

EDUCATION

Scrambled Textbooks Spur Learning Process

► SCRAMBLED TEXTBOOKS in which readers scurry from page 1 to page 33 and then back to page 8 in a logical sequence are being used to spur the learning process.

The pages of these textbooks, called TutorTexts, are numbered consecutively, but not read that way. Each page ends with multiple-choice questions; the reader picks an answer and turns to the page number indicated beside his selection. If his choice is correct, he is directed to another page where he will learn new material. If he has chosen wrong, his error is explained and he is sent back to try again.

The format of TutorTexts makes a game of learning, but it is based on sound psychological principles. Faced with regular tests of his knowledge, the student is prodded to do his best.

The originator of the scrambled textbook is Norman A. Crowder, director of the training systems department at Western Design and Electronics Division of U. S. Industries, Inc. The method is used in his book, *The Arithmetic of Computers*.

• Science News Letter, 78:424 December 24, 1960

METEOROLOGY

Table Mountain Will Be Site for Weather Center

► TABLE MOUNTAIN, near Boulder, Colo., has been selected as the headquarters site for the National Center for Atmospheric Research, the National Science Foundation and the University Corporation for Atmospheric Research announced. The National Center will engage in fundamental research on broad atmospheric problems and will coordinate a wide network of similar investigations throughout the country. Table Mountain was chosen because it is ideally situated for the study of hail, thunderstorms, tornadoes and similar phenomena.

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MEDICINE

Contraceptive Devices May Prevent Cancer

► CONTRACEPTIVE DEVICES may play a significant part in preventing cancer of the cervix, or neck of the uterus. And circumcision appears to account for the infrequency of cervical cancer among Jewish women.

The reason is that chemicals rather than physical irritation may be the basis of cervical cancer in women. The contraceptive devices, whether worn by men or women, provide a physical barrier that prevents passage of the chemicals.

Drs. Milton Terris of the Public Health Research Institute of the City of New York and Margaret C. Oalman, Tulane University School of Medicine, New Orleans, report these suggestions in the *Journal of the American Medical Association*, 174, 1847, 1960.

They report further experimental studies are needed to verify their findings, but that

their investigation supports previous assumptions that sexual intercourse is a major factor in the origin of cancer of the cervix. Previous studies have also shown that cervical cancer is rarely found in nuns.

In a study of 122 hospital patients with cancer of the cervix and an identical number of patients with other female diseases, the scientists found no association between the cancer and the number of pregnancies, the duration and frequency of douching, or douching with such coal tar derivatives as Lysol. There was some indication that cervical cancer was associated with syphilis.

The physicians report that significant associations were found between cancer of the cervix and early marriage, multiple marriages, extramarital relations, early sexual intercourse, frequency of intercourse and non-use of contraceptives.

The cancer-producing chemicals may be found in smegma, a secretion found in the external sex glands of both men and women.

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PHYSICS

Million-Dollar Grant for U. of Pa. Atom-Smasher

► A MILLION-DOLLAR atom smasher for use in low energy nuclear physics research will be installed at the University of Pennsylvania under a National Science Foundation grant.

The 12-million electron volt tandem ion accelerator will be used to investigate the properties of the atom's nucleus. It also will enable the University to extend its research program in the study of irradiation damage and of selective irradiation in the related areas of radiobiology and biophysics.

The new equipment will be made available for research by neighboring institutions. It will operate under Dr. William E. Stephens, professor of physics.

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METEOROLOGY

Automatic Weather Station Computer

► AMOS IV, a specialized digital computer, has been developed as a research tool to explore the possibilities of an automatic weather station. Built by the National Bureau of Standards in cooperation with the U. S. Weather Bureau, the computer is the latest version in the AMOS (Automatic Meteorological Observation Station) series.

The AMOS IV receives data from weather-sensing instruments, then processes and arranges the data for teletype transmission to a central forecasting station and to airport weather stations. It can continuously monitor new input data—such as temperature, wind speed and direction, atmosphere pressure, cloud height—while simultaneously processing data already entered and transmitting messages on command.

Earlier versions of AMOS required several complex units to handle input quantities. In AMOS IV there has been a considerable reduction in components and therefore in maintenance.

