

## EDITORIAL

E. G. EBERLE, Editor

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### AMERICAN PHARMACISTS AND THE BEGINNINGS OF COLLOIDAL CHEMISTRY—AMERICAN PHARMACEUTICAL ASSOCIATION RESEARCH.

**I**N an editorial of the *Kolloidchemische Beihefte*, devoted wholly to the one subject, Dr. Wolfgang Ostwald makes acknowledgment of the priority of work in colloidal chemistry accomplished by Prof. J. U. Lloyd. In this publication also appear verbatim translations of the early investigations of our distinguished member, contributed to the American Pharmaceutical Association and printed in the Proceedings of the years 1879 to 1885. The entire issue of *Kolloidchemische Beihefte*, containing pages 174 to 250, is made up of a translation of Prof. Lloyd's original text explanatory of Phenomena connected with Solution and Precipitation, Fluidextracts being mainly utilized by him for the purpose, together with illustrations accompanying the original contributions referred to. Those who were permitted to hear Prof. Ostwald's lectures on Colloidal Chemistry, as given before the universities of America, will recognize that there is perhaps no higher world's authority than he, on colloidal chemistry. Under that great authority the priority of the American Pharmaceutical Association Transactions is established for advance research in the important field of Colloidal Chemistry.

While the credit belongs to Prof. Lloyd, who celebrates the "golden anniversary" of his membership in the Association this year, his fellow-members appreciate the service rendered by this eminent investigator to such an extent that they justly desire to share in his honors as they do in his accomplishments. Few, if any, have more patiently endeavored to contribute to the progress of American pharmacy. Nor has he outgrown his enthusiasm for the American Pharmaceutical Association, giving, when past the three score years and ten milestone, the very best evidence, should this be necessary, of what the Association stands for and what it has achieved.

Editor Ostwald states in the cited editorial preface (pp. 171-173) that these researches (Lloyd's) as given in our transactions should be utilized in textbooks for the general reader. The last paragraph is particularly significant; unusual considerations are therein acknowledged, and the testimony relative to the value and priority of these early investigations in the great field of Colloidal Chemistry, which runs through the entire article, is re-affirmed by the concluding lines. A translation of the aforementioned editorial, from the German, by Dr. Sigmund Waldbott, follows:

## KOLLOIDCHEMISCHE BEIHÄFTE

*Editorial Preface* to John Uri Lloyd's Translated Article (1879 to 1885) on Pharmaceutical Studies.

Translated from the German by Dr. Sigmund Waldbott.

The following article is the translation of a series of investigations the first of which has been published as long as 37 years ago, and which appeared in the Proceedings of the American Pharmaceutical Association between 1879 and 1885.

Prof. J. U. Lloyd has acceded to a special request of the Editor to permit him to re-publish at least the greater part of these investigations, which originally were published in the form of lectures; he has in accord therewith reprinted them again, without revision, supplied them with reproductions of the original cuts, etc., leaving the selection of the subject matter to the Editor.

Indeed it is not historical interest that prompted the Editor to induce Professor Lloyd to have his studies re-published in the present form. Neither has he been guided by the consideration of the fact that these studies have become known only to a small circle, owing to the limited circulation of the medium of their publication, to members of the Society only.

The Editor rather takes the ground that in these studies, with truly classic thoroughness and penetrating power of reasoning, "New Views of Everyday Phenomena" (Charles Darwin) have been discovered and discussed, and they contain so much of what interests us to-day in our domain of applied Colloidal Chemistry that in many places a direct connection with the "questions of the day" becomes self-evident.

To give examples: Even very recently, the question of the cause and effects of turbidity in pharmaceutical tinctures has been spiritedly discussed. As far as the Editor is aware (and he has been interested in these phenomena also for other reasons, and has consulted published literature) there is nowhere indicated, including the manuals and the pharmacopoeias, even approximately, such a complete, thorough and diversified discussion of the factors involved as is contained in the present study of J. U. Lloyd. The discussion of this investigator on this subject, and not less so on the theory of percolation, the interesting experiments on the influence of the dimensions of the percolator on the yield, etc., are of such a nature that they should be incorporated, partly quoted in full, in the textbooks on the preparation of pharmaceutical substances. . . . .

