INTRODUCTION

Among the many properties ascribed to the magical number seven is that of marking out the significant epochs of a human life-span – seven years from birth to departure from the kindergarten, another seven to puberty, another seven to majority. The occasion of the Seventh International Machine Intelligence Workshop is perhaps an appropriate moment to take stock.

Views differ as to exactly which of the successive thresholds is the one on which machine intelligence research is now poised. But there is no mistaking the sense of transition, felt both by its practitioners, who claim that their field is at last attaining maturity, and in a rather different way by its interested spectators. The latter rightly point out that if maturation brings opportunity and new powers it also brings the obligation to earn a living. In an invited Address of bracing candour, Lord Bowden called on our profession to examine itself with this criterion in mind. We reproduce his Address as the Preface to this volume.

The seventh Workshop was also marked by a new and unexpected addition to the study of origins. Volume 5 contained A.M.Turing's previously unpublished essay 'Intelligent Machinery'; we here make available a recent work of scholarship by Professor Brian Randell which has cast entirely new light on the technical *milieu* in which Turing first arrived at his vision of intelligence in machines. In the course of his pertinacious study, Professor Randell approached the Prime Minister for access to papers still held under security classification. Although the request was not granted, Mr Heath and his advisers did not let the matter rest. In due course Professor Randell was informed that the Prime Minister had decided that an official record of the early electronic computer developed during the Second World War should be compiled in consultation with those who were concerned in the project. It will surely be a source of widespread gratification that Professor Randell's initiative has catalysed action to preserve the technical facts for the record.

Mention was made earlier of a sense of transition. Not only is there a new awareness of the obligation to earn a living, but there is an even keener awareness that this is far from being the whole point. A man may design a program to carry out a particular cognitive activity with the idea of making it as efficient as possible at this task; or another man may write a program to carry out the same cognitive task, with the idea that it may be suggestive for understanding the way human beings carry out that task. It is important

that the desirability of interaction with social needs and with other sciences should not obscure the obvious fact that *both men are engaged in the same activity*. In the last decade or two a fundamental new discipline has emerged as a result of the creation of the digital computer, namely the experimental study of cognitive activity in the abstract.

The success of the Workshops is dependent upon benefits cheerfully volunteered, too numerous to acknowledge individually. Mention must, however, be made of the University of Edinburgh's hospitality in arranging the Workshop Lunch, presided over by its Principal, Sir Michael Swann; of the combination of *panache* and *punctilio* with which Mr Archie Turnbull, Secretary to the University Press, has once more officiated over the annual miracle of fast publication; and of the welcome financial support received from the Science Research Council.

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October 1972