

When all of the fluid has been forced through, the apparatus is disconnected, the lip of the flask flamed, and the solution poured into small ampoule vials which have been previously sterilized, then capped.

It is not necessary to standardize this solution for nitrogen content as it changes in strength from day to day. The physician can start his patient out with 0.1 cc. and increase by 0.1 cc. each dose until the reaction becomes too severe.

The use of this filter will help the pharmacist gain prestige among his physician friends.

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THE ECONOMY OF MANUFACTURING OINTMENTS IN HOSPITALS.*

BY LOUISE F. SCHMITZ.¹

Hospital pharmacists have pointed out many reasons why hospitals should employ pharmacists in their drug rooms. One of the advantages to the hospital is that a pharmacist can save money. The cost of operating the drug room can be reduced considerably by manufacturing everything possible. The manufacturing of ointments in particular offers a splendid opportunity to save money. In this paper, the price of the manufactured ointment is compared with the cost of raw materials and expense of manufacturing in the hospital pharmacy.

The official ointments which are more popular in hospitals are as follows: Boric Acid Ointment, U. S. P., Ammoniated Mercury Ointment, U. S. P., Zinc Oxide Ointment, U. S. P., Diachylon Ointment, N. F., Zinc Paste, N. F. and Whitfield's Ointment, N. F.

The ingredients required to make one pound of Boric Acid Ointment cost thirty-one cents. The commercial price of the same ointment varies from sixty cents to seventy-five cents. The hospital pharmacist, therefore, can save from twenty-nine cents to forty-four cents per pound by manufacturing this ointment. Considering the saving of twenty-nine cents per pound, The University of Minnesota Hospitals save eight dollars and seventy cents every month on this one ointment.

The cost of the ingredients in one pound of Zinc Paste is twenty-seven cents. The cost of one pound of the manufactured ointment is sixty cents. Approximately forty pounds of this ointment are used every month at the University of Minnesota Hospitals; hence, the gross saving on this ointment is seventeen dollars and fifty-two cents a month.

Smaller quantities of Ammoniated Mercury Ointment are used. The gross saving on this ointment is one dollar a pound. The cost of the ingredients for one

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pound is fifty cents, and the price of the manufactured ointment is one dollar and fifty cents. Ammoniated Mercury Ointment, 5%, is also used. The manufacturer's price per pound is one dollar and twenty cents, while the cost of the ingredients used to make one pound is thirty-seven cents. The gross saving, therefore, is eighty-three cents per pound.

Zinc Oxide Ointment costs sixty cents per pound when bought from the manufacturer. The cost of the ingredients to make one pound of this ointment is thirty cents, giving the pharmacist a gross saving of thirty cents per pound.

Diachylon Ointment offers a saving of forty-four cents per pound, since the cost of the manufactured ointment is one dollar and twenty cents per pound, and the cost of the ingredients to make one pound is seventy-six cents. Ninety-four cents per pound is saved by manufacturing Whitfield's Ointment. The cost of the ingredients used to make one pound is fifty-six cents, while the cost of the manufactured ointment is one dollar and fifty cents.

Rose Water Ointment, U. S. P., is very easy and profitable to make. When bought from the manufacturer, one pound of this ointment costs one dollar and five cents. The cost of the ingredients used to make one pound of this ointment is seventy cents, giving the pharmacist a gross saving of thirty-five cents. Another ointment which is profitable but not as pleasant to make is Compound Sulfur Ointment, N. F. The cost of the ingredients used to make one pound is forty-four cents, and the cost of the manufactured ointment is one dollar and twenty cents per pound.

Strong Mercurial Ointment, U. S. P., and Mild Mercurial Ointment, U. S. P., are not as easy to make or as widely used. However, in hospitals where they are used, it would be profitable to make them. The cost of the ingredients used to make one pound of Strong Mercurial Ointment is one dollar and four cents. The manufacturer's price is two dollars and ten cents. The cost of the ingredients required to make one pound of Mild Mercurial Ointment is seventy-five cents. The manufacturer's price is one dollar and seventy-one cents.

At the University of Minnesota Hospitals, large quantities of non-official ointments are also used.

In giving these prices, no discounts have been taken into consideration, either in the prices of the ointments or in the prices of the materials used to make them. The price per single pound has been used in all cases except Petrolatum, in which case the price in five pound lots was used. Of course, there is considerable saving in buying larger quantities.

Where large amounts of ointments are made, an ointment mill is necessary. Hand operated machines with a hopper capacity of one-quarter gallon are available for nineteen dollars. Motor-driven machines, having a hopper capacity of one gallon, are one hundred and fifty-five dollars. The hand-operated machines can be equipped with a motor to make a motor-driven machine with a smaller hopper capacity. The hospital having use for an ointment mill would save enough in one month to pay for it.

That the time of a pharmacist is well paid by the manufacturing of ointments may be seen in the following table:

Ointment.	Average Cost Per Pound of Manufactured Ointment.	Cost of Ingredients Per Pound.	Saving Per Pound.
Boric Acid	\$0.67	\$0.31	\$0.36
Rose Water	1.05	0.70	0.35
Ammoniated Mercury	1.50	0.50	1.00
Ammoniated Mercury, 5%	1.20	0.37	0.83
Strong Mercurial	2.10	1.04	1.06
Mild Mercurial	1.71	0.75	0.96
Zinc Oxide	0.60	0.30	0.30
Zinc Paste	0.60	0.27	0.33
Whitfield's	1.50	0.56	0.94
Diachylon	1.20	0.76	0.44
Compound Sulfur	1.20	0.44	0.76

OBJECTIVES OF AND BASIC MATERIALS FOR A COURSE IN
PUBLIC HEALTH FOR THE B.S. IN PHARMACY CURRICULUM.*

BY FANCHON HART.¹

The pharmacist of to-day must fulfil his obligations to society with as much intelligence and helpfulness as is expected of him. He must comprehend the hygienic measures essential for the maintenance and betterment of health in order to be of service to the public. With these aims in mind, a course in public health should embrace the following objectives:

1. The preservation of health
2. Common manifestations of disease
3. Control of the communicable diseases
4. Public health agencies
5. Vital statistics.

The first objective embraces the salient facts governing the positive side of the science of health. Personal hygiene is too superficially considered in the secondary schools to be of lasting benefit to the average individual. The necessity for personal cleanliness can be most dramatically illustrated by means of a few laboratory experiments. These and other practical exercises appear in the laboratory outline included in this paper. After due consideration to the proper disposal of excreta, secretions, fomites and other materials capable of transmitting disease, emphasis should be placed on the needs of the normal body. The principles associated with nutrition and malnutrition, both of vital interest, are particularly significant for the pharmacist. Foods, nutrients, vitamins and calories must be defined. The functions of these substances, as well as the effect of any deficiency or over-abundance of one or more nutrients in the diet, may give rise to valuable discussions. Obesity and its pernicious cures with reducing substances may be demonstrated on laboratory animals. Emphasis may be placed on dental hygiene and the importance of a proper diet in order to maintain a healthy mouth. The consequence of the proper time for and kind of exercise, as well as the deleterious effects of fatigue, can-

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