series of events does not explain one of the fundamental attributes of living matter is irrelevant.

An explanation of this curious misapprehension, as well as a remedy for it, may be found in the definition of regeneration as either the homomorphic or the heteromorphic replacement of lost parts, or the development of whole as well as imperfect organisms from pieces of adults, embryos or eggs. This definition leaves out of account a large class of true regenerative phenomena. Unless the term 'regeneration' has become a technical one, intended to convey only half of its legitimate sense, every restorative process should be included under it. It seems to me that if all anabolic processes were included in our common acceptance of the term, we should neither forget that the ability to regenerate is a fundamental attribute of living things, nor try to account for it by natural selection.

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CURRENT NOTES ON METEOROLOGY.

JAMES GLAISHER.

IN the *Quarterly Journal of the Royal Meteorological Society,* Vol. XXX., 1904, pp. 1–27, Mr. William Marriott, assistant secretary of the society, has a paper on the meteorological work of the late James Glaisher, F.R.S., whose death, in February, 1903, was duly noted in these columns. Glaisher was the founder of the Royal Meteorological Society in 1850. He had, in 1840, been appointed superintendent of the magnetic and meteorological department of the Royal Observatory, Greenwich. He soon became interested in and conversant with all kinds of meteorological investigations, and through his instrumentality numerous meteorological stations were equipped in various parts of the country. From 1847 to March, 1902, he supplied quarterly the results from those stations to the registrar general. He prepared various tables of corrections for the use of the observers, the principal of which were his 'Hygrometrical Tables,' which have passed through nine editions. He was a juror of the Great Exhibition of 1851, and as such he caused a great stimulus to be given to the manufacture of reliable meteorological instruments. Glaisher was best known to the public by the twenty-eight balloon ascents which he made for scientific purposes in the years 1862–1866, on behalf of a committee of the British Association. A bibliography of the writings of Glaisher is appended, and the statement is made that the instruments which he used during his balloon ascents have been given to the Royal Meteorological Society by his son. The last paper by James Glaisher appeared in the *Quarterly Statement of the Palestine Exploration Fund,* 1902, and is entitled 'Rainfall at Jerusalem in the Forty-one Years 1861–1901.'

THE DUST-FALL OF FEBRUARY, 190 ?.

'THE Great Dust-Fall of February, 1903, and its Origin' is discussed by H. R. Mill, R. G. K. Lempfert and J. S. Flett in the *Quarterly Journal of the Royal Meteorological Society,* Vol. XXX., 1904, pp. 57–88. The dust fell over nearly all parts of England and Wales to the south of a line drawn from Anglesey through Wrexham and Northampton to Ipswich, except in parts of northern Cornwall, Somerset, Wilts and Mid-Wales. At many stations to the north of this line the dust-fall did not attract the attention of observers, but is believed to have taken place on account of the distinct marks of yellow dust detected on the sunshine cards sent in to the Meteorological Office. The dust usually attracted attention either in the form of a dense yellow haze, like a London fog, or as a reddish-yellow powder, lying thickly on trees or roofs, or adhering to windows. There is reason to believe that the air which reached the southern half of England on February 22 started from the northwest coast of Africa on the nineteenth. Dr. Flett, who examined the dust microscopically, reports that the bulk of each specimen of dust presented to him for examination consisted of comparatively coarse particles of mineral and organic origin derived from the locality where it was collected. In addition to the coarser particles, all the samples contained a very fine-grained reddish clay, the particles of which were too minute

to be satisfactorily determined mineralogically. This clay was derived from some source beyond the British Isles, but it was not distinctive enough to afford much evidence as to its place of origin.

TEMPERATURE OF THE LOWER AIR.

In the *Meteorologische Zeitschrift,* XXI., 1904, pp. 49–62, Woeikof discusses the temperature of the lower air and the relation of this temperature to the temperature of the earth's surface. The vertical distribution of temperature in the ground is considered under two principal heads, 'I., The Sun, or Diurnal, Control,' and 'II., The Radiation, or Nocturnal, Control.' There are four types. The first (A) is characterized by a mean annual surface temperature higher than that further down. Where observations are available, and where this type is well developed, the surface is warmer than the air. In type B the temperature increases regularly from the surface downward; this may be called the snow type, and prevails where the ground is snow-covered for the whole year, or for at least three quarters of the year. In type C the temperatures of air and surface are uniform, and this occurs in moist, rainy districts of the middle and higher middle latitudes where there is no regular snow cover. Type D has a considerably higher mean annual temperature in the ground than in the air, and is, therefore, the rule in tropical and subtropical climates.

NEW MOUNTAIN OBSERVATORIES IN LAPLAND.

Nature of June 16, 1904, notes the successful establishment, by Dr. Hamberg, of Stockholm, of meteorographs at two high-level stations in Swedish Lapland. One of these, on the Portitjokko, at 1850 meters, has been working satisfactorily since July, 1902, with the exception of occasional interruptions of the anemometer owing to hoar frost. The second is on the Sähkok, at about 1,080 meters. Each set of apparatus weighs 1,000 kilograms. The clocks are to run for a year, the 'weights' being 300 kilograms each. Instead of using ink, which is unsatisfactory, punctures are made every twenty minutes in the papers covering the drums of the instruments.

NOTES.

Hann, in his 'Handbuch der Klimatologie,' second edition, Vol. III., pp. 249–250, gives a few notes on the climate of Manchuria, based chiefly on an article by Rev. John Ross in the *Scottish Geographical Magazine* for May, 1895. In *Ciel et Terre* for June 1, 1904, a summary of these same observations is given.

