labels or in the literature of the preparations. Neither has the retail pharmacist, as a rule, any knowledge of the essential composition of these preparations. These, then, are "secret remedies." In addition, the stock of every retail pharmacist contains preparations for the treatment of the sick, upon the labels or in the literature of which, statements of the potent ingredients are freely offered, these statements usually being in quantitative form. These are "non-secret" or "open-formula" remedies.

The term "non-secret" or "open-formula," as used in this communication, is not intended to embrace the qualitative and quantitative composition of a preparation to the extent of the flavor, binder, base, vehicle, or other essentially non-potent ingredient, but is limited to the qualitative or quantitative statement of *potent* ingredients. A prescription authorized by a physician licensed to diagnose diseases and prescribe remedies for disease, although of a composition unknown to the consumer, is not a "secret remedy" for the reason that its composition is not secret to the prescriber, who is legally qualified to prescribe any remedy without making its composition known to the consumer. However, legal qualification is required in order to follow this course, and mere knowledge of the potent ingredients of a remedy does not warrant the offering or sale of a remedy for a disease by a person unqualified to diagnose diseases and prescribe remedies therefor. Theoretically, then, the offering and sale of any remedy, and particularly the sale of a "secret-remedy," except upon prescription, or request, by a person not licensed to practice medicine, amounts to the act of assuming the rights of a physician. This theoretical offense is more striking in the case of the offering, followed by the sale, of a "secret remedy" since the indication for the use of the remedy is necessarily stated in terms of a disease, because of the absence of a statement of the potent ingredients, and the offering and selling of such a preparation, except upon prescription, or request constitutes the act of diagnosing diseases and prescribing remedies therefor. This construction is less striking when applied to a remedy of a composition known to the consumer, or the composition of which has been made known to the consumer, or to a "non-secret" preparation, because the knowledge of the potent ingredients enables the consumer to form his own opinion of the efficacy of the preparation, or obtain expert advice regarding the efficacy thereof. The question of diagnosis and prescribing is intimately involved in the discussion of this matter: the ideal condition existing where no

remedies of any nature are offered or sold, except upon the basis of legal diagnosis and prescription. This ideal condition is a matter for future experimentation, if not actually an impossibility, because of the undoubted right of a person to diagnose his own minor ailments and request and administer proper medication therefor. The present immediate step in the evolution toward a more ideal condition is the mere elimination of the "secret remedy," or its elevation into the "non-secret class."

Among the objections to secrecy in regard to the potent ingredients of preparations for the treatment of the sick are:—

Intelligent use is impossible.

Opinions are occasionally so diverse in the realm of materia medica, that the user of a remedy is deprived of his right to his own opinion or knowledge regarding the efficacy of the potent ingredients.

Secrecy induces the possible conclusion that the maker of the product is monopolizing the product for selfish reasons.

Secrecy induces the possible conclusion that the actual cost of the product is entirely out of proportion to its sale price.

Secrecy leads to the temptation to employ potent ingredients, to which objection might be raised if their presence were known to the consumer.

Lack of knowledge of the potent ingredients is productive of pharmaceutical, chemical and physiological incompatibilities, where, as is often the case, the "secret remedy" is employed in conjunction with other medicines.

Secrecy induces the advancement of exaggerated or untrue therapeutic claims, and these claims lead to a false feeling of security upon the part of the consumer, with the possible result of great damage to the consumer, due to induced belief of non-necessity to consult expert advice.

"Secret remedies" are frequently defended by assertions of personal faith in the remedies, but personal faith on the part of the producer, even when of absolutely honest nature, does not warrant the subjugation of the right of the consumer to his own degree or lack of faith.

The "secret" form of remedy and the many temptations and abuses to which it leads are absolutely discountenanced by the ethical elements of the medical, chemical and pharmaceutical professions. The Bureau of Chemistry of the U. S. Dept. of Agriculture regularly notifies, through its Service and Regulatory Announcements, the judgments obtained against "secret remedies" advanced with exaggerated or untrue claims of therapeutic efficacy.

The more successful pharmaceutical, chemical and biological manufacturing companies reject the "secret remedy" policy, and are firm in their adherence to the "non-secret" form of product, and even refuse to manufacture preparations which they know or have reason to suspect are to be marketed as "secret remedies" or "non-secret" remedies with exaggerated or untrue claims.

