

or less depression of trade." Seize an Englishman by his pocket, and you can convince his mind.

The flow of the rural population to the cities is pointed out as one of the causes of the great distress in the centres of population, because of the vastly greater competition for employment. Together with this movement he instances the fact that "from 1873 to 1884 the quantity of arable land in the country has decreased by considerably more than a million acres." These seem to be local causes, and have little effect on other nations; for they are probably the evidences of a re-adjustment of industries to new conditions, such, for example, as the great produce of American wheat districts. The ownership of land by great millionnaires, he argues, also works injury. In 1863-72 the fortunes above a quarter of a million were 162, but in 1873-82 they had increased to 208,—an increase of more than 30 per cent. But we do not regard these causes of general importance.

The book, in fact, only in its description of the evil effects consequent on speculation, and the mania for foreign loans, gets close at the real cause. But when he gets to his remedies, he does not hit very near the mark. As foreign loans, he thinks, are made chiefly for the glory of monarchs, and to aid in wars for the personal aggrandizement of ruling families, he would have England stand ready to aid the tax-payers in these borrowing countries whenever they revolt against the heavy taxation caused by the loans which they have had no share in spending. Speculative transactions he would discourage by high stampduties; and large fortunes should be prevented by a graduated income-tax. If our author were to extract the ever-springing sanguineness of human nature from the business-man, he would best prevent over-trading and the recurrence of periodic panics, but in scarcely any other way.

NIMROD IN THE NORTH.

In this book Lieutenant Schwatka has given a most entertaining story of hunting and fishing in the north polar regions. Seven chapters of the book have been devoted to stories of adventure with animals whose homes are within the arctic circle. Many of the stories told in the volume are similar to some found in the writings of Gerard de Veer, of the Barentz expedition; in the writings of Parry, Beechey, Hearne, Rink, Richardson, Rae, Kane, McClintock, and Hall; so that they are not entirely new; but Lieutenant Schwatka has added to them many interesting observations of

Nimrod in the north. By Lieut. FREDERICK SCHWATKA. New York, Cassell, 1885. 8°.

his own, upon the haunts and habits of the land and water game of the regions he explored, which modify ideas derived from other writers.

The volume is illustrated with numerous faithful and lifelike pictures of the animals, birds, and scenery of the regions beyond the parallel of 66° 30' north. This feature of the book will make it most attractive to the reader, but more especially to the younger generation, who will find much pleasure in having before them such excellent representations of the bear, reindeer, musk ox, walrus, etc., with which Lieutenant Schwatka's party had so many exciting and perilous adventures during their stay in the country between Depot Island and King William's Land.

The story of the sledge-journey to King William's Land, as told in this book by Lieutenant Schwatka, is unparalleled in arctic exploration. The vicissitudes of storm and intense cold encountered and overcome are most interesting and instructive. To one of less determination or of less hardihood, the journey must have failed; but the indomitable will and inexhaustible self-reliance set forth in the story made success certain where failure would have likely occurred to any one less gifted.

It is almost inconceivable that travel could have been practicable in a temperature of 83° below the freezing-point, or that no discomfort was felt at such times. But the credence of arctic explorers will be tested almost to its elastic limit, to believe that Lieutenant Schwatka's party, when in chase of musk ox, travelled at 'a good round dog-trot from nine in the morning until four in the afternoon,' making about forty miles in a temperature of 97° below the freezing-point, without suffering from the cold, but, on the contrary, that he felt at times uncomfortably warm!

The last two chapters describe the beginning and ending of a rather remarkable raft-journey of thirteen hundred miles down the Yukon River, in Alaska. This trip led to the discovery of several rapids, the passage of which was full of innocent adventure; otherwise there is but little in it to excite interest.

GEOGRAPHICAL NOTES.

Explorations in central Asia.—A letter has been received from Prjevalski, from which it appears that the Altine chain extends about 360 kilometres westward from Lobnor, then gradually declines, and terminates at the Cherchèn River. Westward from this point the principal range of the Kuenlun looms over the plains of eastern Turkestan. This intrepid explorer, after having explored all of the Kuenlun between the Yellow

River and the town of Khotan, was expected, and has probably arrived before this, *via* Aksu and Karakol, at Semirechinsk, the authorities of which district had received a call for forty camels to carry the collections made by the party.

