were originally not festal, but divinatory. Our ordinary checker board represents in its origin the conception of the universe common to nearly all tribes in a primitive condition. The numbers of our cards can be traced back to certain numerical categories and relations which profoundly affected the personal and social life of early tribes and peoples. The diversions of children are survivals of divinatory rites on which depended at one time the actions of mighty states. The magical implement which beyond any other was popular in early divination was the arrow; and the author, in a masterly manner and with rare insight, traces its later development under many transformations down to our cards of the present day. He shows that such evolution was not a transfer from one nation to another, but independent, though closely parallel, in Asia and America; and thus adds one more proof of the universal oneness of human intelligence. This volume will certainly mark an epoch in the proper understanding of what games are in the domain of anthropologic science. D. G. BRINTON.

SCIENTIFIC JOURNALS.

THE AMERICAN JOURNAL OF SCIENCE, DECEMBER.

THE number opens with an article by B. O. Peirce and R. W. Willson on the temperature variation of the thermal conductivities of marble and slate. This is an advance publication of the methods and results of an investigation carried on under the auspices of the Rumford Committee of the American Academy of Arts and Sciences. The important result is arrived at that, in the case of the slabs of marble experimented upon, the conductivity remains sensibly constant throughout the whole range of temperature employed, say from about 40° to above 300°. In the case of slate there was found an apparent increase of conductivity of about 30 per cent. between 70° and 300°. E. Cutter describes a practical method of obtaining the keynote of an auditorium. The stratigraphy of the Kansas coal measures is discussed at length by E. Haworth; the article is illustrated by a map of the eastern part of the State and two vertical sections, one a detailed section of the diamond drill core obtained from the Topeka well, and the other a general section of the coal measures. E. H. Mudge discusses the post-glacial submergence in its relation to central Michigan. W. H. Weed and L. V. Pirsson describe certain igneous rocks of Yogo Peak in the Little Belt Mountains, Montana. They show that Yogo Peak is composed of a core or stock of massive, granular, igneous rock, and that this rock is composed chiefly of augite and orthoclase. The mass shows a progressive differentiation along its east and west axis, with a continual increase in the ferro-magnesian elements over the feldspathic ones. The resultant rock types are classified into three groups: syenite, where feldspar exceeds augite; *yogoite*, where they are practically equal, and *shonkinite*, where the augite dominates, the latter being similar to a rock type previously described.

S. L. Penfield gives directions in regard to the practical use of Retgers liquid to separate minerals of high specific gravity. This liquid consists of a mixture of silver and thallium nitrates fusing at 75° C. and having a specific gravity above 4.5. W. M. Foote gives a preliminary account of a new mineral named *northupite*; this is a chloro-carbonate of sodium and magnesium, and occurs in isometric octahedrons at Borax Lake, California. O. C. Marsh discusses at length the 'Affinities and Classification of the Dinosaurian Reptiles.' This article is accompanied by a large plate giving figures (restorations) of twelve typical dinosaurs, eight American and four foreign species. J. B. Woodworth describes some reptilian foot prints in the sandstone of Avondale, New Jersey. A brief communication by Alexander Agassiz, among the notes and abstracts which close the number, gives some preliminary results of observations of temperature made at great depths in one of the Lake Superior copper mines. The deepest point at which the temperature was taken was 4,580 feet and the temperature was only 79° F. Taking a depth of 105 feet as that unaffected by local temperatures, a column of 4,475 feet of rock is obtained with a difference of temperature of only 20°, or an average increase at the remarkably low rate of 1° F. for 223.7 feet of descent. The usual rate is about 1° F. to fifty feet.

PSYCHE, DECEMBER.

Prof. Vernon Kellogg discusses the nomenclature of the venation of the wings in insects, with special reference to the veins in Ephemeridæ termed premedia and postmedia by Comstock, which the author does not regard as independent veins; illustrative figures are given. Dr. A. Davidson gives some notes on the nest and parasites of a California bee, *Prosopis varifrons*, one of the parasites being described as new by Ashmead. By the aid of a new figure, Mr. H. G. Dyar corrects his former account of the arrangement of the hairs in the larva of *Apatelodes torrefacta*, and discusses the number of its stages. Miss C. G. Soule describes the early stages of *Deidamia inscripta*, and Mr. F. H. Sprague records the capture of the large Acridian, *Schistocerca americana*, near Boston, Mass. An account (already published in Science) is given of the insect collection of the United States National Museum, and the Proceedings of the Cambridge Entomological Club for October are added. In a supplement are illustrated papers from the New Mexico Agricultural Station by Cockerell, Baker and Gillette describing various insects, with some account of their habits.

SOCIETIES AND ACADEMIES.

BIOLOGICAL SOCIETY OF WASHINGTON, 249TH MEETING, SATURDAY, NOVEMBER 16.

Prof. Barton W. Evermann presented a paper on the fishes of the Missouri River Basin.

In its relation to the distribution of its fishes the Missouri Basin may be divided into three parts, viz.: 1. The western or mountainous portion, which is heavily timbered with coniferous forests, which has an abundant rainfall, and whose streams are clear, cold and pure. 2. The middle belt, extending from the forest covered mountains on the west to the western limit of abundant rainfall and deciduous forests on the east, a broad region with limited vegetation and rainfall, large areas of alkali soil which erodes very easily, and whose streams are shallow, shifting and full of alkali and solid matter in suspension. 3. The eastern belt, covered with deciduous trees, possessing abundant moisture, and whose streams are fairly clear and pure, though not cold.

The total number of fishes known to occur in the Missouri Basin is 140 species, representing 24 families and 68 genera.

The principal families represented are the following: Cyprinidæ, 49 species; Percidæ, 20 species; Catostomidæ, 15 species; Centrarchidæ, 12 species; Siluridæ, 10 species.

The great majority of the species are found only in the eastern belt, over 100 of the 140 being found only east of the 102d meridian. Only 11 species are characteristic of the western belt, and only 45 species are known from the Missouri Basin portions of North Dakota, Montana, Wyoming and Colorado.

In the middle belt there are few species and all the fishes there have a more or less bleached appearance, as a result of the peculiar environment of the alkaline water. Perhaps the best example of bleaching is seen in the flat-headed minnow (*Platygobio gracilis*) which, of all fishes, seems best adapted to these conditions.

One of the most interesting results of the field work upon which the paper was based was the definite determination of the westward limit of spiny-rayed fishes. West of the 96th meridian only a dozen species of this large group are known. Three species were found as far west as 98°38′, while only a single specimen (*Etheostoma iowæ*) was found as far west as 100°30′.

Dr. Frank Baker spoke of the nomenclature of nerve cells, calling attention to the unsatisfactory character of the terms hitherto proposed for the elementary units of the nervous system. The following were especially mentioned:

Neuron (Waldeyer), has the form of a collective; *neurodendron* (Kölliker), cumbrous and not characteristic of all stages; *neura* (Rauber), has the form of a plural.

The term *neure* seems better and lends itself well to combination. The cells of the nerve roots (*cellules radiculaires*, von Gehuchten), could be called *rhizoneures*, the columnar cells (*cellules des cordons*), *axoneures;* commissural cells (*cellules des voies courtes*) would be *zygoneures;* long-path cells like those of the pyramidal tract (*cellules des voies longues*) would be *macrodromic neures*, from Gr. μακρος, δρόμος, long course. Rhizoneures could be divided into neures of sensation, *æsthesioneures* and neures