In the *Scottish Geographical Magazine* for June, Victor Dingelstedt describes the Crimean and Caucasian coasts of the Black Sea, finds them analogous in many ways to the Genoese and French coasts of the Mediterranean, and states the belief that these districts are about to be developed as a health resort for those who stand in need of a sojourn in mild climates.

The importance of the cyclonic control of our temperatures in the eastern United States in winter, and the dominance of the diurnal (*i. e.,* direct solar) control in summer, is brought out in a paper on 'The Temperature Element of the Climate of Binghamton, N. Y.,' in the *Monthly Weather Review,* XXXII., 1904, p. 78. The discussion of climate with due emphasis on the weather controls which bring about different types or extremes of temperature, pressure, wind velocity, etc., is a matter which deserves much more attention than it has yet received.

In a paper on 'Certain Relationships between the Diurnal Curves of Barometric Pressure and Vapor Tension at Kenilworth (Kimberley), South Africa' (*Quart. Journ. Roy. Met. Soc.,* XXX., 1904, 41–53), J. R. Sutton refers to the views of a number of leading meteorologists on the part played by vapor tension as a component of barometric pressure, and brings forward a series of observations at Kimberley designed to throw light on the still unsolved problem of the diurnal barometric wave.

Meteorological observations from the Arctic and the Antarctic are accumulating with remarkable rapidity. One of the latest additions to the collection from the Arctic is the series of four years' observations taken during the second voyage of the *Fram,* under Captain Sverdrup (Appendix IV., in 'New Land:

Four Years in the Arctic Regions,' by Otto Sverdrup; translated into English, 2 vols., London, 1904). R. DEC. WARD.

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NOTES ON ENTOMOLOGY.

As if we did not have enough names for the orders of insects, Mr. A. E. Shipley generously gives us seven more.* These are presented for the sake of having the names of all the orders terminate in '-ptera.' The new names are Apontoptera for Collembola, Lipoptera for Mallophaga, Ellipoptera for Anoplura, Psocoptera for Psocidæ, Embioptera for Embiidæ, Ephemeroptera for Ephemeridæ, and Paraneuroptera for Odonata. He appears to have overlooked the fact that the mayflies already had two '-ptera' names in Plectoptera and Anisoptera (Steph.). His new term, Ephemeroptera, has already been used in the same sense some fourteen years ago. If the terms Aptera and Neuroptera, which in the past covered all sorts of creatures, can now be applied to one order, why can not Archiptera or Pseudoneuroptera be restricted to the Odonata, and Synaptera to the Collembola; these latter names have had a much more exclusive membership. Nothing is done by Mr. Shipley with the Hemiptera, although it is nearly as heterogeneous as the Neuroptera of Linné. However, there are '-ptera' names (from 1835) for the four principal groups.

Now if the '-oura,' '-gnatha' and '-poda' partizans extend their nomenclature to the various orders, the requirements of science may be met.

A recent book by Georges Guénaux is a useful compendium of European economic entomology.† It forms a volume, in G. Wery's 'Encyclopédie Agricole.' About 100 pages are devoted to worms, the remainder to entomology. One chapter is devoted to structure and classification, then follow chapters on insects injurious to all crops, to cereals, to beets and clovers, to garden crops, to fruit trees, to the vine, to forest trees, to horticulture, in houses, to domestic animals and man, beneficial insects, destruction of injurious species, and myriapods and arachnids. The economic treatment is given with each injurious species. A great many of their remedial measures have been but little tried in this country.

Professor C. B. Davenport has given us an instructive account of the habits of certain Poduridæ affecting the sea-beach.* Three species inhabit the beach between high- and low-water marks. At high tide they are in the sand to a depth of six or more inches; as the tide falls they come to the surface and sport about on the pebbles. He interprets their almost continual jumping movements as useful to increase respiration, and shows that they leap into the wind, and not before it. When the tide rises they bury themselves in the sand, and Professor Davenport thinks that they feed, while thus submerged, upon particles of organic matter in the sand.

The peculiar wavy motion of centipedes has long excited even poetic minds to the wonder of how they managed to utilize all their legs in such a harmonious way. E. Ray Lankester has investigated the matter and arrives at several interesting results.† The legs move in groups or waves. Each wave includes a certain definite number of legs, apparently constant for each species. In the forms studied each wave contained from eight (in *Peripatus*) to sixteen members (in the millipede). The number of waves in a species depends upon the number of legs and the number of legs in the wave. He shows that in millipedes the waves of each side are opposite or synchronous, that is each leg of a pair moves just as its fellow. While in the centipedes each leg of a pair is in an opposite position from its fellow, so that the waves are symmetrically alternate. In the millipedes the body does not aid in locomotion, but in the centipedes the motion is partially due to the undulations or wriggling of the body. This fact indicates the more complex nature of the centipede.

* 'The orders of insects,' *Zool. Anz.*, XXVII., 259–262.

† 'Entomologie et Parasitologie Agricole,' Paris, 1904, pp. 580, figs. 390.

* 'The collembola of Cold Spring Beach, with Special Reference to the Movements of the Poduridæ,' Cold Spring Harbor Monographs, II., pp. 30, 1 pl., 1903.

† 'On the Movements of the Parapodia of *Peripatus*, Millipedes and Centipedes,' *Quart. Journ. Micr. Science*, March, 1904, pp. 577–582, 1 plate.