Furthermore: To the questions of the day in Colloidal Chemistry belong the phenomena of Liesegang's Rings, in general the phenomena of periodical spacial discontinuities resulting from theoretically continuously progressing reactions in space, as, *e. g.*, chemical reactions, precipitations, crystallizations, solidification, etc. In the present study, J. U. Lloyd describes undoubtedly the simplest, and, therefore, theoretically the most important, experiment of this kind that has been published so far. It is sufficient to place into a test-tube, previously filled one-half with water, a little syrup of sugar (which sinks to the bottom, the solution above it being thinner and thinner towards the top), and warming this system laterally. After a little while there will be strikingly sharp formation of layers of different degrees of refraction. But this is not the only unpublished experiment of simplest nature known to the Editor in this field. Prof. J. U. Lloyd demonstrated to the Editor in his laboratory in Cincinnati a test-tube in which distilled water showed 3 to 4 distinct layers which were produced simply by systematically heating the water on top and cooling it below. Beyond question, a further experimental and especially a philosophical analysis of the causes of the formation of these layers in continuously decreasing field of energy will be of utmost importance with reference to the case of Liesegang's Rings. In part, the analysis of these at first sight really startling because unexpected phenomena is contained in the present treatise. There are further to be found in it observations on periodical precipitations in tinctures, as they form "spontaneously;" also their experimental and philosophical analysis

reveals immediate relation to analogous processes in jellies. Furthermore, J. U. Lloyd has described exceedingly interesting experiments on capillary analysis, apparently altogether independently of the experiments by Schönbein and F. Goppelsroeder. Here are described some experiments which treat of a phase of these phenomena hitherto but little investigated. Systematic experiments are shown on the influence of concentration of dissolved substances both with reference to the height of rise of pure water and the dissolved substance retained by the filter paper.

Here also J. U. Lloyd describes experiments which are exceedingly striking. No more surprising lecture experiment is known to the Editor in connection with separation by capillary adsorption than the experiment described by Lloyd in which a strip of filter paper "pumps" water off, not only from a ferrous sulphate solution but also from dilute sulphuric acid, into another vessel; of course, only in small limited quantities.

It has not been customary heretofore to print in *Kolloid Zeitschrift* and *Kolloidchemischen Beihefte* reproductions of already printed articles. The Editor, however, is of the opinion that the greater number of the readers, after the study of Lloyd's treatise, will share his view that we are here confronted with an even unusually "original" communication. W. O. OSTWALD.

The introduction of the contributions on "Solvents in Pharmacy" (THIS JOURNAL, 1917, p. 940), explains the connection of the later articles by Prof. J. U. Lloyd with those of the Proceedings in the volumes of 1879 to 1885. As is stated in the introduction, the cosmopolitan text, "Precipitates in Fluidextracts," enabled him to enter into any plant pharmacy manipulation, the study chiefly concerning physics, as applied to or involved in pharmacy. These studies included the beginnings of what is now so popular the world over, under the term of "Colloidal Chemistry." Considerable unpublished work, continuation of the previous subject, by Prof. J. U. Lloyd, is now being prepared by him for THIS JOURNAL.

The importance of these records to Pharmacy and the American Pharmaceutical Association will be recognized without further comment. There is also a real satisfaction in extending congratulations to one, the scroll of whose past records of accomplishments during nearly three score years of service in and for pharmacy is still unfolding. E. G. E.

#### THE CALORIC VALUE OF FOOD IS NOT THE MEASURE OF ITS PHYSIOLOGIC VALUE.

PEDIATRICIANS have long recognized that the caloric value of food is not the measure of its physiologic value. Thus, for example, as the writer stated some years ago ("The Fuel Value of Food as an Index of its Nutritive Value;" *Dietetics*, 1909, and reprinted in this issue of the JOURNAL), while the caloric value of cow's milk is practically identical with that of human milk, the former is not interchangeable with the latter as an infant food. Cow's milk contains much more proteins (casein and albumin) than human milk, present in different relative proportions, and different in readiness of digestibility. It contains much less sugar than human milk, especially when diluted with water to obtain

the proper protein-percentage, and must have sugar added to make up the carbohydrate-deficiency. It contains, practically, the same percentage of fats as human milk, but its fats consist not only of the glycerides of non-volatile acids (olein, palmitin, stearin, dioxystearin, laurin and myristin), but also of the glycerides of volatile fatty acids (butyirin, caproin, caprylin and caprin), of which latter human milk contains but a trace.

