ERSATZ-PRAEPARATE.

BY H. ENGELHARDT, PH.D.

FATS AND OILS.*

The use of enormous quantities of fats and oils in Germany for the manufacture of glycerin and nitroglycerin has made these commodities very scarce, and numerous preparations have been recommended as substitutes for these vehicles in pharmaceutical preparations.

In the *Pharm. Zeitung*, 1915, page 799, it is pointed out that in the German apothecaries entirely too much lard and oil is used. An average of approximately 200 Gm. of lard and edible oils is daily used in each drug store. In the 6200 drug stores in Germany this would amount to 1200 kilos daily or 36000 kilos per month. A good deal of this fat could be substituted by mineral oils, or by oils which are not edible.

It is further recommended by Zickner, *Pharm. Zeitung*, 1916, page 167, that in order to avoid the use of edible oils, ointment bases, etc., prepared as follows may be used: Liquid paraffin 460 parts, olein 90 parts, rape oil 130 parts, strong ammonia water 150 parts, dilute lime water ($^1/_2$: 1) 175 parts, or vaseline 535 parts, rape oil 100 parts, olein 85 parts, strong ammonia water 135 parts, dilute lime water 145 parts. In both prescriptions the mineral fats are heated with the olein and after cooling to 30° the mixture is shaken with the ammonia water. Both ointments are well miscible with chloroform and are stable.

LARD.

As substitutes for lard, Lohmann, *Pharm. Zentralh.*, 1916, page 96, recommends a mixture of anhydrous wool fat 30 Gm., solid paraffin 250 Gm., and liquid paraffin 785 Gm., while Schnabel, *Pharm. Zentralh.*, 1916, page 54, recommends a substitute called Paralan consisting of anhydrous wool fat 20 parts, solid paraffin 20 parts, liquid paraffin 60 parts.

Stier, *Pharm. Zeitung*, 1916, p. 131, recommends the following product as substitute for lard: Solid paraffin and liquid paraffin each 150 parts, or yellow vaseline 380 parts, and 100 parts of anhydrous wool fat are mixed with 370 parts of a warm 5 percent gelatin solution. The mass is stirred until cool. With this base most ointments can be prepared. Insoluble substances are triturated with the vaseline, while soluble substances such as potassium iodide and boric acid are dissolved in the hot gelatin solution.

OINTMENT BASES.

Zickner, *Pharm. Zentralh.*, 1916, p. 96, recommends the following products: I—For eye salves, lanolin should be used. II—For ointments which contain only fats but no water a base prepared from solid paraffin 1 kilo, liquid paraffin 4.5 kilos and anhydrous wool fat 0.5 kilo. III—For ointments which allow a certain amount of water, a mixture of liquid paraffin 4.5 kilos, solid paraffin 1

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kilo, white wax 40 Gm., anhydrous wool fat 0.4 Gm., and water 450 Gm. may be used. For preparing mercurial ointment, ointment base No. II with an addition of 30 Gm. of wax is recommended. For preparing ointment of potassium iodide, Dr. Sch. uses the following ointment base: Cearin 215 Gm., liquid paraffin 643 Gm., potassium iodide 104 Gm. and distilled water 78 Gm. Another ointment base is recommended by Bedall, *Apoth. Zeitung*, 1915, p. 647. Solid paraffin 200, liquid paraffin 800 and lanolin 1000 are heated and after cooling 400 water are added. For preparing a 10 percent mercurial ointment a mixture of 6 parts of tallow and 4 parts of liquid paraffin is used.

GLYCERIN.

The scarcity of glycerin in Germany is produced by the use of large quantities of glycerin in making explosives and by heating the kettles in the field kitchen in glycerin baths. Greenbaum, *Pharm. Zeitung*, 1915, p. 505, recommends that glycerin for the latter purpose be replaced by paraffin which is just as bad a conductor of heat as glycerin and does not need to be renewed as often.

