Editor's note

I write this as we plan to celebrate the advent of the millennium in London. One may wonder whether the end of 1999 should really be celebrated with the enthusiasm that is envisaged but undoubtedly for the calendar and for the unreconstructed computer it will be a significant date. It is appropriate perhaps to look back at what has been achieved in the field of bone marrow transplantation and specifically for the Journal and to look forward to speculate a little about the future.

Bone Marrow Transplantation was founded in 1985. At that time transplant techniques were developing slowly as a result of the pioneering efforts of Don Thomas, later to be awarded the Nobel Prize for his work in elucidating the underlying principles and clinical role of allogeneic bone marrow transplantation in the treatment of severe aplastic anaemia and leukaemia. At that time specialist centres in North America and some European countries were attempting to establish their own transplant programmes with variable success. I suggested to colleagues and professionals in the publishing industry that the time had come to start a journal dedicated to the scientific and clinical aspects of bone marrow transplantation but my suggestion met with some scepticism. Eventually, after much cajoling, I was able to persuade Macmillan Press (as it was then) to launch *Bone Marrow Transplantation*, but there was clearly reluctance. The Journal started as four issues per year and the issue size was distinctly "reduced". Fortunately it proved rapidly popular and by 1987 we were able to publish on a monthly schedule a journal of some respectable size. Twelve years later the Journal publishes twice monthly and is obviously fully established as a major contribution to the transplant community.

What scientific progress has there been in these 15 years? There are some important landmarks. We know for certain that a large range of haematological disorders can be cured by allogeneic stem cell transplantation. Some of the important achievements are the demonstration that engraftment is highly predictable, that graft-versus-host disease can be entirely prevented by removal of donor-derived T cells (though at some cost), that the allogeneic graft-versus-leukaemia (GVL) effect is real, that cord blood stem cells can substitute for marrow-derived stem cells in certain circumstances, that peripheral blood can be used in place of marrow stem cells and has certain distinct advantages. The use of unrelated donors has proved successful though tissue typing technology needs still to be refined. Of great interest in recent years has been the observation that non-myeloablative stem cell transplants can in certain circumstances yield clinical results equivalent to those of a full transplant.

What then of the coming century? I was greatly intrigued by the chapter written by Ernest Beutler for the second edition of *Hematopoietic Cell Transplantation* edited by Thomas, Blume and Forman which was reviewed very recently by Alberto Marmont in these columns.¹ Beutler

deals first with the issue of stem cell expansion: 'In the twenty-first century the stem cell *proliferin* gene is cloned. Transcription of this gene causes stem cells to divide into two stem cells every 6 hours.'. This notion, which seems well within our reach, is backed by the concept of a universal donor line. This should not be too far-fetched. Beutler predicts that increased understanding of how the immune system works will permit infusion of engineered cells of donor origin that will survive and proliferate without the need for prior immune suppression. And how finally to eliminate malignant cells? We seem now to be tantalisingly close to identifying techniques that will permit the distinction between normal host cells and tumor cells. The successful exploitation of a GVL effect using donor lymphocytes, directed though they may be against some normal cells as well as malignant cells, goes some way along this path, but of course not yet far enough.

Beutler goes further into the next century. Some day, he muses, in the twenty-first or twenty-second century, hematopoietic stem cell transplantation will no longer be performed. This will happen for one of two reasons, which he designates either 'The Bad Scenario' or 'The Good Scenario'. The Bad Scenario postulates that transplant technology will become so expensive that the NIH balks: there is not enough funding and 'in the absence of resources, stem cell transplantation dies!' The Good Scenario assumes an inspired congress. A 1% tax for clinical research is decreed. Experimental programs in stem cell transplantation are thus fully supported and are of high quality. Stem cell transplantation thrives for a time. Eventually however our understanding of the molecular basis of leukemia, of aplasia, of hemoglobinopathies and of genetic diseases leads to rationale therapy. Stem cell transplantation becomes an anachronism. 'Surprisingly soon, medical students (will) view it with amusement and a sense of superiority, similar to the present disdain of bleeding and purging (used in past centuries) in the treatment of ailments of mankind.'

A continuing role for haemopoietic stem cell transplantation and for a journal that focuses on this fascinating technology seems assured.

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Reference

- 1 Beutler E. Stem cell transplantation in the twenty-first century. In: Thomas ED, Blume K, Forman SJ (eds) *Hematopoietic Stem Cell Transplantation*. Blackwell Scientific: Boston, 1999, pp 1223-1226.