

states that, since the president of a small South American republic, already overtaxed, had donated a memorial to an American, it was the duty of all American citizens, not only American physicians, to provide a suitable endowment fund with which to carry on the work of the institute.

THE conference of the British Museums Association has noted: "That in the opinion of the Museums Association the time has arrived when it is desirable in the interests of the country to appoint a royal commission to investigate and report upon the work of museums in relation to industries and general culture."

AT its recent meeting, the Eugenics Research Association voted that it was its sense that Germany should be granted membership on the International Eugenics Commission.

THE Canadian Horticultural Council, which was recently organized with headquarters at Ottawa, has taken steps towards the organization of a system for the registration of new varieties of plants. Through the agency of Mr. W. B. Lobjoit, controller of horticulture for Great Britain, the secretary of the Canadian Horticultural Council will be kept informed of the efforts being made not only in England but on the continent, to provide a means for the registration of horticultural plants, shrubs and trees. The secretary of the council has also got into touch with the horticultural authorities in the United States who are interested in this matter. It is expected that a conference on the subject will be arranged for during the present year.

### UNIVERSITY AND EDUCATIONAL NOTES

By the will of Miss Harriet S. Hazeltine, Middlebury College receives \$25,000.

ACCORDING to the *Bulletin* of the American Mathematical Society, the title of the chair of "differential and integral calculus" in the University of Paris has been changed to "the theory of groups and the calculus of variation."

DR. MARCUS P. NEAL, assistant professor of pathology and bacteriology at the State University of Iowa College of Medicine, Iowa City,

has accepted a position as professor of pathology and bacteriology at the University of Missouri School of Medicine, Columbia.

DR. LEROY S. PALMER, associate professor of agricultural biochemistry in the University of Minnesota, has been promoted to a full professorship.

S. W. GEISER, Ph.D. (Johns Hopkins), has been appointed assistant professor of zoology in Washington University, St. Louis.

F. B. ISELY, dean and professor of biology at Culver-Stockton College, Canton, Missouri, has accepted a similar position with Texas Woman's College at Fort Worth, Texas. L. S. Hopkins, of Kent, Ohio, becomes dean and professor of biology in Culver-Stockton College.

MR. ELLIOTT FROST has resigned his position as director of the Industrial Management Council of the Rochester Chamber of Commerce to accept the headship of the department of psychology at the University of Rochester, the directorship of its Department of Extension, and of its Summer School.

### DISCUSSION AND CORRESPONDENCE

#### THE SPECTRUM OF HELIUM IN THE EXTREME ULTRA-VIOLET

MR. FRICKE and I showed (*Phil. Mag.*, 41, May, 1921) that in the extreme ultra-violet the arc spectrum of helium probably contained but one line with a wave-length near 585 Å.U.

I have recently attacked the subject again, using a vacuum spectroscope so arranged that a good vacuum could be maintained in the body of the apparatus while the discharge tube contained helium at a pressure of about a millimeter. No window was employed, the success of the device depending on the use of a very short and narrow slit and upon the suitable application of a powerful pump.

With a continuous current the line at 584.4 is of very great strength, and is accompanied by three new lines at 537.1, 522.3 and 515.7 whose intensities decrease with their wave-length and in a manner strongly suggesting a series relation. Luckily the first three members appear in the second order spectrum, a

comparison with the hydrogen line 1215.68 and with the three following lines of the same series is therefore possible, with the result that the wave-lengths are probably correct to one or two tenths of a unit.

The spacing of these four helium lines on the frequency scale is of great interest and importance, for it is found to be identical with the spacing of the first four lines in the singlet principal series. It may be stated therefore with considerable certainty that the line 584 forms the first member of a principal series, which, according to the notation of Professor Fowler, is to be represented by  $oS-mP$ .

Besides this series there is a single line at  $600.5 \pm .3$  of a feeble and diffuse character; its origin is not entirely above suspicion. In the extreme ultra-violet the arc spectrum of helium appears to contain no lines in addition to those just mentioned.

The relation between the accepted values of the resonance and ionization potentials in helium and the wave-lengths of these new lines is rather puzzling. The ionization potential should certainly correspond to the limit of the  $oS-mP$  series; now this limit can be accurately calculated, it corresponds to 24.5 volts but the experimental value is 25.3 volts. This is the chief difficulty, but it is not the only one, for the agreement between the wave-lengths of the individual spectrum lines and the values of the resonance potentials as determined by Franck and Knipping is not satisfactory. A correction of about  $-0.8$  volts if applied to all the potential measurements will bring the two sets of data into fair agreement but at the expense of the first resonance potential which is left without any corresponding line in the spectrum.

The matter should be of some interest to those who are struggling with the model of the helium atom.

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### THE CALIFORNIA POPPY

It is perhaps strange that students of genetics have not given more attention to the plant

which is the glory of California fields, the Copa d'Oro or California poppy, *Eschscholtzia californica* chamiso. It is a plant easily raised from the seed, remarkably affected by external conditions as well as subject to marked variations, fluctuations or mutations, which could be readily confirmed or intensified by selective breeding.

So great is the variability of this plant that Greene has separated the ordinary perennial form into thirty-two different "species," while of the eight or nine other forms, annuals, closely related to the golden poppy, but tangibly distinct from it and from each other he defines seventy-three species with some outlying varieties. To this incredible list, Fedde, a German botanist, adds several more. There is in fact no limit if we regard every peculiar plant as the type of a new species, without evidence as to the origin and permanence of its variation. Such a condition, as observed by Darwin among cirripeds, is attractive to us "as speculatists, however odious to us as systematists."

The flowers of *Eschscholtzia californica* are normally of a deep, rich orange, the four petals with entire edges an inch and a half long. Near the seashore the flowers are smaller, of a more or less clear lemon yellow, orange at base or not. This is apparently "ontogenetic" variation, not entitled to a systematic name, because likely to disappear with a changed environment, as the plant is not only inherently variable but responds directly to all changes of soil and season.

Towards the end of a rainless summer, the upright flower stalks wither and flowers successively smaller spring from near the root-stock. These are of a clear lemon yellow, sometimes more or less orange at base, the orange fading as the flower grows smaller.

Just now looking from my window as I write over a field golden with blossoms, I see numerous variations, some of them perhaps to be called mutations, as they are quite striking and, occurring in patches must be more or less permanent. In several areas the flowers are of a light creamy yellow, the petals holding their place when plucked longer than in the orange form. Another group has large flowers