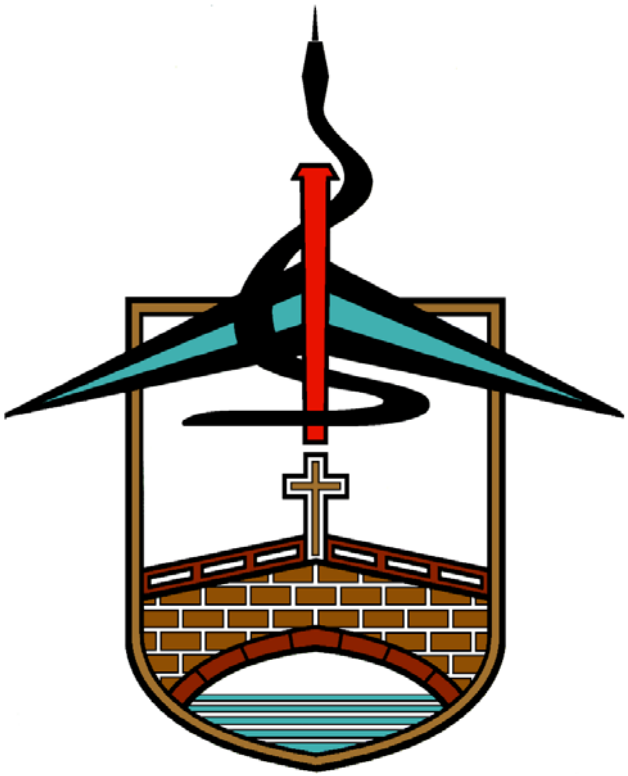
German Air Force Institute of Aviation Medicine



VOLANTI SUBVENIMUS

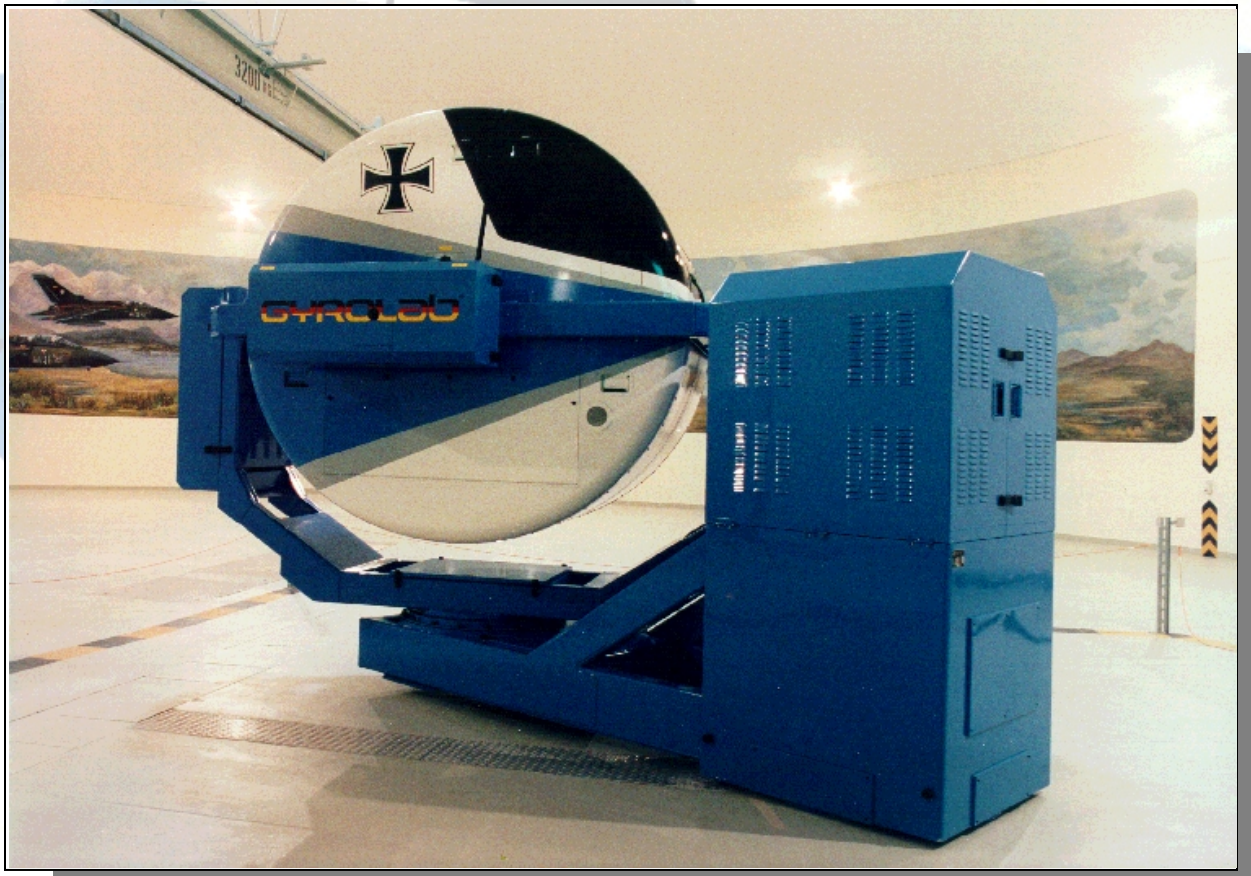
German Air Force Institute of Aviation Medicine
Commander: General A. Andexer, M.D.

