

A close-up photograph of a microscope lens, showing the intricate details of the metal and glass components. The lens is positioned in the upper right quadrant of the frame, with a blurred background of other microscope parts. The lighting is soft and focused on the lens, highlighting its texture and the 'X01' marking.

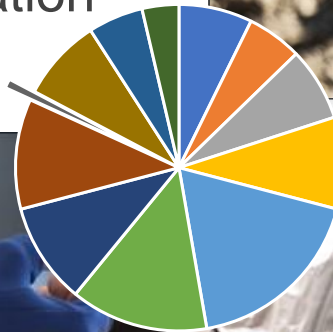
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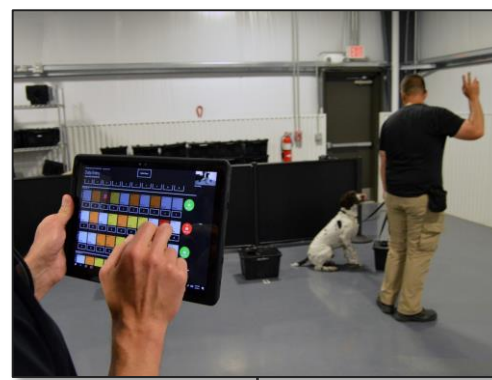
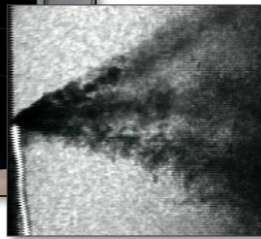
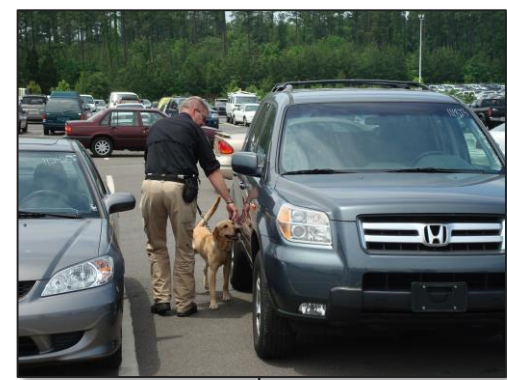
Detection Canine Testing Philosophies from an Engineer

2019 AKC US Detection Dog Conference – August 29, 2019

Battelle – An Introduction

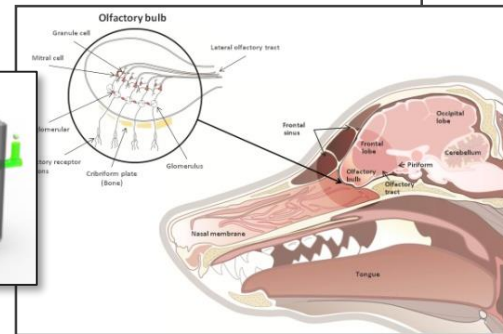
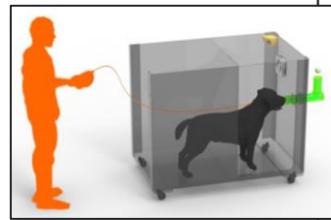
- R&D company headquartered in Columbus, OH
 - Largest private, not-for-profit R&D organization in the world
- Mandate: Apply science & technology to today's problems
 - Staff includes chemists, engineers, software developers, EOD techs, ...
- Not solely a canine organization
 - Canine Research, Development, Testing & Evaluation





2000

2020



Primary Offerings

- Performance Assessments
 - Providing insight to the true level of performance, helping identify strengths and weaknesses
- Evaluation of Training Aids & Methodologies
 - Providing unbiased assessment of novel and even established training products and tactics
- Tool/Technology Development
 - Providing new capabilities and resources, including scent collection equipment, multimedia training solutions, and data collection tools

Testing & Evaluation Philosophies

Philosophies

- Correct test format for the current objective/phase
- Restricted number of target exposures
- Extensive use of non-targets
- Rigorous procedures to ensure no bias or cues
- Single-blind conditions

Motivation: High-integrity, defensible, reliable data set and subsequent conclusions

