

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 sim-

ilar 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

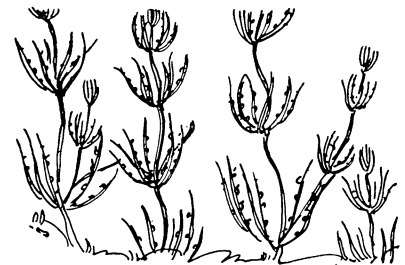
Physics at King's College, Cambridge University, told the British Association for the Advancement of Science. Basing his estimates on the calculations of the Abbé G. Lemaitre of Louvain University, Mr. Blackett finds that the unattached positrons account for about a thousandth part of the whole material 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



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-

voked into great waves or violent eddies it can tear apart or smash very stout structures. If the biggest big tree of California were rooted to the bottom off the California coast, it would not stay there through more than one or two winter storms. The first would strip it of every leaf, and the second or third would uproot it and dash its tough limbs to splinters on the rocks.

Good reason then for the humility of most water plants. They stay below the size that would enable the waves to tear them loose or rip them to pieces, and they keep their structure yielding, so that they go with the waves and currents, rather than stand stiffly against them, inviting destruction.

They are the meek. They have inherited the sea.

Science News Letter, September 23, 1933

GEOLOGY

Geologists Find Poetry in Rocks; Poets Write Geology

THERE ARE not only sermons in stones; there is poetry in them as well. So said Dr. R. S. Bassler, curator of geology at the U. S. National Museum, in an address given in Washington under the auspices of Science Service.

"Much of the poetry of nature which has endured has been written by students who have described their impressions with such care that they are scientifically correct, even though the underlying principles may not have been understood," said Dr. Bassler. "The geologist is seldom a poet and the poet rarely has an appreciation of geology, yet often they evidence a mutual understanding."

Poets who write about such subjects as the wind, the rain, and the dashing of waves against the shore, may not realize that they are really writing about geology, but they are. For the wind moves all the waters of the world, whether as vapor in the air that eventually falls as rain or snow, or as currents and waves in lakes and sea. And water, falling as rain, running as streams, freezing as ice, or dashing as waves, wears down even the "everlasting hills" and is the most potent of all the working tools of geological change.

Dr. Bassler's address was broadcast over the network of the Columbia Broadcasting System.

Science News Letter, September 23, 1933

PSYCHOLOGY

"Kick" of Movie Love Scenes Measured in 16-Year-Olds

MEASURING the emotional flutterings of adolescents as they viewed a glamorous love scene in the movies was part of a program of scientific research reported by Dr. Christian A. Ruckmick of the State University of Iowa to the American Psychological Association at its Chicago meeting.

Scenes of romance and amorous approach produce a far greater effect on the emotions of young people aged about sixteen than on either younger children or those who have attained the age of twenty-two. Younger children, under twelve, received the greatest "kick" from scenes of excitement and personal danger, Dr. Ruckmick found. The emotional excitement was measured in all cases with a galvanograph.

Re-showing of the same films brought out the fact that the vicarious thrill of watching scenes of danger is not so lasting as that from watching an amorous embrace. Although the excitement resulting from the original showing of the hair-raising episode was the greater, repeated showings resulted in a rapid decline of the emotional effect. The young people could sit through six re-showings of the love scenes, however, without appreciable decline of response by the adolescents.

The same experiment, tried on persons suffering from mental diseases, showed that this technique might prove very useful to physicians in revealing past disturbing experiences in the mental lives of the patients.

Does Your Heart "Skip a Beat"?

If you were startled by hearing the sudden noise of a pistol shot, would your heart jump a beat or behave in other irregular fashion?

It might, it seems from research reported to the same meeting by Dr. Carney Landis, of the New York Psychiatric Institute. The popular idea that the heart is intimately connected with emotional experiences, especially of a surprise nature, receives support from Dr. Landis' experiments.

Psychologists have so far failed to confirm this idea because they did not observe carefully enough the timing of the startling experience with relation

to the period in the cycle of the heart's action, Dr. Landis said. At certain points in this cycle, the heart does not respond; at others, the paths are open and irregularity of action is produced.

Dr. Landis startled his subjects by sudden yells, by the raucous blast of an automobile horn, by the loud report of a pistol shot, by the setting off of a photo-flash lamp, and by tapping on the head with a blackboard eraser. The action of the heart was recorded in electrocardiograms.

Science News Letter, September 23, 1933

Sign in Picture Writing Of Mayas Deciphered

SUCCESS in identifying one of the long-sought signs of the Mayan picture writing is reported by J. Eric Thompson of the Field Museum of Natural History, Chicago.

This hieroglyph, which can now be recognized in the reading of old stone monuments in Mayan cities, is the sign for fifteen Tuns, or approximately 15 years. Since the Mayas counted "by twenties," the numbers five, ten, fifteen, and twenty, were important and much used in their calculations.

"Glyphs representing five, ten, and twenty Tuns respectively have been identified but the glyph for fifteen Tuns, the remaining division in the vigesimal system, has heretofore eluded identification," said Mr. Thompson.

"The task of translating Maya inscriptions is extremely difficult, the greater part of the glyphs not yet having yielded their meanings. Indeed, in the past twenty years the number of glyphs translated could be counted on both hands."

The sign for fifteen Tuns, or years, devised by the Mayan Indians is not very different from the sign for twenty years. It is an oval decorated block standing on a pedestal.

Science News Letter, September 23, 1933

Buying a winter coat on a warm day now becomes a pleasure in one store that maintains cold weather temperature in a room where coats are tried on.