

# NASDN GAZETTE

--North American Search Dog Network, Spring 2011--



Photos Courtesy of Shiloh Resorts

## NASDN Spring 2011 Seminar

The NASDN Seminar Committee and dedicated members from Pennsylvania are working towards an excellent Spring Seminar. We haven't had a seminar that far east in over ten years. Many thanks to Track and Trail Search and Rescue for hosting this event.

The seminar will be held at Shiloh Resorts, Clarrington, PA. Classes will include Mantrailing, Air Scent Area Search and Cadaver Detection. Shiloh Resort is located in a beautiful wooded area about 75 miles northeast of Pittsburgh.

**The dates are Thursday, April 14 through Monday, April 18, so mark your calendars and send in your registrations! Details are regularly updated at [www.nasdn.org](http://www.nasdn.org)**

## Evaluations

The number of teams taking NASDN Evaluations has been increasing. About 20 teams tested at the 2010 Spring "Mini" seminar in Minnesota and over 50 teams tested at the 2010 Fall seminar in Nebraska.

Evaluations are one of the few services that NASDN offers only to members and it's wonderful that people are taking advantage of it. The logistics of working that many tests into the seminar schedules is challenging. We absolutely don't want to do

anything that would reduce the quality of testing.

Last year NASDN made a small change in its Evaluation Standards. Testing can now be done outside of the regularly scheduled NASDN Seminars. This was done to provide better service to members who, for one reason or another, can't always make it to the seminars. It may have the added benefit of relieving some of the pressure on seminar organizers and participants. Several rounds of non seminar Evaluations have already been requested for the Spring of 2011.

## 2011 Membership Dues are Due

It's that time of year. For those who prefer to pay online, there is now an option to pay with Paypal. There's a link at [www.nasdn.org](http://www.nasdn.org). Checks or money orders are still welcome. Please remember your dues are due by March 1. Send payment along with any **updates to your contact information** to:

NASDN  
10100 Holdrege St.  
Lincoln, NE 68527

2011 NASDN dues are still \$35.00.

**Not A NASDN Member??**

**Grab an application form at [www.nasdn.org](http://www.nasdn.org)**

# Introduction to Scent Theory “Pheromone” Communications

By Charles E. (Chuck) Melvin

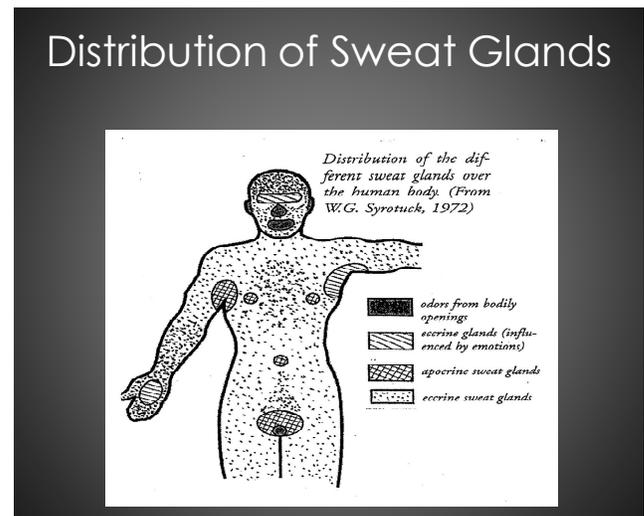
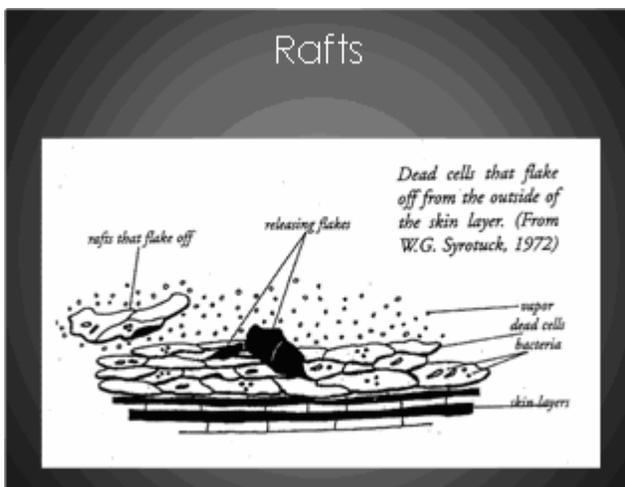
Scent theory and “pheromonal” communications are attempts to explain to dog handlers in simple scientific terms what stimuli their dogs may be responding to in the search arena. Neither category of stimuli is well understood and hence is often controversial. Controversy notwithstanding, the basic understanding of what scent might be and how the dog might process it would seem to be baseline required knowledge for all search and rescue canine handlers interested in finding the lost subject most efficiently.

Because both topics are occasionally called into play within a court of law, both need to be understood and articulated professionally. Basic scent theories currently proposed are the raft theory and the chemical theory. Both theories have newer supporting research. As is often the case, the truth is likely composed of elements of both.

The raft theory was initially proposed by Bill Syrotuck in the 1970’s. Syrotuck suggested that the skin flakes or rafts shed by humans were specific to the human species, allowing the dog to separate the scent from other species of living things. Current research

indicates that some bacterial species on human skin is specific to only humans, the numbers of bacterial species on human skin are limited and that an individual human’s bacteria population is as specific as latent finger prints and can likewise be used for identification.

The chemical theory is newer, and, to a degree, a derivative of the conceptual research from the Anthropological Research Centers and the Oak Ridge laboratory reference human remains. Humans secrete various compounds from very different glands embedded within their skin in addition to the odiferous chemicals released from the body orifices. The secretions are controlled by the raw materials available to produce them, the condition of the skin, the physiological processes occurring, as well as the dictation of the individual’s unique DNA, especially with protein based compounds.

