Table 1. Comparison of available stereotaxic atlases of the rat.

Atlas	Apparatus	Horizontal zero plane*	Micrographs	Accuracy
Krieg, 1946	Rat	Parallel	Drawings only	Approximately ±0.5 mm, all planes
DeGroot, 1959	Rat	10° below	Drawings only	Not stated
Massopust, 1961	Rat	10° below	Fiber	Not stated
König and Klippel, 1963	Rat	5° above	Cell and fiber	Not stated
Albe-Fessard *et al.*, 1966	Modified standard	Parallel	Cell	Anterior-posterior, ±200 μ; vertical, ±500 μ

* Plane is given as relationship in degrees to interaural-incisor bar line, with interaural line used as locus of rotation.

oratories that hitherto have worked with larger animals and would now like to work with the rat. The atlas can also be used with more specific rat apparatuses as long as the plane between the interaural line and upper rostral edge of the superior incisor bar is used as the horizontal zero.

The nuclear detail provided by the photomicrographs of Nissl preparations is excellent, and clearer than that provided by previous atlases. A corresponding myelin preparation would have complemented the atlas by more clearly portraying tracts which are inadequately seen in Nissl preparations.

A precision of diencephalic lesion and probe localization of ±200 microns in the anterior-posterior plane and ±500 microns in the vertical plane is possible if rats of the specified 200- to 300-gram weight are used.

ALEXANDER G. REEVES
Laboratory of Neurophysiology, National Institute of Mental Health, Bethesda, Maryland

Plants: Chemistry and Systematics

Comparative Phytochemistry. T. SWAIN, Ed. Academic Press, New York, 1966. 374 pp., illus. $14.75.

The efflorescence of chemical approaches to plant systematics may be looked upon (botanically) as "the blossoming forth" of a new subdiscipline or (pathologically) as "a cutaneous rash" (*Funk and Wagnalls New Standard Dictionary*, 1945 edition). If the latter, the infection is apparently getting worse, for we have in the volume under review the fifth major text to appear on this subject in as many years. Interestingly enough, natural-product chemists have been mainly responsible for the continuing emphasis in this discipline. Not that taxonomists are uninterested; rather, the current practitioners are already hopelessly tied down with their own paraphernalia, data, and associated problems. A new breed of systematist is needed to cope with the array of new specialties necessary for the more meaningful chemosystematic investigations. Thus it is not surprising to find only a single systematist (V. H. Heywood) contributing to the 18 papers which comprise this volume, a compilation of the papers presented before the Phytochemical Society of England in April 1965.

Actually the book may be viewed as a somewhat thinner, second edition of *Chemical Plant Taxonomy* (Academic Press, 1963), also superbly edited by T. Swain, for about one-third of the authors are the same (Bate-Smith, Eglinton, Harborne, Hegnauer, Kjaer), and for the most part each has treated the same group of compounds he treated in the 1963 text. Consequently the editor describes the more recent contribution "as a necessary up-to-date report showing the . . . progress made in the field in the last year or so." The progress referred to (as discerned from the reports submitted by those who have contributed to both texts) has been more in the accumulation of new data than in the acquisition of new taxonomic insights derived from these data. This has been recognized by the authors themselves, and their rewrites are mostly concise (for example, Hegnauer's account of the comparative chemistry of alkaloids is remarkable for its extensive "tabular-reference list" documentation).

New contributions of considerable interest to plant systematists include those of E. A. Bell (free amino acids, mostly relating to the Leguminosae); T. J. Mabry (betacyanins and betaxanthins, relating to the Centrospermae—the data make possible a most incisive phyletic treatment); H. W. L. Ruijgrok (ranunculin and cyanogenetic compounds, relating to the Magnoliales, in particular to the Ranunculaceae); E. C. Bate-Smith and T. Swain (asperulosides and acubins, mostly relating to the Gamopetalae); and C. Mathis (hydroquinones in both animal and plant kingdoms).

Some of the papers have little or no systematic relevance, as indicated by T. W. Goodwin's account of the carotenoids ("a study of carotenoid distribution in fruit cannot have profound taxonomic significance") and H. Wagner's account of the flavonoid *C*-glycosides, in which taxonomic relevancies are not even mentioned (rightly so, for there appear to be none). One of the papers—A. H. Williams' on dihydrochalcones—is written in the vein of plant taxonomists of an earlier generation, for Williams seems preoccupied with sorting trivia, or else engrossed with raising needless questions as to a compound's presence or absence in natural populations (for example, why should "two specimens of a single species of plant [contain] two completely different phenolic compounds which have no close chemical relationships"?).

Other authors include C. Mentzer (biogenetic classification of plant constituents), J. D. Bu'Lock (biogenesis of natural acetylenes), G. Weissmann (distribution of terpenoids), and E. Percival (distribution of polysaccharides). R. E. Alston's paper, "Chemotaxonomy or biochemical systematics?", bridges the gap between Heywood's purely taxonomic purview and the more technical accounts noted above. Alston says what he has to say very well indeed; mortar of this sort is needed if chemosystematics is to become something more than lists of compounds and chromatographic spots.

B. L. TURNER
Department of Botany, University of Texas, Austin

For Mathematicians et al.

Excursions in Number Theory. C. STANLEY OGILVY and JOHN T. ANDERSON. Oxford University Press, New York, 1966. 176 pp., illus. $5.

Ogilvy and Anderson aim to make the excursions they provide here "educational and entertaining . . . for the general reader who has had no more