Return of Lieutenant Allen.—Lieutenant Allen, of the Copper River expedition to Alaska, has arrived in Washington, where he will prepare his report.

Cameroons district, West Africa.—Rogozinski writes of the Cameroons district, West Africa, and especially of the elevated region or hill district, which has a relatively good climate when compared with that of the lowlands adjacent. The diurnal variation of temperature is rather large. At Likumbé, 2,500 feet above the sea, the morning temperature was 65° F.; at noon, 88°.5; and at evening, about 73°.0. At the coast, for the same hours, it was 79°.0, 84°.0, and 80°.0, respectively. Often on the mountains during the night the cold was quite sensible, the thermometer falling to 60°, and rising at mid-day to 87° or 88°. The principal languages of the hill country are the Bakwiri or Bakwillé, Bamboko, Isubu, and a jargon spoken at the coast. This is the most northern outpost of the Bantu family on the west. The dialects are all nearly related to the Dwalla, spoken on the Cameroons River. The villages are not composed of associated huts, as might be supposed. Generally the cabins are scattered through the chaparral, not more than two together. A certain number form a clan or group, with a chief and several elders as the government. The men are hunters, and gather palm-oil and rubber: all else is left to the women and children. They do not give their confidence easily, but when once given it is easy to guide them. Their game does not include the elephant, common in that vicinity, and rarely the leopard. The women gather plantains, ignamas, nuts, palm-oil, etc., which constitute their chief sources of subsistence. The little plantations are managed by the women and children. The soil is extremely fertile and productive. The real richness of this land is for agriculture. The houses are built of canes, and covered with mats. The domestic animals, including pigs, sheep, goats, and fowls, have free access, so that they are far from clean. Snakes, iguanas, and the small meagre dog of the country, are eaten. Slavery does not exist, but polygamy is allowed. The people are quiet, except for *vendettas*, which are the source of many small conflicts and most of their ills.

Trade-routes between Bolivia and the Argentine Republic.—The observations of Thouar in the region of La Gran Chaco have been renewed. The traveller has especially in view the establish-

ments of trade-routes between Bolivia and the Argentine Confederation,—an object of much importance to both countries, and to commerce in general. The emperor of Brazil is also very much interested in any thing tending to improve communication between the interior countries. Thouar accepted an escort of twenty-five men with equipment, and left Buenos Ayres, July 31, accompanied by Lieut. Felix Guerber and Pilot Wilfrid Gillibert. They were about to enter the north Chaco, to trace its unknown portion and complete the charts, when last heard from. Just as they started, Thouar was informed that a party, under Ernest Haugge, engineer, of German birth, and a Bolivian escort, engaged in studying the route between the Sucre and the upper Paraguay rivers, had disappeared in the Chaco, having been carried off by the indomitable Tobas.

Colonization in the Argentine Republic.—Colonization in the Argentine Republic seems more flourishing than in other parts of South America. Some five to twenty colonies have been established in the Santa Fé district, occupying about 95 square leagues, which a few years ago were given over to the Indians. To-day they are cultivated by 1,359 families. A railway leaves Santa Fé, and traverses this region; another is projected from Rosario. The soil is of great fertility, and but little more than energy and good will are needed to acquire here, if not a fortune, at least ease and comfort. The district of Santa Fé has received 88 colonies during the last 30 years, and now has over 110,000 inhabitants.

An island lost, and another found.—The rock known as the Monk (Munken, Monaco, etc.), six kilometres southward from Suderö, Faroe Islands, has succumbed to the elements. This rock, some seventy feet high, and from certain points of view sufficiently resembling a cowed figure, was described by the earliest writers on the Faroes, and has served as an important landmark for navigators for hundreds of years. A dangerous reef, nearly covered at high water, alone remains to mark its former position. In contrast to above is the important communication recently received by the Merchants' exchange of San Francisco from our consul at Apia, Samoa, announcing the upheaval of a new island in the track of vessels from California. This island was estimated by the officers of the steamer Janet Nicol as two hundred and fifty feet high, and two miles long north by west and south by east. The steamer approached to about a mile and a half from the crater, bearing west by compass. No bottom was found here at one hundred fathoms, but reefs extend from the extremities of the island, about a mile and a half in either direction. The locality

in a general way is off the Celebrass shoal, about forty miles from the Tonga Islands, toward the Fiji Islands. Its position is approximately in latitude $20^{\circ} 28'$ south, and longitude $175^{\circ} 21'$ west from Greenwich. Further details are expected by another steamer. The island was photographed by the British consul to Samoa, who was a passenger.

