

is injured, or the animal brought under the influence of an anaesthetic, it cannot be performed; that when the amputation is voluntary, the crab loses but little blood, which is not the case when the limb is removed by the experimenter, thus going to show that the act is purely a protective one, often saving the life of the animal with the minimum amount of injury.

The power to perform the act with promptness varies with the different species, and in any of them, when the animal is fatigued, it is not apt to resort to it. In experimenting with vigorous specimens of *Carcinus maenas*, it was observed that when the ten limbs were successively struck, allowing sufficient time for each one to detach itself before the next leg was struck, a far greater number were thrown off than when they were all struck together, or in very rapid succession.

Then, in one hundred and ten specimens of the same species, it was found that a second blow upon the undetached claws would cause them, in nearly all cases, to come away likewise, especially after the animal had somewhat recovered from the shock caused by the loss of its other limbs. And when the same experiments are undertaken in the case of only five of the limbs, the number that come away was proportionately much greater. Further, it was noted that the animal was more successful in getting rid of its great claws, or pincers, than it was with the ambulatory limbs.

To sum up, then, M. Varigny believes this reflex function of defence, as performed among crustaceans, consists in a voluntary amputation, indifferently executed among those species wherein the musculature of the limbs is but feebly developed, and among individuals exhausted by severe pain, as in such cases where all the limbs have been simultaneously removed.

As the hemorrhage is so much less as resulting from the voluntary amputation, when compared with what takes place after the removal of the limb by artificial means, it will not be questioned but that this power as possessed by these animals is one of service to them.

Further investigations in this direction will be not only interesting, but valuable.

ELLIOTT'S ALASKA AND THE SEAL ISLANDS.

THIS handsomely illustrated and printed volume is evidently intended for a popular audience. Little of its contents is new. That which is original with the author, and due to his personal observation, is in great part a re-arrangement and amplification of matter printed by him two or

three times previously, especially in the octavo report on the 'Condition of affairs in Alaska,' issued by the government in 1875, and in the quarto document of the census series of 1880, relating to the fur-seal fisheries and kindred topics, published in 1882, from which part of the illustrations of the present volume have been adapted or reduced. This, however, will not diminish the interest or value of the work for those who are not in the habit of consulting government documents, or who read merely for general information. The part of the work which is a re-arrangement of matter original with others is naturally less satisfactory than that on the Aleutian and Seal islands, where the author is at home in the scenes he, for the most part, very fairly and accurately describes. Many of the illustrations are faithful and good, especially those due to pen-and-ink sketches. From these, however, the human figure-pieces must be excepted: the faces in particular partake somewhat of caricature, are generally out of drawing, and have absolutely no anthropological value. The landscapes, excepting a few representing mountains, are generally very good. In the copy before us, Mount Shishaldin has disappeared from the plate which claims to give a glimpse of it (p. 146); Mount Iliamna is represented with a slope near the peak (p. 87) of about twenty-three degrees from the vertical; and Verstovia (p. 32) has hardly more than forty-five.

The book is to some extent a misnomer, the most interesting and available part of Alaska lying between latitudes 50° and 60° north, as does the greater part of the British Islands, which no one would think of calling arctic. The nomenclature and transliteration of Russian words are very irregular and often inaccurate, in no respect conforming to the systems generally adopted. Apart from the biology of the fur-seals and birds of the Seal Islands, the natural history of the book is very shaky, and the anthropology almost a minus quantity. But it is hardly worth while to lay much stress on its deficiencies from a scientific stand-point, since it is hardly likely to be consulted for precise data of that sort. Its historical errors are less numerous but more important. To give a single instance, the author repeats the error of Petroff in Bancroft's 'Alaska,' by stating that in 1868 Messrs. Hutchinson and Morgan passed the season in exclusive control of the sealing on St. George and St. Paul islands. As a matter of fact, there were five or more competing companies. There is an insufficient index; and the map, though well drawn and printed, in spite of the date, 1886, which it bears, is destitute of all the more important geographical discoveries of the last few years.

Our arctic province Alaska and the Seal Islands. By HENRY W. ELLIOTT. New York, Scribner, 1886. 8°.