

influence on their rate. In this case, too, the influence of the Earth's rotation in causing a change of direction is, of course, most important, and this is examined with great care and thoroughness in the second of the two papers, the conclusions being based on actual experiments with a rotating vessel containing water. From these, Dr. Nansen passes to a consideration of the case of a globe uniformly covered with water, in which the difference of specific gravity would give rise to a current running in a spiral direction towards the pole, the transfer of water from the equator to high latitudes being retarded in proportion to the length of the course to be traversed. The existing main ocean currents can be explained as due to the modifications introduced by the existence of the continents. The last paper deals with currents due to evaporation and precipitation, especial note being taken of the influence of ice-formation.

GENERAL.

The Successor to Dr. E. Richter at Graz.—Dr. Robert Sieger has succeeded the late Dr. E. Richter as Professor of Geography at the University of Graz. The newly-appointed professor, who is already well known to geographers, was born in 1864 at Vienna, where he studied history and oriental languages at the university, and took his doctor's degree in 1886. He subsequently devoted himself to geography, which he studied under Simony, Kiepert, and Richthofen, and made two journeys for research in Scandinavia, giving some of the results in a paper on 'Lake-level Variation and Coast-changes in Scandinavia,' published in the *Zeitschrift* of the Berlin Geographical Society in 1893. Since that date he has written on a variety of geographical questions, including the fluctuations of the African and Armenian lakes, the physical history of the Lake of Constance, the "Karst" forms of glaciers, and other subjects. In 1898 he became A.O. professor at the newly founded "Exportakademie" in Vienna, and since 1903 had occupied the same post at Vienna University.

OBITUARY.

Elisée Reclus.

ON July 4, Elisée Reclus died in his seventy-sixth year in a small Belgian village not far from Ostend, and the most sympathetic articles which have been devoted to him since in the press of all nations bear testimony to the extremely wide popularity as a writer, and the profound esteem as a man, which the great French geographer enjoyed in all civilized countries.

Jean Jacques Elisée Reclus was born on March 15, 1830, in a small town of the Gironde Department, Ste.-Foy-la-Grande, and his family have never broken their association with this part of south-western France. His father was a Protestant pastor—a man of great integrity of character and remarkable energy. So was also his mother, who reached a very great age, teaching in a school of her own foundation, and retaining wonderful mental energy till her very last days. Elisée was the second of a family of twelve, all of whom, brothers and sisters alike, have left their mark in life. His elder brother, Elie, became a well-known anthropologist, one of his brothers is a geographer, another an engineer, and one a surgeon of great repute. One of his sisters, Madame Dumesnil, was for the last twenty years his constant help in all his work.

Elisée Reclus received his first education in Rhenish Prussia, and later on he

entered, with his brother Elie, the Protestant Faculty at Montauban. Their father's intention was to make of them Protestant ministers. Neither of the two brothers felt, however, inclined to follow the vocation of their father. Karl Ritter was attracting at that time students from all parts of Europe by his wonderful generalizations concerning the Earth and its inhabitants, and both brothers, leaving Montauban in 1849, went to Berlin, making most of the journey on foot, and living chiefly on bread and fruits. The lectures of Ritter, like the works of Humboldt, undoubtedly left a deep impression upon all the subsequent work of Elisée Reclus. The Earth always appeared to him as a living being in its continuous variations, and the inhabitants of its different parts were intimately connected in his mind with the physical characters of the portion of the globe where they had developed; while the influence of Humboldt's poetical ways of interpreting Nature and describing it is evident in Elisée Reclus's style.

