A detached view of the Earth

Remote Sensing: Principles and Interpretations. By F. F. Sabins, Jr. Pp. 426. (Freeman: San Francisco and Reading, 1978.) $25; £14.50.

To the casual or unwary would-be customer the title of this large new volume suggests a comprehensive treatment of the explosively expanding modern science, remote sensing of the environment. This is an impression which would not be properly rectified by a reading of the Preface, in which the author confesses that ". . . because I am a geologist by training and early experience, there is a tendency (in this book) to emphasise the geologic aspects of image interpretation". Nor would it be clear from the nearby statement that "This book is designed for a one-semester or one-quarter course for upper-class or graduate students with no previous training in remote sensing" that the treatment is, in fact, very heavily biassed towards the needs of the student of geology, as distinct from his colleagues in environmental science, geography, and allied fields.

To some potential purchasers, this could prove to be a very valuable volume, selecting and synthesising smoothly from the physical bases on which environmental remote sensing rests, by way of the wide variety of means by which different statements of the targets of remote sensors are acquired and analysed, to some of the chief spheres of remote sensing data applications. However, if one's interests are not predominantly concerned with the ways analyses of spacecraft (especially Landsat) data may supplement the longer-established practices of photogeology using images from aircraft and balloons, purchasing this book could be a costly mistake.

My own view is that the confessed "tendency to emphasise . . . geologic aspects" is an exceptional understatement, given the breadth of cover suggested by the title. Certainly, the author does not spend all his time discussing geological phenomena, for there are useful sections on water and ice, but other classes of phenomena with which a more broadly-based student would be significantly concerned—including other surface features such as snow, land use and crops, natural vegetation, and settlements, and atmospheric phenomena such as energy budgets, cloud organisations and winds—are treated very cursorily indeed. One notable example concerns applications of remote sensing techniques in land-use studies: this vitally-important field, full of economic and humanitarian potential, is credited with less than three pages of text. The atmosphere is ignored to such an extent that thermal infrared imagery from meteorological satellites is said to be useful for many applications—but none of those mentioned are atmospheric. Indeed, it is stated that "Clouds and surface winds . . . produce confusing patterns" in such images, and that such factors must be considered (as complicating factors) by the (surface) interpreter. Such a treatment is scarcely fair when the primary purposes of these satellites are recalled.

Had this textbook been entitled *Satellite Remote Sensing for the Geologist,* I would have applauded it; as it is, I cannot do so for, as a teacher in geography, I find the contents much too restricted for general courses in remote sensing of the environment.

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Global geology

Earth. By F. Press and R. Siever. Second edition. Pp. 649. (Freeman: San Francisco and Reading, 1978.) Hardback $16.95, £9.90; paperback (Europe and Africa only) £7.20.

THIS is an excellent book which is specifically designed as a teaching text, but could equally well be read without supervision. It is intended for students with no previous science background and who may not necessarily be intending to follow a geological career—though this text may well encourage them to do so. The reader is not treated as an imbecile, but is assumed to be a reasonable, intelligent being to be treated as an equal. The care that must have been taken in the wording does not show and, while American in spelling, the language is the best form of English–American.

It is arranged in three basic sections: (1) the Earth as an evolving planet and how it is studied, (2) surface processes and (3) internal processes and their surface effects. The individual chapters are planned to be read in any order, which could be dangerous as such a versatility means that repetitions are inecitable. In this case, however, the repetitions are extremely well done, usually comprising a review from a slightly different angle from the way in which the original version was presented.

Each chapter has its own brief introduction and summary, together with a few exercises and a bibliography. The summaries are too brief to act as 'crib-sheets', but the exercises show a healthy versatility, sometimes requiring calculations to be made but usually calling for a real assessment of some particular problem—unlike exercises in some books that merely require the student to find the appropriate section for regurgitation without further thought.

Some difficulties could arise if the student is not following the actual order of the chapters as occasionally relevant information has appeared in previous chapters. Specific sections within a chapter are boxed off for more detailed consideration, usually at a slightly higher level than the main text, and it is a pity that the bibliography is not similarly indicated as being at a complementary or more advanced level.

The reviewer's standby of printer's errors appear to be absent and the whole volume is very well produced, usually with two text columns per page ($25\frac{1}{2} \times 21$ cm) with a wide margin often utilised for figure legends. The illustrations are well chosen, though almost entirely North American, and plentiful, both in terms of photographs and two-tone diagrams—the brown tone allowing attention to be brought to the more salient points. There is a good glossary and index, which will be essential for the new student or for later reference.

The only minor murmurs must be in the coverage of palaeontology in general and of sedimentary structures. In both cases, discussion of the use of fossils for stratigraphical purposes is surprisingly inadequate for any potential geology student. Detailed consideration of the evolution of a trilobite's eye can well be assigned to postgraduate studies, but the real value of fossils, in numerous ways, must be incorporated into a student's thinking at a very early stage. This also gives rise to some uncertainty about the author's use of stratigraphical time periods, certainly within the more advanced 'boxes', when the stratigraphical table only appears as a small diagram within the text, rather than an appendix, and the periods are not defined in the glossary. It is also unfortunate that the opportunity was not taken to give SI units in addition to the American metric unit conversion table.

To carp, however, at such a comprehensive text, so ably presented, should not detract from an unreserved recommendation of this book for either the first-year non-scientific undergraduate or layman. It is extremely good value, even if the dollar recovers!

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