

## BIOCHEMISTRY

**Wound-Healing Process Linked to New Enzyme**

► UNDERSTANDING OF HOW wounds heal is expected to be clearer as a result of the detection of a new enzyme in injured tissue, two Washington, D. C., scientists reported at the American Chemical Society's 146th national meeting.

Dr. John C. Houck of the Children's Hospital Research Foundation reported in Denver that necrotic tissue contains the new enzyme, which is capable of dissolving up to 50% of usually "insoluble" collagen, an important constituent of connective tissue. This is important because collagen is normally very resistant to the catalytic action of body enzymes.

Because of this resistance, scientists have had trouble accounting for the large amounts of collagen that the body dissolves and removes from dying tissue in wounded areas.

Dr. Houck found that to demonstrate the activity of the new enzyme, not yet isolated, it was necessary to treat extracts of necrotic tissue with another enzyme called pepsin. Other enzymes in the body must also be activated by pepsin, he said.

The only other enzyme that may be identical to the newly discovered substance is possibly one that Dr. Houck has recently discovered in the pancreas, he explained. However, it is possible that more than one new enzyme is involved in the activity observed in the present research.

It should now be possible to use the newly discovered enzyme to investigate the structure of collagen and to study the way collagen is dissolved by the body during wound-healing and the subsequent absorption of scar tissue, the biochemist suggested.

It is likely that when an injury occurs, the inflamed tissues release enzymes that activate the newly discovered enzyme and enable it to dissolve collagen, he believes.

Collaborating with Dr. Houck was E. R. Goldstein, a third-year medical student at Georgetown University Medical School in Washington.

• Science News Letter, 85:79 Feb. 1, 1964

## BIOCHEMISTRY

**Muscular Dystrophy Prevented in Lambs**

► PREVENTION of muscular dystrophy in lambs by injection of the chemical element selenium points to help for humans.

A new theory explaining how selenium is both poisonous and necessary to life was reported at the American Chemical Society meeting in Denver by Dr. Carl W. Bonhorst of the University of Portland, Oreg.

An example of selenium's beneficial effects has been demonstrated through injecting the mother sheep with a small amount of the element before the birth of the lamb, thus preventing atrophy of the baby lamb's muscles.

Dr. Bonhorst's theory is that selenium acts as a scavenger in living systems. It ties up poisonous metals and prevents their harmful activities. However, when the con-

centration of the selenium reaches very high levels, it can begin to tie up metals vital to the life process itself, he said.

The new scavenger theory may not work on humans, but it appears to be well on the way. The theory was based on work with yeast and a one-celled animal known as *Tetrahymena pyriformis*. Dr. Bonhorst's experiments showed that a yeast cell gathered up 200 times its own volume of a selenium compound before it was poisoned and died.

Work by Dr. Klaus Schwarz of the National Institutes of Health, Bethesda, Md., was cited by Dr. Bonhorst to explain the poisonous action of selenium. Dr. Schwarz gave small quantities of the metal cadmium to rats and produced disease symptoms similar to those caused by the lack of selenium.

"Selenium is normally quite scarce," Dr. Bonhorst explained. "The cell that needs protection against traces of cadmium must have a good method for concentrating the selenium as a scavenger."

"When this cell is offered a hundred or a thousand times the usual amount of the scavenger, it takes on enough to tie up all the metal in sight—and kills itself."

• Science News Letter, 85:79 Feb. 1, 1964

## Nature Note

### Flying Squirrel

► A WHISTLED, birdlike "tseet" followed by a barely audible thump may indicate to the nighttime nature lover that there is a flying squirrel in the vicinity.

Somewhat reminiscent of another flying mammal, the bat, this squirrel scorns the light of day, preferring to glide from tree to tree in a dark forest. Nature has equipped this mammal with sharp nocturnal vision and a fold of loose, furred skin along his sides from front to hind legs.

By spreading his legs and stretching the skin taut, the squirrel can glide sometimes as far as 125 feet, depending on the height of the take-off point. Before landing, the animal manipulates his tail in order to land right-side up on the trunk of a tree or roof.

By day, the flying squirrel naps or rests in a hole or nest high in a treetop. Since the squirrel does not hibernate, winter wanderers in the woods who rap or scratch on the side of a tree full of woodpecker holes may see a sleepy flying squirrel poke his head out.

Flying squirrels usually feed on nuts, berries, insects and tree buds or shoots, but they occasionally will kill birds or eat bird eggs. This unusual squirrel can be found anywhere in the Northern Hemisphere, varying in length from slightly over seven inches to three feet.

