



Mass Destruction of Swine in Outbreak Situations

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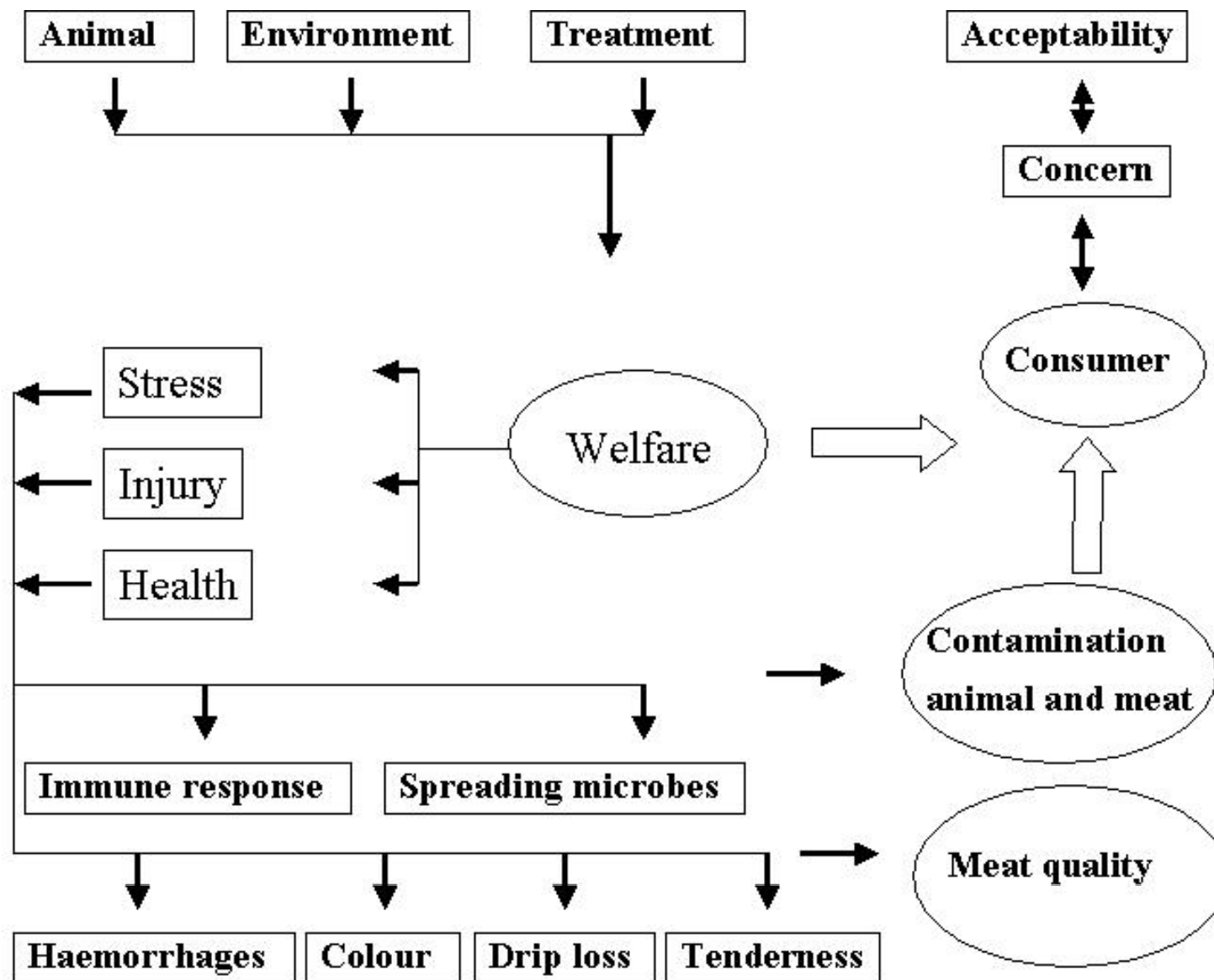
Instrument within EU

- In case of an outbreak of a high contagious disease or suspicious of the disease
- In case of an outbreak with a major effect on human health or major economic effect
- In case of illegal movements during intra community traffic or their products
- In case of illegal import of livestock from third countries
- Environment
 - Slaughterhouse
 - Farm
 - Field



Eradication strategy Americas / FAO

- Control zone
 - Census of domestic swine and wild boars
 - Intensification of epidemiological surveillance
 - Effective swine movement control system
- Eradication zone
 - Animal movement quarantine control measures
 - Sacrifice and destruction of sick and possible exposed swine
 - Cost/benefit determination with social and political implications
- Free zone
 - Quarantine and movement control of animal and products
 - Public sensitization campaigns