Various State Chemists, Boards of Pharmacy, and Boards of Health are continually exposing "secret remedies" in regard to their reputed claims, and are educating the lay public in accordance with their findings.

The attitude of the American Medical Association upon the subject of "secret remedies" is typified by the statement in Rule No. 1 of the Official Rules of the Council on Pharmacy and Chemistry of the Association, appearing in the "New

and Non-Official Remedies." This rule is to the effect that in order for preparations to be admitted to the "New and Non-Official Remedies," it is necessary that "for simple substances the scientific name and chemical formula, rational or structural, should be supplied, and for mixtures, the amount of each active medicinal ingredient must be supplied." The reason for Rule No. 1 is stated under "Object of the Rules to be:—

"Protecting the medical profession and the public against fraud, undesirable secrecy, etc." Again, under Rule No. 8 on the subject of Pharmaceutical Preparations and Mixtures, the following statement is made: "it is important that the prescribing physician should be constantly reminded of the potent ingredients, on which the actions of such preparations are based."

The reports of the Laboratory on Chemistry and Pharmacy of the American Medical Association expose many "secret remedies."

The attitude of the British Medical Association is ably expounded in the publications entitled "Secret Remedies" and "More-Secret Remedies," published by the Association from 429 Strand, W. C., London, and is strongly to the disadvantage of the "secret remedy."

The disclosure of potent ingredients has been and is being carefully considered by the law-making bodies of many States and Territories. The Philippine Islands have a Formula Disclosure Law, which is ideal, since it requires the labels of all preparations for the treatment of disease to state qualitatively and quantitatively all of the *principle therapeutic and toxic ingredients*. Louisiana has a Formula Disclosure Regulation, which requires the formula of every proprietary patent medicine sold in the State to be registered with the State Board of Health. While this is an admirable requirement in comparison with a state of total secrecy, yet it is a somewhat objectionable form of paternalism, since it deprives the user of his undoubted right of personal estimate of efficacy and therefore is not to be preferred to a statement of potent ingredients on the label. New York City passed a Formula Disclosure Ordinance, requiring the registration of the names of all ingredients, to which the therapeutic effects claimed are attributed, with the Department of Health. This ordinance was decided against as being invalid in the form presented, although the decision of the Court was of such a character as to be a guide to the Board of Health in re-formulating the ordinance. A notice of appeal from the decision has been served by the State, and there appears to be no reason to doubt that the ordinance will become a law in proper time. These instances, along with the specific legal labeling requirements of the National Food and Drugs Act and various State Drugs Acts are purely indicative of the course of future legislation in this matter, and the ultimate result will, undoubtedly, be the elimination of all "secret remedies" or their elevation into the class of "non-secret" remedies.

The advantages residing in a firm adherence to the policy of "non-secret" or "open-formula" preparations for the treatment of the sick are directly opposite to the objections listed above. In short, the "non-secret" feature permits intelligent use of the preparation; the user is granted his right to his own opinion of the efficacy of the ingredients; any suspicions that the producer is controlling the product for selfish reasons are allayed; any suspicions that the sale price is out of all proportion to the cost of production are allayed; there is no temptation to

employ proscribed ingredients; many pharmaceutical, chemical, and physiological incompatibilities are prevented; there is no tendency to advance exaggerated and untrue claims which react against the health and funds of the consumer; there is no possible subjugation of the right of the consumer to his own degree or lack of faith in the efficacy of the potent ingredients; the more successful pharmaceutical, chemical and biological manufacturers are strongly in favor of non-secrecy regarding potent ingredients, and freely label their products in this respect, always in qualitative form and in quantitative form whenever practicable; the Bureau of Chemistry of the U. S. Department of Agriculture and various State Chemists, Boards of Pharmacy, and Boards of Health, which have charge of the enforcement of the Pure Food and Drugs Act, and the various State laws, are more kindly disposed toward "non-secret" preparations, because of the frankness and spirit of coöperation exhibited by the manufacturer; the confidence of the ethical elements of the medical profession as typified by the American Medical Association and the ethical elements of the pharmaceutical, chemical and biological professions is more readily obtained in a "non-secret" than in a "secret" preparation, and this is also true of the "thinking" lay public. Other advantages are the public credit accorded for contributions of knowledge of the scientific or therapeutic values of the preparations; necessarily high price of a preparation is satisfactorily explained; and responsibility for damages arising from the use of the preparation is divided and not borne in the main by the manufacturer as is necessarily the case with "secret remedies."

