

of the flash; and the effect is aggravated by the crookedness of its path.

It is easy to tell how far away a lightning-flash started, by listening for the first thunder-sound. As soon as you see the flash start counting, somewhat deliberately, "One hippopotamus, two hippopotamus, three hippopotamus. . . etc." It takes about one second to say "One hippopotamus." Sound travels about a thousand feet a second. Allow a mile for every five hippopotamuses.

PICTURE ON THE COVER—Black lightning, which appears in some photographs but is never observed visually, is not really dark. The black streaks are the weaker flashes that have a brightness value so low, in contrast to the brightly illuminated background, that they appear dark by comparison.

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Science News Letter, June 24, 1933

CRIMINOLOGY—PHYSIOLOGY

Real Detective Stories Told in Medical Exhibit

SOLUTIONS of dozens of real life detective stories were exhibited at the meeting in Milwaukee of the American Medical Association.

Two slender vials, for instance, contain the sleeping medicine found in the organs of Starr Faithful, New York society girl who mysteriously disappeared from an ocean liner. When her body was found in the water, the condition of the heart showed death by drowning, but discovery of the sleeping medicine, veronal, in all the organs showed that she must have been in deep sleep when her body reached the water and that she could not have jumped in.

Nearby are pictures and diagrams of gunshot wounds. From the condition of the edges of the skin and from the size of the entering and exit holes of the bullet much can be told of how and from where the shot was fired.

A picture of the charred remains of a torch murder victim and pictures of the teeth and jawbones by which the victim was identified are to be seen. Exact description of the teeth was sent by the police to thirty thousand dentists, from which identification was made.

But the purpose of the exhibit is not to make a chamber of horrors display, although that is the effect. Instead it is to call attention to the value of trained medical examiners in place of coroners for determining the causes of accidental or sudden deaths.

Science News Letter, June 24, 1933

ENTOMOLOGY

Grasshopper and Locust Plague Declared Largely Man-Made

MAN HAS himself to thank for plagues of grasshoppers and their next of kin, the locusts. An international scientific accord on this point was reached at the Fifth Pacific Science Congress in Vancouver, B. C., by Dr. J. R. Parker of the U. S. Department of Agriculture, and Dr. B. P. Uvarov, of the Imperial Institute of Entomology, South Kensington, England.

Dr. Parker, discussing conditions in the grasshopper areas of North America, gave it as his opinion that the cultivation of crops of lush vegetation alongside of unplowed roadside and fencerow strips that offer ideal hatching grounds for grasshoppers tends to make these insects more numerous than they were in the days of unbroken sod, before agriculture came. We must therefore calculate upon grasshoppers as a perennial pest, he said, and adjust our farm practice and methods of anti-insect warfare accordingly.

Dr. Uvarov was concerned primarily with the locust problem in Asia and the adjacent island areas. China, he said,

offers the greatest menace on the mainland: an intensively cultivated agricultural country where coordinated scientific control of the insects is not yet a possibility.

The Philippines and the East Indies, he said, present a challenge to the Western powers that control them to unite in an international effort to end the locust menace, as several of the European powers already have united to fight the insects in the Occident and the Near East. The introduction of semi-Europeanized farming methods in the various island groups has resulted in a shifting agriculture, leaving abandoned fields as breeding grounds for locusts, which subsequently rise in migrating swarms and often cross considerable stretches of sea to fall on other islands under the jurisdiction of other powers. Dr. Uvarov pointed out a special responsibility of the United States in this connection, since the Philippines are under suspicion as particularly prolific breeding grounds of migratory locusts.

Science News Letter, June 24, 1933

BACTERIOLOGY

Cause of Fatal Disease In Young Lambs Discovered

DURING the California lambing season, a disease hitherto of unknown origin inflicts heavy losses upon newly-born lambs on farms that are widely separated.

Dr. Hilda Hempl Heller of the Hooper Foundation for Medical Research of the University of California, has fastened the apparent guilt of causing this disease upon one kind of the very common colon bacilli, the sort of germ widely found in the intestinal tract of animals.

An unusual circumstance of this disease is that, though it is an infection, the mechanism of its action resembles that of a food poisoning. The little lamb, just after being born, drinks its mother's milk, which is not poisonous. When in some way it is infected with

the colon bacillus at a virulent stage, the germs form a poison in the milk within the lamb's alimentary tract. The lamb dies from absorbed poison rather than from the direct attack of the germs.

The germs charged by Dr. Heller with causing the disease are extremely variable and they have been found to change their deadliness rapidly.

Dr. Heller, who is an authority on botulinus poisoning, began work on the disease because it was thought that it was a disease caused by an anaerobe, or air-hating germ. She found that a powerful poison was present in the lamb's intestines, of which five drops would kill a mouse in two and one-half hours. The blame for forming this poison could not be fastened upon any anaerobe.

The poison-producing power of the

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

BONE 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

CARBOXIDE 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

DR. 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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