

# As a brother and companion on life's way of my brother, I would like to make the following statements to summarise the contents of this book.

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- 1) The motto in life of my brother, Dr. med. Karl Sommer, was always:  
„**fortes fortuna adiuvat**“, which means **fortune favours the brave (or the hard-working)**.
- 2) Blast trauma, under its current generic term of „acoustic trauma“, is **an organic injury to nerve cells in the middle ear**, caused by a brief wave of high-intensity sound.
- 3) The period of time can be in the **millisecond** range.
- 4) If we look at the brain in a simplified way as an extremely complicated computer, taking in information from outside (input) and exporting information to the outside – including into its own body (output). The processes running in the brain, including input and output of data flow, consist of a complex interaction of neurons, axons and synapses. Neurons are nerve cells, including brain cells. Axons are cable-like information-conducting connections between neurons (nerve cells). Synapses are crossovers and interfaces of axons, which make it possible to transfer information quickly from one nerve cell to many others at the same time. A blast trauma damages neurons, axons and synapses and therefore their interaction and combined computing performance. **A blast trauma is a mechanical injury** – just as if brute force was used to sever a network cable of a computer with the blow of an axe. The computer is the brain, the network cables are the acoustic nerves and pathways, and the blast trauma is the axe blow. In this easy to follow model, three principal consequences are possible:
  - 5.1) Complete severing of the network cable by the axe blow. This corresponds to complete failure of signal transmission and in the acoustic model, to a marked loss of hearing up to and including deafness.
  - 5.2) Partial severing of the network cable by the axe blow. This means that the transmission of some signals will fail and other signals will reach the computer (brain) in an incomplete or distorted fashion.
  - 5.3) Partial severing or damage by the axe blow or **fusion of cable strands that do not belong together by a „short circuit“**. **This is the most complex form of damage**. It means complete or partial loss of signal and a corresponding reduction of hearing as far as and including deafness. At the same it, it also means partially faulty and distorted signal transmission and therefore continued short-circuit-like connections of information items that have nothing to do with one another, do not belong together and which the brain cannot process in any sensible common connected manner.

- 6) At present, there is no image-forming procedure (computer tomography) to represent the damage suffered and also no means of measuring the individual neuropathic pain of the person affected. The affected person can only offer information him or herself. This is an absolutely vital field of research for medical experts and physicists, in order to achieve social recognition for those affected and reduce the pain of the accompanying side-effects.
- 7) **This MCA, i.e. maximum credible accident, discussed in 4.3, can be compared with the image of a lightning strike in the brain.**
- 8) **To suffer a blast trauma is to suffer organic damage to the nerve cells and the consequences usually involve faulty hearing, disturbed sleep, disrupted brain function and extremely strong pain.** It also often leads to changes in behaviour of those affected because of the disorders mentioned above.
- 9) It would be desirable in future to replace the term „**blast trauma**“ as an independent illness with the term „**tinnitus encephalopathy**“ and thereby achieve a clear demarcation from other diseases – with the generic term „**audio pathology**“ instead of „**acoustic trauma**“.
- 10) It would also be reasonable to include the current research results from the reports of the puzzling stranding of whales on the coasts of Australia and the Canary Isles Fuerteventura and Lanzarote over the last few years. You can find information under [www.oceancare.org](http://www.oceancare.org). Post-mortems on the stranded whales showed no external injuries, but there had been bleeding in the brain and the ear.

**If you have any questions, I can be contacted at the following address:**

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