

THE RENEWED INTEREST IN PARAFFIN OIL.*

M. I. WILBERT, WASHINGTON, D. C.

Within recent years renewed interest is being taken in paraffin oil for internal administration in the treatment of intestinal stasis or chronic constipation. This renewed interest is largely due to the fact that a noble English surgeon, Sir W. Arbuthnot Lane, in his experimental work to prevent the formation of adhesions after surgical interference in the intestinal tract found that paraffin oil served as an intestinal lubricant and was of material assistance in overcoming persistent constipation.

This use of paraffin oil is by no means new, however, and dates back many years to the introduction of refined petroleum products by Chesebrough and others about 1872.

Previous to this date the residues in petroleum stills had little or no commercial value and were used almost exclusively as lubricants, more particularly axle grease. The possibility of producing an odorless and practically colorless oil and heavier fat by comparatively simple methods, presented the peculiar problem of establishing a market for products of this kind and for some years at least the substances were used largely, if not exclusively, for the adulteration of other fats and oils and it is this use of vaseline and of vaseline oil as adulterants that later led to experiments to demonstrate their possible food value and the presence or absence of harmful or toxic ingredients. Experiments carried on by N. A. Randolph, Philadelphia, about 1884, not only demonstrated that the heavier petroleum products were not absorbed from the intestinal tract but also showed that they served to act somewhat in the nature of foreign material and might have some value in the treatment of certain forms of constipation. It was also thought that these products appeared to inhibit fermentation and would, therefore, be of value in the treatment of certain forms of diarrhoea. Some fifteen years later Robert Hutchison, of England, reported practically the same observations and this led to the then quite extensive use of petrolatum and of paraffin oils for various intestinal disorders.

The at one time widespread use of purified petroleum products in the treatment of pulmonary disorders is, to some extent, traceable to the administration of the naturally occurring petroleum products in various countries and at various times. Crude petroleum has been used from time immemorial as a medicine and perhaps largely because of its disagreeable odor was from very early times used in the treatment of diseases of the respiratory tract. In this country Seneca oil had considerable vogue from time to time and was frequently put out in the form of proprietary or "patent preparations" for the treatment of various diseases. After the introduction of purified petroleum products these were offered as substitutes for the formerly used crude oil and even at the present time the advertising matter put out in connection with some of the popularly exploited prepara-

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tions of petroleum do not satisfactorily designate whether or not the crude or the purified product is being advocated.

During the past three or four decades, purified petroleum products have been marketed under scores if not hundreds of proprietary names and the misleading claims and statements made in connection with these several preparations are far from being a credit to the owners or to the persons who act as distributors for the several articles. That there is some element of truth in the claims that have been made for petroleum products is evidenced by the fact that the use of petroleum, crude and refined, has persisted in all parts of the world and has at times, like the present, reached amounts that were quite considerable.

With the renewed interest in paraffin oil that is in evidence at present, the time appears to be particularly opportune for pharmacists who are willing to assist in making for true progress to do missionary work and to point out to physicians in a rational and sensible way that paraffin oil and other petroleum products, while they may be useful, must have limitations, that the claims made for the proprietary articles are unfounded and not based on fact, that in the event that the physician does wish to experiment with the product, non-proprietary oils of high quality are readily available and finally, that these non-proprietary products can be sold to the patient at a very much lower figure than can the proprietary article and still yield the retail druggist a more satisfactory profit.

As intimated above, the products that are available at the present time are many, or at least appear to be numerous because of the varied trade names under which they are offered. On studying the nature of these products, however, it appears that there is no very great difficulty in establishing certain, at times perhaps arbitrary, lines of demarcation between them and identifying them as belonging to one or the other class of commercially available oils readily obtainable by any pharmacist.

The bulk of the available supply of heavy mineral oil comes from two sources and the products differ materially in chemical composition. The American oil is obtained from paraffin base petroleum and consists essentially of hydrocarbons of the methane series having the general formula C_nH_{2n+2} .

The so-called Russian oil, obtained largely, if not entirely, from the oil wells in the Baku district, consist chiefly of monocyclic polymethylenes or naphthenes having the general formula C_nH_{2n} . These latter products have been described as hydrated aromatic hydrocarbons and while they behave with reagents very much in the same way as do the hydrocarbons of the methane series, they are more readily purified and generally occur in commerce as water white oils that are quite free from fluorescence or odor. The American paraffin or methane oils usually have a distinct color and are seldom quite free from fluorescence or a peculiar dichroic effect that is particularly noticeable when the preparation is viewed by reflected light. Apart from the appearance, however, there is no evidence that the two products differ in their effect on the animal organism and one has perhaps as many advocates and users as the other.

The density of the commercially available products also varies and the fact that it is proposed to extend the present U. S. P. limits of specific gravity, 0.9870 to 0.940 at 25°, to read 0.845 to 0.940 at 25°, clearly indicates that the members

of the present Committee of Revision are themselves not convinced as to the properties that should be inherent in a mineral oil for medicinal use.