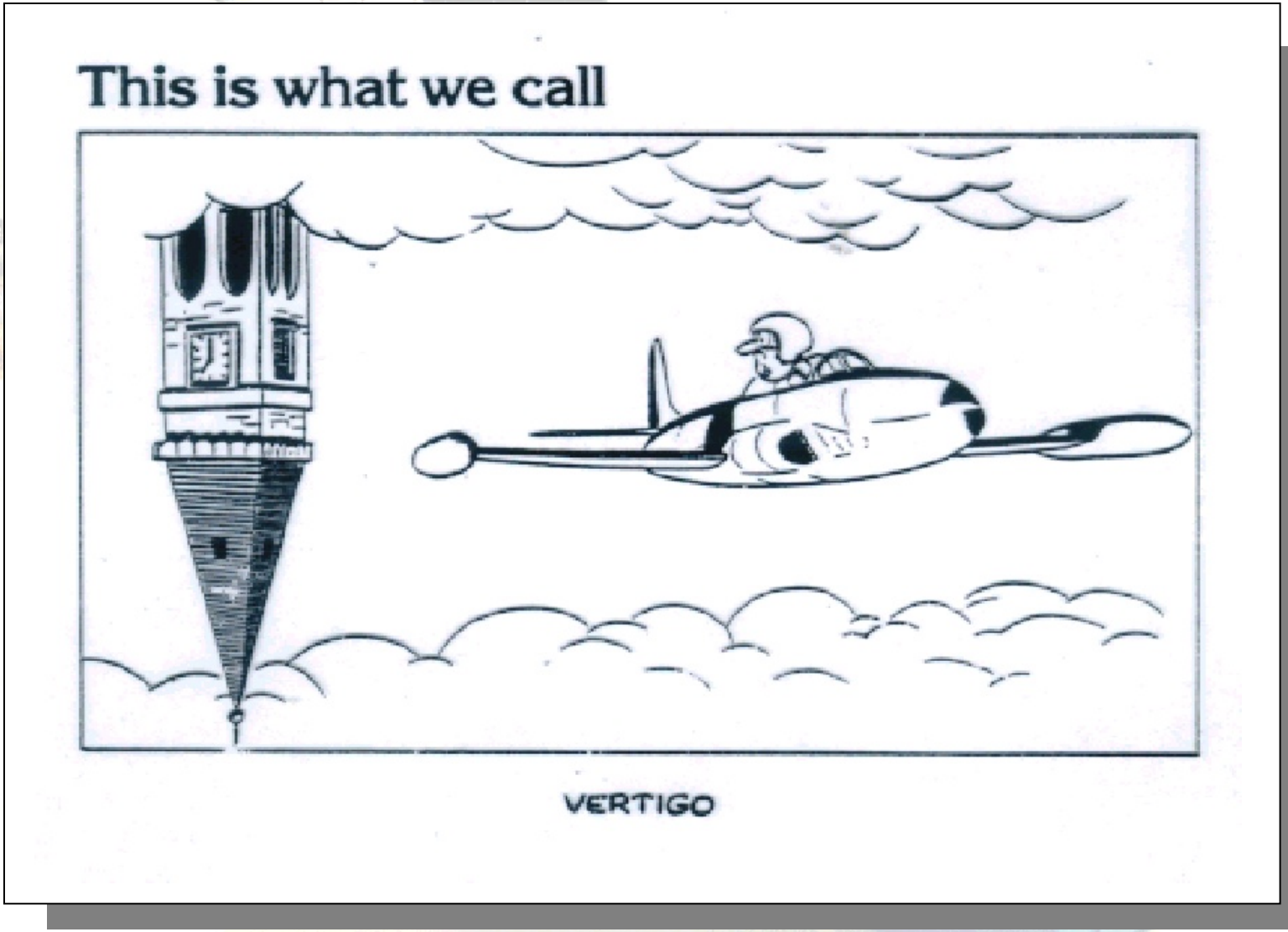
Division III - Research and Training Aviation Medicine

