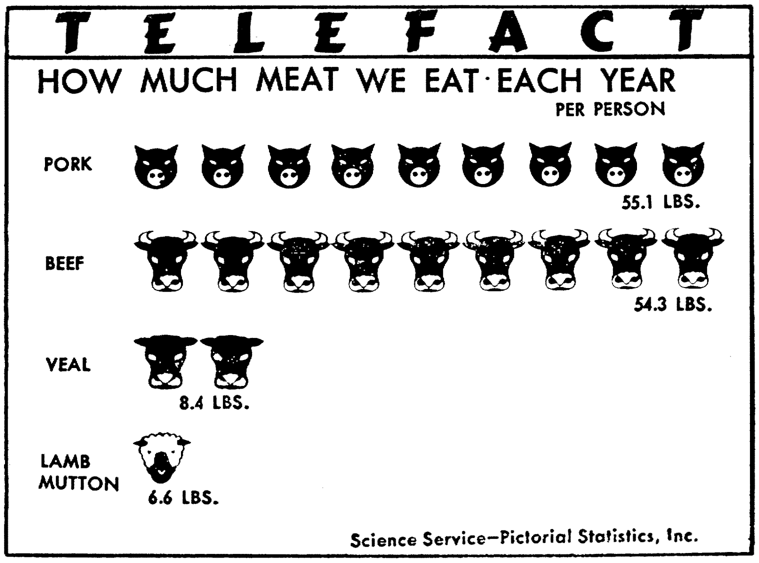

PUBLIC HEALTH

Health Service Officer Contracts Spotted Fever

Seventeenth on Roll of Martyrs Will Be Saved Because He Had Previously Been Vaccinated

SEVENTEENTH on the federal health service's roll of martyrs who have suffered deadly Rocky Mountain spotted fever in the line of duty is Dr. N. H. Topping, 30, now apparently recovering from the disease at Walter Reed Hospital, Washington, D. C.

Only the fact that he had previously been vaccinated against the infection is expected to save this young Public Health Service officer from death which claimed four of the other 17.

Dr. Topping contracted the disease from spotted fever infected ticks which he was studying at the National Institute of Health. When he was first taken sick, it was thought for a few days that he was suffering from the mysterious virus infection which public health service scientists have only recently discovered and which had already caused the illness of one of the officers. Dr. Topping had also been working with ticks infected with this new, unnamed virus. Appearance of the characteristic Rocky Mountain spotted fever rash, however, clinched the diagnosis.

Although Dr. Topping has been with the service only a few years, he has already shown great promise and aptitude for research, according to one of his senior officers, and is said to be "a hound for work."

Rocky Mountain spotted fever is a serious disease no matter how contracted, but the infections acquired in the laboratory are particularly severe. This, it was explained, is why the vaccine failed to protect Dr. Topping from developing the disease, although it is expected to save his life.

The four men of the federal health service who died of laboratory-acquired infections were Dr. Thomas B. McClintic, bacteriologist L. A. Kerlee, and laboratory assistants W. Gettinger and George H. Cowan.

Survivors, besides Dr. Topping, are: field assistants Martin L. Nolan, A. N. Chaffin, Frank O. Merritt and Dan Willer; laboratory assistants Lawrence McNeal and W. T. Smith; laboratory attendants Nick Kramis, C. Buford Kaa, Harley Nicol and George Gordon; Philip Gillis, janitor; and H. Wixon, associate construction engineer.

Science News Letter, January 21, 1939

Flint was one of the first important materials in commerce, since prehistoric men traded for it and carried it considerable distances to make good stone weapons.

MATHEMATICS

New Kind of Space Year's Discovery in Mathematics

THE world around us is a four-dimensional universe of space-time: up and down, in front and behind us, to right and left, and the ticking of the clock. That is the physical universe as we experience it in everyday life.

But scientists, particularly the mathematicians, work and play with many other kinds of space, space of many dimensions, space that can not be visualized but must be expressed in terms of symbols and formulae.

The latest news in mathematical circles is that the French mathematician, André Weil, this year has introduced a new kind of space which he calls "uniform space." This is one of the great mathematical advances of the year.

Without making your mind tread among strange concepts and abstruse ideas for many hours, it will be difficult to know just what this means. Some idea of the importance of such mathematical spaces can be obtained from the fact that the geometry of space used by Einstein in his revolutionary theory of relativity was devised by Bernhard Riemann in 1854. Riemann's space of many dimensions, not just four, is the great-granddaddy of the spaces now intriguing mathematicians.

These include spaces of n-dimensions (many dimensions because n represents any number), spaces with infinitely many dimensions, vector spaces, metric spaces, many varieties of topological spaces, projective spaces, and scores of others.

The new space type, uniform space, is one in which "uniform continuity has a sense."

Uniform continuity may be explained as follows: A curve in the plane corresponds to an equation of the form $y=f(x)$, where $f(x)$ represents an expression in x; a surface in space corresponds to an equation of the form $u=f(x,y)$ where $f(x,y)$ represents an expression in x and y. If for a certain value of x, a small variation in x involves a small variation in y, we say