



# HERPETOLOGIA

*A column for short herpetological contributions*

## A SNAKE WITH A PREY GETS HEAVY INTESTINES

*Edited by*

*Marcel van der Voort.*

From: 'De Volkskrant' January 13 th 1996.

Snakes are known as irregular eaters and only eat when they can catch a prey. Nevertheless, they are capable of digesting enormous amounts of food in a short time, from a half to triple times their own bodyweight. In comparison, a human would get sick spontaneous with that amount of food. Snakes though have adapted themselves to this lifestyle so that they have no problems with it.

Three researches, S. Secor, J. Diamond and K. Nagy have published a report in *Nature* which describes their research on how Pythons and Rattlesnakes manage to digest such large amounts of food. The researches determined that the mucous membrane of the stomach and the small intestine, where the digestion and food assimilation take place, is a rather valuable tissue from an energetic point of view. The cells of the mucous membrane are characterized by a fast assimilation rate and die off quickly and must therefore continuously and at a high rate be replaced

For animals who are irregular eaters, it could take too much energy to maintain the mucous membrane of their digestion channel in optimal condition. From squirrels in their winterrest it is known that their stomach-

intestine mucous membrane reduces in thickness. This sounds logical because they don't have to eat anyway. With snakes the same thing happens. During the time that don't eat, their stomach-testine mucous membrane looks rather poorly. But after capturing a prey, within one to three days a real explosion of activity takes place in the mucous membrane.

Within a few hours, as a result of a thickening of the mucous membrane, the intestines increases twice in weight. The intake proteins by the mucous membrane cells increases even faster; within one day with a factor six and within three days with a factor sixteen. The oxygen consumption of the mucous membrane cells of the Python increases with a factor seventeen, within a day after the prey is eaten. This factor is six in a Rattlesnake.

The researchers estimate that this explosion of activity costs a Python about one-third of the total energy that it obtains from eating the prey. However, this is amply compensated by the energy that is saved by the low rate of mucous membrane assimilation in times there is no food to be eaten.

*Translation from Dutch by Paul Schooneveld.*