Philosophies

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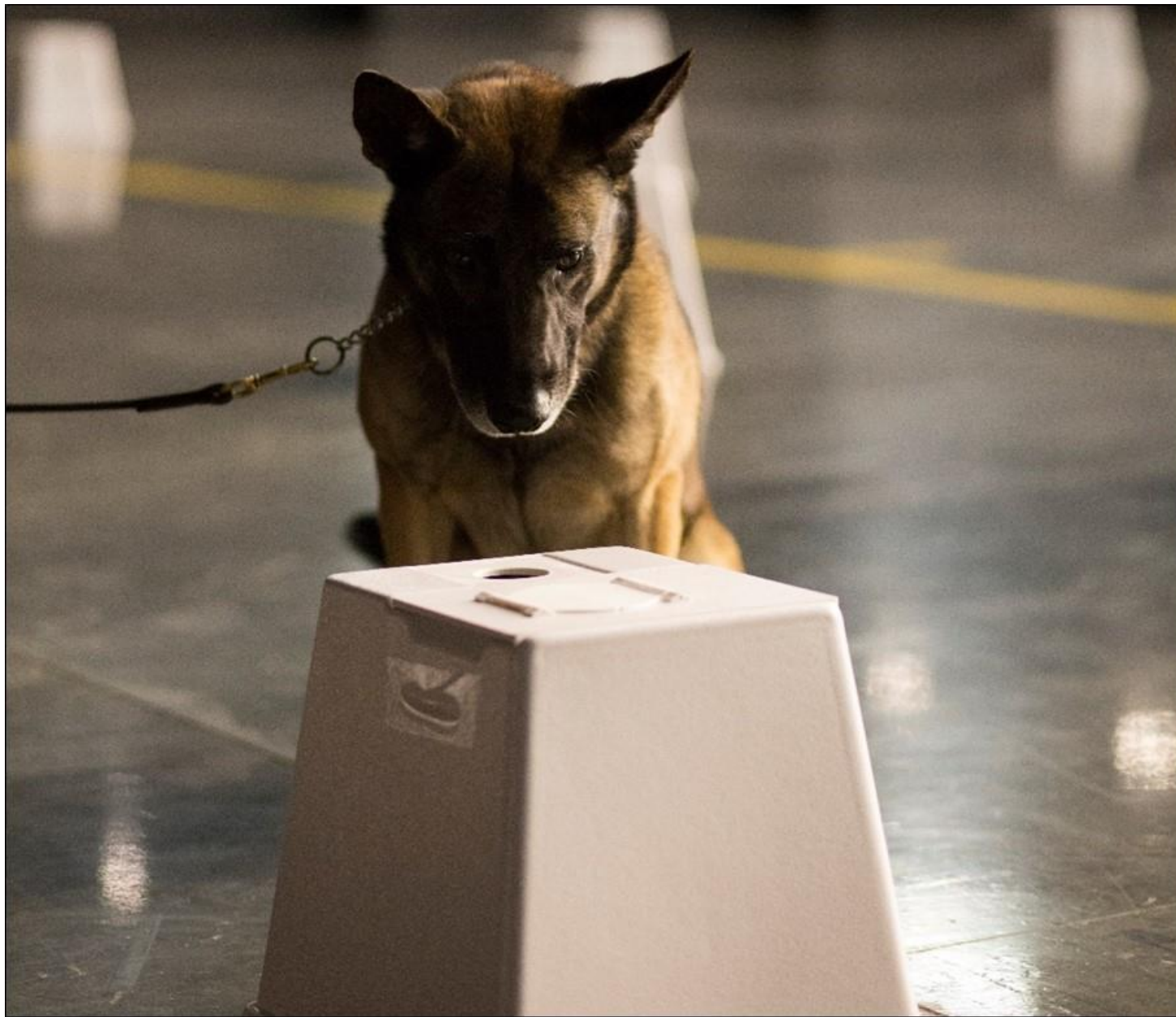


