

lessly filled in with greater detail than the facts rigidly warrant, and colors and forms are restored when age has worn off almost all traces of their original appearance. Nevertheless, the suggestiveness of the general view is valuable, and, when a better interpretation of the facts comes to hand, the old one can be modified or discarded.

JOSEPH JASTROW.

#### DISTRIBUTION OF COLORS IN THE ANIMAL KINGDOM.

MR. L. CAMERANO has recently communicated the results of his investigations on the distribution of colors in the animal kingdom to the Academy of sciences at Turin. Colors, he says, in the frequency of their occurrence, range in the following order: brown, black, yellow, gray and white, red, green, blue, and violet, the last of which is the most rare. They are, however, variable for different groups of animal life. Among the vertebrates, black, brown, and gray are the most common; among the invertebrates, red and yellow; green occurs most frequently among the lower types—never, however, in mollusks; violet appears in all the groups; while white is distributed very irregularly, but most commonly among aquatic animals.

The colors of animals generally bear some relation to the medium or situation which they inhabit. Aquatic animals usually have the colors more uniform and less lively than do the terrestrial ones. Not seldom they exhibit a transparency, and, when of brilliant colors, they generally live among seaweed and other aquatic plants, very seldom on rocks or sandy bottom. Birds of quick and rapid flight are not generally bright-colored. Animals living in sandy or rocky places are less varied and less highly colored than those living in regions covered with vegetation. The author denies the assertion that there is a constant relation between animals and their food-habits. Carnivorous animals living among rich foliage and flowers are often brilliant and varied, while many fruit-eating species are modestly or obscurely colored. The more rich a group is in species, the more varied, in general, are its colors. Intensity of coloration is not in direct relation with the amount of light to which the animal is habitually exposed, but bears a more direct relation with the general development, being diminished by deficient nutrition or disease.

A dry climate renders colors more sombre, while a moist one makes them more lively or clearer. Altitude also exerts an influence upon colors: according to the author, in the higher regions the more brilliant forms are observed, but this view is hardly borne out by facts in the animal king-

dom, though vegetation may perhaps conform to it. Species of the lower groups inhabiting islands are more often sombre in color than allied species from the continents. Different regions also modify in different ways the predominating colors. In the arctic regions, white, gray, black, and yellow predominate; in Ethiopia, yellow and brown; in India, the different shades of yellow; in the tropics, green and yellow; in Australia, sombre colors, and especially black. Throughout the animal kingdom, animals of large size are generally less varied, or more monotonous, in coloration, than smaller individuals of the same groups. In most animals the more brilliantly colored or spotted portions of the body are the most exposed ones: this is especially the case in insects.

#### A NEW ENGLISH DICTIONARY.

THE great English dictionary of the Philological society originated in suggestions made in 1857 by Dean (now Archbishop) Trench. Though a great mass of material was collected and many eminent men lent their aid to the undertaking, yet in consequence of the death of the first general editor, Mr. Herbert Coleridge, and other disturbing conditions, the work languished until the year 1878. At that time the directorship was assigned to Dr. Murray; and the delegates of the Clarendon press consented, under certain conditions, to bear the expense of printing and publishing the dictionary. Work was at once resumed with ardor. More than eight hundred volunteer readers undertook to collect additional quotations from specified books. In the United States the reading was in charge of Prof. F. A. March of Lafayette college, Easton, Penn., who has been indefatigable in his efforts to aid this great enterprise. In the course of three years a million additional quotations were furnished, making the total number about three million and a half, selected by about thirteen hundred readers from the works of more than five thousand authors of all periods. The general editor has been aided by a considerable number of sub-editors, and various specialists have furnished material in their respective departments. The apparatus, therefore, for the construction of this dictionary, is such as the world has never before seen. It is a combination of all the resources of the English-speaking world, conducted by the men who represent the broadest and most intelligent scientific knowledge.

