
Preface



Stops along the way.....

The story began with a question regarding contact healing of single cancellous bone trabeculae. At the time, our first animal experiment using beagles was conducted under Hans Willenegger in Liestal in order to answer this gap of the ASIF (Association for the Studying of Internal Fixation) research group. It soon became clear that contact healing of single cancellous bone trabeculae was not possible applying compression osteosynthesis: Even when the cortical bones were in contact to each other, a space measuring 80 μm was still found between the cancellous trabeculae of our hemiosteotomy. Willenegger persisted and we also wanted to know the answer. The requirements were evident: the trabeculae on both sides had to be vital and undamaged. The only appropriate technique to achieve that goal was the wet-grinding

procedure common in the histological laboratory, as well as a principle which could only be realized using extremely precise, self-guiding instruments. The development of such a set of precise grinding instruments, which fit together like twins, could remove the trabeculae cylinders, and could properly prepare a bed which would enable a stable press-fit anchorage, did not occur overnight. In close contact with Hans Willenegger, our path led us in the meantime to Maurice Mueller in Bern. Willenegger commented on the interim results:



Dear Mr. Draenert,

Both volumes are an expression of your scientific engagement: the well-constructed experimental models which take a critical view of methodology, the later examinations, the outstanding staining procedures, and the fact that you still apply the 'thin-ground process'. This is how I remember you from your time in Liestal and this is how you have continued to develop.

Best wishes and greetings to you both,

H. Willenegger

Some of the twin instruments were developed in Bern, as were an entire series of experiments on rabbits, dogs and monkeys. Based on the results it was immediately clear: joint surgery would be changed forever. Maurice Mueller understood this at once. In the meantime, we moved to the Technical University of Munich, where, with the help of the DFG (German Research Council), we expanded our research in the Hospital Rechts der Isar.

Mueller and Willenegger continued supporting us financially, allowing the technology to step by step become reality. Maurice Mueller wrote in a visit to Munich:



Fahren nach Bern mich tief beeindruckt
von den technischen Möglichkeiten in
Maximilians-Institut und von den
bisherigen Realisationen.

Maurice Mueller

Leaving for Bern deeply impressed by the technical possibilities in the Draenert Institute and from the results achieved up until now.

Maurice Mueller

It took some time to obtain funding in Germany. The Ministry of Economic Affairs under Minister Wiesheu recognized the technology's future potential and promoted the completion of the entire instrument development within the framework of the Baytep program. We began to establish transplantation centers and to train in 2000. The period of travelling also began: rising early 146 times, waiting in train stations, taking off and landing in planes which crisscrossed the country, large BG hospitals, university hospitals as well as small private clinics. It was an exhausting but still fantastic time, operating

with colleagues and convincing them that something should be done just so and no other way.

We made the difficult decision to end the initiative in 2002 in order to collect the results. We finally decided to call a meeting of users of the technology in Constance in 2006. The results were staggering: *restitutio ad integrum* in young patients with heavy necroses in the joint; full joint function in the case of the severest knee joint arthroses after 5 years, to name just a few examples. The path was open to us but the responsibility enormous because success depended and still depends on very precisely implemented and pre-planned reconstruction. Another intensive time of travel followed which focussed on the consolidation on operative planning and operative responsibility. The clear goal at this point, however, was to attract the support of a large, responsible company; a task in which we succeeded. We were able to win over Dr.h.c.mult. Sybill Storz and her son Karl-Christian to the value of our '*one step back to biology*'. The newly founded Recon Division of the Karl Storz GmbH & Co. KG in Tuttlingen has undertaken the objective of perfecting the *Diamond TwinS®* technology and introducing it onto the international market.

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