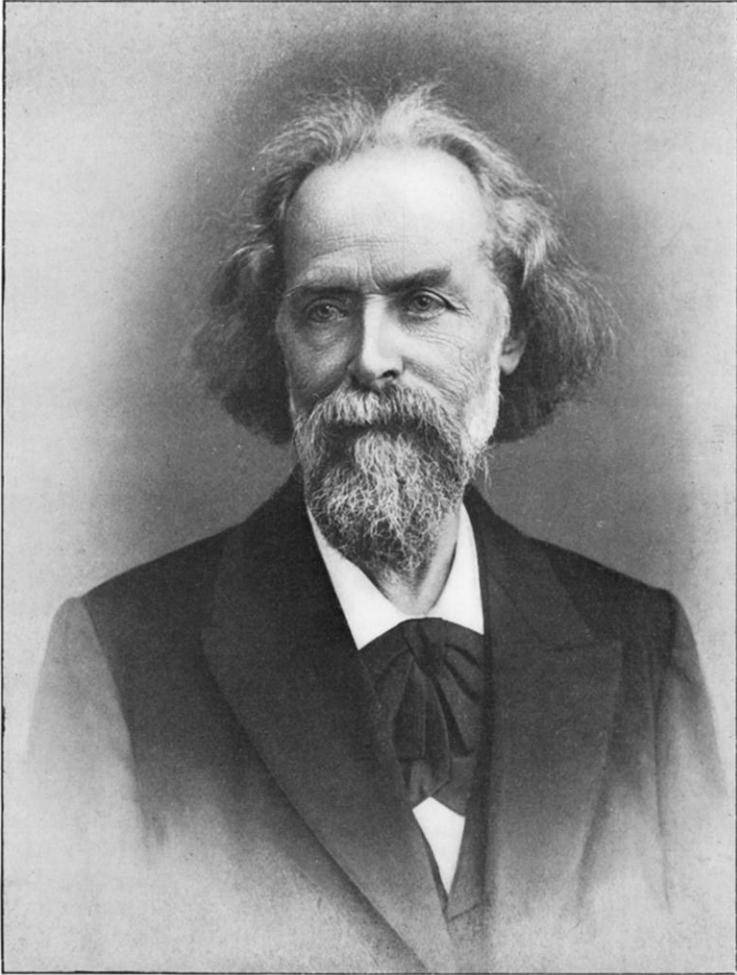
After the *coup d'état* of Napoleon III., Elisée Reclus, as well as his brother Elie, were compelled to leave France. He came to London in 1852, then stayed in Ireland, and finally went to America, where he visited the United States, Central America, and Columbia. This last journey he described in a charmingly written little book, 'Voyage à la Sierra Nevada de Sainte Marthe' (Paris, 1861).

Returning to France in 1857, Reclus took a lively part in both the scientific revival and the political movement which characterized the middle of the nineteenth century. These were the years when, by a series of monumental works, the foundations were laid of the mechanical theory of heat, the kinetic theory of gases, modern atomistic chemistry, the variability of species and modern biology altogether, anthropology, physiological psychology, and so on; while the political revival which took place after the Crimean war led, as is known, to the liberation of Italy and the abolition of serfdom in Russia, and slavery in the United States. Reclus contributed his part to both these movements. The need of good popular works in all branches of natural science was deeply felt at that time, and in 1864 he published (besides an 'Introduction au Dictionnaire des Communes de France') an extremely well written little book—which he considered later on as his favourite work—'Histoire d'un Ruisseau,' in which he gave quite a course of geography by following a stream from its birth till it becomes a mighty river and an artery of human intercourse. The substance of the method which Reclus followed later on with such a success in his 'Universal Geography,' was thus contained in this 'History of a Brook.'*

Three years later, in 1867, appeared the first volume of his 'La Terre : Description des Phénomènes de Globe,' † which at once conquered for him a place of honour amongst geographers. This work, which is a necessary introduction to the 'Universal Geography,' is a true product of the scientific revival of those years, and represents an admirably told physical geography. The life of the continents, their distribution on the globe, their architectonic features, the laws governing their outlines, as well as the distribution of the plateaus, the lowlands, the deltas, and the deeply indented peripheric regions, all these problems of comparative earth knowledge are dealt with, and the corresponding features described with admirable lucidity in the first volume of 'La Terre.' The oceans and the atmosphere were dealt with in a subsequently published second volume. All the characteristics of Reclus's geographical work appear already in 'The Earth.' He pays just as much

* There is no English translation of the 'Histoire d'un Ruisseau,' and of its companion book, 'Histoire d'un Montagne.'

