My "segregate fecundity" and Mr. Romanes's "physiological selection" are the same principle; and our theories still further correspond in that we both insist on the prevention of intercrossing as a necessary condition for divergent evolution. This conclusion was reached by me through investigations made many years ago, and was maintained in my paper on "Diversity of Evolution under One Set of External Conditions," and in still stronger language in articles in the *Chrysanthemum* (Yokohama), January 1883, and in the *Chinese Recorder* (Shanghai), July 1885. In the first of these papers I used the word "separation" to indicate the phase of the principle that results from migration; but for a fuller discussion of the subject I found it necessary to introduce "segregation" as the more significant term; and in the second paper I maintain that "While external conditions have power to winnow out whatever forms are least fitted to survive, there will usually remain a number of varieties equally fitted to survive; and that, through the law of segregation constantly operating, ... these varieties continue to diverge till separate species are fully established, though the conditions are the same throughout the whole area occupied by the diverging forms;" and in the third paper I said, "I am prepared to show that there is a law of segregation rising out of the very nature of organic activities, bringing together those similarly endowed," and causing "the division of the survivors of one stock, occupying one country, into forms differing more and more widely from each other." Since then, my nomenclature of the subject has been worked out with that word as the central symbol of my theory. It is therefore a pleasure to find that Mr. Romanes uses the same word to express the same general idea, giving to his theory the alternate name of "segregation of the fit" (Linnean Society's Journ.—Zool., vol. xix. pp. 354, 395), and in one place at least describing it as "physiological segregation" (see letter on "Physiological Selection," NATURE, vol. xxxiv. p. 408).

As I have explained in chapter iv., I at first thought of using "physiological segregation" in place of "industrial segregation," but finally concluded that it was a term of such wide significance that it could not be well used as the name of any one kind of segregation, while at the same time it was not broad enough to serve as a general term for all kinds. I therefore greatly prefer the term "segregation of the fit." I would, however, so define it as to cover all forms of segregation.

Though our use of this fundamental word is undoubtedly due to our having the same general truth to express, several divergences appear in the development of our respective theories, tending, we may hope, to a fuller elucidation of the subject.

76 Concession, Osaka, Japan. JOHN T. GULICK.

Alpine Haze.

THE peculiar haze mentioned by Prof. Tyndall is no doubt identical with what is commonly met with in some parts of the Mediterranean. During the hottest and driest weather of the summer, and when no wind is blowing, perfectly horizontal strata of haze can be seen occupying the Gulf of Naples. The peaks of the Sorrentine Mountains, with Solara of Capri, Ischia, Vesuvius, Camaldoli, &c., stand out above this haze. The height of the strata rarely reaches 2000 feet, and is more often about 1500 feet. The same facts that led Prof. Tyndall to consider it other than water vapour, and of micro-organic nature, had produced in my mind similar conclusions. This haze, when looked at near the sea, has often a beautiful pink tint, due, no doubt, to a complementary effect from the sea-water colour, as the colour is more marked on the limestone rocks, where the white sea-bottom makes the water look much greener When, however, the observer is cut off from a view of the green sea for some time, the haze has then a light buff colour. The opacity of this haze is so great as sometimes to resemble a slight London fog.

Anyone who would count the number and study the characters of the organisms and other solid contents of the air here at different times would soon settle the question what this phenomenon is due to, and whether there is any truth in the old *blight*. H. J. JOHNSTON-LAVIS.

Naples, November 4.

The Astronomical Observatory of Pekin.

IN your number of November 8 (p. 46), you gave an account of a lecture by Mr. S. M. Russell, of Pekin, on the instruments in the old Observatory there. May I mention that the late Alex. Wylie, about nine or ten years ago, published a full account of them (with illustrations) in the "Travaux de la 3me Session du Congrès International des Orientalistes," vol. ii. Having had my attention drawn to them by some photographs kindly sent me by Mr. Russell, I pointed out the scientific interest of Ko Show-King's instruments (which anticipated the ideas of Tycho Brahe by three hundred years), in a paper published in the Proceedings of the Royal Irish Academy, vol. iii., 1881, and in *Copernicus*, vol. i. J. L. E. DREYER.

Armagh Observatory, November 12.

AN HISTORICAL AND DESCRIPTIVE LIST OF SOME DOUBLE STARS SUSPECTED TO VARY IN LIGHT.

THE light-changes of double stars are, for the most part, of an intermittent character. Unmistakable at one epoch, they may completely evade detection at another. Hence observations of them which, by the nature of the case, cannot be repeated are apt to incur discredit for lack of confirmation. They should, on the contrary, if properly authenticated, be carefully borne in mind, as testifying to an incident in the history of the stars they refer to which, however apparently isolated, must be extremely liable to recur. We have therefore thought that it would be useful to put together, as concisely as possible, a few facts bearing on the supposed variability of some stars which we may reasonably consider to be physically double, referring those of our readers who desire fuller information on the subject to the original authorities we shall cite for their convenience.

γ Virginis = Σ 1670.—The first observation is by Bradley in 1718. The components, normally of the third magnitude, were regarded as equal by all observers until W. Struve, May 3, 1818, noticed the preceding star as slightly the fainter. It continued so for several years; the difference was obliterated from 1825–31, and reversed, doubtfully 1832–33, certainly in 1834 ("Mensuræ Micrometricæ," pp. lxxii. 4). O. Struve's observations, 1840–74, showed decided variability in a double period, oscillations of half a magnitude in a few days being superposed upon a fluctuation extending over many years. An investigation of the law of change, begun in 1851, led to no result, owing to the low altitude of these stars at Pulkowa ("Obs. de Poulkova," ix. 122). Dawes found them equal, 1840–47; but each alternately about a quarter of a magnitude brighter than the other, 1847–54 (Memoirs R. Astr. Soc., xxxv. 217–19). Similar swayings of lustre were constantly apparent to Dembowski (*Astr. Nach.*, Nos. 1111, 1185, 1979). Each star is given as of 3·5 magnitude (combined 2·8) in the "Harvard Photometry" (see also "Harvard Annals," xiv. 454). Gould assigns to them the combined magnitude of 3·1, Pritchard of 2·67; Gore thought them nearer to the second than to the third magnitude, April 5, 1883 ("Cat. of Suspected Variables," p. 362). (The combined magnitude of two third magnitude stars is 2·25.) Owing to their uncertainty of shining, the angle has often been reversed in measuring these stars. They are of a pale yellow colour, and show a spectrum of the Sirian type. They revolve in a highly eccentric orbit in a period of 180 years, and emit fully sixteen times as much light proportionately to their mass, as the sun.

44 (*i*) Boötis = Σ 1909.—On June 16, 1819, Struve noted a difference of two magnitudes between the components; of one invariably 1822–33, but of only half a magnitude 1833–38. Argelander found them exactly equal, June 6, 1830 ("Mens. Microm.," p. lxxii.). To Dawes, in April 1841, the attendant star seemed a shade brighter than its primary, which was rated as of fifth magnitude (Mems. R. A. Soc., xxxv. 232). Dunér's observations at Lund, 1868–75, confirm their relative variability, causing the disparity between them to range from 0·4 to 1·3 magnitude; and he points out that they appeared to Herschel consider-