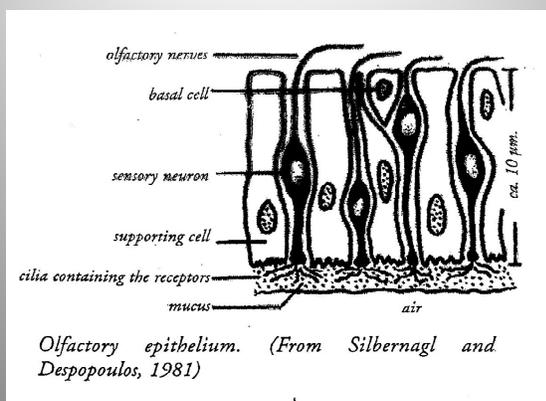


The pheromones are a class of organic compounds used to communicate chemically between individuals of the same species, whereas allelochemicals are a class of organic substances used to communicate between

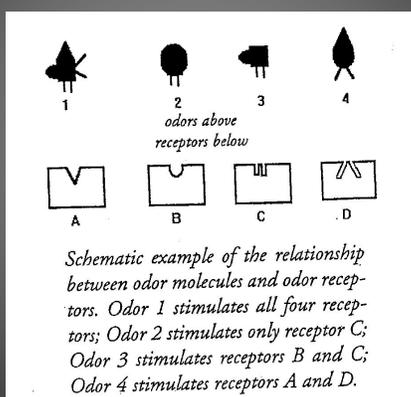
individuals of different species such as a dog and handler, dog and frightened lost subject, etc. How these specific compounds influence a search dog's behavior is unknown, but the anecdotal evidence indicates allelomones could have a huge influence.

The technique the trained search dog uses to process the various components of a scent signature are not well understood, but can likely be summarized as following the lock and key explanation used with enzymatic action. The scent compound specific shape attaches to the mirror image of that shape on the neural ends embedded in the wet mucosal membrane and causes the nerve to be stimulated, sending an electrochemical message to a defined region within the brain where it is interpreted.

## Olfactory Epithelium Cross Section



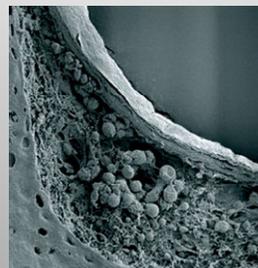
## Lock and Key Concept of Odor Recognition



Some scent compounds are stimulatory in the nasal passages, some in the vomeronasal organ, and some may be in the taste buds. The olfactory nerve ends in the olfactory lobe of the brain, but the vomeronasal neurons from the Grueneberg Ganglion terminate in the olfactory accessory bulb that reports to the limbic system of the brain. One researcher suggests the balance of stimulation may be significant to the dog's recognition of an individual scent signature.

## Grueneberg Ganglion

Science, 2009



On a more practical note, based on what is known about scent and the dog's perception of the scent signature, Barns and others have suggested that the physical condition of the nose is significant to reception. Such issues as swelling due to irritation, allergies & infections, moisture and temperature, pigment, injury, illness such as hypothyroidism and renal failure, drugs such as antibiotics and possibly some heart worm medications, irritation from smoke, short chain organic compounds, ammonia, etc. may all decrease the ability of the dog to process the scent picture, as can infected upper teeth, especially the canines.

Herbert's research indicated that dogs that on a down stay for 10 minutes spent significantly less time in problem solving than those dogs allowed to begin immediately. His conclusion was that "Exerting self-discipline weakened the brain's executive powers and diminished the dog's ability to exert goal-directed effort."

Again quoting Barns' work, other factors affecting scent response include gender, distracting scents, scent of saturation, type of scent and strength of odor. Other authors dispute Syrotuck & Barns' claim that the female dog has a stronger scent response. An example of a distracting scent could be a large predator in the search area or a female dog in estrous. Scent of saturation explains why humans do not respond to a strong odor after a period of exposure, and dogs appear to respond the same way as shown by their response to the mist effect around high speed deceleration accidents involving human remains. Dog handlers typically train for human scent as an example of scent type, and the coning of an area search dog demonstrates strength of odor.

This article has presented a synopsis of Introduction to Scent Theory and "Pheromonal" Communications. Obviously, significantly more information is available and changes occur with alarming frequency, based on new research. The professional handler is obligated to study the available data in an attempt to understand how to assist the canine with its task of finding the source of the scent most efficiently.

References available upon request: melvin@fone.net

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Editor's Note: I admire people who are not willing to simply accept that things work, but

want to know why they work. Chuck Melvin is one of those people. We all benefit from Chuck's curiosity.

Chuck Melvin will be speaking on several topics at the Arizona SAR Conference, April 28 – May 1, 2011 in Flagstaff, AZ. For details about that event, contact Cindy McArthur, at [mcfuzzykids@msn.com](mailto:mcfuzzykids@msn.com)

## We're Growing

NASDN welcomed more than forty new members in 2010 and so far in 2011. Our Officers and Board of Directors are happy to have these people on board and look forward to them taking an active role in our (their) organization.

## NASDN Committees

Much of the work of running NASDN is done by several committees. We should all appreciate the time and effort put in by the Chairs and members of these committees. If you have a little extra time and something to contribute, feel free to volunteer.

Grievance Committee - Robin Walker  
Instructor Committee - Deb Stanton  
Merchandise Committee - Janet Pickett  
Seminar Committee - Chuck Morris

## **More Information at [www.nasdn.org](http://www.nasdn.org)**

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