MEDICINE

Measure Drinking Capacity

The maximum a man can drink in one day has been found by experiments on the alcohol consumption of dogs. The results are believed applicable to humans.

➤ A MAN of average weight (about 154 pounds) can, at most, drink one quart of 100-proof liquor in a day. And he can manage that only with a "high level" of alcohol in his blood.

These are the findings of Dr. Henry W. Newman of the Stanford University School of Medicine, San Francisco. If a drinker tells you he consumes two quarts a day, don't believe him, Dr. Newman advises.

His scientific answer to "How much can a person drink?" was inspired by the stories of patients suffering from chronic alcoholism. These chronic alcoholics show a "wide variation in estimates given by them when asked how much they drink daily," observes Dr. Newman.

"In general," he notes, "they fall into one of two classes: those who state that they never take more than a couple of beers, and those who stoutly maintain that they consume up to two quarts of whisky every 24 hours."

Doctors need to know how much a person can drink in a day to know what to believe in these stories, the Stanford scientist explains. To find out just how much alcohol a person can down in a day, Dr. Newman did not set up a scientific bar. Instead, he turned to scientific literature and performed some laboratory experiments. The conclusions are based on the alcohol consumption of dogs, but they can be adjusted to apply to humans, he finds.

Dr. Newman's report, entitled "Maximal Consumption of Ethyl Alcohol," is published in the journal, SCIENCE (June 10).

Studying earlier reports of alcohol consumption by dogs, Dr. Newman calculated the probable human limits. Then he used two human subjects in experiments which showed that estimates based on dog experiments could be adjusted to apply to humans. Some experiments have put the top human alcohol capacity as low as less than a pint of 100-proof whisky a day. This, Dr. Newman points out, may have been because the alcohol metabolism was not considered to be changing. The body does, he shows, increase the rate at which it can use the alcohol as the dosage goes up or the blood alcohol concentration is raised.

Thus, the person weighing about 154 pounds (70 kilograms, scientifically) will be able to consume a full quart of 100-proof liquor only when the blood's alcohol concentration is up. Dr. Newman's calculations indicate that a heavier person might be able to consume more alcohol.

For further studies of the question, Dr. Newman urges a "direct experimental approach." This type of experiment with human subjects, "should certainly some day be made," he declares.

Science News Letter, June 18, 1949

ENGINEERING

New Type Carbon Arc Lamp Promises Double Brightness

➤ A ROTATING carbon disk replaces the conventional negative carbon rod in a new type of arc lamp developed at Fort Belvoir, Va., at the Army Engineer Research and Development Laboratories. The new lamp gives promise of greatly increased life and double the brilliancy of lamps now used in searchlights.

It is expected that this new carbon arc lamp will have 30 times the normal, measured in terms of uninterrupted illumination. It will be twice as bright as the present standard 60-inch military searchlight arc. In tests already made the rotating disk negative electrode was found to have lost only 50 grams of weight in eight hours of operation. The disk is 12 inches in diamter and a quarter inch thick.

The arc is formed between one end of the positive carbon and the negative disk. Due to the non-uniform magnetic field around the arc proper, there is a tendency for the cathode spot, or "foot" of the arc to move slowly out of the disk away from the carbon, scientists state.

To compensate for this action, the disk must be rotated. Rotation is accomplished through suitable gearing by a small motor. The positive carbons are fed by automatic mechanism, and are liquid cooled. Combining the accumulated advantages of the revolving disk negative and the liquid cooled positive with magazine feed, an uninterrupted light of 150,000 candlepower will be possible for periods up to two days.

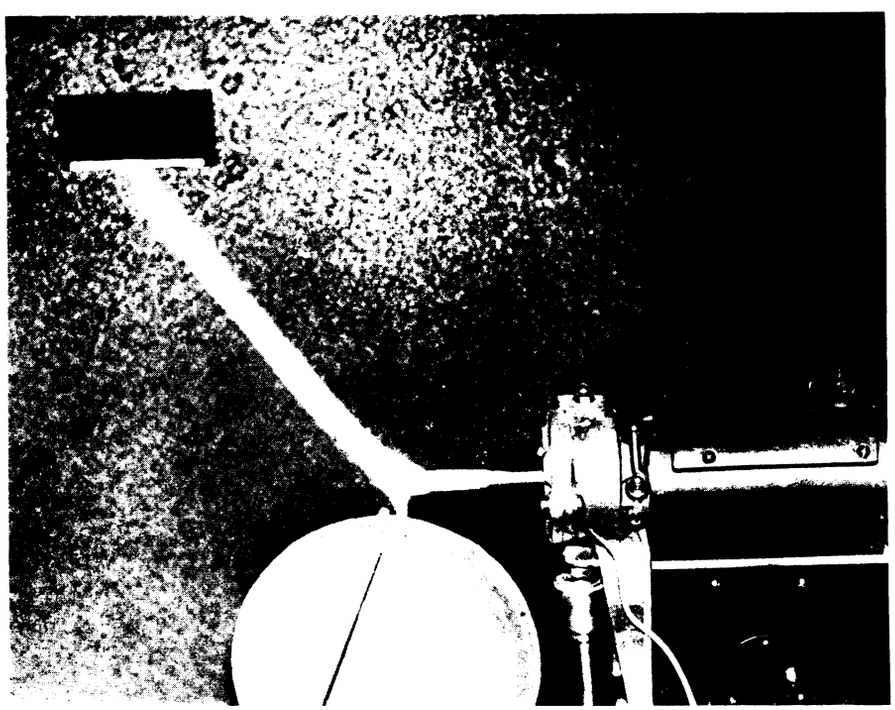
Science News Letter, June 18, 1949

MEDICINE

B Vitamin Lack May Cause Hardening of Arteries

➤ LACK of one of the B vitamins, pyridoxine by name, may be responsible for arteriosclerosis, better known to the layman as hardening of the arteries.

Studies over a three-year period that give "most suggestive evidence" for pyridoxine lack being concerned in artery hardening were reported by Drs. J. F. Rinehart and



LONGER LIFE AT DOUBLE BRILLIANCY—This is the promise of a newly developed revolving disk carbon arc light. Location of the arc "foot" in relation to the positive carbon, and the speed-controlling tungsten electrode is shown.