# SCIENCE NEWS

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## IMMUNE SERUM GLOBULIN

WITHIN thirty to sixty days, health departments can have for free distribution to children everywhere in the nation the measles preventive obtained as a by-product from blood donated by the American people to the Red Cross for our fighting forces.

Health departments will get the preventive, called immune serum globulin, on application to the American Red Cross at Washington. A plan for its distribution has been set up and ample supplies of the globulin are on hand, ready to be packaged and shipped.

The Red Cross stipulates that no charge for the preventive can be made to the patient. Neither can the manufacturers or any one concerned with its production or distribution make any profit. The globulin comes from blood that was given by the American people and the Red Cross wants this valuable by-product to be distributed equally to all the states, so that all American children can have its benefit.

The costs of processing and shipping will be paid by the health department or other suitable agency to whom the Red Cross gives a permit for purchasing the material. The price for a vial containing enough globulin for one adult or two small children will be $1.07 to $1.10.

The measles preventive is separated from blood by a process developed by Dr. Edwin J. Cohn, of Harvard, in studies made under contract between Harvard and the medical committee of the Office of Scientific Research and Development. It is one of several fractions obtained from blood, the chief one being the serum albumin which goes to the armed forces for fighting shock of battle wounds.

The Army and Navy are also using the immune globulin to prevent outbreaks of measles among the soldiers. Supplies are ample, however, to take care of their needs and those of the civilian population. And every time a pint of blood is given to the Red Cross for plasma or albumin, more measles preventive becomes available.

The globulin may be used in either of two ways: A full dose may be given to prevent measles attacking a person who has been exposed to it; or a smaller dose may be given so that the patient will get a light attack of measles. This last method is the one that probably will be favored for children because, although the child may be a little sick for a day or two, he will be spared the suffering of a severe attack and will be able to develop his own immunity or resistance to further attacks.

The reason why blood donations to the Red Cross contain the measles preventive is because about ninety per cent. of adults who are giving the blood have had measles and have developed immune globulin in their blood as a result.

The present supply should last about five years. So long as any immune globulin is available from the blood donated for the armed forces, it will be available free to the public. After the war when the surplus has been used up, the manufacturers who now process it for the Army, Navy and Red Cross will probably continue to make it on a commercial basis. The price then will probably be about $2.80 per child.

## ITEMS

ACCORDING to Sergeant Alvin M. Josephy, Jr., a Marine Corps combat correspondent in the South Pacific, copper-plating is a form of treatment for athlete's foot which Navy doctors have found so successful in banishing the troublesome fungus infection that they believe further use of the method is warranted. The patient places his feet in a copper sulfate solution containing an ordinary copper plate. Copper bands, soaked in salt water for good contact, are fastened around the ankles and connected to six-volt storage batteries. Treatment takes about six minutes and is repeated for six or seven days. Although copper particles temporarily adhere to the patient's feet, there is neither discomfort nor discoloration.

AIRCRAFT designers are dreaming of the day when airplanes will be able to fly at altitudes of nine or ten miles. This means that electrical engineers must solve equipment problems involved in flying at these high altitudes, according to Lieutenant Colonel T. B. Holliday, of the Army Air Forces, who spoke before the St. Louis meeting of the American Institute of Electrical Engineers. One major problem is the difficulty of cooling electrical apparatus at high altitudes, even though the atmosphere is very cold. This is due to the fact that the density of the air decreases faster than the temperature. At 18,000 feet the air is one half sea level density, at 36,000 feet it is one fourth. The low temperature, combined with low density, removes almost all the moisture from the atmosphere. The problem of insulating electrical circuits at these altitudes is about four times as difficult as it is at sea level. At high altitudes, electrical apparatus must be designed for excellent commutation, since arcing can not be tolerated. Arcing which might be considered minor at sea level can become a continuous flame at high altitudes.

A NEW machine, called the axonograph, photographically makes a three-dimensional drawing from an ordinary two-dimensional drawing, in less than half the time that it would take a draftsman to do it. A three-dimensional drawing gives a far clearer picture of how all the parts and assemblies go together, and therefore speeds up work on the assembly line. The actual making of three-dimensional prints with the new machine, developed by the Glenn L. Martin Company, is a mechanical operation. The original drawing is placed on a movable copy board in front of a camera. By adjusting the position of the copy board it is possible to produce a photograph in any one of three planes. The photographic prints are returned to the drafting room where draftsmen place the prints in their proper position and make the finished drawing. A simple illustration of the new process is the cube, or square block. Taking a drawing of a square and placing it in the new machine, by moving the copy board into three different positions, it is possible to make photographs, which when put together will give an accurate picture of three sides of a cube, of which the original square is one side.