In a recent issue of the *Scientific American Monthly* (March 1920) there is published an article read by Dr. Henry Dwight Chapin, Professor of Pediatrics, New York Post Graduate Medical School, before the American Pediatric Society, at its Atlantic City meeting, upon the value of the calory as the measure of the value of food, that is exceedingly significant. Dr. Chapin states that:

"The calory of a substance does not express its real food value. A calory is only a measure of heat. The most diverse kinds of food may have the same caloric value, but very different nutritive values. The calory method of feeding is based on the assumption that nutritive processes depend solely on the oxidation of food, and that the heat given off as the result of the oxidation is the sole measure of the value of the food. But nutrition is not a simple oxidation process. There is a distinct and important physiologic value to a ration not measurable by chemical methods or dependent on the mere supply of available energy. While it is true, state McCollum, Steenbock and Humphrey, that the physiologic value of a ration is largely dependent on its chemical constituents, the usual determinations of food do not reveal the character or manner of combination of many of the constituents. The physiologic value can be determined only by long continued observations of the reaction of the food in the animal.

The physician is often required to solve numerous problems which call for the selection of food of the right physiologic value for a given individual. What may be the right physiologic value for one may not be suitable for another. It has been conclusively shown that in practice the caloric value of a food is without indication of its nutritive value, but it has not been shown why this is so. With the recognition of the fact that an animal body is not merely a furnace in which food is burned, but that a long series of chemical changes take place, it is not difficult to see why practical results often cannot be obtained with foods valued only by their oxidation properties."

In brief, Dr. Chapin concludes that:

"Heat or energy may be produced by chemical cleavage as well as by oxidation. Heat may be a degradation of energy and in the human organ it is an excretion. Heat measurement alone is not a safe guide for the calculation of food values. This is especially true at the beginning of life when growth is the all important factor. The foods that build rather than those that readily undergo oxidation must be properly gauged if we are to have healthy development. Some form of biologic testing of foods must be elaborated if an always reliable gauge of nutrition is to be established."

J. W. ENGLAND.

#### AMERICAN PHARMACEUTICAL ASSOCIATION MEETING.

Washington, D. C., May 5 to 10, 1920.

**E**VERYBODY wants to see Washington. During the recent Titanic War the eyes of the entire world were turned to the United States and since its termination Washington easily holds first place in the universe. The Mecca of

the world is Washington. It is the hope and ambition of every good citizen of our great country to see his National Capital at least once. There is more here than can be seen and learned in weeks of sight-seeing and study. We have things in Washington that will fascinate anyone—from the most profound scientist or astute statesman to the merry sightseers. Our beautiful city and the internal workings of the greatest Government on earth fascinate, and properly so, all comers. Hotel accommodations are among the best.

Of all the months, May is the most charming. It is then that the new, fresh foliage of numerous and rare trees will overhang our broad and well-paved streets. The many parks and parklets, with native and exotic plants, will be in their best attire. The animals in our charming, rolling Zoölogical Park will bring joy and pleasure to all lovers of nature. It is the time of the year when life is bubbling over. Everything will be all activity. The rugged, scenic, Great Falls of the Potomac are but 20 miles away. The ladies have planned a trip to this beautiful spot.

In Washington can be seen the numerous and beautiful, massive Government buildings of Doric, Ionic and Gothic architecture. Next May will be the best time to see and learn how the Government business is carried on. Congress will be in session. You should spend several days at the Capitol and see how the Senate and House conduct the nation's business. Trips should be taken to the White House, the Congressional Library, Pan-American Building, D. A. R. Hall, Washington Monument, Lincoln's Memorial, National Museum, Smithsonian Institution, Zoölogical Garden, Botanical Gardens, Bureau of Printing and Engraving, Corcoran Art Gallery, Fish Commission, Government Printing Office, Lee's Mansion, etc. Provisions are made to take all the visitors to Mt. Vernon en route to the Shad Bake.

The local committee is prepared to give every possible assistance and aid in planning so that you can see and learn the greatest amount in the shortest possible time. There will be someone at the Union Station, properly badged, to meet you. If you should be missed apply at the Travelers' Aid booth, in the center of the building for information. There is only one railroad station in Washington, and that is considered by many the best in the world. Its main concourse will accommodate 50,000 people. On arriving in Washington go directly to headquarters, The New Willard Hotel, for registration and information. Cars passing in front of the station marked Georgetown or 14th and some other street will take you to headquarters.

Elsewhere in this issue you will find information relative to hotel rates.

LYMAN F. KEBLER,  
*Chairman of Publicity Committee.*

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## REVISION OF THE U. S. P.\*

BY E. H. GANÉ.

