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## SOME THOUGHTS ON THE PROBLEM OF PROGRESS AND DECLINE<sup>1</sup>

By Dr. JOHN R. SWANTON

SMITHSONIAN INSTITUTION OF WASHINGTON

THE privilege of delivering this address comes to me in the midst of intensive work in fields somewhat removed from the ordinary domain of anthropology, and that is why I have to offer you merely "some thoughts" on a great subject instead of the carefully formulated presentation which it should properly demand. Much of what I have to say will fall in the realm of general theory rather than that of science proper, and this must be my excuse for seeming to intrude into the territories of other disciplines. It would be more than presumptuous in me to do this if the question at issue concerned matters of fact, but it is otherwise when deductions are made from facts which transcend the boundaries

of science as ordinarily conceived, and may become bases for attitudes in the world at large affecting the lives of thousands of human beings.

First, I wish to say a word about that naive materialism which was more in vogue perhaps before the birth of the new physics than it is to-day. There is still a popular illusion that because science teaches that a physico-chemical world was necessary before organisms could exist upon it, and because paleontology has demonstrated that organisms have appeared successively in more and more complicated forms, therefore the organic came *in toto* out of the inorganic, and each succeeding level of organic life *in toto* out of the preceding one. Now, the observations of succession and relation are scientific; the deductions as to origin are philosophic. Yet superficial thinkers shift from one

<sup>1</sup> Address of the Vice-president and Chairman for Anthropology, American Association for the Advancement of Science, Richmond, December 29, 1938.

After about two to three weeks the arterial pressure, as measured by direct intra-arterial puncture of the femoral artery, begins to rise and may reach levels as high as 240 mm Hg mean pressure after a month or two. In some animals the pressure reaches a peak and tends to fall to lower levels, while in others the pressure has remained at high levels for seven months, *e.g.*, as long as the animals have been observed. Application of Cellophane to one kidney causes hypertension, but it is not so extreme as when both kidneys are treated.

At autopsy the kidney is found to be surrounded by a dense hull of tissue (fibroblastic and collagenous) as much as 4 to 5 mm thick. This is readily stripped from the surface of the kidney.

Hypertension produced by this method occurs whether the normal capsule is stripped or not before application of Cellophane. Denervation of the kidneys also does not interfere with its development. Removal of the offending kidney in animals in which hypertension has occurred after applying Cellophane to only one kidney causes the hypertension to disappear if it has not persisted for a long time.

We have not been able to produce hypertension by applying rubber (rubber surgical glove) to the kidneys. Other organs such as the heart, liver and adrenal glands have been enclosed in Cellophane, but it is too early to be certain of the results. In three experiments the pericardium showed signs of developing a constricting envelope, but the animals died before signs of constrictive pericarditis occurred.

IRVINE H. PAGE

LILLY LABORATORY FOR  
CLINICAL RESEARCH,  
INDIANAPOLIS CITY HOSPITAL

#### THE SUCCESSFUL TREATMENT OF MENINGO-ENCEPHALITIS, ASSOCIATED WITH CANINE DISTEMPER, WITH SULFANILAMIDE

MENINGO-ENCEPHALITIS associated with canine distemper has been considered for years an incurable disease. The mortality rate reported by veterinarians is from 90 to 100 per cent. Goldberg and Volgenau<sup>1</sup> reported on 73 cases treated at the New York State Veterinary College with one recovery. Our records indicate the rate to be essentially 100 per cent. when the disease is accurately diagnosed.

Canine distemper produced by the virus of Carré can be readily controlled by homologous serum, which has no effect on meningo-encephalitis. Sulfanilamide has little value as a therapeutic agent for distemper, in our own experience and in that of veterinarians generally.

The specific etiological agent for meningo-en-

cephalitis associated with canine distemper is, however, unknown. Some believe that the virus of Carré is responsible, others that it is a bacterial invasion secondary to the virus of Carré and still others that it is due to certain specific bacteria and their toxins. In our work we have been unable to demonstrate any microorganisms in the brain or spinal fluid of dogs affected with meningo-encephalitis associated with canine distemper.

We have used sulfanilamide to treat fourteen dogs suffering from meningo-encephalitis associated with canine distemper. The sulfanilamide was administered in such dosage either by mouth or subcutaneously so that the sulfanilamide blood level was maintained at not less than 15 mgms per cent. Experience has shown that it is desirable to maintain this blood sulfanilamide level and that the administration of the drug should be started in the initial stages of the disease before extensive pathological changes are manifest.

Thirteen of the dogs have made complete recoveries. This is a recovery rate of about 93 per cent. compared to a mortality rate of from 90 to 100 per cent. in dogs not receiving sulfanilamide. There was a marked and rapid clinical improvement which usually took place in from 48 to 96 hours. Dogs with total anorexia started to eat. If the temperature was elevated it returned to normal. In the affected animals there was a lymphocytic leucopenia and a polymorphonuclear leucocytosis. After treatment with sulfanilamide, there was a favorable increase in the lymphocytes and a reduction in the polymorphonuclear leucocytes. The red cell count and the haemoglobin was not altered.

A detailed report of this work will appear later in another journal.

M. L. MORRIS

RARITAN HOSPITAL FOR ANIMALS

T. J. MURRAY

BUREAU OF BIOLOGICAL RESEARCH,  
RUTGERS UNIVERSITY

#### BOOKS RECEIVED

- American Philosophical Society, Memoirs; Vol. I, Part II, 1939, General Analysis, Part II, The Fundamental Notions of General Analysis*, by ELIAKIM H. MOORE. Pp. vi + 255. \$3.00; *Transactions; New Series, Vol. XXXI, Part II, February, 1939, Chronic Arthritis in Wild Mammals*, by HERBERT FOX. Pp. 73-148. 12 plates. \$2.00. The Society, Philadelphia.
- DAVIS, WATSON. *A Survey of the Interpretation of Science to the Public, Made for The Rockefeller Foundation*. Pp. 113. Science Service, Washington.
- PRATT, CARROLL C. *The Logic of Modern Psychology*. Pp. xvi + 185. Macmillan. \$2.00.
- RAYMOND, PERCY E. *Prehistoric Life*. Pp. ix + 324. 156 figures. Harvard University Press. \$5.00.
- Science Reports of the Tôhoku Imperial University, Sendai, Japan; Second Series (Geology), Vol. XIX, No. 2, 1938*. Pp. 149-275. 36 plates. Maruzen, Tokyo.
- TYRRELL, G. N. M. *Science and Psychical Phenomena*. Pp. xv + 379. Harper. \$3.75.

<sup>1</sup> S. A. Goldberg and R. H. Volgenau, *Cornell Veterinarian*, April, 1925.

# NEW WILEY BOOKS

*Published Spring 1939*

## Ultrasonics

and Their Scientific and  
Technical Applications

By LUDWIG BERGMANN, *Professor of Physics at the University of Breslau*. Translated by H. STAFFORD HATFIELD

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This is the first treatise published in any language on the subject of chemical reactions produced by electrical discharge in gases or dielectric liquids. It also deals with the chemistry of hydrocarbons, and with the fundamental chemistry of cable insulation.

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## The Economics of Chemical Industries

By E. H. HEMPEL, *Research Associate in Industrial Engineering, Columbia University*

It is the purpose of this book to familiarize the reader with the characteristic background and the economics common to the American chemical industries. It furnishes the systematic and fundamental preparation which is necessary for the proper understanding, appraising and solving of chemical economic problems.

259 pages; 6 x 9; \$3.00

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