highly specialized arboreal ape hand; the opposable human thumb could not spring back from the partly atrophied anthropoid ape thumb. Our quadrupedal ancestors certainly had a forefoot capable of developing into the human hand with its long flexible fingers separately innervated and its thumb which, as Erasmus Darwin postulated, could reach the tip of each finger in turn, all depending upon separate innervation from special cell centers in the spinal cord and brain. Primitive man is not only a tool-making animal, he is a music-making animal; consider "Blind Tom," the negro musical genius of his day, who not only possessed an excellent finger technique but a marvelous musical memory that enabled him after a single hearing to repeat elaborate piano compositions. In this human hand connection let us recall also the researches of Sir Richard Paget in advocating the gesture origin of human speech, as gesture demands flexible fingers.

Third, to this hundred per cent. structural equipment of our remote ancestors phylogeny adds a hitherto unperceived germinal potentiality of specialization along certain pre-determined directions rather than others in adaptive reactions to changes of environment; this *teleogenesis* rests upon thousands of observations among primates, horses, titanotheres and elephants which prove that parallel anatomical and psychical progress is traceable to germinal community of origin. The psychic resemblances of the apes to man are partly parallelisms, partly common inheritance (Yerkes). Teleogenesis is not to be confused with the old "teleology," nor is it a revival of a hypothetical vitalism or internal perfecting tendency.

Finally, and perhaps from glandular impulses (Keith), phylogeny proves that independent of selection, of environment, of habit, certain phyla exhibit rapid or accelerated physical and mental adaptation, while others are held back. The creative brain, the tool-making hand, the fleet hind limb of man apparently combine in accelerated adaptation, while forest-loving primates advance much more slowly.

Does not this unbiased survey of recent discoveries in archeology, human and comparative paleontology and human and comparative anatomy, compel us to reconsider the classic Darwin-Lamarck hypothesis and to substitute a new hypothesis? The new hypothesis carries us into a geologic antiquity hitherto undreamt of. Anthropology is forced to share with chemistry and physics entirely new notions of space and time. To my mind the human brain is the most marvelous and mysterious object in the whole universe and no geologic period seems too long to allow for its natural evolution.

OBITUARY

KARL VON DEN STEINEN

THROUGH the sudden death of Karl von den Steinen, which occurred on the fourth of November, 1929, anthropology has lost one of its most eminent representatives.

Born in 1855 at Mühlheim a./d. Ruhr, he attended the Gymnasium of Düsseldorf, from which he graduated in 1871. He studied medicine at the Universities of Zurich, Bonn and Strassburg, devoting himself particularly to psychiatry. He was assistant at the Charité in Berlin, but soon he gave up this position and took a journey around the world which lasted from 1879 to 1881. On this journey he met Adolf Bastian in Hawaii and accompanied him on his visits to the natives. Bastian's enthusiasm for ethnological problems, the varied experiences of the long journey and contact with many foreign cultures were probably the causes that determined von den Steinen's ever-increasing devotion to the problems of anthropology.

At that time, however, geographical problems were nearer to his mind. In 1882 he was a member of the German party in charge of the meteorological station in South Georgia—one of the series of stations that were to observe for a year the meteorological and magnetic conditions in both circumpolar regions. Later on he published his observations, made during this year, on the life of the seals and birds of South Georgia. Immediately upon his return in 1884 he organized an expedition through Central Brazil and explored the Xingú, one of the southern tributaries of the Amazon, which up to that time was entirely unknown. This journey yielded important geographical results and at the same time brought him into close contact with the primitive natives of this area who were at that time still almost entirely untouched by European civilization. His account "Durch Zentral Brasilien" gave the results of his observations. Not satisfied with the completeness of his studies, he returned to Brazil in 1887 and devoted himself entirely to the study of the natives of the Xingú region. For several years after his return he was occupied with work on the results of this expedition which was finally published in 1894 under the title, "Unter den Naturvölkern Zentral Brasiliens," a book which has become one of the classics of ethnological literature. He published his linguistic observations in 1892 as a grammar of the Bakairí language.