Directive 93/119 on the protection of animals at the time of slaughter and killing / OIE

- Article 3: Animals shall be spared any avoidable excitement, pain or suffering during movement, lairaging, restraint, stunning, slaughter or killing
- Article 4: The construction, facilities and equipment of slaughterhouses, and their operation, shall be such as to spare animals any avoidable excitement, pain or suffering
- Article 7: An operator has the knowledge and skill necessary to do the tasks humanely and efficiently
- Article 8: Inspections and controls shall be carried out under the responsibility of the competent authority



Pain

- Human pain:
 - An unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage
- Animal pain:
 - An aversive sensory experience that elicits protective motor actions, results in learned avoidance and may modify species specific traits of behaviour, including social behaviour.



Methods

- Mechanical
- Electrical
- Gas mixtures
- Lethal injections

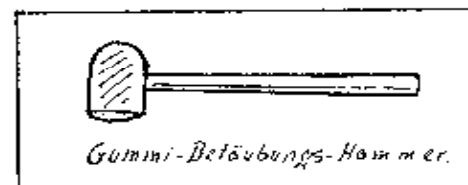


Mechanical methods

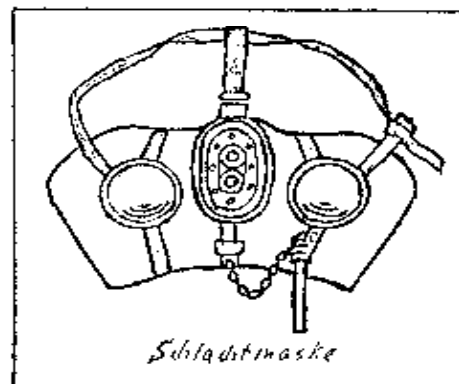
- Basic effect:
 - The tissue of the CNS is traumatically disturbed to produce a state of unconsciousness
- Working mechanism:
 - laceration and crushing < 100 m/s
 - shock waves 100 - 300 m/s
 - temporary cavitation > 300 m/s
- Penetrative:
 - Captive bolt, free bullet
- Non penetrative
 - Knocker



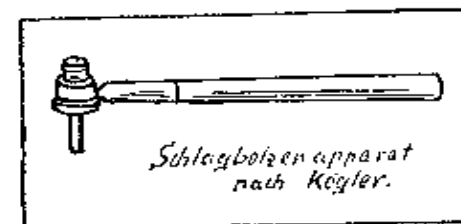
Leipziger Keulz.



