PUBLIC HEALTH

Mother May Bathe Baby In Salad Oil or Shortening

MOTHERS might do better bathing their babies with salad oil or shortening than with certain baby lotions.

Many lotions contain 95% water, resulting in quick drying and little benefit to the skin, a dermatologist reports in *GP* (Oct.), published by the American Academy of General Practice.

Dr. Seymour L. Hanfling of East Orange, N. J., also attempted to clear up some skin-care fallacies. Detergents, he says, are not more irritating than soaps. It is just that women forget that they are more effective and hence use too much.

Machine-laundered diapers can be just as safe for the baby as those that are hand-washed. Also, babies do not need daily baths, because they have little oil secretion and never develop body odor. Except during hot weather, two baths a week are adequate, he says.

Petroleum preparations, such as mineral oils, "cannot be absorbed and therefore cannot possibly nourish the skin." Instead, he says, these preparations have a protective function similar to that of protective creams.

Few high-water lotions have animal or vegetable oils that can be absorbed through the skin. The use of "any edible fat on the skin results in some useful replenishment of the skin oils." Some of the best, Dr. Hanfling reports, are hydrous lanolin, the various salad oils, and the hydrogenated shortenings.

Science News Letter, October 31, 1959

PUBLIC HEALTH

Detergents Skip Filters; Reappear in Tap Water

THE HOUSEWIFE'S detergent is making a complete circle from the kitchen sink, down the drain, into the sewage for treatment, through the ground and back to the sink via the water tap.

Detergents are reappearing in drinking water because filter and other water purification methods that remove soaps from sewage just do not remove these synthetic washing helpers.

Thus, a serious public health problem has been created, Jesse M. Cohen, chemist at the water supply and water pollution research branch of the Robert A. Taft Research Center, Cincinnati, told the American Public Health Association meeting in Atlantic City, N. J.

In 1958 alone, more than 3.8 billion pounds of detergent were used in the U. S. compared to only 1.3 billion pounds of soap. More than 85% of this was used in the household. The tremendous leap forward in the use of detergents is reflected in a comparison of those figures with the history of both household cleansing agents. Soap has been made for 2,000 years while detergents were developed only in the past 25.

Currently, scientists are attempting to make a detergent from sugar, Mr. Cohen reported. One of the simplest tests for detecting detergent in household water is to watch for foaming at the tap. This is the most sensitive test and will detect concentrations as low as 0.8 part per million, he estimated. This test is also a warning signal that other pollutants may be present in the water.

The chemist expressed concern for the chronic effects of continued ingestion of heavy concentrations of such detergents. Scientists agree that efforts should be immediately made to gain some data on a long-term basis on whether or not there are physiological effects.

Science News Letter, October 31, 1959

PEDIATRICS

Brain Wave Meter Shows Multiple Pregnancies

THE MACHINE that measures brain waves can detect tiny heart beats in the womb and determine whether an expectant mother will bear a single child, twins or triplets.

Diagnosis can be made with 100% accuracy between the fifth and seventh months of pregnancy, Drs. C. A. Novotny, W. K. Hass and D. A. Callagan of the U. S. Naval Hospital, Portsmouth, Va., said.

The doctors conducted electroencephalograph tests on 295 women, obtaining 321 tracings. The occurrence of fetal death could also be spotted in most cases.

The 20th through the 27th week was the most favorable period, the doctors said, and 100% accuracy was possible when diagnosing twins or triplets during this period. The earliest positive diagnosis of twins was made at 16 weeks.

Their investigations were prompted by a desire for early diagnosis due to complications of multiple pregnancies; by concern about irradiation hazards of X-ray diagnosis, and by the increasing availability and efficiency of the electroencephalograph. Their report appears in the *Journal of the American Medical Association* (Oct. 17).

Science News Letter, October 31, 1959

AGRICULTURE

Chemical Saves Vitamins In Poultry Feed

A CHEMICAL called EMQ can now save both A and D vitamins in poultry feed.

This chemical was developed at USDA's Western Utilization Research and Development Division, Albany, Calif., and the Food and Drug Administration has given approval for its use as an additive to dehydrated alfalfa meal. Carotene, the compound responsible for vitamin A, is stabilized by EMQ so that only 30,000,000 units are lost by oxidation instead of the 100,000,000 units lost when it is not used.

