

PHYSIOLOGY-PSYCHOLOGY

**Brain Transplanted
From Toad to Frog**

THE FANTASY of transplanting personalities from one man to another, foundation of many movie romances and comedies, has been realized in the world of the lower animals by the transplantation of a toad's brain into a frog's head. The frog then proceeded to behave in a partially toad-like manner.

The experiment was performed by Prof. H. Giersberg of the University of Breslau. (*Die Umschau*, Feb. 23). Using an exceedingly delicate surgical technique, he transplanted into the heads of a number of frog tadpoles the brains of an equal number of toad tadpoles. Most of the tadpoles survived only until the time came to lose their tails and gills and grow legs for life on shore, but two of them came through all right, and grew up to be normal-looking frogs.

One of the animals, equipped with the front part of his own brain and the middle and back parts of a toad brain, showed certain toad-like traits in his actions. He hopped little and crawled much, which is toad rather than frog behavior. He also kept digging shallow pits in the wet sand, as though to hide himself. Frogs bury themselves only when winter approaches, but toads dig themselves in practically every day. Thus, though his digging was not abnormal for a frog, the time at which he did it was distinctly "toad time."

Science News Letter, March 28, 1936

ARCHAEOLOGY

**Ox Buried With Honors
Unearthed In Transvaal**

REMAINS of an ancient people who thought highly of cows or oxen, even going so far as to bury one of these animals like a human, have been revealed by excavation in the Limpopo Valley, Transvaal.

Bones of cows or oxen were found mingled with human bones, when Capt. G. A. Gardner excavated a site known as Bambandyanalo, on behalf of the Archaeological Committee of the University of Pretoria. Nothing like this ox cult has been found heretofore, he reported.

The animal given a human type burial was surrounded by small stones and its bones were covered with upturned pieces of pottery, exactly as graves of the people were arranged.

The site is believed to be a habitation of the first Bantu natives to find their

way into South Africa. Capt. Gardner has not yet estimated the age of these immigrants, but the Bantu are generally supposed to have reached South Africa not earlier than 900 A. D.

A huge trash pile of ash was found, fully 20 feet deep, containing animal bones and sweepings from huts. This indicates that the people occupied the settlement many centuries. Quantities of burnt grain were found, showing that the people were farmers as well as cattle owners. Today the climate is too arid for farming.

The site, so far only partially explored, reveals that South Africa had an Age of Bronze, after all. Heretofore, archaeologists have believed that this part of the world had the unusual experience of jumping from the Old Stone Age into the Age of Iron, skipping the intermediate stages of progress in which advanced stone work would be done, and then copper and bronze introduced.

People of the newly explored settlement made a great variety of pottery, evolving from crude objects lacking decoration to pots of unusual shape and decoration. Capt. Gardner plans to continue investigation of the important site.

Science News Letter, March 28, 1936

CHEMISTRY

**Non-Slippery Floor
Wax Is Patented**

NO DANGER of feet slipping, or of rugs skidding on floors waxed with the non-slippery floor wax for which a patent was recently granted to a Brooklyn, N. Y., inventor.

The wax is claimed to give a hard, continuous film capable of yielding a high, lasting, semi-transparent polish. Its novel characteristic is a "higher coefficient of friction," which means that it is less slippery than conventional waxes. Tests carried out by the inventor, using sole leather against wood waxed with the new product, indicate that a floor would be less than half as slippery as it is with conventional waxes.

This non-slippery property is obtained by adding to the mixture of beeswax and carnauba wax generally used in making floor waxes about 10 per cent. of high grade light-colored raw rubber.

"Floor wax containing this amount of added rubber," states the patent, "acquires a coefficient of friction making it safe in the household but without forfeiting the advantages of wax properties." Walking on floors waxed with it, or ordinary furniture movement, the inventor claims, does not mar its surface.

Science News Letter, March 28, 1936

IN SCIENCE

ARCHAEOLOGY

**Texas Caves Visited
By Prehistoric Americans**

THE SCENIC Longhorn Caverns of Texas were visited by prehistoric Americans.

This is the deduction from ancient souvenirs of men found in the caverns by Dr. Charles N. Gould, National Park Service geologist.

Unlike modern man's traveling trade-mark, his carved initials, the prehistoric Indians left as relics of their stay such things as arrow points, grinding stones, and many animal bones. Some of the meat bones were split for the marrow inside, good proof that man camped and ate at the site.

Making allowance for the fact that the caves are of the "trap cave" type into which animals and objects can fall, Dr. Gould stated:

"Longhorn Caverns bear every evidence that they once served as shelters and probably as homes for prehistoric man."

The caverns today are a state park, noted for their fantastic stalactite and crystal formations.

Science News Letter, March 28, 1936

PHYSICS

**Sunshine Strongest Atop
Of High, Cold Mountain**

SUNLIGHT beats most strongly at the tops of high mountains, where hardy climbers find it impossible to get warm.

This paradox of solar physics was brought down from the heights of the Andes by an exploring party of the Smithsonian Institution headed by C. P. Butler. With instruments packed up steep trails, they found that the sunlight at the top of Mount Aunconquilcha, nearly 20,000 feet high, was nearly one-sixth greater than it was at sea level. Yet in the middle of the day the temperature hardly rose above the freezing point.