† This work has run through five or six editions, and has been translated into all languages, including English.



Photograph by J. Thomson.

ELISÉE RECLUS.

attention to geotectonic and geological hypotheses as is required for the comprehension of the Earth as a living planet; and he excels especially in the treatment of the slow modifications of the surface (perhaps without reaching the concreteness of the illustrations which we find in Lyell's 'Principles of Geology'), and in the description of the aspects which the Earth's surface offers now to its human inhabitants. Altogether, there is no better guide for one who wishes to be familiar with physical geography (or physiography) than these two volumes. None could, at the same time, be a better source of inspiration of love of the subject, as well as love for Nature in general. The numerous small maps in the text add immensely to the suggestiveness of the book, while its style is such that it reads as a work of art.*

When the Franco-German war broke out in 1870, and Paris was besieged, Reclus joined the National Guard, attaching himself to the battalion of *aéronauts* which had been formed by his great friend, the photographer Nadar, and he aided him in that remarkable organization of the pigeon-post and the ballooning which kept the besieged capital in regular intercourse with the provinces unoccupied by the Germans.

Later on came the Commune of Paris, and Elisée Reclus, refusing, in accordance with his opinions, any place in the Government of the Commune, went as a soldier in the ranks of one of the battalions of the *fédérés*. On April 5, 1871, he took part in a sortie towards Versailles, and, after the defeat of the column, was made prisoner on the plateau of Chatillon. He lived through all the horrors of the Satory camp and the pontoons of Brest, and was considered as irretrievably lost after the terrible experience of the transport of the prisoners to Brest, which resulted in the loss of reason and life for so many of his companions. However, he soon recovered, and founded a school for his working-men comrades in the prison of Quelern, teaching them reading, geography, and English.

In November, 1871, he was condemned by a Council of War to transportation, but was released in the following January, after a representation in his favour had been made by scientific men of different nationalities, especially English—Darwin, A. R. Wallace, Carpenter, and many others having signed the petition. His condemnation was commuted to perpetual banishment.

After his release, Elisée Reclus went to Zürich to rejoin his brother Elie; then he stayed for a time at Lugano, and finally settled at Clarens. The first work he wrote in Switzerland was another admirable little book, 'Histoire d'une Montagne'—a companion volume to his 'Histoire d'un Ruisseau'—in which he expressed his gratitude to the beautiful Nature of the Swiss mountains for healing the deep wounds which his mind had received during the civil war.

Soon after that he undertook his main work, the 'Géographie Universelle: la Terre et les Hommes,' of which the first volume began to appear in weekly parts in 1876. Beginning with Greece as the cradle of our present European civilization, and treating in succession from east to west the European peninsulas of the Mediterranean, Reclus described next France, then Central Europe, North-Western Europe (Belgium, Holland, and these isles), the Scandinavian lands, and European Russia. Europe took thus five volumes. The next five volumes were given to Asia, Russia in Asia, Japan and China, Farther India, British India, and South-Western Asia. One volume was given to Australia and the Pacific islands, four to Africa, and the last four to the two Americas.

* Elisée Reclus had himself written condensations of 'The Earth' in two small 18mo volumes, published at the low price of one franc each. These, again, have not been translated into English.

