the first positive group ($B^3\Pi \rightarrow A^3\Sigma$) in which according to Kaplan the predissociation should occur. In this investigation, the work done by Naudé[4] on the $5 \rightarrow 2$ and $6 \rightarrow 3$ transitions of the same band system was of great value. Naudé has pointed out that the structure of the first positive group agrees with a $^3\Pi \rightarrow {^3\Sigma}$ transition. Twenty-seven branches are to be expected, nine strong branches and eighteen weaker branches. If the $B^3\Pi$ state were in Hund's case b, only the nine strong branches should occur. But the $B^3\Pi$ state is in case a for the lower J values and proceeds to case b for higher J values. A rotational analysis of the $12 \rightarrow 8$ band showed that the band lines suddenly become much less intense. This happens at $J = 32$ for the $^3\Pi_2$ level, $J = 33$ for $^3\Pi_1$ and $J = 34$ for $^3\Pi_0$, and in the R and P branches at the same place as in the Q branches.

This cannot be explained by assuming that the state causing this predissociation is $^4S + {^4S}$. This level gives rise only to Σ-states. Σ-states are in Hund's coupling case b. For such high rotational levels we are certainly also for the Π-states nearly in case b. Each one of the three Σ-states forming a triplet perturbs only one of the Π-triplet states. These Π-triplets are double because of the Λ-doubling; Σ-states are not. Therefore only one of these Λ-doubling components of the Π-states should predissociate, whereas on the contrary I observed the predissociation in both the Λ-doubling components (P- and R- as well as Q-branches predissociate). We thus may conclude that the perturbing level in this case is certainly not $^4S + {^4S}$ but that it may be $^4S + {^2D}$, as was formerly assumed.

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1 *Phys. Rev.*, **37**, 1406; 1931. **38**, 1079; 1931. **41**, 114; 1932.
2 *Ergebn. exakt. Naturwiss.*, **10**, 207; 1931.
3 *Z. Phys.*, **84**, 304; 1933.
4 *Proc. Roy. Soc. A.*, **136**, 114; 1932.

The 'Manatee' of St. Helena

IN my paper "On the 'Manatee' of St. Helena"[1] I brought forward evidence that the so-called 'manatee' formerly found at St. Helena was a sea-lion, probably the Cape sea-lion, *Arctocephalus antarcticus*, not a sea-cow, natural conditions at St. Helena being quite unsuitable for sea-cows.

Sir Charles Harper, formerly Governor of St. Helena, to whom I sent a copy of my paper, has very kindly directed my attention to a passage in Dampier's "Voyages" (ed. by Masefield, publ. by Grant Richards, London, 1906), which has a very important bearing on this question.

Dampier, who visited St. Helena in June 1691, also mentions the 'manatee', stating: "I was also informed that they get Manatee or Sea Cows here, which seemed very strange to me. Therefore inquiring more strictly into the matter, I found the Santa Hellena Manatee to be, by their shapes, and manner of lying ashore on the Rocks, those Creatures called Sea-lyons; for the Manatee never come ashore, neither are they found near any rocky Shores, as this Island is, there being no feeding for them in such places. Besides, in this Island there is no River for them to drink at, tho' there is a small Brook runs into the Sea, out of the Valley by the Fort" (**I**, p. 526).

Dampier gives (**I**, p. 64–67) an excellent description of the manatees and their mode of life from his own observations in the West Indies, the Philippines and Australia. Thus he knows what he is speaking about. His direct statement concords with the result reached indirectly through my own observations. The evidence is accordingly now conclusive that the much discussed St. Helena 'manatee' is a sea-lion, and the conclusions in regard to former land connexions drawn from the existence of the 'manatee' at St. Helena are without foundation.

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1 *Vidensk. Medd. Dansk Naturhist. Forening.*, **97**; 1933.

Possibility of Incomplete Sex Linkage in Mammals

IN a paper shortly to be published, Koller and Darlington find that, in the first meiotic division of *Rattus norvegicus* males, one or two chiasmata are formed between the X- and Y-chromosomes. If chiasma formation corresponds with the crossing-over of genes, it follows that where the chiasma lies between the locus of a gene and the region in which X- and Y-chromosomes differ, such a gene will exhibit crossing-over with sex. On the basis of the cytological observations, genes in a certain region of the chromosome should show about 5 per cent crossing-over with sex, in another about 45 per cent. These latter genes would behave in very nearly the same manner as autosomal genes. It thus follows that some genes regarded as autosomal may in reality be incompletely sex-linked. Such linkage would show up in a pedigree of the following type:

AA or Aa ♀ × aa ♂
|
aa ♀ × Aa ♂
|
♀ ♂

The progeny in the third generation would be in the proportions

$$55\ Aa\ ♀ : 45\ aa\ ♀ : 45\ Aa\ ♂ : 55\ aa\ ♂$$

in a case involving 45 per cent crossing-over. A glance through the literature shows that data must be available which would enable this hypothesis to be tested, but that they have not been published since the progeny of such matings are not usually classified for sex.

We wish to appeal to authors to give data in future communications which will enable the above hypothesis to be tested, and, where possible, to examine for partial sex-linkage the data on which former publications have been based. It is most likely that such cases would be found in mammals, including man, where the Y-chromosome is often fairly large as compared with the X-chromosomes, but they are perhaps also possible, *mutatis mutandis*, in birds and other groups.

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