

mate equivalents in well-known sections may be pointed out. The exact location in the general vertical section of the region in which it lies must, of necessity, be determined sufficiently near to enable future recognition.

5. *Biologic Definition.*—The value of the fossils contained in a terrane varies greatly with the size of the succession of strata considered. The rapid replacement of faunas in local successions enables a number of zones to be made out, each of which is characterized by certain forms which predominate. From the purely paleontological standpoint this enables the strata to be subdivided in great detail. However, the real geological relations of the terranes are lost sight of almost entirely. Without going into details, there are ordinarily certain characteristic faunal or floral phases which constitute important features by which terranes may be distinguished from one another, or which, at least, greatly aid in this determination, especially when taken in connection with the criteria. Each terrane may be regarded as possessing biotic characters which should be clearly set forth.

6. *Economic Content.*—In the practical delimitation of a geological terrane, and in tracing it over a considerable area, the ore or mineral deposits of commercial value that are contained form valuable determinative factors that are rarely taken into consideration; or, at least, in the descriptions of formations little note is ordinarily made of them. While with many, if not most terranes, the contained ores are not original depositions, but are secondarily acquired long after the rocks in which they occur were laid down, they are, nevertheless, of such peculiar organization and composition that they are seldom found either in the layers above or below. Furthermore, a rock terrane may be traced for long distances by the occurrences of valuable deposits along the line of the outcrop, or it may be recognizable by these alone over broad areas in which other characters of the terrane give no evidence of its existence. In correlating exposures somewhat widely separated, it is often only through the economic contents that a reliable clue is given to their identity.

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#### ZOOLOGICAL NOTES.

THE collection of birds formed by H. E. Dresser and constituting the basis for his work on the 'Birds of Europe and Monographs of the Rollers and Bee-Eaters' has been presented to the Manchester Museum, England, by a friend who wishes to remain anonymous. Something over 1,000 species are represented, by about 10,000 specimens, illustrating differences of plumage due to age, sex and locality, all carefully labelled.

HITHERTO the turkey buzzard has pursued a peaceful, if malodorous existence, unharmed by the whims of fashion, but this quiet has been disturbed by the present demand for eagle feathers for ladies hats. The supply of eagles is not equal to the demand, and as Ulysses is said to have eked out the skin of the lion by using that of the fox, so dealers substitute the primaries of the turkey buzzard for those of the eagle.

THE last report of the Royal Zoological Society of Amsterdam commemorates the sixtieth year of its existence and briefly reviews the more important events in its career. Besides the well-known zoological garden the society maintains a fine aquarium, zoological museum, museum of paleontology and geology, ethnographical museum, and library, a combination which affords fine facilities for scientific work. It will be remembered that Fürbinger's monumental work on the morphology of birds was among the publications of this society. The amount of food consumed by the animals is rather appalling, but the long list of members which closes the report shows the abundant resources of the Society. The 'sport mania' is deplored as being largely responsible for the extermination of large mammals, and, among other items, it is noted that no less than fourteen African elephants were born in the gardens.

F. A. L.

#### RECENT ZOO-PALEONTOLOGY.

DR. MAX SCHLOSSER, of Munich, contributes to a recent number of the *Palæontographica* a very important article upon the origin of the bears. Setting aside the generally accepted hypothesis of Gaudry, that *Ursus* sprang from *Hyænarcos* and that from *Amphicyon*, he traces