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IN SCIEN

MEDICINE

Many Ulcer Patients Can Escape Surgery

► SPOTTING the difference between benign and malignant gastric ulcers can spare a large number of gastric ulcer patients from major surgery.

Dr. Gerald D. Dodd of Houston, Tex., reported to the Radiological Society of North America meeting in Cincinnati, Ohio, that a skilled combination of X-ray and gastroscopic examination provides the proper diagnosis. In the gastroscopic examination a special device passed down the esophagus into the stomach is used to allow the physician to see most of the stomach's interior.

Color photography, through special equipment recently developed for gastroscopes, is also helpful in differentiating benign and malignant gastric ulcers, Dr. Dodd said.

The widespread opinion that all gastric ulcers should be treated surgically is based primarily on doubt in the ability of examiner to differentiate between the benign and malignant ulcer, he said. This opinion also stems from the belief that deaths or illness following stomach operations are outweighed by the number of cured patients, he added.

The Houston specialist in radiology said that it was debatable whether a patient with benign disease will be better off with all or part of his stomach removed.

He urged clinical evaluation of the ulcer to separate the candidate for immediate surgery from one who could derive a beneficial and lasting response from medical, or non-surgical, therapy.

Dr. Robert S. Nelson, also of Houston, was co-author of the report.

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MEDICINE

Synthetic Skin Developed To Aid Severely Burned

► A TEMPORARY, synthetic skin may now be used to save the lives of severely burned patients.

Dr. William M. Chardack of the Buffalo, N. Y., Veterans Administration Hospital told the Veterans Administration Annual Medical Research Conference in Cincinnati, Ohio, that results of experiments with a synthetic skin made of polyvinyl sponge and silicone rubber were encouraging.

The material, rigid when dry but soft, pliable and elastic when wet, has protected laboratory animals for periods up to 104 days. As the graft "takes," the surgical sponge is permeated by tissue and firm adherence comes about in a few days.

Although it is not a permanent skin graft, the synthetic probably can serve as a substitute long enough for the patient to recover and have new skin grafted, step by step, to the burned areas.

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CE FIELDS

CONSERVATION

Key Largo Coral Reef Protection Approved

► EMERGENCY REGULATIONS to halt commercial exploitation of Key Largo Coral Reef Preserve have been approved by the Department of the Interior.

The Preserve is a natural coral reef 21 miles long and about four miles wide, lying on the continental shelf off the southern tip of Florida. Commercial interests were blasting, dredging and otherwise defacing the underwater scenic beauties of the area, Interior officials said. Under the approved regulations, such actions will be prohibited.

Scientific specimens may be collected only on permit and no weapons will be allowed in the area.

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MEDICINE

Close Relationship Seen In Inflammatory Diseases

► CLOSE RELATIONSHIP exists between several different kinds of inflammatory rheumatic disorders, Dr. Gerald P. Rodman of the University of Pittsburgh School of Medicine reported at the Hahnemann Medical College and Hospital symposium on inflammation and diseases of connective tissues in Philadelphia.

Dr. Rodman called especial attention to the relationship between rheumatoid arthritis and systemic lupus erythematosus, "although the exact nature of this relationship remains unclear."

Other related diseases he mentioned were progressive systemic sclerosis and dermatomyositis, an inflammation of the skin and underlying tissues and muscle. An unusual "state of the immune system" exists in many patients with these diseases, he said, but the exact role played by immunologic reactions remains to be determined.

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NUTRITION

Oceans Are Limited As Man's Food Source

► MAN CANNOT RELY on the oceans as an inexhaustible source of food for the future. Although fish from the oceans has been used as food since the dawn of man, new ways of harvesting the ocean must be discovered to feed the mushrooming world population.

These new sources will be quickly exhausted through man's own carelessness and lack of planning, Dr. Robert Cushman Murphy, American Museum of Natural History zoologist, reported to the American Geographical Society meeting in New York.

Natural resources once considered plentiful are scarce today. Forests that once mantled the United States countryside with green are gradually being removed. Oil and ore reserves are rapidly being depleted.

