

colon bacilli found in the lambs was then demonstrated by Dr. Heller. When grown in test tubes the isolated germs produced a poison identical in effect with that obtained from the lambs. Dr. Heller, who worked on this problem with the cooperation of the University of California's Division of Veterinary Science, located at Davis, California, did not have the opportunity to clinch the proof by infecting lambs, because when the presumably guilty organism was

isolated and proved rapidly fatal for guineapigs, the lambing season was over.

Dr. Heller hopes to be able to continue research upon this lamb disease. It seems probable that it is widespread in the sheep raising areas of this and other countries, and must cause a loss amounting to many thousands of dollars annually. It may also be related to a similar disease of calves which is responsible for even larger financial losses.

*Science News Letter, June 24, 1933*

## PHYSIOLOGY

## Bone Age Gives Index To Mental and Emotional State

**B**ONE development is now being used as a guide in treating certain children who are mentally retarded or emotionally unstable, physicians gathered in Milwaukee for national medical meetings were told. Dr. E. Kost Shelton of Santa Barbara, Calif., has found the stage of bone development, or bone age, a good index to the speed with which certain vital transformations are going on in the body, he reported to the Association for the Study of Internal Secretions.

These transformations are the processes by which energy for the body's activities is obtained from the burning of food and oxygen. When these processes, called metabolism, proceed at either too fast or too slow a rate, the health is seriously affected.

The bone age, which can be determined by X-ray examination, is correlated with the metabolic rate, and can be used as a guide in treatment of certain types of disordered metabolism, Dr. Shelton found.

### Metabolic Speed Indicated

"Any metabolic disorder in childhood, when sufficiently severe to produce mental or emotional symptoms, will be reflected in bone development," he gave as his opinion. He believes that the rate of bone development is determined by the metabolic speed and therefore is the best guide to the latter.

Dr. Shelton described a number of patients suffering from retarded growth and defective mental development, in whom he also found very much retarded bone growth. Treatment with extract from the thyroid gland, which speeds up the rate of metabolism, improved

markedly the condition of the patients. Not only did they improve mentally but the change was reflected in the bones, which reached the normal stage for the patients' ages and in some cases the body height increased. Additions of vitamins A and D and feeding an otherwise adequate diet had no effect on metabolic speed or the development age.

*Science News Letter, June 24, 1933*

## CHEMISTRY

## New Ship Fumigant Safer Than Hydrocyanic Acid

**C**ARBOXIDE gas, a mixture of nine parts of carbon dioxide and one part of ethylene oxide, has been found an effective fumigant to rid ships of cockroaches and other insect vermin, without the serious danger to human life that has always attended the use of hydrocyanic acid, now the standard gas for this purpose. The experiments establishing the value of the carboxide mixture have been conducted by the Bureau of Medicine and Surgery of the U. S. Navy.

The carbon dioxide in the mixture removes the fire hazard that would go with unmixed ethylene oxide, and at the same time practically doubles its toxicity for insects. Carboxide has been found effective in comparatively small dosages, making it economically practicable for conveniently short periods of exposure.

A detailed report on the experiments will appear in the July number of the *U. S. Naval Medical Bulletin*.

*Science News Letter, June 24, 1933*

## GENERAL SCIENCE

## Dr. Isaiah Bowman Elected Research Council Chairman

**D**R. ISAIAH BOWMAN, director of the American Geographical Society of New York, has been elected chairman of the National Research Council which has headquarters in Washington. He succeeds Dr. W. H. Howell, the physiologist who has served as the chief administrative officer of the council for the past year. Dr. Bowman will remain director of the American Geographical Society and will devote half of his time to the National Research Council. He will perform the functions exercised by Dr. Vernon Kellogg as permanent secretary until his resignation and election as secretary emeritus last year.

Dr. Howell, formerly director of the Johns Hopkins School of Hygiene and Public Health at Baltimore, was drafted for a year as chairman during a reorganization of the National Research Council.

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