EMQ also preserves the compound xanthophyll and vitamin D, both important for livestock, it is reported in *Agricultural Research* (Oct.).

Science News Letter, October 31, 1959

IN SCIEN

MEDICINE

Russian Government Provides for Physicians

RUSSIAN PHYSICIANS have few worries because "the state takes care" of them, the director of a Soviet medical institute said.

"In the USSR, improvement in doctors' professional skill is a matter of national importance," Prof. Z. I. Yanushkevichius, director of the Kaunas Medical Institute, told the Second World Conference on Medical Education in Chicago.

'The state budget bears the whole expense connected with the maintenance of the advanced training institutes for doctors . . .," Prof. Yanushkevichius said. "The same goes for traveling allowances, etc. A doctor need not worry about who will replace him while he is absent. The state takes care of that."

He described courses at the 11 advanced training institutes that handle 27,000 doctors a year. Younger doctors, he said, are taught, among other things, medical specialties, foreign languages, and the fundamentals of Marxism and Leninism.

Science News Letter, October 31, 1959

ICHTHYOLOGY

Roccus I Peeps at Bass And Fleas Under Water

AN AQUATIC "peeping tom" called "Roccus I" is being used by University of Wisconsin scientists to study white bass in Lake Mendota and the tiny water fleas that bass feed on.

Designed by a University mechanical engineering professor, Donald Livermore, the Roccus I is a large, green, bootlike chamber made of ⅛-inch-thick steel. It is mounted on an 18-foot-long barge. On top are five 55-gallon drums. The watertight chamber floats, but can be submerged by filling the drums with 2,200 pounds of water.

When submerged, the chamber can be powered at about six miles an hour by a 35-horsepower outboard motor. It can hold two persons, but usually just one person occupies it to study marine life through one of six windows, two of which face downward.

University scientists are using the chamber to study the diet, schooling and spawning habits of white bass. Under the direction of Prof. Arthur D. Hasler, graduate student Donald McNaught is studying the tiny water fleas that are the favorite food of white bass. The water fleas rise to the surface in early morning and again at dusk, as do the bass. The Roccus I is used to study them near the surface and to observe variations in their density during the day.

Science News Letter, October 31, 1959

CE FIELDS

ASTRONOMY

Universe Found at Least Ten Billion Years Old

THE UNIVERSE is at least ten billion years old, some four billion years older than now generally thought.

This conclusion is based on a new age for the Milky Way galaxy, the gigantic pinwheel of billions of stars in which the sun and its planets, including earth, are located. The new age was calculated, with the aid of an IBM 704 computer, by Dr. Fred Hoyle of St. John's College, Cambridge, one of England's foremost astronomers.

His calculations are based on the life history of two types of stars. Those found in globular clusters, known as Population I, are bright, young hot stars. The others, known as Population II, are older stars with characteristics resembling those of the sun and other stars in the arms of spiral galaxies.

Dr. Hoyle used the observed magnitudes for certain nearby Population I stars. He also assumed, as is generally agreed, that Population II stars are older than those in Population I.

His life history curves for the older Population II stars started with an initial hydrogen concentration of 99%, helium nine-hundredths of a percent and a sprinkling of metal atoms. The starting composition for Population I stars was only 75% hydrogen, 24% helium and a much higher, although still sparse, concentration of metal atoms.

Dr. Hoyle's calculation and conclusions are reported to fellow astronomers in the *Monthly Notices of the Royal Astronomical Society* (Vol. 119, No. 2).

Science News Letter, October 31, 1959

PHOTOGRAPHY

Foresee Improved Movie Cameras

HIGH-SPEED motion picture cameras may one day react instantaneously to a stimulus and begin photographing an action at its very inception.

Such movie cameras could start rolling without any advance knowledge of the time the action would occur. They could be used to monitor failure of a mechanical component or a defective operation in a continuous manufacturing process occurring one time out of 10,000.

Development of such a camera was one of several future trends in high-speed photography reported at the University of Wisconsin by William G. Hyzer of Janesville, Wis., a consulting research engineer and authority on high-speed cameras.

The broad objective of high-speed photography, Mr. Hyzer said, is to slow down or stop actions that are normally a blur to the eye, due to their short duration or their high velocity. Slowing them down allows them to be carefully observed, studied or chronologically analyzed.

