

PHARMACOPŒIAS AND FORMULARIES

THE PHARMACOGNOSY OF THE BRITISH PHARMACOPŒIA 1948

BY H. FLUCK

Professor of Pharmacognosy in the Swiss Federal Institute of Technology, Zürich

Member of the Swiss Pharmacopœia Commission

READING the B.P. 1948, the foreign observer is struck by the up-to-date selection of the contents, so that excellent monographs for the newest synthetics and pure active principles of vegetable and animal drugs, such as penicillin and heparin, are included. On the other hand, certain vegetable drugs, of which the importance and the consumption is still quite considerable, such as cinchona, chamomile, peppermint and linseed, have been dropped. I am of the opinion that a Pharmacopœia should standardise such drugs officially, even though, as in Great Britain, semi-official standards are given by a book such as the Pharmaceutical Codex. Most of the official titles are well chosen from the botanical point of view, but for a few monographs I would suggest the replacement of the designations by the true botanical names, e.g. *Aurantii Pericarpium* or *Flavedo* would be more accurate than *Aurantii Cortex*. Further, the same designation should be used for botanically equivalent drugs, e.g. for the leaves and flowering tops of *Belladonna* and *Hyoscyamus*, which should both be called *Herba*. The definitions of the drugs are generally very clear. In certain cases, however, similar drugs differing somewhat in their properties and in their behaviour during the preparation of extracts and tinctures, are summarised in the same monograph, e.g. on *Aloe*, where both the hepatic and the vitreous types are admitted, on *Benzoin* and on *Amylum*. In the latter case, e.g. rice starch has an inner surface 10 times greater than potato starch, a fact which without doubt will influence the adsorbing effect. Insufficient attention is paid to the standardisation of conditions of harvesting and of conservation of drugs. These two operations affect the qualitative and the quantitative composition of the complex active principles in such a way that the variation will not be detected by the official assay. There are great difficulties in controlling such standardisation, but I believe that the uniformity of the drugs would be improved if directions for harvesting and conservation were included. In the few cases for which special conditions are stated, as for *Digitalis* and *Colchicum*, the requirements are on the correct scientific basis.

The standards for minimal content of active principles are in general rather low. This is for instance the case with *Carum*, *Cinnamomum*, *Colchicum*, *Filix Mas* and especially with *Coriandum* and *Feniculum*, two drugs for which a content $\frac{1}{2}$ to $2\frac{1}{2}$ times higher could easily be prescribed. One of the main duties of a Pharmacopœia is to require high standards for drugs. Only in this way can the suppliers be forced to produce drugs of high quality. For *Digitalis Folium* no minimal standard of biological activity is prescribed. If *Digitalis Præparata* and the tincture are required to have a certain potency, it seems to be necessary to ensure at least the same, or better a somewhat higher, potency for the initial crude drug.

The macroscopical and microscopical descriptions are very good and are given in a very detailed manner. In a few instances I would have preferred, however, that more stress had been laid upon the characteristics which are essential for differential diagnosis. For example, there is an excellent detailed

description of the anatomy of the costæ in Caraway fruit but no mention is made of the typical small vittæ to be found on the outer side of the vascular bundle of each costa. Although the B.P. indicates that the parquetry layer is not present in Caraway this layer actually is well developed in this fruit.

The macroscopical and microscopical sizes are worked out very carefully. By putting in "about" or "mostly" in front of the indicated sizes the important fact has been taken into account that the dimensions of organs or cells depend on the conditions of growth and other factors and therefore may vary and exceed the permitted figures. The width of the parquetry layer cells of Umbelliferous fruits is very useful in the differentiation of these drugs, and should be stated in a future revision.

The quantitative microscopical determination of foreign organic matter by the lycopodium method of Wallis is a very useful innovation; in a further edition the characteristic elements for the drug in each case should be indicated.

The methods of assay of active principles work very well; they are accurate and well planned. If I have any criticism to make it is that the British method of extraction and purification of the alkaloid takes more time than e.g. the method of the Swiss Pharmacopœia and this without improving in any high degree the accuracy of the assay. It would be advisable to assay in Ipecacuanha not only the total alkaloids but also the relation of emetine and cephaëline, especially as both the Rio and the Cartagena drugs are admitted, the latter containing a much higher percentage of the rather undesirable cephaëline.

All drugs containing essential oils are assayed, and it is especially valuable that the diminution of content of essential oil produced by grinding is recognised by giving different figures for the oil-content of both the whole and the ground drug.

The treatment of ash values is rather inconsistent. For several drugs (Ergota, Hamamelis, Podophyllum, etc.) no figure is given. In other monographs there are only figures for the total ash, in a further group of drugs there are figures for acid-insoluble ash only, and in a last group the determination of both the total ash and the acid-insoluble ash. Too much importance has been given to the acid-insoluble ash in certain pharmacopœias, especially when it is considered that this value corresponds with the external mineral impurities. My own experience is that the acid-solubility of external mineral impurities is much higher in drugs grown on calcareous soils than in drugs grown on siliceous soils.

In conclusion, I am glad to have the opportunity of saying that Pharmacognosy has been dealt with in the British Pharmacopœia 1948 in a careful and highly critical manner. The small improvements which I have suggested are given for two reasons, first, the somewhat different continental tradition in pharmacognosy and, secondly, the desire and the hope of giving some modest help to our British friends.