Probably the only strong disadvantage which might be raised against the "non-secret" remedy is that the average retail druggist or small manufacturer cannot make his preparations in lots of sufficient quantity and value to permit the expense of an analysis. This objection is overruled by the fact that *qualitative* composition and even *quantitative* composition in the majority of cases can be controlled by careful checking and re-checking of the ingredients and amounts of ingredients used in manufacture, accompanied by qualitative tests to prevent losses of ingredients by precipitation, evaporation, etc., and by accurate control of the yield of the finished product. Statement of quantitative composition is, of course, most desirable, but even a bare qualitative statement removes the preparation from most of the objections surrounding the "secret remedy." The National Pure Food and Drugs Act does not require statement of composition, except regarding alcohol and certain other specified drugs, but where such statement is made it must, of course, be true and unexaggerated. The several State drug laws, to my knowledge, also do not require general statement of composition, but do require statements regarding certain drugs specifically named in the laws. Where the size and value of a lot of "non-secret" remedy permits the expense of analytical chemical or biological analysis, this, of course, should be done. The more successful pharmaceutical, chemical and biological manufacturers maintain departments on a large scale for this purpose, and every effort is made to label each product with the quantitative amount of potent ingredients, as well as qualitative composition, wherever this is possible in the existing stage of analytical, chemical and biological analysis. Where inavoidable losses of the more potent ingredients are experienced by volatilization or precipitation, etc., during manufacture, the manufacture is controlled by chemical or biological analysis so as to

insure the presence of a uniform standard proportion of the potent ingredients in the finished product. As an illustration, consider Spirit of Ethyl Nitrite. This product is subject to inherent loss of Ethyl Nitrite by volatilization during manufacture, but uniformity of the finished product is readily controlled by chemical analysis. When less potent volatile ingredients, such as oil of peppermint in a preparation intended to be prescribed for carminative purposes, are considered, analytical chemical control need only be applied to the establishment of the manufacturing process upon a basis which will insure the presence of a medicinal proportion of the ingredient in the preparation, and the label then merely states the proportion as "approximately" or as "sufficient quantity."

The analytical work connected with the establishment of quantitative label statement of potent ingredients frequently leads to the discovery that many medicinal preparations are subject to some loss of potent ingredients by volatilization, precipitation, progressive chemical alteration, reduction in strength through chemical or enzymic incompatibility, and lessening of viability, etc. It is the earnest concern of the more successful pharmaceutical, biological, and chemical manufacturers to guard against these losses, and furthermore to keep the consumer informed of the best conditions to retard these losses, so as to insure satisfaction in the use of the preparations. This leads to the use of label statements supplemental to those regarding the potent ingredients. Some of these types of label statements are the "date of test," "volatile ingredient," "proper storage and dispensing," "incompatibility," "reduction in strength," "precipitation," "date of expiration," etc. Another result of the analytical chemical, biological and physiological control of label claims is the discovery of improved methods of using, handling, avoiding incompatibilities, testing, etc. These are also freely offered as suggestions on the labels, or in the literature of the preparations as supplementary to the statements of potent ingredients. Some of these suggestions read as follows:

"Keep in a cool, dark place," "Do not bandage over this liniment," "Return for credit after such and such a date," "Do not prescribe in admixture with ——," "After opening, the contents should be transferred to clean vial," "These ..... should only be dispensed upon prescription of a physician," "This product complies with the following tests and standards," etc., etc.

But all this is a logical and admirable elaboration of the "non-secret" remedy idea, and is not to be readily attained without systematic evolution and great effort and expense. The first step in the evolution is the elimination of the "secret remedy," or its elevation into the "non-secret" class, even by mere qualitative statement of the potent ingredients, if facilities for obtaining data for quantitative statements are not available or are too expensive.

