of this ability is recognized by the layman who calls the unfortunate person a fool, nitwit, dumbbell or some other uncomplimentary name.

Psychiatrists use the same criterion of ability to get along in determining whether a feebleminded or mentally disordered person must be kept in an institution or may be released to live at home without daily supervision.

So far, however, the scientists have had no scientific measuring rod for the improvement in this direction made by a patient at a mental disease hospital or a child in the guidance or behavior clinic.

To fill this lack, Dr. Doll has devised what he calls a "genetic scale of social maturity." It consists of 115 items arranged in order of increasing difficulty and designed to measure social adequacy from infancy through adulthood in terms of responsibility, independence, self-help and self-direction.

Although relatively simple and easily given by experienced physicians, Dr. Doll cautioned against use of the scale by laymen. The information used in scoring, he explained, is obtained not from the subject himself but from informants who know him intimately.

Science News Letter, March 2, 1935

PHYSICS

New Coldest Cold Reached In Leyden Laboratory

Netherlands Scientists Produce Temperature One Five-Thousandth of a Degree Above Absolute Zero

FROM the world-famous low temperature laboratory of Leyden University in The Netherlands a new low in the "coldest cold" temperature is reported. Prof. W. J. De Haas and his colleagues have reached one five-thousandth of a degree above absolute zero in their experiments.

Absolute zero is 273.15 degrees below zero on the centigrade scale, and 459.6 degrees below zero on the Fahrenheit classification.

But how was the temperature measured? How, for example, can one measure a temperature where all liquids are solid and all gases liquid; where a mercury thermometer is frozen fast in its glass stem and even the hydrogen in a gas thermometer has liquefied to a mere drop of fluid? No thermometer in an ordinary sense can be used.

Prof. De Haas measures his temperatures with a magnetic thermometer. How it works is bound up with his method of attaining the low temperatures.

The Leyden experiments are based on the fact that in chemical salts having random orientation of all their little internal unit magnets, there will be less energy in the sample if it is strongly magnetized in the field of a giant electro-magnet.

Using special salts cooled first to the temperature of liquid helium at only 1.6 degrees above absolute zero, Prof. De Haas lowered the energy of his samples by putting them in a field of 30,000 gauss. (Gauss is the unit of magnetism, just as volt is the unit of electrical potential.) The component of the earth's magnetic field which moves compasses, by comparison, is only three-tenths of one gauss.

Then quickly the applied magnetic field on the sample was lowered from 30,000 gauss to but 25 gauss. The theoretical unit magnets of the sample, called magnetons, then went back to their normal random positions.

But they needed energy to swing themselves back. The sole place for obtaining this necessary energy was from the heat of the sample. Thus as the heat energy was used up, the sample became colder and colder.

Shortly, however, the sample began to warm up again to the temperature of the helium bath. Prof. De Haas measured the rate of this warming up process by detecting the magnetization of the sample. He obtained a curve showing how magnetization varied with temperature.

The final step was to prolong the curve backward and in so doing he was able to deduct that the temperature of the lowest point was but one five thousandth of a degree above the real "bottom" of all temperatures.

Science News Letter, March 2, 1935

MENTAL HYGIENE

Warns Against Brooding Over Past Mistakes

OLDER people were warned against brooding over their mistakes and making too little of their successes, in an address on mental health, happiness and efficiency given by Dr. C. A. Bonner, superintendent of the Danvers State Hospital.

Childhood is the golden age for mental hygiene, Dr. Bonner said, for if good habits of thought and behavior can be formed early in life, much mental disease and much unhappiness can be prevented. It is in adolescence that the larger proportion of mental diseases develops. Children should be properly prepared to meet the difficulties of adolescence and thus to avoid breakdown of mental health.

Maturity, however, does not make people immune from mental illness. Later on in life, particularly when there is a decline in the mental and physical powers, adjustments must be made and vigilance must be exercised in order to maintain good mental health.

Mental hygiene has two points of advice for persons at this age.

"First," Dr. Bonner said, "fixation on the physical symptoms must be avoided lest from a few real symptoms there develop a multitude of much more incapacitating ones. Second, the mental activity of these persons must be continued as usual. By keeping young in interests and in mind and by directing attention toward the use of their mental functions they will be stimulated through their own activity to feel that life still holds much in store."

Dr. Bonner stressed the danger to mental health that unwarranted worrying brings and quoted advice from Edward Everett Hale on this point.

" 'We should never attempt to bear more than one kind of trouble at once. Some people bear three kinds—all they have had, all they have now, and all they expect to have.'

"Within that statement is set forth the essence of mental hygiene. If we could only keep these words before us constantly our days would be more serene, our nights more restful, and our production would reach its fullest extent with happiness and efficiency."

Dr. Bonner spoke over the Columbia Broadcasting System under the auspices of Science Service.

Science News Letter, March 2, 1935