occurred per 100,000 unvaccinated children, whereas 21 paralytic cases occurred per 100,000 children who had received only one shot. Among 4658 youngsters who received three injections of vaccine during the 1954 field trials, plus a booster shot in 1955, there was only one case of paralytic poliomyelitis.

In a comparison of the Massachusetts one-shot experience with the experience with children who had received three injections in the 1954 field trials, the report said, "It is remarkable that one dose could have approached so closely the value of three doses, particularly in an epidemic situation. It would seem to indicate that the vaccine used in Massachusetts in 1955 was a particularly effective one."

The report noted that the "unprecedented" Massachusetts epidemic was due almost entirely to type I poliomyelitis. It was against this type of virus that the 1954 field trial vaccine was least effective.

The Massachusetts survey was directed by Alton S. Pope, former deputy commissioner of the State Department of Public Health. A total of 3608 cases were studied in preparing the report. Study populations were obtained from school census reports in 351 Massachusetts cities and towns. The authors of the report describe it as preliminary; a further paper will contain additional information and figures that have not yet been analyzed.

## Grasshoppers on the Rangelands

A recent survey by the U.S. Department of Agriculture indicates that the 1956 grasshopper problem on western rangelands will be more than three times more serious than in 1955. The survey indicated that grasshopper populations will occur in 1956 on more than 20 million rangeland acres in 16 states, compared wth the 6 million acres given in the preliminary estimate for 1955.

The states involved are Arizona, California, Colorado, Idaho, Kansas, Missouri, Montana, Nebraska, Nevada, New Mexico, Oklahoma, Oregon, Texas, Utah, Washington, and Wyoming. In 1955, almost 1,650,000 acres of rangeland in 11 states were treated with insecticides to control grasshoppers.

Next spring the threatened areas will be resurveyed to find what toll predators, parasites, diseases, and weather take over the winter of the potential insect population. Final plans for 1956 control work will be based on the findings of this study.

In these grasshopper surveys, investigators count the actual number of insects per square yard at sample stops in suspected areas. Later in the fall, they return to check whether the outlook remains the same or whether a shifting of adult egg-laying insects has changed the forecast.

The surveyors shovel a measured square foot of soil into a sifting screen, or scrape away plants and dig into the soil, to expose and count grasshopper egg pods. From these counts the coming year's infestations are rated, and the data are used to make up maps and estimates of the potential infestation for the following year.

## News Briefs

■ The French Physical Society held a special meeting to celebrate the discovery of artificial radioactivity by F. Joliot-Curie and his wife in 1934. Four commemorative papers that were delivered were published in the October 1955 issue of *Le Journal de Physique*: "The historical aspect of the discovery of artificial radioactivity," by S. Rosenblum, research director, C.N.R.S.; "Artificial radioactivity and physics," by O. R. Frisch, Cambridge; "Artificial radioactivity and chemistry," by F. A. Paneth, Max-Planck Institute, Mainz; "Artificial radioactivity and biology," by M. Tubiana, Institute Gustave Roussy, Villejuif.

■ A mutual assistance agreement between India and the United Kingdom for the development of peaceful uses of atomic energy was announced late in December by the United Kingdom Atomic Energy Authority. The statement issued by the Atomic Energy Authority states:

"Discussion between the United Kingdom Atomic Energy Authority and the Indian Department of Atomic Energy have led to the conclusion of an agreement which ensures that there shall be close co-operation and mutual assistance between the Authority and the Department in the promotion and development of the peaceful uses of atomic energy. The agreement provides for the Authority and the Department to arrange for members of their staffs to consult and work together on mutually agreed topics. In furtherance of this agreement the United Kingdom Atomic Energy Authority will provide the Indian Department of Atomic Energy with enriched uranium fuel elements for a swimming pool reactor now under construction and a high flux research reactor which may be built at a later date."

■ An experimental electric train fitted with a germanium rectifier—which converts the alternating current picked up from an overhead wire to direct current for the traction motors—has completed successful trials on the Lancaster-Morecambe-Heysham line of British Railways. It is believed to be the first ever to use such an installation. The manufacturers of the rectifier (British Thomson-Houston Company, Ltd., Rugby, England) claim that it is more efficient and reliable than the mercury-arc rectifier.

■ A new agricultural fungus disease, previously unknown in the United States, has been discovered in Mississippi, according to the U.S. Department of Agriculture and the Mississippi Agricultural Experiment Station. The disease, downy-mildew of crimson clover, is caused by a fungus, *Peronospora viciae,* which does considerable damage to crimson clover in sections of Europe. The disease has not yet become damaging in this country.

Leaves of infected crimson clover appear yellowish gray to purple from above, and are often curled. The lower surface of the leaves is coated with downy fuzz which becomes violet-colored after a period of time.

## Scientists in the News

JOHN F. FULTON, Sterling professor of the history of medicine at Yale University and for many years chairman of the department of physiology, was honored on 14 Jan. at a reception and dinner given to mark his completion of 25 years of service as Sterling professor.

Fulton's work in neurophysiology has outlined basic concepts of the workings of the brain. He is also credited with major responsibility for the development of Yale's medical history library. A special issue of the *Yale Journal of Biology and Medicine,* dedicated to Fulton, was presented to him.

PHILIP HERSHKOVITZ, associate curator of mammals at Chicago Natural History Museum, has been appointed curator. He succeeds COLIN C. SANBORN, who retired 31 Dec. because of ill health.

EDWARD C. BULLARD, director of the National Physical Laboratory, Department of Scientific and Industrial Research, London, England, resigned on 31 Dec.

RUBEN F. METTLER, director of advanced systems planning at the Ramo-Wooldridge Corporation, Los Angeles, Calif., has been named one of the "Ten Outstanding Young Men of 1955" by the U.S. Junior Chamber of Commerce. Mettler was honored for "contributions in rocket fire control developments and classified military electronics."