### FLYING CRUSTACEA.

Man is impelled by an irresistible desire to dominate space. Scarcely has he made sure of a motion of a desired velocity upon land and water than he thinks of conquering the atmosphere that surrounds him, and constructs apparatus of greater or less ingenuity for ascending above the planet trodden by his feet. May it not be the same instinct that has in all times led him to interest himself particularly in animals that fly, and especially in such of them as, by their primordial organization, are essentially terrestrial and aquatic beings? It is always the case that every new fact in this order of ideas very naturally excites in us a new feeling of curiosity.

Aside from birds and insects, there have, up to the present, been known several animals that, owing to a special arrangement of such or such a part of the body, are capable of flying, or at least of maintaining themselves in the air for a greater or less length of time. Such are the bats and the flying squirrels, among mammals, and the exocetes among fishes. Such beings belong to the vertebrate branch of the animal kingdom, but analogous facts have been very recently discovered among the invertebrates. The insects are no longer the sole arthropods that have the faculty of cleaving space and transporting themselves by aerial way. The same faculty has been observed in a crustacean—a very small one, which neither in size nor form recalls the crustaceans known to everybody, the lobster or the crab, for example.

The following are the facts in all their simplicity: Dr. Ostrooumoff, a very distinguished scientist, director of the biological station of Sebastopol, made an excursion in a boat last summer along the coast of the Crimea. One morning, while the sea was very calm and the sky of an azure such as one sees only in southern countries, he observed clouds of small beings hovering like flies above the tranquil surface of the water. Approaching slightly, our naturalist was, as were his son and the boy who accompanied him, enabled to observe the phenomenon at leisure, and the following was wnat was ascertained: Each of these small animals in the first place took a proper position on the surface of the water, as if seeking to gather strength, and then made a leap and described in the air a long and gentle curve in order to fall back again into the liquid element. To collect a certain number of these beings and examine them with the lens was the work of a moment, and what was not the astonishment of the Russian naturalist when he recognized that the captive animals were crustaceans that are quite common in

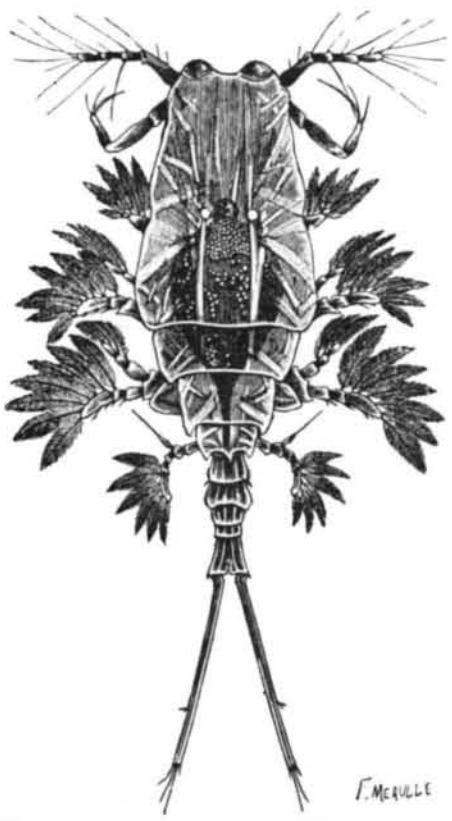

Fig. 2.—COPILIA VITREA, HAECKEL. (×20.)

the Black Sea, and that belong to the genus and species Pontellina Mediterranea (order Copepodeæ).

If we examine certain small crustacea under the microscope, we shall be much surprised at their odd aspect. We shall mention a few examples. The Calocalanus pavo, which is quite common in the Mediterranean, exhibits a transparent body, and, at the extremity of the abdomen, carries eight golden yellow symmetrically arranged feathers (Fig. 1).

Another crustacean of the order Copepodeæ has analogous but much more developed appendages; it is the Copilia vitrea (Fig. 2), an odd little animal, every leg of whose transparent body is provided with a rich fan of microscopic feathers of a brick red.

