

NUTRITION

Powdered 'Beefsteak' Diet

Meat powder, richer in iron and protein than powdered milk, is seen as an excellent food supplement for peoples of newly developing countries—By Barbara Tufty

► A DELICIOUS POWDER made entirely from meat offers a high-protein source for future meals.

The golden-brown powder smells agreeably like cooked meat and tastes like meat gravy.

Made by drying and grinding parts of livestock, the powder can be used by itself, or it can be added to foods such as potatoes and corn. Vegetables such as cabbage and spinach can be pepped up for reluctant children with this nutritious powder.

Meat powder is richer in iron than milk powder and has more protein, it is reported by Dr. I. Mann, Minister of Agriculture and Animal Husbandry in Kenya, East Africa, where the powder already is being eaten.

A mixture of 40 parts dry skim milk and 60 parts meat powder is reported to be selling well on the Kenya market. Called "nyamaziwa," it has a broader range of amino acids and minerals than does the straight meat powder.

Containing 74% crude protein, the powder can be packed in compact containers and easily shipped for long distances without spoiling or losing its flavor or quality.

This is particularly important in newly developing countries where distances between markets are usually great, climates are varied and facilities for preserving meat are scanty, he said.

More than a million pounds of meat powder have been sold on the market since its manufacture began in Kenya a few years ago. Nearly three-fourths of a million pounds were distributed in the emergencies of droughts and floods that struck Kenya during the years of 1961 and 1962.

The golden powder also can help solve one of the most serious problems of the African livestock industry. Certain livestock of tropical lands are so crowded that they cannot find enough food and are undersized, tough and thin. Besides this, these animals eat voraciously any vegetation they can reach and can turn the land into a desert.

Such scrawny animals are not suitable for eating as fresh meat, but they can be turned successfully into meat powder. Everything is used in the powder except the hide, bones, hooves, horns and the intestinal tract. These by-products are used for making fertilizers and bone meal feed for non-grazing animals such as pigs and poultry.

The added bone meal increases egg, pork and poultry production. By lessening livestock numbers, the remaining animals have more to eat, are better tended, and provide better meat, hides and skin.

Dr. Mann detailed his country's successes with the meat powder at the First African Meeting on Animal Production held in

Addis Ababa, Ethiopia, under the sponsorship of the Food and Agriculture Organization of the United Nations.

The potential use of this meat powder is expected to vary because of the social, political, economic and religious aspects in different countries. Religious scruples and taboos against eating meat are difficult to overcome.

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PUBLIC HEALTH

Fish Deaths Renew Insecticide Inquiries

► THE WIDELY-PUBLICIZED mass deaths of fish in the lower Mississippi, blamed on the "normal" use of insecticides, is merely a sample of what is happening across the nation, a Government wildlife expert reported.

Researchers have suspected for several years that the regular mass deaths of fish in many areas is due to the approved use of crop insecticides, said Dr. John L. Buckley, chief of the office of pesticide coordination, U.S. Fish and Wildlife Service.

"We know that such use is widespread," he said, "and we know that the poisons do not stay where we put them."

Approved use of DDT for mosquito control is to blame for the annual loss of young trout in New York lakes, he told the Entomological Society of Washington, D. C.

The insecticides are washed by rain into streams and rivers and collect in the lakes. The poisons are absorbed and stored in the fatty tissues of animals.

Dr. Buckley said that of the salmon in Sebago Lake, Maine, more than half the older fish have stored levels of poisons above that allowed in domestic meats.

These occurrences of insecticide accumulation are typical of what is happening in many parts of the United States, he said.

He cited these examples because extensive study indicated that the situation was due not to accidental spillage of large amounts of DDT, but to the normal and recommended application.

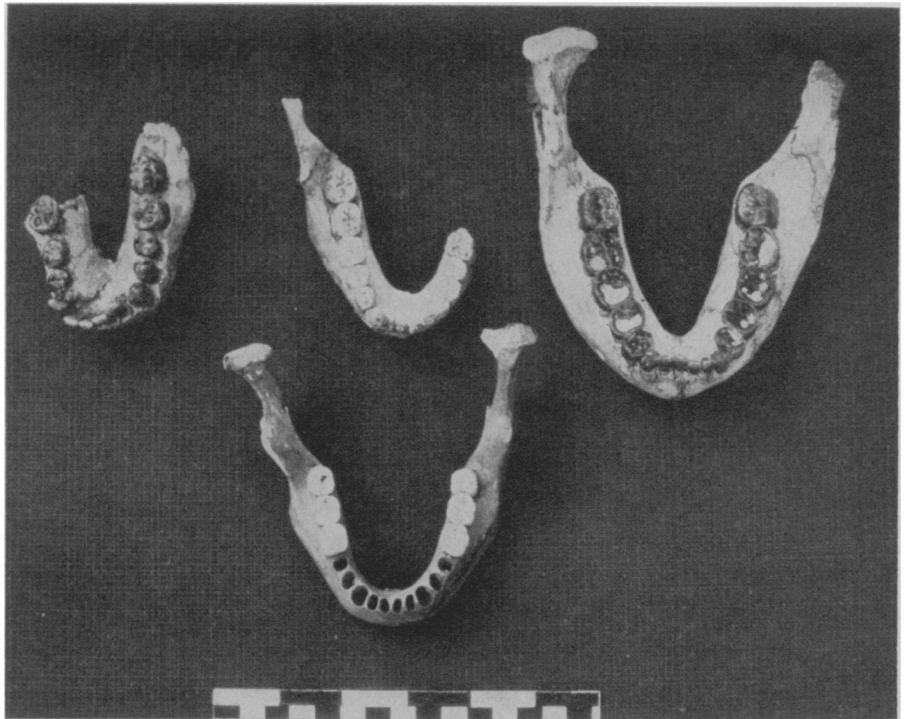
DDT is related to aldrin and dieldrin which figured in the fish killing in the lower Mississippi which prompted the concern of Sen. Abraham Ribicoff (D-Conn.) to order public hearings on the registration of pesticides.

