according to opinions from the time of Kant up to the present," by Herr Guizel, deals with the process of development of the heavenly bodies, the case of comets receiving the writer's special attention.

Among the notes are found a few words about the sun and magnetic storms, with reference to Lord Kelvin's recent views, types of weather in Australia, driving ice in southern latitudes, and several others.

GEOGRAPHICAL NOTES.

THE question of the death of Emin Pasha is again under discussion. It is one of the most difficult problems associated with Africa to estimate the amount of credence due to native or Arab reports. The dictum that bad news travels fast in Africa has been repeatedly proved, but rumours of the death of every explorer of note who has buried himself for a time in the interior have been so persistent and so often falsified, that hesitation is justified in believing Emin dead. It may very well be that he was killed, as Arab report affirms, in October last, while on his great journey across Africa, by the very route which brought Stanley to his rescue five years ago. But on the other hand, it may very well be that he is pushing on leisurely towards Lake Chad and keeping his movements secret for political purposes.

A NEW field of discussion in geography appears to be about to open if we read literally the title "An Undiscovered Island off the northern coast of Alaska," in the last part of the *National Géographic Magazine*. The existence of an island in 73½° N. and 153½° W., north of Point Barrow, is inferred from some rather vague reports of whalers, and some still vaguer stories of the Alaskan Eskimo. Mr. Marcus Baker, who introduces the new land, believes in it sufficiently to propose the name Keenan Island for it; but General Greely contributes a note to the paper in which he shows good reason for believing that the whalers were mistaken, the Eskimo misunderstood, and the new land non-existent.

THE *Revue de Geographie* commences a series of articles on "Questions Géographiques," with a paper on the gaps in our knowledge regarding the vertical relief of France, by M. A. Thalamas. To fill these he urges the importance of supplementing the ordinary hypsometrical maps by sections, and by a complete series of perspective photographic views taken from characteristic points.

THE Rev. R. P. Ashe, author of the standard work on Uganda, and for many years resident there as a missionary, has returned to this country, bringing much valuable information regarding the geography of Eastern Equatorial Africa, which will doubtless soon be made public.

A NEW Geographical Society has been established at Tunis, having for its special aim the study of that protectorate. Not only geography but history, archæology, anthropology, colonisation, commerce, and "natural science" have places on its programme.

THE INSTITUTION OF MECHANICAL ENGINEERS.

THE Institution of Mechanical Engineers held their annual summer meeting at Middlesborough, under the presidency of Dr. William Anderson, F.R.S., during last week. The meeting commenced on Tuesday, August 1, and lasted until the following Friday. Two sittings were held for the reading of papers, four of which were read and discussed, as follows:—On recent developments in the Cleveland iron and steel industries, by Mr. Jeremiah Head, past president, chairman of the reception committee.—On the Middlesborough salt industry, by Mr. Richard Grigg, of Middlesborough. Communicated through Mr. E. Windsor Richards, vice-president.—On some engineering improvements in the River Tees, by Mr. George Clarke, of Stockton, engineer to the Tees Conservancy Commission. Communicated through Mr. Thomas Wrightson, M.P., chairman of the works committee of the Tees Conservancy Commission.—Description of the electric rock-drilling machinery at the Carlin How Mines in Cleveland, by Mr. A. L. Steavenson, of Durham. Communicated through Sir Lowthian Bell, Bart., F.R.S., past president.

Mr. Head's paper, as its title denotes, was of a very complex nature. The author traces the rise and progress of the iron industry in the Cleveland district, which, before the development of the ironstone in the Cleveland hills, was practically a purely agricultural country. The opening of the Stockton and Darlington Railway inaugurated a new era, which was to dawn over this part of the kingdom, and substituted for the calm frugality of a pastoral calling the grime, smoke, wealth and squalor of a manufacturing industry. John Vaughan was the man who made Middlesborough, and rightly his statue stands in the middle of that unlovely town. He was a typical pioneer, dogged of purpose, shrewd yet kindly. He probably did more towards advancing the commercial supremacy of this country than any six statesmen the century has produced. The first blast furnaces were erected in the Cleveland district by his firm, Bolckow, Vaughan and Co., at Middlesborough, in 1852. These were quickly followed by others at Port Clarence near by. They were erected by Bell Brothers, and Sir Isaac Lowthian Bell, the head of the firm, attended at the meeting and spoke in the discussions on the papers. Although advanced in years he is still a keen man of business and of vigorous intellect; the present Mayor of Middlesborough is his son. After the date we have mentioned Middlesborough grew like a gourd and flourished like a bay-tree. Her prosperity seemed as firmly founded as her gigantic blast furnaces, which were then the wonder of the whole iron-making world; but a greater man than either Vaughan or Bell arose, and with the invention of Henry Bessemer, the iron age gave place to the age of steel. Happily for Middlesborough it is difficult, to divert the course of trade although the Cleveland ore is not suitable for steel making; or at any rate, was not until the basic process was introduced years afterwards. Middlesborough is well situated for communication by sea with the continent. The great deposits of hæmatite ore, from which by far the greater part of British steel is made, were discovered at Bilbao, in Spain, and Cleveland set vigorously to work to improve the naturally insignificant stream upon which she is situated. With characteristic northern energy the Tees was transformed from a creek with three and a half feet at low water, spring tides, to an estuary with twenty feet as a minimum depth and thirty-seven feet at high water. The ironmasters of the district, who had become numerous and influential, quickly laid down the necessary plant and machinery for making steel. Unfortunately, in a few instances, but those important ones, the vigorous parent stock was succeeded by a more debased growth and that for a time checked to some extent advance, or at any rate gave other districts an advantage; still the iron industry of Cleveland was so firmly established that it still remains the leading iron-producing district of England. At the present time Middlesborough is suffering, like all other parts of the kingdom, from the dulness of trade. There are more blast furnaces, more converters, more open hearth furnaces, and more steel and iron-producing machinery in the world than the world has call for. The engineer has so multiplied manufacturing facilities that we make more than we want, great as is the demand for iron and steel in modern economy. When process was cheapened by the ingenuity of inventors, those who first took advantage of the new means at their disposal became quickly rich. Investors and speculators crowded on to the field, and before the fact was known the producing power of men in the iron industry had been overdone. Sometimes in those strange fluctuations of trade which are the baneful characteristic of the present day, the demand more nearly reaches the power of supply; then for a few months, on the crest of this wave of inflated prosperity, works are busy and prices high. That lasts but a short time, and during the recent meeting the members of the Institution of Mechanical Engineers had the mournful spectacle presented to them of idle plant and unemployed workpeople, although each works manager put as bold a face as possible on his adversities, and strove to crowd as much work as his order book contained into the one day's visit of the institution.

To return, however, to Mr. Head's paper. We find that in 1872 there were thirty-seven iron works in the north-east district. Twenty-one have since disappeared or are now inoperative; whilst nineteen remain. The figures are delusive, for the size and power of production per works are now far beyond what they were at the earlier date. To show how steel has superseded iron, we find by the paper before us that the trade in iron rails has declined nearly 99% since 1872; whilst other kinds of