

Premature perspectives

Psycholinguistics: Introductory Perspectives. By Joseph F. Kess. Pp. xii+268. (Academic: New York and London, March 1976.) \$9.95; £5.50.

CHOMSKY has revolutionised linguistics by proving the inadequacy of certain informal theories of language and establishing a formal theory of his own. His work made an early impact on the budding science of psycholinguistics, which blossomed in the attempt to establish the relevance of transformational grammar to the mental processes used in understanding and remembering sentences. By the time psychologists had discovered that such matters were more complicated than they had feared, Chomsky had moved on and reformulated his theory. That was more than ten years ago, and since then his school has splintered into a number of rival factions. Psycholinguistics is in a similarly confused state, and it is hard to imagine how anyone could have both the temerity and the clarity of vision to write a textbook on the subject. Nevertheless, a number of excellent introductions have appeared.

In searching for a niche for his book, Kess has tried to write a text that can serve as "a first set of readings with which to orient oneself in the field of language behaviour." It should be clear from the history of the subject that the task is an exacting one. Unfortunately, Kess is not equal to it. He has not mastered the literature, and his book is flawed by too numerous inaccuracies and distortions. His description of the essential characteristics of transformational grammar is wrong. And it is hard to imagine a more misleading account of the notion of a grammatical rule—in the context of a discussion of Chomsky—than the following: "a rule is simply a convenient summarisation of the observations of a normal, or statistically frequent, type of behaviour in a given situation." This definition manages to combine in a single sentence more heresies to the true dogma than one would have thought possible. For Chomsky, of course, a grammatical rule characterises part of a speaker's tacit knowledge of a language. Observation of statistical regularities and induction from them does not suffice to establish a rule because there are precious few regularities to observe unless a listener is sensitive to structure; and the structure of an utterance is rarely manifest in the noises a speaker produces. It is for this reason that Chomsky argues that these are innate constraints on the sorts of rules that are considered in acquiring one's native tongue.

Kess writes in a way that is seldom clear and often misleading. Even his virtues turn out to be double-edged. His impartiality renders no school of thought immune from misrepresentation. His originality verges on idiosyncrasy—as when he suggests that linguistic theory should explain why a sentence happens to be false. His zeal for the truth leads to banality—as when he tells us that formal language is typically reserved for those social situations judged to be formal. But, enough. This book fills a much-needed gap. It is dangerous for anyone to read it who needs to read it.

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Plant and animal lectins

Receptor-Specific Proteins. By Edwin R. Gold and Peter Balding. Pp. xiii+440. (Excerpta Medica: Amsterdam; American Elsevier: New York, 1975.) Dfl.125; \$51.95.

THIS is the first of what promises to be an outpouring of monographs on lectins. The term lectin (Lat. *legere*, to pick out or choose), proposed by Boyd after he discovered that the lima bean agglutinin (phytohaemagglutinin) was blood group A specific, is currently also applied to invertebrate and even vertebrate agglutinins. The problems of lectin definition are recognised by Gold and Balding in extensive coverage in the introductory and final chapters, in which they suggest using the term receptor-specific proteins (RSP). Unfortunately, this contributes little toward clarifying the situation since the term "receptor" must then be defined. The fact that no known physiological function has been assigned to these substances has complicated the development of a systematic nomenclature. Nevertheless, lectins have been grouped according to the specific carbohydrates with which they interact and the human erythrocytes (ABO and MN systems) which they agglutinate.

The book is "arranged as far as possible according to present taxonomy". Thus, Chapter 2 deals with viruses. (The fact that some viruses interact with carbohydrate structures is not sufficient reason to include them under the definition of lectins; this reviewer believes all 'organisms' should be disqualified from consideration as lectins.) Chapter 3 covers lectins of bacterial and algal origin; and Chapter 4 treats lectins from lichens and fungi (for example, from the common meadow mushroom *Agaricus bisporus* and the mold *Streptomyces* sp.).

The largest group of lectins studied so far derives from the seeds of flower-

ing plants (*Embryobionta*), the subject of Chapter 5. A large number of plant seed lectins have been purified and their physicochemical properties investigated, principally during the past five years. A milestone in lectin research was reached two years ago with the elucidation of the primary and X-ray crystallographic structure of concanavalin A—the jack bean lectin, first studied by Sumner and Howell over 40 years ago.

Chapters 6–9 deal with lectins found in protozoa, sponges, molluscs (especially clams and snails), arthropods (horseshoe crab and lobster), and lower vertebrates (fish roe seemingly a very good source of agglutinins). The chapters on invertebrate lectins are especially well done.

The enormously renewed interest in lectins (first discovered in 1888 by Stillmark investigating extracts of the castor bean, *Ricinus communis*,) results from their remarkable biological properties. In addition to their roles as haemagglutinins, reagents in blood group serology, and structural probes for investigating the nature and distribution of cell-surface carbohydrates, lectins have been shown to act as mitogens, serve as agents for studying membrane fluidity, and function as reagents for distinguishing between malignant and normal cells. Chemically linked to insoluble supports, lectins have been used to isolate enzymes, hormones, a variety of plasma proteins, and cell-surface glycoproteins.

Writing a monograph on lectins at this stage in the explosive development of the field was an ambitious (if not impossible) undertaking. Although the authors present good historical statements on both plant and animal agglutinins, the treatment of plant lectins is abbreviated and somewhat disappointing. The authors recognise this in their qualification that plant lectins deserve full and complete treatment in a separate monograph. At the time of printing, however, there was considerable information available on wheat germ agglutinin and the lentil lectin, for example, which could have been included in the discussion. Even with an addendum to each chapter, the volume is already out of date due to the enormous activity in the field. A good general and generic index plus tables at the end of each chapter are valuable contributions to the volume enabling rapid reference to an enormous number of lectins. Apart from several reviews, however, this is the first monograph to be published with relatively broad coverage of both plant and animal lectins; as such it deserves serious attention from all those interested in 'lectinology'.

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