Birthdays and Research Centres.

Mar. 8, 1855.—Prof. K. E. VON GOEBEL, For.Mem.R.S., professor of botany in the University and Director of the Botanical Gardens, Munich.

At present I am engaged on the preparation of a work on "The Flowering Shoot" (anthocladia and inflorescences) to be published this year as the second supplement to the "Organographie den Pflanzen", third edition. My main interest is the biology and taxonomy of leptosporangiate ferns.

A critical revision of phylogeny, especially a comparison of the results of the phyto-palæontological discoveries with the modern views on the relationships in the larger natural groups of plants, for example, in ferns, is a problem deserving of the closest study.

Mar. 9, 1862.—Sir SIDNEY F. HARMER, K.B.E., F.R.S., formerly Director of the Natural History Departments of the British Museum.

My principal work, at present, is the preparation of Part 3 of my *Report* on the Polyzoa collected by the *Siboga* in the Malay Archipelago.

I continue to keep in touch with recent developments of the subantarctic whaling industry. Whaling operations have increased in magnitude to an alarming extent, particularly since the season 1926–27, and principally as the result of the increased use of pelagic 'floating factories' which operate on the high seas. These ships, which have already reached a size exceeding 20,000 tons, are capable of performing all manufacturing operations on board. They are under no effective control, and there is reason to believe that in some cases a regrettable waste of valuable material is taking place. The production of oil, in these localities, has risen from less than 800,000 barrels in 1925–26 to more than 1,600,000 barrels in 1928–29, and more than 2,500,000 barrels in 1929–30 (6 barrels = 1 ton). Naturalists acquainted with the results of earlier hunting in other areas are convinced that the whale population of subantarctic seas, the last refuge of the great whales, will be gravely reduced, in the near future, unless it is found possible to secure international agreement to the regulation of the industry, on satisfactory lines.

Mar. 13, 1873.—Dr. CHARLES S. MYERS, C.B.E., F.R.S., Director of the National Institute of Industrial Psychology.

Much of the research work on which my staff and I have been engaged during the past ten years at the National Institute of Industrial Psychology has been fundamentally concerned with the mental differences between individuals. Undoubtedly it suggests a problem of vast magnitude for future solution, namely, what are the *physiological* differences with which these *mental* differences are associated? What, for example, is the physiological significance of the discovery that, during the menstrual period, the mental efficiency of some women is distinctly greater, in others less, while in many it is not appreciably changed, compared with other times? What, again, is the physiological significance of similarly wide individual differences in efficiency which appear to result from ultra-violet radiation? And what is the physiological significance of the striking differences in various mental characteristics revealed by mental tests?

Clearly, conjoint physiological and psychological research is essential to ascertain what *bodily* differences, say in metabolism, blood composition, or endocrine activity, are responsible for the *mental* differences disclosed by the Institute's research work.

Societies and Academies.

LONDON.

Royal Society, Feb. 26.—**J. C. Eccles and Sir Charles Sherrington**: Studies on the flexor reflex. (1) Latent period. A method for measuring the latent period of the flexor reflex is described. The values obtained for the central reflex time range from $2 \cdot 7\,\sigma$ to $4 \cdot 35\,\sigma$, and are in general agreement with the values calculated by Jolly and by Forbes and Gregg. The central reflex time is shortened when the stimulus applied to the afferent nerve is strengthened. The temporal dispersion of many reflex discharges is shown to be due, not to the discharge of more than one impulse from motoneurones, but to variations in the latent periods of the single responses of different motoneurones. The latent period of the response to a centripetal volley is greatly shortened if another volley precedes it by certain intervals. This shortening occurs at the expense of the central reflex time. It is concluded that all the time is saved in the reduction of the normal 'synaptic' delay by facilitation. If that is so, the actual conduction time through the spinal cord must be less than $0 \cdot 5\,\sigma$. On the assumption that the normal 'synaptic' delay is due to time taken for a succession of excitatory impulses (owing to their temporal dispersion) to build up a c.e.s. of threshold intensity, all the observations are satisfactorily explained. The experiments support the conclusions that in the flexor reflex, centripetal impulses are not transmitted straight through the spinal cord, but at certain points ('synapses') they are transformed into an enduring excitatory condition, c.e.s., which may in turn set up fresh nerve impulses—the reflex discharge.—(2) The reflex response evoked by two centripetal volleys. When the interval between two centripetal volleys is short, the reflex contraction evoked by the second volley is due largely to the discharge of motoneurones which fail to respond to either volley alone. The response of these motoneurones is due to summation of the subliminal excitatory effects of each volley. In addition to this facilitation at short intervals, a centripetal volley gives rise to a period of unresponsiveness of motoneurones. Three types of unresponsiveness have been met with: (*a*) Recovery complete in less than $16\,\sigma$. (*b*) Recovery complete in less than $50\,\sigma$. (*c*) Recovery not complete for more than $80\,\sigma$. From theoretical considerations, the duration of the relatively refractory period following an antidromic volley ($10 \cdot 5\,\sigma$) is likely to be identical with the duration of the relatively refractory period of the reflex arc.—**J. C. Eccles**: Studies on the flexor reflex. (3) The central effects produced by an antidromic volley. When a single stimulus is applied to an intact motor nerve, a volley of impulses (called an antidromic volley) passes into the spinal cord through the ventral roots. A single centripetal volley gives rise to c.e.s. during a considerable period. Persistence of the c.e.s. set up by such a volley is due partly to the temporal dispersion of the incident excitatory impulses and partly to the c.e.s. produced by any particular impulse itself enduring for some time. In any motoneurone an antidromic impulse removes preformed c.e.s.—**J. C. Eccles and Sir Charles Sherrington**: (4) After-discharge. A period of quiescence follows an antidromic volley set up during the after-discharge of a reflex either by a single centripetal volley or by a repetitive series of centripetal volleys (confirming Denny-Brown). It is concluded that preformed c.e.s. of a motoneurone is removed by a reflex discharge, and has to be built up again by delayed excitatory impulses before another discharge can occur.—**J. C. Eccles and Sir Charles Sherrington**: (5) General

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