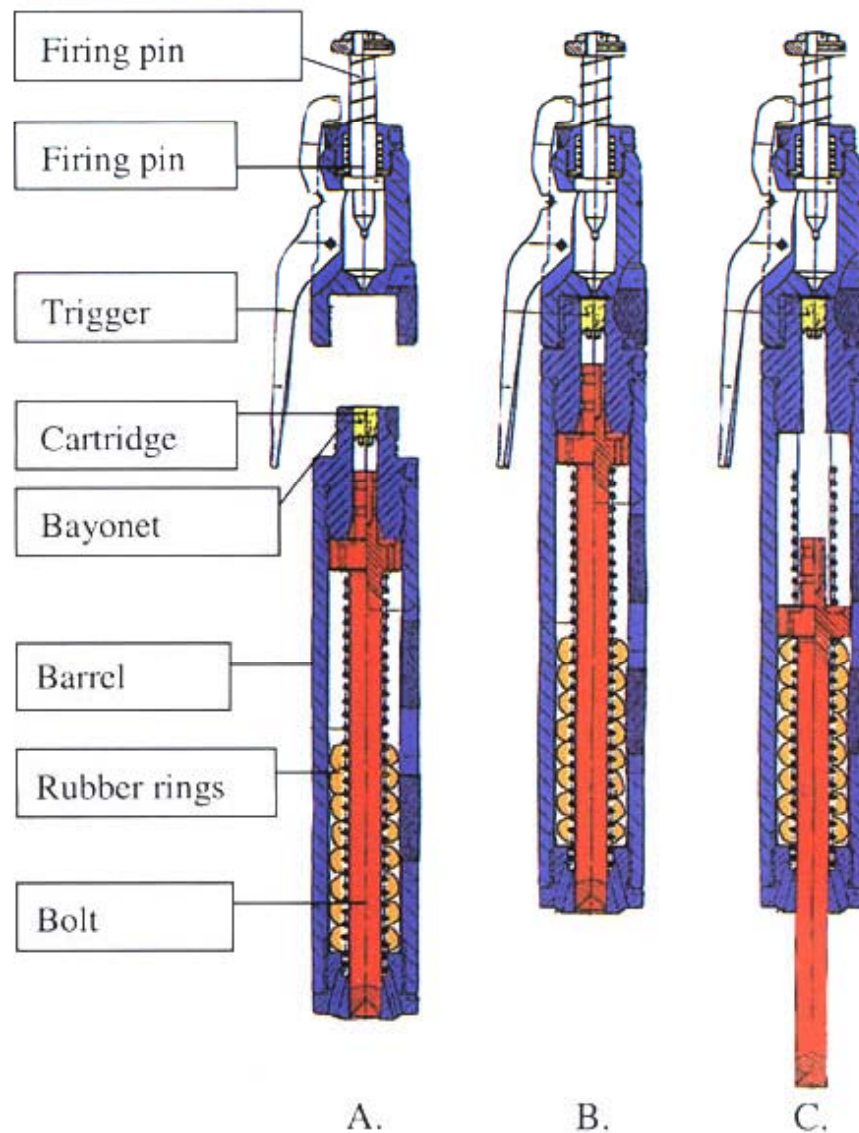
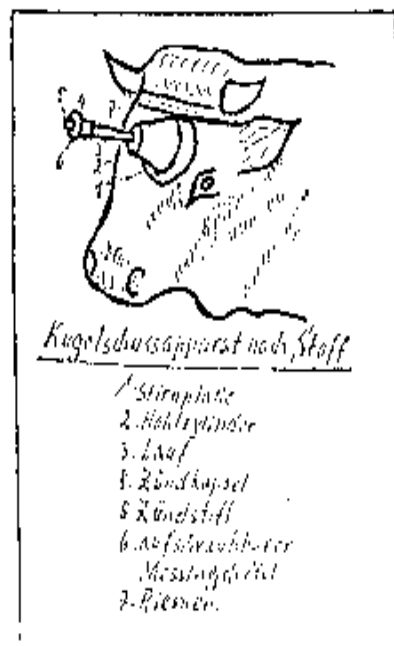
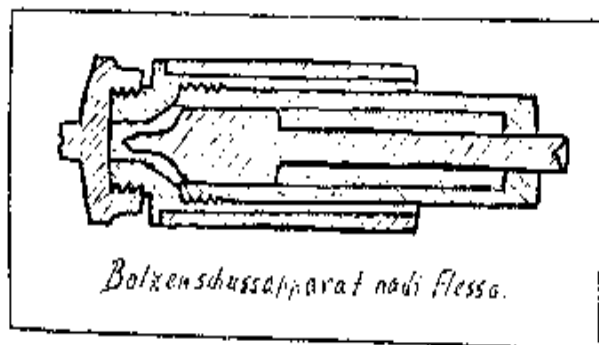
Gummi-Befäubungs-Hammer.