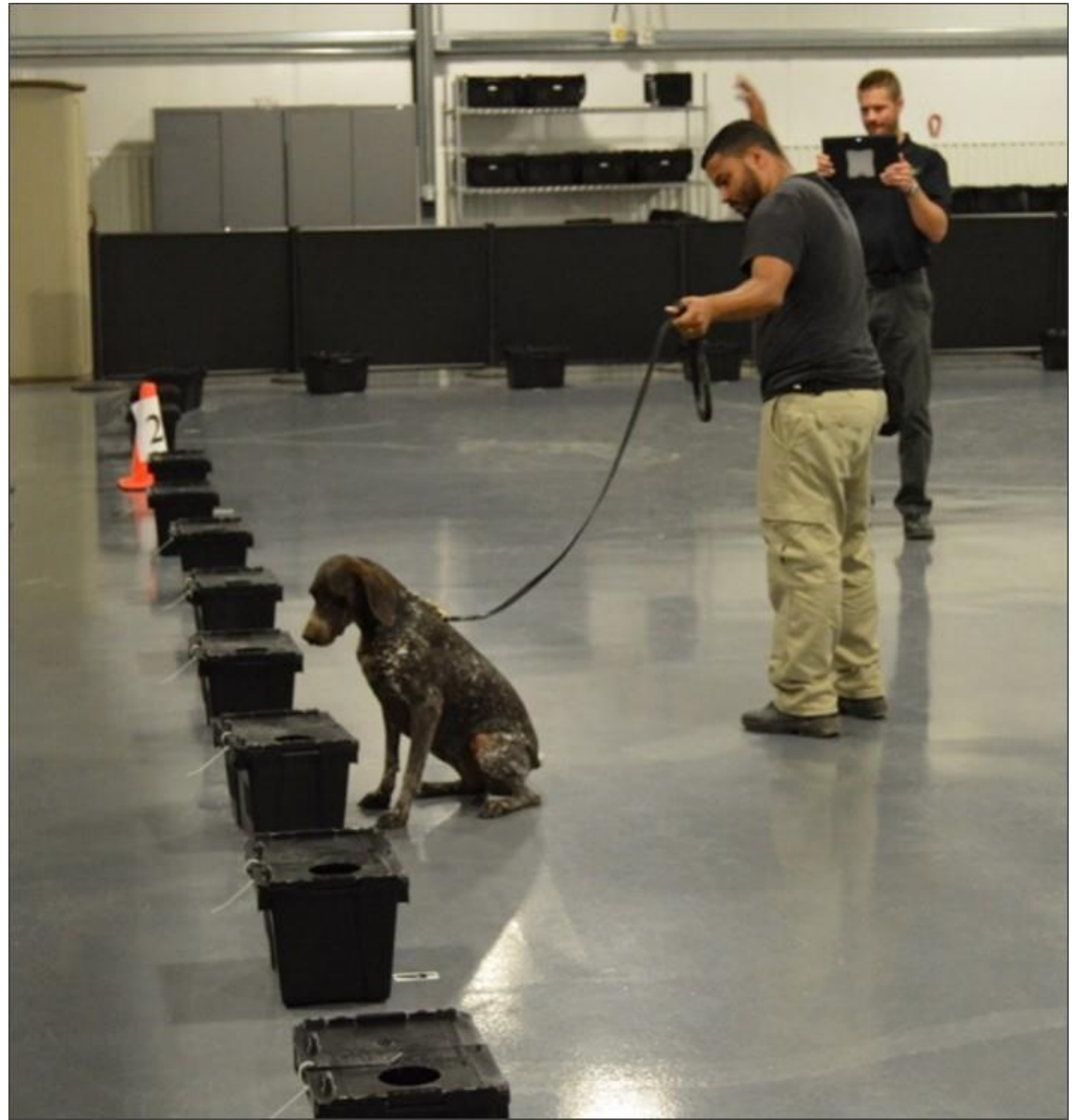
Operationally-based scenarios

Relevant threat material, realistic configuration, appropriate setting, background story