First Training Results obtained on the Flight Orientation Trainer (FOT) [Gyrolab 2000]

H. Pongratz, T. Haug, B. Brix

The Flight Orientation Trainer




This is what we call
VERTIGO

Short History of the FOT

- 11/1994 Installation of the FOT at the GAF/IAM
- 1999 - Coping with Spatial Disorientation (SD) (Program) - Trial by Naval Aviators
- 02/2000 - Concept for Utilization Decreed by GAF Surgeon General
- 2000 - SD Demonstration Program performed by Naval Aviators

Variety of FOT Utilization according to Concept

- SD demonstration and standardized profiles for coping with the problem
- Combination with the Anti-Airsickness-Training Program (AATP) developed by Division VI GAF/IAM and US Navy Research Laboratory NAMRL
- Scientific research of SD phenomena and air sickness to optimize pilot training
- Routine utilization of FOT for medical diagnosis and treatment of flying crews

Objectives

Recognizing one's own deficiencies, like:

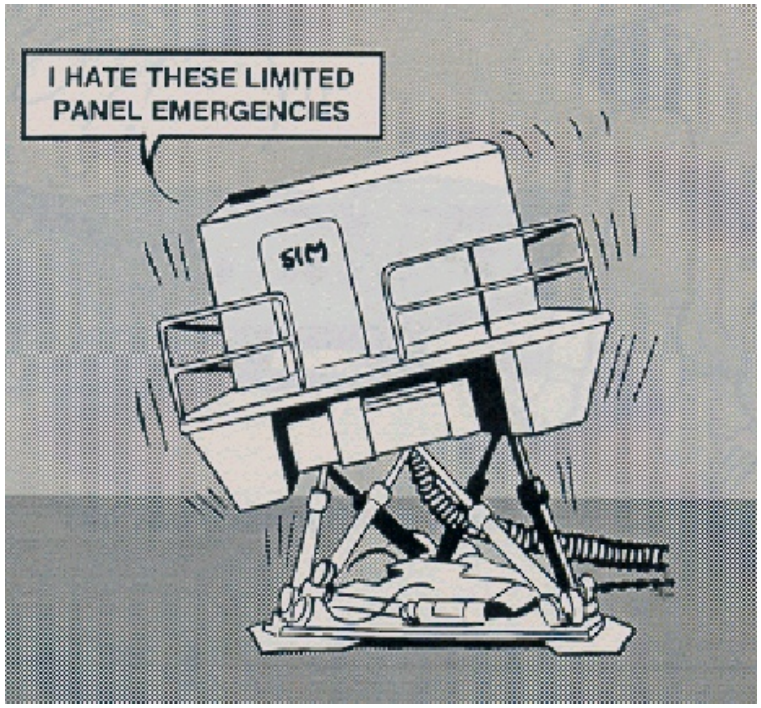
- Spatial disorientation
- Capacity to perform properly
- Situational awareness
- Perceptual conflicts
- Assumption of safety

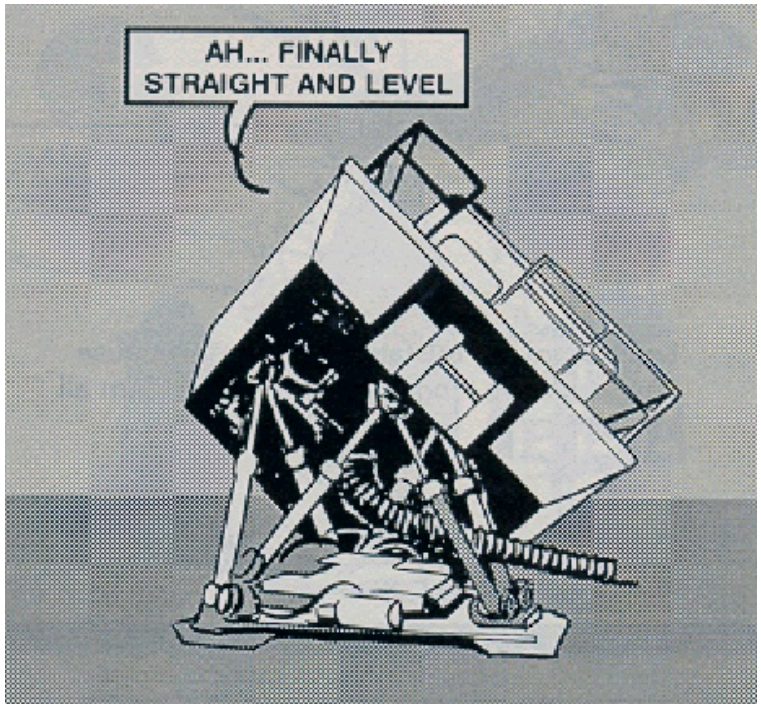
The air crews learn to...

