

not only live longer but keep their appearance of prime physical condition and their ability to have offspring to higher ages.

Science News Letter, September 20, 1941

"Shock" Stuff in Blisters

A SUBSTANCE having some of the same physiological effects as histamine was found in the fluid of blisters caused by accidental scaldings in human beings, by Dr. I. J. Greenblatt and A. Pecker of Bellevue Hospital, New York City. Histamine is a compound held responsible for shock, asthma and other disagreeable but baffling effects by some physicians.

When administered to rats, this blister fluid had the same effects on their digestive reactions as histamine. Histaminase, an enzyme that destroys histamine, prevented the reactions in the rats.

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Pancreas Aids Vitamin

VITAMIN A, made famous through its use to improve the vision of night-fighting pilots, is not absorbed into the bodies of persons with certain diseases or defects of the pancreas, gland under the stomach important in digestion. Experiments establishing this point and indicating ways of helping such patients were described by Dr. S. W. Clausen of the University of Rochester School of Medicine and Dentistry.

Dogs with their pancreases put out of action showed as poor vitamin A absorption as did parallel human cases. When various preparations of fresh pancreas, obtained from packing houses, were mixed with vitamin A, absorption was greatly improved. After "trying it on the dog," like treatment was used on human patients, with similar beneficial results.

The seriousness of these cases, and the importance of finding a successful treatment, is emphasized by the discovery that they are in danger not only from the lack of vitamin A, but also from a lack of the rickets-preventing vitamin D, the anti-sterility vitamin E, and the hemorrhage-stopping vitamin K.

Associated with Dr. Clausen in his researches were Dr. B. B. Breese, Jr., Dr. A. B. McCoord, Dr. E. B. Mahoney and Dr. C. P. Katsampes.

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Meat Offsets Gas Poison

AMERICAN soldiers, with their high meat ration, are physically better equipped to meet certain types of war gas than is Vegetarian Hitler, it appears from a report submitted to the meeting of the American Chemical Society by Dr. Jakob A. Stekol and Dr. William J. Conway of Fordham University.

Meat and some other protein foods contain two compounds known as cystine and methionine. These compounds, fed to rats in the experiments of Drs. Stekol and Conway, were found to detoxify benzene derivatives, used as war gases in 1914-18, and also employed in many industrial operations. The same compounds prevented ill effects from pyridine, a poison present in tobacco smoke, and from naphthalene, another industrial compound most familiar to the public in the form of mothballs.

"Vegetarian Hitler would certainly prove to be no match for beef-eating Churchill if both were given the same dose of pyridine or benzene," the Fordham chemists declared. "If Bernard Shaw's vegetarian diet had occasionally been seasoned with a dash of pyridine, he would not have lived to be 85.

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Sprays Disable Beetle

POISON sprays that need only to touch Japanese beetles to disable them were described before the meeting of the American Chemical Society by Dr. W. H. Tisdale and Dr. A. L. Flenner of the du Pont pest control laboratory at Wilmington, Del. Contact with the beetles promptly paralyzes their mouthparts and forelegs. Naturally, a beetle

PSYCHOLOGY

Psychology's Many Schools All Logically Feasible

Each Might Be Developed Without Conflict And All Programs Might Be Successfully Attained

PSYCHOLOGY'S various schools, about which scientists have argued so much, are all feasible, logically, and all might be developed without conflict, Dr. Clark L. Hull, of the Institute of Human Relations, Yale University, told the Sixth International Congress for the

with paralyzed jaws can't be very active as a pest.

There are a number of compounds having this effect, Dr. Tisdale stated. All of them are derived from a complex organic chemical known as dithiocarbamic acid. Some of them have been found effective against other animal pests, among them the internal parasite causing the serious poultry disease, coccidiosis.

The compounds prove their versatility by being deadly also to fungi that cause plant disease. They even do their own sticking, eliminating the need for adhesives added to many other fungicidal sprays to make them cling.

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Warning Against "Hate"

WARNING against any repetition of the "hate" resolutions that marred the record of the American Chemical Society during World War I was sounded by Prof. Harrison Hale of the University of Arkansas. Prof. Hale called attention to the action of the Society in 1918, in withdrawing honorary membership from three noted German chemists, Nernst, Ostwald and Fischer.

"The inevitable effort to make amends for this inconsistent error of hasty action came in 1927, when Nernst and Ostwald were restored," Prof. Hale continued. "Fischer died in 1919 but not before he is said to have refused to consider restoration. This bit of history is given that as American chemists we may reaffirm our faith in the internationality of science and seek to protect this belief from any emotional attack that may come either from ourselves or from others."