The elevation of many "secret remedies" into the "non-secret" class would be to the decided advantage of the remedies, since many of them are distinctly meritorious, and they would receive the support and confidence of an entirely new class of trade in addition to that already enjoyed. The "secret remedies," which would be at a disadvantage when placed in the "non-secret" class, would consist chiefly, if not entirely, of the non-meritorious ones. This is well illustrated by the analyses, which I have made of a few "secret remedies," the results of which are presented below. These analyses and essential formulas are pre-

sented purely as a matter of scientific interest to those interested in pharmaceutical, medical, and chemical subjects. No intention is entertained to expose the formula of any market preparation; in fact, every care has been taken to prevent this by elimination of all identifying names and specific characteristics and quotations. No attempt has been made to carry out the analyses to such a minute and exhaustive stage as to include even the inert ingredients, vehicle, base, impurities, etc., content being had when the total essential ingredients in fair conformity to their quantitative presence, were discovered. In every case where the analyses are translated into the more understandable terms of formulas, these formulas are intended to essentially conform with the analyses and not serve as a basis for the manufacture of fac-simile preparations. No investigation regarding the truthfulness of the reputed therapeutic claims was attempted and all responsibility for any untoward results arising from the practical use of this information as formulas for the treatment of disease is herewith, naturally, disclaimed.

RHEUMATIC REMEDY.

Description.—A pinkish, clear, thin liquid with odor of methyl salicylate and with saline, methyl salicylate taste.

Analysis:—

Potassium iodide	0.834 Gm.
"Other mineral matters"	0.026 Gm.
Methyl salicylate	q. s.
"Other organic matter"	0.03 Gm.
Coloring matter	q. s.
Water, q. s.	100.00%

The "other mineral matters" consisted chiefly of calcium, magnesium, and sodium compounds, evidently introduced by the use of "tap" water, and partly by the use of magnesium carbonate in saturating the "Remedy" with methyl salicylate.

The "other organic matters" consisted of the organic matter constituting the coloring matter. The coloring matter consisted of a pinkish aniline color.

The "Remedy" had a specific gravity of 1.006, was neutral, and was free from alkaline salicylates, alkaloids, and heavy metals.

The "Remedy" could be essentially represented by dissolving 0.834 Gm. of potassium iodide in 100 Cc. water, adding a few drops of methyl salicylate, shaking, adding a trace of pink aniline color to proper shade, shaking, and filtering.

The price of the remedy was 50 cents per 8-fluidounce bottle.

REMEDY FOR SKIN DISEASES.

Description.—A dark brown, fluorescent, thin, turbid, oily liquid with odor of crude pyroligneous acid and containing a grayish granular powder as a sediment along with a slight amount of red aqueous liquid. The oily liquid portion consisted of a thin hydrocarbon oil, resembling crude petroleum, containing as an addition some certain oily, tarry fraction, obtained from the destructive distillation of wood, with the purpose of presenting a tarry medicament. This oily, tarry portion was similar to "wood-tar-creosote oil." The grayish, powdery sediment consisted practically entirely of sulphur. The dark red aqueous liquid sediment was present in an amount barely sufficient to wet the bottle. It may have been present as water when the "Remedy" was bottled, or it may have been added. It was red and tarry and resembled pyroligneous acid. It was free from alkaloids and plant extractive. The "Remedy" was free from all heavy metals, except a trace of iron. It was also free from alkaloids and left only a very small residue upon ignition, which consisted largely of ferric oxide. The "Remedy," therefore, consisted essentially of a mixture of crude petroleum, "wood-tar-creosote oil," and sulphur. A mixture of 3% of powdered sulphur, 10% of "wood-tar-creosote oil," and crude petroleum q. s. 100 Cc. yielded a preparation resembling the original "Remedy." This "Remedy" sold for 65 cents for a $7\frac{1}{2}$-ounce bottle.

DANDRUFF REMEDY.

Description.—A light brown, thin, clear liquid with complex pyroligneous, arnica-like and rose-geranium odor.

The "Remedy" consisted essentially of a solution of potassium arsenite, phenolic antiseptic (similar to salicylic acid or resorcinol), plant extractive (probably arnica), glycerin, alcohol and water, perfumed and colored a little with caramel or plant extractive.

A solution of 0.5 Gm. resorcinol, 0.05 Gm. potassium arsenite, 15 Gm. glycerin, 15 Cc. alcohol, 5 Cc. tincture (or fluidextract) arnica flowers, oil rose geranium, q. s., caramel, q. s., and water q. s. 100 Cc., produced a preparation essentially *resembling* this "Dandruff Remedy." The price of this remedy was 45 cents for a 4-fluidounce panel bottle.

DENTAL POWDERS RECOMMENDED FOR TREATMENT OF PYORRHEA.

The label of one of the powders claimed that the product was useful in the treatment of pyorrhea, and that it was a powerful antiseptic and germicide.