Meanwhile he had accepted a chair at the Univer-

sity of Marburg where he taught for two years, 1891 and 1892. At the same time he was editor of the *Ausland,* an old, well-established journal that contained particularly ethnological and geographical information. The duties of these positions were not congenial to him because they absorbed too much of the time that he wished to devote to research, and soon he returned to Berlin where, in 1896, he was elected president of the Berlin Geographical Society.

His interest in the problems of the Pacific Ocean never flagged. In 1897 he went to the Marquesas Islands. He visited every island and every village and amassed most valuable ethnological material. On his return journey in 1898 he visited some of the northwestern tribes of Canada. Then followed years of unremitting study. He was never satisfied with the mere collection of material but saw in it a means of solving problems. Ever since his Brazilian journey the question of primitive art was uppermost in his mind, and the interpretation of the curious and intricate forms of Marquesan art was one of the attractions that this remote group of islands held out to him. With indefatigable persistence he visited all the museums of Europe and America and accumulated material for the study of the historic development of Marquesan art during the period of our knowledge of the islands. His purpose was the attempt to reconstruct the earlier history of this art. Work on this particular problem was interrupted by the duties which he undertook as director of the South American department of the Ethnological Museum of Berlin, a position which he occupied from 1902 to 1906. Again he found that administrative duties made too heavy demands on his time and he returned to the problems that interested him most profoundly.

During this period he took a most active part in the scientific life of Berlin. From 1908 to 1910 he was president of the Berlin Anthropological Society, and his house was the center to which all interested in ethnological studies resorted. It is largely due to his influence that Germany has taken a prominent part in anthropological work in South America. Paul Ehrenreich, Max Schmidt and Theodor Koch-Grünberg were all stimulated by his enthusiasm.

It is fortunate that it was given to him to see published his great work on the art of the Marquesans. The first volume appeared in 1925, the second and third volumes in 1928. In his book on Brazil he had taken the view that all geometrical art developed through conventionalization of realistic forms. In later years he abandoned this view, and the value of his great Marquesan work lies in the attempt to interpret on the basis of painstaking formal analysis the many directions art forms take under the conditions of technique and of constant reinterpretation. The wealth of material and the penetrating analysis of forms are such that now, since the book has been in our hands only a short time, it is quite impossible to assess fully its value, but there can be no doubt that his method of examination sets a new standard for all studies of similar subjects, not only in art but equally in religion, ceremonial life, social structure and invention. We deeply regret that it was not given to him to work out by similar methods the large mass of traditional literature that he collected. His Marquesan work stands out as an example of thoroughness and of critical acumen.

In his younger years von den Steinen, because of his wide knowledge and his rare social gifts, exerted a wide influence, but as he grew older he retired more and more to his study. His counsel was sought but he did not take an active part in scientific affairs. His personal charm and his loyalty endeared him to all who had the privilege of knowing him intimately, and his friends mourn his death no less as a personal loss than as a loss to science.

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RECENT DEATHS

PROFESSOR RALPH H. CURTISS, professor of astronomy and director of observatories at the University of Michigan since 1927, died on December 25 in his fiftieth year.

A CORRESPONDENT writes that Emile Francis Williams, a charter member of the New England Botanical Club and from 1896 to 1917 its recording secretary and treasurer, died at his home in Cambridge, Massachusetts, on December 19, in his seventy-second year. He was born in Boston on January 11, 1859, and spent his early youth in France, where he received his early education in Paris. Returning to America he continued his studies at the Massachusetts Institute of Technology, from which he was graduated from the civil engineering course in 1878. For many years he engaged in business as an importer of rugs and other oriental goods of rarity, devoting, however, much of his time to the pursuit of botany. He made frequent visits to the less explored portions of New England and the adjacent parts of the Maritime Provinces. He had exceptional skill in the selection and preparation of plant-specimens and built up a personal herbarium of unusual excellence. This, including about 14,000 sheets of mounted specimens, he gave to the Gray Herbarium of Harvard University, of which he had, for many years, been a highly valued member of the visiting committee. He was one of the founders of the New England Botanical Club and during more than twenty years devoted much care to its exploring activities, the upbuilding of its col-