Schlachtsmaske



*Schlagboizenapparat
nach Kögler.*



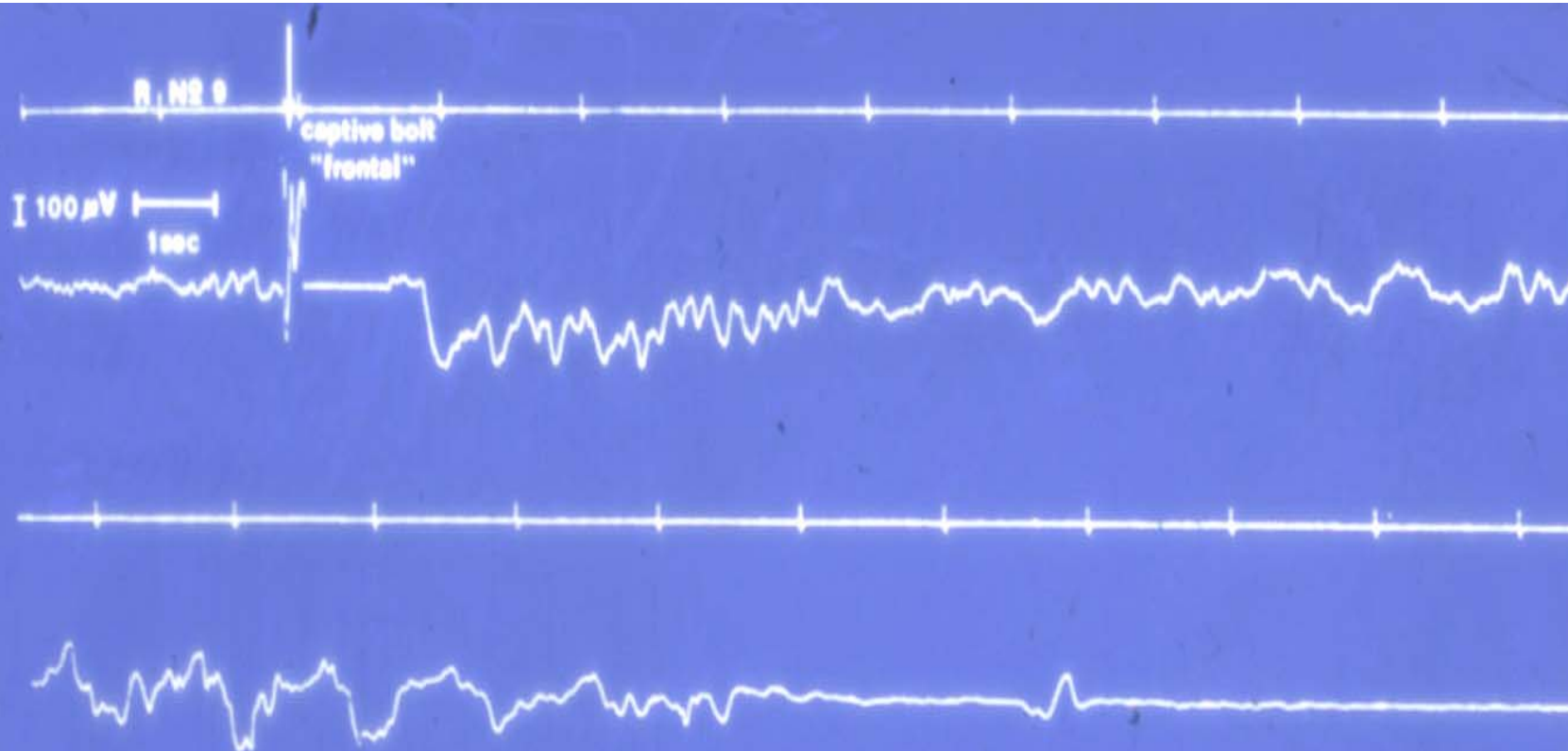
