SWAMP ANTELOPES IN THE HAMBURG ZOOLOGICAL GARDEN.

Little more than ten years have passed since these beautiful antelopes—nine of which are now in the possession of the Hamburg Zoological Garden—were first known to the scientific world. It was in 1880 that the learned Dr. P. L. Sclater, manager of the London Zoological Garden, described our antelopes from a skin that was sent him from Gaboon.

Still earlier, in the year 1873, the Hamburg garden owned a swamp antelope, but it was then erroneously classed as a harnessed antelope. The peculiar appearance of the animal prompted Mr. Leutemann to paint it, and afterward, by the aid of this picture, it was properly classed. After death it became one of the regular exhibits of the Hamburg Natural History Museum.

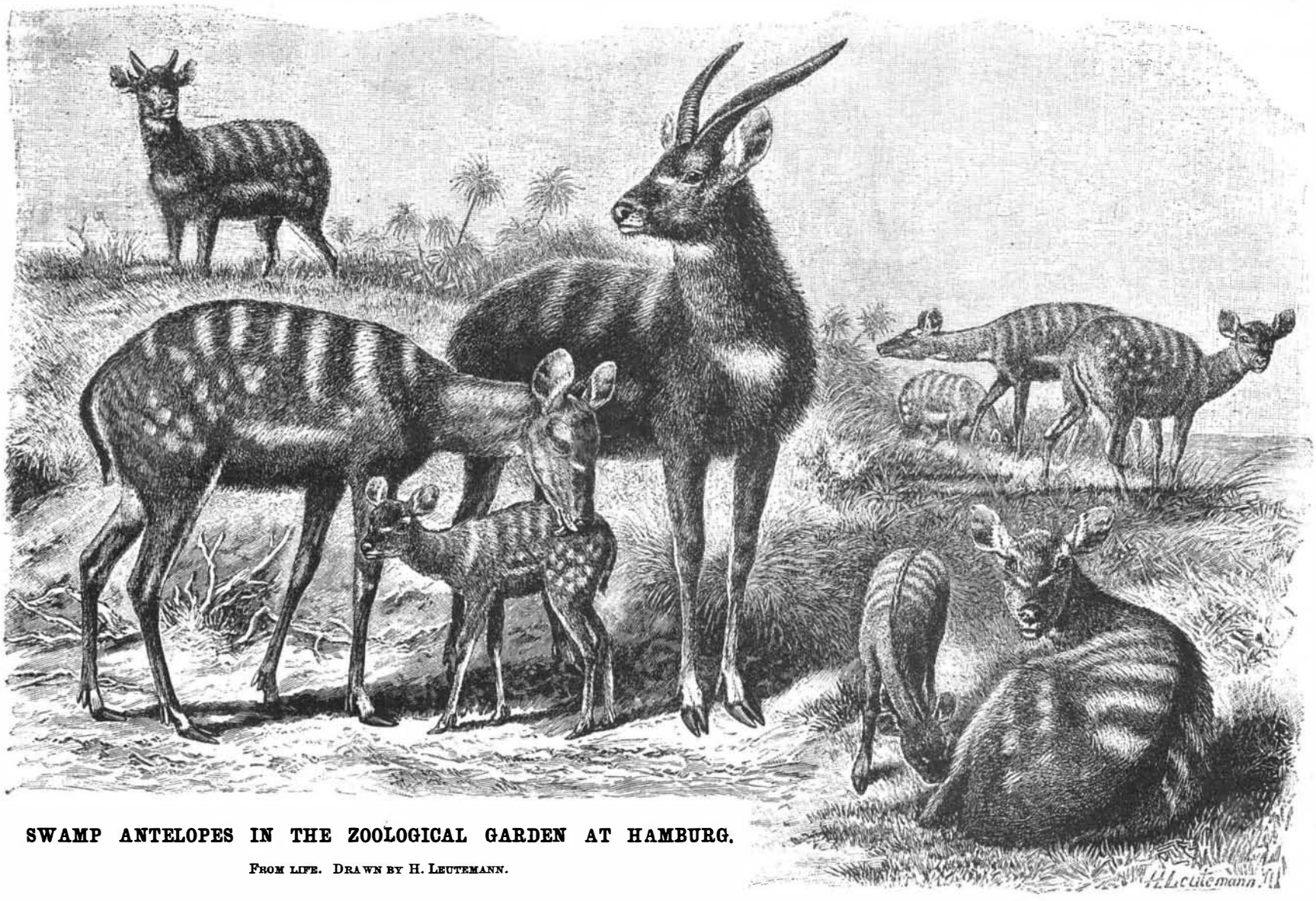
The first two members of the herd that now constitutes the chief ornament of the Hamburg antelope house were two grown females that came as a present from Mr. G. L. Gaiser, who had them brought from Lagos, and sent them to the garden on May 22, 1887. Five years later, a male and two young females were added to the group, and a few months later a second male was presented by Mr. P. Buss, then in Whydah. Three young ones have since been born, thus increasing the herd to its present numbers.

Swamp antelopes (*Tragelaphus gratus*) are beautiful animals; their form is slender and graceful and their coat beautiful in color and marking. Only the males have horns, which are inclined backward a little and are slightly spiral. Their eyes are dark, brilliant and soft, like the eyes of a gazelle; and their large, rounded ears stand out from their heads. The coat of a grown male is of a deep black brown, while that of the young males and females is a beautiful glossy reddish brown. The back, breast and head are ornamented with white spots and stripes; but a narrow stripe down the back is white in the male and black in the female. The hair is longer than that of most antelopes and is coarse, but very glossy.