Mr. Hyzer said he anticipated a further increase in the speed of cameras, shutters and short-duration light sources. This would permit recording and analysis of explosive reactions, re-entry phenomena and other hyper-velocity effects.

The image converter, an electronic device comprising a photosensitive cathode to receive a stimulus and a photographic screen to display and intensify the image, holds considerable promise as the high-speed "camera" of the future, he said.

Another development trend, he said, will be a decrease in size and weight of the camera package, and an increase in its reliability under shock, vibration and high temperature. Such a package could be built into aircraft, missile and satellite components to bring back hitherto unattainable air and space-flight data.

Also envisioned was the integration of camera recording systems with other instrumentation facilities so that all recorded data from highly sophisticated test operations may be analyzed simultaneously and correlated rapidly with increased accuracy.

Science News Letter, October 31, 1959

TECHNOLOGY

Tractor Gets 3,000-lb. Tug From Electric Fuel Cells

AN ELECTRIC tractor that can tug a multiple-bottom plow through parched, packed earth with a pull of 3,000 pounds has been developed.

Although the tractor is strictly experimental, it points to the start of a revolution in powered farm machinery, a revolution that could spill over into the automotive field easily.

Instead of an ordinary engine, the tractor houses a small army of 1,008 fuel cells under its hood. These instantly convert bottled gases, chiefly propane, into electricity. The resulting direct current drives a 20-horsepower motor which powers the tractor.

Efficiency of this unit far surpasses that of diesel engines, reports Allis-Chalmers Manufacturing Company, Milwaukee, Wis. This is partly because little heat is generated in the electricity-producing chemical reaction.

"The possibility of producing electric power directly from a fuel at an efficiency of 90% is truly startling when compared to the best diesel engines, which are about 40% efficient," the company said.

Each individual fuel cell resembles a small battery. A mixture of fuel gases is fed to the anode. The gases are adsorbed by a catalyst, activated, and caused to react in an electrolyte. This reaction releases a stream of electrons, making direct current. Meanwhile at the cathode, oxygen is adsorbed and reacts with incoming current to complete the chemical and electrical circuit. The overall process yields water and carbon dioxide, plus electricity.

Science News Letter, October 31, 1959

PHYSIOLOGY

Disprove Theory on Cause of Baldness

THE THEORY that baldness is caused by a reduction in the amount of blood circulated through the arteries of the scalp has been disproved by a plastic surgeon.

Baldness may be caused, however, by a reduction in the circulation of blood through the veins in the scalp, Dr. Philip F. Corso of Memorial Hospital, New York, reported at the meeting of the American Society of Plastic and Reconstructive Surgery, at Miami Beach, Fla.

Dr. Corso reported that he injected a plastic material called methyl methacrylate into the veins and arteries of the heads of nine male cadavers, ranging in age from infancy to 84 years.

Although the arterial circulation of the scalp decreased sharply in the older specimens studied, the change was not accompanied by a loss of scalp hair, thus disproving the theory that diminished arterial circulation is the cause of baldness, the surgeon explained.

Further observations tended to support a theory, advanced by others, that diminished venous circulation in the scalp might be related to hair loss.

According to this theory, a fibrous layer of tissue, which stretches tightly under the skin of the scalp, may make it difficult for blood to pass through the veins in the area. Dr Corso's study confirmed the impairment of venous circulation in the front of the scalp.

He suggested that surgery to relieve tension in this fibrous layer of the skull might improve venous circulation and possibly arrest hair loss.

Science News Letter, October 31, 1959

TECHNOLOGY

Closed-Circuit TV Speeds Radio News Broadcasts

TO SPEED presentation of news items over the British Broadcasting Corporation's radio service, a closed-circuit television system now provides news-readers and announcers with news flashes while they are actually broadcasting.

The system uses an industrial type television camera with a vidicon tube which is built into a special cabinet normally housed in the news-editing room.

The camera has a one-inch lens and scans the information contained within an area of about six by four inches which is illuminated by lamps built into the cabinet.

When an item of special interest comes into the news room, a script is prepared and placed in the cabinet under the camera lens. An image is immediately reproduced on a high-grade 14-inch picture monitor in the sound studio, and the newsreader can then read the item.

The new television system has materially speeded up broadcast of last-minute news, sports reports, police messages and traffic bulletins from the Automobile Association.

Science News Letter, October 31, 1959