alluvial plain, on the banks of the river Guayas, and is frequented by ocean-going vessels up to 28 ft. in draught. The absence of a proper system of water supply, combined with ineffective drainage, has militated hitherto against the development of the town, but now that the Government has taken both these matters in hand there is every prospect, despite certain climatic disadvantages, of the attainment of a very serviceable degree of civic sanitation. The total estimated outlay is in the neighbourhood of 2,000,000*l.*, and the work is being carried out progressively, in instalments. A fresh system of water mains is already laid, and a storage reservoir of 6,600,000 gallons capacity is nearing completion. It has not yet been definitely decided whether the source of supply shall be the Daule river, with an intake some twenty miles upstream, or a group of mountain streams in the forests of the Cordillera de los Andes, some sixty miles distant from Guayaquil. The drawbacks in the former case are the pollution arising from settlements along the banks of the river, the high percentage of suspended matter in the water, and the low gradient, which would necessitate pumping. The mountain streams would readily admit of a gravitation supply, and are less likely to be polluted, but the construction of the pipeline would be a heavy initial expense. The Government has both schemes under consideration, and data and statistics are being obtained with a view to an early decision.

OUR ASTRONOMICAL COLUMN.

THE LEONIDS OF 1916.—With the parent comet (1866 I, Tempel) near aphelion an abundant shower of Leonids was not expected, but it was important to ascertain whether the display returned even in a minor character. Mr. Denning writes that on the morning of November 15 he saw only one Leonid in a watch of about an hour between 4 and 5.30 a.m. The next morning was overcast, but on November 17, between 3 and 6.15 a.m., notwithstanding wintry conditions and one of the keenest north-easterly winds experienced in recent years, Mrs. Fiammetta Wilson, of Totteridge, recorded fifteen meteors, including some brilliant objects. There were seven Leonids from a radiant point very sharply defined at 150°+22°. This position appears to be identical with that usually found on the mornings of November 14 and 15, and apparently favours the view that there is no perceptible change in the place of radiation. But more exhaustive data are required in settlement of this interesting feature.

The brightest meteor seen by Mrs. Wilson was at 3h. 33m. a.m. (November 17). It was equal to Venus, and shot from 215°+58° to 245°+57¼°—evidently a fine Leonid. Bright meteors of the same shower were seen at 4h. 50m. and 5h. 42m. At 3h. 16m. a large Taurid, comparable with Jupiter, travelled from 188½°+57° to 204°+48°. If duplicate observations of any of these objects were obtained at other stations, the records would be valuable for comparison.

THE SOLAR APEX DETERMINED BY MEANS OF BINARY STARS.—The method of determining the solar apex proposed by Bravais in 1843 has until lately not been used by any other investigator, no doubt because it assumes the distances of the stars to be known, and nobody has been inclined to follow Bravais in making them all equal. Some years ago Weersma applied the method to 3616 stars, taking the distances from Kapteyn's tables of mean parallaxes. His result, 267·7°+31·4°, was in good accordance with the best previous determinations, though the velocity, 14·9 km., was smaller than the spectroscopic result. In a paper recently published in the Proceedings (*Oversigt*) of the Royal Danish Academy of Sciences, M. Luplau Janssen has applied the method to 180 double stars, the proper motions of which are given in the Preliminary General Catalogue of Boss. Assuming the mass of a binary star equal to that of the sun, well-known formulæ give a value of the parallax called the "hypothetical parallax." Hertzsprung has shown (*Astronomische Nachrichten* 4543) that where the annual change of position angle and distance is known, it is possible to find a minimum value of this hypothetical parallax of a binary star. From a comparison of thirty-six values of parallaxes actually measured with the computed values of the minimum hypothetical parallax M. Janssen finds that the latter may be put equal to half the real parallax. On this assumption he finds the apex to be 264·5°+26·1°, and the velocity equal to 17·15 km. per sec. This result is in surprisingly good accordance with the best recent determinations, and this shows at any rate that the hypothetical minimum parallax is a quantity which is not without some value where there is no satisfactory value of the parallax resulting from measures.

SPECTRUM OF THE NEBULA ABOUT RHO OPHIUCHI.—At the Lowell Observatory, Dr. V. M. Slipher has lately attempted to photograph the spectrum of the remarkable nebula in the region of ρ Ophiuchi (*Popular Astronomy*, vol. xxiv., p. 542). A single-prism spectrograph of high light-power was used, and an image was formed on the slit by a simple lens of 20 cm. focal length. The total exposure, on four nights, was twenty hours, and by comparison with the exposures for direct photographs given by Barnard, it was estimated that this would give a good record of the spectrum if of the bright-line type, or would give a weak impression if the spectrum were continuous. The plate obtained was of the latter type, the spectrum of the nebula appearing faintly on either side of that of the star. So far as can be judged from the photograph, the spectrum is like that of the star about which the nebula clusters, and Dr. Slipher regards this as an indication that the nebula shines by reflected light, as he previously found reason to believe to be the case with the nebulæ in the Pleiades. In both these regions of the sky faint stars are conspicuously deficient in number, and it is suggested that their apparent scarcity may be due to their obscuration by nebulæ which may be otherwise invisible.

BRITISH INDUSTRY AND THE WAR.

THE advice of a recent ex-Minister of State that we might well leave after-the-war conditions to take care of themselves finds little response in the world of industry, whether in regard of employers or employed, who are alike viewing with deep concern the industrial and commercial problems that will surely arise on the advent of peace. This finds clear expression in a valuable memorandum issued in June last by the Garton Foundation entitled "The Industrial Situation after the War," which is fully and sympathetically further considered in the *Quarterly Review* for October by a member of the group which prepared it. This highly important memorandum has been drawn up by a group of men representative of the capitalist and employing classes, of organised labour, as well as by men familiar with finance, economics, and administration. It has further been circulated to, and discussed in draft by, large employers, trade union officials, and experts on social and economic questions with a view to their criticisms and suggestions. It is now published in the hope of stirring both employers and employed to action. The industrial problem, it declares, was with us before the war. The dangers of labour unrest and the cry for increased efficiency are