card of standard colors, and so a particular descriptive color name attached to the bunch, in the same way by a well-known process of identification its 'Anzahl' may be determined and the proper descriptive name attached. This particular process of identification is called counting, and used originally the standard set of artificial individuals makable from the fingers.

The creation of artificial individuals having this numeric quality, 'Anzahl', the creation of number of necessity preceded counting, which is only a subsequent process for identification, for finding the 'Anzahl' where it is already known to be.

Number is so peculiarly human a creation that it might be used as an argument for the unity of mankind. Man has found it advantageous to perceive in nature distinct things, the primitive individuals. Each distinct thing is a whole by itself, a unit. The primitive individual thing is the only whole or distinct object in nature. But the human mind takes primitive individuals together and makes of them a single whole, an artificial individual and names it. These are artificial units, discrete magnitudes. The unity is wholly in the concept, not in nature. It is of human make.

From the contemplation of the primitive individual in relation to the artificial individual spring the related ideas 'one' and 'many.' A unit thought of in contrast to 'many' as not-many gives us the idea *one* or 'a one.' A 'many' composed of 'a one' and another 'one' is characterized as 'two'. A many composed of 'a one' and the special many 'a two' is characterized as 'three.' And so on, at first absolutely without counting, in fact before the invention of that patent process of identification now called counting. The 'Anzahl' of a group is wholly abstract, in that it represents all at once the primitive individuals or elements of the group or artificial individual, and nothing more. There never was and never will be a concrete number or anything concrete about number.

The number in the sense of 'Anzahl' of a group is a selective photograph of the group, a numeric picture which takes or represents only one quality of the group, but takes that all at once. This picture process only applies primarily to those particular artificial wholes which may be called discrete aggregates. But these are of inestimable importance for human life.

This overwhelming importance of the number-picture after centuries led to a human invention as clearly a device of man for himself as is the telephone. This was a device for making a primitive individual thinkable as a recognizable and recoverable artificial individual of the kind having the numeric quality. This is the recondite device called measurement.

Measurement is an artifice for making a primitive individual conceivable as an artificial individual of the group kind, and so having an 'Anzahl,' a number picture.

It may be likened to dyeing cotton with analine dyes. This will give the cotton a color which may then be identified by comparison with the set of standard colors.

The height of a horse, by use of the artificial unit, a 'hand,' is thinkable as a discrete aggregate and so has a number-picture identifiable by comparison with the standard set of pictures, that is by counting, as say 16. But to argue from this the implicit presence of the measurement idea in every number is the analogue of maintaining the implicit presence of the process-of-dyeing idea in every color.

GEORGE BRUCE HALSTED.

AUSTIN, TEXAS.

ROBERT EDWARD EARLL.

MR. ROBERT EDWARD EARLL, who died on March 18th, at 'Chevy Chase,' near Washington, was one of the oldest and most

trusted members of the staff of the Smithsonian Institution, with which he had been connected in various capacities since 1877. He was born at Waukegan, Illinois, August 24, 1853, educated in the Waukegan public schools, the University of Chicago, and at the Northwestern University, where he was graduated in 1877 with the degree of B. S. He entered the service of the Fish Commission, under Prof. Baird, as a fish culturist; in 1878 was transferred to the scientific staff, and from 1879 to 1882 was engaged in the Fisheries Division of the Tenth Census.

From 1885 to 1888 he was Chief of the Division of Statistics in the Fish Commission. He was sent, in 1883, to the International Fisheries Exhibition in London, as a member of the staff of the United States Commissioner, and rendered very efficient service as executive officer and deputy representative. His aptitude for exposition work was so fully demonstrated on this occasion that he has been designated chief executive officer, at all the expositions which have since been held, for the exhibits of the Smithsonian Institution and the National Museum; at Louisville and New Orleans in 1884 and 1895, Cincinnati in 1888, Chicago 1893 and Atlanta in 1895. At the time of his death he had just completed the unpacking of the exhibits returned from the South.

Since 1888 he had been connected with the National Museum, with the grade of Curator, and for three years had been Editor of the Proceedings and Bulletins of the Museum.

He was recognized by his associates as man of fine administrative ability, which, combined with great force of character, had brought him into the position of one of the most efficient exposition experts living. His unselfish devotion to his work, and his absolute trustworthiness were appreciated by all who knew him, and he was exceedingly popular among his associates.

Notwithstanding his constant occupation in executive work, he produced and published a considerable number of important papers in regard to the methods of the Fisheries and the habits of fishes. He was one of the best authorities upon the natural history of the Shad and Herring, and made exhaustive studies of the fishery statistics of the Atlantic and Gulf coasts and of the Great Lakes. Several new fishes were discovered by him, one of which, an important food species of the Southern coast, obtained by him at Charleston in 1881, is called in his honor Earll's Hake, *Phycis Earlii*. He was also a skilful fish culturist and had much experience in the early experimental work in the propagation of the Shad and in the establishment of the Cod-hatching station at Gloucester.

He was a man of the purest personal character. His loss will be deeply felt by many in Washington. By reason of his peculiar abilities and his great experience, his death creates a void which it will be practically impossible to fill.

G. Brown Goode.

CURRENT NOTES ON PHYSIOGRAPHY.

THE STUDY OF HOME GEOGRAPHY IN ITALY.

At the Second Italian Geographical Congress, held in Rome last September, the president, Marquis Doria, included in his opening address an earnest recommendation for the cultivation of home geography. Recognizing the glory of foreign exploration, he nevertheless said that the patient study of the fatherland is a scientific duty, and that the culture of a nation may be measured by its advance. The Congress adopted votes urging the establishment of better courses in geography in various stages of education; and advising the Italian Geographical Society to offer a prize for the best plan of primary instruction in local geography, and afterwards to secure the best geographical writers of Italy to prepare text-