Description.—A brownish pink powder with wintergreen and sassafras odor, slightly pungent, alkaline, astringent, tarry taste, gritty between the teeth.

Analysis:—

Calcium carbonate	54.72%
Silicate (gritty—probably pumice)	14.10%
Borates (calculated as sodium borate)	5.50%
Methyl salicylate	trace
Oil sassafras	trace
Organic matter, moisture, water of crystallization, etc. (by difference)	25.68%
Total	100.00%

The organic matter consisted chiefly of a tannin and resin-bearing vegetable substance (similar to krameria or catechu) which was soluble to some extent in water to a deep, reddish brown solution. A small portion of beta-naphthol was present. The water of crystallization was in combination chiefly with the borate. Ether-soluble matter was 1.5% and consisted chiefly of the volatile oils and some resin from vegetable substance. The powder was free from emetine and other alkaloids. The dental powder consisted essentially of a mixture of an astringent tannin-bearing substance, similar to krameria or catechu, calcium carbonate, an abrasive silicate, borax, and antiseptics (methyl salicylate, oil sassafras and beta-naphthol).

The price of the powder was 45 cents per sprinkle-top can containing $3\frac{1}{2}$ ounces.

The label of the other powder claimed that it was useful against pyorrhea, and all diseases of the gums.

Description.—A buff-colored powder of a somewhat tarry taste and odor and leaving a slight burning sensation when applied to the gums.

The powder consisted of a mixture of calcium carbonate, powdered orris root, powdered calcium sulphate (non-setting), soap, beta-naphthol, thymol, and saccharin. The tarry taste and odor were apparently due to the use of a crude beta-naphthol or a little oil of cade.

A dental powder essentially representing the original was produced by the following formula:—

Powdered orris root	15 Gm.
Precipitated calcium carbonate	50 Gm.
Non-setting calcium sulphate	20 Gm.
Powdered soap (cocoanut oil-sodium soap)	10 Gm.
Thymol	2.5 Gm.
Crude beta-naphthol	1.0 Gm.
Saccharin	0.1 Gm.
Oil cade	3 drops.

The price was 30 cents per 2-ounce perforated-top can.

LIQUID APPLICATIONS RECOMMENDED FOR THE TREATMENT OF PYORRHEA.

The label of one recommended the application for the treatment of pyorrhea, gingivitis, and all diseases of the gums. The label claimed the presence of alcohol and ether.

Description.—A reddish brown liquid with strong cresol or phenol-like odor, caustic to the taste, and giving a burning sensation when applied to the mucous membrane or skin. The preparation was strongly alkaline to litmus and emulsified when diluted with water. The emulsion yielded a deep blue color with ferric chloride.

The application consisted essentially of a solution of phenol or phenolic substance, resin-sodium soap, and essential oils in a mixture of alcohol and water, containing a little ether. It sold for 50 cents per 1-fluidounce bottle.

The label of the second application branded it as a remedy for pyorrhea.

Description.—A mobile, greenish brown, fluorescent liquid, opaque in layers. The odor was complex and suggested acetic acid, chloroform, menthol, eucalyptol, thymol and other aromatics.

Reaction.—Strongly acid.

Analysis:—

Free sulphuric acid U. S. P.	10.19%	by volume.
Free acetic acid U. S. P.	0.478%	by volume.
Alcohol		Present.
Chloroform		Present.
Aromatic antiseptics (menthol, eucalyptol, thymol, etc.)		Present.
Formaldehyde		Present.
Plant extractive (approx.)	31.41%	
Water, q. s.	100.00%	

No evidence regarding the derivation of the plant extractive was obtained. It is possible, however, that the aromatic antiseptics (menthol, eucalyptol, thymol, etc.) were represented in the application by the fluidextracts of their respective parent plants. The application was free from emetine and other alkaloids. Therefore, the application could be represented essentially by a mixture of sulphuric acid, acetic acid, aromatic, antiseptic fluidextracts, alcohol, chloroform, formaldehyde and water.

The price was 45 cents for a 2-fluidounce bottle.

FOOT TREATMENT.

Qualitative analysis revealed the presence of salicylic acid, potassium alum, talcum, starch, and perfume. No boric acid was present.

The price was 20 cents tor $2\frac{1}{2}$ ounces.

HAIR "TONIC" AND DANDRUFF "REMEDY."