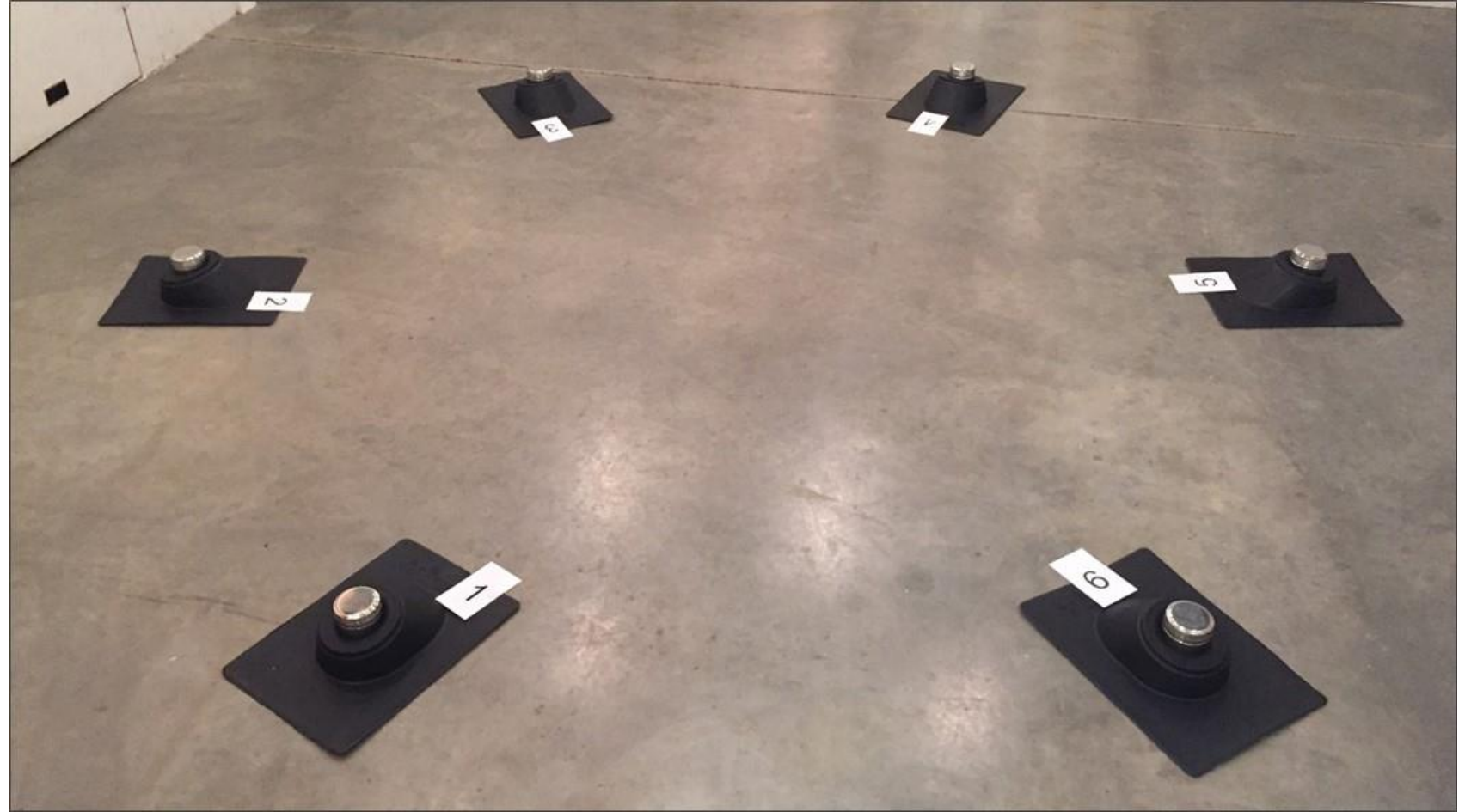
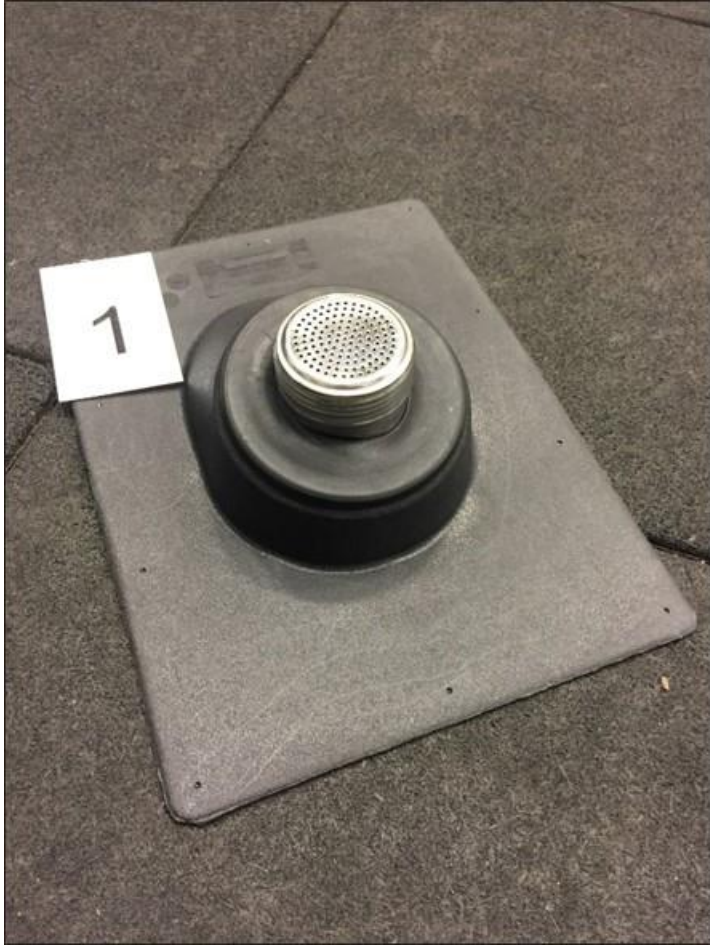
Discrete presentations











