The biological tests on compounds reported herein were made in the Biological Research Laboratories of E. R. Squibb and Sons and we gratefully acknowledge their assistance.

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A STUDY OF VEHICLES FOR MEDICINES.*

BY BERNARD FANTUS, H. A. DYNIEWICZ AND J. M. DYNIEWICZ.

V. COMPOUND ELIXIR OF CHLORAL AND BROMIDE.

As an "horrible example" of an undesirable N. F. preparation, must be mentioned the "Compound Mixture of Chloral and Potassium Bromide," which in addition to 20% each of chloral and bromide has 0.2% each of extracts of cannabis and of hyoscyamus added to it. The extracts are triturated with pumice and then the hot solution of the chloral and bromide is added, the mixture is set aside for twenty-four hours with occasional agitation, whereupon all but a trace of the extracts of cannabis and hyoscyamus is unceremoniously filtered out. Any statement as to the quantity of cannabis and hyoscyamus extracts contained in the finished preparation is a mere guess and worse. The quantity present is certainly not as given in the official dose statement; but a great deal less. In view of the unsatisfactory formula, it is not to be wondered at that it has a usage of only 0.25 per 10,000 prescriptions, according to the Gathercoal survey.

We must, therefore, either delete these insoluble ingredients or so modify the formula that they will remain in solution. With this in view we have experimented a great deal and would like to propose deleting the "Compound Mixture of Chloral and Potassium Bromide," which would be entirely justified by its limited use; and to introduce the following preparation to supersede the one deleted.

ELIXIR CHLORALIS ET BROMIDI COMPOSITUM.

Compound Elixir of Chloral and Bromide.

Synonym—Compound Mixture of Chloral and Potassium Bromide.

Chloral Hydrate	**62.5 Gm.**
Sodium Bromide	**125.0 Gm.**
Soluble Gluside	**0.5 Gm.**
Fluidextract of Cannabis	**12.5 cc.**
Fluidextract of Hyoscyamus	**25.0 cc.**
Alkaline Elixir of Eriodictyon (1), to make 1000.0 cc.	

Mix the solid ingredients by trituration in a mortar and dissolve them in 900 cc. of alkaline elixir of eriodictyon. Add the fluidextracts of cannabis and of hyoscyamus and enough of the aromatic elixir of eriodictyon to make 1000 cc. Average dose: 4 cc. (1 teaspoonful).

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* From the Laboratory of Pharmacology of the College of Medicine of the University of Illinois.

Average dose contains:

Chloral Hydrate	0.25 Gm.
Sodium Bromide	0.50 Gm.
Fluidextract of Cannabis	0.05 cc.
Fluidextract of Hyoscyamus	0.10 cc.

The following reasons for the modification of the N. F. V formula may be advanced:

1. The new preparation contains the ingredients *in the relative proportion to their average dosage:* the proportions of the "mixture" (N. F. V) being entirely irrational even if all of the ingredients were retained:

PROPORTION OF ACTIVE INGREDIENTS.

Dosage in "Mixture" of N. F. V per Teaspoonful.		Average U. S. P. Dosage.	Proposed Dosage per Teaspoonful.
Chloral	0.8 Gm.	0.5 Gm.	0.25 Gm.
Bromide	0.8 Gm.	1.0 Gm.	0.50 Gm.
Ext. Cannabis	0.008 Gm.	Fldext. 0.1 cc.	0.05 cc.
Ext. Hyoscyamus	0.008 Gm.	Fldext. 0.2 cc.	0.10 cc.

The proportions advocated in the new preparation should make it much more efficient, in view of the fact that we have here a synergistic mixture in which each of the ingredients, producing sedative and hypnotic action in a different way, should "potentize" each other, increasing the desired effect, while the undesirable effects are less than would be produced by a larger dose of each of the ingredients. It will be seen, for instance, that inasmuch as chloral is at least twice as powerful as the bromide the dose of the chloral and bromide are not in the proper relation in the old formula. The same thing is true of the relation of cannabis and hyoscyamus dosage. Furthermore, the dose of these two in the old formula is ridiculously small, even if all of it were retained.

2. *All the active ingredients are retained* in the new formula: there being no filtration. To be able to do this we have introduced an elixir of high (approximately 50%) alcohol content to improve the solvent qualities of the vehicle.

3. *To make the preparation as palatable as possible,* we have introduced the alkaline elixir of eriodictyon and added soluble gluside in the proportion of 1 to 2000.

4. *The title "Elixir"* is proposed for the new preparation, because being sweet and alcoholic this title appropriately classifies it. Furthermore, as has been shown by the Gathercoal survey, a Compound Elixir of Chloral and Bromide has much more extensive use than the Mixture.

5. *The "average dose"* proposed for the new preparation contains one-half of the U. S. P. average dose of each of the ingredients. "Bürgi's rule," which postulates that, "a mixture of substances each of which produces the same effect in a different way increases the potency of each of its ingredients," justifies one to believe that the proposed preparation, in teaspoonful doses, would have a greater sedative effect than half of the average dose of each of its ingredients. Hence, a teaspoonful should be an effective dose. If it is desired to give a full average dose of each of the ingredients, all that is necessary is to administer two teaspoonfuls of the new preparation which will, no doubt, act more powerfully than if each of the ingredients were given alone.

CONCLUSIONS.

1. It is proposed that the Compound Mixture of Chloral and Potassium Bromide be deleted from the National Formulary.

2. That a Compound Elixir of Chloral and Bromide be introduced in its stead.

3. This elixir to contain the active ingredients in the relative proportion of their average U. S. P. dosage.

4. The preparation to be stabilized and made palatable by means of the alkaline elixir of eriodictyon.

THE PROTECTION OF PRESCRIPTION LABELS WITH LACQUER.*

BY WILLIAM J. HUSA[1] AND LYDIA M. HUSA.

Considering the dangers involved when mistakes are made in the use of medicines, it is of the utmost importance that pharmacists take proper precautions to insure the legibility of labels on prescriptions and to make sure that the patient understands the directions. With the wide-spread use of the typewriter at the prescription counter, the difficulties arising from poor penmanship are disappearing. Pharmacists who do not have typewriters available should take care to write legibly, using pens which are in good condition; it would also be advantageous to use a better grade of ink, such as India ink, which is so much more permanent than ordinary writing fluids.

The better type of pharmacist pays particular attention to the labeling and other points in the finishing of the prescription and he may sum up his activities by saying that every prescription must be "right" when it leaves the store. If a well-typed, properly affixed label becomes smeared and illegible through handling by the patient, the pharmacist is apt to feel that this is the responsibility of the patient. He may say that the patient should be careful not to spill the medicine on the label, that handling with wet or soiled hands should be avoided, and finally that if the label shows signs of becoming illegible, it should be returned to the pharmacist for relabeling. All this may be true, yet any pharmacist who critically examines his own home medicine chest will admit that the gradual loss in legibility of labels is a real menace. The bad condition of many of the labels on prescriptions brought back for refilling is frequently a troublesome factor at the prescription counter.

From these considerations it is evident that the adoption of a practical method for increasing the permanency of prescription labels would bring about a worthwhile improvement in pharmaceutical service. The use of a label varnish naturally suggests itself and the older pharmaceutical journals often gave formulas for label varnishes, which, however, for one reason and another, have never come into general use by pharmacists.

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NOTE: See abstract of discussion in minutes of Section on Practical Pharmacy and Dispensing.