

SPONGES, TORN TO BITS, REASSEMBLE THEMSELVES

A sort of scientific Humpty-Dumpty, able to reassemble itself after being shattered to bits, and needing neither the King's horses nor the King's men to help in the process, was described by Paul S. Galtsoff, naturalist on the U. S. Bureau of Fisheries steamer, "Albatross", before the American Society of Zoologists.

Mr. Galtsoff squeezed small living sponges through fine gauze filters, thus breaking their jelly-like flesh down to the separate cells of which it is composed. Falling into a dish of water, the cells began to creep along the bottom. Where they came into contact with other cells they coalesced with them forming little clumps.

At first these little clumps were simply haphazard assemblages of all the different kinds of cells that go to make up a sponge, but as time went on a sorting process took place, and skeleton cells, flesh cells, and each of the other types slowly migrated into its appropriate place, until at the end of about two weeks each little clump had become a small, perfectly organized, independent sponge animal.

The experimenter stated that for a successful development at least two though and cells are necessary; groups composed of a smaller number of cells fail to develop and finally die. Apparently the cells know their kindred. If cells of two different species of sponges are mixed together they move independently, and each kind coalesces only with other cells of its own species.

USE IRON TO ENSNARE AIR NITROGEN

Difficulties in the path of those who would capture the nitrogen gas of the atmosphere, famous for its aversion for other chemicals, were brought to the attention of the American Chemical Society by Dr. J. A. Almquist, of the Fixed Nitrogen Laboratory. Among the most promising of the methods so far introduced for accomplishing this result, which would cheapen fertilizer, is the making of synthetic ammonia. This pungent gas, formed by the union of three atoms of hydrogen with one of nitrogen, would then serve as the starting point for the manufacture of other nitrogen-containing substances.

Nitrogen and hydrogen can be caused to unite by the agency of catalysts, which are substances capable of producing reactions between chemicals unwilling to unite, although the catalysts themselves do not actually form a part of the new substance. This is the method to which Dr. Almquist has devoted his attention.

"We have made an extensive investigation of catalysts for this reaction," he said. "Observations with materials of the iron type have shed light on the nature of the process involved." Just why the presence of one substance will set off a reaction between others when none of it is used up in the operation, is a point which still puzzles chemists, and one which is the subject of much investigation.

Dr. Almquist and his associates have found, in the case of the iron catalyst in ammonia synthesis, that the pressure under which the nitrogen and hydrogen gases are kept influences the efficiency of the catalyst; they find that the absorption of the product, ammonia, slows up the operation. It was previously thought that the

iron had to take up some of the ammonia before it would work, but the experiments now show that this view is wrong.

Another difficulty in the way of large scale application of the technic is the fact that nitride of iron may be formed on catalysts which cuts down the surface at which the union between the two gases takes place.

MACHINE TESTS MIND AND RECORDS RESULT

A machine which automatically tests human intelligence and records the result entirely mechanically, was demonstrated before the American Psychological Association meeting by Dr. S. L. Pressey of Ohio State University. By simply pressing a key, the person tested revealed his mentality or lack of it.

Questions of the sort commonly used in intelligence tests were used. A question with four different answers, one of which was correct, was shown the subject and he merely had to indicate his choice by pressing one of four keys. The question and answers appeared successively in a window. When he pressed the key, a new question turned up in the window, and, if the proper key had been pressed, a counter recorded the success.

By a simple adjustment of the apparatus it was so readjusted that a new question appeared only when the first one was answered correctly while the counter recorded all attempts.

PLANT LIVES IN AIR; YET HAS HIGH IRON CONTENT

The long, gray festoons of Spanish moss, that form romantic draperies on the trees in the South, must get its food somewhere for all plants must. But since it has no roots and spends its whole life in the air, how does it get the necessary mineral salts? Drs. Edgar T. Wherry and Ruth Buchanan, of the Bureau of Plant Industry, U. S. Department of Agriculture, have been asking themselves this question, and repeated it before the Ecological Society of America.

"Analyses of its ash showed it to contain unusually large amounts of sodium, iron, silicon, sulphur, and chlorine," said Dr. Wherry. "A sample from near the seacoast proved to contain more chlorine than one from some miles inland, suggesting that the source of this element is spray from the ocean which the wind carries up to high levels, and is then brought down by the rain. The sodium and sulphur may reach the plant in the same way, but where the silicon and iron come from is a mystery."

A mixture of asbestos and Portland cement, compressed into sheets, forms a splendid insulating material.

Radio vacuum tubes are called "valves" in England, because they let electricity through in one direction and not in another.
