egg, yet a dead seed or a lifeless egg will not germinate. The egg has no intelligence, but the bird or fowl hatched from it has. Where does it come from if it be not evolution from the matter composing and surrounding the living existence? We know nothing of the spontaneous generation either of life or intelligence; germs of both are found everywhere, in air, earth, and sea, but there is no sudden leap from matter to mind, or from matter to organized forms of life. If there was a time on earth when life was not and intelligence was not they must have been evolved from matter which already existed on the earth, or have been extraneously created by some power outside of matter and of such power we have no knowledge whatever.—*Mrs. E. D. Slenker.*

I venture to assert that the exercise of private judgment, faithfully gone about, does, by no means, necessarily end in selfish independence, isolation; but rather ends necessarily in the opposite of that. It is not honest inquiry that makes anarchy, but it is error, unsincerity, half-belief and untruth that make it. A man protesting against error is on the way towards uniting himself with all men that believe in truth.—*Carlyle.*

An elevated purpose is a good and ennobling thing, but we cannot begin at the top of it. We must work up to it by the often difficult path of daily duty—daily duty always carefully performed.

The victims of fanaticism outnumber those of every other and all other passions that have wasted the earth. Pining in dungeons, hunted like beasts of prey, stretched on the rack, affixed to the cross—their sufferings are the horror of history. No high-wrought fiction, recounting imaginary woes, can match the colors of their authentic tragedy. A corruption of the text of the Vedas has cast thousands of Hindu widows alive on the funeral pile. An interpolation of two words in the service of the Eastern Church has driven whole villages in Russia into a fiery death. A sentence in the book of Exodus has been a death-sentence to millions of hapless women, and who shall compute the sum of the lives that have furnished the holocausts of the Inquisition?—*Hedge's Ways of the Spirit.*

COMPARATIVE EVOLUTION OF THE LOWER ANIMALS AND MAN.

(Concluded.)

BY WILLIAM EMMETTE COLEMAN.

(Based upon Gunning's Life History of Our Planet.)

THE HANDS OF MAN AND ANIMALS.—Comparing the Man-like Ape with Man, one is impressed with the all-pervading similitude. Differences there are, as in the size of the brain, the form of the head, proportion between the limbs, and generally in the form and finish of the parts; but they are such differences as lie between different men and different races of men. Gorilla's hand is composed of the same anatomical elements as the hand of Man, and the likeness is carried out even to the finger nails. The fingers are shorter and the palm longer than in man. But now and then, in the lower races, a man appears with a hand which approximates very near to that of a Gorilla. Man being the highest Mammal and the Australian Duck-bill the lowest, the two are separated by the whole height of the column of Mammalian life. The Duck-bill in the totality of its structure stands nearer the common, primary form of Mammals than any other living species. Look at its hand! It consists of three parts,—a wrist composed of two cross rows of bones, a mid-hand composed of five long bones, and five digits composed, the first of two bones, and the others of three. All these elements are enclosed in a fleshy web. The hand of the Mole is composed of the same elements as the Duck-bill, but the bones are shorter and stronger and packed more closely together. In the Mole the hand has become a shovel for digging. In the hands of the Seal the bones are longer and more slender; and a fact worthy of note is, that while the thumb has become the longest digit it still retains the typical number of bones, being composed of two bones, while the other digits have three. In the Seal the hand has become a kind of fin. In the hand of a bat we find the same bones placed in the same relation, but drawn out, all except those of the first digit, into long and slender rods. In the Bat the hand has become a sort of wing. In the hand of the Potto, one of the lowest of monkeys, we have the same elements in the same relations, but very strangely the index finger has become atrophied. It is reduced to a mere vestige, *although not a bone has been dropped.* When clad in flesh the hand of the Gorilla is extremely unlike the primitive hand of the Duck-bill, but in the form and disposition of the bones it approaches nearer this pattern than any other of the series. Finally, we have the hand of Man, with not one bone the less, not one the more, not the least change in the number of its elements, and not the least change in their disposition! And of all these hands the human is that which, in its osteological structure, approaches nearest the old-fashioned, the undifferentiated hand of the humble Duck-bill! And why should it not? The Mole has made a specialty of digging, the Seal of swimming, the Bat of flying, and the Monkey of grasping. Man has not been a specialist. He alone has been *polytechnic;* and his hand could not be modified for any special purpose without danger to the other uses.

If any one insists that these types are not modifications of our primitive type, but special and independent creations, let him explain the atrophied index in the hand of the Potto. Did the Creator form the Potto directly from the elements, or from "nothing at all," with an atrophied forefinger? Being Purpose itself, why did he create the purposeless? Being Wisdom itself, why did he create the meaningless? And let him explain why organs so unlike as the paddle of the Mole and the wing of the Bat are yet so near alike in their beginnings. Let him explain why structures so nearly identical should be masked under forms so diverse as the paddle of the Mole, the fin of a Seal, the wings of a Bat, and the hand of a Man. *Was the Creator so poor in resources?* To all these questions science can render a simple answer. Her answer is in two words, *inheritance* and *adaptation.* By inheritance the primitive Mammalian structure is retained in the embryos of all Mammals, and in the adults of the six classes herein mentioned and of others not described. By adaptation the organ based on this structure comes to assume different forms for different uses.

LINEAGE OF THE HUMAN FOOT.—The history of the foot is as significant at that of the hand. The two extremities begin alike. When Man has been in the making only seven weeks you can hardly tell his foot from his hand. If he were born then, you might designate his extremities *fore*-feet and *hind*-feet. In the lower Mammals the extremities are all *feet,* fore and hind, and they are all used as organs of locomotion. Where the fore-limb begins to take in other functions than those of locomotion, we find it with corresponding modifications. As we ascend in the scale of life we find the fore-limbs given more and more to the service of the head. In Man these limbs are emancipated from the function of locomotion and given over entirely to the service of the mind. They are no longer legs, but *arms;* and their extremities are no longer feet, but *hands.* Extreme differences in use have resulted in extreme differences of form. The thumb is separated from the fingers. The big toe is not separated from the other toes, but is in line with them. The fingers can be moved each independently of the other; the toes must move altogether or not at all.

The lowest and oldest order of Mammals save one is the Marsupial, represented in North America by the Opossum. Its habits being partly arboreal, its feet have been modified for climbing. The fore-foot has not been differentiated from the hind, but both have been modified from the general pattern. The first step toward a hand has been made, but it is a step leading to the Quadrumana, the *four-handed* order. But while the big toe has become a sort of thumb, the other toes have