Pharmacopoeias to-day are not measures either of the latest advances in materia medica, nor of popular medicine. Nor are they, as of old, guides to the forms of medicines prescribed by physicians. They are becoming more and more manufacturers' books of Standards and less and less used both by physicians and dispensing pharmacists. The U. S. P. has led the way in this departure from the old idea of the pharmacopoeia and to-day is far in advance of the pharmacopoeias of other countries in the completeness and accuracy of its monographs and in its use as a legal standard for medicinal products. This tendency will ultimately lead to sharp divisions in future revision committees between:

1. The few physicians and the pharmacists who may still take some interest in keeping the Pharmacopoeia what it was originally intended to be.
2. Importers and manufacturers who are anxious to have standards set which will not unduly hamper business.
3. Government officials who will want minute and accurate specifications which will enable them more readily to secure convictions in the courts.

Products intended for medicinal use should rightly be subjected to rigid control and making the U. S. P. a legal standard under the Food and Drugs Act has done much to raise the quality of drugs and chemicals and to reduce the number and quantity of sub-standard drugs on the market. At the same time it is doubtful if the application of pharmacopoeial standards to importations or shipments from sources of supply is altogether fair to those engaged in this kind of business. The idea of stopping trouble at the source is a good one, but in practice it is apt to work damage to many an innocent individual, and to hamper the commerce of the country. The legal status of the Pharmacopoeia has placed many restrictions on the sources of supply.

It is a serious question if the time is not at hand when some division of the Pharmacopoeia should not be made in the interests of the general public. Many authorities are looking to an enlargement of the Pharmacopoeia so as to include as many substances as possible used in medicine and in the household and for more detailed and specific statements regarding the products mentioned therein, so as to do away with some of the necessarily more or less loose definitions which, while adequate for the pharmacist and physician, are, nevertheless, a source of trouble if brought under the eyes of the law. Loose definitions cause failure of justice and uncertain statements are out of place in a book of legal standards. It would be too great a task for the Revision Committee as at present constituted to attempt to get out within reasonable time any such enlarged volume and their work in future, as in the past, should be restricted to setting standards for such products as are in frequent demand by physicians.

In using the terms legal standard and legal status it may be forgotten that the U. S. P. is not strictly speaking a legal standard at all and its application as such is to a large extent one of those instances of bureaucratic government from which we suffer too much at the present time. The Congress in its greater or less

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\* Read before New York Branch A. Ph. A., March meeting, 1920.

wisdom has dodged much of its responsibility and duties in handing over to subordinate officials of the government, under the guise of making regulations for enforcement, what really amounts to legislation that should only come through Congress itself. It is a question if many of these regulations would stand the test if they were to be brought into court. Unfortunately for those most interested, no firm wants to bear the responsibility or the stigma that some fancy attaches to those who fight the government. The U. S. P. as a standard is only legally applicable to products sold as of that standard and no one need follow them unless he sees fit to do so. Each may make standards to suit himself and so long as the standard is plainly set forth no liability attaches to the seller.

The standards of the U. S. P. should apply to those articles, as set forth in the preface, which are used for medicinal purposes and not to bulk shipments from original sources of supply. Unfortunately, in the absence of adequate standards the officials charged with enforcement of the food and drugs act use the standards of the U. S. P. in such a way as to hamper the commerce of the country. The application of such rigid control drives foreign shippers to those countries where the import restrictions are less rigid. A book of standards for drugs and chemicals in less frequent use and for foods and household articles is badly needed, but is too great a task for volunteer work, and this should be gotten out by the government, possibly under the direction of the Public Health Service, which would have the assistance of other governmental bureaus, of the Association of Official Agricultural Chemists, of medical and pharmaceutical experts, and of the importing and manufacturing houses. There are objections to having this work done by governmental means, but it seems the only practical solution of the problem, because the work can only be done, on account of its magnitude, by those who can devote all their time to the task. A compilation of this kind issued under proper governmental authority would ensure satisfactory and adequate control over importations, interstate shipments, and bulk manufactured products.

The suggestion has been made that there is too short an interval between the date of publication and enforcement, to allow of proper adjustment to new standards, and this is only too obvious when the legal question is considered. Officials have to delay enforcement of the law until the trade has had time to adjust itself to the new conditions. It seems only fair that at least a year should elapse between the date of publication and the time it becomes effective.

#### CHEMICALS.

Chemical industry has undergone a revolution as a result of the war, and new sources of supply have arisen for many items. They have been hard to get and production has in some instances not reached the normal demand and new firms lacking in experience have put out products containing impurities above the U. S. P. limit. There has been a letting down in standards the world over, and we shall only slowly get back to where we were in 1914. This applies particularly to organic products supplies of which were cut off by the world war. This will entail an extra amount of work on the Revision Committee and necessitate extra care in setting standards.