Although the sunlight brought no warmth, it did carry the constant menace of sunburn. At a mining camp 2,000 feet below the summit, the workers were burned almost black.

Science News Letter, March 28, 1936

E FIELDS

AERONAUTICS

Rocket Motor Develops 200 Horsepower Per Pound

THE "MOTOR" in the experimental rocket of Prof. Robert Goddard yields over 200 horsepower per pound of weight, according to his new report on research progress issued by the Smithsonian Institution. Speeds as great as 700 miles an hour are developed with the Goddard rocket.

By comparison the motor of a typical light motor car weighs seven pounds of engine for each horsepower developed.

Modern military aircraft engines have one and a half pounds of motor for each generated horsepower. Special aircraft motors like those of the Italian racing planes have cut weight so that they need only three-quarters of a pound of motor for each horsepower.

The new high-speed streamlined trains powered by Diesel-electric have motors weighing ninety pounds for each horsepower they develop.

Science News Letter, March 28, 1936

ETHNOLOGY

Glorious to be Free of Husband, Women Sing

"OH, HOW glorious it is to be free and not to belong to a husband."

So the women in Liberia sing, on occasions, reports Miss Etta Donner of the Vienna Africanistic Institute, who has returned from studying the social position of women in Africa's tropic woods.

Young Miss Donner traveled alone and was not afraid. White people are much respected where they are not yet well known, she has found.

Girls in Liberia are kept in the "sandbush" for months or even several years, and nobody is allowed to approach them, Miss Donner learned. Married women have a hard time, and an inferior position. Their only importance is to produce families, and they are not even allowed to punish the children.

Unmarried mothers are not held in contempt, and the children are their own, Miss Donner reported. What is

extraordinary to civilized people is finding that a father of an illegitimate child tries his best to purchase it, and offers high sums.

The white woman told of being admitted to a secret African alliance, the Serpent's Federation, which has international standing in Africa, for when she displayed the secret signs of membership, she was cordially received in other clans.

The initiation ceremony consisted in pushing her from dazzling sunlight into a dark cave where she was frightened by wild masks and imitations of animal voices in terrible uproar. Later, she was given a horn containing an antidote for serpent poison. This mixture of plants is now being chemically analyzed, she stated.

Women of Liberia have some advantages. They talk a language of their own, which no man is allowed to pronounce.

Science News Letter, March 28, 1936

PHYSICS

Energy States in Atoms Likened to Angry Women

NO ATOM, of course, has white teeth and flashing eyes. But in many ways an atom bears more resemblance to an irritated female than it does to the mechanical models which have been in vogue until recently.

Speaking at Swarthmore College on "The New Era in Science," Dr. W. F. G. Swann of the Bartol Research Foundation likened the "energy states" which physicists speak of when talking about atoms to states of feminine temperament. Given a sufficient degree of anger and such a temperamental state may change abruptly into another one; ecstasy into fury, serenity into chaos. Both for woman and atom the tendency to change of state depends upon a combination of internal and external circumstances. The degree of wrath which produces the change is analogous to what physicists call a "matrix element" for the atom.

Physicists never know when any particular one of these atomic energy states will change into another one. Some even believe that such predictions are fundamentally impossible. Need the obvious comparison be stated?

Why does a woman show anger? Ask her why she weeps and the answer may very likely be "Just because." So also to many physicists it is meaningless to ask "Why" in reference to fundamental phenomena.

Science News Letter, March 28, 1936

MEDICINE

Glass Tube Put in Man's Blood Vessel For Study

A METHOD of gaining new knowledge on obscure diseases of blood vessels and on the watery swellings known as edema was described by Dr. Eugene M. Landis, of the University of Pennsylvania Medical School, at the meeting of the American College of Physicians.

For the development of this method, which was called the most outstanding piece of medical research in 1935-36, Dr. Landis was awarded the John Phillips Memorial medal of the college.

Gray-haired physicians, leaders in the profession, sat taking notes as the thirty-five-year-old doctor described his method and indicated its possibilities.

The method is designed to give information about the state of minute artery endings called capillaries. These are found at the tips of the fingers and toes, in the nail beds, and just under other outer surfaces of the body. In certain conditions like Raynaud's disease, in which the fingers and toes are always cold and an unhealthy white color, physicians know a disturbance of the blood flow through the capillaries is to blame. Just what the disturbance is and what to do for it are still unsettled questions which are engaging more and more the attention of medical research workers.

The method Dr. Landis devised for investigating the state of these capillaries is to insert a very tiny glass tube called a pipette into a single capillary in the bed of a man's nail or in tissues of other animals. The capillary blood vessels and the glass tube are both so small that Dr. Landis has to work under a microscope.

By this method he has measured the passage of fluid through the walls of normal capillaries into the surrounding tissues. With this as a standard, he measured the passage of fluid when the capillary walls had been damaged by chemicals or by mechanical injury. He found that the fluid passed through the damaged capillary walls from five to seven times more rapidly than normal. This finding shed light on the condition known as edema in which apparently too much fluid passes through the capillary walls.

Dr. Landis was called one of the most brilliant of the younger investigators in this country, a man with a past record unequalled by anyone of his years.

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