For nineteen years in succession Reclus brought out with astonishing regularity these bulky volumes, and there was not one single week in which the part which was due did not appear. The immensity of labour accomplished by Reclus during these years is alone a matter of wonder, the more so as he found also time to travel, and visited during that time several of the countries with which he was dealing. The amount of work which he was performing every day was colossal. Each volume of his work covered from 800 to 900 large octavo pages, and contained from 200 to 230 small maps in the text, and for each of these volumes Reclus consulted an average of 900 to 1000 volumes. Very often a volume was read and annotated, only to add a few words to the description of a valley or a mountain pass, or to choose a more characteristic adjective in the description of a range of mountains. As soon as one volume was out Reclus immediately began the next one, and by the middle of the year the fundamental manuscript, which usually represented one-half, or maybe less, of the final text, was ready. It contained the framework of the volume. All main lines, all generalizations were established. All the characteristic features of a given region were recorded in the proper terms. Its general structure, its mountains, and the characteristics of each river-basin, with its populations, industries, roads, and cities, or its successions of lacustrine basins and the wild tribes inhabiting their banks, were traced in broad, characteristic, well-chosen traits in this first manuscript. Then came the filling up of this framework with details: the beauties of hill and dale in this spot, the work of erosion of such a river, or the action of the sea on this part of the coast, the more detailed characteristics of the different stocks of which all great nations are composed, the conquests or devastations of civilization, the interesting features of such a city, or of the roads connecting them—all these were introduced, giving more and more life to the broadly painted landscape. When one remembers that every line of the manuscript, as well as of the just-mentioned details, and of the corrections in the countless proofs which used to pass between the printers and the author were made in Elisée Reclus's own handwriting, one understands vaguely the immensity of the work. And while one sees that the framework has been constructed with all the powers of a great geographer, who holds all the features of the continent which he describes in his brain and imagination, trained by travel, colossal reading, and previous work, one also realizes that the details are often true jewels set into the main picture. The result was that two distinctive features of the 'Géographie Universelle' struck all those who have written about it,—the generalizing power of a geographical genius, and the richness of admirably told, characteristic details which reveal a true poet's capacity for understanding Nature.

Before the 'Universal Geography' had been written, the description of the different portions of the globe was very unequal. For different regions we had no general geographical sketch, and knew only the results of local explorations of certain parts of the region. But Reclus so well managed to utilize all the available materials that he gave us full harmonic pictures of the whole, and that, as has been remarked once in *Petermanns Mitteilungen* (Bd. 40, lit., p. 132), the mosaic character of the preparatory work had disappeared.

It is especially in the description of rivers and their drainage areas that Elisée Reclus excelled. Taking any of the great streams—the Volga, the Niger, or the Amazonas—we find the same method applied with full success. From the very first lines the reader obtains a general idea of the position and shape of the river and its basin. Then he sees the birth of the river with the wild mountains or marshy plateau round its cradle, and the more or less wild tribes which are dwelling, or used to dwell formerly, round its headwaters. Then we are told how the upper

course of the river became the seat of small barbarian republics or monarchies, and how, finally, a powerful state grew up on its banks, concentrating several territories under its rule. The river is living in the legends of its present inhabitants, or in the hypotheses of the early geographers, or in the early historical records. And then, as we follow Reclus in his course down the river, we see the stream growing, we learn about the different civilizations that appeared or are appearing now on its banks, and we see the growing intercourse that is maintained now with other nations coming to its mouth. In short, we obtain a real living picture of a wide territory.

As to the style of Elisée Reclus, it bears distinct traces of the influence of both Karl Ritter and Alexander Humboldt, with a light veil of the poetical, imaginative mind of Southern France. All through that immense work the style conveys the impression of an intense energy of both feeling and thought. It is the comprehension of Nature of Goethe and of Shelley in his softest, less tumultuous strophes.*

Another distinctive feature of Reclus's 'Geography' is his profound respect for every nationality, stem, or tribe, civilized or not. Not only is his work free from absurd national conceit, or of national or racial prejudice; he has succeeded, besides, in indicating in every branch, stem, or tribe of the human race those features which make one feel what all men have in common—what unites, not what divides them. However, it must not be believed that such a broadly humane attitude led the writer to obliterate the racial or national peculiarities. Not only every European or Asiatic nation appears with its truly national characteristics, but even the smallest of the hundreds of tribes described appears with its own tribal character. This is so much so that one cannot but wonder how Elisée Reclus succeeded in describing so many tribes without repeating himself.