ASTRONOMICAL NOTES.

Harvard college observatory.—Professor Pickering's annual report was presented to the visiting committee on Dec. 3, and shows most gratifying progress in the work, in spite of the serious curtailment of the income of the observatory during the past year. The fifteen-inch equatorial is still devoted largely to photometry; and, besides a large amount of routine work accomplished, a series of observations of the temporary star which recently appeared in the nebula of Andromeda was obtained. Professor Rogers's excellent work with the meridian circle continues, and the reduction of his zone is nearly ready for the press. The meridian photometer also has been in active operation. By the aid of the Bache fund an important investigation has been undertaken in stellar photography, which has already been referred to (*Science*, vi. 443). Mr. Chandler's work with his almucantar we have noticed from time to time, and we look forward with much interest to the publication of a detailed description and theory of the instrument, which it is understood he has prepared. The telegraphic distribution of important astronomical discoveries, for which this observatory is the American centre, has been successfully continued under the supervision of Mr. Ritchie.

The Lick observatory.—The Clarks have made wonderfully rapid progress with the crown-glass disk of the immense three-foot lens for the Lick observatory. The work of grinding was begun on the crown-disk about two months ago, and already they are able to set up the lens for examination by artificial light. The flint-disk has been practically ready for some time, and, with continued favorable progress, they hope to finish the objective by the autumn of 1886. It has not yet been decided who is to make the mounting for the instrument, or the dome which is to cover it. We notice that the thirty-inch objective for the Nice observatory has just been finished by the Henry brothers, and that it has been sent to M. Gautier, who has charge of the construction of the equatorial; the whole to be mounted at Nice in April, 1886.

The Biela meteor - shower.—Reports from Europe show that we in this country entirely missed the thickest part of the meteor-shower

of Nov. 27, as it had dwindled to comparatively insignificant proportions when our twilight came on. From various places in England and on the continent, where the sky was clear on the 27th, come reports of brilliant showers, sometimes too rapid for counting, and in many cases exceeding sixty per minute for a single observer. They were also very bright, and left trains continuing visible in some cases as long as 30^s, and frequently appeared almost simultaneously in bunches of five, eight, or ten. These were all early in the evening for European longitudes, and we shall have to wait for reports from farther east, in Arabia or India, perhaps even from Dr. Doberck at Hongkong, before we can be sure that we have heard of the maximum activity of the shower. This seems to have been well heralded in advance. The earliest observations thus far reported are by Mr. Barnard of Nashville, Tenn., who observed twenty or thirty meteors from the Biela radiant during an interval of two or three hours of clear sky on the evening of Nov. 25; and both he, and Mr. Denning of Bristol, England, counted them at the rate of one hundred or more per hour on the evening of the 26th. On the 27th none of the comets in this country appear to have exceeded two hundred or three hundred per hour for a single observer, and Mr. Denning reports that those of the 28th were very small and insignificant in a clear sky at Bristol.

New star in Orion.—A complete set of observations of the new star discovered by Mr. J. E. Gore, an English astronomer, on Dec. 13, was obtained at Harvard college observatory on Dec. 16,—the very evening on which the despatch was received from Lord Crawford,—settling the non-identity of the star with D.M. + 20° , 1172, the star named in the despatch. A meridian circle observation by Professor Rogers gave for the position of the *nova* R.A. $5^h 49^m 4^s.25$: Dec. + $20^{\circ} 9' 15''.6$. Professor Pickering's photometric measures made the magnitude 6.2, and the spectroscope showed the existence of bright bands. Two excellent photographs fixing the position of the star with reference to neighboring stars were obtained, and one photograph of the spectrum. The indications are suggestive of the new star being a long-period variable, and there was a slight suspicion of a diminution in magnitude during the first six or seven hours it was under observation.

METEOROLOGICAL NOTES.

An unusual tornado.—The Alabama weather-service report for November describes the tornadoes that occurred on the 6th of that month. At Decatur the storm is reported to have come