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15 3/4 x 11 "

1

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Philosophies

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Restricted No. of Target Exposures

- Small number of targets in each scenario (including some scenarios that are “blank” – i.e., no target present)
- Why?
 - Do not want handler to have an expectation of a find
 - **Operational:** Search and *Out* **Testing:** Search and *Doubt*
 - Want to reduce/eliminate any inappropriate handler influence in an attempt to get true representation of team’s capabilities
 - Dogs are smart; they will find a cue/cheat
 - **Testing:** Compromised data **Training:** Wasting time; encouraging bad habits

Emphasis on the *QUALITY* of the target exposures

Philosophies

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Non-Targets

- **Controls** – Odors the dog may inadvertently associate as the target
 - Examples: Cotton scent bags, nylon pouches, tins, glass jars, barrier paper, gloves...
 - **Why use them?**
 - Makes sure dog is responding to target odor, not the packaging/housing
 - Further reduces handler influence
 - Side note...



Non-Targets

- **Distracters** – Random, ever changing odors that are *intentionally inserted* into the test
 - Examples: Scented tea candle, dryer sheet, unwrapped candy, etc.
 - **Why use them?**
 - Make sure dog is not simply responding in the presence of a novel odor/stimulus
 - Further reduces handler influence

Non-Targets

- Added bonus...



Philosophies

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“Complacency and sloppiness are the biggest enemies of a good explosives detection dog”

-Canine Ergonomics, The Science of Working Dogs
Chapter 8: Olfaction and Explosives Detector Dogs
A. Goldblatt, I. Gazit, and J. Terkel (2009)

Rigorous Procedures

- Use of gloves is mandated in our efforts
 - **1) Not using them is an unnecessary risk**
 - Transfer of odors from lunch, tobacco products, and skin oils is possible, and these can inadvertently become the focal point/objective
 - **2) Odor transfer is a two-way street**
 - The presence of target odor on your hands can inadvertently condition your dog to ignore trace levels of that odor, thus raising its threshold
 - **3) Health/toxicity concerns**
- Handle and store all items in the same manner
- Repeat an identical hide sequence

Philosophies

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“Drug- and explosives-sniffing dog/handler teams’ performance is affected by human handlers’ beliefs, possibly in response to subtle, unintentional handler cues...”

- Homeland Security Newswire (1 Feb 2011) when summarizing a study at UC Davis

“Dogs are much better at reading us than we are at reading them. They learn to become sensitive to our subtle and no-so-subtle changes in verbalization and body language...”

“The foremost cause of this problem is that handlers know where the training aids are hidden.”

- The Detonator (Vol 37, No. 5); The False Alert: Reasons and Remediations by Mike Herstik

THE CASE OF "CLEVER HANS"



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BATTELLE

It can be done