

carrier, but that the virus underwent some change in its body, analogous to the changes undergone by the malaria germ in the body of its carrier mosquito.

While this is not necessarily to be taken as indicative of a mosquito transmission of the present type of human encephalitis, it is at least suggestive.

The U. S. Public Health Service is not overlooking the possibility of insect transmission of the disease. A medical entomologist has been added to the corps of research workers now in the St. Louis area, and he is keeping in touch with the Washington office of the Service by long distance telephone.

An early killing frost followed by a sudden drop in the development of new cases would be a strong link in the chain of evidence binding the guilt on an insect carrier. But the average date for the first killing frost in St. Louis, over a 59-year period, is October 29; and that is too long to wait, if even fairly good evidence develops that mosquitoes are the carriers. The health authorities are prepared to wipe out all mosquitoes in the St. Louis area within two weeks, in case such evidence should justify the expense of the experiment.

Science News Letter, September 9, 1933

The History of Staining

A series of papers on the History of Staining which has been appearing in *Stain Technology* from 1928 to 1933 is to be published in book form about October 1, 1933. This book also includes full-page portraits and biographical sketches of nine men prominent in the development of staining technic.

The price of the book is to be \$2.00, but a special pre-publication price of \$1.50 is offered until the fifteenth of October, provided orders are accompanied by cash or by official orders from educational or scientific institutions.

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PHYSICS

History Never Repeats Self Mechanical Analogy Argues

IN DREAMS we sometimes find ourselves repeating experiences over and over. The scientists are discussing whether or not the universe is like that, capable of repeating over and over.

It is argued that time is infinite and that the total number of different kinds of events is finite, though large, since the whole volume occupied by matter is finite and the numbers of protons, electrons and photons are finite. Therefore every possible combination of events, however improbable, must occur over and over again. History in the large is like the repeating pattern of a wallpaper.

Prof. J. B. S. Haldane, the British biologist, has recently upheld this idea in opposition to Sir James Jeans' suggestion that the whole material universe is running down, that it must have been wound up at some finite past time and must cease to run down at some finite future time.

Prof. A. S. Eve, the McGill University physicist, says that the idea of history repeating itself is only a bogey. He produces argument that may relieve us of the necessity of believing that in an infinite past duration of time, these words have been written before, you have read them, not once, but again and again in the past, by the same light that falls upon the previously printed paper actually manufactured as before from the same material, woven atom by atom in the same pattern, printed in the same number of this magazine, dated identically day, month, year and entirely indistinguishable from the present number, all the rest of the universe being in the same state as before. And that in an infinite future time all these things must happen not once, but over and over again, without limit.

Prof. Eve's Argument

Here is Prof. Eve's argument:

"Consider a simple universe consisting only of two infinitesimal particles or points, one swinging to-and-fro along a diameter, the other going round the circumference of a circle. If these points start together on their different paths from the same end of a diameter and move as stated with equal and unvarying

speeds, then since the circumference and diameter are incommensurable, and their ratio $\pi = 3.14159 \dots$ never repeats or terminates even in an infinity of figures, it follows that the two points will never meet again at their original starting point. Incommensurables such as the square root of 2, 3, etc., are also common enough in our pattern of Nature so that it is safe to reject the idea of recurrent cycles and to state definitely that history does not and can not repeat itself. So that creation, new things for old, is proceeding to its fullest extent now.

"If it is urged that the above argument about two ideal infinitesimal particles racing round a circle and to and fro along a diameter (none of such things existing) is too academic and abstruse, it may be stated that if there is no limit to the smallness of a displacement, then any three bodies may occupy an infinitude of relative positions, which will not necessarily recur in an infinity of time. If the height of a wave is capable of all values, then the pattern of the waves on a lake or ocean will never repeat. Radiation in the universe, even in infinite time, is certainly yet more unlikely to recapture a previous state, even ignoring the tendency to 'run down' or change from short to longer waves."

Science News Letter, September 9, 1933

MEDICINE

Vitamin C Lack Connected With Cataract of Eye

LACK of vitamin C, the scurvy-preventing principle, may have something to do with the occurrence of cataract of the eye, in the opinion of Prof. H. K. Müller of the eye clinic of the University of Basel, Switzerland.

Rabbits to which Prof. Müller fed doses of naphthalene, the smelly stuff mothballs are made of, developed cataracts. At the same time, the vitamin C which is usually present in the aqueous humor of the eye disappeared. Prof. Müller has reported his discovery to *Nature*.

Science News Letter, September 9, 1933