

Peter Starič

My Professional Life

In 1939, when I started tinkering with radio as a 15 years old boy, the word "electronics" was not known yet. At that time, multigrid tubes with Bakelite bases were the state-of-the-art technology. The RF-receivers with the long, medium and short wave bands were common and their tone quality was considered "excellent". Nevertheless, the first radio I have built used a semiconductor - the crystal detector. Already in 1929, when the first 2.5 kW broadcasting transmitter was built near Ljubljana (improved to 5 kW in 1932) a young enthusiastic Slovenian engineer Zmagoslav Pipan has published a simple booklet with the instructions how to make a crystal-receiver and a one-tube-receiver. The book - which I still have - was well written, and it was specially intended for teenagers. At first I have built the crystal detector and next the tube-receiver. For the later, the author has prescribed a 10 cm-diameter coil. Since only the iron-dust cores and coils wound with litz-wire were used then, I was searching for the necessary Pertinax tube, to wind the coil on, all over Ljubljana. Eventually I got it in a scrap of a shop, where they have removed it from an old receiver (which would now surely be a precious museum piece).

My tutor, Drago Zrimšek, was a radio-technician, who also owned a radio-shop. He showed me through the first steps in that marvelous world of radio. He taught me not only the practical know-how and the theory, but he was emphasizing also the knowledge of mathematics, which was necessary to design the circuits. Since he had an abundant supply of old tubes and material, he helped me - a penniless boy - with the parts as well. From him I have also learned how to build radio-transmitters. With my friends Rado and Marjan, we were establishing primitive simple short-distance radio communications in our part of the town. We have built two-tube regenerative short-wave receivers and single tube transmitters, all line operated. For the voice transmission we simply put a coal-microphone (from a telephone) in the antenna circuit of the transmitter. The quality of the sound was fine, but we had to be careful to avoid touching the microphone with the nose, to prevent the shock and the burns of the HF spark. My tutor has taught me also how to repair modern radios, so I could earn some money.

Such was the situation when in the spring of 1941 the Italians, Germans and Hungarians have attacked Yugoslavia. The Italians have occupied Ljubljana, the capital of Slovenia, introducing the curfew from 10 PM to 6 AM. They have also built a barbed wire fence all around Ljubljana, where the sentries were patrolling. They have forbidden short-wave transmitters and outdoor antennas. On the other hand, with the arrival of the Italians, nice kits of their firm Geloso, became available, with the complete instructions how to build modern receivers. We were listening to the short-wave broadcasting of BBC and Voice of America - which the Italians were jamming by 5 kW transmitters. On April 11th, 1941, just on the day when the Italians have entered our capital, the German Stuka planes have destroyed the transmitter of Radio-Ljubljana, which was in the would be German occupational zone. The Italians soon replaced it by a simple 300 W and later by a 700 W transmitter, which was located in the center of Ljubljana.

In October 1941, a secret 6 W short-wave radio transmitter of the Liberation Front began operating in the capital, to cheer-up the population. Since after several months of futile attempts the Italians could not locate it (the transmissions were almost never from the same place), they have confiscated all radio-receivers.

Then we, the radio amateurs, came into action. We have built a variety of regenerative, short wave radios, using a variety of modern and outdated electronic tubes. For almost all young amateurs this activity was interrupted at the end of June 1942, when the Italians have sent all high school students and other, mostly young people, to the concentration camp. Fortunately, when two soldiers came arresting me, they did not search our apartment, so they did not find a two stage short-wave transmitter (which my eldest brother had put apart in that very afternoon). Six months later, after the return from the camp, I have gradually resumed my former activities. In the meantime the Italians have returned the receivers, blocked so that it was possible to tune them only slightly around the local station. We have built tunable adaptors with a single mixer tube, to transpose the short waves to the frequency of the local station. So we kept listening to the BBC and the Voice of America, and the Italians kept jamming ...

Already during the war, my interest turned toward measuring instruments. Then I have built a tuning-oscillator, a tube-checker and a Wheatstone bridge. After the war, I inscribed to the University in Ljubljana, but my study has advanced very slowly, for my health was too much impaired since the concentration camp. It took me eleven years to get rid of TB, which I got in the camp. Besides, I had to earn the money to live. Fortunately, in Yugoslavia, the study at the University as well as the Medicare was free of charge. I became a student assistant (with a meager salary) at the Physical Dept. of the Medical Faculty in Ljubljana, where I have designed all sorts of electronics measuring instruments. Finally, I got the permanent employment at the Slovenian company Iskra, where I was designing oscilloscopes. In 1960, they gave me one year of paid absence to complete all the remaining exams, so I graduated as an electronics engineer in 1961. Then I continued designing oscilloscopes at Iskra.

Due to worsening economical situation in Yugoslavia, I started looking for the employment abroad. In the autumn of 1967, I got the employment at Tektronix, Inc. in USA. There I have gained much knowledge and many friends. Since the poor Medicare and my unreliable health did not match well in USA, I returned to Yugoslavia in 1970, to resume working at Iskra. Then I have designed pH meters. However, anyone who came from USA and who was not willing to enter the Communist Party, was potentially suspect. Consequently, some members of the Party have considered me unfit for my position in the Instrument Design Dept. At first I have lost the job - but not the employment and the meager salary - for six months. Then I moved from the instrument design to a branch factory of TV and Hi-Fi equipment. Though my work was successful there, after some years I got the same "treatment", this time lasting for two continuous years (being at "job" regularly from 6 AM until 2 PM and not given any job). During that time, no attempts to get an employment elsewhere were successful. However, in those "leaden" years I have studied the wideband amplifier circuits on the basis of the knowledge I have gained in USA, and the necessary mathematical tools - just to keep my brain working. Also, playing my piano up to three hours a day, the walks in the nature and mountaineering gave me the necessary strength to overcome those nasty times.

Eventually, I have got the employment at the "Jožef Stefan" Institute, where I was designing mass-spectrometers. This is a research institute, with an excellent professional atmosphere. There I have met Erik Margan, the co-author of this book. At first our cooperation was on other fields, but gradually our spare-time work has merged in the theory of wideband/pulse amplifiers. At the end of 80s I moved to the "Milan Vidmar" Institute, where my job was the overhauling of the high-voltage surge generator. My new employer expected me to gain a Ph.D. degree, which I did in two years. The study during my involuntary pause at the Iskra TV factory provided a sound basis for my Thesis, which also forms the major part of the present book. However, Erik has somehow taken my work "out of the mothballs" thoroughly overhauling it with his up-to-date knowledge of computers and programming. In addition, he has written some chapters as well. Thus the present book is the result of an equal effort of both of us.

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