Careless use is also taking a toll of ocean life, Dr. Murphy said. Too many whales are still being slaughtered. New England fishermen who used to catch a large variety of fish now find their nets empty. However, this problem is being masked by the fast means of transportation that bring the same kind of fishes to our dinner plate from other parts of the globe.

Dr. Murphy said all countries must cooperate closely in order to obtain the most effective use of the ocean's food. He cited the recent International Geophysical Year and the future international investigation of the Indian Ocean as examples of international cooperation.

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ICHTHYOLOGY

Pacific Salmon Found Near Scotland

► PACIFIC SALMON transplanted by Russians to the Barents Sea have now been found as far south as Scotland.

These fish, which were unknown in the waters off the coast of Europe as recently as five years ago, are now being netted in many places along the coast of northern Europe. Several thousand Pacific salmon have already been caught on the Norwegian coast, and many catches have been reported in Iceland.

These salmon probably came originally from the cold rivers that empty into the Barents Sea in northern Russia, near the Finland border. Since 1956, Russian scientists have been transplanting large numbers of Pacific salmon eggs to their northern waters just above the Arctic Circle to see if the salmon could survive.

As many of 75,000 salmon have returned to these same rivers to spawn, Dr. W. M. Shearer of Freshwater Fisheries Laboratory in Perthshire and Dr. E. Trewavas of the British Museum (Natural History), London, report in *Nature*, 188:868, 1960.

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PUBLIC SAFETY

Vibration Signals Warn Motorists of Danger

► A ONE-MILE STRIP of county road that warns drivers of approaching danger is being tested north of Richmond, Calif.

The road has a rock and plastic "rumble strip" system placed ahead of danger spots. The strips send sound and vibration warnings through the frames of automobiles.

The Contra Costa County Public Works Department and the California Research Corporation are making the tests to see whether motorists will slow down when they hear and feel the signals. At one 90-degree turn in the road, an average of seven major accidents per year occurred before the strips were installed.

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MEDICINE

Germ-Free "Isolator" Reduces Infections

► A GERM-FREE plastic chamber, called "isolator," has proved effective in reducing the number of wound infections that occur in operations.

Surgeons from Walter Reed Army Medical Center have performed surgery on animals placed in the isolator in such a way that the wound and underlying tissues are completely sealed off from the surgical environment. Even the surgeon and the patient are isolated by this new method.

Long-sleeved plastic gloves enable the surgeon to reach into the isolator, which also contains both instruments and supplies.

The isolator may be sterilized with ethylene oxide or by steam under pressure, "depending upon the type of plastic used," the Walter Reed team reported to the Clinical Congress of the American College of Surgeons meeting in San Francisco.

Another feature of the chamber is that it is disposable.

The surgeon's incision is made through the flexible plastic, glued firmly to the skin. All germs are thereby excluded since only the wound and underlying tissues come into contact with the isolator's interior sterile environment.

Dr. Stanley M. Levenson, P. C. Trexler, Dr. Ole J. Malm, Dr. Richard E. Horowitz and Dr. William H. Moncrief of Walter Reed, who reported on the surgical technique, state that it is ready for trial on patients.

It will be particularly useful for the isolation of patients particularly susceptible to infections, such as patients exposed to serious whole body irradiation, and for patients who have serious infections.

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MEDICINE

Hypnosis Successful In Severe Asthma

► HYPNOSIS as a final resort saved the life of a 60-year-old man, Dr. A. H. C. Sinclair-Gieben of the University of Aberdeen, Scotland, reports in the *British Medical Journal*, Dec. 3, 1960.

Until hypnosis was tried, the patient appeared to be dying in status asthmaticus, a condition in which attacks are continuous and do not respond to treatment.

"In many respects this patient could not have been more unfavorable for the induction of hypnosis," Dr. Sinclair-Gieben reports. The patient was extremely anxious, gasping for breath and unable to relax, yet he proved to be easily hypnotized.

The physician says that in this case hypnosis was probably successful because the patient knew this was his last chance and was determined to take it.

Although it is widely believed that hypnosis fails when there is deep-seated anxiety, motivation plays a part in determining hypnotic susceptibility. In this case, Dr. Sinclair-Gieben said, motivation may have overcome all other unfavorable factors.

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