- Improve their judgment on situations which are likely to cause SD
- Determine priorities as to the flight attitude
- Recognize discrepancy between sensory perception and instrument readout
- Understand and cope with discrepancy between sensory perception and instrument readout
- Perform compensatory actions on the FOT during SD

Periods of FOT Utilization

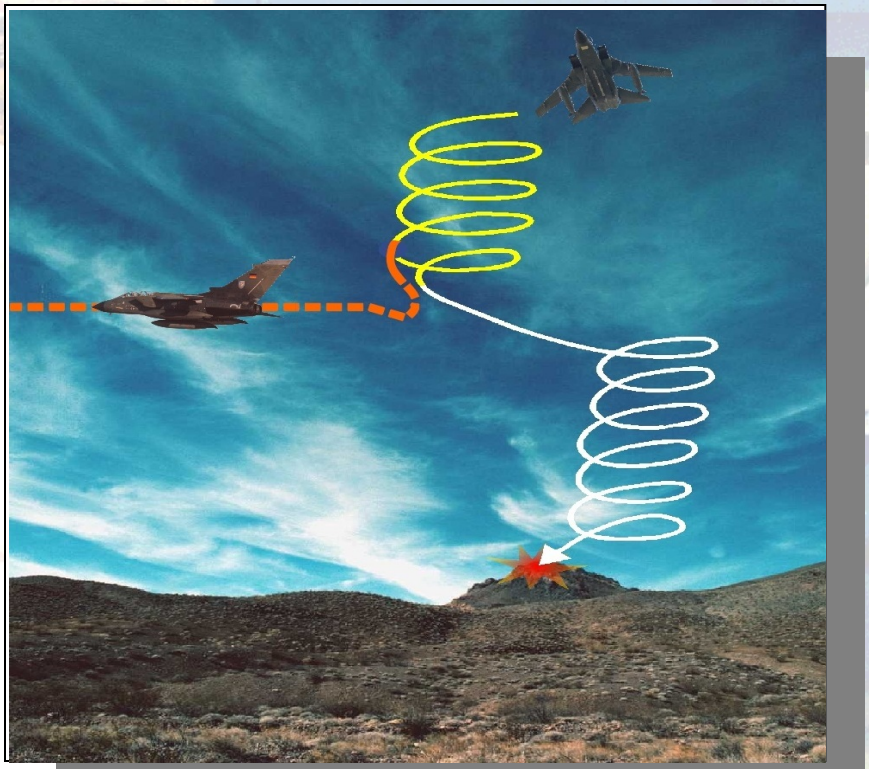
- Demonstration of spatial disorientation 55%
- Research 25%
- Development of demonstration Profiles 10%
- Anti-airsickness training program (AATP) 5%
- Flight surgeon related problems 5%
- Aircraft accident investigation if necessary