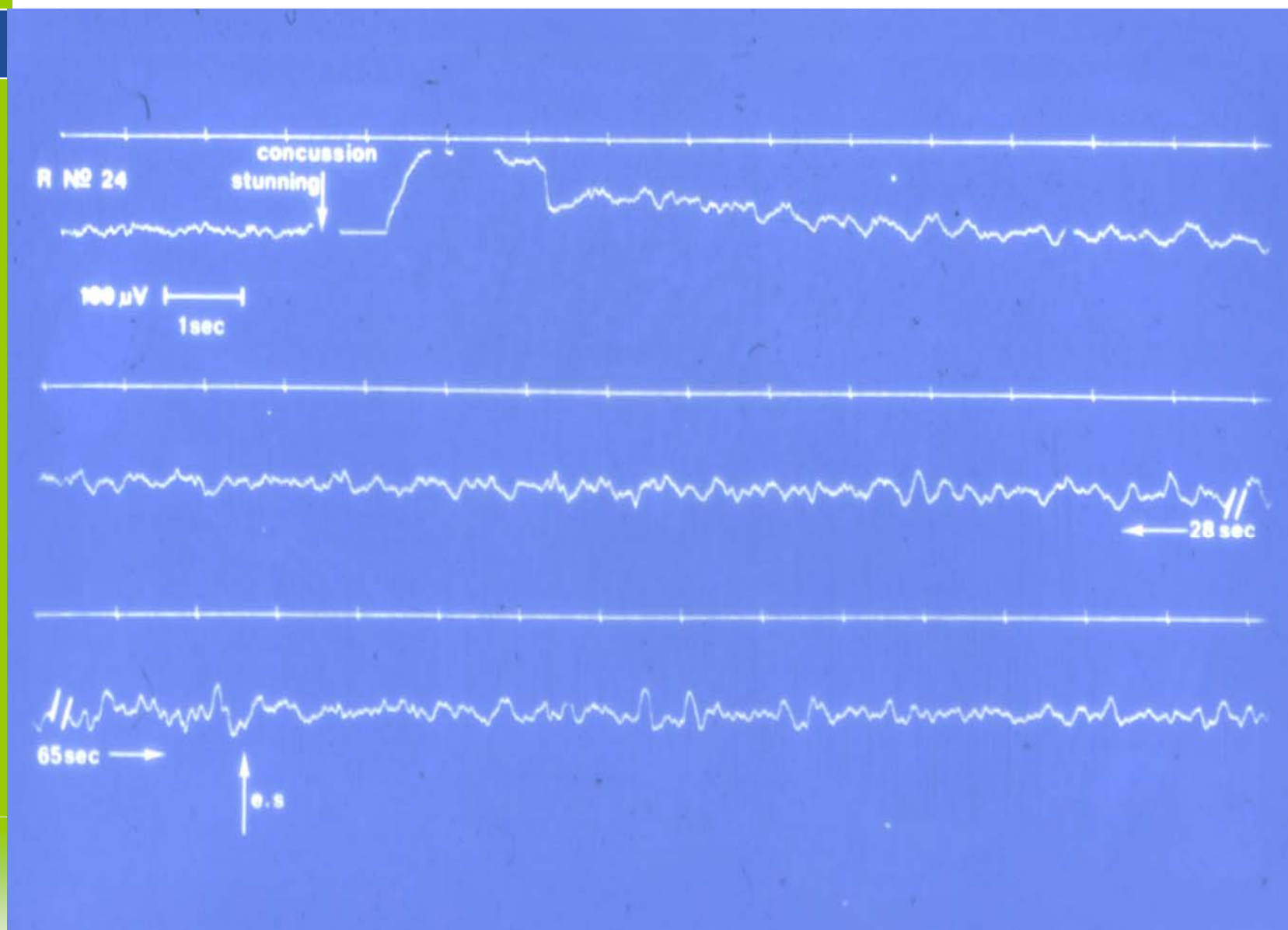
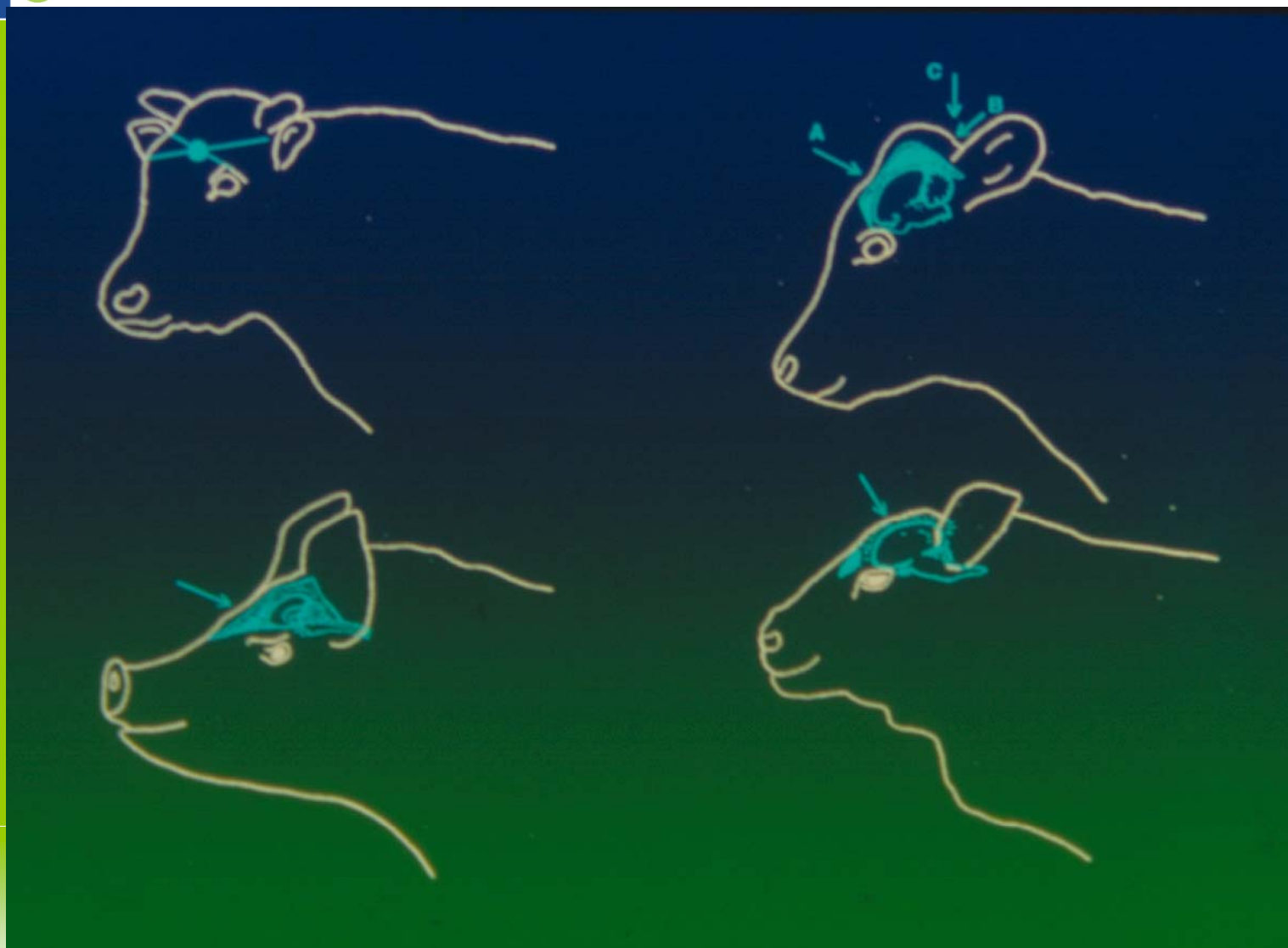


