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Editor-in-Chief Prof. Leszek A. Dobrzański

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by the World Academy of Materials
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It was said...

Nicolas Sarkozy
President of France

"(…) Our fathers, our grandfathers built (…) friendship between Poland and France, so my dear friends – the Poles do we rise to the occasion? Will we act in the same spirit of friendship? And what sort of possibilities are opened up for us? We were friends during the war, we were friends when we were in troubles, when it was difficult, I think that now we should use this friendship to build piece and prosperity.
(…) It is only a few dozen years since our fathers began to create Europe. We begin to act in the other way and we will not be able to create Europe in a such a way as we want, only through the introduction of certain technocratic principles, through the introduction of incomprehensive directives. That Europe can be created only when we will have suitable political ambitions, if we have political courage and if we really want to change something so that Europe will be Europe in which there is full employment and democracy and so that Europe can develop and disseminate that model in the whole world. To be successful, we need you. Your youth, your European political youth, your hope, your requirements and also your temperament. And even those out of you who have some doubts, reservations connected with Europe. I would like to say that we also need you just in that process of the changes of Europe inside.
(…) There is no other alternative for our continent than the European Union. And in that European Union Poland plays the most important role and must play such a role because there is 38 million inhabitants there. Such a role gives you certain rights, essential rights. But such a role gives you also certain responsibility. If a small country says "no", it is a certain problem. If a big country says "no", it is a drama. France knows that. France, which had to suffer the consequences of its "no" for Europe. And really without any arrogance but with a big friendship towards you, I arrive here to say you, My Dear Friends, the Poles – France counts for you. Europe needs you. Long live Poland! Long live France and long live the friendship between France and Poland!"

From the speech in the front of Two Houses of the Polish Parliament in Warsaw in Poland on 28th May 2008

Editorial

Many aspects of contemporary medicine is closely connected not only with human health but also with their psychological state, self-esteem and self-approval. Undoubtedly, aesthetic dentistry belongs to those fields. It is developing in the last decades as an important branch of dentistry. Requirements pertaining to aesthetics grow along with improvement of living conditions and affluence of the society, as the realisation of the philosophical strive to beauty, which should be clearly differentiated from the notion of cosmetics, as interventions aimed at attaining the appearance satisfying the patient only. Adaptation of the patient to prostheses is also connected both with their functioning in the patient's oral cavity without injury, resulting from their correct fabrication and seating according to the rules of the medical and engineering crafts and also with their psychical acceptation by the patient, connected with his personality and competent tending him or her by the dentist.

The dental prosthetics is much more important. It is the dentistry branch focused on carrying out the functional restorations or rectifying the function with artificial appliances as substitutes for the missing soft or hard tissues of the oral cavity and surrounding area. Therefore, it deals with restoration and maintaining the oral cavity functions and also improvement of the patient's comfort, appearance, and health by rebuilding the natural teeth and/or by restoration with the artificial materials the missing teeth and adjoining tissues in the oral cavity area. The goal of the prosthetic dental treatment of the organ is revitalisation of the impaired or lost mastication functions, elimination of dysfunctions with the simultaneous prevention of the denture base foundation pathological states, and also retaining or improvement of the aesthetic appearance of the face and resulting in improvement of the general feeling, and therefore also patient's health with the important role played by prophylaxis in this area.

The modern dental prosthetics offers big potential of rebuilding and restoration of the missing dentition, deciding directly the patient's health improvement. At the same it has influence on reinstating or improvement of the face aesthetics, and that is why analogically aesthetic dentistry has influence on improvement of his or her psychical state. Of course, it is important for millions and even billions of people on the Earth. The level and quality of services in the scope of the dental techniques has been constantly raising thanks to introduction of many contemporary materials and materials technologies and also in case of implementation of the new clinical methods.