I HATE THESE LIMITED PANEL EMERGENCIES
SIM


AH... FINALLY STRAIGHT AND LEVEL

Flight Accident Profiles

- MRCA Tornado (PA 200) in spin



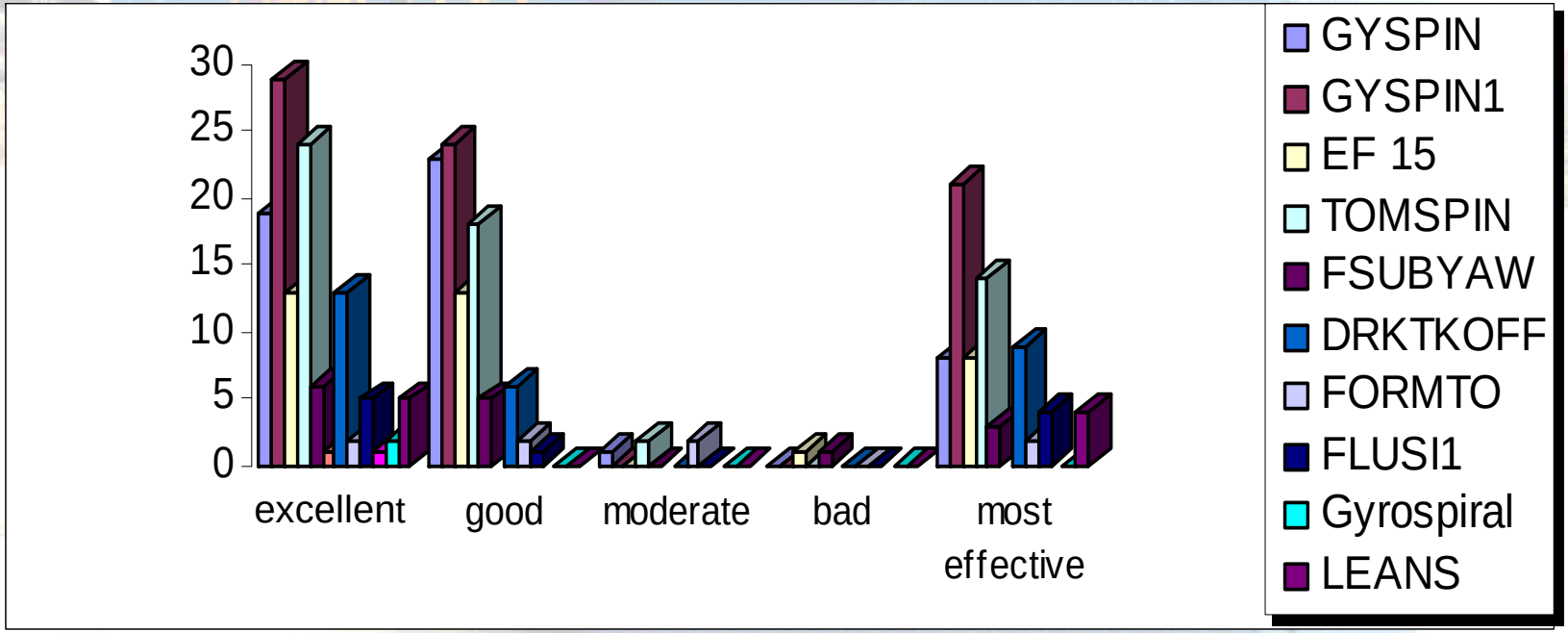
- Phantom (F-4/F) aircraft accident

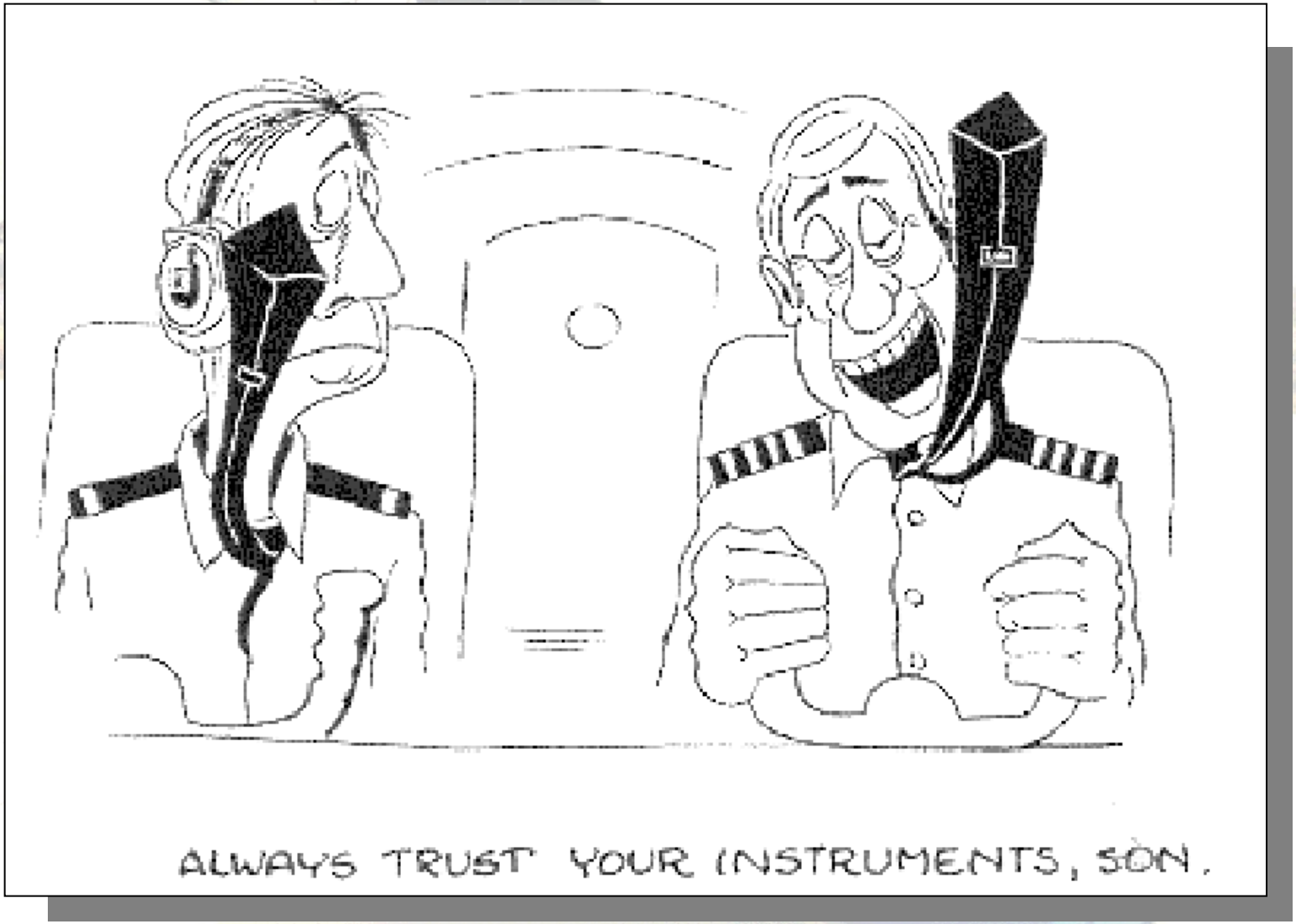
STANDARD PROFILES

Jet:	Heli:	Transp.:
- GYSPIN	- GYSPIN	- GYSPIN
