SEA'S CHALLENGE MET IN LABORATORY

PSYCHOLOGY

Engineering Methods Aid In Study of Workers

ENGINEERING methods applied to the study of human beings that enabled one plant to reduce its labor turnover from an expected range of 30 to 60 per cent. to only 6 per cent. per year, were described by Dr. Harvey N. Davis, president of Stevens Institute of Technology, in an address under the auspices of Science Service in New York.

"For years you have been fussing over your raw material specifications that were already good enough," Dr. Davis quoted an engineer as having told the industrialist in charge of the plant. "At the same time, you've been spending more each year on labor than on all your raw materials put together and spending it as blindly as if human beings were neat little packages of some thoroughly standardized product that needed no investigation beyond looking at the label."

The industrialist was impressed and put the engineer right at work on human investigation in his plant.

The chief difficulty in the way of such a study of human beings, Dr. Davis explained, is the fact that no two humans are exactly alike. When a metallurgist studies a piece of copper, he knows that what he finds out will apply not only to this individual piece but to all other pieces of identical specifications. No two human individuals that walk into a laboratory are ever exactly alike.

This difficulty can be in part overcome by the use of statistical methods. Although the individual may be unpredictable, still study of a large group will give results that will apply to other large groups selected similarly.

"Another basis for the scientific study of human beings is that we seem able to separate out of the infinitely complex mental make-up of individuals, a number of independent powers of abilities or aptitudes that can be measured and studied each by itself," Dr. Davis said.

Two simple tests developed by the engineer for use in selecting girls for factory work were cited by Dr. Davis as examples. One was a finger dexterity test. The girls were required to pick up pins, three at a time, and put them quickly into holes in an aluminum slab. The other test required the doing of practically the same task by the use of tweezers instead of the fingers.

The factory had always worked on the assumption that these two abilities, which seem so similar, were in fact identical. After a girl had been trained and become proficient on the finger work, she would be transferred to the tweezer job.

Testing revealed the surprising fact that the two abilities are entirely different. The best finger workers stood no better chance of being good tweezer workers, therefore, than any that might be picked from the poorest finger workers or selected at random from the employment office.

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ENGINEERING

Miniature Ocean Tests Concrete Resistance

A FEW minutes' drive from Chicago's sweltering business section, sea breezes blow and cooling waves throw up a salty spray, with not a bather or a bronzed life-guard in sight.

Unfortunately for heat-stricken citizens, the "ocean" is in the research laboratories of the Portland Cement Association, where the action of sea water on concrete is being studied.

Contained in two eleven-foot tanks of concrete is water, just like sea water, only four times as concentrated. Electric pumps stir up the "waves" and cause them to break against miniature cement piles, similar to those that hold up the piers at the seashore.

Here the tide takes twice as long to come in and go out as in the natural ocean, for it is high tide in the tanks alternately every twenty-four hours. Engineers decided that the longer period of immersion and drying would be a more severe test to the concrete than a natural twelve-hour cycle.

The concrete piles are of varying quality, and the depth of penetration of the "sea water" is checked daily by extremely accurate electronic meters. "Tides" rise and fall exactly one foot.

The tests will be carried on for years, and engineers expect to obtain precise data on the destructive effect of sea water on concrete, which will enable them to secure a longer life in concrete used in sea-water construction jobs.

Science News Letter, August 17, 1935

BIOCHEMISTRY

Pellagra-Preventing Vitamin Suspected of Being Twins

ARE SCIENTISTS on the way to the discovery of another vitamin? Experiments reported by Drs. Albert G. Hogan and Luther R. Richardson of the Missouri College of Agriculture indicate that vitamin G—the one which must be attained by the body if pellagra is to be prevented—may have a plural nature.

Vitamin G, it is recalled, is a separate factor formerly considered part of the original vitamin B. Prof. E. V. McCollum, of the Johns Hopkins University, in 1925 discovered, however, that vitamin B really was composed of two types, called vitamins B_1 and B_2 abroad, or B_1 and G by American scientists. In 1926 the late Dr. Julius Goldberger and his collaborators at the U. S. Public Health