

## Archaeology

Ron Cowen reports from St. Louis at the annual meeting of the Society of Ethnobiology

### Digging into a doggone puzzle

They came to Ashkelon, a port city in southern Israel, seeking a treasure trove of ancient pottery. But the archaeologists never dreamed they would also dig up hundreds of dead animals.

A team led by Paula Wapnish and Brian Hesse of the University of Alabama at Birmingham examined the first 100 animal skeletons in 1986. Many remained intact, and nearly all dated back to a time known as the Persian period, which lasted from 500 to 332 B.C. Each of the small-boned skeletons lay buried in its own shallow pit, prompting some researchers to speculate that these were the remains of badgers, which live underground. But a visiting zooarchaeologist informed the crew that they had instead stumbled upon a remarkable concentration of ancient dogs.



Skeleton of young adult dog at Israeli archaeological site.

The canine conundrum captured the imagination of project scientists and volunteers alike, and over the next few years, team members competed in inventing explanations for the find, Hesse says.

Speculation that a rabies outbreak killed the dogs proved unlikely, since evidence indicated that most of

the dogs died at different times from a variety of causes. Proposals that the site functioned as an ancient kennel, breeding center or resting place for coddled pets lost favor when the researchers noted that many of the skeletons showed wear and tear typical of street dogs, such as mangled paws, broken ribs and tooth degradation, and that only 38 percent lived beyond the puppy stage—a survival rate matching that of street dogs today. These signs indicate that the animals received no special care during their lifetimes, Hesse says. Yet the observation that none of the dogs showed skewed limbs or other distortions suggests the animals were buried carefully rather than pitched in a convenient hole, he adds.

As the mystery continues to baffle investigators, the corpses keep mounting. Last summer, in an area the size of a dining hall, the Ashkelon excavators came across another 450 partial or intact skeletons, for a total of 785 canines dating to the first half of the Persian period. The sheer number, Hesse says, gives investigators pause.

He suspects the phenomenon reflects “a fad” arising from a unique blending of several cultures that overlapped at Ashkelon from 500 to 400 B.C. Phoenician, Egyptian and Persian influences appear to have dominated this mix, he says. Hesse cites evidence that the Phoenician word for “temple attendant” and “dog” may be the same, signifying that Phoenicians held dogs in high spiritual esteem. He adds that Egyptians depicted dogs in their hieroglyphics and had a penchant for mummifying animals, while Persians viewed dogs both as sources of purification and as agents of safe passage to the next world.

To understand the social forces underlying the canine burials, says Hesse, “combine several cultures and mix thoroughly.” He insists that no single cultural influence suffices. For example, although the Persians revered dogs, they viewed any burial as a desecration of the earth, he notes.

It remains unclear why the skeletons stayed so well preserved. Hesse speculates that the people of Ashkelon may have protected the site from scavenging animals, treating it as one would a cemetery, or that the relatively shallow graves were nonetheless deep enough to mask scavenger-attracting decay odors. To help answer this grave question, he plans to create similarly shallow burial sites for dogs that died recently of natural causes, and then monitor the area for scavengers.

## Biomedicine

### Therapy improves rectal cancer outlook

In a clinical trial of patients recovering from surgery for rectal cancer, people who received a combination of radiation and drugs after surgery had a significantly lower rate of disease recurrence than those treated with radiation alone, researchers report in the March 14 *NEW ENGLAND JOURNAL OF MEDICINE*. The new approach might save more than 4,000 lives in the United States each year, they estimate.

“We’ve opened up the door to much more accelerated progress [in the treatment of rectal cancer],” says study coauthor Charles G. Moertel of the Mayo Clinic in Rochester, Minn. This particularly deadly and difficult-to-treat cancer strikes about 45,500 people in the United States annually.

At present, high-risk rectal cancer patients who undergo surgery to remove the diseased tissue run a 60 percent risk of dying from a malignant recurrence. Moertel and James E. Krook of the Duluth (Minn.) Community Clinical Oncology Program set out to determine whether additional treatment after surgery would improve the outlook for these patients.

Their study involved 204 people who had undergone surgery for invasive rectal cancer. The researchers randomly assigned 100 people to radiation therapy, while the rest received radiation plus the drugs 5-fluorouracil and methyl-CCNU.

After a mean of seven years, the team observed a 34 percent reduction in cancer recurrence among the patients who received the combined treatment, compared with the radiation-only group. More important, the dual treatment shaved cancer-related deaths by 36 percent, they report.

Preliminary results of a separate study by the same group may prompt researchers to exclude methyl-CCNU from that treatment. The new findings, to be presented in May at the meeting of the American Society of Clinical Oncology, suggest that methyl-CCNU adds nothing to 5-fluorouracil’s cancer-killing prowess and may itself trigger serious health problems.

Moertel adds that further fine-tuning of the postsurgical chemotherapy regimen may yield even stronger weapons in the battle against rectal cancer. In 1989, he led a study showing that a combination of 5-fluorouracil and another drug, called levamisole, decreased by one-third the risk of dying from colon cancer recurrence (SN: 10/7/89, p.228). Moertel and his colleagues now want to see whether that combo can do the same for people with rectal cancer.

### Good news for pregnant VDT workers?

In a study of 5,544 women, video display terminals (VDTs) caused no increased risk of miscarriage. Critics argue, however, that the reassuring news may prove premature.

Teresa M. Schnorr at the National Institute for Occupational Safety and Health in Cincinnati and her colleagues studied telephone operators at two companies. The researchers compared a group who used VDTs all day long with a group who performed similar tasks without using the terminals.

VDTs contain cathode-ray tubes that release very-low-frequency electromagnetic fields. Previous research hinted that pregnant women exposed to such radiation may run an increased risk of miscarriage (SN: 2/14/87, p.107).

Schnorr’s team used company records to calculate VDT exposure and then interviewed the women about their reproductive history. In analyzing the data, the researchers found that women who used the terminals had about the same rate of miscarriage as women who didn’t use them. Their report appears in the March 14 *NEW ENGLAND JOURNAL OF MEDICINE*.

Not everyone agrees with the team’s conclusion. “To say that radiation from VDTs is not associated with miscarriage is too broad a conclusion to be drawn from the sketchy data in this report,” says Karen Nussbaum, executive director of the 9 to 5 National Association of Working Women.