- GYSPIN1	- GYSPIN1	- GYSPIN1
- EF15	- LEANS	- LEANS
- TOMSPIN	- DRKTKOFF	- DRKTKOFF
- DRKTKOFF	- FSUBYAW	- FSUBYAW

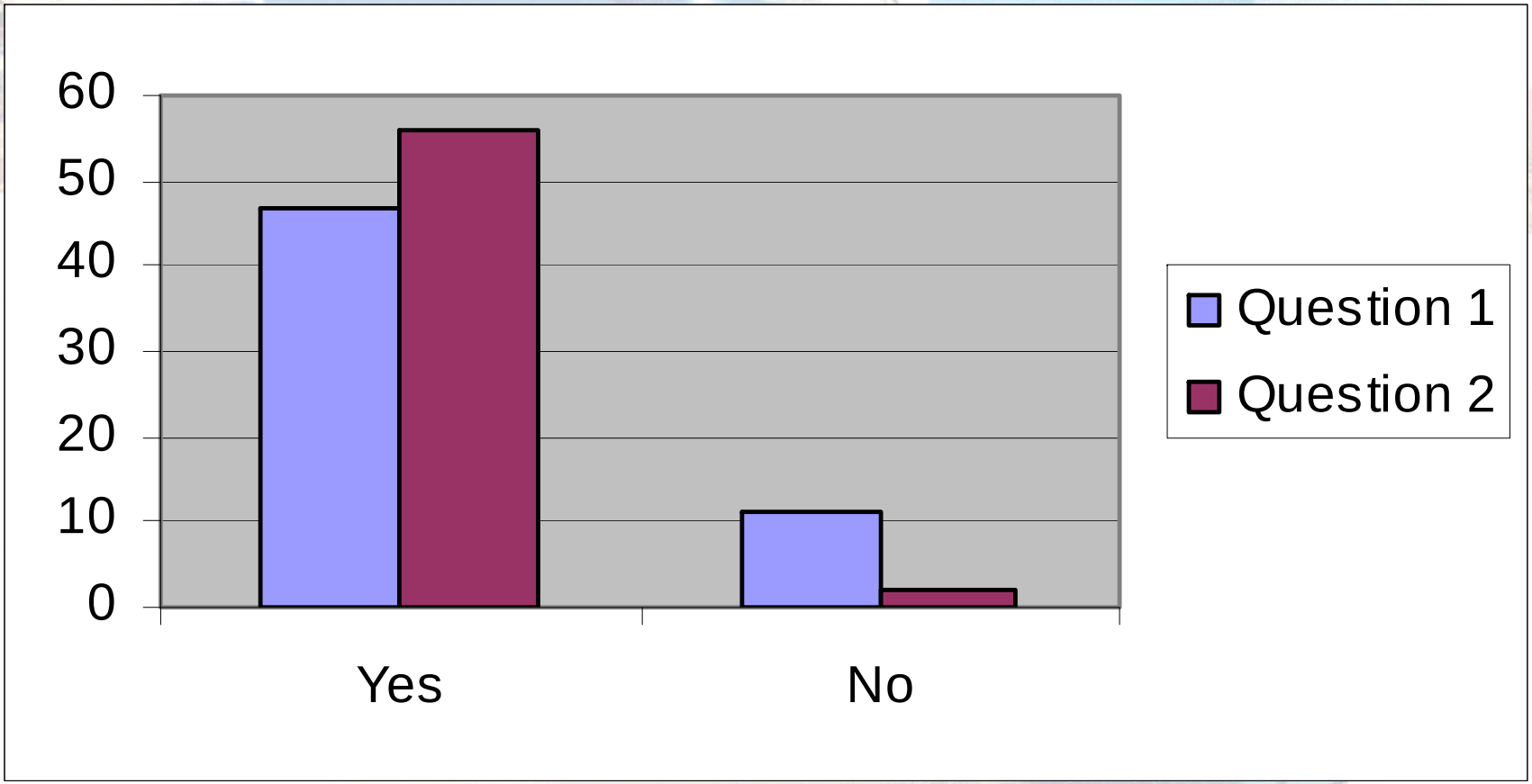
Name of profile:	excellent	good	moderate	bad	most effective
GYSPIN	19	23	1	0	8
GYSPIN1	29	24	0	0	21
EF 15	13	12	0	1	8
TOMSPIN	24	18	2	0	14
FSUBYAW	6	5	0	1	3
DRKTKOFF	16	6	0	0	10
LEANS	5	0	0	0	4

