BIOCHEMISTRY

Body Builds Fat in Aging

A theory that a switch in body chemistry takes place in the aging process which changes food utilization places emphasis on a diet in maturity to avoid diseases.

➤ AGING is characterized by a shift in body chemistry toward building up of fat, rather than protein, from food.

This new theory, with implications for the problems of cancer, degenerative diseases and diet in maturity, is proposed by Dr. Jean Mayer, research fellow at George Washington University School of Medicine in Washington and Nutrition Officer of the United Nations Food and Agriculture Organization.

In a very young animal, he found, an increase by five grams (approximately one-fifth of an ounce) represents about one part by weight of protein and four parts of water and minerals, or an energy content of roughly five calories. But an increase of five grams in an older animal may represent all fat (five grams), or 45 to 50 calories.

Growth and weight increase, therefore, are not exactly equivalent. A given weight increase may mean something quite different in a child and in a grown-up. In the progressive slowing and stopping of growth and beginning of the aging process, there is a change from one type of food utilization to another, but not a sudden decrease in the efficiency of food utilization.

Dr. Mayer sees in his theory a warning on diet for grown persons. In a report to the journal, GROWTH (June), he states:

"A diet promoting good, economical growth in youth tends to promote fat deposition in adulthood, and possibly the development of degenerative diseases and malignancies (cancer).

"The assumption that diets judged adequate in growth studies (that is, for growing children or animals) are good maintenance diets (for grown-ups) appears particularly dangerous in this light."

In cancer cells he thinks there may be a sudden or a progressive reversal from the adult characteristic of fat synthesis to the youthful characteristic of protein building. In this the cancer cells are like the "potentially immortal" cells or tissues that are kept growing for years in artificial cultures outside the body. The "potentially immortal" tissues show that if certain glandular influences are withheld, the cells or groups of cells continue in the pattern of protein building and are not submitted to the process of aging.

The glandular influence fits into Dr. Mayer's theory because the change in the pattern of food utilization corresponds to the glandular shifts that come at the beginning of the teen age. On the glandular side there is at this age a shift from a preponderance of growth hormone to a preponderance of the fatlike steroid hormones, such as the sex hormones.

Science News Letter, July 23, 1949

PSYCHOLOGY

Racial, Religious Hatreds May Stem from Self Hate

➤ IF A man hates or despises Negroes, Jews, foreigners, and so on, it may be because he hates and despises himself.

This is the implication of a study made at the University of Chicago by Dr. Elizabeth T. Sheerer, now of Iowa State College. Intensive study of therapeutic interviews with 10 persons revealed a "definite and substantial" relation between the individual's regard for himself and that of his feeling toward others.

It was also found to be possible to improve acceptance of and respect for the self by the psychological treatment. There was also found to be an even closer relation between regard for self and regard for others after the finish of the treatment period.

When the individual's statements about himself were rated on a five-point scale, the average for the first interview was 2.2. The statements about other people rated 2.6. In the last interview the statement on self rated 3.9 while those reflecting on others had gone up to 3.8.

Dr. Sheerer foresees applications of her findings toward the solution of social problems.

"It might mean," she says, "that increased acceptance of minority groups, foreigners, and the like, could best be achieved by some type of group therapy which would tend to alter the individual's acceptance of and respect for himself.

"It might mean that in situations of industrial tension, or professional friction, the most effective means of approach would be through dealing with the attitudes of the person toward himself, rather than devoting our energies to the expressions of, and descriptions of, the external 'causes' of the tension."

Details of Dr. Sheerer's study are reported in the JOURNAL OF CONSULTING PSYCHOLOGY (June).

Science News Letter, July 23, 1949

PSYCHOLOGY

Officers Learn To Read At 488 Words Per Minute

➤ AIR FORCE officers who have completed training in the Pentagon's new Reading Improvement Laboratory are now reading 66% faster than they were six weeks ago.

SECTIONAL CARGO BOAT—Built in three parts, and easily disassembled, this 32-foot, all-aluminum, Army cargo boat was designed so that it can be transported in a cargo plane, and is intended especially for Arctic operations. The rear section, with its 60-horsepower engine, can be used as a separate power unit to propel rafts and barges.

The average reading rate for the 120 officers when they entered the class was 292 words per minute with 83.2% comprehension of what they read. On completion of the course, their reading rate had gone up to 488 words per minute in spite of the fact that the test used was more difficult. But their comprehension had dropped slightly to 79.3%. The next class will be cautioned to take it a little easier so as not to sacrifice any of their comprehension.

The slowest reader on entering was an officer who painstakingly read every word and back-tracked frequently to make sure of getting everything. His speed was only 106 words per minute but his comprehension was perfect—100%. On "graduating", this officer read at the rate of 226 words per minute, more than a 100% improvement in speed, and he did not lose anything in understanding. His comprehension score was still 100%.

Fastest reader in the group on entering was a Colonel who read 456 words per minute with 80% comprehension. On completion of the course, the Colonel scored 810 words per minute with 70% comprehension.

Training in the Reading Improvement Laboratory is under the direction of Maj. B. E. Prater. (*See SNL*, July 16 p. 39).

Science News Letter, July 23, 1949

MEDICINE

Infant Diarrhea Relieved

➤ COMBINING an anti-allergy drug, benadryl, with a sulfa drug brought rapid improvement in 40 babies suffering from infant diarrhea, Dr. C. Zahra Neumann of the Royal Malta University reports in the BRITISH MEDICAL JOURNAL (July 16).

Infant diarrhea, known medically also as infantile gastroenteritis, is the serious disease which has many times swept through hospital nurseries, often killing large numbers of babies. It is believed to be an infection but scientists in years of search have been unable to pin the cause to a single germ. Many different remedies have been tried, but no one has been universally successful.

Dr. Neumann believes that the symptoms of the disease can be explained, at least in part, as a sign of histamine poisoning. Histamine is a chemical normally formed in the body. Among other actions, it stimulates stomach secretion. Given experimentally in large enough doses it can bring on vomiting and diarrhea, often with strong colicky pains.

Release of too much histamine in the body is believed to play a part in allergies such as hayfever, hives, and asthma. Many modern anti-allergy drugs, such as benadryl, are really anti-histamine chemicals.

When benadryl and a sulfa drug, sulfamezathine, were given in combination to 40 babies, the diarrhea stopped in five days, Dr. Neumann reports. There was only one death, compared to three in 42 babies treated with the sulfa drug alone, and four out of 24 babies treated by a short period of starvation except for salt and sugar solutions given by mouth or vein.

Other favorable effects from the combination of drugs were, Dr. Neumann reports, "the very quick disappearance of toxemic (poisoning) symptoms."

Vomiting stopped in a very short time. Prostration, difficult or labored breathing and rapid pulse subsided in most cases in a few hours.

"The continuous and irritating whine," Dr. Neumann states, "is replaced by a more peaceful cry. This is not surprising, as benadryl seems to have a sedative effect on the central nervous system, and in certain cases infants who have been unable to sleep owing to restlessness or colic repose quietly after a few doses."

Science News Letter, July 23, 1949

● RADIO

Saturday, July 30, 3:15 p. m., EDST
"Adventures in Science" with Watson Davis, director of Science Service, over Columbia Broadcasting System.

Dr. Kenneth E. Appel, professor of psychiatry, Medical School of the University of Pennsylvania, in Philadelphia, will talk about "Rules for Successful Living."

Question Box

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MEDICINE

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What need does the new plastic lung fill? p. 53.

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