which has now been incorporated with the British Association. The Guild and the Association of Scientific Workers were the parent bodies of the Parliamentary Science Committee, which came into being in October, 1933, almost immediately after the presidential address of Sir Frederick Gowland Hopkins at the Leicester meeting of the British Association.

FIGURES have recently been issued by the Soviet Union Year Book Press Service, according to *Nature*, relating to the increase in the number of Soviet professional workers in the Ukraine. In 1914, the territory now constituting Soviet Ukraine had 44,083 teachers; at the beginning of the school year 1936–37 the number had risen to 150,000. The number of medical men in 1913 was 5,192; in 1936 it was 19,266. The number of secondary medical staff in 1913 was 8,357 and in 1936 40,243. In 1934 there were 83,390 engineers and technical experts employed in the Ukraine; in 1936 the number had increased to 116,600. The number of agronomists employed by the Commissariat of Agriculture in the Ukraine three years ago was 8,200; in January, 1936, it was 12,346.

DISCUSSION

COBALT—AN ESSENTIAL ELEMENT IN ANIMAL NUTRITION—AUSTRALIAN INVESTIGATIONS

IN 1933 Filmer,[1] working with Underwood in Western Australia on a disease of cattle and sheep (characterized by progressive emaciation and anemia followed by death), to which he gave the name "enzootic marasmus," pointed out the similarity between this disease and "bush-sickness" in New Zealand, "nakuruitis" in Kenya, "pine" in Scotland, and "salt-sick" in Florida. The iron deficiency theory which had been advanced to explain the etiology of these diseases was criticized and the hypothesis advanced that enzootic marasmus was due to a deficiency in the herbage of some trace element which was present as a contaminant of the iron compounds which cured and prevented the disease. This hypothesis was based in the main on the following experimental findings.

(1) Extremely high doses of iron compounds were required for curative results, with very little correlation between the size of these doses and the amount of iron which they supplied.

(2) Fresh and heat dried whole liver was curative in doses which supplied insignificant amounts of iron.

(3) The iron content of "unsound" (*i.e.*, disease-producing) pastures was very little lower than that of normal pastures.

(4) The livers and spleens of affected animals contained excessive stores of iron—the reverse of the condition expected in iron-starved animals.[1, 2]

These workers then produced an iron-free extract of one of the curative iron compounds (limonite $Fe_2O_3 \cdot H_2O$) and found it to be fully as potent in the cure of enzootic marasmus as whole limonite.[3] This effectively settled the iron deficiency theory and gave strong support to the trace element hypothesis. Twelve months later it was shown by a fractionation method[4] that the potency of this extract, and therefore of whole limonite, was due to the cobalt which it contained. Normal growth and health of sheep in the affected area was obtained with doses of cobalt chloride supplying as little as 0.1 mg cobalt and of cattle with 0.3 to 1.0 mg cobalt daily, and it was suggested that cobalt must be considered an essential element in animal nutrition.

At this time Marston and Lines were working on a rather similar problem in South Australia known as "coast disease" of sheep. They could neither cure nor prevent the disease with the particular iron compounds used in the doses supplied and tried the effect of adding a number of trace elements, including cobalt, to the sheep's diet. The cobalt was suggested by its known effect in producing polycythemia in rats. Success with doses of cobaltous nitrate supplying 1 mg cobalt daily per sheep was reported by Marston and Lines[5] and to these workers must be given the credit of having first successfully used cobalt in the treatment of a disease of animals.

During this time the iron deficiency theory was not proving an entirely satisfactory explanation of the etiology of "bush-sickness" in New Zealand. Rigg and Askew found only very small differences in the iron contents of "sound" and "unsound" herbage in the south island and suggested soil contamination with iron as a factor in the incidence of the disease. Later they found that the curative effect of certain soil and limonite drenches did not depend solely on their iron contents. In the north island Grimmett and Shorland[6] found the iron contents of various iron ores inadequate to account for their differences in curative value. The experiments of Filmer and Underwood with "iron-free" extracts were then repeated with "bush-sick" animals. Successful results with such extracts were obtained both in the north and south islands.[7] Significant amounts of cobalt were noted in

[1] *Aust. Vet. Jour.*, ix: 163.
[2] Underwood, *Aust. Vet. Jour.*, x: 87, 1934.
[3] Filmer and Underwood, *Aust. Vet. Jour.*, x: 84, 1934.
[4] Underwood and Filmer, *Aust. Vet. Jour.*, xi: 84, 1935.
[5] *Jour. Council Sci. and Indust. Res. Aust.*, 8: 111, 1935.
[6] *Trans. Roy. Soc. N. Z.*, 64: 191, 1934.

