



### BLOOD FROM THE BANK

Ready to inject the life-saving fluid into the veins of a patient, from the apparatus invented by Dr. Haldane Gee. Blood is in the bottle at the right. The smaller one at the left, which the surgeon is adjusting, contains normal saline solution.

#### PHYSIOLOGY

### Vitamin Found Help In War Blackouts

**V**ITAMIN A is a factor in protection against nocturnal air raids, Prof. Emil Abderhalden of Halle University points out in the *Zeitschrift für Volkernährung*, published in Berlin. This vitamin is necessary for normal vision; without it, persons are subject to night blindness, or inability to adjust readily to seeing in very dim light.

Prof. Abderhalden relates how he has watched people trying to find their way about during blackouts. Some, evidently insufficiently supplied with vitamin A, stumble and grope, and collide with other pedestrians, lampposts, etc. Ability to get about readily at night may become very important in finding air raid shelters.

Vitamin A maintenance in the human body depends on a good supply of butter, eggs, whole milk, cheese, liver and fresh vegetables containing carotin.

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#### INVENTIONS

## Patent Granted on Support For 200-Inch Telescope

### Ultra-Sensitive Gas Detector, Transfusion Device, Among Recent Scientifically Significant Inventions

**P**ART of the support system of the new 200-inch telescope, being completed at the observatory of the California Institute of Technology on Mt. Palomar, is covered by a patent just granted to Reinout P. Kroon, of the Westinghouse Electric and Manufacturing Company at Lester, Pa. The patent, number 2,212,346 and one of 741 granted this week, is assigned to the Westinghouse Company.

Mr. Kroon was one of the engineers in charge of the work on the telescope mounting, which was built at the Lester plant. With the telescope so large and heavy a certain amount of distortion of the great yoke structure which holds the tube is unavoidable. However, this must not be transmitted to the tube itself, for it would spoil the alignment of the mirrors and other optical parts, thus ruining the star images.

Mr. Kroon solved the problem by hanging the bearings, in which the tube moves, on a system of radial rods, somewhat like the wire spokes of a bicycle wheel. These keep the bearing centered at the right place, yet permit a certain amount of freedom in the supporting yoke.

In his patent specifications, Mr. Kroon states that, while his invention "has been described with particular reference to a telescope, it is to be understood that it may be used in any situation where similar conditions and requirements are encountered."

#### Measures Gaseous Compounds

Dr. August H. Pfund, professor of physics at Johns Hopkins University, was granted patent 2,212,211 for a method of detecting and measuring certain gases when mixed with other gases. He claims that the apparatus can detect 1/1000 of one per cent of carbon dioxide in air. One possible use is in the detection of minute quantities of the poison gases used in war.

The method is applicable to gases consisting of more than one kind of atom. Thus, carbon dioxide consists of carbon and oxygen, hydrogen disulphide of hydrogen and sulphur, nitrous oxide of

nitrogen and oxygen. It will not detect gases like oxygen, hydrogen or nitrogen, which consist of atoms of the same kind.

When infra-red waves, like light, but too long to affect the eye, pass through these gases of several kinds of atoms, certain wave lengths are absorbed, and converted into heat. Conversely, if the gas is heated, these same wave lengths are emitted.

In one version of the apparatus, a jet of the gas to be detected is heated by an electric coil. It becomes a miniature broadcasting station, sending off waves of its proper length. These are reflected back and forth in a metal cylinder, then out the other end to a thermopile, which converts the infra-red waves to electricity and indicates their presence on an electric meter.

In use, the cylinder is first filled with air known to be free from the gas, and the current measured. Then the mixture being investigated is admitted instead. If this contains the suspected gas, a large part of the waves are absorbed, and the current is reduced. Even if other gases are present, they do not affect the results, because they are not tuned in to the proper wave length and cause no absorption. In another method of using the principle, Dr. Pfund measures the heating produced in the gas when it absorbs the particular wavelength.

#### Double-Purpose Flask

To Dr. Haldane Gee, of New York, was awarded patent 2,212,318 for a blood transfusion apparatus, applicable for use in "blood banks" where blood is taken from a donor at one time and stored until needed for a patient. The blood is drawn by suction into a sterilized bottle and kept there until it is used, then the same bottle becomes the reservoir from which the blood is drawn off, into the veins of the recipient. A filter in the bottle, through which the blood passes when it is being used, removes any small clots that may have formed. Rights for the apparatus have been assigned to Schering and Glatz, Inc., of New York City.

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