

mind or the emotions. The condition is inextricably linked with failing physical processes, and may be considered in the same category with the degenerative diseases.

"If mental disease is purely a reaction on the part of the individual to certain social, environmental and emotional situations, why do we find the close linkage between mental disease and the general wearing out process which is encountered

as the older ages are approached? Mental disease appears in increasing proportions when death begins to appear so conspicuously in the latter middle ages and the senium. This association suggests that the physical conditions which the brain and body need for the maintenance of sound mind disappear with the failure of the whole organism in vitality and valid function."

Science News Letter, July 27, 1935

ENGINEERING

New Instrument To Measure Light Intensity Developed

A NEW, simplified instrument for measuring precisely the intensity of light has been developed by Prof. Parry H. Moon, of the illuminating engineering department of Massachusetts Institute of Technology.

Known technically as an alternating current bolometer, Prof. Moon's instrument is so sensitive that it will measure the light from distant stars but will have its chief use in research on the various forms of lamps and lights in the field of illumination.

The bolometer is a small instrument looking exactly like the ordinary vacuum tube in a radio set. Inside the tube is a small piece of blackened metal known as the "target." When light falls on the target, its blackened surface absorbs some of the heat present in the rays. This heat change, while minutely small, is sufficient to vary the nature of the tiny alternating current flowing in the tube. Measurement of the change is made possible by an al-

ternating-current amplifier, similar to those employed in radio sets which have been brought to a high state of technical perfection.

Prof. Moon's new bolometer overcomes some of the older handicaps encountered in working with research in light measurement. Its chief advantage is that it dispenses with high-sensitivity galvanometers demanding delicate laboratory technique.

In addition, older devices developed slight differences of temperature when two different kinds of metals were connected in the measuring circuit and false currents were set up. These false currents, like parasites, attached themselves to the true current being measured. This condition is not experienced with the new instrument.

The theory and design of the apparatus was worked out by Prof. Moon. W. R. Mills, Jr., student in his department, constructed the instrument.

Science News Letter, July 27, 1935

SPECTROSCOPY

Spectroscope Proves Aid In Study of Hemoglobin

EXCEPTIONAL progress toward a solution of science's old problem of the structure of hemoglobin was reported by Dr. David L. Drabkin of the University of Pennsylvania, who spoke at the Third Annual Conference on Spectroscopy meeting at the Massachusetts Institute of Technology.

Hemoglobin is that complex constituent of the blood which acts as a conveyor of life-giving oxygen to the various parts of the body.

Its importance, Dr. Drabkin said, is exceeded only by the difficulty of studying it. With the spectroscope, however, Dr. Drabkin has been able to conduct analyses far in advance of any carried on previously and although the problem is still unsolved, tremendous steps toward the ultimate solution have been made.

Spectroscopy is the investigation of matter by a study of the light it emits. It has proved a powerful and accurate method of research in various scientific fields.

Further proof of this was added by Dr. Drabkin when he described the comparative ease with which spectroscopy had enabled investigators to study vitamin B₁, the oldest known yet most elusive vitamin. The next step, he said, would be a method of studying the reflection spectra of tissues directly to replace the present method of studying biological substances in solution. This would be a great aid toward solving the hemoglobin problem, he said, since the very fact that it is now possible to work with it in solution only, is the main obstacle to a complete understanding of its mysteries.

Science News Letter, July 27, 1935

ARCHAEOLOGY

First Americans May Have Been "Redskins"

THE EARLIEST Americans may have been real "Redskins."

So it appears from discovery of the red paint—which later Indians spread and striped in patterns on their faces—among the camping effects of America's ancient "Folsom hunters," in Colorado.

Dr. Frank H. H. Roberts, Jr., of the Smithsonian Institution, who is now exploring more intensely the Folsom camp site he found last year, is not able to say conclusively yet how the red paint was used. It is, however, the same red, earthy hematite, or red chalk, which was widely used by Indians.

Dr. Roberts found several pieces of this red chalk at the camp ground. Each piece had smooth and worn surfaces from rubbing, indicating that they supplied red ochre for paint. A flat, slightly concave stone with traces of red clinging to it was also found, suggesting that this was an old paint dish.

What Did They Paint?

If Folsom hunters were like Indians of later times, they were partial to red, and used it not merely to make their faces fearful for war, or beautiful, but also to color animal skins, arrows, shields and tents. The hematite was powdered and mixed with grease or saliva to form paint.

Stone "gravers" found by Dr. Roberts are further evidence of Folsom Man's interest in art. This kind of tool was used by Indians to engrave designs in bone or other material, and, while none of Folsom Man's art products have yet come to light, the archaeologist believes that the engraving implements may foreshadow such discoveries. These implements had no other use, to archaeological knowledge.

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