The hoofs and false hoofs of these creatures are remarkably long and spread somewhat when they step, so that they can easily walk over swampy ground. They love the water, and, even in captivity, like to stand with their feet in the wide, flat tank that has been placed in their cage for that purpose.

Our antelopes endure captivity well, as the experience of the Hamburg Zoological Garden shows. The Hamburg antelopes that were not born in captivity came from Lagos, the Congo, Gaboon and from Whydah. The swamp antelopes extend over more than 1,200 miles of the coast of western Africa, and it is not known how far inland they can be found.

In central and eastern Africa Speke's antelopes (*Tragelaphus Spekii*) are found. They resemble those described above in the form of the body and feet and in the texture of their coat, but have no spots or stripes.—*Dr. Heinrich Bolau, in Illustrirte Zeitung.*



SWAMP ANTELOPES IN THE ZOOLOGICAL GARDEN AT HAMBURG.

FROM LIFE. DRAWN BY H. LEUTEMANN.

Spontaneous Combustion.

The following is the condensed report, published in the *Insurance Monitor*, extracted from the *Weekly London Times*, of an address delivered by Professor Vivian Lewes to workingmen at the meeting of the British Association recently held in Nottingham, England.

The learned professor began by showing how the labors of Priestley and Lavoisier had led to a true knowledge of the actions taking place during combustion, and showed by experiment that in all the ordinary cases of combustion a chemical union was taking place between the constituents of the burning body and the oxygen of the air. The idea of combustion, however, must not be limited to processes of oxidation, although they were the most important; and in order to get a true conception of the action, combustion must be defined as "the evolution of heat during chemical combination." It was then shown that the rate at which chemical action took place was to a great extent influenced by various factors, and that there were many cases in which the action was so slow that the heat escaped as fast as it was generated, and no perceptible rise of temperature took place, and such actions were generally looked upon as cases of "slow combustion." Slow combustion was one of the most important natural actions, and by its means the waste matter in the world was slowly got rid of, and converted once more into simple gaseous compounds, all cases of decay being slow oxidation or combustion. All inflammable substances had a fixed temperature at which they burned actively with flame or incandescence, and this was called the "point of ignition." In some cases an inflammable substance undergoing slow combustion was surrounded with a non-conducting material, and the heat due to the actions going on gradually rose until the point of ignition was reached, and it was this change from the little noticeable slow combustion to ordinary combustion, with its manifestation of flame or incandescence, to which the term "spontaneous combustion" had been given. The lecturer then proceeded to consider special cases of spontaneous combustion, and showed that freshly burned charcoal, especially when powdered, absorbed oxygen from the air with considerable rapidity and with a rise of temperature, which with a large mass was in some cases sufficient to set it on fire. The important bearing of this was that beams, skirting boards, etc., in contact with flues and heating pipes, were liable to become charred at a comparatively low temperature, and this form of charcoal was very liable to spontaneous ignition when air came in contact with it. In the same way coal had the power of absorbing oxygen from the air, and when in masses of a thousand tons or more, especially when much broken and moist, would undergo heating, and even ignition. This was due to the absorbed oxygen setting up chemical action with the hydrocarbons of the coal, and not, as was generally supposed, from the oxidation of the coal. Nearly all the vegetable and animal oils had the power of absorbing and combining with oxygen, and this gave them the power of drying; and one of the most usual causes of spontaneous ignition in workshops and factories was to be found in oily waste or rags, as the oil being spread on the surface of the material offered a large surface for oxidation, while the rags or waste, being excellent non-conductors of heat, allowed the temperature to rise until ignition took place. Well-authenticated cases were known in which sparrows building their nests of oily waste in the eaves of houses had caused serious fires. Hayricks which had been built from grass improperly dried before stacking were also very liable to spontaneous ignition; this being due to the sap of the grass taking up oxygen during a process of fermentation which evolved heat, and the heat being kept in by the surrounding hay, rose until the ignition point was reached. If grass once well dried then became wet by a shower, it became mouldy in the stack, but did not heat. The lecturer then concluded by emphasizing the fact that the so-called spontaneous combustion was merely an increase in the rate of chemical combustion from the slow stage, which was hardly noticeable to active combustion, and showed the fallacy of supposing that the living body could undergo any such action. The demonstrations were interesting, and the conclusion of the lecture was followed by prolonged cheering.

Manganese Nodules in the Ocean.

The *Fortnightly* publishes an article by Prof. J. W. Judd on "The Chemical Action of Marine Organisms," disapproving the chemical theory of the origin of oceanic manganese nodules. He says that all the deep-sea explorations show that this material is collecting very slowly, and he believes that the muds have passed an indefinite number of times through the bodies of marine organisms.

"At each passage of the clay through the organism," he says, "a small addition of manganese and iron oxides would be made to the mass by the action of the living structure on the sea water, and thus, in the course of time, these oxides might be sufficiently concentrated to build up, by concretionary action, the remarkable nodules on the ocean bed.

"Such action would be in complete analogy with processes going on in fresh and salt water, by which calcareous, siliceous, phosphatic, and ferruginous deposits are being everywhere formed in the waters of the ocean, while all theories of the direct separation of the manganese and rarer metals from their state of excessively dilute solution in sea water by chemical reactions appear to me to be beset with the greatest difficulty."