

## BIOLOGY

# Start of Human Life Shown by Electron Microscope Pictures

## Problems of Human Sterility May Also Be Solved With Aid of Pictures Magnifying Spermatozoa 27,000 Times

**N**EW and detailed knowledge of how human life is started when the sperm cell penetrates the egg cell is expected from electron microscope pictures of human spermatozoa which reveal for the first time many hitherto unknown anatomical details of the human male parent cell.

Facts already learned from preliminary study of the picture of a spermatozoon from a 32-year-old father of four children are reported by Dr. Frances I. Seymour and Dr. Moses Benmosche, of New York (*Journal, American Medical Association*, May 31).

Problems of human sterility may also be solved with the aid of these pictures which magnify the spermatozoa 27,000 times.

The spermatozoon, as revealed by these pictures, has a head; a body, formerly considered its neck, nearly twice as long as the head is wide at its widest part; and a tail more than nine times as long as the body. This is much longer than previously supposed, and the tail is now seen to contain variations in structure which may enable it to perform some special function.

The head is pear-shaped with a crater-like notch at its crown. This newly discovered feature "may very well be some form of suction apparatus to facilitate the penetration of the ovum (egg)," the scientists report.

The body, which used to be called the neck, "appears to be a segmented structure, averaging nine to 12 segments in

the specimens examined. . . . Throughout the length of the body runs a core which is approximately uniform in diameter. This core is distinguished from the rest of the body by its opacity, being denser than the segmented structure around it. The core becomes the tail.

"The apparent segmentation of the body probably accounts for the extraordinary motility of the head of the spermatozoon as it is propelled in a forward movement."

Previous knowledge of spermatozoa consisted of three points: motility or non-motility; the general appearance when magnified 2,000 times, instead of the present 27,000 times; and the number in a given specimen. Fertility was supposed to depend either on ability of the spermatozoa to move, or on an imaginary spirem arrangement in their mid-section. This last theory was not confirmed by the electron microscope pictures.

"As research in these higher magnifications goes on," the scientists declare, "we may have to throw overboard the old theories of chemotaxis (chemical attraction of the egg for the spermatozoon) and revamp much of what was heretofore believed true."

*Science News Letter, June 7, 1941*



### VERY STRANGE BIRD

*These infant brown pelicans were photographed in their birthday suits by the U. S. Fish and Wildlife Service. It is lucky, they suggest, that these birds do not go farther north than the Cape Romain Refuge in South Carolina.*

## PSYCHOLOGY

## Germany's Psychological Warfare Plans Revealed

**G**ERMANY began arming for the present World War, long before she started building airplanes and tanks, by building up systematic plans for psychological warfare.

These plans are revealed in a comprehensive survey and bibliography of German books and articles on war psychology now being completed for the Committee for National Morale under the direction of Ladislav Farago. Much of the material studied exists in this country only in microfilm copies and is available only to this Committee.

One section of the survey deals with psychology in total war. Here are included German psychological writings dealing with weapons of psychological warfare, propaganda, terror, intimidation, the fifth column, strategy and tactics, fields of psychological warfare, national psychology, and psychological espionage.

Problems of the selection and testing of military personnel, which has received emphasis in American military

psychology, is only a small and unimportant part of German psychological warfare, this survey indicates.

The psychology of combat has received the attention of German psychologists. They discuss fatigue in combat, panic, and anxiety, and how to control these conditions.

Problems of leadership and the psychology of military life also have sections of this survey devoted to them.

An English translation of all 600 articles and books has been prepared. A

brief biography of each author and his present status in Germany is included if available. And abstracts of 200 books and articles of greatest significance for American problems have been prepared.

Cooperating with Mr. Farago in the preparation of this survey are Prof. Gordon W. Allport, Prof. E. G. Boring, Dr. S. S. Stevens, and Dr. J. G. Beebe-Center, all of Harvard University; Prof. Kimball Young of Queens College and Dr. Floyd Ruch of the University of Southern California.

*Science News Letter, June 7, 1941*

dents given the vitamin A treatment ranged from a slight red-green confusion to large error scores over a wide range of color when tested by a revised form of the Nela test of color vision. Some made as many as 21 errors out of a possible 24.

*Science News Letter, June 7, 1941*

#### WILDLIFE

### Beavers Make Reservoirs For Livestock in West

**B**EAVERS building dams in upper watersheds of a soil conservation district in Utah are welcomed by stockmen, because they provide places where cattle can be watered, without human labor or expense. The same beavers were berated as pests a few months ago, when they were living farther down, in irrigated country, and playing hob with the irrigation canals. Wildlife management workers trapped them out, moved them to the uplands, and released them on streams where their labors would be beneficial instead of trouble-making.

*Science News Letter, June 7, 1941*

#### PSYCHOLOGY

## Hint That Color Blindness Can Be Remedied By Vitamin A

### Experiment With Eight Color-Blind Students Indicates Errors Can Be Reduced After Only 12-Day Treatment

**F**IRST hint of a possible "cure" or at least partial cure of color blindness, hereditary defect for which scientists have hitherto always believed nothing could be done, now comes from experiments with vitamin A treatment reported by Dr. Robert D. Loken, of the psychology department of the University of California at Los Angeles.

A group of eight color-blind college students made only half as many errors, on the average, in seeing colors after 12 days of vitamin A treatment as they did before treatment, Dr. Loken discovered.

"Before vitamin A dosage the total score for the eight subjects was 88, or an average of 11 errors," Dr. Loken reports. "After the dosage the score was 34 for the entire group, a reduction of six errors per person."

Vitamin A is the vitamin needed to prevent night blindness. This is apparently the first report of its use in treating color blindness. In the California experiments each student took 12 capsules containing 25,000 units of vitamin A, one capsule each day. This is more than four times the amount recommended as the daily requirement of an adequate diet.

Vitamin A cannot yet be considered a cure for color blindness. Dr. Loken pointed out that his is only a preliminary experiment and that many other factors must be investigated.

"There is no implication," he declared, "that all or any cases now unfit for industrial purposes because of color-vision deficiency might benefit sufficiently from

vitamin dosage to bring them up to the 'normal' level of color discrimination."

The color blindness of the college stu-



#### TALKING WITH LIGHT

Sidney Cooper, 17-year-old Stuyvesant High School student, talks into the microphone. His voice modulates light beam of flashlight held by Jordan Prince, 15, of College of City of New York. The photoelectric cell at right transforms beam into sound heard by Walter Kublin, 16, also student at City College. The three boys are members of the Experimental Electronics Society and are demonstrating their work at a joint meeting of the American Institute Science and Engineering Clubs and the New York Electrical Society.