Individual profiles as judged by air crews

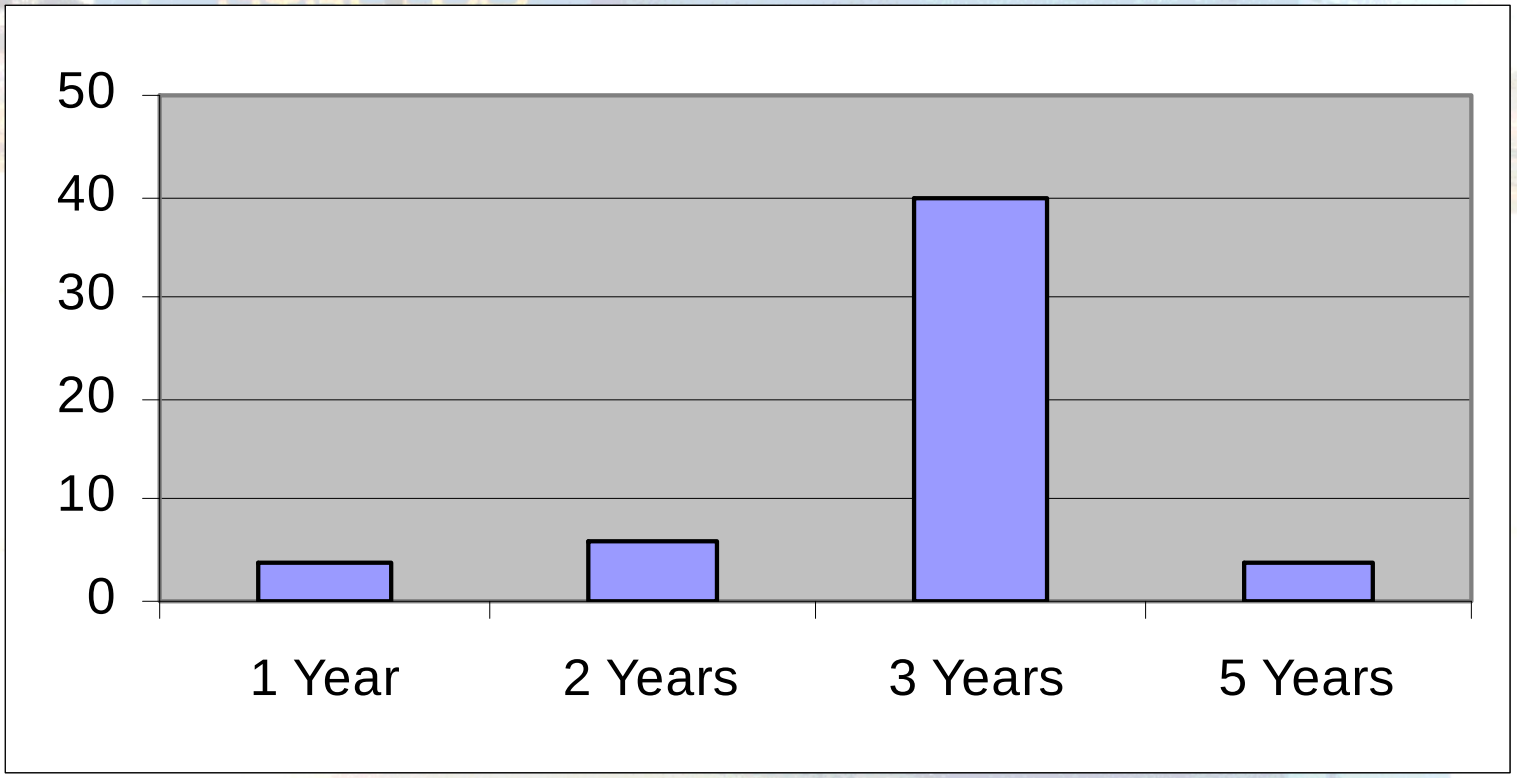



ALWAYS TRUST YOUR INSTRUMENTS, SON.

