

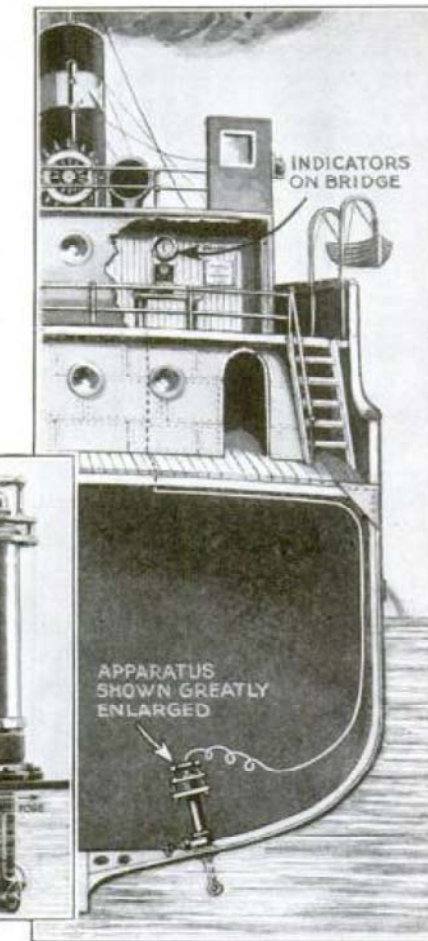
## Electric Log Tells Ship's Speed

**A** NEW electric submerged log, by which it is possible to gage accurately the distance a ship travels in a given length of time, is the invention of Captain Chernikeef, lately chief hydrographer of the Russian Royal Navy. Manufacturers of the device claim that it places the gaging of distance on the same plane as the gaging of direction by the compass and the gaging of time by a chronometer in navigation.

The log consists of two main parts, one inside the ship's skin, the other submerged outside. The apparatus is held in place by a flange, bolted to the ship's skin and serving to divide the external and internal part of the log. The internal part is simply a sluice valve that closes the aperture when the log proper is withdrawn. The valve is surmounted by a tube that has at its extremity a handle used in withdrawing the log.

The part of the log exterior to the ship's hull is a gun-metal supporting arm that has at its extremity a conical seating carrying a main bearing and shaft on which a vaned screw propeller is fixed. Through the inside tube and the outside arm an electrically insulated cable passes. The vaned screw, by means of worm gears, drives a commutator, or make and break disks, which is contained in the forearm.

Running entirely through the apparatus and to the bridge of the ship, where the recording instrument is usually located, is a cable that



The electric log and its position in ship's bottom

carries current supplied by a dry battery. The action of the make and break circuit as it is affected by the revolutions of the vaned screw, reveals the speed of the boat.

## Self-Holding Last for Shoe Repair at Home

**A** SELF-HOLDING shoe last, which makes it unnecessary for a cobbler to hold the shoe with one hand while working on it with the other, has been invented by John S. Butcher, of Vineland, N. J., for use by persons who repair their own shoes, as well as by professional shoe repairers.

The holder is equipped with three lasts, the smallest of which is used when applying heels. The shoe is placed in position and the rear brace locked, so that the cobbler has both hands free.



## Human Kidney Is Complex Filtration Plant

**M**ICROSCOPIC instruments of marvelous workmanship and the development of a very fine technic in handling them have made possible the discovery by Prof. A. N. Richards and Dr. O. H. Plant, of the University of Pennsylvania, that in the human kidney there is a microscopic filtration plant of extreme complexity.

The blood flows through the finely divided network of blood vessels in the kidneys to many thousands of microscopic filters, they find. The blood passes over the heads of these filters under considerable pressure; some water and waste products pass through them, ultimately being excreted; while the bulk of the blood passes back to the main blood stream.

Every increase in the amount of waste products eliminated is accomplished by increase in the pressure of the blood on these filters.

## Electricity Makes New Wine as Mellow as Oldest Vintage

**O**F COURSE, this is out of date in America, but—a French professor, Dr. Charles Henry of the Sorbonne, Paris, France, has just perfected a method of aging wines by electricity!

The usual process of aging consists of breaking up certain chemical compounds to form other compounds. The union of these chemicals with oxygen is necessary to bring about the change. In the time-worn method, oxygen is obtained through the pores of wooden barrels, and the process is a slow one.

On the principle that oxidization takes place at one of the terminals or electrodes of an electric circuit, Doctor Henry has equipped a wine-filled barrel with an anode and cathode having a difference of potential, or voltage, of from 60,000 to 120,000. The oxidization is very rapid—20 years of actual aging is accomplished, it is claimed, in a few hours. Experts claim that liquors aged by this process are equal in flavor to vintages aged by the years.

French experts believe, too, that electrical oxidization will eliminate the harmful effects of new liquors that so often prove injurious to drinkers because of the presence of certain poisonous bacilli. Electrical treatment is said to kill these decomposing bacilli, while permitting the formation of those harmless chemical

combinations that give the beverage the mellow taste found in properly aged liquors.

While physicians disagree as to the harmful effects on the body of alcoholic beverages that have not been allowed to

age, recent analysis of 100 samples of liquors seized in West Virginia revealed that most of them were dangerous for human consumption because of the most objectionable forms of decomposition found in them.

Here is the electrical apparatus for aging wine, and its inventor, Dr. Charles Henry, of the Sorbonne, Paris

