PHARMACOPŒIAS AND FORMULARIES

INTERNATIONAL PHARMACOPOEIA
FIRST EDITION VOLUME II*

REVIEWED BY K. R. CAPPER

In spite of a promise in the preface that the second volume would contain monographs on injections, tablets, certain tinctures and "certain newer drugs, for instance, antibiotics . . ." the first volume of the *International Pharmacopoeia* allowed an assessment of the quality of the book but not its scope. The 217 monographs in Volume II now completes the first edition and gives a pharmacopœia containing 435 monographs, over 300 less than in the British Pharmacopœia. It would be quite wrong to deduce from these figures that the International Pharmacopoeia is inadequate as a book of standards. The number of monographs on inorganic chemicals and on organised and unorganised drugs of vegetable origin has been rapidly decreasing in recent editions of most of the national pharmacopœias. It is understandable that a new pharmacopœia should be short of these types of drugs. However, the major cause of the relatively small number of monographs is the omission of all except a few types of formulated products, i.e., injections (including sterile powders for preparing these), tablets, standardised vegetable powders, solutions, tinctures and a few diluted products such as dilute hydrochloric acid, liquefied phenol, diluted ethanol and diluted glycerol. The B.P. on the other hand still contains 34 different types of preparations. Although it is probable that products such as capsules and implants will find their way into later editions of the Ph.I. the decision to omit preparations such as ointments, lotions and syrups is wise. These vary much more from country to country than do the drugs from which they are made or the simple dosage forms such as injections and tablets. Any country adopting the International Pharmacopoeia as its national book of standards will presumably supplement it with a formulary for products likely to be dispensed and it may be that this is the most satisfactory arrangement even in countries with national pharmacopœias.

The promised antibiotics include all those in the B.P., mostly under names which in spite of being in a sadly un-English style of Latin are recognisable; a possible exception is aureomycin hydrochloride which bears the latinised version of the U.S.P. title, chlortetracycline hydrochloride. The other "newer drugs" include many which have been added to the B.P. and B.P.C. in the last five years, for example, amodiaquine hydrochloride, cortisone acetate, cyanocobalamin, ethinylœstradiol, dimercaprol, gallamine triethiodide, methadone hydrochloride, sodium aminosalicylate and a number of antihistamines. It would be an easy matter to criticise this selection. It is a pity for instance that a place could not be found for a monograph on sulphadimidine which is at the least the equal of any sulphonamide in the International Pharmacopoeia and that all the principal antimalarial drugs are now included

*Pp. xx + 350. World Health Organisation, Geneva, 1955. 35s. Available from The Pharmaceutical Press, 17, Bloomsbury Square, London, W.C.1.

except pyrimethamine and primaquine. The narcotic drugs hydrocodone hydromorphone, metapon and oxycodone have not found much favour in this country nor have acetylcholine chloride and aminoacetic acid. Nevertheless this sort of criticism can be and is levelled at all pharmacopœias and it is admirable that so reasonable a list of contents could be selected by international agreement. It is more regrettable that agreement cannot be achieved on names. Those who have mastered the approved names issued by the British Pharmacopœia Commission may well be excused if they do not recognise benzhexol as trihexyphenydyl, noradrenaline as levarterenol and ethopropazine as profenamine.

Approximately half the monographs in Volume II are on injections and tablets. A general monograph is included in each case. That for Injections closely resembles Appendix XX in the B.P. in that it gives details of methods of sterilisation including that of "heating with a bactericide," describes containers, deals with the addition of bacteriostatics, the treatment of rubber caps, and excess volumes in ampoules. Two points of difference are the requirements that all aqueous vehicles must comply with the test for pyrogens and that fixed oils used as vehicles must conform with specifications for acid, iodine and saponification values and with a test for the absence of mineral oil. The first difference is largely one of style as Water for Injection B.P. must comply with the test for pyrogens and now the 1955 Addendum has extended this requirement to Injection of Dextrose and Injection of Sodium Chloride. A few monographs have been included for sterile powders for the preparation of injections of mepacrine methanesulphonate, phenobarbitone sodium, procaine benzylpenicillin, tetracaine hydrochloride and tryparsamide.