1. Did you ever experience SD while flying?
2. Do you think demonstration of SD phenomena and the training to cope with the problem is sensible or useful for Bundeswehr flying crews?



What should be the time frame for the repetition of the SD demonstration program?



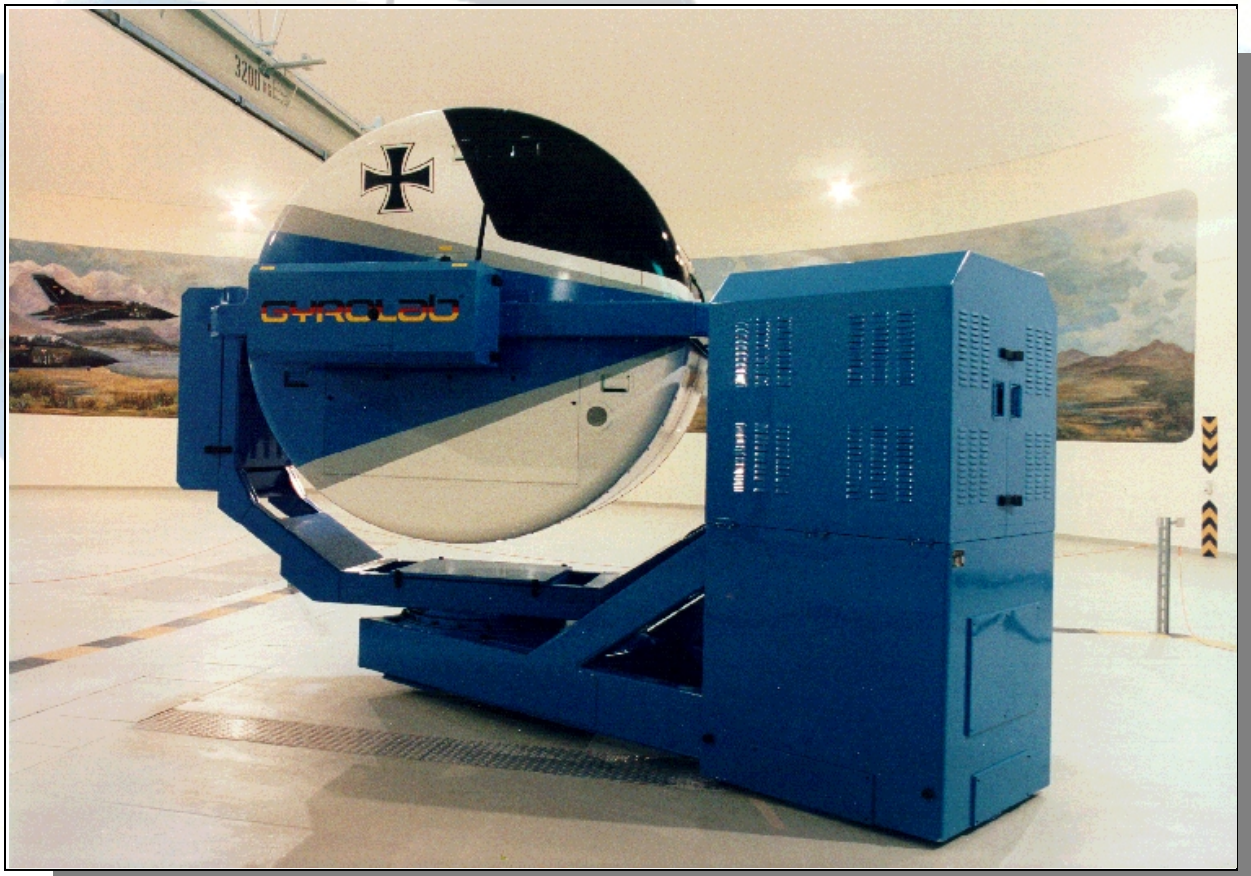
Future Prospects:

- Particularly indicated for GAF jet crews
- Specific helicopter layout
- Special profiles
- Acquisition of state-of-the-art equipment

Result of our endeavors:

If - thanks to demonstration of SD - we prevent but one flight accident or incidence from happening, our work has been successful!

The Flight Orientation Trainer



Thank you for your attention! Questions ?