these extracts and experiments initiated to test its potency just as the report of the findings of Underwood and Filmer with this element were received. Successful treatment of bush sickness with small amounts of cobalt were reported by Askew and Dixon as mentioned above and later by Wall.[8] Since that time a considerable volume of work on the relation of cobalt to the incidence and control of bush sickness has been carried out by the New Zealand workers, not the least important of which is the development of a chemical method capable of determining as little as 0.2 gamma cobalt.[9]

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A POSSIBLE SOURCE OF LABORATORY FIRES[1]

THE conditions necessary for the observation of the phenomenon described herein are common to most laboratories, and the possibilities they have for causing laboratory fires may be already generally known. However, since there is apparently no record in the literature it seems advisable to describe an experience that might well have resulted more disastrously than it did.

On opening the laboratory after a week-end the room was found to contain smoke and there was an odor of burnt wood. The source of the smoke and odor was found to be a smouldering area on a laboratory table top near a two-liter florence flask filled with benzene. The flask and its contents were quite warm, but fortunately the flask was not stoppered, being, instead, covered with an inverted beaker. The burned place in the table was curved in shape and a defect of about one half inch had been made. It was found that what had happened was that the round flask filled with perfectly clear fluid had acted as an efficient sun glass and brought the sun rays to a focus on the table. The laboratory had been closed for a period of one and a half days, during which time the sun shone brightly. The laboratory table was on the south side of the room near a large window, and sunlight was able to enter for a considerable portion of the day. The table top was black, and it was easy to demonstrate that in a few moments the flask placed in bright sunshine caused the wood to smoke. A hole was burned in a piece of black paper almost immediately. Inflammable liquids (ether, benzene, carbon disulfide) poured on the table evaporated before they could be ignited.

It is quite certain that had the flask been tightly stoppered the increased temperature would have burst the flask and brought the highly inflammable benzene in contact with the glowing embers to cause a fire. Also had the table top been of softer wood, as for example pine, the focused sun rays may have induced a flame.

It seems a worthwhile precaution to avoid storing clear fluids in globular glass vessels where they are exposed to direct sun rays, unless they are placed on a white table covering. It may be that the nature of the fluid in the flask, its color and the amount in proportion to the capacity of the flask influence the possibility of the sun glass effect.

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"HYPOTHECATE" VERSUS "ASSUME"

IN a recent proof of the Proceedings of the American Physiological Society appears the phrase: "Each hypothecated element in the nerve." This misuse of the word hypothecate in scientific literature is not infrequent. The dictionary defines "hypothecate" as "give or pledge as security; pawn or mortgage." I am myself to blame for the introduction of finance into physiology through the term "oxygen debt." I should be sorry, however, to have it go too far, or to see my friends, on both sides of the Atlantic, reduced to pawning the elements either of their nerves, or of their hypotheses. Let them "assume" these elements, not "hypothecate" them.

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WILLIAM MORTON WHEELER AND THE CLASSICS

No friend of William Morton Wheeler can read unmoved the beautiful appreciation of him in SCIENCE. May I add a word on a point barely noticed?

The reader of Wheeler's great monograph on the ant will not fail to see how intimate he was with Vergil's "Georgics." But very few of his friends and pupils are aware that a commanding knowledge of the Greek and Latin classics made part of the superb intellectual equipment of this self-taught man. He read them as we read French or German. One day last summer he said to me: "I have just read Aeschylus, Sophocles and Thucydides, and Tacitus." Of course it was Greek that he cared for most. When a boy he picked up a speaking knowledge of the modern lingo from Greek fruit sellers in the streets of Milwaukee. From that he worked backward, and it was not long before he was carrying a Greek classic in his pocket.

HENRY OSBORN TAYLOR

[7] *N. Z. Jour. Agr.*, 50: 267, 1935; Askew and Dixon, *N. Z. Jour. Sc. and Tech.*, 18: 73, 1936.

[8] *N. Z. Jour. Sc. and Tech.*, 18: 642, 1937.

[9] Kidson, Askew and Dixon, *N. Z. Jour. Sc. and Tech.*, 18: 601, 1936.

[1] From the Otho S. A. Sprague Memorial Institute and the Department of Pathology, University of Chicago.