The *Pharm. Zeitung*, 1915, p. 511, quotes an article appearing in the *Zeitschrift Neust. Erf. u. Erf.* as follows: As substitutes for glycerin, preparations made from substances of both vegetable and animal origin are recommended, substances which contain a great percentage of mucilage such as agar agar, Irish moss, gelatin, isinglass, Iceland moss, linseed, marshmallow root, salep and tragacanth. Agar agar in rather concentrated solutions is not at all unctuous. Irish moss preparations again are rather unctuous but make the skin rough. Gelatin solutions are sticky. All preparations obtained from the above substances have the disadvantage of not being stable. They may be rendered stable by adding to the extract about 30 percent of glycerin.

Gissinger, *Pharm. Zeitung*, 1915, p. 120, recommends a mixture of gelatin 6 parts, rose water 300 parts, boric acid 10 parts, tincture arnica 30 parts, and glycerin 645 parts. Instead of tincture of arnica other perfumes may be used.

Glycerin ointment is obtained by triturating 16 parts of tragacanth with 375 parts of glycerin and then adding 375 parts of water.

For substituting glycerin in Kaolin-Glycerin-Ichthyol Paste, a preparation which is extensively used in the treatment of furunculosis, Unna in the *Berliner Klin. Woch.*, 1915, Nos. 40 & 41, recommends kaolin 40 parts, syrup 30 parts, calcium chloride solution (1 plus 2) 20 parts, ichthyol 10 parts. As substitutes for Iodoglycerin a mixture of tincture iodine 30 parts and syrup 20 parts is given. For Syrup-Zinc-Gelatin: Gelatin 15 parts, zinc oxide 15 parts, syrup 25 parts, distilled water 45 parts. This product is also marketed with the addition of 2 parts of ichthyol.

Naturally a good many preparations of doubtful value have been exploited as substitutes for glycerin; thus Mannich and Schirmer, *Apoth. Zeitung*, 1915, p. 713, report on a product called Lempellin which is a thin solution of a mucilaginous substance rendered stable with boric acid, Substitute for Glycerin, Henkel & Co., which is a sugar solution, and Cosmetic Glycerin Substitute, Henkel & Co., which is more or less inverted syrup.

Algin, according to *Pharm. Zeitung*, 1915, p. 37, is a product obtained by allowing kelp to macerate for 24 hours with caustic soda solution. The mucilagi-

nous mixture is precipitated by alcohol, methyl alcohol, mineral acids and some salts.

WOOL FAT.

Quite a number of substitutes for wool fat, the ideal base for making ointments, have been suggested; v. d. Wielen, *Pharm. Zeitung*, 1916, p. 66, recommends a mixture of 20 parts of white wax, and 80 parts of linseed oil, a mixture which is able to take up 170 parts of water. Ten Velthuis (*Ibid.*) reports on good results obtained with a mixture of 10 parts of yellow wax, 25 parts of wool fat, 45 parts of yellow vaseline and 25 parts of water or a mixture of yellow wax 15 parts, yellow vaseline 60 parts and 35 parts of water. Segerstedt, *Svensk Farm. Tidsk.*, recommends a product called Cerolanum. He describes two preparations, anhydrous cerolanum consisting of 7 parts yellow wax, 15 parts of wool fat and 78 parts white vaseline and cerolanum which is a mixture of 70 parts of anhydrous cerolanum and 30 parts distilled water.

Blatz, *Pharm. Zeitung*, 1905, described a substitute for wool fat named Cetosan which quite recently is mentioned by Segerstedt, *Apoth. Zeitung*, 1915, p. 643 and 706, under the name of Cenolin. It is recommended as a substitute for wool fat and consists largely of cetyl alcohol. It is obtained in the following way according to a process worked out by Segerstedt and Süderberg: 100 Gm. of spermaceti are heated in a capacious enamelled dish with 500 Gm. of alcoholic potassium hydroxide (25 percent) until saponification has taken place. The warm mass is then poured into 10 times its volume of warm 10 percent sodium chloride solution when the cetyl alcohol will gradually rise to the surface. It is then collected on a filter washed with hot water, in order to remove palmitic acid, until the wash water does no longer show a reaction of chlorine. The mass is then allowed to drain and is gently pressed. It still contains about 30 parts of water and small amounts of soap which, however, do not interfere with its use in preparing ointments. In order to prepare anhydrous cenolin 7 parts of cetyl alcohol, 10 parts of wool fat and 83 parts of vaseline are mixed. For making cenolin 70 parts of anhydrous cenolin are mixed with 30 parts of distilled water. Anhydrous cenolin easily takes up 50 parts of water.

