now, and from our earliest infancy to this moment, a constant and invariable earthly experience has driven into our subconsciousness the conviction that light is instantaneous, and that what we see now, exists now—an assumption that is pragmatically correct and that works in our daily life, but which is thoroughly false and misleading when we consider the stars and nebulae. As physicists our educated brains accept the fact that light has an exact, though still high, finite velocity, which, while still practically instantaneous in our daily lives, yet becomes of paramount importance in the vast abysses of space. Furthermore, in any earthly landscape not only are the time differences between the farthest and the nearest objects inappreciable, but our vision occupies some little time; certainly several seconds, being composed of perhaps 5 per cent. visual impressions and 95 per cent. our interpretations thereof through experience. Our ordinary seeing, then, is never momentary; but deals with a broad band of contemporary events; homogeneously blended from all parts of our landscape, which we therefore view as a legitimate whole and can validly determine distances and relative movements.

But in considering the stars and nebulae, their vast time differences totally exclude any possibility of such an overlapping and unifying band of the "same time." And thus we are completely barred from stating anything as to their positions, distances or relative movements. And certainly have not the contemporaneous "whole" that the hypothesis of an "expanding universe" would demand.

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FLOODS AND DUST STORMS

UNDER "Science News" in the March 27, 1936, issue of SCIENCE, Paul B. Sears attributes floods and dust storms to the removal of the top layer, or "A-horizon," of the soil, indiscriminately applying his thesis to the floods which have just ravaged the North Atlantic states. It is unfortunate that Dr. Sears has tried to inject the important question of soil preservation into a situation where it has absolutely no application, for this type of undiscriminating enthusiasm merely befogs the flood problems which confront the northeastern section of the country and invites unwarranted suspicion of the demand for soil preservation.

Dr. Sears may have traveled in one of the oldest farming sections of the East, but it is obvious that he knows little concerning New England. During my twelve years of residence in New England, there have been two major floods; one in November, 1927, the other in March, 1936. Both affected regions in which there is more woodland than farm country, and where spongy vegetation and top-soil have maximum absorptive capacity. In 1927 seven inches of rain fell upon soil covered by a mat of leaves and already saturated by the abnormally high precipitation of a wet summer and fall. A saturated sponge can hold no more water. In 1936, there were four inches and more of rain upon one to four feet of rapidly melting snow, with a deeply frozen top-soil beneath. A frozen sponge can hold no water.

As an observer of floods from Canada to the Tropics and of dust storms from the Connecticut Valley to California, I find Dr. Sears's viewpoint that soil preservation will solve the problems connected with both much too elementary; and government agencies for flood control are not going to get very far unless they see the problems whole and tackle them along the whole of a very complicated front. Surely Dr. Sears knows that there were deserts on the march before the white man farmed the prairie—witness the loess; and that there were floods on the rampage before mammals discovered the flood-formed Great Plains.

Much as we may applaud the eloquent and, it is to be hoped, effective effort he is making to save our greatest economic asset, the soils, one must deplore a lack of discrimination or penetration, which may at once undermine public confidence in his own thesis and nullify the equally legitimate efforts of those who are approaching flood-control from a different but fully as valid standpoint.

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AN EXPLANATION OF ADRENALIN ACTION

A FURTHER study of the K action, as described by McGuigan and Higgins,[1] has led us to conclude that most of the changes effected by adrenalin are actually produced by K. The following facts are offered to substantiate this conclusion. Adrenalin effects an increase in serum K.[2,3] K salts injected intravenously effect changes identical with those produced by adrenalin. This is true not only as far as the cardiovascular system is concerned but also on the intestinal tract, urinary bladder, kidney, bronchiole muscles. Cocaine does not potentiate with K. The action occurs after removal of the adrenal glands. K also effects a fleeting hyperglycemia, but if a large amount of K is present sugar readings are low. Relatively large amounts of K added to a known sugar solution decrease the readings. A complete analysis of this subject is in preparation for publication.

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[1] McGuigan and Higgins, *Amer. Jour. Physiol.*, 114: 207, 1935.

[2] De Silva, *Jour. Physiol.*, 82: 393, 1934.

[3] Schwartze, *Arch. f. Exp. Path. u. Pharmakol.*, 177: 628, 1935.