

59. „Below the horizon of expectation “

(Unexplicable, we often just don't record large flaws which should be easy to identify).

During searching again and again I make a surprising experience. Supposed, my wife sends me to bring a certain pack of pasta from the stock in the cellar. I have the fixed imagination, the pack is elongated and blue. So I look in the cellar at the, not at all, big storage rack. Curiously, such a pack is obviously no more existing. I am convinced, that I have checked everything with sufficient accuracy. Well, back to my ordering wife with the message: There is no more something. You with your „mole eyes“ the „beloved“ answers and befalls itself to the cellar. I accompany her because I can not believe to have overseen the rather clearly visible pack. But, embarrassing, embarrassing. One grasp and my wife got a large pack with the desired pasta, positioned in the first row. The pack, contrary to my imagination, green and cubic. It is large labeled with the desired sort of pasta. I was different programmed. The pasta pack resided out of my **horizon of expectation**. There are many similar examples. So there are pictures which show at the same time different scenes. Both will absolutely not be spontaneous realised from the observer. That I am not the only one with this, shows me also the experience in the work life.

The way I see the problem:

Under an individual **horizon of expectation** I understand all things we expect respectively which engrave our view of the world. To these belong also our individual perspective, which is primarily subjective. An example are the frequently differing witness statements about the same event.

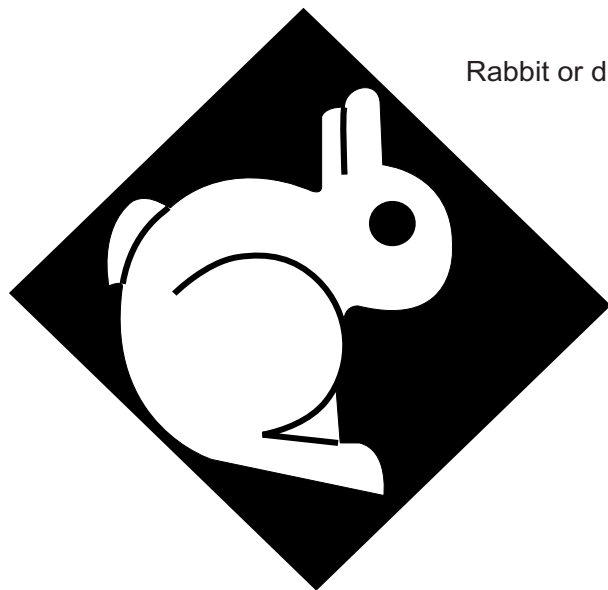
A typical example are indications of the penetrant inspection. After an unbalance of an aeroengine on the testbed, an about 20 cm long crack in a turbine disk was found. The investigation in the laboratory points at a material failure. This is excluded categorically from the responsible testing department with the following argument: Such a large failure we would have found with absolute certainty. At these components failures of about 1 mm have been searched since years without success, because this is the lower limit of the testing process. So the **feeling of success**, represented by an identified flaw, lacked. Does now an unexpected large failure arise, the danger exists, that it will not be noticed. From experience we know, the larger such a failure, the more it is possible that it will be overseen. Maybe it is classified as a stain due to water spotting. Loosely based on the famous poet Wilhelm Busch „because it can not be what should not be“. However such events are seldom but absolutely no single case. So the argument, the flaw is so large that it will be certainly found, does not apply from the first. However it can be from essential significance for the determination of the failure, to trace seemingly unlikely possibilities of failure formation.

Things to remember:

- An unusual flaw size is not automatically the proof, that the flaw did not exist before a nondestructive testing.
- The size of the flaw must not exclude directions of the investigation.

- The feeling of success and the motivation of the testing personnel are important factors for their effectivity. This can be stabilised by introducing flawed parts into the test line. Naturally it must be guaranteed by monitoring, that those parts can not get into the assembly line.
- The personnel must be aware of this human failure possibility

The human being sees what it expects. Therefore it does not record things outside of his horizon of expectation.



Rabbit or duck?

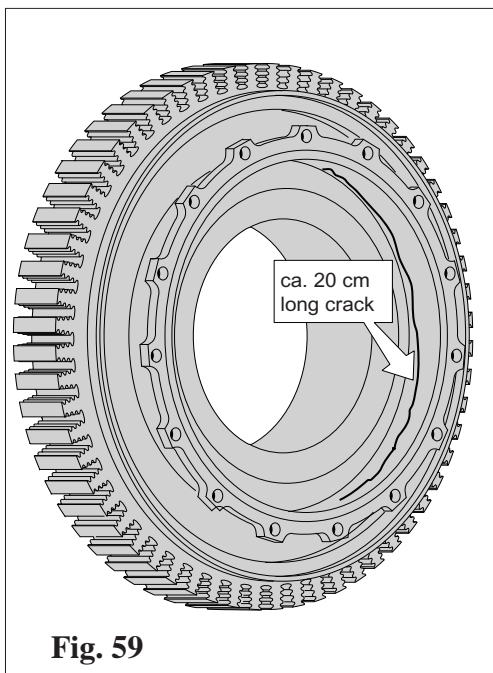


Fig. 59

Against expectation, the likelihood absolutely exists, that such an unexpected large crack will be overlooked.

The picture above shows the observer two different animals. Which he sees at the first glance is subjective. Does he expect one of these animals, he may well identify this at once. If he is not self-critical, he may well persist at this indication. From experience, very similar situations occur also in the technics. We see often only that what we want to see or are acclimatised to see, in short, what we expect.

Just at unusually large crack indications outside the „horizon of expectation“ such an effect can arise. The extreme size of a crack, which was discovered after a penetrant inspection is therefore by far not a proof for a formation after the crack test.