

the neutrality point, *i. e.*, a p_H of 7 underwent the least amount of precipitation. This p_H may be obtained by adding a few drops of diluted alkali solution $N/1000$ to 500 cc. of official menstruum. It must be remembered, however, that the quantity of alkali required is dependent upon the actual acidity of the alcohol glycerin, and water and the p_H must be determined for each operation.

CONCLUSION.

The minimum amount of deposit in Compound Tincture of Gentian is formed when the p_H of the menstruum is adjusted near the neutral point.

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SOME PRESCRIPTION PROBLEMS.*

BY HOWARD C. NEWTON.

The intention of the prescriber and a full knowledge of the properties of the ingredients of a prescription are, we believe, major factors to be kept in mind in solving most prescription problems. Many of the problems of the compounder are caused by the prescriber's lack of knowledge of the physical and chemical properties of the ingredients of his own prescription and, also, by his carelessness in writing the prescription. Problems resulting from such causes are difficult to consider as types, each requiring practically an individual solution. Examples of such problems are illegibility, extreme dosages, ambiguous dosage, misspelled titles, chemically incorrect vehicles, etc. We all know the diplomacy as well as the skill required in intelligently caring for these. It is not with this type of problems that we are about to deal. For this paper we have selected four type prescriptions, each seemingly simple and yet offering difficulties to the compounder. We selected these problems from many that have been presented to us during the past year because the solution of each seemed so evident but in practice did not yield the expected result.

For our first case we are going to consider the old and common prescription:

℞	
Tr. Benzoin	4
Glycerin	6
Aq. Rosae q.s.	60
Sig.: Benzoin Milk	

All books on compounding include this formula and apparently there is nothing left to be said about it. Nevertheless, in our experience we have found very few compounders who can prepare this every time without an unsightly precipitation of some of the benzoin. Many float the tincture upon the glycerin and water mixture and give it one sharp shake; others add the tincture drop by drop with constant agitation; none seem to be sure of the perfection of the finished product. Consequently, with the assistance of our associate, Fred E. Marsh, we sought a

* Section on Practical Pharmacy and Dispensing, A. Ph. A., St. Louis meeting, 1927.

technic which would consistently yield a fine product. After much experimenting, we believe we have found it. The technic of our process is as follows: Mix the glycerin and the water and pour about an ounce of this mixture into a conical graduate. Draw the tincture of benzoin into a clean, dry, bulb pipette or large medicine dropper. Carefully remove any tincture adhering to the outside of the pipette; immerse the pipette to the bottom of the liquid in the graduate and eject the tincture by one sharp pressure of the bulb. A practically perfect cream results and this may be diluted to the required volume without fear of precipitation. The simplicity and unvarying success of this method seem to leave little to be desired.

Our second prescription for consideration is another common one which, apparently, has been treated fully by the pharmaceutical press. It is:

℞	
Salol	ʒii
Tr. Opii Camph.	ʒiv
Aq. Cinnam.	q.s. ʒiii
Sig.: q. i. d.	

This is typical of liquid prescriptions containing salol. The method of compounding agreed upon by many authorities seems to be to triturate the salol with ether, used as an intervening agent, and to add either powdered acacia or powdered tragacanth, allowing the ether to completely evaporate, gradually adding the water and the tincture. This process seems to overcome the difficulty in obtaining an even dosage of the salol upon agitating the bottle as the salol is in a fine powder. Upon standing, however, the salol has a tendency to cake in the bottom of the bottle in spite of the presence of the gum and, even when freshly made, the mixture has the unpleasantness characteristic of salol. To overcome these faults we suggest turning back to a process that has been used by many compounders—emulsification of an oil solution of the salol:

Dissolve the salol in four drachms of olive oil with the aid of gentle heat; allow this to cool; make a primary emulsion of it, using two drachms of powdered acacia; then add the water and the tincture, making a product that is pleasing in appearance, that does not settle out and that is free from grittiness. Our study has not been completed relative to the theoretical question raised regarding the possibility of the oil affecting the action of the salol in the intestine. However, it seems to indicate that the oil is not objectionable.

