

binations of meaningless sounds, of which the 'Barbara, celarent, etc., is a typical survival; the translation of letters into numbers and associations formed on ridiculous principles, seasoned with wretched puns, — all these flourished, and had their day. One doctor even invented a pill that would improve the memory; while another announced with great *clat* that the seat of the memory is the occiput, and that roasted fowl, small birds, and other delicious things, acted favorably on this organ. Even the pledging of the pupils to secrecy is not a new invention. These systems have been well likened to the keys, with enormous brass stars attached, that one gets on steamboats. The object of the appendage is to prevent one from forgetting to leave the key behind, but the encumbrance one has to carry to secure this end is a greater annoyance than the task of remembering to return the key.

Only in very recent times has the scientific study of memory as a psychic function been seriously undertaken, and the subject been popularly treated in a sound manner. The name of Dr. Pick deserves to be mentioned as among those who first broke away from utterly artificial systems, and, while modestly claiming the success of his teaching, presented the topic on a natural basis. His present volume is mainly a reprint of former lectures, with a history of mnemonics, and a series of testimonials of the success of his teaching. It seems to have been brought out by the unjust use of his work by Loiset.

Dr. Kay's work has many points that deserve high commendation. "The author has little faith in arts for improving the memory in two or three lessons, but he has unbounded faith in systems of education, properly conducted, to effect incredible improvements in this direction." Accordingly he approaches the problem from a broad psychological point of view, with no haste to suggest startling practical results. A very small portion of the book is devoted to a study of what is currently understood as memory. The main object is to show the position of memory in the hierarchy of mental powers, and set forth the modern doctrine of its physiological concomitants. An entire chapter is devoted to the relation of body and mind; an equally full description of the senses and their mode of acquiring information is given; the nature of mental images, and the rôle of the unconscious, are similarly treated. We are then prepared to consider the special processes upon which a good memory depends. First and foremost is close and accurate attention to the impression at its first appearance. The attention must be trained, and sense-perception made quick and accurate, if memory is to be retentive. Not less important is the association of our knowledge by natural links, and along the lines of our own interests. It is only by such means that a serviceable memory can be developed, if by memory we mean, not the power of performing a few striking mental gymnastics, but the power of having our knowledge ready to hand, and carrying it with little effort. That this problem changes its character with each individual, goes without saying. Mr. Kay's book is full, in fact over-full, of citations from various authorities, and is an admirable book to put in the hands of an intending student of the subject. It is a pity that his physiology is sometimes at fault, that his authorities are at times promiscuously chosen, and especially that he has not taken advantage of the most recent technical studies of the memory, of which the work of Dr. Ebbinghaus is so excellent a type. These seem to be omitted because they are in a foreign tongue. From the liberal use that Mr. Kay makes of translated works, one can infer how much his book would have increased in value had he gone to the originals.

The last volume on our list has little claim to serious consideration, were it not for the practical service that a knowledge of its purpose may render. Mr. Fellows here prints the whole of Loiset's lesson-papers, urging that they have not been copyrighted, and that his signature to a pledge of secrecy was secured on false pretences. He furthermore gives evidence that casts a serious doubt upon the honesty of Loiset's career. The system itself is certainly a most wonderful combination of the endless repetition of a few cant expressions; of persistent reference to the originality and excellence of the Loisetian method, duly emphasized by italics and bold type; of most careful prescriptions against breathing an atom of this sacred information; and of a general unacknowledged selection from previous writers on the topic. A sentence will proba-

bly suffice to illustrate the tone of the teaching: "My Discovery, so far as it pertains to this Lesson, demonstrated *what had never been suspected by any one before*, — that all memories — the strongest as well as the weakest — are PRODIGIOUSLY STRENGTHENED in both Stages by learning and reciting forwards and backwards, or, what is better still, by *making* and *repeating* from memory both ways a series of from 100 to 500 words arranged in conformity to the three Laws given below, which Laws were revealed to me, on their Physiological, or only true side, by my Discovery." It is certainly surprising that this 'system' should have met with the success it had; and it is hoped that its publication in this form will not only prevent the swelling of the list of the victimized, but will warn all against any one who advertises a royal road to any mental acquisition the gate of which is opened only by a fee and a pledge of secrecy.

*The Animal Life on Our Sea-Shore.* By ANGELO HEILPRIN. Philadelphia, Lippincott. 12°. 50 cents.

THIS is a handbook on the local fauna of Philadelphia and of the much-frequented New Jersey and south Long Island coasts, which will certainly prove extremely interesting to all who care to know something of the animal forms they may see during their summer vacations. The book may be relied upon as being thoroughly accurate; but it is in no way hard reading for the unscientific, and tells them just what they want to know, which is what they may see by the seashore, and where to see it, at the same time giving in each case the life-history of any specimen they may procure. We already have Emerton's 'Life on the Seashore,' designed for the New England coast, and this little book covers another region largely frequented during the summer season. It treats of the shell-fish, the jelly-fish, the star-fish, the worms and sponges, and some coastwise fishes.

#### NOTES AND NEWS.

THE letters in recent numbers of *Science* describing a peculiar form of northern lights serve to call to the mind of the editor of the *Progressive Age* a sight that he witnessed in August of last year when on board the steamship 'Ozama,' passing along the north-east coast of the island of Santo Domingo, and near to the northern entrance to Mona Passage which connects, between the islands of Porto Rico on the east, and Santo Domingo on the west, the Atlantic Ocean on the north, and the Caribbean Sea on the south. "We were southward bound, and the hour was about nine o'clock at night. The moon was at its full, or thereabouts, and very bright, as is the case in the tropics, especially in the summer season. The sky was entirely clear at the time, with the exception of a small cloud forward of the ship some distance, but between the moon and the coast, which is low and flat for many miles at that part. Suddenly a sharp shower of rain commenced to fall from the cloud, and immediately there appeared over the land, apparently close to the edge of the coast, the most perfect and beautiful rainbow it has ever been the pleasure of the writer to see. Everybody but the writer and the captain, who was on the bridge, were below at the time. The latter said it was the first occurrence of the kind that had come under his observation. That was certainly the case with me."

— The number of words in a person's vocabulary has been frequently and variously estimated. The old philologists thought that few persons used more than ten thousand words, while the ordinary unlettered man possessed from three thousand to four thousand words. It is well known that Shakspeare's vocabulary includes fifteen thousand words, and Milton's eight thousand words. A Swiss writer, M. Edmont de Beaumont, has recently made estimates far in advance of these. He maintains that rustics have at their command as many as seven thousand words; artisans, ten thousand; tradesmen, fifteen thousand; men of culture, twenty thousand; and university graduates, twenty-five thousand. The minimum number of words "without which one makes a pitiful figure in a conversation among cultivated persons is ten thousand." M. Beaumont himself claims to have the use of twenty thousand words in several languages.