Description.—A liquid composed of an upper fluorescent, dark brown, almost opaque oily layer, and a lower deep brown, cloudy, aqueous layer.

Odor.—Pyroligneous, like oil of cade.

Examination of upper oily layer.—Volume.—About 25% of the "Remedy." Contained phenolic substances, hydrocarbons, and tarry matters, and evidently consisted of a mixture of crude petroleum, and a pyroligneous oil obtained as a fraction in the destructive distillation of wood.

Examination of lower aqueous layer.—Acid in reaction, contained phenolic substances, acetic acid, and traces of acetone. Evidently consisted of "pyroligneous acid." Was free from alkaloids, arsenic, heavy metals, borax, thiosulphates, glycerin, chloral, acetanilid, soap, camphor, ammonia, chloroform, and iodine.

The whole "Remedy" apparently consisted of a mixture of the oily and aqueous products of the destructive distillation of wood, to which a little crude petroleum was then added.

A somewhat similar "Remedy" was represented by a mixture of $12\frac{1}{2}$ parts of fluorescent crude petroleum, $12\frac{1}{2}$ parts of "wood-tar-creosote oil," and 75 parts of common "pyroligneous acid."

The mixture was directed to be well shaken before use and applied directly to the scalp and not simply rubbed on the hair.

The price was 45 cents per 5-fluidounce panel bottle.

ASTRINGENT MOUTH WASH.

Description.—A light brown liquid with astringent wintergreen taste.

Reaction to litmus.—Slightly acid after contact with the test paper for one-half hour.

Analysis:—

Anhydrous zinc chloride	0.23%
Alcohol	37.20%
Methyl salicylate	q. s.
Undetermined residue at 100° C. (exclusive of zinc chloride)	0.105%
Coloring matter	q. s.
Water, q. s.	100.00%

The undetermined residue at 100° C. (exclusive of zinc chloride) consisted of a mixture of salicylic acid, beta-naphthol, and coloring matter. The "wash" was free from alkaloids. A faint test was obtained for formaldehyde.

A quite similar "mouth wash" resulted from the following formula:—

Zinc chloride (on anhydrous basis)	0.25%
Absolute alcohol (by volume)	35.00%
Methyl salicylate	q. s.
Salicylic acid	0.02%
Beta-naphthol	0.05%
Formaldehyde	0.03%
Caramel	q. s.
Water, q. s.	100.00%

The "Mouth Wash" sold at 65 cents for an 8-ounce bottle.

HORSE LINIMENT.

This liniment was recommended as a remedy for spavin, ring-bone, shoe-boils, lameness, etc. The label claimed a methyl alcohol content of 46%.

Description.—When well shaken it formed a light brownish emulsion. This soon separated with the formation of a light yellowish layer of oil on top, a small, heavy, dark brown, granular precipitate on the bottom, and a larger and flocculent light brown, very fine precipitate, superimposed on the heavy granular one.

Odor.—Fruity, acetous, camphoraceous, terebinthinate.

Reaction.—Strongly acid.

Examination of light yellowish layer of oil.—Consisted of turpentine and camphor (and possibly traces of aromatic essential oils).

Examination of the mixture of the small, heavy, dark brown granular precipitate and the flocculent, light brown, very fine precipitate.—Consisted practically entirely of ferric oxide in form of rust flakes, and suggested that the liniment was stored in an iron container previous to filling into the market package, although part of the iron content may have been introduced for the purpose of imparting an astringent action to the liniment.

Examination of the methyl alcohol-water layer.—Contained a very small proportion of an iron salt in solution, ammonium salts, traces of rosin, acetates, free acetic acid, camphor, methyl alcohol, turpentine, and a small quantity of iodide. The ammonium salts were chiefly present as acetate and iodide. The traces of rosin were derived from oxidation of the turpentine. The acetates were present chiefly as ammonium acetate. The camphor and turpentine were held in solution by methyl alcohol, and the iodides were present chiefly as ammonia iodide.

Total solids of the complete preparation.—0.82 Gm. per 100 Cc., so that it is evident that the iron salt and ammonium acetate and iodide were present in almost negligible quantities.

Ash content of the complete preparation.—0.115 Gm. per 100 Cc., the ash consisted practically entirely of ferric oxide.

