SYNOPSIS OF A COURSE OF LECTURES ON THE ANATOMY, PHYSIOLOGY AND HISTO-CHEMISTRY OF THE NERVOUS SYSTEM

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Synopsis of a course of lectures on the anatomy, physiology and histo-chemistry of the nervous system by John A. Benson

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JOHN A. BENSON

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Trieste

L. A. Engr.

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OF A

COURSE OF LECTURES

ON THE

ANATOMY,
PHYSIOLOGY AND HISTO-CHEMISTRY
OF THE NERVOUS SYSTEM.

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E. H. COLEGROVE & COMPANY,
1895.

Respectfully Inscribed
to
Dr. Dan'l R. Brower.

PART I.

Biological Introduction.

The determining characteristics of living things. Barriers separating animate and inanimate worlds. The Cell—peri-nuclear portion, the nucleus, nucleolus, etc. Properties of Protoplasm. Observations of Authorities, to-wit: Schwann, Dujardin, etc., to the present time. Karyokinesis.

Unicellular plants—"Torula," "Protococcus pluvialis."

Unicellular animals—"Proteus animalcule."

Parasitic organisms—"Pencillium glaucum," "Mucor mucedo," "Bacteria."

Unicellular animals with differentiation of structure—"Vorticella."

Multicellular organisms—"Hydra viridis," "Hydra fusca."

Formation of a nervous system—Beginning of differentiation of nervous from other elements, as illustrated in simpler forms of life. Formation of reflex loop. Higher arrangement of ganglia and fibres. Ratio of fusion of nerve cells and strands to integration of function. Functions of the nervous system in associating different parts of the same body; in bringing the living being into relation with the external world.

Reproduction—Embryonic growth and development with special reference to the nervous system.

The law of periodicity, or rhythm in nature—Examples, etc.

The law of habit—Application, examples.

The origin of the forms of life—The doctrine of Evolution; progressive integration of structure and function, with passage from the single or uniform to the multiple

or multiform; from the simple to the complex; and from the general to the special. Physiological division of labor, or specialization of function and differentiation of structure.

Origin of life—Two principal views: "The theory of creation," and the "theory of descent with modification." Teachings of Charles Darwin. The survival of the fittest. Sexual selection.

Arrangement of evidence—1, Morphology; 2, Embryology; 3, Mimicry; 4, Rudimentary organs; 5, Geographical distribution; 6, Paleontology; 7, Fossil and existing species; 8, Progression; 9, Domesticated animals. (Mills).

The American school—Teachings of Cope and of Hyatt. Investigations and observations of Rev. Dr. J. A. Zahm. Neo-Lamarckianism. Weismann's teachings. Theories of Brooks. Darwin's hypothesis of "pangenesis." Vines' equivalent of "parthenogenesis." St. George Mivart's doctrine of "extraordinary births." Romane's idea of "physiological selection." Application to the consideration of diathesis, idiosyncrasy. Observations of Herbert Spencer.

Man's place in the animal kingdom—No longer in zoology placed in a separate group by himself, man now classed with the "primates" along with the anthropoid apes (gorilla, etc.), the simians of the old and new worlds and the lemurs. Structural resemblances between man and the other primates very great. More difference between the structure of the most widely separated members of the group than between certain of the anthropoid apes and man. Points of greatest resemblance between man and the anthropoid apes are: The same number of vertebræ; the same general shape of the pelvis; a brain distinguishing them from other mammals; and posture, being bipeds. Distinctive characters are: Size, rather than form of the brain,