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Four possible logical approaches to the problem of explaining human behavior were outlined by Dr. Hull:

1. You can accept the concepts of the physical sciences as the primary or undefined notions on which your system rests, and consider such mental states as anger or perception as coming between a physical event such as a rock dropping on your toe and the very easily observed and measured result, a cuss-word. These objectively observable facts would have to be linked, for logical understanding, with the intervening mental states by equations that would express their observed relationships.

2. You could build a system in which all forms of behavior, such as speaking or kicking or even changing temperature, might be logically deduced directly from the concepts of the physical sciences without assuming any intervening mental state. In other words, such a theory would be to the effect that the rock itself, in hitting the toe, produces the outburst of language—it is not necessary to assume that you became angry first. This is behaviorism.

3. You can use, as your initial or undefined notions, subjective concepts such as those found in the reports made by an individual of his strictly private observations of himself. This tends to be the program of the Gestalt school, Dr. Hull said.

4. You can take as the primary notions the goals or aims of behavior, and reason that specific actions are determined by these ends. This is the program of teleology and vitalism with which Prof. Edward C. Tolman and the Gestalters have an affinity.

"Each of these approaches," said Dr. Hull, "represents a program of research. It is conceivable that all four might be successfully attained. My personal favorite is, of course, the second or behavioristic program."

The first approach, Dr. Hull considers feasible, he said, although it is doubtful whether it is worth bothering about the subjective. The Gestalt approach is a legitimate scientific venture, but "a rather poor gamble." The fourth is inherent in the molar or macroscopic approach into which all behavior theorists at present must be forced. But this handling of behavior in large units has distinct limitations, Dr. Hull said, and should be minimized to the last degree possible.

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BIOLOGY

Natural Growth Hormone Found in Ripening Pollen

U. S. Department of Agriculture Scientists Obtained Their Material By Ripening Corn Pollen in Ether

A GROWTH-PROMOTING hormone, more powerful than any of the synthetic chemicals now in use for speeding root formation, inducing growth of seedless fruits and other recently discovered "plant magics," has been found in pollen by two research workers of the U. S. Department of Agriculture, Dr. John W. Mitchell and Miss Muriel Whitehead.

They obtained their material by extracting ripening corn pollen in ether and then evaporating off the ether. A fatty substance is left, which is mixed with lanolin in one-to-ten ratio. This paste or ointment is then spread on the plant part where growth-stimulating effects are desired. A ring of it around the stem of a seedling bean plant caused an elongation between 1.5 and 2.5 times greater than that obtained by treatment of comparison plants with any of the synthetic growth regulators.

It is not unlikely that the pure substance itself, when it has finally been isolated, will have even more powerful effects, for the crude ether extract of pollen is very likely a mixture of several substances, not all of which have growth-stimulating properties.

Chemical analyses of the ether extract will be actively pushed, for if the active principle can be isolated and its chemical structure determined, it may be possible to make it artificialy.

The effectiveness of the newly-discovered substance in making plant stems grow longer may be put to practical use by florists in getting longer-stemmed flowers or in producing longer-fibered stems in such textile plants as flax, hemp and ramie. Such large-scale uses will depend, of course, on working out large supplies of the chemical at low cost.

Another use that has been discovered for growth hormones recently has been in producing seedless fruits from unpollinated flowers. A large range of plants, from holly berries to tomatoes, have been thus treated with good results. Spraying orchard trees with the hormones has had the effect of restraining flower buds from opening until

danger from late frost is past, of inducing apple and other trees to hang onto their fruit instead of dropping much of it prematurely, and of hastening the ripening of oranges.

To obtain a supply of pollen for their researches, Dr. Mitchell and Miss Whitehead exploit bees bringing the yellow dust back to the hive. The bees are compelled to pass through a narrow, screen-lined pollen trap, which scrapes off their loads of pollen.

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CONSERVATION

Transparent plastic as a substitute for suddenly-scarce aluminum in the casings of radiosondes (high-flying robot weather observatories) will release six tons of the white metal for defense purposes on a recent order for 31,200 of the balloon-borne instruments placed by the U. S. Weather Bureau with the Washington Institute of Technology. Laura Young, holding the radiosonde on her lap to show how transparent its casing really is, points to the part of the instrument where those now-famous long blond human hairs are used as the essential driving mechanism of the hygrograph, or humidity indicator.