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Lasers help heal sick people

WASHINGTON — Mention lasers, and images of death rays and shoot-outs in space sometimes come to mind, but in reality the devices are in the forefront of the healing arts, where they're helping save lives every day.

Doctors were among the first to exploit the laser's potential, so that now it can literally treat patients from head to toe.

"The number of things medical lasers can do is past imagining," says Terry Fuller, head of the nation's largest laser-surgery research lab at Sinai Hospital in Detroit. Last year, at that hospital alone, surgeons used lasers in 5,000 operations.

A laser — the word is an acronym for "light amplification by stimulated emission of radiation" — is an intensely coherent and concentrated light source capable of incredible precision and power.

Use Bloodless Scalpels

Eye surgeons manipulate lasers as bloodless scalpels to make extremely delicate incisions, or to cauterize blood vessels, while leaving tissue unaffected only a few cell widths away.

To vaporize tumors or to melt and rebond torn nerves of blood vessels, surgeons use the unseen radiation of carbon dioxide lasers. Tissue vanishes beneath it in tiny wisps of smoke. Tumors in the brain and spinal cord, many of which were previously inoperable, are proving receptive to the laser's delicate and healing touch. Though no cure for cancer, laser therapy can clear obstructions and prolong life.

To screen women for cancer of the cervix, Dr. Leon Wheelless and colleagues at the University of Rochester Medical Center in New York stain cells with a fluorescent

dye and analyze them with a unique laser scanner. Cells whose nuclei fluoresce abnormally may indicate cancer, since they absorb more dye and glow brighter in the laser light.

The scanner also recognizes when a sample may contain too few cells to reveal cancer reliably — critical because, if detected early, cervical cancer is nearly always curable.

Cells Absorb Dye

Another laser-sensitive dye — hematoporphyrin derivative, or HPD — is involved in experimental therapy for cancer patients. HPD injected into the body is absorbed and excreted by all cells, healthy and cancerous. It remains longer in malignant cells, however, and where laser light can reach and activate it, cell membranes dissolve.

"Dozens of cancers wilt under such attack, without the painful and sometimes disfiguring side

effects of chemotherapy and X-rays," reports Allen A. Boraiko in an article on the many new uses of the laser in the March National Geographic.

The laser is not only helping to preserve life but to perpetuate it.

Says Dr. Joseph Bellina of the Laser Research Foundation in New Orleans, "Until a few years ago, an infected pelvis or perpetual menstrual bleeding usually prompted a hysterectomy — sterilization. Laser treatment now gives people a chance to have children, by preserving internal organs."

Bellina has even been able to reconstruct internal organs with a laser. In one case he was able to rebuild the pinhead-size tips of a young woman's damaged and blocked Fallopian tubes.

Microsurgery that might have lasted seven hours took only one, and the woman conceived a child six months later.

Holes in Blood Cells

The laser's ability to operate in the microscopic realm comes to

the fore in experimental genetic surgery, where a laser borehole in a red blood cell measures only half a micron wide. A human hair, by comparison, is about 80 microns wide.

Rather than just react to health problems, lasers someday may be able to head them off. Richard Zare, a laser chemist at Stanford University, has come up with a laser-induced fluorescence, or LIF, an ultrasensitive method of

detecting chemicals in gases and liquids.

Says Zare, "I believe lasers will play a key role in future medical analysis to detect insulin in human serum, for example. With LIF we could probe blood, sweat, and tears — like checking a car's exhaust to learn its running condition — and determine a person's health in time to give him a minor tuneup, before he needs a major overhaul."

Farm animal open house scheduled

DELAWARE COUNTY — Chickens, baby lambs, piglets, beef and dairy calves are housed at the 4-H Center. Bring friends and family to the Open House, scheduled for Saturday, April 28 from 9 a.m. to noon.

The 4-H Center is located in Rose Tree Park, off Route 252, just North of Media. There will be opportunities for children and adults to touch the animals and learn about agriculture.

Extension staff, volunteers and 4-ers will be on hand to talk about farm animals, 4-H projects and other questions you might have. Last year's open house was well received by the visitors who came by. Mark your calendars and stop by the 4-H Center!

For more information call Bruce Richards at 565-9070. Penn State is an affirmative action, equal opportunity university.

What Do You Know About . . .

Match each snake with the correct description.

- A. Rattlesnake
- B. Coral snake
- C. King snake
- D. Garter snake
- E. King cobra

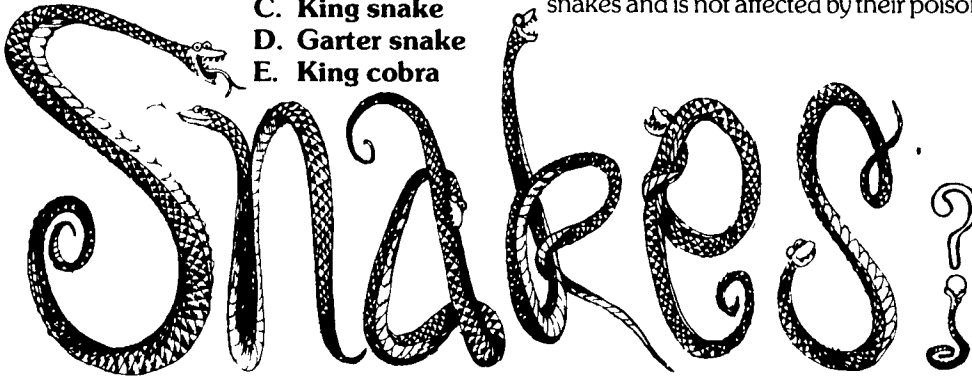
1. This poisonous snake is found only in the Western Hemisphere. It has rattles at the end of its tail and eats mostly small mammals and birds.
2. This snake sometimes eats rattlesnakes and is not affected by their poison.

