makes clear what it is for mathematics to model nature, he is not able to explain just how mathematics connects to the real world. Since we do not seem to have satisfactory definitions of either mathematics or reality, perhaps this outcome is not surprising. In the end, as Professor Cook observes, the bridges don’t fall down — at least, not if the sums are right. I doubt however whether many philosophers would share Professor Cook’s contention that successful prediction proves the existence of a world independent of the predicting scientists.

This is a difficult and abstract book which covers much ground in few pages. Its fundamentalist view of observation is, however, bracing. It would be a useful supplementary text in a final-year physics course, and should also be of interest to philosophers of science with a sound background in physics. — CHARLES JENKINS.


A workshop (one of the last in the NATO ARW series) was held on ‘Solar Surface Magnetism’ in Soesterberg in 1993 November. The present book represents the proceedings of 40 of the oral and poster presentations from many of the world’s experts in this important field. It is therefore of great interest to read of the latest researches from an extremely high-quality set of authors on a subject which is both intriguing in its own right (in the light of recent important observational and theoretical advances) and is also of great relevance to the interactions of plasma and magnetic fields on other stars and in many other parts of the Universe.

The avowed and noble aim of the workshop was a synthesis of observation and theory, although without an account of the discussion and with the theoreticians in a small minority, it is not clear whether or not this was achieved. However, the observations and theories in their own right are communicated with a great sense of excitement which makes them a pleasure to read.

The opening, admirable review by Zwaan puts the Sun in context with the other stars and is followed by a set of short papers on techniques. The main section of the book is about magnetic elements, both photospheric, chromospheric and sunspot and includes interesting reviews of photospheric elements by Muller and by Strous (active regions) and of observations and theories of Evershed flow by Shine and by Thomas.

This is followed by a section on magnetic patterns including several papers on large-scale flows and key review papers by Martin on filament channels and filaments and by Karen Harvey on the solar cycle. The theory of magnetoconvection is covered in the next section with reviews by Hoyng on the dynamo, Petrovay on passive field transport, Steiner on a new MHD code, and Nordlund on magnetoconvection and magnetoturbulence. Finally, in the last section, future observational goals with the new French vector magnetograph (**THEMIS**) and the **SOHO** satellite were summarized briefly.

The volume is well produced and carefully edited by Rutten & Schrijver. It is most highly recommended as an excellent account of a key field, provided you are wealthy enough to afford the almost obscene price. The present reviewer is most grateful for the review copy, without which it is doubtful that even his library could afford to buy it — but that would have been to have missed a real treat. — **ERIC PRIEST**.