PHARMACOPŒIAS AND FORMULARIES

DANISH PHARMACOPŒIA, 9TH EDITION, 1948

THE new edition of the Danish Pharmacopœia consists of more than 1600 pages and is divided into three volumes. The first deals with general determinations, methods of investigation, reagents, etc., the second contains monographs on individual substances, and the third contains formulæ and general monographs for forms of medicaments (extracts, tablets, etc.) formerly included in the Dispensatorium Danicum and the Pharmacopœia. The third part is necessarily large because of the wide scope of the dispensing carried out in Danish pharmacies.

The distribution of the remainder of the contents of the pharmacopœia between volumes I and II has been necessitated by the increased knowledge of the drugs described and by the improvements in analytical control. Limit tests, determination of physical constants, quantitative methods, bacteriological tests and semi-micro tests are set out in a special section in volume I together with other important directions. Melting-point determinations of derivatives are often used for the identification of organic compounds. For inorganic compounds, distinguishing tests are often prescribed which exclude the presence of substances which give the same reaction as the substance which is to be identified. The number of limit tests carried out by comparison with a standard solution has been much extended. Most of the tests have been rewritten on the basis of investigations carried out in the laboratory of the Danish Pharmacopœia Commission to determine the effect of conditions such as method of mixing, acidity and temperature on the results. Assays are prescribed for nearly all compounds, also for a large proportion of the galenical preparations and for many vegetable drugs.

Although some vegetable drugs have been omitted from the new pharmacopœia, the number is still large and includes some less familiar products such as sweet almond seed, althæa, fig, gall and manna. The macroscopic and microscopic descriptions are fully detailed and include many new observations.

In Denmark specialities are controlled by the State Laboratory, and vaccines and sera, etc., are prepared by the State Serum Institute. The Danish Pharmacopœia, therefore, does not contain specifications for drugs which are only dispensed in the manufactured form.

Only three monographs for hormones are included and there are none on biological drugs. The hormones are adrenaline, stilbœstrol and stilbœstrol dipropionate. The vitamins cover the same range as in the British Pharmacopœia, 1948. Methods of biological investigation, which are continually developing, are not described but are left as the responsibility of the Danish Ministry of Health so that they may easily be changed when necessary.

Veterinary drugs are not described in this Pharmacopœia, but it has now been decided that the compounds and drugs which are used for the preparation of veterinary medicines shall, in future, be included, and a veterinary supplement is in the press.

The Latin names of certain drugs differ from those in use in England. The more important differences include: ætheroleum for essential oils, acidum amygdalicum for mandelic acid, bolus alba for kaolin, and diemalum, enhexymalum, hexemalum and phenemalum for barbitone, hexo-

barbitone, cyclobarbitone and phenobarbitone respectively. Dextrosum hydratum is called glycosum and phenytoin, phenantoinum. Four sulphonamides are included:—sulphadiazine, sulphamerazine, sulphanilamide and sulphathiazole. In addition to the barbiturates mentioned above there are monographs for diallylbarbituric acid (diallylmalum, allobarbitone) and allyl*iso*propylbarbituric acid (allypropymalum). The local anæsthetics are tetracaine (amethocaine), benzocaine, cincaine hydrochloride (cinchocaine) and procaine.

Galenical preparations are treated very fully and there are general monographs for forms of medicaments which are less common in England, such as concentrata vegetabilium, dosipulverēs, granulata and succi. Distinctions are made between suppositoria and vagitoria, between tablettæ (for internal use), injectablettæ and solublettæ (for solutions other than injections), tablettæ orales (for sucking, with local action in the mouth and throat) and trochisci (for chewing). For liquid preparations such names as injectabilia, oculoguttæ, mixturae (used by dessert- or tablespoonsfuls), liquors (used by teaspoonfuls) and guttæ are used; the three last-mentioned names may be used only for preparations for internal use.

Eighty monographs for tablettæ are given but, in general, it is not required that technical details shall be followed exactly, merely that the content of drug and the form and size of tablet shall be as prescribed. A disintegration test is directed to be made on three tablets which should appreciably disintegrate after ten minutes shaking in water at 38° to 40°C. in a flask. In the general monograph on pills, directions are given for obtaining uniformity of appearance whether they are prepared by rolling out, extrusion with subsequent cutting off and rounding, or by compressing in a tablet machine followed by coating. A new system is used for the requirements for accuracy of dosage in tablets. The changes of requirements by steps found in, among others, the British Pharmacopœia and Danish Pharmacopœia 1933, are now avoided. For example, for tablets which weigh over 0·08 g. at least 30 are weighed and of these 90 per cent. must not deviate from the mean weight by more than 0·004 g. + 5 per cent. of the mean weight.

The twelve official eye-drops are prepared aseptically and the injections (67) are sterilised. Both forms of medicament must be isotonic with the liquids of the tissues. In volume I there are isotonic curves for a large number of compounds, compiled by Pedersen-Bjergaard and co-workers. Six methods of sterilising injections are given:—filtration, heating in steam or boiling water at 100°C. for 15 minutes or 1 hour, autoclaving at 120°C. for 20 minutes and a dry heat at 140°C. for 3 hours or at 160°C. for 2 hours. Injections not official in the British Pharmacopœia are:—tetrapon (opium alkaloids), sodium thiosulphate, sulphur, sodium iodide and sodium nitrite. Injection of aneurine hydrochloride is given in two strengths—1 per cent. and 2·5 per cent. Injection of glucose is prescribed as 10 per cent. and 50 per cent.

The stability of drugs has been carefully considered and the rules for heat treatment and time of storage, which are largely based on Danish investigations, are summarised in a Table in Volume I.

While the earlier editions of the Dispensatorium Danicum (1934 and 1938) had the form of a pocketbook and were intended for the use of both doctor and pharmacist, Volume III of the Pharmacopœia is mainly intended for pharmacists. The volume has the same format as the other volumes of the

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