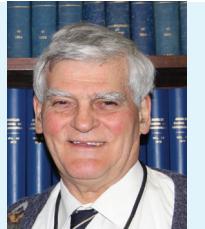


# A dwarf becomes a giant.

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Ensconced in this issue is a paper detailing the application of microsurgical techniques in Endodontics. The authors deal comprehensively with the armamentarium, the method and the results and debate the merits and possible disadvantages. It is in all a comprehensively valuable paper. Why should this be a focus of our interest? After all, the use of microscopes in Dentistry is well established and many patients have benefitted considerably as a result of the greatly enhanced view of the operating field and the accompanying increased accuracy of treatment rendered. Perhaps the relevance lies in the horizons which are opened as we gaze into a future in which we are going to deal with ever smaller and smaller things!

Predicting the future is fraught with problems.. but remember Jules Verne, science fiction writer supreme ( 1828 -1905) who accurately forecast submarines, airplanes, skyscrapers, and space travel. All have come true and his books were written well before any reasonable technology was available to substantiate his imagination. Then consider the film *Fantastic Voyage*... a 1966 epic which described the injection of a minisub into the arteries of a living person ( in fact, two). The sub , manned by miniaturised people, was directed to trouble spots in the body, there to effect repairs and treatment. Coming true?

Now welcome the word "nano" into our discussion. The etymology is Greek, from "nanos" meaning small...a dwarf. And small it is, a nano being one billionth of a millimetre..  $10^{-9}$  ... that is minute. But nanotechnology is an integral part of medical and dental research and indeed it is possible to confidently forecast the development of nanorobots which may be applied in treatment of disease. These will not be miniaturised versions of our current instruments.. not the reduced submarine of *Fantastic Voyage*.. but will be based on structures already present in the body.. such as mitochondria. Aimed specifically at an identified problem, they will bring a new level of precision to treatment.

And in Dentistry.. and in Orthodontics .. Israeli scientists have developed an " enzyme blade" to replace our trusted scalpel. A rather grandiloquent term, we may remark. But the technology is sound, for the approach is based on collagenase packaged into liposomes which are used as nano vesicles to carry the enzyme to the periodontal membrane of teeth destined to be moved. The enzyme leaks out from the carrier liposome, works its effect on the collagen fibres and presto, the tooth is released to undergo more rapid orthodontic movement. The technique is forecast to replace the involved procedure of Periodontally Accelerated Osteogenic Orthodontics in which incisions are made into the cortical bone over teeth which are to be moved. So in truth the scalpel may be replaced by an enzyme blade! The researchers are confident the technique will be available within a few years. How far will this possibility develop.. can we foresee a time when no scalpels are needed at all??

A crucial message is contained in this description of developments in nano-technology... there is always the need for all practitioners not only to be alert to new technology but also to be prepared to consider the merits and possibilities.. even when the approach may be radically different from our accepted modalities. Most definitions of the word "meme" describe it as: An element of a culture or system of behaviour that may be considered to be passed from one individual to another by non- genetic means, especially by imitation. That may well apply to these advances, but there is another definition offered .. a meme is an idea-concept in evolutionary contest with other ideas. Both are relevant in our consideration of the awesome advances which are in the offing.

The Dwarf of nano technology may well become the Giant of innovation in health care.

Come to the Congress .. we may learn a small thing that could make a huge difference in our practices!