

into high gear just as researchers of the National Oceanic and Atmospheric Administration concluded a meeting of Project Hurricane Strike, an experimental effort designed to improve hurricane forecasting. The thinking behind the project is that by continual monitoring transmitted in real time — without the delay of computer storage and analysis — the forecast of the time, place, intensity and potential destruction of the hurricane can be narrowed. According to the plan, four instrument-packed aircraft, three from NOAA and one from NASA, are flown, two at a time, through the storm. Using a geostationary NOAA satellite, the researchers on board the aircraft relay measurements of storm position, winds, pressures and other conditions to the National Hurricane Center. David became the first hurricane to receive such full treatment.

And, according to Robert Sheets, a NOAA meteorologist in charge of the research group, they “got everything [they] wanted,” which was a near-continuous record of David and “very clearly more data than ever before on a hurricane.” Though several hours of flights were lost each time the planes had to be moved from storm-threatened Puerto Rico and Miami, Sheets said the planes were able to follow the storm all the way to landfall in South Carolina. Because of the improved storm information, the forecast, he said, was “very good compared to the average track.” □

## Hot flashes: More than one culprit

Menopausal “hot flashes,” characterized by sudden waves of heat in the face, neck and chest and by an outpouring of perspiration, afflict about one-quarter of all women going through menopause. It has been well established that hot flashes are associated with decreasing production of estrogen by the ovaries, but apparently other culprits are involved as well, according to a report in the Aug. 24 SCIENCE by R. F. Casper, S.S.C. Yen and M. M. Wolkes of the University of California at San Diego. Luteinizing hormone (LH) and possibly also luteinizing hormone-releasing hormone (LRH) and brain neurons may be involved.

Other investigators have shown that LH is responsible for estrogen secretion from an egg follicle prior to ovulation, and that this estrogen secretion in turn helps prepare the vagina and cervix for egg fertilization at ovulation. Casper and his colleagues thus suspected that hot flashes might also involve LH.

They studied hot flash episodes in six menopausal women for a total of 66 episodes. At the same time, they monitored the women’s blood levels of LH and also of two other pituitary hormones involved in reproduction. One was follicle-stimulating

hormone (FSH), which is known to help prepare an egg for release at ovulation. The other was prolactin, which causes milk secretion in nursing women. LH rose in the blood of women 66 times in the course of the study, and the women experienced hot flashes right before 55 of the 66 LH pulses. In fact, whereas LH pulses were not always accompanied by flashes, flashes were never seen without an LH pulse. In contrast, the researchers were not able to find any correlation between prolactin pulses in their subjects’ blood and hot flashes, and only a small link between FSH pulses and hot flashes. So they conclude that menopausal hot flashes are “invariably associated with the initiation of pulsatile pituitary release of LH.”

However, because hot flashes are

known to occur even in menopausal women who have had their pituitary glands removed, Casper and his co-workers reason that estrogen and LH cannot be the sole initiators of hot flashes. Rather, they suspect that a more remote trigger might be LRH, since LRH is known to control the release of LH from the pituitary gland, and a temporal link has been found between LRH pulses and LH pulses. But is LRH even the ultimate spark behind hot flashes? Casper and his team suspect not. Because of their own past research, and because other scientists have shown that the secretion of LRH is at least partly under the control of neurons, they believe that the ultimate trigger of hot flashes might be decreasing ovarian estrogen alerting brain neurons to switch on LRH, and then LH. □

## First carnivorous dinosaur eggs found

On July 12, about 20 miles west of Choteau in north-central Montana, Shell Oil Co. had set up a seismic exploration line — a series of blasts whose rebounding shock waves geologists use to determine an area’s oil potential. Geologists John Horner of Princeton University and Robert Makela of Rudyard, Mont., and a fluctuating number of students and helpers had spent the summer digging for dinosaur fossils nearby. They decided, though they’d looked over the area before, to check it out once more before it was disrupted by the blasting. As they walked along the sandstone foothills of the Rockies, Fran Tannenbaum, a senior at Princeton and a geology major, suddenly shouted to her companions.

She had spotted, embedded in a mudstone slope, the first egg of a carnivorous dinosaur ever to be found.

