of fibroblasts and osteoblasts, to control the rate of healing of wounds and the time of union of fractures, to prevent the development of fibrosis and contracture, and even to control the degeneration of hyaline cartilage. There will be increasing knowledge of the factors that influence embryonic development; we may even learn to prevent congenital deformity and hereditary disease. And who can doubt that solution of the cancer problem is in sight? Consider the metabolic analogies of carcinomatous growth and the miracles of the last decade—oestrogen in its effect on carcinoma of the prostate; cortisone in its control of monocytic leukaemia; the chemical link between cortisone and the male and female hormones; and the hushed words that are being whispered of the influence of vitamin B12. The cure of cancer is almost, though not yet quite, within our grasp.

This is indeed the Dawn. Never since the days of Hippocrates could a young man say with greater conviction that this is the age he would have chosen. This is the age in which to live, and in which to be young. “Bliss was it in that Dawn to be alive, But to be young was very Heaven!”

REGINALD WATSON-JONES.

THE EDITORIAL OF A.D. 2000

The year A.D. 2000—the year in which this editorial is written—is undoubtedly of deep significance to the human race, and it is not surprising that in almost every sphere of activity the “progress” of the last fifty, hundred or one thousand years is at present under review. On the other hand Nature is quite unaffected by this momentous date; the snowdrops are still blooming under the beeches as they have done from time immemorial; and no doubt when the art of orthopaedics has been brought to an equivalent state of perfection and simplicity we shall be content to let it bloom naturally year by year without constant review of progress and perpetual seeking of change.

Meanwhile it is our duty to review only the last fifty years for, in 1950, a comprehensive survey of the previous half-century was published in this *Journal* which so recently had achieved full representation of all the British and American nations. We have every reason to be proud of the energy and vision of the men who produced that survey. The picture they painted of orthopaedic surgery was very different from the one we see to-day but, lest we feel self-satisfied or vainglorious, let us remember the difficulties under which they laboured and the benefits we have gained from their mistakes.

Not all the changes that have been made in orthopaedics since 1950 are necessarily improvements—and not all of them have come from within the speciality itself. It is true that there have been many revolutionary changes in surgical technique. The linear jet which divides tissues microscopically and at the same time seals small vessels has replaced the knife; the tourniquet has been made unnecessary; the theatre trappings of gowns, gloves, sterilizers and scrub-units have disappeared; inhalational and intravenous anaesthesia has been replaced by electronic trances; operative shock has been eliminated; and the speed and safety of operations is now such that surgical intervention presents no difficulty in the ninth and tenth decades of life. But these advances in technique have not materially affected our practice or principles; and although many of the demands made upon us have been changed by discoveries and advances outside our speciality, our responses are much the same.

Tuberculous disease of bones and joints has largely disappeared, not because of any new discovery but because social scientists have forced action upon successive governments and made them implement the methods of prevention that were known much more than fifty years ago. For the treatment of the occasional case of tuberculous disease that still occurs we have to thank the biochemists for their therapeutic agents. No longer are little children bound to steel frames for two, three or more years; indeed there would be severe

criticism to-day if complete cure and full recovery of function of the affected part was not regained within six months.

Orthopaedic surgeons played little part in discovering the cause of malignant disease—and the profession as a whole can hardly feel proud of the use that has been made of that discovery. It is true that metastases are now almost unknown; but throughout the last twenty years the occurrence of primary foci of malignant disease could have been prevented. It needed only the courage of politicians—exactly as had happened earlier with tuberculous disease—to allocate the necessary expenditure and enforce the necessary measures of protection. No doubt the hand of authority will soon be forced by the weight of public opinion, and the appropriate facilities will be made available. Thus it was that deficiency diseases were controlled more than half a century ago so that rickets, for example, had entirely disappeared by the year 1960—but only as a culmination of the activities of the previous forty years.

Just as in 1950 the control of vitamin-deficiency diseases appeared so obvious that few reviewers commented upon it, so to-day the control of hormonal-deficiency diseases is so well recognised that we forget the horrors of rheumatoid arthritis which passed so long ago from the sphere of orthopaedics. Nevertheless the incidence of degenerative osteoarthritis has increased and little advance has yet been made in our efforts to prevent the wearing of articular cartilage and preserve the elasticity of ligaments and tendons.

The incidence of bone and joint injury has increased despite the development of covered one-way roads alongside every railway track and the radar-protection of helicopters; but this is perhaps not surprising when we recall how static was the population of fifty years ago and how few members of the community then indulged in travel. Fortunately this increase in the frequency of bone fractures has been unimportant because intramedullary fixation with thermostatic, homoplastic agents injected directly into the fracture site, cancellous in their form, setting to the resilience and strength of steel, stimulating callus formation, and being resorbed in that process, has permitted immediate weight-bearing in nearly every fracture. Similarly the problem of the severed tendon has been solved, though complete success has not yet been achieved in the case of nerve injuries.

Perhaps one of the greatest advances, which to-day seems so obvious and so little worthy of comment, is the change in the incidence of congenital and familial disorders. It was in the fifth decade of this century that the importance of early embryonic environment as a factor in the origin of congenital deformity was first elucidated; and to-day we pay respect to the gallant efforts of our forefathers who perforce spent so much of their time in treating congenital dislocations of the hip, congenital club foot, and other deformities that are seldom seen to-day except in our museums.

Attractive though it would be to envisage the likely changes of the next half-century, such a flight of fancy is not within the scope of this Editorial and we must content ourselves with hoping that our successors may enjoy peace and progress similar to that which has been vouchsafed to us.

BRYAN MCFARLAND.