

the record of the corresponding period of last year. Compared with the first quarter of 1914, however, the drop in numbers is under 8,000. Excluding the war years, the births are the fewest recorded in the first quarter of any year since 1872. The deaths registered also show a decline in numbers from the very low record of 1920, and are, indeed, the smallest in number registered in the first quarter of any year since 1868. The natural increase by excess of births over deaths was over 80,000, as compared with 133,000 in the March quarter of 1920 and 73,000 in 1914. The infant mortality was 101 per 1,000 births.

WE learn from the *Journal* of the Washington Academy of Sciences that the purchase of additional land near the Connecticut Avenue entrance to the National Zoological Park, provided for in the Sundry Civil Bill for 1921, has been completed. The addition to the Park is about six acres, making the total area about 175 acres.

WE learn from *Nature* that the governor-general of New Zealand, Lord Jellicoe, has formally opened the Cawthron Institute in Nelson, South Island. The institution was founded under the terms of the late Thomas Cawthron to provide a place for teaching and carrying out scientific research relating to the industries of Nelson and of the Dominion. Lord Jellicoe paid eloquent tribute to the great public generosity of the late Mr. Cawthron, and then spoke of the importance of scientific research. For an agricultural community to achieve success the agriculturists must cooperate with men of science. The work undertaken in the new institute will deal largely with problems of agriculture, fruit-growing, etc., and should therefore exert great influence on the prosperity of the whole of the Dominion. The Bishop of Nelson, who is chairman of the trustees, also addressed the gathering, and made particular mention of the library of scientific books belonging to the institute, which it was hoped, when completed, would be the best in Australasia. Professor Easterfield, director of the Cawthron Institute, gave a brief outline of the many lines of re-

search now occupying the attention of the staff; soil surveys, experiments with fertilizers and cover-crops, fire-blight, the deterioration of trout, fruit pests, and the utilization of flax-waste were among the problems mentioned.

At a recent meeting of the Royal Geographical Society Dr. Knud Rasmussen explained the plans for his expedition to gather materials for an archeological and ethnographical survey. The expedition, which consists of Dr. Rasmussen, three other Danish scientific men and six Esquimaux, will leave the settlement of Holstenborg, in Greenland, for Hudson Bay at the end of August. The area to be explored is the central part of the archipelago, between Greenland and North America, comprising Ellesmereland, North Devon, North Somerset, Baffin Land, Borthia Felix, the Melville Peninsula and the Barren Grounds.

ACCORDING to the daily press, a trading expedition to Siberia *via* the Kara Sea is on the point of leaving Europe. Two cargo boats from Liverpool, two from Hamburg, and one from Göteborg are to meet at the Russian port of Murmansk, where they will be rejoined by the ice-breaker *Alexandria* from Leith. The expedition is carrying about 11,000 tons cargo, most of which is to enter Siberia *via* the Yenesei River. The expedition is being organized by the All-Russian Cooperative Society, Limited, London.

UNIVERSITY AND EDUCATIONAL NEWS

MR. H. H. WILLS some time since presented the University of Bristol with the sum of 200,000*l.* for the provision of a new physics laboratory, and a contract for the erection of a building has now been signed. It is estimated that the work will absorb the whole of the original gift, together with interest on the fund, amounting to 21,000*l.* The building will be named "The Henry Herbert Wills Physical Laboratory."

THE board of curators of the state university of Missouri has taken a definite stand

in favor of establishing a four year course in medicine at the university. The board will prepare a bill for presentation at the next session of the legislature in 1923 to authorize and appropriate money for the establishment of a state hospital at Columbia to be operated in conjunction with the medical school.

DR. H. J. WEBBER has been appointed professor of citriculture in the University of California and director of the Citrus Experiment Station at Riverside, the position he held before he accepted an industrial position at Hartsville, South Carolina.

PROFESSOR A. V. MILLER, associate professor of drawing and descriptive geometry, has been appointed assistant dean of the college of engineering of the University of Wisconsin, to take the place of Professor J. D. Phillips, who is now acting business manager during the year's leave of absence of H. J. Thorkelson.

DR. JOHN SUNDWALL, professor of hygiene and public health at the University of Minnesota, has been made director of hygiene and public health in the newly established department of physical education.

IN the Medical School, Boston, Dr. Fred Wilbur Thyng has been promoted to be professor of anatomy, and Dr. Jesse Leroy Conel has been appointed assistant professor.

PROFESSOR H. C. PLUMMER has been appointed professor of mathematics at the Ordinance College, Woolwich, England.

DISCUSSION AND CORRESPONDENCE AN IMPORTANT BUT UNNAMED RADIOACTIVE QUANTITY

THE problems that are met in the quantitative study of radioactive materials and processes fall naturally into two classes. One class includes the strictly chemical problems; the other, the problems that are primarily concerned with radioactive phenomena, such as the rate of emission of energy and the rate of production of alpha particles. In problems belonging to the first class we are concerned with the total amount of material present; but in problems of the second class we are directly

concerned with only the relatively small fraction (λN) of the atoms present that take part in the phenomenon studied; we are only incidentally interested in the atoms that have remained untransformed.

In such problems, comparable amounts of different radio-elements are such as correspond to the same value of λN . There should be a name by which to denote the amount of any radio-element, irrespective of family, that is thus comparable to a gram of radium. If, tentatively, we use the letter r to denote this quantity, then an r of any material may be defined as that amount of the material that will produce transformed atoms at the same rate as transformed atoms are produced by one gram of radium. This quantity plays in radioactivity a part that is analogous to that played by the gram-molecule in physical chemistry, and the adoption of some name for it will facilitate the recording, discussion, and presentation of observations and phenomena.

Thus arises the question whether the term "curie," which denotes an r of radium emanation, shall be redefined so as to cover the entire field embraced by our definition of the quantity r , or whether a new name shall be added to the nomenclature of the science. This question was submitted by the Bureau of Standards to a number of chemists and physicists; the majority of those who replied favored a redefinition of the "curie."

The advantages to be secured by adopting a name for the quantity here denoted by r are considered in greater detail in an article that will appear in an early issue of the *Journal* of the Washington Academy of Sciences.

N. ERNEST DORSEY

BUREAU OF STANDARDS,
WASHINGTON, D. C.,
July 30, 1921

THE VALUE OF TILTH IN AGRICULTURE

TO THE EDITOR OF SCIENCE: If the surface of the earth be broken up to a moderate depth, the growth of plants will be marvelously increased, as has been known from time immemorial.

A scientific explanation of this fact is sug-