#### GALENICALS.

The conspicuous feature of the recent pharmacopoeias has been the increasingly subordinate position of galenical pharmacy. It is perhaps as well that this

should become the feature of the N. F. as a guide to the pharmacist and as more properly belonging to a pharmaceutical handbook than to one which is supposed to be the physician's guide. It retains the control in the hands where it belongs and enables those actively engaged in manufacturing pharmacy to establish correct and easily obtainable legal standards. A perusal of medical writings in the medical as well as in the lay press reveals an appalling ignorance of the principles of galenical pharmacy and shows the need of more attention being given in the medical curriculum to the study of *materia medica*. The tendency on the part of the Revision Committee to subordinate galenicals is probably the reason why attention has not been given to the administration of medicines in convenient form. We still retain the old spirits, infusions, decoctions, and pills, while the more up-to-date forms of medication in tablet, tablet triturate, lozenge, ampoule and capsule forms have been neglected. Only in the ninth revision did we have a mention of tablets and that confined to poisonous tablets of irregular shape. Surely tablets are worthy of mention in the U. S. P., especially as they are a distinctive addition of America to pharmacy.

Dental preparations now so largely employed have not yet found recognition nor has there been any tendency to mark the gradual decline of medication in view of the progress toward prophylaxis, hygiene, and sanitation. Perhaps it is as well that this should be left to the N. F. and that formulas for preparations for dental and oral purposes, for disinfectants and other hygienic aids, should find a place therein coupled with recognition of the best methods of determining their germicidal efficiency.

#### ASSAY METHODS.

Assay processes need to be introduced for a number of the more popular preparations, especially in view of the activities of Boards of Pharmacy and Food and Drug Inspectors. Injustice has been done on numerous occasions in the past by use of assay processes, which subsequent trial showed to be inaccurate. This applies especially to such preparations as Solution Magnesium Citrate, Spirit of Camphor, Spirit of Peppermint, Liniment of Chloroform, Tincture of Green Soap, Aromatic Spirit of Ammonia, etc. A process for valuing Extract of Malt, as regards diastatic power, should also be included, as well as an assay for Oleoresin of Malt Fern, for Spirit of Nitroglycerin and a method of valuing Resin of *Podophyllum*; also methods for assay of pills and tablets and limits of inert and insoluble matter in the latter.

#### BOTANICALS.

The changed conditions in the drug market necessitate very careful attention being given to many crude drugs and possibly new standards may have to be set for some of these which to-day are coming from new sources of supply. Particularly will attention have to be given to geographical names and origins if we are to avoid numerous legal pitfalls. Further, in recognizing as official different varieties of the same drug, the use of any of these should be permissible in making preparations therefrom. If African, Cochin and Japanese ginger, for instance, are good enough to be officially recognized, why should we be restricted to Jamaica ginger in compounding. The introduction of these varieties is obviously a sop to food and drug officials, and from a pharmaceutical point of view is a mistake, as compounded galenicals should be made only from the best possible quality of drug.



The trouble that the maximum and minimum requirements for crude drugs has caused importers, the double standards for spices for the drug and grocery trade and the commercial varieties of different drugs, all point to the need for an additional book of standards.

#### DELETIONS AND ADDITIONS.

Articles to be dismissed and to be added to the Pharmacopoeia are naturally of the greatest interest and always a subject of any discussion, especially among physicians, most of whom are naturally influenced by their personal likes and dislikes, and in this connection attention may be drawn to the growing tendency on the part of many to allow personal opinions to pass as established facts. So long as physicians alone select the items which are to go in the Pharmacopoeia, so long will we have included a number of drugs which really have no place therein. Medicine has not yet got to be an exact science, but numerous investigators, lacking in proper scientific training, too frequently dogmatise on the value of certain remedial agents and demand their admission to or dismissal from the therapeutic armamentarium as the result of a few laboratory experiments from which varying conclusions might be drawn.

