TIFLIS AND BAKU.

After having laboriously waded through half a dozen of the ponderous tomes with which English travellers — and American too, for that matter — conscientiously afflict mankind, it is really a pleasure to take up this light, and we fear ephemeral, narrative of the exploits of Mr. Orsolle. To be sure, there are few dates and no statistics in the volume. Neither are there any pictures, not even a portrait of the author. There is a map, but as it was evidently drawn to illustrate a condition of affairs considerably anterior to our author's journey, and as no attempt seems to have been made to adapt it to the book it accompanies, it is of little use; nevertheless, it is a good map, in its way, and, a few years ago, might have been regarded with a more favorable eye.

It was in July, 1882, that Orsolle said good-by to his mother, and made the best of his way to the 'gare du nord,' where his travelling companion, M. Ad. Nihlein joined him. Thence by Cracow, Odessa, and Sebastopol, he proceeded to Poti, where he arrived on the 14th of August. From Poti, at that time the Black-Sea terminus of the Caucasus railway, he journeyed to Tiflis. His description of the latter place occupies a dozen pages, and will well repay a cursory perusal. At Tiflis he left the railroad, and travelled in the manner of the country, which he found much more agreeable than did O'Donovan, to Kars, the ruins of the ancient city of Ani, of which a plan is given, and Erivan. Thence, by a route not to be traced on the 'Carte pour le voyage de M. Orsolle,' he found his way to the Tiflis-Baku railway, and eventually to the Caspian itself.

There are many descriptions of Baku in the books, but none so interesting as this. M. Orsolle does not tell us how many gallons of oil are refined per hour, nor does he go into the details of the use of the refuse products of that distillation on the Caspian steamers. He gives no information on such points; but he does tell us what Baku is like, who its denizens are, and how they eat, drink, play, bathe, and exist. We say exist, because, judging from this description, it is a bare existence that the Bakunians lead in their naphtha-soaked town, which, he says, is destined to become the Marseilles of the Caspian.

The remainder of the book is devoted to Teheran and north-western Persia, and possesses no especial interest at the present time.

Le Caucase et la Perse. Par E. Orsolle. Paris, *Plon*, 1885.

NOTES AND NEWS.

The following is a complete list of the papers read at the meeting of the National academy of sciences, April 21–24: — J. S. Billings and Dr. Matthews, U.S.A., Methods of measuring the cubic capacity of crania; S. H. Scudder, Winged insects from a paleontological point of view; A. S. Packard, The Syncarida, a hitherto undescribed group of extinct malacostracous Crustacea, The Gampsonychidae, an undescribed family of fossil schizopod Crustacea, The Anthracaridae, a family of carboniferous macrurous decapod Crustacea, allied to the Eryonidae; Alexander Agassiz, The coral reefs of the Sandwich Islands, The origin of the fauna and flora of the Sandwich Islands; T. Sterry Hunt, The classification of natural silicates; Elias Loomis, The cause of the progressive movement of areas of low pressure; C. B. Comstock, The ratio of the metre to the yard; C. H. F. Peters, An account of certain stars observed by Flamsteed, supposed to have disappeared; J. E. Hilgard and A. Lindenkohl, The submarine geology of the approaches to New York; Theodore Gill, The orders of fishes; J. W. Powell, The organization of the tribe; G. W. Hill, On certain lunar inequalities due to the action of Jupiter, and discovered by Mr. E. Neison, E. D. Cope, The pretertiary Vertebrata of Brazil, The phylogeny of the placental Mammalia; C. A. Young, Some recent observations upon the rotation and surface-markings of Jupiter; H. A. Rowland, On the value of the ohm; F. A. Genth and Gerhard vom Rath, On the vanadium minerals — vanadinite, endlichite, and descloizite — and on iodyrite, from the Sierra Grande Mine, Lake Valley, N. Mex.; A. N. Skinner (by invitation), On the total solar eclipse of Aug. 28, 1886; Theodore Gill and John A. Ryder, The evolution and homologies of the flukes of cetaceans and sirenians; Ira Remsen, Chemical action in a magnetic field; A. Graham Bell, The measurement of hearing-power; A. Graham Bell and F. Della Torre, On the possibility of obtaining echoes from ships and icebergs in a fog. The following biographical notices of deceased members were also presented: of Dr. J. J. Woodward, U.S.A., by J. S. Billings; of Gen. A. A. Humphreys, U.S.A., by H. L. Abbot; and of William Stimpson, by Theodore Gill.

— At a recent meeting of the Bavarian geographical society, Professor Rutzel communicated some particulars concerning a map which he is designing to show the political circumstances of Africa; the actual limits of the various states, native and other, being defined according to the extent of the territories actually possessed by each. The map will show several 'centres' of state formation. The whole of the continent is, however, far from being divided amongst the existing tribes, as there are many districts which do not belong to any of them. The existing native states, moreover, such as the Sunda and the Zulu kingdoms, are of varying importance, and subject to very different systems. The native states, it is asserted, rest mainly on the boundary between the Sahara and the Sudan, the high plateau of east Africa, and the Guinea coast. The remain-

ing territories, so far as they are not occupied by European powers, are free from any form of state rule or possession.

