

## KNOWLEDGE AND BELIEF

the originally indifferent "sense-cells of the skin" undertook different tasks, one group of them taking over the stimulus of the light rays, another the impress of the sound waves, a third the chemical impulse of odorous substances, and so on. In the course of a very long period these external stimuli effected a gradual change in the physiological, and later in the morphological, properties of these parts of the epidermis, and there was a correlative modification of the sensitive nerves which conduct the impressions they receive to the brain. Selection improved, step by step, such particular modifications as proved to be useful, and thus eventually, in the course of many million years, created those wonderful instruments, the eye and the ear, which we prize so highly; their structure is so remarkably purposive that they might well lead to the erroneous assumption of a "creation on a preconceived design." The peculiar character of each sense-organ and its specific nerve has thus been gradually evolved by use and exercise—that is, by *adaptation*—and has then been transmitted by *heredity* from generation to generation. Albrecht Rau has thoroughly established this view in his excellent work on *Sensation and Thought*, a physiological inquiry into the nature of the human understanding (1896). It points out the correct significance of Müller's law of specific sense-energies, adding searching investigations into their relation to the brain, and in the last chapter there is an able "philosophy of sensitivity" based on the ideas of Ludwig Feuerbach. I thoroughly agree with his convincing work.

Critical comparison of sense-action in man and the other vertebrates has brought to light a number of extremely important facts, the knowledge of which we