Dr. Buckley questions whether it will be safe for sportsmen to continue to eat fish and wildlife that are storing up these insecticides.

Human levels of tolerance to some of these poisons are unknown.

Meanwhile, the U.S. Department of Agriculture is developing methods of insect control that do not use poisons.

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JAWS COMPARED—The lower jaw of a child of the new species *Homo habilis* (top left) and that of a young female of the same species (top center) resemble that of present-day *Homo sapiens* (bottom center) but are strikingly different from the massive mandible of *Zinjanthropus* (top right).



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SKULLS, PRIMITIVE AND MODERN—The skull (left) of a young woman of the new species is compared with that of a modern African.

ANTHROPOLOGY

'New' Fossil Man Found

Discovery in East Africa of fossils of a primitive human being nearly two million years old resembling modern man may upset basic anthropological theories—By Nancy Lawson

See Front Cover

► THE ANNOUNCEMENT of the finding of a new human species that lived in Africa 1.82 million years ago calls for a major revision in anthropologists' concepts of how the human race began.

According to the discoverer, Dr. Louis S. B. Leakey, British anthropologist, the "new" man, named *Homo habilis*, lived side by side in Tanganyika with another man-type discovered by Dr. Leakey in 1959 and named *Zinjanthropus boisei*. (See SNL, 80:83, Aug. 5, 1961)

Formerly, experts had hailed many man-like fossils they found as evolutionary steps in the direct line to present day man. But new evidence suggests that some of them may be, instead, different branches off the same tree that produced man.

Dr. Leakey has found that the new man in some respects resembles modern man, and lived before, during and after the time of the Zinj man. This newly found man wandered the same hills and took water from the same streams, side by side with the Zinj man but without intermarrying.

The skull of the new species was widest toward the top as it is in present-day man, while that of the Zinj was widest at the bottom as is evident in the photograph on this week's front cover showing the skull of a young woman of *Homo habilis* (left) and that of the more primitive *Zinjanthropus*. The differences in the occipital bones and vaulting are also clearly shown.

It seems now, in the light of this evidence, that nature tried out several man-types. From a common ancestor they headed down many roads of evolution: some to become apes, one to become *Homo*, and others,

such as *Zinjanthropus* and other *Australopithecines*, to become man-like but not directly related to us.

In those days several man-types probably lived in the same areas just as chimpanzees and gorillas do today.

Evidently Zinj went down a blind alley in evolution. After many years he died out, while his more man-like fellow, *Homo*, survived and began to migrate from his African cradle to the new and greener pastures of Europe and Asia.

Dr. Leakey found a *Zinjanthropus* jaw half a million years younger than a Zinj skull which it fits almost exactly. This is evidence that Zinj was not changing while his companion became more and more modern.

Our ancestors stood only about three and one-half to four and one-half feet, but they walked upright. Their skulls, though small, are shaped somewhat like modern man's. Unlike Zinj, the inside of their lower jaw was formed so that their tongues could have formed words.

They probably made tools, an art also acquired by Zinj. They may have built shelters.

Although less muscular than Zinj, *Homo habilis* lived comfortably with him because Zinj was primarily a vegetarian, while *habilis* apparently ate meat.

Dr. Leakey made his new discovery in the Olduvai Gorge where he found Zinj five years ago. He has collected the bones

SIGNIFICANT DISCOVERIES IN ANTHROPOLOGY

30,000 years ago
Late Pleistocene
Cro Magnon Man
Homo sapiens
France

30-60,000 years ago
Late Pleistocene
Neanderthals
Homo sapiens neanderthalensis
Europe, western Asia

c. 450-600,000 years ago
Early Pleistocene
Java Man
Pithecanthropus
Trinil, Java

(.....) years ago
Early Pleistocene
Skirkfontein
Australopithecus africanus
Transvaal, South Africa

35-40,000 years ago
Late Pleistocene
Floridsbad Man
Homo sapiens
South Africa

250,000 years ago
Middle Pleistocene
Steinheim Man
Homo sapiens (?)
Germany

c. 600,000 years ago
Early Pleistocene
Java Man
Homo erectus
(*Pithecanthropus robustus*)
Djetis, Java