In suggesting the following list of deletions personal opinions have as far as possible been set aside, and the suggestions based on such information as was available as to the use of the products:

#### DELETIONS

Acetone.	Ferric Hydroxide with Magnesium Oxide.
Gallic Acid.	Aromatic Fluidextract.
Diluted Hydrocyanic Acid.	Fluidextract of Aspidosperma.
Ethyl Carbamate.	Fluidextract of Eucalyptus.
Aluminum Hydroxide.	Fluidextract of Pomegranate.
Ammonium Benzoate.	Fluidextract of Guarana.
Sweet Almond.	Fluidextract of Sarsaparilla.
Bitter Almond Water.	Compound Fluidextract of Sarsaparilla.
Anise Water.	Fluidextract of Stillingia.
Cinnamon Water.	Fluidextract of Veratrum Viride.
Creosote Water.	Fluidextract of Xanthoxylum.
Fennel Water.	Pomegranate.
Spearmint Water.	Guarana.
Peppermint Water.	Compound Infusion of Senna.
Silver Oxide.	Lactucarium.
Aspidosperma.	Turpentine Liniment.
Bromoform.	Compound Solution of Iodine.
Caffeine Sodium Benzoate.	Solution of Potassium Citrate.
Monobromated Camphor.	Lithium Bromide.
Cantharides.	Lycopodium.
Wood Charcoal.	Honey of Rose.
Cerium Oxalate.	Mezereum.
Cotarnine Hydrochloride.	Musk.
Decoctions.	Oleoresin of Pepper.
Capsicum Plaster.	Rectified Oil of Tar.
Rubber Plaster.	Paraldehyde.
Emulsion of Almond.	Phosphorus.
Emulsion of Asafetida.	Pills of Phosphorus.
Emulsion of Oil of Turpentine.	Physostigma.
Extract of Cimicifuga.	Effervescent Potassium Citrate.
Extract of Physostigma.	Compound Spirit of Juniper.
Extract of Viburnum Prunifolium.	Stillingia.

Strontium Salts.  
Syrup of Lactucarium.  
Tincture of Aloes.  
Tincture of Musk.  
Tincture of Physostigma.

Tincture of Veratrum Viride.  
Ointment of Tannic Acid.  
Veratrum Viride.  
Xanthoxylum.

## ADDITIONS.

The same process has been followed in the following suggested lists of additions to the U. S. Pharmacopoeia.:

Arsphenamine, Arsenobenzol.  
Acetylsalicylic Acid.  
Diethyl-barbituric Acid.  
Ammonium Ichthyoï Sulphonate.  
Barium Sulphate for X-Ray Work.  
Precipitated Calamine.  
Cantharidin.  
Chloraminic.  
Yeast.  
Corpus Luteum, Powder.  
Digitalin.  
Dichloramine.  
Epinephrin.  
Lactic Acid Bacilli.  
Quinine Valerate.

Radium Bromide.  
Surgical Soap, Liquid.  
Sodium Arsanilate.  
Solution of Chlorinated Soda (Dakin).  
Scammony, Mexican.  
Sodium Biphosphate.  
Silver Nuclinate.  
Silver Proteinate.  
Theobromine.  
Tincture of Iodine, 3% (Surgical Iodine).  
Antimeningococcus Serum.  
Antipneumococcus Serum.  
Subchloride of Mercury Ointment.  
Staphylococcus Vaccine.  
Typhoid Vaccine.

And lastly it is suggested that brandy and whisky be again included in view of the recent Prohibition Legislation.

In all the clash of opinions as to the real value of alcohol, it is evident that the one important factor that is ignored is the very real medicinal value of alcohol as a heat and energy producing agent: It is of especial value in toxic conditions, in infectious diseases, in pulmonary disorders, and especially in the debilitated conditions so common in people of advancing years. Undoubtedly alcohol has been responsible for more misery and crime than probably any other agent ever used, and its sale should be rigidly controlled, but from a purely medicinal point of view it has a value that no other substance we know of possesses, and as such should be unhesitatingly used where conditions warrant. Alcohol is the one product that will yield heat and force without tax on the digestive energy. Hence its value in the conditions mentioned and in all cases where the patient needs a readily oxidizable stimulant. Alcohol is absorbed and immediately oxidized, producing heat and consequent stimulation. It is, therefore, unfortunate that any pharmacist should refuse to fill prescriptions for this drug. In many conditions it is a crime not to use it. There is no other remedy that can take its place.

## ORAL HYGIENE AND ORAL ANTISEPTICS.\*

BY W. F. GIDLEY.

More than thirty-five years ago Dr. W. D. Miller<sup>1</sup> gave as his conviction that infection of the oral cavity was the prime factor in the causation of certain constitutional diseases.

\* Read before Section on Practical Pharmacy and Dispensing, A. Ph. A., New York meeting, 1919.

<sup>1</sup> *Dental Cosmos*, Jan. 1883.