Finally, a species scarcely distinct from that observed by Mr. Ostrooumoff is the Pontellina plumata (Fig. 3). Examined at an amplification of from 40 to 50 diameters, it presents a multitude of silken hairs that ornament its legs as well as the extremity of its abdomen, vulgarly called the "tail" in the crustaceans. These hairs, often arranged as feathers, contrast by their bright orange color with the blue body of the animal and its transparent limbs. There is no doubt that these numerous hairs singularly facilitate the aerial excursions of the crustacean and uphold it after it has once risen into the air by a leap. We might multiply the descriptions of the species, but it seems to us that what we have said will suffice to convince our readers. Let us add that our figures were prepared from the plates of the excellent monograph of the copepods of the Gulf of Naples published by Mr. Giesbrecht in 1892.

If the pontelline, with its relatively small hairs, can

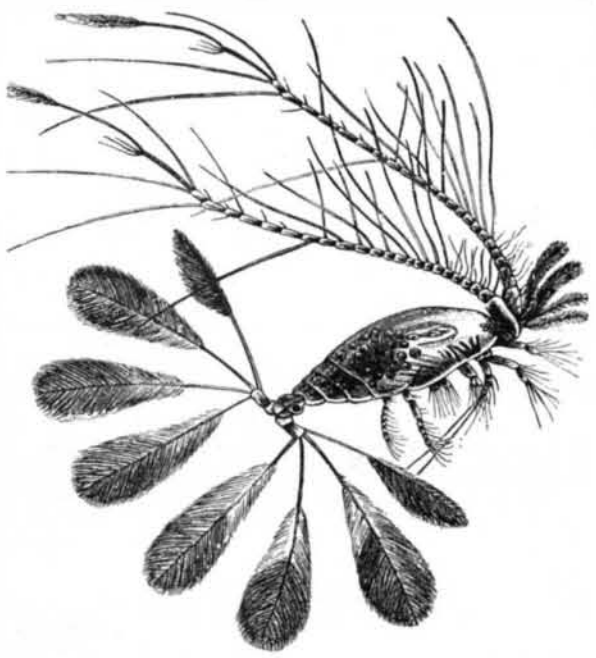

Fig. 1.—CALOCALANUS PAVO. (×20.)

sustain itself for a few instants in the air, the two other crustaceans that we have mentioned are still more capable of doing so with their wide penniform appendages.

According to Mr. Ostrooumoff, whose interesting communication has been reproduced in one of the last numbers of the Zoologischer Anzeiger of Leipzig (October 22, 1894), the flight of the pontellines has some connection with the phenomenon of moulting. It would notably facilitate the beginning of this act, which is always very troublesome to animals. We know at least that other crustaceans of the group of Entomostraceæ, such as certain Polyphemides (Evadne, Pleopis, etc.) maintain themselves at the period of moulting upon the surface of the water, or a little above it, thanks to a float formed by their old cuticular envelope, cast off and filled with air.

However this is, the demonstration of this faculty of flight in crustaceans is still another proof that nature varies its processes to infinity in order to attain the same end. In mammals and reptiles we see aerial locomotion assured by the aid of interdigital membranes or by that of a portion of the skin stretched between the limbs. In fishes and insects, it is rendered possible in consequence of the transformation of the limbs (fins or dorso-lateral appendages of the thorax) into membraneous wings. Finally, in the birds and in the crustaceans, such locomotion is effected through the aid of apparatus formed of feathers (wings and feathery appendages). The last word of the scientific observation is not yet said, and it may be that we shall find in animals still other means of aerial locomotion besides those that we have just mentioned.

Who knows whether man, in imitating the processes of nature, will not some day succeed in surmounting certain obstacles, such as watercourses, ditches, walls, etc., by rising in the air and supporting himself for some time therein, as Mr. Lilienthal has recently tried to do? The practical applications of the idea of short distance aerial locomotion might render appreciable services in the military art, and would also be of great help to explorers and pioneers in countries destitute of roads.—La Nature.

### The Greenland Scientific Expedition of 1895.

Efforts are now making to raise a fund of $12,000 for the purpose of bringing Mr. Peary and his two assistants home from Northwest Greenland early next fall, and, in connection with this, to prosecute scientific investigations during the available summer season. It is hoped by this means to charter and fit out a staunch steamer built for Arctic service and commanded by experienced Arctic navigators, which shall start from St. John's, Newfoundland, on or about July 5, 1895, for Inglefield Gulf, Northwest Greenland, latitude 78° N., Mr. Peary's headquarters. The co-operation of museums, scientific and educational institutions and individuals is invited, not only because they will thus assist in the return of Mr. Peary and in the preservation of the results of his extended labors, but also because such an expedition will afford the most favorable advantages to eight or ten specialists for obtaining the rich results that are possible in a prolific field that, for a generation to come, may not again be easily and economically accessible.