Distillation test of the complete preparation:—

60% distilled between 65–100° C. (largely methyl alcohol).
30% distilled between 100–120° C. (largely water).
5% distilled between 120–145° C. (largely turpentine).
5% distilled above 145° (or was left in the flask as vapor and residue) (largely turpentine).

Acidity of the complete preparation.—Was equivalent to 4.3 Gm. absolute acetic acid per 100 Cc.

Ether extraction of complete preparation.—When evaporated spontaneously, only turpentine and camphor could be recognized by odor.

Alkaloidal extraction procedure applied to 20 Cc. of the complete preparation yielded a trifle of residue, which yielded the merest opalescence with Mayer's Reagent for alkaloids, so that if any aconite, belladonna, or opium was present, the amount was negligible.

Therefore, the liniment consisted essentially of a mixture of turpentine, camphor, ammonium iodide, acetic acid, ammonium acetate, and water.

The following formula essentially represented this liniment:—

Methyl alcohol	46 Cc.
Ammonium acetate	0.5 Gm.
Ammonium iodide	0.5 Gm.
Acetic acid, glacial	5 Cc.
Turpentine	10 Cc.
Camphor	10 Gm.
Water, q. s.	100 Cc.

The product of this formula closely resembled the original preparation in color, odor and general appearance, except that it was free from iron and sediment. It is likely that the ammonium acetate and ammonium iodide were not added as such in the original preparation, but were formed through the use of tincture of iodine, ammonia water, and acetic acid in the formula.

It is needless to say that a preparation of this kind containing methyl alcohol should not be employed as a local preparation even on horses. This examination was made *several years ago*, and this preparation cannot now be located on the market. It is to be hoped that the danger in the use of methyl alcohol in liniments will soon be so well known by manufacturers and consumers alike that the manufacturer will discontinue the use of this substance in his preparations, and the consumer will refuse preparations in which it is present.

The price of this liniment was 45 cents per 8-fluidounce bottle.

WAX FOR APPLYING HEAT FOR THE TREATMENT OF RHEUMATISM.

Description.—A dirty brown, practically odorless, wax-like cake with a faint tarry taste. Melted between 53–55° C. Lost 0.2% at 100° C. for four hours.

Free from saponifiable matters and resin.

The inevitable conclusion was that the substance was a crude paraffin.

The wax was used by melting and painting on the affected part. The remarkable fact was brought out that even at a temperature of 90° C., this wax could be painted on the skin without great discomfort, whereas water at that temperature causes pain. Ordinary U. S. P. Paraffin when rendered anhydrous by heating and stirring at 110° C. yielded practically the same results as this product.

The price of this wax was 25 cents per 4 ounces.

TREATMENT FOR EARACHE.

Method of application.—To be rubbed into the skin surrounding the outer ear but not to be applied directly into the aural canal. Could also be applied sparingly in the nostrils.

Description:—A pale, yellowish brown oily liquid with camphoraceous and eucalyptus odor.

Analysis:—

Volatile oily substances	29.5%
Hydrocarbons	28.8%
Saponifiable oils	41.7%
Total	100.0%

The volatile oily substances included camphor and oil of eucalyptus, and possibly other antiseptic, essential oils were present (such as peppermint, etc.). The hydrocarbons consisted of thin, non-fluorescent liquid petrolatum. The saponifiable oils had a saponification number of 161, and consisted of some odorless, pale yellowish bland vegetable or animal oil, the origin of which was not determined.

The "treatment" was free from alkaloids, phenolic substances, chloral, chloroform, and mineral substances.

The "treatment," therefore, consisted essentially of a mixture of camphor, eucalyptus oil (and possibly other antiseptic essential oils), liquid petrolatum, and some vegetable or animal oil or oils.

A treatment resembling the original would have the following formula:—

Camphor 26.5 Gm., oil eucalyptus 3 Cc., oil peppermint 0.5 Cc., light liquid petrolatum 30 Cc., and nucoline (a form of deodorized cocoanut oil, possessing strong resistance to rancidity) 40 Cc. Warm until complete solution of the camphor takes place or until the mixture is saturated with camphor.

The original "treatment" sold for 50 cents per 3-fluidounce bottle.

APPLICATION USED IN THE LOCAL TREATMENT OF SPAVIN IN HORSES.

Description.—A thin, mobile, dark brown liquid, readily volatilizable, leaving a dark, sticky mass.

Odor.—Composite, in which could be detected pine tar, thyme, peppermint, turpentine, and probably camphor, eucalyptus, tansy, etc.

