In this connexion one might suggest that any future compilation of this sort might well include a glossary designed to help the more general reader to understand the language of the specialists in each section.

The attractiveness of the book is much enhanced by the frontispiece—a charming snapshot of the founding fathers of the modern study of the Moon, A. A. Mikhailov and H. C. Urey.

W. H. McCrea

Regenerative Capacity

Organ Regeneration in Animals: Recovery of Organ Regeneration Ability in Animals. By L. V. Polezhaev. Pp. ix+190. (Charles C. Thomas: Springfield, Illinois, 1972.)

Polezhaev is best known for his early work in which he persuaded frog limbs to regenerate after amputation. Normally tadpoles can, and adults cannot, perform this feat. To restore the capacity lost in ontogeny he, Rose, and Singer independently used different methods, but each with some success. It is natural to turn from such work to other systems in which regenerative capacity is absent or limited, to apply the lessons learned. Two such systems loom large in this book—the irradiated urodele limb, and mammalian tissues. It is claimed that the former can recover regenerative capacity after the administration of several substances—rat muscle homogenates, rat liver RNA, or milk protein.

The author reviews recent work, much of it from the USSR, on mammalian tissues, for the benefit of clinicians who are, of course, directly concerned. Unfortunately, his treatment is neither entirely summary nor sufficiently detailed to allow the reader to judge the experimental evidence to which he refers. The section on the central nervous system with which the work ends is particularly difficult to assess, since the claims to have induced DNA synthesis, nuclear division, and cell division (as well as endopolyploidy) in mammalian cerebral neurones by treatment with tissue extracts are uncritically presented.

Above all, however, the editing of the English version of this book is so awful that its message can only be approached through a haze of words misspelled, misused, or simply invented. The syntax also is odd. In the interests of rapid, or of cheap, publication of translated texts one should, in my opinion, be tolerant in such matters, but this book goes too far. The reader's irritation transfers to the substance of Polezhaev's arguments, some of which certainly need what help they can get from a faultless exposition.

D. R. Newth

Magnetic Resonance

Magnetic Resonance. Edited by C. A. McDowell (MTP International Review of Science. Physical Chemistry, Series One. Volume 4.) Consultant editor, A. D. Buckingham. Pp. 365. (Butterworth: London; University Park: Baltimore, Maryland, 1972.) £10; $24.50.

Hermes Trismegistus, who knew everything and, it is said, wrote it all down in 36,525 volumes, is to be emulated a few thousand years later by the MTP International Review of Science, of which the present book is volume 4 of the first series for the treatment of physical chemistry. Meanwhile, the theory and practice of magnetic resonance have developed notably, and the editor (who now, alas, is needed) has attempted to provide a glimpse of the advances in the subject between 1967 and mid-1971. The ten chapters cover nuclear spin relaxation in gases (Bloom), n.m.r. studies of molecular motion in solids (Allen), Mössbauer spectra (Sams), n.q.r. (Chihara and Nakamura), ^{13}C relaxation (Lyerla and Grant), liquid crystal spectra (Bulthuis, Hilbers, and MacLean), electron resonance in gases (Brown), optical detection (Kwiram), irradiated organic crystals (Iwasaki), and the biological applications of e.s.r. (Bolton and Warden).

Many of the topics treated correctly reflect the modern tendency in magnetic resonance towards either the study of physical phenomena or biological systems; the volume teeters on the brink of ecodoom in only one place (page 351). Nevertheless, there are topics omitted whose inclusion would have made a truer representation of the present activities: Fourier transform techniques in n.m.r., n.m.r. of biological systems, and chemically induced spin polarizations are not included. The authors have written in a variable fashion; most chapters have introductory material, but vary in the rapidity with which they become synoptic reviews. It is important for the editors to establish whether the contents are to be comprehensive and detailed, or essays on topical subjects; since the *Specialist Periodical Reports* of the Chemical Society attempt the former, and more cheaply, I would prefer the second alternative. There is no reason why both cannot be combined: a review of the principles and status of the subject could be followed, but clearly distinguished from, a thorough and comprehensive specialized review of its progress. In any case, the non-specialist reader would be helped if in future volumes each chapter contained a synopsis of the most notable advances that had been made, and a brief résumé of the present centres of interest.

The volume has neither author nor subject index, although we are promised one for the whole set. This omission is inexcusable and suggests quite clearly that the books are aimed at libraries whose hitherto generous bosoms can embrace complete sets. Private bosoms, who might muster £10, will, and should, feel cheated.

P. W. Atkins

Logic of Mathematics

What is Mathematical Logic? By J. N. Crossley, C. J. Ash, C. J. Brickhill, J. C. Stillwell and N. H. Williams. Pp. ix+82. (Oxford University: London and New York, November 1972). £1.40 cloth; 70p paper.

This little book grew out of a short course of lectures to non-specialists at Monash and Melbourne, and it retains much of the freshness of that venture. The tone is set by the authors' opening declaration: "Mathematical logic is a living and lively subject. We hope that this will be conveyed by the somewhat unconventional style in which this book is written." On the whole, books on mathematical logic tend to be either systematic textbooks, which their readers are meant to work through slowly and methodically, or else more or less perfunctory popularizations of the subject; but the present authors have attempted something rather different, which should be of substantial benefit both to logical studies and to education as a whole. In a brisk review of mathematical logic, covering all its main branches, they give a succinct account of the central problems and results, in which, despite the informality of their style, they treat seriously the ideas and methods that really matter. Non-logicians to whom abstract thought is not entirely foreign should thus be able to gain some knowledge of what kind of subject mathematical logic is, and of where it is located on the academic map; while readers who subsequently embark on serious study of this subject will do so with an initial orientation to assist them in finding their bearings. For those who are inspired to read on further for themselves, a helpful reading list is provided.

The book comprises an introductory historical survey (from about 1850 to 1963), followed by separate accounts of the completeness of the predicate calculus, model theory, Turing machines and recursive functions, Gödel's incompleteness theorems, and set theory. As might be expected, the chapters are not all equally successful; but the best of them—particularly the ones on Turing machines and Gödel's theorems—are very readable and informative.

G. T. Kneebone