PHYSIOLOGY

Individual Reactions to Some Drugs Analogous to Hay Fever

WHY ONE person may suddenly die after a single dose of a headache remedy that thousands use without ill effect was explained in terms of chemical reactions at the Chicago meeting of the American Chemical Society. Measures by which chemists might help to prevent such unfortunate accidents were also suggested by Dr. Armand J. Quick of the Fifth Avenue Hospital, New York City.

The unfortunate victims of such accidents have what is called an idiosyncrasy to the drug in question. They are hypersensitive to it just as hay fever patients are hypersensitive to certain plant pollens.

"Only recently has the serious significance of this drug hypersensitivity won recognition," Dr. Quick pointed out.

"Thus, a drug like cinchophen, which has been widely used in the treatment of gout, rheumatism, and neuralgia, has been found responsible for numerous cases of severe liver damage known as acute yellow atrophy. Moreover, cinchophen and related substances and even aspirin, have produced in certain sensitive individuals symptoms very similar to anaphylatic shock, which in some instances was so severe that death resulted."

As to the chemical explanation, it appears that certain drugs can and do unite with the proteins in the body and through this chemical union a sensitivity to the drug is developed.

Certain sugar groups as well as the proteins may be involved in the production of hypersensitivity to a certain drug. For example, Dr. Quick pointed out that many drugs in the body unite with glucuronic acid, a derivative of glucose which is the carbohydrate of corn syrup. This glucuronic acid is found in the carbohydrate complexes of some of the types of the pneumonia germ and other bacteria.

Salicylic acid, component of headache remedies and one of the simplest drugs known to cause severe reactions in sensitive persons, combines with glucuronic acid and also is known to unite with body proteins.

"Thus all the conditions are fulfilled which are required to bring about hypersensitivity," Dr. Quick observed.

Science News Letter, September 23, 1933

PHYSICS

Cosmic Space Filled With High Energy Positrons

REACHES of "empty" cosmic space between the galaxies are not really empty. They are filled with high-energy positrons, positively charged building-blocks of matter. They remain there, suspended permanently in space, because there are no electrons, their negatively charged opposites, for them to mate with. In stars, planets and other ponderable masses of matter, positrons, electrons and the recently discovered chargeless neutrons are associated into atoms.

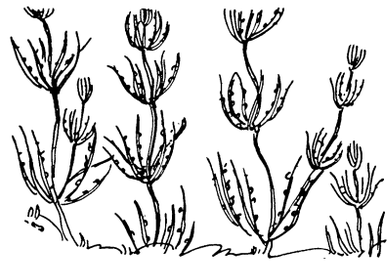
This vast, disperse population of positrons in the incalculable oceans of intergalactic space makes up an appreciable fraction of the total mass of the universe, P. M. S. Blackett, Lecturer in Physics at King's College, Cambridge University, told the British Association for the Advancement of Science. Basing his estimates on the calculations of the Abbé G. Lemaitre of Louvain University, Mr. Blackett finds that the unattached positrons account for about a thousandth part of the whole material universe.

Lord Rutherford, director of the Cavendish Laboratory at Cambridge, in a special interview with a Science Service representative, confirmed the view that a positron-electron pair probably originate outside the atomic nucleus when a cosmic ray strikes an atom.

Science News Letter, September 23, 1933

NATURE RAMBLINGS by Frank Thone

BOTANY



No Trees in the Ocean

MOST water plants are little plants. Nothing corresponding to the trees on shore grows in either the sea or in freshwater bodies on land. The biggest water plants are the great kelps or seaweeds, various species of which grow in the cool waters that wash all the world's temperate and sub-polar coasts. But although some of these attain lengths of a couple of hundred feet, they are not to be compared with trees. Indeed, they are not even to be compared with the vines that drape the trees, for they are not even as strongly built as vines.

And these great seaweeds are outstanding exceptions among water plants. Other seaweeds can be counted as big ones if they reach a length of two or three feet; and the vast majority of sea plants, both in numbers and in total bulk, are microscopic in size. The same is true of freshwater plants: a few conspicuous things like water-lilies and mermaid-weed, but the great majority measurable in inches at best, and the bulk of them invisible to the naked eye.

Why this astonishing disparity in size between land plants and water plants?

To a considerable degree, the limits to size in water plants are imposed by the mechanics of the environment. It bothers a tree or big bush but little when the wind blows, at least when it blows anything short of a hurricane or tornado. Air is not a very massive sort of thing, and when it meets a stout stem it splits and flows around, without a too-vehement push or pull.

But water is many times as massive as air. Even when it flows in a moderate current it puts very considerable stress on any obstacle, and when it is pro-