

315, attaches the doctor's certificate, and gives it to the local board. The board then gives him the extra points.

Diabetics usually take extra cream and butter to supply the fuel they miss by not eating sugar or much carbohydrate. But the N. Y. Diabetes Association believes that the diabetic will not need extra cream if sufficient whole milk is

available. Oleomargarine and other fats, the association states, may replace butter for fuel needs to the extent advocated for normal persons.

Each diabetic, of course, must have his diet prescribed by his physician, but in general the above statements hold true for diabetic food requirements.

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## PHYSICS

## Hard to Weigh a Battleship

**Largest and smallest things are hardest to weigh. Mass of an electron can be determined with accuracy of only one part in a hundred.**

► THE 52,000-TON full-load displacement of the new "Iowa" class battleships may actually be as much as 52,052 tons or only 51,948 tons without anybody knowing the difference. A battleship cannot be weighed with an accuracy closer than one part in a thousand, Dr. Harvey L. Curtis of the National Bureau of Standards stated in his address as retiring president of the Washington Academy of Sciences. By contrast, a kilogram weight (basic unit of the metric system, a little more than two English pounds) can be compared with another with an accuracy a little less than one part in a billion.

Biggest things and smallest things are most difficult to measure and weigh, Dr. Curtis told his audience. A battleship is about the biggest lump of matter which human means can weigh directly. In the opposite direction, the antipneumococcus germ or virus particle is among the smallest of living things. It would require 1,000,000,000,000,000,000,000,000 (one octillion) of these to weigh as much as a blue whale, largest of all animals. Far below this tiniest of germs, however, is the electron, smallest of all known objects. Its mass has been determined within an error of one per cent—but this is an accuracy of only one part in a hundred, as compared with one in a billion when kilogram weights are being compared.

As with weights, so with lengths. The standard meter bar (the laboratory's "yardstick") can be compared with another meter bar with an accuracy of one part in ten million, said Dr. Curtis; perhaps under very favorable conditions to one part in fifty million. The error amounts to something between a twentieth and a hundredth of the diameter of a fine spiderweb.

Accuracy of comparisons falls off with either increase or decrease in lengths being compared. The standard base line used in the most accurate kind of surveying is usually 1,000 meters. Its accuracy, however, can be determined only to one part in a million, as compared with one in ten million for the single meter. The millimeter (a thousandth of a meter) can be determined with an accuracy of only one part in a few hundred thousand. The distance between the nuclei of a hydrogen molecule is known only to one part in a thousand, while the diameter of a proton, the smallest known object, has not yet been determined within an error of less than one part in ten.

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## PSYCHIATRY

## Building-Stones of Peace Proposed by Psychiatrists

► CONSCIENCE and intelligence are the forces which psychiatrists believe can be used as building stones for lasting peace, it appears from pre-convention discussion as members of the American Orthopsychiatric Association gathered in New York for their annual meeting.

Feelings of insecurity, anxiety and aggression may lead nations into the disaster of war, as they lead individuals into personal disaster such as disordered mentality. Psychiatrists treating victims of mental disorder build on the individual patient's inner resources of personality, chiefly his conscience and intelligence, in helping him to recover his equilibrium.

They hope, Dr. Helen Langner, chairman of the association's publicity committee, explained, that the same re-

sources, conscience and intelligence, can be used to help a group of people, or a nation, overcome the emotional forces that promote war.

The present century, Dr. Langner pointed out, has been characterized by two world wars and by progress in deep personality exploration with the possibility of counteracting the forces that lead to war.

The importance of intelligence and thinking for directing one's emotional life is being stressed more and more by psychiatrists, Dr. Langner said.

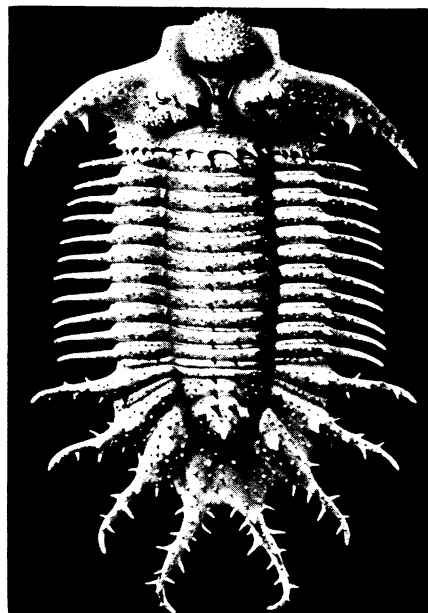
New trend in treatment of mental disorder is the use of group therapy, that is, treating patients in a group rather than singly. Developed originally as a more effective means for treating certain kinds of patients, group therapy is proving increasingly useful because of the war-caused shortage of psychiatric personnel.

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## PALEONTOLOGY

## Specimen of America's Biggest Trilobite Found

► THE ONLY KNOWN specimen of *Terataspis*, America's largest trilobite, that retains the head, body, and tail was discovered last fall near Buffalo by Irving G. Reimann, curator of geology and



**GIANT TRILOBITE** — This new restoration of *Terataspis*, biggest of its family known from this continent, has just been placed on display at the Buffalo Museum of Science.