



SPIRIT OF
ENTERPRISE

THE 1987 ROLEX AWARDS



SPIRIT OF
ENTERPRISE

THE 1987 ROLEX AWARDS

The Rolex Awards for Enterprise were conceived in 1976 to provide help and encouragement in breaking new ground in the fields of Applied Sciences and Invention, Exploration and Discovery, and the Environment.

Since 1976, Rolex has awarded 20 individuals who have demonstrated a remarkable spirit of enterprise and commitment in their fields of endeavour.

An international panel of judges, in granting the Awards, has helped to bring to fruition many projects that might otherwise not have been realized.

This book documents the projects of the five Laureates, thirty two Honourable Mentions and a further 206 individuals selected from the many hundreds of entries for the 1987 Awards.

Computer-aided design (CAD) and manufacture (CAM) of dental prostheses

François Duret

Draye des Vignes, 38690 Le Grand Lemps, France

French, born 8 December 1947. Dental surgeon, and scientific adviser to Hennson International. Educated in France; Docteur en Chirurgie Dentaire et en Sciences Odontologiques from UER des Sciences Odontologiques in 1980.

On 30 November 1985, at an international congress organized by the French Dental Association at the Palais des Congrès in Paris, we, for the first time, carried out the design, manufacture and fitting of a dental crown in a single sitting; the sitting lasted less than an hour and did not involve the use of either paste or moulds. The "patient" for this demonstration was my wife. It convincingly demonstrated the total feasibility of a revolutionary system that has resulted from 15 years of research, and has grown out of a partnership between myself and Hennson International, which started in 1971 when I first developed a complex association between three-dimensional optics, computer-aided design and the manufacture of dental crowns on a numerically controlled machine tool.

The November 1985 demonstration was the outcome of a long process of basic and clinical research and industrial development, and showed in real time that a portable apparatus completely suited for use in the dentist's surgery could be used to define the shape of the patient's mouth and design a fixed prosthesis for manufacture and immediate insertion. This has been achieved by using threshold technologies and has pioneered the application of CAD/CAM to the automation of combined diagnosis and therapy, whilst still allowing the clinician to intervene at any time and modify the course of the process in the light of his specialized knowledge. Moreover, since the technology developed can be used in other areas, it has once again proved that dentistry is at the forefront of progress.

CAD/CAM and its application to dentistry

Computer-aided design and computer-aided manufacture (CAD/CAM) are techniques which have recently been developed to exploit the power of the modern computer for the far-reaching automation of manufacturing processes. In 1971, whilst still a young dental surgeon in Grenoble, I dreamed of a computer allowing specialists to automatically design and manufacture high-