A 2% gaduol solution containing 15% alcohol was prepared and the following results show the percentages found by the above method:

Determination I—2.030% Determination III—2.14%
Determination II—2.13% Determination IV—2.10%

A popular brand of extract of cod liver oil of unknown gaduol strength was examined and the following results obtained:

Determination I—1.10% Determination II—1.01%

CONCLUSION.

The method described herein is admirably adapted for the rapid gaduol evaluation in this important class of medicines.

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WHY NOT A STANDARD CODE OF REGULATIONS FOR THE SALE OF POISONS?*

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The legislator who attempts to draft a poison act usually goes to the dictionary to look for a definition of a poison, where he finds something more or less like the following:

"Any substance that when taken into the system acts in a noxious manner by means not mechanical, tending to cause death or serious injury to the health."—*Standard Dictionary.*

This definition and its variations found in other lexicons reflect the popular notion that poisons and non-poisons fall within entirely separate categories—in other words, that there is a sharp line of distinction between substances that are capable of causing injury or death and those that are not capable of doing so.

Unfortunately, there is no such line of distinction. Practically all of the substances we are acquainted with reach across the line in both directions. There is no substance so deadly that it may not be taken into the system with perfect safety if the dose be made small enough, and, conversely, there is practically no substance so innocuous that it is not capable of causing death or injury to health if the quantity ingested exceeds certain limits.

Many common and wholesome articles of food are either noxious in overdoses, or contain certain constituents that are noxious in overdoses. Even that commonest of common articles, common salt, in excessive doses will produce death as certainly and as painfully as will an overdose of arsenic. The dose is larger—that is all. Medical literature records not a few cases of death resulting from overdoses of common salt taken accidentally, and this article is said to be frequently employed in China as an agent for the commission of suicide.

In the form of vinegar we habitually use quantities of acetic acid that in the concentrated form would be gravely injurious if not deadly, while many other common condimental substances, as mustard, capsicum, cloves, etc., contain or are

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capable of yielding substances possessing high degrees of toxicity. Many of our most highly prized fruits yield prussic acid, one of the most dangerous of poisons, and even the common pie plant, or rhubarb, contains the very poisonous oxalic acid in such proportion that it has been known to cause death when immoderately eaten. According to the dosage employed, a given substance may be a necessary food constituent, a useful medicine or a deadly poison.

The human body is normally full of poisons, that is, of constituents which in proper proportion are essential to normal physiological life, but which will act destructively if these proportions be greatly exceeded. As a familiar example may be cited the small amount of free hydrochloric acid in the gastric juice that is necessary to normal digestion. If this amount be exceeded, disorders of digestion are occasioned, and if the concentrated acid be taken in moderately large doses it becomes toxic and deadly. Such examples might be multiplied almost indefinitely.

It was such considerations that prompted a noted toxicologist when asked to define a poison to say that "a poison is too much."

The mode of ingestion is also important. Snake venom taken into a healthy stomach would probably be innocuous, while common white of egg injected directly into the circulation would almost certainly cause death.

From the above examples and from many others that might be cited, it is evident that such a thing as a satisfactory statutory definition of a poison is impossible. Many states have tried it, but none has succeeded.

Some statutes attempt to get around the difficulty by reciting that any substance is to be deemed a poison if the maximum dose as cited in standard works on materia medica or toxicology is within a specified number of grains. Such definitions by reference are faulty for several reasons. Many undoubtedly authoritative works on materia medica do not state maximum doses, and again other textbooks of equal reputation and written by authors of equal professional standing may differ among themselves as much as a thousand percent in their statement to maximum doses.

A number of years ago one state adopted a statute which declared a poison of be any substance defined as such by either the United States or Homeopathic Pharmacopoeias. But since neither of these volumes defined or gave a list of poisons it followed that, legally speaking, there could be no such thing as a poison in that state.

Other statutes do not attempt to define a poison but set out in one or more schedules a list of the substances that are to be deemed poisons, but since it would make the statute of unwieldy length to specifically name all possible poisons, such statutes usually add the supplementary clause "and other noxious and deadly substances."

Since we cannot satisfactorily define a poison, and since it is impracticable to set forth by name in a statute all possible poisons in existence, the only way open, it seems, would be to have a standard list or table of poisons that could be adopted by the law, the same as it has adopted the United States Pharmacopoeia and Nattional Formulary as the standards.

It would have been impracticable for the Food and Drugs Act to have set forth separate standards for all of the articles included in the U. S. P. and N. F., but by adopting the books themselves as standards the same object was accomplished in a few words.

In like manner if we had a national poison table, that, like the U. S. P., represented the combined medical and pharmaceutical wisdom of the country, a statute would need merely to describe and adopt the table as a part of the law, together with the necessary penalties for violation, etc., and the poison statute would be complete.

What a Standard Poison Table Should Include.—The standard poison table should include, first, all of the regulations, cautions, exceptions, and other particulars that would ordinarily be embraced in a poison statute and, second, such other regulations, cautions, exceptions and other particulars appropriate to the handling and dispensing of poisons that, because of their complexity, the amount of detail involved, or for other reasons, cannot conveniently be set forth in statutory phraseology. As illustrative of an appropriate table of contents the following is cited:

1. An introduction or preface explaining the impossibility of satisfactorily defining a poison, and the reasons for the preparation of the table.

2. A list of substances, distributed in schedules according to toxicity, that should ordinarily bear a poison label when sold or dispensed in unmixed or undiluted form.

3. A list of substances upon which a cautionary label against misuse should be used instead of the regular poison label.

4. A description of a sufficient poison label, or of a sufficient cautionary label to be used under certain conditions.

5. A list of exceptions when the poison or cautionary label need not be used, *e. g.*, as upon preparations compounded in accordance with a physician's prescription, upon preparations of a given degree of dilution, etc.

6. A list of antidotes and of antidotal measures suitable for printing upon poison labels.

Other important subjects for inclusion would no doubt suggest themselves as the work of compiling such table progressed.

Suggested Method of Compiling a Standard Table of Poisons.—As suggestive of the manner of compiling such a table the following is offered:

1. The preliminary work of assembling materials and formulating the table should be done by a special committee of the American Pharmaceutical Association, such committee to be selected so as to contain representatives of the several branches of the drug trade—retailers, wholesalers, and those who manufacture products for distribution by the retail and wholesale trade.

2. The report of this committee, after being passed upon by the A. Ph. A., should then be referred to each of the national associations representing the different branches of the drug trade and to the American Medical Association, with the request that these associations severally consider the table submitted and report the same, with their suggested improvements, back to the A. Ph. A.

3. The amendments reported back by the foregoing associations should then be taken up by the A. Ph. A. committee and used in the preparation of a completed report, to be subsequently printed and circulated in such a manner as may seem advisable.

No doubt periodical revisions would be required, either for the correction of errors in the table, or to keep it abreast with scientific progress.