It must also be said that the human inhabitants of the globe are what interested Reclus most, much more than the animals and the plants, or the flora and fauna of past ages. The Earth as the abode of man, and what man has done and is doing of his abode, this is what absorbed his main attention.

The last volume of the 'Universal Geography' appeared in 1894, and by now, several parts of it have already had to be revised in order to follow the rapid developments of geograpy, anthropogeography, and demography. The volume dealing with France was entirely revised, and several others ('Russia' in the number) underwent partial revision. Besides, South Africa and China were completely brought up to date by Elisée Reclus and his brother Oésime, and were published separately with a few of the small maps.†

The 'Universal Geography' placed Reclus in the foremost rank of modern geographers, and the Royal Geographical Society awarded to him in 1894 its Royal Gold Medal.

As soon as Reclus had terminated his great work, he began to prepare a new one, in which the development of Man was to be traced in close dependency on his geographical environment.

"Man, like the Earth, has his laws," Reclus wrote in the "Parting Words," with which he concluded his 'Geography.'

"Seen from above and from afar, the diversity of features intermingled on the surface of the globe—crests and valleys, meandering waters, shore-lines, heights and

* In dealing with the 'Géographie Universelle,' I of course refer to the French edition; naturally much is lost of Reclus's delicate treatment even in the best translation.

† 'L'Afrique Australe,' small 4to, pp. 358, 1901; and 'L'Empire du Milieu,' small 4to, pp. 667, 1902.

depths, superimposed rocks—presents an image which, so far from being chaotic, reveals to him who understands a marvellous picture of harmony and beauty. . . . And if the earth seems consistent and simple amid the endless complexity of its forms, shall the indwelling humanity, as is often said, be nought but a blind chaotic mass, heaving at hazard, aimless, without an attainable ideal, unconscious of its very destiny? Migrations in diverse directions, settlements and dispersions, growth and decline of nations, civilizations and decadence, formation and displacement of vital centres; are all these, as might seem at the first glance, mere facts, nay, facts unconnected in time, facts whose endless play is uncontrolled by any rhythmical movement giving them a general tendency, which may be expressed by a law? That it is that it concerns us to know. Is the evolution of man in perfect harmony with the laws of the Earth? How is he modified under the thousand influences of the modifying environment? Are the vibrations simultaneous, and do they incessantly modulate their tones from age to age?

“Possibly the little already known may enable us to see further into the darkness of the future, and to assist us at events which are not yet. Possibly we may succeed in contemplating in thought the spectacle of human history beyond the evil days of strife and ignorance, and thus again behold the picture of grandeur and beauty already unfolded by the Earth.

“Here is what I would fain study according to the measure of my strength.”

This new work Elisée Reclus completed in three large volumes, and it has begun to be published at Paris, by the *Librarie Universelle*, under the title, ‘*L’Homme et la Terre*.’ Only the first three parts (twelve facsimiles) are now out; but several chapters have previously appeared as separate articles in various reviews, and it is already possible to say that this new work will be an important contribution to that branch of Earth knowledge which is known as historical geography. The first chapters, dealing with primitive man, and next with the relations that existed between man and different animals which he has domesticated or used for the purposes of hunt, are already full of interest, and show already the advantages of Reclus’s method. But the chapters of modern geographical history,—such as, for instance, “The Partition of China,” published in the *Atlantic Monthly* in November, 1898, or various chapters of general interest published in the French reviews, *Société Nouvelle* and *Humanité Nouvelle*, entitle us to think that we shall have in the new three volumes an extremely valuable acquisition. Nobody but the author of the ‘*Universal Geography*’ was able to so deeply analyze the international problems arising from modern colonization, and the rivalries between the industrial nations for getting hold of new markets.

