Even in those cases where the surface layer had already been removed before heat-treatment, the safe limits of stress in fluctuating torsion were still further increased by a further removal of the surface layer after that treatment. The probable causes of this phenomenon appear to be the detrimental effects due to further decarburisation, or the production of minute cracks, or both. In steels containing elongated slag inclusions, heat treatment probably results in the formation of cracks at discontinuities and inclusions at the surface.

Another paper was read at the same time by Bateson and Bradley on the fatigue of laminated springs. Tests carried out on complete springs of this type have already shown safe ranges of stress of only 22-40 per cent of those which the materials would withstand in the form of turned and polished specimens. This weakness is clearly due to the surface layers of the plates of which the springs were built up. The thickness of this deleterious layer has now been shown to be quite small. It is practically completely removed by machining 1/16 in. from the surface, and in most cases it is probable that a much thinner layer of 0·01-0·015 in. would be sufficient. This surface effect has been found to be due to the hardening and tempering operations. Only a slight improvement, if any, results from heat-treating the springs after the thin layer of steel has been removed from the surface of the rolled plate.

University and Educational Intelligence.

LONDON.—A course of five weekly lectures, which began on April 21, is being given by Sir John A. R. Marriott, on "The English in India, being the Essentials of the Indian Problem". The lectures are taking place in the University of London, Imperial Institute Road, South Kensington, S.W., and have been arranged by the University Extension Committee of the University. The first lecture was entitled "The Indian Background"; this will be followed in succeeding weeks by lectures on "The English in India", "Constitutional Evolution under the Company", "Constitutional Evolution under the Crown", and "The Problem of India".

THE Quinquennial Congress of Universities of the Empire will be held next July. The main proceedings will take place in Edinburgh; but, before this, several days will be spent in London by the delegates, where they will be received by the Prince of Wales at Guildhall on July 3. The London programme will include receptions by the League of Nations Union, the Victoria League, the English-Speaking Union, and the University of London. Visits will also be made outside London, including the Universities of Oxford and Reading. The Congress will begin in Edinburgh on July 7. Addresses will be given by the Lord Provost of Edinburgh; Sir Donald Macalister, chancellor of the University of Glasgow; Lord Meston, chancellor of the University of Aberdeen; and Lord Beauchamp, chancellor of the University of London. Several subjects of general academic interest will be discussed, including "The University Graduate in Commerce and Industry", the standard and the conditions of candidature for Ph.D. in relation to other post-graduate qualifications, conditions of admission to Universities and their effects, the provision of schemes of study leading to general honours degrees, post-graduate study in medicine and surgery in Great Britain, and facilities for overseas students in British universities.

Birthdays and Research Centres.

April 26, 1879.—Prof. O. W. RICHARDSON, F.R.S., director of research in physics at King's College and honorary professor of physics in the University of London, Yarrow research professor of the Royal Society.

The researches to which I am now devoting most energy concern:

(1) The spectrum of hydrogen (H_2). This is of fundamental importance and interest owing to the simplicity of the structure of H_2 (2 protons and 2 electrons) and the richness of the spectrum. These researches have already provided the most accurate confirmation of the application of wave mechanics to a problem involving the interaction of more than two bodies. Mr. Williams and I have recently found that various band lines have different fine structures. In addition to its intrinsic interest, this should help to clear up the unclassified part of the spectrum.

(2) Soft X-rays. My chief immediate object here is to try to account for the puzzling discrepancy between the results got by optical and photoelectric methods.

(3) Electric emission resulting from chemical action. We have made great progress lately with this phenomenon, which, I think, is destined to shed much light on the nature of chemical action generally.

April 27, 1845.—Dr. D. W. FRESHFIELD, sometime president of the Alpine Club, the Royal Geographical Society, and of Section E (Geography) of the British Association.

I am chiefly interested in geographical education at the universities, and especially at Oxford.

May 1, 1882.—Prof. R. RUGGLES GATES, professor of botany in the University of London (King's College).

The lines of work now being carried on in my laboratory are mainly concerned with cytology and genetics, although work on plant physiology and biochemistry is also being done. Two investigators are working on the structure of chromosomes, and how and when the split takes place in mitosis. Another is investigating the floral development and cytology of the Australian acacias; another, the phenomena accompanying zygospore formation in Mucors, where it has been shown that, in certain cases at any rate, the medium plays a part in determining the conjugation or non-conjugation of two strains.

We are continuing on an extended scale the cytogenetic work with *Œnothera*, especially as regards chromosome linkage and the production of haploids. Several of my staff and students are partly engaged in this work, which promises to give further insight into the relations between chromatin and heredity.

As time and opportunity permit, I am continuing my work on heredity in man, racial crossing, and blood groups, from anthropological, genetical, and eugenical points of view. An immediate need is the determination of the blood groups in the Siwash and other tribes of Indians in British Columbia.

May 2, 1868.—Prof. R. W. WOOD, For.Mem.R.S., professor of experimental physics, Johns Hopkins University, Baltimore.

Investigations of the absorption spectra of salts in anhydrous liquid ammonia are in progress, and certain new filters or colour screens for spectroscopic work have been found. Rather remarkable effects have been found with neodymium ammonium nitrate, the band in the yellow shown by a water