

descriptive passages of Job, and placing them side by side with the descriptions of modern scientists, proves that Behemoth is *not* the hippopotamus, and that Leviathan is *not* the crocodile, as Biblical commentators have generally assumed; but that former is the extinct Megatherium, and the latter is the Ichthyosaurus, or sea-serpent of seamen? The remarkable conclusion of the paper is that the animals which comparative anatomists describe from an examination of the fossil remains must have been seen in life by the writer of Job, and hence were contemporaneous with man. The other illustrated articles are "Rhinoceroses"—a hunt in South Africa being the subject of a spirited engraving; and the "Botanical Studies" of John Williamson, in which the writer, taking the Jeffersonia diphylla, or twin-leaf, a common though peculiar wild flower, adapts its leaf and flower to art purposes. The professional papers are "Is Being Built," by Professor Joyes, of Vanderbilt University, with a running commentary by the editor; "Practical Elocution," "Oxford University, England;" "Spelling," etc. There are the usual sprightly and scholarly notes in the editorial department concerning recent movements in the fields of education, science, and literature.

On Dreaming.—The second of Professor Ferrier's two lectures on "Sleep and Dreaming" was delivered at the London Institution on Monday afternoon before a crowded audience, and was devoted to the latter subject, with the exception of a brief *resumé* of his former lecture on Sleep by way of introduction. Sleep, he had shown, was the repose of the brain as the organ of consciousness, and sound sleep the cessation of conscious activity. He set aside as unsound the doctrine of Sir W. Hamilton, who, from the phenomena of dreaming, had argued the continuousness of consciousness during sleep. The brain, though a unity, was a complex unity, and to different parts different functions belonged. Hence, according to the analogy of the bodily functions, one part and its function may rest while others are in action. The partial activity of the brain was the explanation of dreaming. Conscious activity belongs to the hemispheres proper of the brain. The parts below, in so far as they are independent, are concerned in actions described as reflex, sensi-motor, &c., and these can go on as well during sleep as in our waking hours. Diagrams of the brain were referred to in illustration. The brain was the organ of consciousness, and it therefore—not the ganglions of the nervous system, as held by Dr. Carpenter and others—was the organ of sensation. The phenomena of hemi-anesthesia were cited in proof. For each class of impressions there were special regions of consciousness in the brain. The lecturer was even disposed to localize attention and the higher intellectual faculties. The impressions received were photographed on the brain, and were capable of being revived. But for this power of recalling them no knowledge would be possible. Memory, or the registration of sense impressions, is the ultimate basis of all our mental furniture. Each piece of that furniture has its function, like the letters in a compositor's case. We have a sight-memory, an ear-memory, &c. When thinking, or engaged in ideation, we are but recalling, as shown by Herbert Spencer and Bain, our original sensations and acts of cognition. Some move their lips when thinking, as though summoning up the names for their former sensations. Commonly the reproduction was very faint, but in some instances it was nearly or quite as vivid as the original sensation. It was so with Goethe and other poets, with painters, religious enthusiasts, and with those called spiritualists. It was so also in delirium and mania, and there was always something morbid about such cases. The auditory phantoms of musical composers and others were spoken of. The impressions made on taste and smell were not often so vividly reproduced, but it was otherwise with those of touch. The relation between visceral euphoria or dysphoria was next illustrated, and the laws of association of ideas, as laid down by Laycock and confirmed by Dr. Carpenter. The nature of this association will vary as individuals, but if the man be known as well as the general laws, it will be possible to read his thoughts. Here the lecturer read a striking extract from E. A. Poe, ("Murders in the Rue Morgue," vol. 1, p. 409), which was received with loud applause. The foregoing principles were then applied to dreaming. In accordance with the laws laid down those portions of the brain most continuously in action would require the longest rest.

Hence the centres of attention would sleep while the functions allied to reflex actions would more easily awaken. The brain in sleep was compared to a calm pool in which a stone causes ripples liable to interruption by other ripples similarly caused. So the ripples of ideation get confused. But, again, the circle on the pool may not be interrupted, and then the ideation will be regular. The current of ideation may be coherent or incoherent. The most vivid association, which is commonly the latest, dominates over the rest. Dr. Reid, the metaphysician, dreamt of being scalped by an Indian. There was a blister upon his head! Dr. Gregory, through having a

hotwater bottle at his feet, dreamt of walking up the crater of *Ætna*. A troublesome corn makes a man dream of serpents biting his foot, and a ringing in the ears has caused dreams of marriage bells. The blue devils and other horrors seen by the victims of delirium tremens were analogously explained. Visceral conditions were known to be most frequent sources of dreams. The hungry dream of feasts, the thirsty of water, and the dropsical of drowning. From the condition of the digestive organs arose nightmare. Mental or bodily dejection shows itself in oppression of the chest, and this *vice versa*, causes mental or bodily depression by the law of association. We feel a hideous animal sitting on us. The oppression leads to an effort at liberation, and we wake from nightmare with a scream. Bereavement makes us dream of our lost ones, and we see them so vividly that our dreams become real apparitions. Incoherent dreaming, in which the currents of ideation get jumbled together, was happily compared to the changes produced by the shaken kaleidoscope. It was remarked that there was never anything absolutely new in our dreams: we never dream of anything of which our senses are wholly ignorant. The blind do not dream that they see, nor the deaf of music. Here a letter is missing from the fount of type. Our fancy in dreams is awake, and the faculties which should check it are asleep. Hence we are wont to say that nothing surprises us in sleep. The lecturer proceeded to shed light on such facts as that problems have been solved by mathematicians in their dreams which had utterly baffled them when awake. So the poet Campbell excoagulated in his sleep the celebrated sentence, "For coming events cast their shadows before." One beautiful illustration the lecturer used. The brain, he said, might become a palimpsest, the effaced writing on which often reappeared. Past impressions were imperfectly rubbed out and the present written over it, but past memories would revisit us in our dreams, if not in our waking hours. Of the tenacity of memory, a marvellous illustration was cited from Trevelyan's "Life of Macaulay," who picked up while he was waiting in a Cambridge coffee-house for a postchaise a country newspaper containing two poetical pieces, one, "Reflections of an Exile," and the other a "Parody on a Welsh Ballad." Macaulay looked them once through, and never gave them a further thought for forty years, when he repeated them without the change of a single word.

—The *Pennsylvania School Journal* for August is received. It is a holiday number and contains some 52 pages, mostly matter descriptive of certain buildings at the Centennial, as Machinery Hall, Agricultural Hall, The Women's Pavilion, Horticultural Hall, Memorial Hall, the Art Annex, and others, together with extended descriptions of various educational exhibits. In the last issue of *The Journal* the U. S. Government Building was treated at length. These issues of July and August afford the most satisfactory guide to the visitor that we have yet seen. They are worth the price of the full year's subscription to any teacher or director who proposes to visit the great Exposition. The price of *The Journal* is \$1.60 per year. Address J. P. Wickersham & Co., Lancaster, Pa.

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