The aim of the dictionary, the editor states, "is to furnish an adequate account of the meaning,

*A new English dictionary on historical principles. Parts i. and ii. Ed. by JAMES A. H. MURRAY, LL.D. Oxford, Clarendon pr., 1884, 1885. f°.*

origin, and history of English words now in general use, or known to have been in use at any time during the last seven hundred years. It endeavors, 1°, to show with regard to each individual word, when, how, in what shape, and with what signification, it became English; what development of form or meaning it has since received; which of its uses have in course of time become obsolete, and which still survive; what new uses have since arisen, by what processes, and when; 2°, to illustrate these facts by a series of quotations ranging from the first known occurrence of the word to the latest, or down to the present day, the word being thus made to exhibit its own history and meaning: and, 3°, to treat the etymology of each word on the basis of historical fact, and in accordance with the methods and results of modern philological science." The dictionary divides words and phrases into main words, subordinate words, and combinations. Main words are all single words, radical or derivative, and those compound words and phrases which are important enough to be treated in separate articles. Subordinate words include variant and obsolete forms of main words, and such words of bad form or doubtful existence as it seems proper to record. Combinations are usually dealt with under the main words which form their first element. The treatment of a main word comprises, first the identification, that is, the proper spelling and pronunciation, the grammatical designation, and the status, together with earlier spellings and the inflections; next the morphology or history of the form, that is, the derivation or etymology, the subsequent form-history, and miscellaneous facts respecting the history of the word; then the signification or sematology, obsolete senses being distinguished from those now in use; finally the illustrative quotations, which are arranged chronologically so as to give about one for each century. The scope of the dictionary is thus the largest possible, and it may properly be termed an encyclopaedia of English forms. The total number of words treated in the dictionary under the letter *A* is 15,123; namely, 12,183 main words, 1,112 combinations and compounds, and 1,828 subordinate words and forms, with synonyms. Of the 12,183 main words, 8,184 are current, 3,449 (28½ per cent) are marked as obsolete, and only 550 (4½ per cent) as foreign or imperfectly naturalized. As the letter *A* comprises in English dictionaries about a sixteenth of the whole alphabet, the editor estimates the total number of words to be dealt with in the dictionary as upwards of 240,000: the main articles being 195,000; the subordinate articles, 28,000; and the combinations or compounds requiring separate explanation, 18,000.

The way in which the work has so far been executed is entitled to all praise. On the etymological part, the best scholarship of the day has been called in, and all available material utilized. The arrangement of the significations has been made with great care; and how complicated and difficult a matter this is, may be seen from the articles *A*, *after*, *back*, *attend*, *arise*, and many others. The pronunciation also is very carefully indicated. Throughout the book, American peculiarities are noted. Part ii. goes down to the word *batten*.

It is impossible in a brief notice even to mention the words which have curious and entertaining histories. Nobody can fail to find the reading of this dictionary a most profitable occupation. Going over its articles is like entering a new country, or like the voyage of discovery which a great landed proprietor makes through his own domains. English words take us all over the world, and bring us into connection with almost all known languages; and the science of English etymology is a very wide and difficult one. It is surprising how many words there are whose origin is still unknown, such as *andiron* and *average*. The word *abthane* shows how men's imaginations can construct entirely baseless significations. One evil side of Dr. Johnson's influence is seen in the word *ache*. The queer paths taken by Arabic words show themselves in our *admiral*.

I do not find in the dictionary mention of the forms *anywheres* and *aprioric*. The definition of the word *apocrypha* is incomplete: it should include the apocryphal writings of the New Testament times. In the etymological notices of the words *Arab*, *Aramaean*, it should be stated that these are originally from the Arabic and Aramaic languages. Under *Araby* in the illustrative quotations we miss Milton's 'Araby the blest.' There is no reference to the possible Arabic origin of the flower name *anemone* as 'wounds of Naaman or Adonis.' The historical explanation of *barmecide* is not quite correct: the family was not one of 'princes ruling at Bagdad just before Haroun-Al-Raschid,' but a Persian family who occupied the position of vezirs under the caliphs, and it is surprising that the spelling *Raschid*, this unnecessary Germanism for *Rashid*, is retained.

C. H. TOY.

MYOPIA is said, on good evidence, to be increasing with great rapidity in Europe. During the past fifteen years the proportion of near-sighted students in the Polytechnic school of France has risen from thirty to fifty per cent, and eighty per cent of the students have to wear glasses.