v. d. Wielen, *Pharm. Weekbl.*, 1915, p. 773 to 775, further reports that a mixture of vaseline, wax, in which caoutchouc is dissolved at first seemed to be very suitable as substitute for wool fat. Further experiments, however, showed that the caoutchouc produces too great a stickiness. By the addition of water the consistency of the mass does not become satisfactory. Hegland therefore recommends a mixture consisting of 20 parts of linseed oil, 20 parts of vaseline and 5 parts spermaceti, a mixture which is able to take up from 70 to 80 parts and even 100 parts of water without producing too thin an ointment. The disagreeable odor of linseed oil may be masked by the addition of ethereal oils such as lemon oil, lavender oil, etc.

For an Eucerin-Glycerin substitute the *Pharm. Zentralh.*, 1915, p. 672, recommends a mixture of anhydrous eucerin 50 parts, calcium chloride 50 parts.

ARTIFICIAL VASELINE.

For making artificial vaseline, Anselmier, *Pharm. Zeitung*, 1916, p. 66, recommends mixing yellow wax 0.3 part, solid paraffin 0.7 part and yellow vaseline 9 parts.

TINCTURE IODINE.

As a substitute for tincture of iodine a 5 to 10 percent alcoholic solution of tannic acid is recommended by Schmerz in the *Pharm. Zeitung*, 1916, p. 22.

SOAP.

The scarcity of fats naturally has induced the German chemists to look for substitutes of fats in soaps. Thus the *Seifenfabrikant* recommends that soaps be prepared from saponifiable substances which can readily be obtained by the oxidation of mineral oils, for instance, by oxidizing the crude distillate of a certain fraction of coal oil with sulphuric acid and manganese peroxide by which 50 percent of saponifiable substances are obtained.

For making a soap without fat, Schneider, *Pharm. Zentralh.*, 1916, p. 130, gives the following process: 100 Gm. of soap bark are heated with 300 Gm. of water on a water-bath for a half hour and the liquid is then decanted. To this liquid 400 Gm. of kaolin and 400 Gm. of talcum powder are added and 10 drops of benzaldehyde. The stiff paste thus obtained may be used as a substitute for soap. Naturally, it does not foam but cleanses just as well as soap.

SENNA LEAVES.

Caesar and Loretz, *Geschäftsbericht*, 1915, recommend substituting senna leaves either by rhubarb or still better by buckthorn bark.

FAKE SUBSTITUTES.

Naturally, quite a number of fake preparations are put on the market. Gerber, *Pharm. Zeitung*, 1916, p. 151, published in the *Zeitsch. f. Unt. Nahr. und Genuss.*, 41 analyses about substitutes for food products. These consisted of vegetable and milk albumin, casein, disintegrating substances such as sodium bicarbonate and magnesium carbonate and artificial coloring matter.

TOELLNER'S SUBSTITUTE FOR EGGS.

Pharm. Zeitung, 1916, p. 108; this preparation occurs as a yellow powder which is colored with an artificial dyestuff. It consists of potato starch and powdered skim milk, casein and small quantities of boric acid.

SUBSTITUTE FOR SALAD OIL.

As substitutes for salad oil, vegetable mucilage colored slightly yellow and flavored with soup herbs and preserved with boric acid is offered, but is not allowed by the Government officials to be marketed (*Pharm. Zeitung*, 1916. p, 108).

QUID PRO QUO IN U. S. P. IX.*

BY OTTO RAUBENHEIMER.

Quid pro quo, frequently written in one word *quidproquo*, means in German *Das fuer was*, or in good English, "one for another," and in pharmacy it refers to the substitution or replacement of one drug for another. As pointed out in my paper, "History of Substitutes and of Substitution," regular lists of such *Quid pro quo*, were added to the old works on pharmacy and medicine.

* See foot-note under "History of Substitutes and Substitution," this issue.