— Bouquet de la Grye is ordered by the French ministry of instruction to proceed to Teneriffe, in order to study the laws of gravitation under all the circumstances for which the Peak offers facilities.

— Dr. Pechuel Lösche reports curious changes in the physical geography of Africa: "Lake Ngami is dried up; the game has died or gone away; the vegetation exists no longer; both the Okavango and the Tamakan flow into the Zambezi." Dr. Pechuel Lösche returns to Europe with rich collections, including a living Welwitschia, perhaps a new species of that curious plant.

— Dr. Lenz will leave Vienna in May for the upper Kongo, whence he will endeavor to cross the old equatorial province of Egypt in order to establish relations with Emir Bey and Lupton Bey's party.

— Dr. Silvers of Hamburg, who left that town in October, 1884, on an exploring expedition to the Cordillera of Merida in Venezuela, arrived at Tovar on Jan. 9, and from there will commence his explorations.

— The *Sémaphore de Marseille* reports a method of sugar-manufacture which is to supersede beet-root by potatoes, the saccharine matter being extracted by the help of electricity. Paris capitalists, and even English, are reported to be interested in the invention.

— The Marine biological association of England has already raised six thousand pounds of the fund required to found a station on the south coast of England, but requires four thousand pounds more before beginning to build. Cambridge has undertaken to raise five hundred pounds.

— A correspondent of the *Oesterreichische monatsschrift für den orient* writes, that if the reports of the few parties who have succeeded in gaining personal knowledge of the interior of the celestial empire did not agree in the fact that a kingdom of four hundred million inhabitants awaits the products of European factories, which will be opened to commerce by the introduction of modern means of intercourse, the beginning of the development of European industries in the interior, as evidenced in the last few years, would awaken immediate and serious anxiety for the future of the English trade. Led by their position, Hong-Kong and Shanghai are setting a good example in this direction to the other places which come in contact with European civilization. Hong-Kong has at present three large sugar-refineries, a spirit-distillery, a cordage-mill supplied with modern machines, and an ice-factory. Besides these, there are large glass and iron works, and an arrack-distillery, in course of construction; while the Chinese carry on woollen and cinnabar works in great style and with modern improvements. In Shanghai, to the establishments which have existed for several years, there was added, a few months ago, a new one of considerable importance, — the paper-factory of the Shanghai paper-mill company, which makes common and medium fine papers out of rags. This factory, established by Umpherston & Co. of Leith, and quite up to time in its plant, produces, on an average, two tons of paper a day; and later the production will be increased. It is under European direction, and employs only Chinese workmen.

— With a view to effectually prosecute marine fish-culture on sound scientific principles, the English national fish-culture association has under consideration a scheme for carrying out a series of observations on the temperature of the sea at various stages, in order to obtain a more thorough and concise knowledge of fish, their habits, food, etc. Thermometers for this purpose will be distributed to those selected for observers under certain rules and regulations.

— From experiments carried on by the French commission for the scientific study of firedamp, it is found that the most violent explosion takes place when there are 13 parts of air to 100 of firedamp, and that above or below this the explosion diminishes in violence. When the mixture is below 7 parts in 100, or above 18 in 100, the gas simply burns with its characteristic blue flame. The singing noise often heard in mines is ascribed to the escape of gas from many minute cavities; while it must exist in some places in vast quantities, as is witnessed by its use for illuminating-purposes.

— Prof. J. A. Ewing of University college, Dundee, has communicated a paper to the Royal society, which contains several points of immediate practical importance. He finds, for example, that the 'dissipation of energy' by reversal of magnetism is very much smaller in soft iron than in hard iron or steel, and even in the latter its amount is trifling; so that the principal part of the heat which is produced in the cores of electro-magnets must be due chiefly to other causes than the 'static hysteresis,' or static lagging action observed by Professor Ewing, and is, in fact, due almost wholly to the induction of so-called Foucault currents in the cores. The effects of this action are also almost entirely removable by vibrating a piece of soft iron during the application and removal of magnetizing force, and the iron is then found to possess almost no retentiveness; but, when the application and removal of magnetizing force are effected without mechanical disturbance, the retentiveness of soft iron is found to be even greater than that of steel. In some cases ninety-three per cent of the whole induced magnetism of a piece of annealed iron was found to remain on the complete removal of the magnetizing force. Examples were given to show that the influence of permanent set in the curve of magnetism is so marked as to give a criterion by which a strained piece may be readily distinguished from an annealed piece of metal; and that strain diminishes very greatly the magnetic retentiveness of iron.

