



**Appetites Permitting**

**M**AN'S ABILITY to eat almost anything has aided in promoting his ability to live almost anywhere.

For it is one of the general facts of nature, that any animal's range is limited, among other things, by the distribution of the kinds of food it can use to advantage. If it can eat only one thing, it will be found only where that one thing occurs; if it can eat a fairly wide range of foods, which however are themselves geographically limited in their range, it will be found within the same geographic limits as they.

A specific example might make each case clearer: The cotton boll weevil can feed only on the immature seed pods of cotton and a few related plants. Hence it is found only in the cotton areas of the world: nobody ever saw a boll weevil in Iowa or Alaska or the middle of the Arabian desert. Coral fishes, on the other hand, can use a number of different kinds of animals for food; but since all those animals live on or near coral

reefs the coral fishes are found only in the coral seas.

Animals less "choosy" about their diets range wider: Cattle and horses, for example, can thrive on many different kinds of grass; accordingly we find cattle and horses on all the grasslands of the world, so long as other limiting factors do not intervene to prevent. But they are limited to grasslands: we do not find them in deserts or in deep forests. Honey-making bees can make a living from almost any kind of showy flowers, so we find them wherever such flowers occur.

But man is among the most omnivorous of all animals, and he is thus at home wherever there is anything he can bite off and chew. He seems to do best on the grasslands. Not that he is a grass-eater in quite so primitive a sense as was Nebuchadnezzar; but he does feed very well on the seeds of a few species of giant grasses: corn, wheat, rye, rice, barley, millet, even bamboo seeds. The flesh of almost any animal goes into his pot: beef and mutton, fish and fowl, even camel steaks, goat chops, snails, frogs' legs and alligator tail. In China and India, he gets along on an almost wholly vegetarian basis; in the Eskimo fringe of the Arctic he thrives on a hundred-per-cent meat diet. Dates and milk in Araby, coconuts and breadfruit in the South Sea islands, haggis and oatmeal parrich in Scotland, wurst and potatoes in Germany, hamburger-and-onion at any American roadside.

Surely Allah armed man better for world conquest when He put his teeth into his head, than when He taught his hands to make war, and his fingers how to fight!

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CHEMISTRY—PHYSICS

**Hydrogen Bombardment Creates Radioactivity**

**T**HE NEWEST process for the production of artificial radioactivity is to bombard the light elements, boron and carbon, with hydrogen nuclei.

Dr. C. C. Lauritsen, R. D. Crane and W. W. Harper of the California Institute of Technology, using their giant high voltage tube, have caused the formation of radioactive products by proton bombardment.

A few weeks ago Prof. F. Joliot and Mme. Irene Curie-Joliot produced artificial radioactivity for the first time, and the C. I. T. investigators carried the work further by producing the delayed emission of positrons by flinging deuterons, the hearts of heavy hydrogen atoms, at elements.

The products now formed by proton bombardment seem to be the same as those formed when deuterons are used instead of protons because their life history is exactly the same. It takes twenty minutes to lose half the activity in the case of the boron product and ten minutes in the case of the radioactivity produced in carbon.

The discoverers believe that the proton breaks up on entering the target atom and forms a neutron and a positron. The neutron escapes immediately but the positive electron is temporarily caught, thus transmuting the boron into carbon and the carbon into nitrogen. They regard this as more plausible than the capture of the whole proton because their energy and momentum equations balance most easily if the neutron escapes. And scientists want to balance their equations as eagerly as a book-keeper wants to balance his books.

This energy balance will furnish the simplest method so far discovered for weighing the neutron. Preliminary measurements give 1.006 for the neutron mass.

An interesting feature of the Pasadena experiment is the formation of active gases. The gas produced in the boron bombardment comes off quite readily but carbon seems to want to hold on to its product unless heated rather vigorously.

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New Hampshire experienced what is believed to be its first reported dustfall, December 15, 1933, the cause being duststorms and also possibly volcanic origin.

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