

Cape Town for eighteen months; on account of the military situation, its effective eradication was neglected, and now the disease has roused into active form. It is this risk which San Francisco has been running, and this risk no community has the right to assume.

THE DESTRUCTION OF SEA LIONS IN CALIFORNIA.

PROFESSOR WOODWARD'S wholesome address on the necessity of verifying theories by the observation of facts finds an excellent illustration in the sea lion question in California. These animals, which have long been prized by lovers of nature as one of the great attractions of the coast, have fallen into disrepute among the fishermen because their presence was supposed to account for the deterioration of certain fishing grounds. So confident was the belief in their fish-devouring habits that their destruction—or at least a great reduction of their numbers—was advocated and in part accomplished by the State Commission of Fisheries. But it now appears that this belief was without substantial foundation. The appeal to fact has been made by the critical examination of the stomachs of slaughtered sea lions, and it has been found by Professor Dyche that the twenty-five animals examined had eaten only squids and other cephalopods, eschewing fish altogether. The case is suggestive of the old philosophical puzzle: Why is it that a live fish adds nothing to the weight of a bucket of water? and would be amusing but for the sad fact that the unfounded theory has already led to the killing of many of these graceful creatures.

The investigation of food-habits by means of stomach examination is of far-reaching importance. Dr. Merriam, whose letter on sea lions we print on another page, is engaged, through the Biological Survey, in the most elaborate

study of animal foods ever made. For many years the stomachs of wild birds and mammals have been systematically collected and laboriously studied, to the end that the favorite and the occasional foods of each species in each season of the year, and in each part of the country, may become known. As each group is worked up the facts are published by the Department of Agriculture, and farmers and legislators are thus informed what species may properly be regarded as friendly, and what as hostile, to the interests of the people. In many instances it has been found that popular impressions, almost necessarily founded on a comparatively small number of facts, are altogether erroneous, so that war has been waged on our friends and protection given our enemies.

ON THE VITAL ACTIVITY OF THE ENZYMES.*

IN spite of the vast amount of work that has been done on the soluble ferments, since the discovery of diastase by Kirchoff, in 1814, the exact chemical nature of these substances is, perhaps, even more of an enigma to-day than the nature of albumen itself. Indeed, beyond the fact that the enzymes, or at least the greater number of them, are albuminous, that they probably belong to the group of nucleo-proteids and that they contain phosphorus, and probably iron, in addition to carbon, hydrogen, oxygen and nitrogen, we know but little more concerning their exact chemical composition than was known to Payen and

* In slightly different form this paper was read before the Cincinnati Section of the American Chemical Society, December 15, 1900.

Many of the biological memoirs referred to in the following were inaccessible to the writer in the original. He, therefore, desires to acknowledge his indebtedness to the following authorities: 'The Soluble Ferments and Fermentation,' Green; 'Die Fermente und Ihre Wirkungen,' Oppenheimer; 'The Cell in Development and Inheritance,' Wilson; 'Plant Physiology,' Sachs; 'Plant Physiology,' Pfeffer; Hueppe's 'Principles of Bacteriology,' Jordan.