BARBITURATE VEHICLES.*

BY BERNARD FANTUS AND H. A. DYNIEWICZ.

Owing to the fact that barbiturates are relatively recent additions to our Materia Medica, many who are now practicing did not learn much about them in their Medical and Pharmaceutical College courses. This might serve as an excuse for the finding in literature of such prescriptions as the following:

Prescription No. 1.

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Soluble Barbital	5.0 Gm.
Soluble Phenobarbital	1.0 Gm.
Elixir Lactated Pepsin, to make	60.0 cc.

When this prescription is compounded, several things happen: first, a color change to a muddy lavender and then a turbidity which on standing develops into quite a sediment.

SOLUBLE BARBITURATE ADMINISTRATION.

Perhaps a reason for the difficulty lies in the official title "Soluble Barbital," because it does not indicate that the sodium salt is soluble in water and only slightly soluble in alcohol, so that even a small percentage of alcohol will produce a pharmaceutic incompatibility because the "soluble barbital" is precipitated by alcohol.

Soluble barbital (barbital sodium) needs an aqueous vehicle. If, therefore, soluble barbital be prescribed in elixir, the prescription should call for "iso-elixir," as then the use of the Low Alcoholic Elixir (N. F. VI) takes care of the situation. In point of fact, no elixir or syrup is as good a disguising agent for soluble barbital as is glycerin which, in our opinion, yields a remarkably palatable preparation, as, *e. g.*, the following:

Prescription No. 2.

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	Soluble Barbital	1.5 Gm.
	Distilled Water	8.0 cc.
	Soluble Saccharin	0.05 Gm.
	Glycerin, to make	25.0 cc.

This preparation carries the average official dose of 0.30 Gm. of soluble barbital per 5-cc. teaspoonful.

Prescription No. 3.

℞

Soluble Phenobarbital	0.15 Gm.
Distilled Water	2.0 cc.
Soluble Saccharin	0.05 Gm.
Glycerin, to make	25.0 cc.

A 5-cc. teaspoonful carries 0.03 Gm. of soluble phenobarbital, which is the average official dose.

A mixture of the two soluble barbiturates, if desired, as in Prescription No. 1, can of course be nicely accommodated in the recommended vehicle.

The Aromatic Syrup of Eriodictyon, which is an excellent vehicle for certain bitter substances, namely, alkaloids, is quite worthless for barbiturates: for the

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bitter taste of the barbiturate is due to an acidic substance which cannot combine with the acidic resin of eriodictyon.

The Syrup of Cherry and Syrup of Raspberry are also unsuitable as vehicles for the soluble barbiturates because of the alkaline reaction (p_H 9.3 of 6% solution) of the latter. These fruit syrups are delicate indicators of alkalinity, their color being changed by it as definitely as is that of litmus.

BARBITURATE ADMINISTRATION.

Of course, when a barbiturate such as barbital or phenobarbital is prescribed, the alcohol-soluble and water-insoluble substance is called for and the proper vehicle for it is an alcoholic fluid.

The official Elixir of Barbital contains between 29–32% of alcohol and carries only 0.14 Gm. of barbital per teaspoonful. The official Elixir of Phenobarbital contains between 17–20% alcohol and carries only 0.016 Gm. of phenobarbital per teaspoonful. The dosage in these official barbiturate Elixirs is definitely too small for marked hypnotic effect. While the average dose of phenobarbital as stated in the U. S. P. is 0.03 Gm., it is a fact that often 0.10 Gm. and even 0.30 Gm. is required. The patient may, of course, be given as many teaspoonfuls of the official Elixir as would be needed for the total dose required. This is, to say the least, uneconomic for a patient who might have to take seven teaspoonfuls of Elixir when one teaspoonful of the Iso-Elixir will carry the dose, as, *e. g.*, in the following:

Prescription No. 4.

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Phenobarbital	1.0 Gm.
Iso-Elixir, to make	50.0 cc.

M. and label: one 5-cc. teaspoonful in a little water at bedtime.

A pharmacist who receives such prescription should dissolve the active ingredient in the High-Alcoholic Elixir (N. F. VI): for it takes rather strong alcohol to carry this dose of phenobarbital.

It will be found that phenobarbital is much less unpleasant to the taste when it is given in rather strongly alcoholic vehicle and without much dilution. The more this solution is diluted, the more bitter it becomes. This is obviously the case, because of the general principle that *a substance will not exchange a good solvent for a poor solvent.* The truth of this proposition is also illustrated by the fact that an aqueous solution of soluble barbital has a more offensive bitter taste than an alcoholic solution of the same amount of barbital or of phenobarbital.

SUMMARY.

While barbital as well as phenobarbital is best given in solid dosage form (capsule or tablet), should administration in liquid dosage form be desired, glycerin is the best vehicle. It has a better disguising effect upon soluble barbiturates than alcohol has upon the insoluble barbiturates, with the difference that the glycerin solution will tolerate indefinite dilution. Hence, especially when the barbiturate is intended for a child, soluble barbital in glycerin solution, as suggested in Prescriptions No. 2 and No. 3, may be recommended.