New *Zinjanthropus* material
Lake Natron, Tanganyika
East Africa

1,750,000 years ago
Early Pleistocene
Australopithecus
(*Zinjanthropus*) *boisei*
Olduvai Gorge, Tanganyika
East Africa

40-50,000 years ago
Late Pleistocene
Rhodesian Man
Homo sapiens rhodesiensis
Broken Hill, northern Rhodesia

400,000 years ago
Early Pleistocene
Peking Man
Homo erectus (*Sinanthropus*)
China

(.....) years ago
Kromdraai
Australopithecus
(*Parathropus*) *robustus*
Transvaal
South Africa

c. 800,000-1,820,000 years ago
Early Pleistocene
"Prezinz Child"
Homo habilis
Olduvai Gorge, Tanganyika
East Africa
(Discovery announced by Dr. L. S. B. Leakey in London and Washington on April 3, 1964)

over a period of several years (see SNL, 79:23, Jan. 14, 1961), but the final identification of them as a new species in the genus of man had been withheld while scientists examined the find.

The discovery was announced by Dr. Leakey simultaneously at the National Geographic Society in Washington, D. C., and in *Nature*, April 3, 1964, in London.

Studying the bones independently were Dr. Leakey under a grant from the National Geographic Society, Prof. Phillip V. Tobias of the Medical School of the University of Witwatersrand, Johannesburg, and Dr. John R. Napier of London University's Royal Free Hospital Medical School.

Parts of five individuals were found, including a young woman and a child. The child whose skull was fractured in history's

oldest murder was reported in 1961 as being different from the Zinj man. (See SNL, 79:147, Mar. 11, 1961)

All three scientists reached the same conclusion: these bones represent a direct ancestor of modern man—a discovery of far greater significance than the finding of Zinj in 1959. His place in time is shown in the table drawn up by the National Geographic Society.

Dr. Leakey expressed concern over the destruction of other valuable fossils in the area where both *habilis* and Zinj have been found. There has been more rain in the last few years which means water in the Olduvai gorge. Grazing cattle are coming to the gorge to drink and crushing precious fossils under their hoofs.

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PSYCHOLOGY

Color Books Harmful

► SIMPLE COLORING BOOKS are under attack. They are said to inhibit a child's imaginative and inventive growth by causing him to follow a given pattern rather than letting him work things out for himself.

Coloring books, as well as all the other prefabricated pictures for coloring and shapes for gluing together, are a meaningless cut-and-dried approach to education, stated Dr. Blanche Jefferson, chairman of the program in art education at the University of Pittsburgh, Pa.

Learning to stay exactly inside the lines of the picture, and to color a preconceived, often over-simplified and trite image cramps a child's creativity, she stated in a report published by the Association for Childhood Education International.

The color books also can limit and confuse the child just by giving him too much help, and by placing a fixed idea before him instead of inspiring him to do a job himself.

This approach to education is inconsistent with what is needed to maintain freedom of thought in America, and is more akin to the patterned thinking of totalitarianism, Dr. Jefferson said.

Adults erroneously regard these books as "educational" or as a means to "better muscular coordination."

Parents often feel the coloring book is a harmless activity to occupy the child in a

quiet way while the adult can get some things done for himself.

Not so harmless, said Dr. Jefferson. With these books, the child does not need to think; he needs only to obey. There is no challenge here, and no depth of concentration is needed.

A child can feel close identity and pride in his own achievement if he has done all of it, Dr. Jefferson maintained.

In order to build up the creative resourcefulness and imaginative skills in a growing child, parents and teachers should use a little imagination and resourcefulness of their own, she said.

Many items around home and building provide excellent creative material for the child to work with, Dr. Jefferson said. Basic ingredients are paper, scissors, paste and crayons, paints or magic markers. The paper can be anything—wrapping paper, paper bags, colored paper from magazine advertising, a pretty lining from an envelope.

An adult should not worry about the results of the child's work, she warns. What may seem a mass of scrawls and paint may seem a lovely picture to the child, and he should not be criticized or derided. On the other hand, he should not be overly praised either.

But in whatever ways the child uses materials, said Dr. Jefferson, "the work must be original—all of it—entirely original."

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Eastern Arts Association

CREATIVITY SUPPRESSED—The drawings show how a child's original, free and imaginative conception of a bird (left) was influenced to the stereotyped simplified drawing (right) of the adult color book version (center).

Questions

ANTHROPOLOGY—In what respects does the skull of *Homo habilis* resemble that of *Homo sapiens*? p. 243.

GENERAL SCIENCE—What mental qualities seem to be stimulated by the studying and playing of music? p. 254.

GEOLOGY—How were tiny glass bubbles found in the rocks of Great Swan Island formed? p. 249.

MEDICINE—What new instrument is expected to make childbirth safer? p. 245.

SPACE—How many pictures of the sun per hour will the spectrometer on the new sun-scanning satellite send to earth? p. 247.

ZOOLOGY—What bait is being used to lure porcupines? p. 248.

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