Figure 6. EEG of a veal calf before and after stunning by placing the captive bolt frontally on the head.

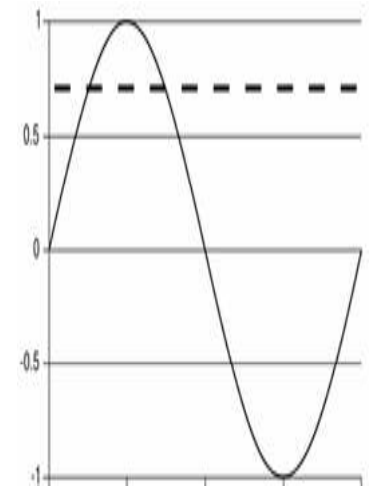


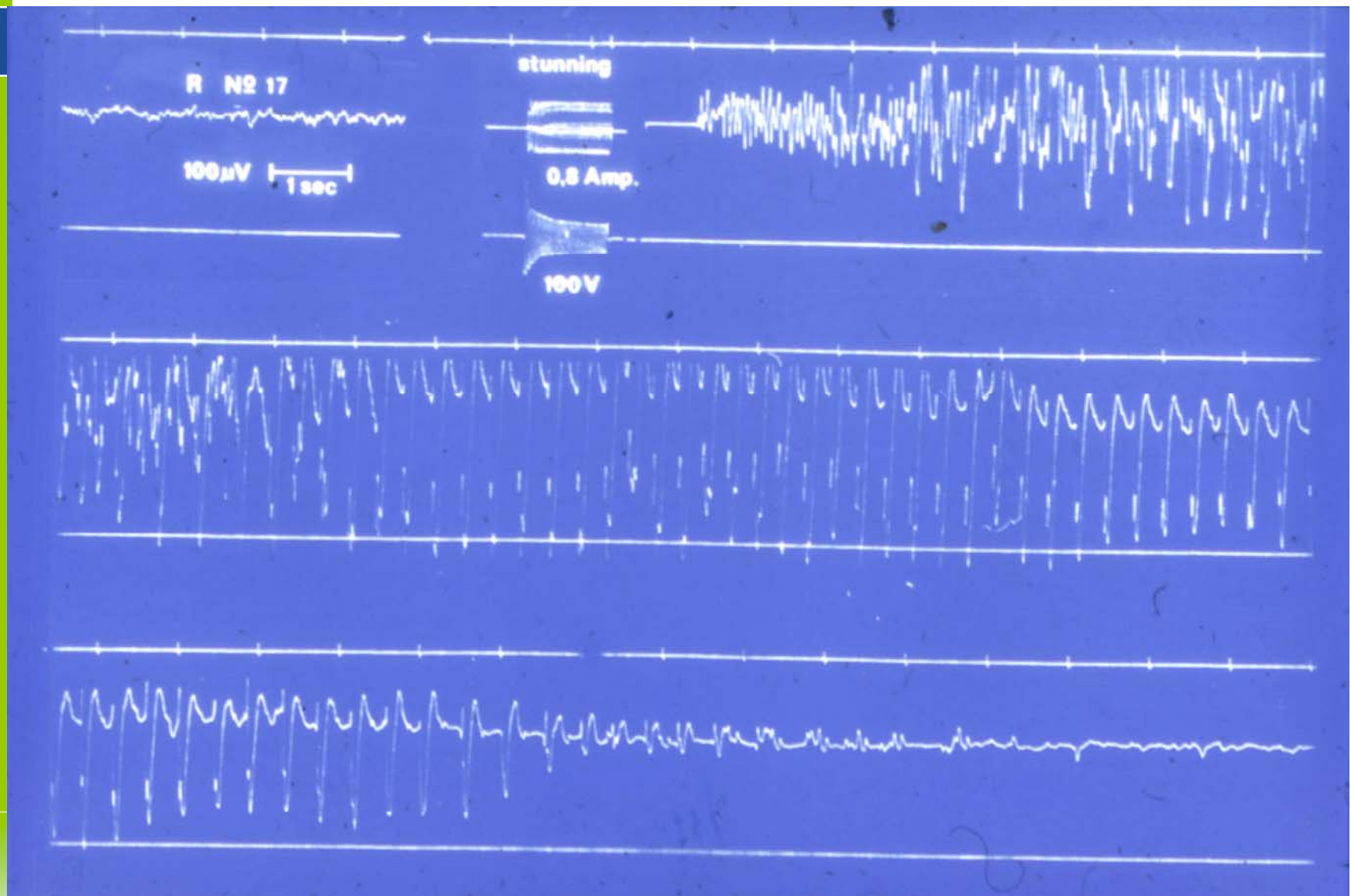




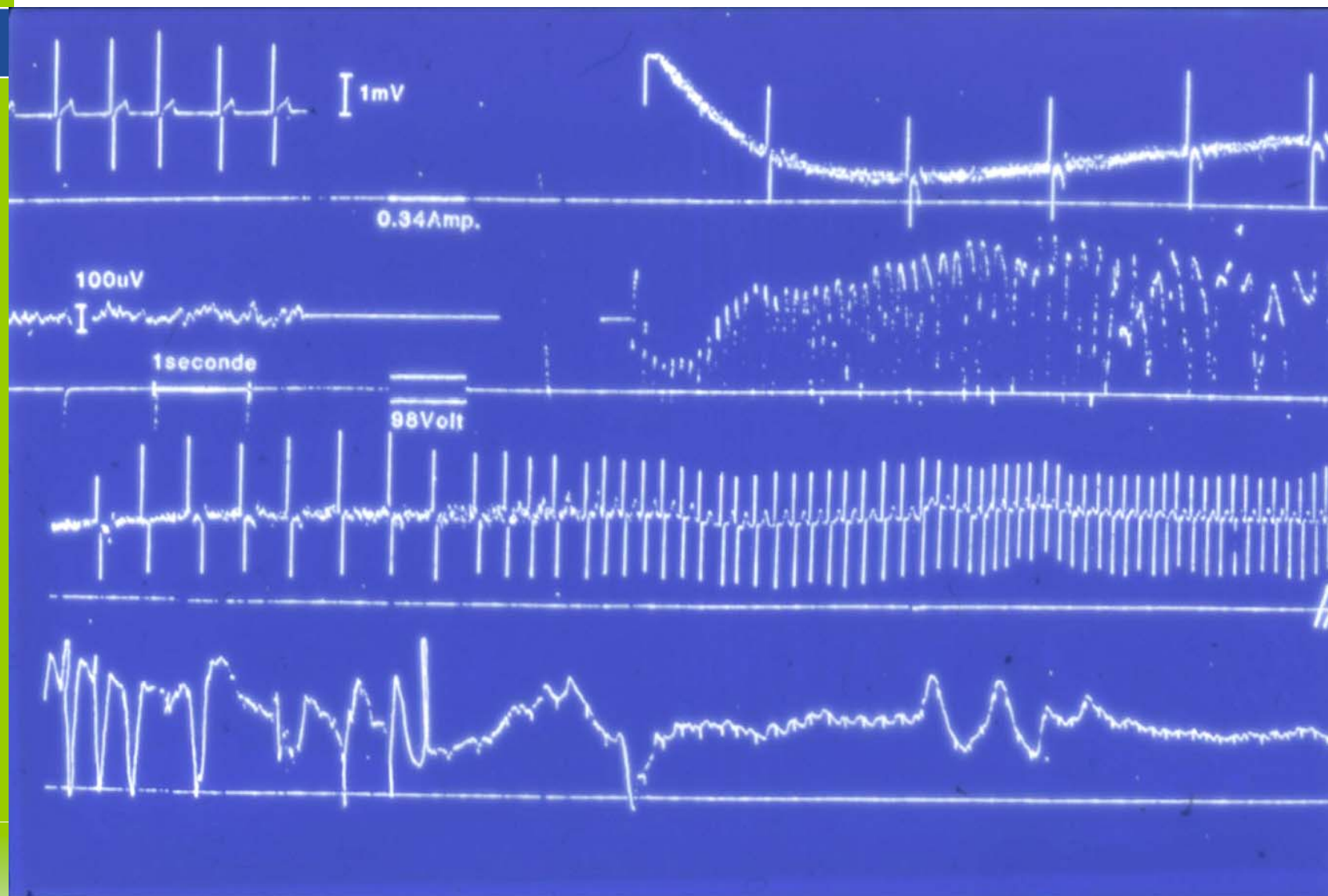
Electrocution

- Induction of a grand mal seizure or general epileptiform insult and heart attack
- Using sinus wave, >120 mA, 50 to 200 Hz
- AC / DC
- DC lower effect to induce seizure
- DC lower stimulation of muscles
- Total effect
- RMS or total energy delivered
- AC/DC \leftrightarrow Wave form \leftrightarrow Frequency \leftrightarrow Pulse width \leftrightarrow Duty cycle \leftrightarrow Density