The third of our selected prescriptions is even more common than the others:

℞	
Resorcin	ʒi
Castor oil	ʒss
Bay rum	ʒiii
Ft. sol.	
Sig.: Apply to scalp	

These three ingredients enjoy great popularity in hair tonics and the prescriber usually expects a brilliant solution as the product. We have seen this prescription dispensed so many times with the oil in a globule at the bottom of the bottle, which may well raise a doubt in the mind of the observer as to the skill of the compounder, that we feel it worth while to consider it. Authorities seem to agree that the thing

to do is to "fortify with alcohol" as the castor oil is soluble in it. Such statements cause one to believe that the addition of a little alcohol to the finished prescription would "clear it up." Upon investigation, we have found this to be far from true. It requires approximately 83% alcohol to hold an appreciable amount of castor oil in solution in a mixture of this kind. A complete study of the solubility of castor oil in alcohol will be the subject of another paper but it is our purpose here to show how much "fortification" with alcohol is necessary in this typical prescription. We find that it requires the addition of two ounces of alcohol and sufficient bay rum to make the three ounces of product. Or, a simple way to remember it is that it requires twice as much alcohol as bay rum, in such cases, if a brilliant solution is to be obtained.

Our fourth and final prescription problem, unlike the others, is not common, but because of the lack of information in literature regarding it, we selected it for demonstration. It is:

℞	
Resorcin	5
Phenol	1
Starch	10
Alcohol	10
Lime water q.s.	100
Sig.: Apply t. i. d.	

When first called to our attention the compounder had mixed the starch and the resorcin in a glass mortar and had gradually added a small amount of lime water until a thin cream had been formed. He had then turned to measure out the alcohol when, much to his surprise, the thin cream had changed to a translucent, tenaceous mass that was very adhesive and resisted incorporation with the remainder of the lime water. Attempting it again, he mixed the starch with the resorcin as before but added the lime water after adding the alcohol. No change took place this time and the resulting mixture of starch imperfectly suspended in the liquid soon settled out and yielded no adhesive property to the product. This prescription was written by a specialist on skin diseases and we had reason to believe that it had been carefully formulated so we decided to study the problem of compounding it properly.

We find that the presence of resorcin and water cause the grains of starch to be broken up much the same as when heat is applied. As demonstrated in compounding the prescription, alcohol will prevent this action. Our study of one phase of the problem has not been completed so we cannot state exactly why this action takes place. The prescriber desired the adhesive property of the starch, we are informed, so we have finally compounded the prescription by mixing the starch and the resorcin in a mortar and then by adding the lime water slowly with brisk trituration, endeavoring to prevent lumping. A thin translucent mucilage is the result, which may require straining to break up any unavoidable lumps. The alcohol and phenol are then added, yielding a finished product which may be poured from the ordinary bottle but which is adhesive. We are continuing the study of the action of resorcin on starch.

In conclusion we would state that we believe that the solution of prescription problems is just as important to the pharmacist to-day as it ever was in the past.

And, judging from the inquiries that we receive from pharmacists, prescription problems are as numerous as they ever were. We trust we have not bored you with the simplicity of the problems that we have considered at this time. We find that it is often the simple problems that prove bothersome to the compounder while the apparently complex ones are solved without difficulty.

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THE PRACTICE OF PHARMACY IN SYRIA.

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Syria, a former province of Turkey in Asia, is now under French mandate.

It has a population of about 2,700,000 and is divided into four States: 1. The State of Syria proper—including the cities of Damascus, Aleppo, Hama, Homs, etc. 2. The State of Greater Lebanon including the cities of Beirut, Tripoli, Sidon, etc. 3. The State of the Alaouites including the cities of Antioch, Alexandretta, etc. 4. The State of Djebel Druze (the mountain of the Druzes) with Sweida the capital and principal town.

As regards the practice of Pharmacy, the mandatory power follows the Turkish rules and regulations, modifying or adding any according to circumstances as, for instance, in the restriction of the importation and dispensing of the habit-forming narcotic drugs.

Narcotic Drugs.—The list of narcotic drugs includes: Opium, extract of opium, alkaloids of opium (except codeine) their salts and derivatives; morphine and its salts; diacetylmorphine and its salts; cocaine, its salts and derivatives; haschiches and its preparations.

Only regular licensed pharmacists are given permission by the authorities in charge to import, export, keep for dispensing, sell or transport any of the narcotic drugs of the list.

A special book is supplied to every pharmacist by the Sanitary Department in which all imports and sales of narcotic drugs are written in detail. This book is at the disposal of the authorities for inspection at any time.

Narcotic drugs are not dispensed except on doctors' prescriptions and such prescriptions are not repeated except in the case of powders containing less than one per cent of cocaine or its derivatives, and preparations to be taken internally not containing more than three centigrams of morphine hydrochloride, diacetylmorphine, cocaine or twelve centigrams of extract of opium.

Doctors are not allowed to prescribe narcotic drugs for a period longer than seven days; pharmacists must refuse to dispense prescriptions of which the preparation may last more than seven days. Doctors are not allowed to write several such prescriptions for the same person, whereby each prescription might be filled by different pharmacists. Pharmacists must not dispense any narcotic drugs in substance and never to persons who are under eighteen years of age. Narcotic

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