in McGill University, Montreal, to date from October 1. Dr. Macallum will continue his work as chairman of the Research Council until a successor has been named.

Mr. Florian A. Cajori, formerly captain in the food section of the Sanitary Corps and on duty in Jugo-Slavia with the American Relief Administration, has completed his graduate work at Yale University and accepted a position as instructor in physiological chemistry at Leland Stanford, Jr., University, in California.

Professor J. T. Wilson, F.R.S., Challis professor of anatomy in the University of Sydney, has been appointed to the chair of anatomy at the University of Cambridge.

Dr. Wilhelm Wein, professor of physics at Würzburg, has been appointed to succeed Professor Wilhelm Röntgen, who recently retired from the chair of physics at the University of Munich.

DISCUSSION AND CORRESPONDENCE

THE SPECTRUM OF MERCURY VAPOR

To the Editor of Science: In your issue of September 10, Professor C. D. Child calls attention to a greenish glow discharge through mercury vapour whose spectrum shows a continuous band throughout the greater part of the visible spectrum, with the ordinary lines superimposed. This summer, in experimenting on the electrodeless discharge of certain vapors, the writer observed a similar appearance. The method used was one previously employed by Kowalski.[1] A small quantity of mercury was introduced into a highly exhausted Pyrex bulb some 12 cm in diameter. The bulb, surrounded by the primary coil of a Tesla high-frequency outfit, was placed in an electric oven and the appearance of the discharge (if any) observed as the temperature was gradually increased.

In common with Kowalski the writer observed two distinct types of discharge. The first, a dazzling white *ring* discharge occurred at temperatures several degrees above and below 90° C., and showed the ordinary bright line spectrum. The second, a diffuse distinctly greenish glow filling the whole bulb, took place at higher temperatures and was visible until a temperature in the neighborhood of 200° C. was reached. The spectrum of this latter type showed a continuous band with superimposed lines, an appearance similar to that described by Professor Child, but *at the higher temperatures only the line 5461* was visible. The writer's observations agree with those of Kowalski, who compares the appearance he observed with an exactly similar one recorded by A. Kalahne.[2]

Professor Child states that the "radiators" giving rise to the continuous band are uncharged, and suggests that the source of this type of radiation has to do with the formation of clusters of two or three atoms which may be formed when mercury vapor is condensing. Professor Kowlaski ascribes the two appearances noted above to two ionization stages ("Ionisierungsstufe"). It would seem that a possible explanation is the following. At the lower temperatures, because of the greater mean free path, even in the case of an electric field of relatively small intensity, sufficient energy is communicated to an atom on collision to produce ionization. During recombination the line spectrum is emitted. At the higher temperatures, because of the relatively small mean free path (the vapor pressure of mercury at 160° is roughly twenty-five times that at 90°), but little energy is communicated on collision and but little, if any, ionization occurs. The line spectrum accordingly is feeble or absent. Some electrons, however, are displaced from their normal orbits, and in their return to their normal positions, radiation is emitted. Normally such a radiation would also give rise to spectral lines, but we may assume that in the case of the mercury atom with its numerous electrons, the frequent atomic impacts occurring at high temperatures alter the natural periods to such an extent that the emission is continuous over a wide range.

The writer has under way an extended study of the electrodeless discharge of certain

[1] J. Kowalski, *Physik. Zeit.*, 15, 225, 1914.

[2] A. Kalahne, *Wied. Ann.*, 65, 815, 1898.

vapors, and hopes later to publish data on this subject.

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AUTOPSY OF A BLACK FISH

TO THE EDITOR OF SCIENCE: On July 5, 1920, a large female Blackfish, *Globocephalus malas*, a species of whale sixteen feet long came ashore near Woods Hole, Mass., and was brought to the Fish Commission Laboratory at this place for autopsy. The task was new to all present and when a large sac capable of holding a pailful or two was seen near the posterior end of the body, it was at once recognized as probably the empty bladder. This, however, proved to be incorrect for the empty urinary bladder was found near as a hard, flesh-colored organ contracted to the size of a man's large elongated fist. The sac when more closely examined was found to be a recently delivered uterus, completely relaxed, upon the inner surface of which the site of the placenta could be plainly made out and with its open mouthed sinuses capable of receiving the tips of a little finger. This therefore was probably an unique case of death from post-partum hemorrhage, damp bed and absence of a marine accoucheur with his ergot. A few days later the history of the case was completed by the finding of the infant, a youngster about three feet in length, also cast ashore near where the body of the mother was found.

There is no doubt the character of the case would certainly have been undiagnosed had there not been present at the post-mortum, an old general medical practitioner who recognized first that the body of the animal showed an almost exsanguine state, corroborated later by the condition of the relaxed uterus.

G. A. MACCALLUM
WOODS HOLE, MASS.,
July 26, 1920

QUOTATIONS

THE NATIONAL BOTANIC GARDEN

THE plan for the creation of a national Botanic Garden and arboretum that will be comparable with government gardens in other countries, and with public gardens in cities of the United States, should not be allowed to rest. There is force and sound argument in the proposal and no contrary argument. The present national Botanic Garden is national only in its name and in the fact that it is maintained at a slight cost to the nation. It is not national in its exhibit of plant forms. It was a pleasing little spot when the capital was a village. It carries one's thought back to when the mighty Library of Congress was housed in one small room in the Capitol. The Botanic Garden has made little growth in fifty years because it could not expand outside of its tall iron fence. Now the little space within that fence is being dedicated to monuments.

The weight of opinion among government and private botanists and landscape architects is that the Mount Hamilton tract should be the site of the great new and really national Botanic Garden. It fronts on one of the main boulevards. It is already accessible by steam and electric railroads. It adjoins the vast public park which the government is building up from the bottom, the marshes and the margins of the Eastern branch. It thus fits into and becomes a part of the park system. These are among the reasons which botanists urge to bring the matter into public favor. But to them the strong reasons are that in this tract of land are high hills, steep slopes, gentle slopes, thick woods with many varieties of timber, deep ravines, meadows, marshes, brooks and rivulets, and about all kinds of soil which all kinds of American plants pick out for home.

It is a great idea that the United States should have a Botanic Garden of which all Americans could say, "It is the greatest thing of its kind on earth."—Washington *Evening Star*.

A NEW BIOLOGICAL JOURNAL

DURING the past two decades the development of ecological studies in this country has been rapid. Five years ago, as a result of continued and insistent demand, the Ecological Society of America was organized and at once included in its membership botanists