The Shell Oil Co. cooperatively moved their blasting elsewhere and the diggers went to it. When they returned from the field last week, their booty included 30 eggs — five of which appear to be whole and, if so, are the first intact dinosaur eggs found in North America — and assorted bones, including partial skulls, vertebrae and leg bones, of baby dinosaurs of the same species. Whole dinosaur eggs — though from plant-eaters — have been found in Mongolia and France. And last

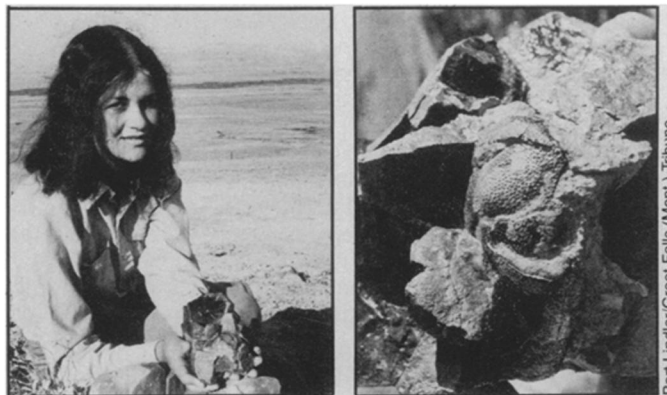
summer, about one and a half miles north of this year’s site, Horner and Makela found pieces of 70-million-year-old eggs of herbivorous duck-billed dinosaurs as well as the skeletons of baby duck-bills. But the eggs of carnivorous dinosaurs had not been recovered. Horner and Makela suspect that the area was once a dinosaur nesting site, possibly for tens of thousands of years, and that it may reveal much about the reproductive and parenting behavior of dinosaurs.

The pebbly-surfaced eggs — “more like bird eggs” than leathery reptile eggs, says Horner — are 6 to 8 inches long, possibly 3 to 4 inches in diameter and are thought to be about 85 million years old. They were found standing on end in two clutches — or nesting clusters — one higher on the slope, and therefore possibly thousands of years younger, than the other, according to Makela, a high school science teacher who has been exploring the area with Horner for about 10 years. Because of the type of teeth and bones of the baby skeletons found near the eggs, the researchers conclude that the creatures were meat-eaters, though the lack of adult bones or complete baby skeletons make immediate species identification impossible, he said.

The recent find seems to support some of the researchers’ hypotheses about di-

*Continued on p. 174*

*Princeton University’s Fran Tannenbaum holds rock containing the first egg of a carnivorous dinosaur ever found. Closeup shows the egg, the pebbly material in the center of the rock.*



Bert Lindler/Great Falls (Mont.) Tribune

## ... Dinosaur

nosaur parenting behavior, which are based in part on last year's finds. The presence of babies so close to the nest, says Makela, leads the researchers to believe that they were cared for by adults until they were fairly old. Such behavior, Horner and Makela note, is more characteristic of warm-blooded animals and is rarely seen in cold-blooded animals. Their findings, therefore, add more fuel to the warm- vs. cold-blooded fire (SN: 4/8/78, p. 218). In addition, Horner told SCIENCE NEWS, judging from the size and estimated age of the babies, the dinosaurs appear to grow very quickly — another warm-blooded characteristic.

The specimens are now at Princeton University, where Horner is curator of the university's Museum of Natural History. None of the intact eggs has yet been separated from the rock; careful chipping and dissolving of the rock with acid is required to isolate the eggs. X-rays may reveal embryo skeletons, though "the odds against finding the eggs intact are so big, the odds against them being fertilized are even bigger," says Makela. In addition, Horner said, the museum staff will examine thin sections of the eggs by electron microscopy and will try to reconstruct a skeleton.

## UNCSTD: A \$250 million fund

The United Nations Conference on Science and Technology for Development was an "important step" but no raving success, according to Abdelaziz Ben Dhia, head of the Tunisian delegation. As spokesman at the Vienna gathering for the "Group of 77" developing nations (whose ranks actually include 120 of the UN's 150 member countries), he had to acknowledge that the "77" alliance had fallen far short of its goal — to marshal support among delegations representing the industrialized world for a \$2 billion super-fund that would have been financed out of compulsory contributions by the developed nations (SN: 9/1/79, p. 148).

What the Group ended up settling for was a \$250 million counterproposal offered by the developed nations to be funded out of voluntary contributions by developed and developing nations alike. UNCSTD delegates are expected to reconvene in December for a pledging session at which they will announce how much their respective governments are willing to donate by 1981.