In the year 1892 Elisée Reclus, dissatisfied with the turn that affairs were taking in France, left Paris, where he was staying then, and settled at Brussels. There he devoted his energy to three different undertakings. One of them was the “*Université Nouvelle*”—a free university which he founded with the aid of a few collaborators, and in which he himself taught geography, while his brother Elie delivered a remarkable course of a hundred lectures on the origin and history of religions. Many men of mark joined this university, which probably would have taken a further extension were it not for the difficulty offered by the small comparative value of the degrees conferred by the *Université Libre*, so long as they were not recognized by the State as equal to the degrees conferred by the other Belgian universities. The *École des Hautes Etudes* of the *Université Nouvelle* continued, nevertheless, to accomplish good work.

The other preoccupation of Reclus was the construction of a globe on the linear scale of 1:1,000,000, and, as a step to it, the preparation of convex maps with a true representation of the orography. It is known that this idea is being worked at now by many geographers, and Elisée Reclus gave to it a great deal of his activity. He came over to London a few years ago, in order to speak before the Royal Geographical Society upon this subject. In connection with this work

Reclus established at Brussels a Geographical Institute. The idea of it was to create an institution which, like the great Gotha Institute, would collect cartographic and geographical information, publish geographical works of universal utility, and undertake to accomplish geographical works for private persons, public bodies, and States. And finally, Reclus worked at the above-mentioned great work, 'L'homme et la terre.'

Elisée Reclus terminated this work last summer, and—as if his overstrained energy had been sustained only by the great problem he had before his eyes—he began to suffer from repeated and strong attacks of heart disease. The first attack of *angina pectoris* he had had already in 1880, but they seemed to have left no traces, and for a number of years they did not return. Now, and especially after the death of his brother Elie, which took place at Brussels at the end of January, 1904, the attacks of the heart became more and more frequent and extremely painful. I went to see him last June at Brussels, and found him suffering very much during such attacks, but full of mental energy a few hours later. It was hoped by his family and friends that he might still recover, but in June last the disease and suffering became more and more acute. He retained, however, full lucidity of mind, and as late as Saturday, July 1, he dictated some notes for his work. In the morning of July 4 he breathed his last, enjoining that no sort of public demonstration be made at his burial, and that nobody but his nephew, Paul Reclus (son of Elie) should accompany his body to the cemetery. He was buried in accordance with his wish, and laid by the side of his brother Elie.

Elisée Reclus leaves behind him his aged widow, a daughter married in Algeria, and several grandchildren. He was married three times. The first time he married a Creole lady, by whom he had two daughters; one of them died not long ago. He knew in perfection what Victor Hugo described as *l'art d'être grand-père*. His first wife died a few years before the Franco-German war, and he married once more, but soon lost his wife, in 1874, at Lugano. He married for a third time in Switzerland, and his wife—a good botanist and entomologist—always accompanied him during the journeys which he made while he was writing the 'Universal Geography,' and fully understood the importance to science of the great work to which her husband was giving his life.

If Elisée Reclus was held in high esteem as a geographer, he was perhaps esteemed even more as a man by the immense numbers of persons of all nations who had known him. It was impossible to approach Elisée Reclus without feeling the elevating influence of his character—such is the unanimous verdict of those who knew him. The profound scientific honesty of his work was only a reflection of his high personal integrity, absolute disinterestedness, and unlimited love of truth, without any restriction, mental or otherwise, that had become his intimate nature. The sobriety of his life was marvellous. Bread and some fruit was all that he lived upon, even when he worked from six in the morning till eleven in the evening. It was also his favourite food. Apart from the need of warmth that he began to feel as he grew in age, he may be said to have had no wants. He knew how to die poor after having written wonderful books. And he knew how, having attained the high summits of fame, never to rule anybody and to remain the equal of his humblest collaborator and of every one he met with. He certainly was one of the finest specimens of civilized mankind, a man *free* in the purest sense of the word.

P. KROPOTKIN.