Dental prostheses are the artificial appliances custom designed and fabricated in each case for the particular patient in the complex clinical and fabrication process. The result of the dentist's efforts in rehabilitation of the stomatognathic system is dependant equally on his or her knowledge and practical skill, as on the level of the cooperating dental technician or even engineer. Clinical activity in the area of dental prosthetics is, therefore, inseparably connected with the technical procedure in the prosthetic laboratory and therefore the good collaboration of the dental technician or even engineer with the dentist is so essential. Responsibility for the correct fabrication of the dental prosthetic devices rests both with the dentist, who is – however – irrevocably responsible for the entire treatment, but also with the dental technician or even engineer. Each of them can expect from the other party not only carrying out of the particular tasks in a competent way, but also demand carrying this work at the highest level. Thanks to that it becomes possible to reduce and even eliminate the risk of the wrong workmanship without prosthetic restoration, elimination of pain and exposing the patient to the unnecessary health complications, discomfort of using the prostheses and disappointment resulting from the unsatisfied aesthetical expectations.

Among all artificial devices substituted for the soft or hard tissues of the oral cavity and surrounding area one may differentiate mainly the removable and fixed prostheses along with the dental implants, and other elements used in the dental prosthetics, and made from metals and their alloys. Metal alloys, mostly of the non-ferrous ones, have found the particular application in the dental prosthetics. Many demands are made to materials used for fabrication of these devices. Therefore, the properly selected prosthetic restoration should meet a number of biological, mechanical, and engineering requirements. Alloys of noble metals, technical titanium and its alloys, cobalt alloys are of the particular importance among materials used for the prosthetic appliances. Use of nickel alloys or others containing this element was the reason for which their use has been abandoned in Europe because of health related considerations.

An application of many groups of the contemporary engineering materials for instruments used for the relevant clinical interventions connected with fixing the appliances features the separate area of knowledge. Employment of those materials for dental prosthetics, at the significantly scattered network of numerous small prosthetic laboratories cooperating with many dentists working as independent professionals running their own dentist's offices, and the need to implement the state-of-the-art materials and manufacturing technologies, call for the thorough and interdisciplinary knowledge connected with the deep knowledge in the area of dentistry, which only can ensure the proper fulfilment of the vast set of requirements posed to the dental prosthetics by the patients, according to the market, medical, and technical stipulations.

The technical aspects of these issues may be easily acquired by the supplementary specialist training of engineers and masters of engineering who have the very high level of the required engineering knowledge guaranteeing understanding of the processes and phenomena occurring in the engineering materials during the technological processes of manufacturing and processing of various products and being well versed in the principles of the engineering materials selection and design needed for various products and in the principles of selection and design of their technological processes, including nanotechnology, and also knowing the engineering calculations methods making products design possible using the computer aided tools, which is the guarantee of the innovative engineering stance, very helpful, and ever desirable, in the contemporary dental prosthetics.

This special field of knowledge requires constantly made research and developmental works. Of course, the outworking of that field mainly by highly specialised production companies is not conducive to competitiveness and in fact may stop progress and has influence on artificial inflation for what each time a patient pays, either achieving dentures of not the best quality or paying for a given product an unjustified high price.

For proper curing in the field of the dental prosthetics two equiponderant partners forming the cooperative team, whose collaboration may shape much more when the dental technicians are educated at the same level as the dentists are responsible. Of course, in the background there is an industrial producer of some elements of dentures or even the whole implants. But he always presents a technical side of that complex issue. Expanding this idea one may conclude that educating engineers and masters of engineering majoring in the area of dental engineering is purposeful. This opinion differs from the approach prevailing e.g. in Poland nowadays, consisting in the specialist education of dental technicians and even engineers by circles of the dental faculties of the medical universities, because of the significant extension of the general knowledge in the area of dentistry with the teaching of engineering topics, which makes difficult a deeper understanding of the materials and technological issues to the specialists trained in their profession in this way and most probably may feature a restraint to development of this branch of knowledge.

It seems that not in all the countries such an approach will be innovatory one, because just there specialists in that field are educated. Surely, it requires the dissemination for the good of patients and the raise of the average level of services made in that field. It is a mission to which Archives of Materials Science and Engineering can contribute.

We invite P.T. Authors for the presentation of their scientific and application works in the field of materials engineering and materials processing technologies applied in dental prosthetics and aesthetic dentistry. Those works have been already published in the previous issues, and also in the given one. We expect also papers concerning programme conceptions and methodology of education in that field. I do not doubt that such a subject matter will be interesting for P.T. Readers of Archives of Materials Science and Engineering.

Prof. Leszek A. Dobrzański M. Dr hc
Editor-in-Chief of the AMSE
President of the WAMME
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Gliwice, in June 2008