The United Nations Development Program would administer and oversee the fund through 1981. During that period, a study would be conducted to assess whether a new UN agency need be created for the purpose of overseeing use of the money to build and strengthen indigenous science and technological capabilities in the world's lesser developed nations.

# WEATHER



**THE DIGITAL RAIN GAUGE**

from  
**EDMUND SCIENTIFIC**

**ONLY \$49.95**

**You Never Have to Empty!**

Read rainfall accumulations from 1/10" to 999.99" at anytime...without leaving the comfort of your home! This battery operated, weather proof, digital rain gauge gives remote readings on a handy indoor counter with 30 ft. cable. Operates more than a yr. on 9V battery, self emptying rain collector. Backed by our 30-day money-back guarantee! No. 72,165

©1979 Edmund Scientific Co. Ad No. 128

**EDMUND SCIENTIFIC CO.**  
Dept. QQ18 Edscorp Bldg., Barrington, N.J. 08007

**YES!** Please send me \_\_\_\_\_ Digital Rain Gauges, No. 72,165 priced at \$49.95 each plus \$1.00 service and handling charge. (N.J. residents add 5% state sales tax.)

Enclosed is my  Check  M.O. \$ \_\_\_\_\_

Please charge my  Am. Exp.  Visa  MC

Card No. \_\_\_\_\_

Interbank No. \_\_\_\_\_ Date \_\_\_\_\_

Signature \_\_\_\_\_

Name (print) \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

## Brain Puzzler's Delight

By E. R. Emmet



A treasury of unique mind-stretching puzzles that can be solved by straight, logical thinking and reasoning. No specialized math. Offer the pleasures of discovering solutions through use of ingenuity, imagination, insight, and logic. Stimulates and refreshes the mind. Fascinating, entertaining puzzles arranged in order of difficulty with (some amazing!) solutions and full explanations at end of book. ILLUSTRATED

**\$7.95 plus 95¢ handling**  
10-day Money-Back Guarantee

## GEM TESTING

FOR FUN AND PROFIT



This exciting pursuit combines the challenge of detective work...the thrill of spotting sensations! buys the satisfaction of knowing when someone else's big flashy diamond isn't...and the opportunity for highly paid, spare-time earnings. GEM TESTING, bible of amateur and professional alike, is a remarkably simple, lavishly illustrated book by B. W. Anderson, director of London's world famed Precious Stone Laboratory. Anderson has examined more gems than any man in history.

Now he shows you step-by-step the high speed methods by which he unerringly identifies precious stones. Emphasis throughout the book is on rapid examination with the naked eye. This FIRST AMERICAN EDITION OF GEM TESTING tells, shows and explains everything you need to know. Copiously illustrated

**GEM TESTING by B. W. Anderson**  
**\$10.95 plus 95¢ handling**  
10-day Money-Back Guarantee

## How to Argue and Win!



Here is a clear, simply written basic guide to logical thinking, showing how to spot the fallacies, the prejudices and emotionalism, the inappropriate analogies, etc. in the other fellow's argument and how to watch for and avoid the irrational in your own judgments. The author makes plain not only how but also why people resist facing the truth.

A tool for clear thinking as well as convincing others. **ORDER NOW!**  
**THE ART OF ARGUMENT by Giles St. Aubyn**  
**\$7.95 plus 95¢ handling**  
No Handling Charge on orders of 3 or more books.  
10-day Money-Back Guarantee  
**EMERSON BOOKS, INC.**  
Dept. 459-E, Buchanan, N. Y. 10511

# Executive Producer

# NOVA

An Equal Opportunity Employer.

WGBH-TV, one of the nation's leading public television stations, is looking for an Executive Producer for the NOVA series.

NOVA, the premier science program, is the only regular series with the length of air time and editorial latitude necessary to treat science subjects in depth.

The Executive Producer is responsible for selecting the subjects for the 20 new NOVA programs each year; appointing and training staff; and controlling and being accountable for a \$3 million budget.

The Executive Producer must have a demonstrated interest in and knowledge of science. An advanced science degree would be helpful. Candidates must have a proven record and considerable experience in TV production as well as the ability to manage a creative production staff of 25 people. Since the Executive Producer will be instrumental in arranging international co-productions, international experience and contacts would be an advantage. Salary negotiable.

Forward cover letter, resume, with relevant experience only, and salary history to: WGBH, Personnel Department, SN (A-12), 125 Western Avenue, Boston, MA 02134.