Was not miscible with water, but readily miscible with alcohol and ether.

The following mixture possessed essentially the same composition as the original application:—

Oil pine tar	7.0 Cc.
Alcohol	1.5 Cc.
Oil peppermint	4.5 Cc.
Oil turpentine	14.5 Cc.
Oil eucalyptus	7.0 Cc.
Oil thyme	2.0 Cc.
Oil tansy	3.0 Cc.

Mix.

Record of the price of this preparation cannot be located.

ANTISEPTIC SHAVING LOTION.

The label claimed that the lotion was useful as an antiseptic after shaving, and would allay irritation.

Description.—A pale pink, faintly turbid, aqueous liquid with rose odor.

Analysis:—

Borax, approx.	1.5%
Sodium carbonate (crystal), approx.	0.5%
Tragacanth, approx.	0.1%
Pink coloring matter	trace
Rose water, q. s.	100%

A quite similar preparation was prepared by mixing the ingredients mentioned in the analysis and allowing the mixture to stand for 24 hours with occasional shaking and filtering.

The price of this "lotion" was 45 cents per 8-fluidounce bottle.

HEART MEDICATION PLASTERS.

A "heart disease" plaster consisted of a muslin base, upon which was spread a brown mass with an aromatic and cinnamon-like odor.

The brown pasty mass consisted of a wheat flour paste, containing spices. The spices identified were cinnamon, nutmeg and cloves.

The plasters, therefore, consisted essentially of a modification of the time-honored "spice-plaster" and evidently depended upon counter irritation for any action which they may have possessed.

The price was not ascertainable as the plasters formed part of a "course of treatment."

Numerous other commercial "Remedies" were examined during this investigation, but were placed in the "non-secret" class, because of the frank statement of one or more, or all potent ingredients, on the labels.

Some of the "secret remedies" are, undoubtedly, meritorious, and would profit by their elevation to the "non-secret" class. For analysis of other "secret remedies," the reader is referred to the *Service and Regulatory Announcements* of the Bureau of Chemistry of the U. S. Department of Agriculture; the publications of State Chemists, Boards of Pharmacy, Boards of Health, and other State bodies (particularly the publication of the North Dakota Agricultural Experiment Station); "Secret Remedies," and "More Secret Remedies," of the British Medical Association; the reports of the Laboratory on Pharmacy and Chemistry on the American Medical Association; and various medical and pharmaceutical periodicals.

The elimination of "secret remedies" or their elevation into the "non-secret" class is in process of evolution, is inevitable, and to the advantage of all concerned.

It is to be earnestly hoped that the undoubted advantages to be derived from the success of this movement will be appreciated by all concerned and that every possible assistance will be rendered toward the achievement of this success.

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MEETING CHAIN STORE COMPETITION.*

BY CLYDE L. EDDY.

Figures compiled during the spring of 1920 by *The Druggists Circular* show that there are in the United States 315 individuals and corporations operating chains of three or more drug stores. These chains include a total of 1,565 stores—approximately 3.12 percent of all the drug stores in the country.

Twenty-one of these individuals and corporations operate chains of ten or more stores and one of them, the Louis K. Liggett Company, has 211 retail establishments scattered between Bangor, Maine, and Dallas, Texas. This group of 21 organizations, operating 544 stores, includes the following companies:

The Louis K. Liggett Company, of New York City	211 stores
The Owl Drug Company, of San Francisco, Cal	32 stores
The Mykrantz Company, of Columbus, Ohio	30 stores
The Dow Drug Company, of Cincinnati, Ohio	23 stores
The National Drug Stores Corp., of New York City	21 stores
The Walgreen Drug Co., of Chicago, Ill	21 stores
The Marshall Drug Co., of Cleveland, Ohio	20 stores
The Miller-Strong Drug Co., of Buffalo, N. Y	19 stores
The Sun Drug Co., of Los Angeles, Cal	17 stores
The Standard Drug Co., of Cleveland, Ohio	15 stores
The United Chemists' Corp., of New York City	15 stores
The Scholtz-Mutual Drug Co., of Denver, Colo	15 stores
Clem Thistlewaite, of Indianapolis, Ind	15 stores
The Day Drug Co., of Akron, Ohio	15 stores

* Read before Section on Commercial Interests, A. Ph. A., City of Washington meeting, 1920.