The flying squirrel, genus *Glaucomys*, is found as far south as Honduras. The slightly larger northern flying squirrel frequents most of Canada and Alaska, south to California and New England. The southern flying squirrel can be found in the eastern states west to the Great Plains.

• Science News Letter, 85:79 Feb. 1, 1964

## SCIENCE BARGAINS

Order by Stock No.—send check or M.O. shipment same day received—satisfaction or money back.

### NEW! SCIENCE FAIR PROJECT KITS



Edmund Kits are carefully planned to give any boy or girl the fun and excitement of discovering science facts. Such carefully planned projects can lead the student to awards or scholarships. Adults too will find them an excellent introduction to the various fields of science. Write for Free Bulletin 47-Q "Your Science Project" covering all phases of Science Fair projects.



**MOLECULE KIT**—This low-priced kit can be used to make many molecular and crystal models. Consists of 50 sponge-rubber balls, 1 inch in diameter and 50 wooden sticks 6" x 1/4" that can be cut to any desired length. Balls may be painted, after assembly to standard molecular colors. With this one kit, molecules with up to 50 atoms can be made. Several kits can be used to make up more complex models.

Stock No. 30,413-Q.....\$2.50 Postpaid

### BUILD A SOLAR ENERGY FURNACE

A fascinating new field. Build your own Solar Furnace for experimentation—many practical uses. Easy! Inexpensive! Use scrapwood! We furnish instructions. This sun powered furnace will generate terrific heat—2000° to 3000°. Fuses enamel to metal. Sets paper aflame in seconds. Use our Fresnel Lens—14" diameter . . . \$1.14.  
Stock No. 70,130-Q . . . Fresnel Lens . . . \$6.00 Postpd.  
11" Sq. Fresnel Lens F.L. 19" . . . Slight 2nd.  
Stock No. 70,533-Q . . . \$6.00 Postpd.



### SCIENCE TREASURE CHESTS

For Boys—Girls—Adults!  
Science Treasure Chest—Extra-powerful magnets, polarizing filters, compass, one-way-mirror film, prism, diffraction grating and lots of other items for hundreds of thrilling experiments, plus a Ten-Lens Kit for making telescopes, microscopes, etc. Full instructions included.

Stock No. 70,342-Q . . . \$5.00 Postpaid  
Science Treasure Chest Deluxe—Everything in Chest above plus exciting additional items for more advanced experiments including crystal-growing kit, electric motor, molecular models set, first-surface mirrors, and lots more.  
Stock No. 70,343-Q . . . \$10.00 Postpaid

### WOODEN SOLID PUZZLES



12 Different puzzles that will stimulate your ability to think and reason. Here is a fascinating assortment of wood puzzles that will provide hours of pleasure. Twelve different puzzles, animals and geometric forms to take apart and reassemble, give a chance for all the family, young or old, to test skill, patience and, best of all, to stimulate ability to think and reason while having lots of fun. Order yours now!

Stock No. 70,205-Q . . . \$3.00 Ppd.



### CRYSTAL-GROWING KIT

Do a crystallography project illustrated with large beautiful crystals you grow yourself. Kit includes the book "Crystals and Crystal Growing" and a generous supply of the chemicals you need to grow large display crystals of potassium aluminum sulfate (clear), potassium sulfate (purple), potassium sodium tartrate (clear), nickel sulfate hexahydrate (blue green) or heptahydrate (green), potassium ferricyanide (red), and copper acetate (blue green).

Stock No. 70,336-Q . . . \$9.50 Postpaid



### Terrific Buy! American Model OPAQUE PROJECTOR

Projects illustration up to 3" X 3 1/2" and enlarges them to 36" X 30" if screen is 6 1/2 ft. from projector; larger pictures if screen is further away. No film or negatives needed. Projects charts, diagrams, pictures, photos, lettering in full color or black-and-white. Operates on 115 volts, A.C. current . . . 6-ft. extension cord and plug included. Operates on 60 watt bulb, not included. Size 12" X 8" X 4 1/2" wide. Weight 1 lb. 2 oz. Plastic case.  
Stock No. 70,189-Q . . . \$7.95 Postpaid

TEACHERS! Write for Educational Catalog Q-2  
Edmund Scientific Co., Barrington, N. J.

### MAIL COUPON for FREE CATALOG "Q"

Completely new & enlarged 148 pages. Nearly 4000 BARGAINS.  
EDMUND SCIENTIFIC CO.  
Barrington, New Jersey  
Please Rush Free Catalog "Q"

Name . . . . .  
Address . . . . .  
City . . . . . Zone . . . State . . . . .

