

## PHYSIOLOGY

**Measure Area Of Body**

How many yards of skin does it take to cover a prize fighter? Though the actual surface area of the svelte flapper of the Occident may have to be inferred from mathematical computation for yet a while, experts at the Imperial State Institute for Nutrition of Tokyo know to the last square inch the body area of ten men they have used as subjects in metabolism experiments.

A special variety of thin strong paper that adheres to curved surfaces very closely was pasted over the nude bodies of the experimentees and dried with a fan, according to Dr. Hideo Takahira, who conducted the measurements. When dry the paper was removed, cut up into flat pieces and measured. The different anatomical divisions of the body were marked off so that the area of each could be recorded and the ratio of each to the whole surface noted. Thus the "area" of Dr. Takahira, who used himself as a subject for measurement, and who is a man about five feet six inches in height, was found to be approximately 18 square feet.

In working out nutritional problems to find out what and how much we should and should not eat, precise quantitative knowledge of the area of the body is a necessary piece of data, but it has never before been ascertained with such precise accuracy. Western investigators have estimated the body surface from measurements of weight and height, but Dr. Takahira was able to check up the accuracy of these various formulae and test their applicability by his actual measurements.

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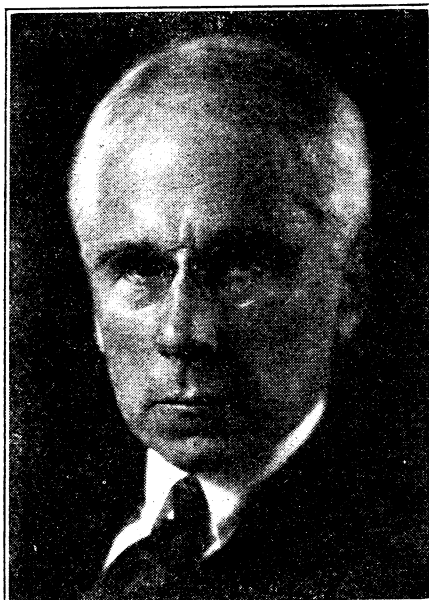
## PSYCHOLOGY

**Tabs on Restless Sleepers**

The efficiency of beds, springs and mattresses in promoting sleep has been the problem of a long systematic investigation by H. M. Johnson and G. E. Weigand at the Mellon Institute, Pittsburgh. They worked on eighteen young men who were hired to sleep their way through college. Recording apparatus attached to their beds recorded every movement during the night. Surprising differences were found in the restlessness of various individuals yet each stuck closely to his particular habit. The most active man stirred once every eight minutes on the average while the least active usually remained still for twenty-five minutes. The general average for the sleeping squad was about thirteen minutes between stirs.

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## PSYCHOLOGY



LIGHTNER WITMER

**Psychological Clinician**

Psychological clinics, where mother can take Johnny to find out why he's backward in school, or what the best way is to develop his particular talents, are now a common part of college departments of psychology, but thirty years ago there was only one in existence. That was at the University of Pennsylvania, started in 1896 by Dr. Witmer, and which has been actively functioning ever since. As the parent of the psychological clinics, it has given training to men and women now successfully conducting clinics throughout the country.

When Dr. J. McKeen Cattell, who founded the department of psychology at the University of Pennsylvania, went to Columbia in 1891, Dr. Witmer succeeded him as director of the department and laboratory. This was just after his return from Leipzig, where he had studied under Wilhelm Wundt, one of the founders of the modern science of psychology, and received his Ph. D.

Besides his duties at the University of Pennsylvania, his alma mater, Dr. Witmer has found time to establish psychological laboratories at Bryn Mawr College and Lehigh University, to serve as psychologist of the Pennsylvania Training School for Feeble-Minded Children, to found and edit *The Psychological Clinic*, to write a text-book, "Analytical Psychology" and to serve during the war as major and deputy commissioner of the American Red Cross to Italy.

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## ELECTRICITY

**New "Microammeter"**

An electric current so small that at the pressure and price of the ordinary house lighting current it would cost less than a four billionth of a cent an hour, can be measured with the aid of a new instrument just developed in the standardizing laboratory of the General Electric Company at Lynn, Mass. It is known as a thermionic microammeter, and a current of a ten-millionth of an ampere is sufficient to carry the pointer completely across the dial, while a single division on the scale represents one five-hundredth of this amount.

The instrument will be useful in measuring the minute currents in insulators and radio tubes, but it is stated that the chief application foreseen at present will be in combination with a photo-electric cell for accurate measurements of illumination. At present, the intensity of electric lights, for example, is measured by visually comparing them with another light of standard brightness. The electrical eye, the photoelectric cell, may now replace the human eye in this work, for the cell converts light energy into tiny electrical currents, which may be easily measured with the new instrument.

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## BACTERIOLOGY

**Tick Virus Studied**

Gradually science is uncovering every step in the complicated life history of the tick that causes Rocky Mountain spotted fever. Dr. Roscoe R. Spencer of the United States Public Health Service, who has already revealed much of the complex cycle of the organism causing the deadly disease, now states that the virus has a dormant stage in hibernating ticks. At this period the virus is not capable of producing the disease but will frequently confer immunity when injected into guinea pigs. In the spring after hibernation, when the ticks have had a meal of blood from an animal victim, the virus undergoes a highly fatal phase but at this time a protective vaccine can be prepared from it. When it has been transferred to an animal's blood by the tick's bite it is less virulent than the active tick virus, but at this stage no protective vaccine can be made from it.

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Quill pens were introduced in the sixth century.