Mobile electrocution unit for pigs





Gasmixtures

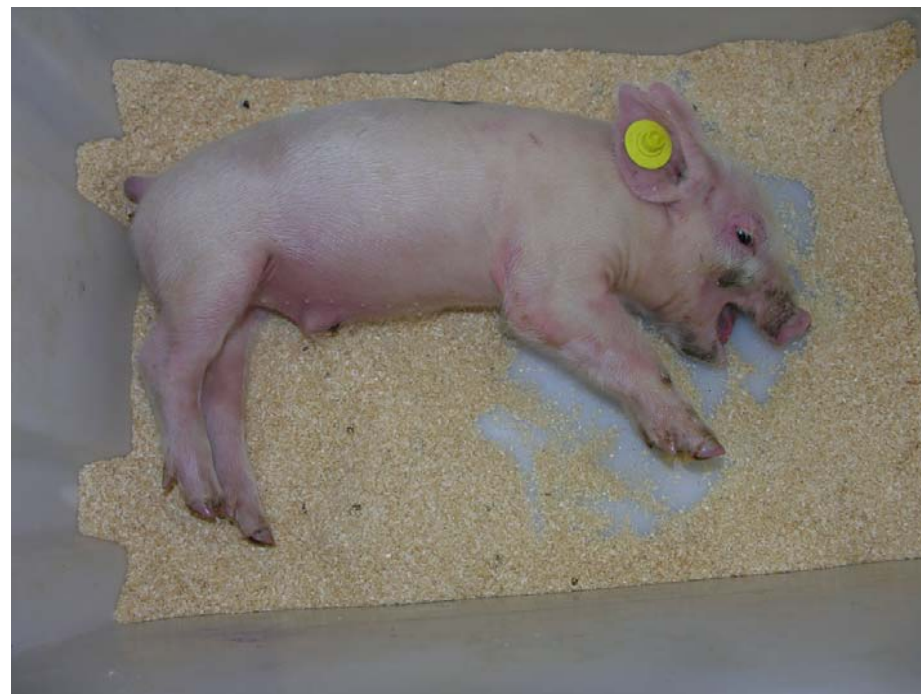
- Basic effect:
 - Depression of the CNS which cause a state of unconsciousness and relaxation
- Working mechanism:
 - Displacement of O₂ from the air to be breathed
 - Depression of the CNS
- O₂ replacement
 - Ar, N₂, CO, (HCN)
- Narcotic gases
 - CO₂, halothan, isofluran







70% CO₂ + 30% O₂





Lethal injections

- Basic effect:
 - Depression of the activity of the CNS and motor centers
 - At overdoses depression of respiration and vasomotor centers
- Narcotic agents:
 - Barbiturates, phenothiazines, butyrophenonen
 - T61
- Injection:
 - Parental



Destruction

- Store carcasses
- Burning
- (Burying)
- Pollution due to chemical agent
- Prevent spreading the disease





Recommended methods for pigs

- Mechanical destruction of the brains
 - Locally in the field
- Electrocution
 - After transport in the slaughterhouse with the used apparatuses
 - Locally in the field using a mobile electrocution installation
- Intravenous overdose of an anesthetic agent
 - After closed transport in a slaughterhouse
 - Locally in the field with high qualified motivated personnel
 - (consequence is pollution)