— Capt. Hoffmann of the German navy has prepared a valuable pamphlet on ocean-currents (Zur mechanik der meeresströmungen an der oberfläche der oceane, Berlin, 1884), which gives a better

general presentation of theory and fact than any work we have seen. The value of the winds as the chief motive force, and the inefficacy of gravity brought into play by changes of temperature, are clearly made out, so far as surface-currents are concerned. The part played by the deflective forces coming from the earth's rotation is also well stated. So long as the surface-waters are brushed along by the wind in any given direction, the tendency to depart from this direction is practically overcome by the wind itself; but, whenever the waters set in motion by the wind enter a region of calm, they at once begin to describe the 'inertia curve,' — a line whose radius of curvature decreases with the sine of the latitude. Already in latitude 5°, this radius of curvature for a velocity of one metre a second is only forty-two and a half nautical miles: hence, when the South-Atlantic current runs into the region of calms just north of the equator, its waters will quickly turn to the right, easily falling into the power of the south-west monsoon of that region, and so forming the Guinea current, and, during the northern summer, the equatorial counter-current as well. The author therefore concludes, that, after the winds and the configuration of the coasts, the diurnal rotation of the earth must be recognized as the most important factor in determining the existing system of ocean-currents.

— Messrs. Sampson Low & Co. of London announce 'Under the rays of the aurora borealis, in the land of the Lapps and Kvaens,' — an original work by Dr. Sophus Tromholt, edited by Mr. Carl Siewers. The book contains an account of the work of the recent circumpolar scientific expeditions, and an exposition of our present knowledge of the aurora borealis, to the study of which the author has devoted the greater part of his life.

— The second session of the summer course of botany at McGill college, Montreal, will be opened to ladies on Tuesday, May 5. The course, which will be in charge of Professor Penhallow, will continue for seven weeks. It is designed to give practical instruction in general morphology, including the analysis and study of Canadian plants as found in the vicinity of Montreal. Instruction will also be given in histology with the microscope.

— In the annual report for 1884, of Prof. G. H. Cook, state geologist of New Jersey, there is a description of some remarkable recent changes in the condition of the land near South Amboy. A forest of common timber, such as oak and chestnut, standing on land ten or twelve feet above high-water mark, was cut down, and the underlying sands to a depth of twelve feet were stripped off preparatory to taking out the stoneware clays below; but, before reaching the latter, a swamp deposit a few feet thick, with white-cedar trees embedded in it, was passed through; and at the bottom of this, standing in the clay, were several oak stumps, at a level two feet below the adjacent salt-marsh, which is overflowed by high tides; and near the stumps there was a log about a foot in diameter, eight or ten feet long, that had been cut with an axe. There is no tradition telling of the burial of this forest, but it must have been less than two hundred and eighty years ago. The successive deposits are well shown in the excavation. The clay at the bottom; the old oak forest in the soil on this clay; then the black swamp-earth, and its small cedars embedded therein; finally the overlying plain of sand and gravel, with its late growth of upland timber, — with this, there is good evidence that the ground, which was formerly high enough above the level of the sea to sustain a growth of upland timber, is now so low that every tide could cover it with salt water. Some valuable figures are given in illustration of the superposition of glacial drift on unconsolidated tertiary clays, and of the columnar trap-rocks and water-bearing sands. The Green-Pond Mountain rocks, which were thought triassic by Rogers, and which were regarded as Potsdam in the earlier reports of the present survey, are now placed in the middle Devonian. The crystalline rocks of the Highlands, which have been called Laurentian on the strength of their lithological characters, are here prudently called simply archaean, in the absence of sufficient evidence to correlate and identify them.

— Major.-Gen. Sir F. J. Goldsmid has an article in the April number of the *Contemporary review* on Russia and the Afghan frontier. The gist of the article is, that the apathy with which the English government and people have hitherto watched the Russian advance from the Caspian towards India is due to a lamentable ignorance, on their part, of the geography and topography of central Asia. This is undoubtedly true; but how far the remedy proposed by the gallant general would be a remedy, is an altogether different matter.

— The Royal medals of the Royal geographical society, says *Nature*, this year were awarded to Mr. Joseph Thomson and Mr. H. E. O'Neill; to the former for his well-known work in Africa, and to the latter for his thirteen journeys of exploration along the coast and in the interior of Mozambique. The Murchison grant for 1885 was awarded to the Pandit Kreshna for his four explorations made while attached to the survey of India, and especially for his extensive and important journey in the interior of Tibet. The Back grant went to Mr. W. O. Hodkinson for his Australian explorations, and the Cuthbert Peek grant to Mr. J. T. Last for his surveys and ethnological researches in the southern Masai, Nguru, and other neighboring countries. The following were made honorary corresponding members: Chief-Justice Daly, president of the geographical society of New York; Mr. Elisée Reclus, the eminent geographer; and Herr Moritz von Déchy, the distinguished Austrian explorer of the Sikkim Himalayas, the Caucasus, and other regions.

— On the night of the 5th of April, the steamship Nurnberg, in latitude 49° north, longitude 18° 30 west, during a very heavy storm from west-north-west, had mast-heads and yard-arms lighted with St. Elmo's lights. It was raining and hailing at the time, and the barometer showed 29.19. A ball of fire exploded during the storm, with a loud noise, similar to the explosion of a gun.