

portion of the subject matter which should be required and that portion which may be looked upon as optional, as well as to indicate the minimum amount of time that should be spent in presenting such material to students. The Syllabus is intended as a guide to state board examiners in that it indicates the nature and extent of professional and applied knowledge that may have been included in the training of the graduate in pharmacy." The Syllabus, therefore, is of value to the members of faculties, board members and students.

The names of those who, in addition to the Committee, shared in the revision of the Syllabus are given and appreciation is expressed for their services.

The sections are represented in Professional and Allied Subjects, Basic Subjects and State Board Examinations and every subject is classified as Required or Optional and a statement is made which sets forth the minimum number of clock hours necessary for its proper presentation. The schedule is of value in giving information regarding the subjects of the curriculum and while there may be differences of opinion regarding the classification of some of the subjects and the number of hours devoted, the purpose of the Syllabus is to be suggestive and helpful and "not designed to interfere with such flexibility in courses of study and freedom in methods of instruction as ought to exist in schools of pharmacy."

The discussions, suggestions and general information found in Section III give information of value for the preparation of state board examinations. Chairman J. G. Beard has ably directed the work of the Committee and the coöperation of the members has resulted in a

Syllabus which is not only useful and helpful, but reflects credit on pharmacy. The book is well bound and printed. Size 6" x 9", bound in cloth, 168 pages. The sale price for single copies is \$2.25, post-paid; for five or more copies \$2.00 each post-paid, and may be obtained from Chairman J. G. Beard, Chapel Hill, North Carolina.

Swedish Apotekarkalender for 1932, edited by O. KULLBERG. This publication of 424 pages + is bound in half-leather, printed on paper which shows half-tone prints to advantage. Of outstanding value are the half-tones of Swedish pharmacists, about 1500, accompanied by brief biographical sketches of Swedish pharmacists. The *Kalender* serves a useful purpose not only for Swedish pharmacists but for pharmacists everywhere and the AMERICAN PHARMACEUTICAL ASSOCIATION is indebted to its honorary member, Dr. Knut Magnus Sjöberg, of the Swan Pharmacy, Stockholm, for a copy of this valuable publication and thanks are extended to him. A sketch with accompanying half-tone appears on page 325 and additional data regarding his many activities and honors are given on page 416, among the notices reference is made to his honorary membership in the AMERICAN PHARMACEUTICAL ASSOCIATION.

The Canadian Formulary. Notice was given of the Formulary in the April JOURNAL and reference should have been made to the report by Prof. R. O. Hurst in the February issue, page 160. This answers the purpose of a review. In the "Reference Companion" of about 30 pages, a number of the formulas in this section correspond with those of the N. F. V.

RECENT USAGE OF THE TERM "PYRETHRIN."*

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An unfortunate confusion in the use of the term *pyrethrin* exists in the literature of plant chemistry. Buchheim (1) in 1876 proposed the word to designate the active principle in the root of *Anacyclus pyrethrum* (Linn.), or pellitory of medicine. Because *Pyrethrum* was for a long time also the generic name of plants which are the source of insect powder, the term *pyrethrin* and other derivatives of the name *Pyrethrum* have been used recently for the active principles of that insecticide. A brief survey of definitions of *pyrethrum* in recent editions of various medical dictionaries shows that a real confusion, or considerable ambiguity, of terms exists. A few facts concerning the nature and source of pellitory and of insect powder, as well as the history of the term *pyrethrin*, will help in making clear the reason for the existence of such a condition.

Anacyclus pyrethrum (Linn.) De C., belonging to the Compositæ, is commonly known as

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pellitory. It grows principally in northern Africa. The root is used in medicine as a counter-irritant and sialagogue although it is stated in the Dispensatory of the United States of America (2) that this drug is very rarely employed to-day. Pellitory was deleted from the present United States Pharmacopœia X but it was called *pyrethrum* in many of the earlier editions. In Europe, *radix pyrethri*, *Bertram root* and variations of these names are used. *Anacyclus officinarum* Hayne, the root of which is known by substantially the same names, grows in Germany.

Chrysanthemum species that are the source of insecticidal *pyrethrum* were grown originally in southeastern Europe and southwestern Asia. In this case, it is principally the flower head instead of the root that contains the active compounds. When *pyrethrum flowers* (*flores pyrethri*) are mentioned reference is certainly to the flowers of a *Chrysanthemum* (*pyrethrum*) species. French usage prevents ambiguity with the expression *pyrèthre insecticide*.

Prior to Buchheim's suggestion of the term *pyrethrin* Parisel (3) in 1833 gave a similar name, *pyrétrine*, to an active resin he extracted from pellitory. Thompson (4) has been given credit by Czapek (5) (page 294) for applying the name *pyrethrin* in 1887, although Czapek (page 252) also refers to Buchheim's previous usage (1876). Dunstan and Garnett (6) proposed the name *pellitorine* in 1895 for the physiologically active, crystalline principle of pellitory. They say, "It is very probable that it is the same substance as that isolated, but very imperfectly examined, by Buchheim, in 1876, and named by him pyrethrine." In 1896 Schneegans (7) spoke of *pyrethrin* as the active constituent of *Anacyclus pyrethrum*.

Insect powder was investigated in 1909 by Fujitani (8), who is responsible for the first analytical work of much significance on it. He found a physiologically active ester which he called *pyrethron*. Yamamoto (9) worked with the same substance in 1918 and used Fujitani's name for it. Staudinger and Ruzicka (10) found the principle to consist of two related esters which in 1924 they called *pyrethrins* I and II. They reported that Fujitani's *pyrethron* was the same as their mixture but contained somewhat more than fifty per cent of impurities. Their action in changing an established name is hard to understand. Furthermore, the fact that their name was already in use should have been easily ascertainable from various medical and botanical reference works. In 1927, Ott and Behr (11) pointed out this use of the same name for two widely different chemical products of the respective plants and claimed "pyrethrin" for the principle in *Bertram root* on the basis of priority. On the other hand, Gulland and Hopton (12) proposed in 1930 to retain Dunstan and Garnett's name *pellitorine* "in preference to the earlier 'pyrethrin' in order to avoid possible confusion with the constituents of *Pyrethri flores*, the dried flowers of *pyrethrum* species which are used in powdered form as insecticides."

Under the circumstances it might seem obvious that the term *pyrethrin* should be retained for the active principle of pellitory and another name used for that of the insecticide. Fujitani's term *pyrethron* for the latter has priority but it has not been widely accepted and is too similar to be an improvement in nomenclature. On the other hand, pellitory is a drug of minor and waning importance, whereas extracts of *pyrethrum* flowers are very widely used and are becoming increasingly important as insecticides. The term *pyrethrin* for the active esters in the flowers, though originally incorrectly applied is so generally used by plant chemists, pharmacologists and entomologists that it is neither feasible nor desirable to attempt its restoration to the original usage. However, ambiguity should be avoided by reference to its plant source.

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