It is friendly to people and is welcomed by farmers for keeping barns free of mice and rats.

3. This small, poisonous snake has bright red, yellow, and black rings around its body. It has many harmless look-alikes.

4. This snake lives in Asia. When bothered, it raises the front end of its body upright, spreads its "hood," and hisses. It's the largest poisonous snake in the world — up to 18 feet (5.4 m) long.

5. This is the most common snake found in North America. It is non-poisonous and often lives near people.

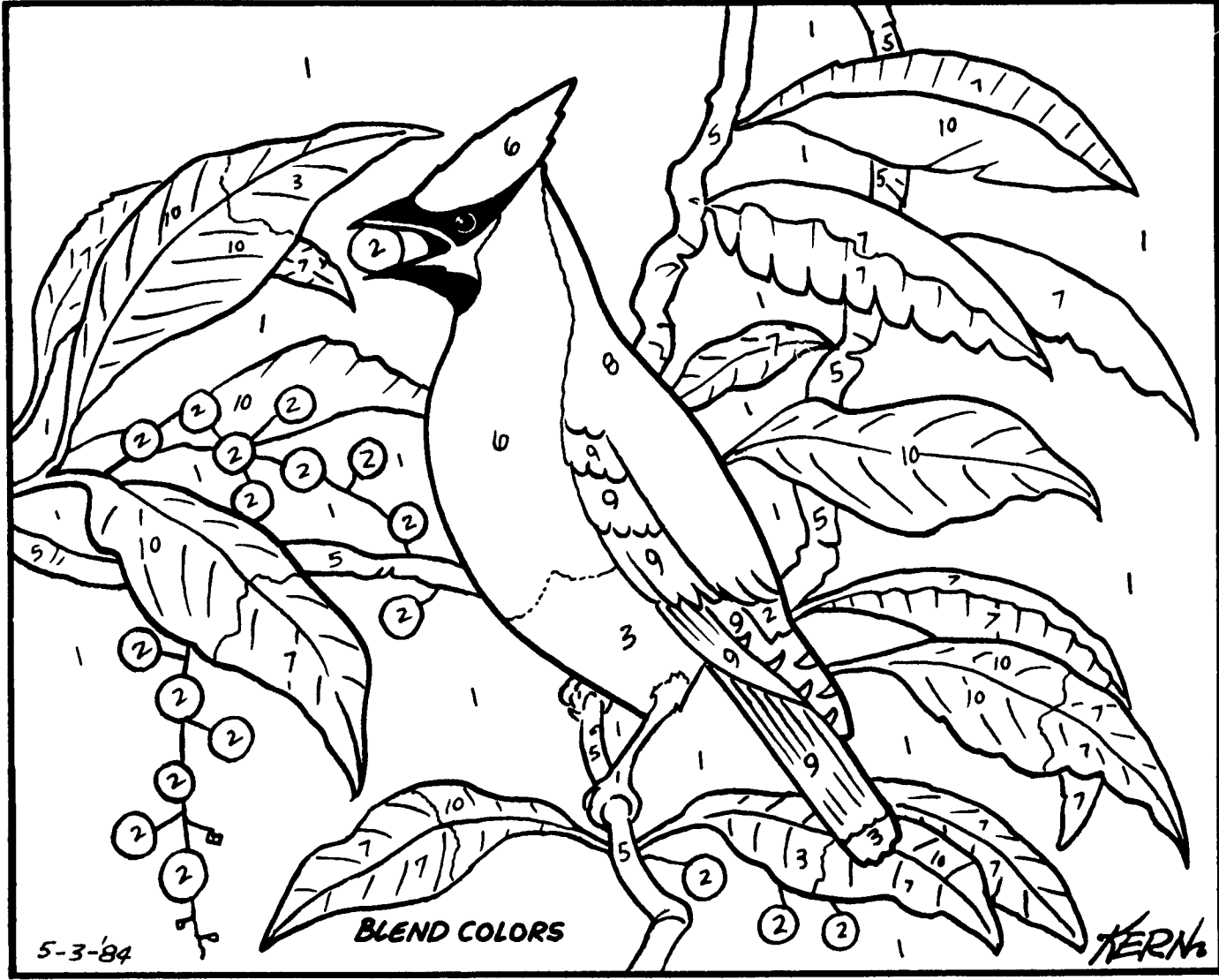


Answers 1.A, 2.C, 3.B, 4.E, 5.D

COLOR THIS!

- | | |
|-----------|---------------|
| 1. PEACH | 6. RED ORANGE |
| 2. RED | 7. GREEN |
| 3. YELLOW | 8. LT. BROWN |
| 4. BLUE | 9. LT. BLUE |
| 5. BROWN | 10. LT. GREEN |

CEDAR WAXWING: THIS BIRD HAS THE TITLE "THE NEATEST OF ALL BIRDS," BECAUSE ITS CREST GIVES THE APPEARANCE OF ALWAYS HAVING JUST COMBED ITS HAIR. THEY ARE VERY AFFECTIONATE BIRDS AND ARE OFTEN SEEN ON TELEPHONE WIRES RUBBING THEIR BILLS TOGETHER.



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