Gerhard Jangg – 75 years

For everyone who has been active in powder metallurgy for some decades, esp. in the fields of mechanical alloying and dispersion strengthening, the name "Jangg" is a familiar one, closely linked to the names of Richard Kieffer and Peter Ettmayer. Not by chance, the book authored by Kieffer-Jangg-Ettmayer "Sondermetalle" ("Special Metals") has become a standard reference book at least in the German speaking countries.

Gerhard Jangg was born in Villach, Carinthia, in 1927. His father was a schoolteacher but also an expert craftsman who had a workshop in his house. Here, young Gerhard was taught the basics of technical work, which quite often fascinated him much more than his homework for school. Nevertheless he smoothly passed elementary and secondary school, although in the latter case already the ominous signs of war were present since there was only an emergency final examination ("Notmatura") for the boys born in 1927. Then they were immediately drafted to the German army which at that time, in 1944, was retreating on all fronts. Gerhard Jangg served in Italy but was taken prisoner by the U.S. Army. He was kept prisoner of war for nearly one year at a camp near Nuremberg.

After the end of the war, he started studying chemistry at the TH Wien - Vienna High School of Technology, as it was called at that time -, under very difficult circumstances, a large part of Vienna having been destroyed or heavily damaged, food and housing being extremely scarce, and e.g. commuting from the chemistry institutes to the central building of TH Wien required changing from the American to the Russian sector of Vienna, since Vienna was split up into 4 sectors as was Berlin. Despite these conditions, students worked very hard and efficiently in those days, 50-60 hours per week being the average, and Gerhard Jangg managed to get his engineering degree – Dipl.-Ing. – in 1952. Rather by chance, he was offered a doctoral thesis and worked on the rheological behaviour of glass melts. Once more he was very fast, earning his Dr.techn. in 1954. At that time, Prof. Hohn had been appointed full professor and head of the institute, and this appointment had a strong impact on Gerhard Jangg's career, since Prof. Hohn was an expert in cooperating with the industry – being part-time in the management of a large chemical plant in Linz – which resulted in improved financial resources for the institute and convinced Gerhard Jangg that in a technologically oriented institute, cooperation with the industry is a must. He obtained a contract from an Italian company on mercury alloys and rapidly gained a reputation as an expert on mercury and mercury alloys (which at that time was much less dreaded than it is now). In 1965 he obtained his habilitation, i.e. the right to academic teaching, for "metallurgy".

At about the same time, Prof. Richard Kieffer, longtime president of Metallwerk Plansee, was appointed as head of the institute, and he brought with him not only his experience as a manager and powder metallurgy expert but he also succeeded to obtain a lot of money from the government for buying really modern equipment. Prof. Kieffer also convinced Gerhard Jangg that powder metallurgy had a much brighter perspective that mercury; although environmental concerns played hardly any role at that time, Kieffer already felt the coming trend. Nevertheless, Gerhard Jangg did not fully get in line with Kieffer but found his own niche and his research efforts were concentrated on powder metallurgy of ferrous and light metals, rather than on cemented carbides which were Kieffer's favourites. Longtime cooperations were initiated that still continue, e.g. with MIBA Sintermetall AG, Vorchdorf, in the field of ferrous precision parts, and with Eckart-Werke, Fürth, on PM light alloys. This also had the consequence that the powder metallurgy group always had sufficient money and

students – which was not necessarily the case at the TH - ; in total, about 100 doctorate students and almost as many diploma students graduated under Gerhard Jangg's supervision. Highlights of the work at that time were studies on the magnetic properties of sintered iron and the invention of carbide dispersion strengthened Al alloys, the material known today as Dispal C. In that connex, fundamental investigations into dispersion strengthening were carried out, and further dispersion strengthened materials were developed such as ODS copper for welding electrodes – a material that is today commercially produced in Russia by a former post-doc scientist in Prof. Jangg's group – or later on, in cooperation with Plansee AG, the Fe-Cr-Al-Y_2O_3 ODS superalloy known as PM2000.

In 1972 Gerhard Jangg became Associate Professor, and when in 1975 the "Technische Hochschule" was renamed into "Technische Universität"(University of Technology), Prof. Jangg became head of the Powder Metallurgy Section at the Institute for Chemical Technology of Inorganic Materials. The increase of bureaucracy that came with this transition was outmanoeuvered by Prof. Jangg; however, he took the job of Foreign Student's Advisor for the Faculty of Sciences for which he was particularly well suited since a characteristic of his group was internationality, students and post-doc scientists from Manchuria to Patagonia working under his supervision. He thus proved to be well ahead of his time, and this without big sponsoring programmes since he earned the money for his foreign students through industry contracts. However, Prof. Jangg not only received foreign students but he also actively sought cooperation with scientists from abroad, especially from the countries that are now called CEEC but that in those days belonged to the Eastern Bloc, separated from Austria by the Iron Curtain which definitely was an obstacle for scientific cooperation. Nevertheless, Prof. Jangg established close ties with scientists from these countries, in particular with Prof. Schatt and his group at Dresden University of Technology and with the Institute for Experimental Metallurgy (now: Institute for Materials Research), Slovak Academy of Sciences. Joint work was carried on for many years in the fields of sintering and on dispersion strengthening, respectively, although the efforts necessary to overcome bureaucratic obstacles were sometimes exhausting, and more than once Prof. Jangg was advised by friends and partners to cut offthe ties to Eastern Europe, an advice he always ignored, wisely, as became clear in 1989 with the fall of the Iron Curtain. In acknowledgement of Prof.Jangg's scientific and technological merits he received the Medal of Honor "Coat of Arms of the Chuvash State University", the highest award of this academic institution in Cheboksary, Russia, in 1993, and in 1995 the Slovak Academy of Sciences of Kosice, Slovakia, awarded to Prof Jangg the Honorary Degree of a Doctor of Science.

Gerhard Jangg is the author of more than 200 scientific publications in journals and proceedings and of a number of patents. In addition, the above mentioned book "Sondermetalle" bears his name and also contains his typical style of writing. His students are now active in different branches of the industry and of government and at universities, but all of them have been trained to cooperate, following the slogan he always gave us: "Try to think using the brains of the industry", and he very successfully did this himself, identifying future needs of his industrial partners sometimes even before they realized themselves.

To everybody's surprise, Professor Jangg, who had been known as a very hard worker really deeply involved in powder metallurgy, managed to quit working in PM virtually overnight. After his retirement in January 1993 he moved to Carinthia and refurbished his parents' house, showing that a technological background is helpful also in everyday's life. He still retains his links to his former institute and keeps himself informed about the work done there, being especially satisfied that the close cooperation with the industry he has initiated is carried on, but regarding PM R&D activities he adheres to the statement he made at his retirement: "Now it's the younger people's turn".

Herbert Danninger