The paraffin oil official in the Pharmacopœias of the Continent of Europe are usually of the denser variety, 0.875 or higher at 15°, but this is probably due to the fact that there the oil is largely used as a basis for ointments and the various other uses are only now being developed.

In this country paraffin oil or, as it is better known, liquid petrolatum, has long been in use as a basis for oil sprays in the treatment of affections of the nose and throat and for this purpose the lighter and more limpid oil appears to be preferred. For internal administration Sir A. W. Lane prefers the heavier, European type of oil and this is now available in this country and is being introduced by a number of manufacturers and dealers, under proprietary titles, to be sold at fancy prices. Even for internal use, however, there appears to be a definite limit to the solid paraffin that an oil can hold in solution and be palatable or readily taken. At comparatively low temperatures some of these oils are nearly solid and even at ordinary temperatures they are so viscid that they do not readily leave the mouth when taken internally.

I will not undertake to discuss the various commercially available products in detail or to point out to you the reasons why these heavier oils are objected to by many. Mr. Hilton has made a comparative study of a number of products which he promises to report on and he will also have something to say in regard to methods of administration and the possible flavoring of the oil to make it more palatable.

One further question that may be discussed briefly is the dose. One firm, the owner of the product most widely used in this country, says:

"Excellent results are obtained by giving the oil in small doses. In mild cases a tablespoonful at night gives prompt relief. In longer standing cases make it almost a part of the diet and give one or two teaspoonfuls just after meals."

Dr. Lane and many of his followers, on the other hand, give the oil in much larger doses and insist that it be given shortly before meals so as not to interfere in any way with the digestion of food which it probably would if as proposed above it were given with or immediately after meals and thereby intimately mixed with the stomach content.

Bastedo, in his book on materia medica, pharmacology, therapeutics and prescription writing, states that the oil is only mildly laxative and should be given in doses of 30 cc. two or three times a day. Other authorities advise even larger doses, and Robinson (*Medical News*, 1900, v. 77, p. 56), reports that he frequently administered nearly a pint in a few hours without any indications of discomfort and no untoward results of any kind. Robinson also asserts that he was able to duplicate the experiments reported by Randolph and reclaim all of the oil that was ingested. Some recent German experimenters, however, appear to believe that a part, at least, of the oil is changed or absorbed in the intestinal tract, and while the bulk of it passes through unchanged it is not possible to reclaim absolutely all of the oil as taken. At the present time, the preferred dose is from one to two tablespoonfuls one hour before meals or from two to four tablespoonfuls on retiring. The oil may be flavored to make it less objectionable.

and several authorities appear to prefer administering the product in the form of an emulsion, though others claim that the emulsion is not so satisfactory and does not give the same uniform good results.

In addition to its use internally as a lubricant or laxative, paraffin oil is also given in the form of rectal injections, and is being exploited more recently as a dressing for wounds, both recent and chronic. In connection with chronic ulcers it is being extolled as a dressing to protect the skin around the focus of suppuration. The oil in these cases not alone protects the skin against irritation from oozing, thus warding off eczema, but also keeps the dressings from sticking.

The use of liquid petrolatum as a soothing application in the form of a spray to inflamed membranes of the nose and throat is well-known, as is the use of the same product in cosmetics, such as skin creams or pomades, and the use of this product for these several purposes need not be discussed.

In conclusion then, the object of this communication is to call attention to the renewed interest that is being manifested by medical men in paraffin oil for internal administration, and as an adjuvant dressing for wounds, and to suggest to pharmacists that they acquaint themselves with the properties of the available material for the purpose of pointing out to physicians the nature and the kind of material that is available as well as the limitations that probably exist.

NEW EQUIPMENT.

A Baltimore druggist had a fine set of black walnut fixtures, twenty years old and good for fifty. His counters were three feet wide and he had six feet of floor space between them. His store was long, dark, narrow, and looked not unlike a tunnel. His wall cases were deep and massive. Everything about the place was gloomy and ponderous. He was persuaded to scrap the whole outfit and put in complete new equipment. In place of the old, heavy black walnut fixtures, new fixtures of a light color were installed. Three-foot counters gave way to counters eighteen inches wide; wall cases were made narrower. He gained six feet of sorely needed floor space. This gave plenty of room for soda-water tables, something he had never been able to use before.

The new store looked 50 percent lighter and had a roomy effect greatly different from that of the old tunnel. The druggist had been urged by the fixture salesman to keep statistics, and did so to the best of his ability. Soda business increased about 100 percent the first month, and was still showing a steady increase at the end of the first year. The general business showed an increase of 60 percent at the end of three months, when the first balance was figured, and an increase of 110 percent at the end of the first year. The equipment this druggist threw away was all fairly good, some of it in prime condition, but it was out of date. It didn't fit in with the times, and here is an important reason why new equipment does increase business.—W. S. Adkins in *The National Druggist*.