Mr. Peary, who has done great service in opening this interesting region to scientific study, will render every aid in his power to the expedition. His thorough knowledge of the natives, of methods of travel and work, and of points of interest, will greatly facilitate the present undertaking; and conspicuous among its results will be the fact that it will bring back, not only the fruits of its own labors, but also the product and records of the able and brilliant explorer who, for several years, has devoted all his time, energy and money to the study of Arctic life and phenomena, and to widening the bounds of geographic knowledge in the North Polar area.

The American Geographical Society contributes one thousand dollars toward the expenses of such expedition, provided that other subscriptions, sufficient to make up the sum required to send the expedition, are obtained.

A limited number of scientific societies, educational institutions, or individuals, contributing $1,000 to the fund, will be entitled to have each a representative on the expedition, who shall be approved by the scientific leader. The expenses of each member over and above $1,000 will be the cost of his scientific outfit, transportation from his home to St. John's, and from New York or Philadelphia to his home. The proposed work will require three months. Further information can be had from Emil Diebitsch, 2014 Twelfth Street, N. W., Washington, D. C.

### Direct Laryngoscopy.

Dr. Kirstein, of Professor Senator's polyclinic in Berlin, has devised a new method of examining the larynx and trachea, in which the interior of these organs is seen directly and not by the intervention of a mirror or prism. He does not say, however, that his plan is applicable generally, but only that in "many persons" it can be carried out. The patient is placed on his back in the horizontal position, with the head hanging down, and an œsophagoscope is introduced. A metal speculum in the form of a tube about ten inches in length can then be passed behind the epiglottis and illuminated by a "Caspar's electroscope" and through it the larynx viewed with the naked eye. It does not do for the observer to wear spectacles, as these rapidly become dimmed with moisture. The tube itself acts as a tongue depressor, being a lever whose fulcrum is the edge of the upper incisors. Dr. Kirstein does not, of course, suggest that this method should ordinarily be employed instead of the common method of

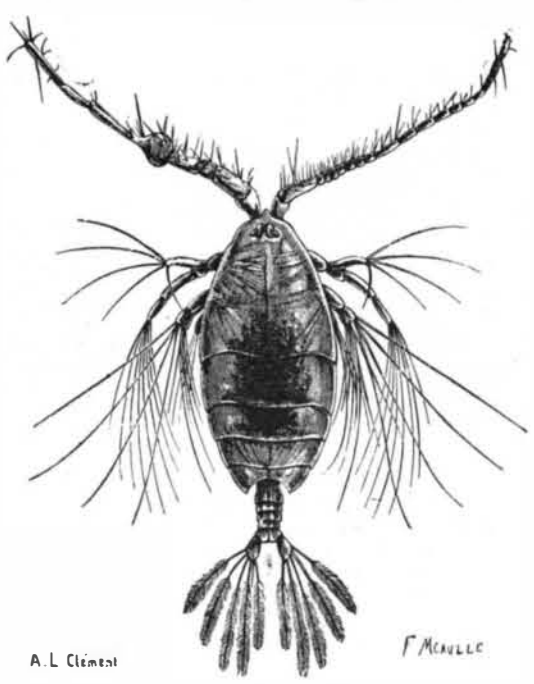

Fig. 3.—PONTELLINA PLUMATA, DANA. (×30).

laryngoscopy, but he thinks that in some cases it will be found capable of extending usefully our methods of laryngeal and tracheal examination, and he asserts that it is by no means so severe a procedure as may be imagined, and that, especially if cocaine is employed, it causes the patient no distress either at the time or subsequently.—Lancet.

### Temperature of Incandescent Filaments.

Prof. Weber has lately given the results of a number of experiments made by him to determine the temperatures of filaments in electric incandescent lamps. He has found that the normal temperatures of all species of incandescent lamps is approximately the same, and is comprised between 1,565° and 1,588° C. In the case of some lamps giving a very brilliant light—that is to say, with very thick filaments—the temperature is 40° higher.

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