Tablets have been given the title "Compressi" a title which from the definition can apply to moulded as well as to compressed tablets. The disintegration test which applies only to uncoated tablets is a simple one requiring no special apparatus. Each of six tablets is immersed separately in a flask containing water at 37° C. and rotated every half minute without touching the sides of the flask. After 30 minutes the tablets must either disintegrate or else soften so that they disintegrate at a slight touch. In spite of its simplicity, the test is tedious and likely to give results difficult to interpret. There is no statement on colouring.

The standards for the drugs and preparations are similar in style and stringency to those in the B.P. and U.S.P. There are exceptions to this, for example, folic acid with a minimum of 85·0 per cent. determined on the dried substance compared with 94·0 per cent. in the B.P., glycerol with a lead limit five times the B.P. figure, while chlorophenothanum technicum is a material of significantly lower grade than B.P. dicophane. On the other hand there are some specifications which are more stringent than the corresponding B.P. requirements and assays have been included for several drugs not assayed in the B.P.

Those Appendices in Volume II which are not supplementary to those in Volume I include two which give detailed descriptions of the determination of methoxyl and of water by the Karl Fischer method. Two

other Appendices give descriptions of fluorometry and of spectrophotometry and related subjects, these however are so general that they could have been omitted from a book of standards published in 1955. Biological assays are described for the gonadotrophins, insulin and protamine zinc insulin, tubocurarine chloride and certain of the antibiotics. The test for pyrogens is arranged somewhat differently from that in the 1955 B.P. Addendum; the test is in two stages, the first with three rabbits and if this is not passed a second with five rabbits. It seems likely that the Ph.I. test is more severe than the four stage B.P. test.

The doses are not given at the foot of the monographs but, as in Volume I, in an Appendix as a table of usual and maximal metric doses. There is also a table giving the usual daily doses for children of many drugs, one column giving these for children of up to 30 months and another for older children, doses for toxic substances are usually on a weight basis. This table is likely to be useful to many who might not otherwise consult the International Pharmacopoeia. It is unfortunate that the milligram is not used in giving doses as, in spite of the increasing application of the metric system to dosage, many prescribers and pharmacists dislike long strings of noughts after a decimal point.

The Expert Committee on the International Pharmacopoeia are to be congratulated on the results of their efforts. It is however generally recognised that the major source of inspiration of the International Pharmacopoeia and its detailed planning was the late Dr. Hampshire, and the two volumes of the first edition are his monument. The Chief of the Pharmaceutical Section of the WHO, Mr. P. Blanc, who acted as secretary, and his assistant, Mr. G. R. Brown, are also entitled to our congratulations.

BOOK REVIEWS

OFFICIAL METHODS OF ANALYSIS, A.O.A.C., 1955, Eighth Edition. xvi + 1008 (including Index). Published by the Association of Official Agricultural Chemists, Washington, D.C., U.S.A. (U.S.A. $12.00; elsewhere $12.50).

The eighth edition of this work presents the Official Methods of the Association as revised during the five years since the publication of the seventh edition in 1950. "Official Methods" is well known in most analytical laboratories and it is chiefly of interest, therefore, to note the additions and alterations which have been made since 1950.

Changes have, in fact, been considerable with an expansion of about 100 pages chiefly in the sections devoted to pesticides, flavourings, drugs, extraneous materials, microchemical methods and nutritional adjuncts; chapters on spectroscopic methods and hormone drugs have also been added. Agricultural commodities are divided into six main parts: (1) soils and related materials; (2) miscellaneous materials other than foods and drugs; (3) foods; (4) drugs and cosmetics; (5) general methods; and (6) reference tables.

A substantial advance has been made towards the more rigid standardisation of methods. No longer is copper permitted as a catalyst in the Kjeldahl determination of total nitrogen; mercury or mercuric oxide alone are now allowed and other experimental details are prescribed following an extensive collaborative study.

The chapter on colouring matters has undergone fundamental revision and