

## MEDICINE

**Complete Lack of G.G.  
Found in 14 Patients**

► DOCTORS NOW know at least 14 patients who are completely lacking in G.G., or gamma globulin, blood substance famed for its use in fighting polio as well as measles and hepatitis.

The case of one, an otherwise normal nine-year-old boy, was reported by Col. Ogden C. Bruton of the Army Medical Corps at the meeting of the Medical Society of the District of Columbia. Col. Bruton is chief of pediatrics at Walter Reed Army Hospital in Washington.

Besides reporting his case, Col. Bruton said that Dr. Charles Janeway of Boston had recently reported seeing five such patients and knowing of five or eight more.

Gamma globulin is the part of the blood that forms antibodies to fight various disease germs. Col. Bruton's patient had 19 attacks of blood stream infection, 10 of them caused by pneumonia germs.

Girls and women seem to escape this G.G. lack in their blood. At least, no case so far has been reported in a female. The condition seems to run in families. This is suggested by the fact that the mother of one patient said she had five brothers all of whom died of infection at an early age.

Whether these patients are born with this defect or get it some time after birth as a result of disturbance in the mechanism for forming gamma globulin is not known. Col. Bruton thinks the latter may be the reason, since his patient lived four and a half years without serious infection and only after that period began to have trouble.

Monthly doses of G.G. are keeping the lad in good health and free of germ poisoning.

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## ELECTRONICS

**Transistor Hearing Aids  
Operate at Lower Cost**

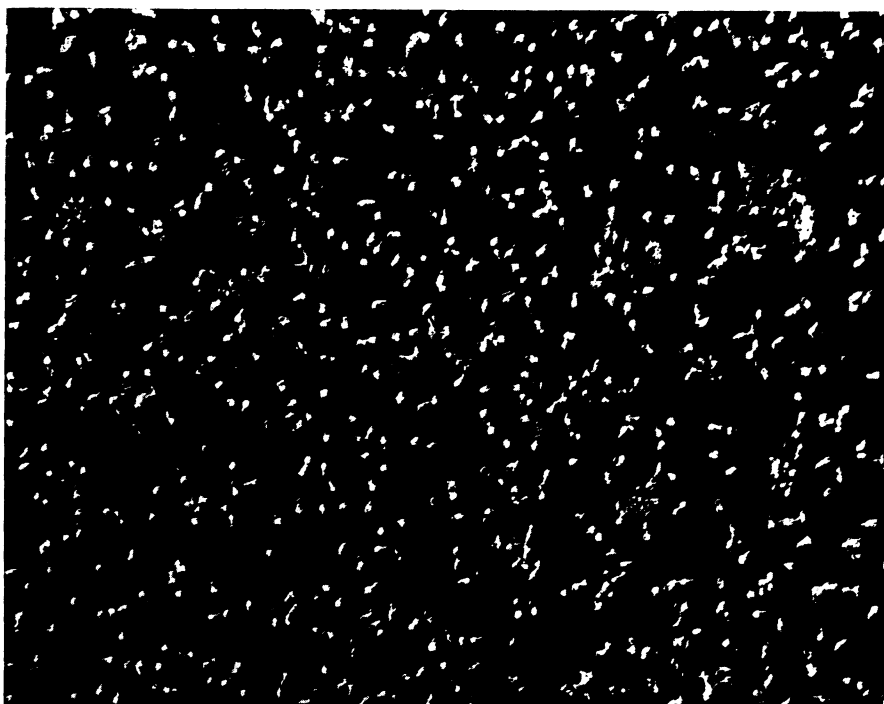
► CHIEF PRESENT advantage of transistor hearing aids comes through lower operating costs, the *Journal of the American Medical Association* (Oct. 3) states.

Transistors are a recent development in the electronic field which are being used in hearing aids as substitutes for vacuum tubes. They may reduce operating costs by as much as 80% or more. This is because the transistor hearing aid needs only one battery and no heater current.

"At present," the medical association reports, "it seems that the size and weight of the hearing aid will not be changed appreciably. There does not seem to be any significant improvement in amplification, in tone quality, or in fidelity of the transistor hearing aid over other kinds.

"The purchaser should insist on a written guarantee to cover possible mechanical and electrical defects in the instrument."

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**CANCER VIRUS MAGNIFIED**—The area shown here contains hundreds of the virus particles, magnified 15,000 times, that cause fowl leukosis, a cancer of the blood and lymphatic tissue in chickens. Dr. Gordon Sharp of Duke University says this is one of the best pictures he has made.

## BIOPHYSICS

**Speed Cancer Research**

► COUNTING CANCER viruses, an integral part of cancer research which used to involve months of work, can now be done in a matter of hours, thanks to a new measurement technique which does not require virus purification as the old ones did.

In addition to stepping up research on virus cancer in human beings, this new method of virus counting, developed by Dr. Gordon Sharp, a biophysicist in the Medical School at Duke University, is expected to be a valuable help in: 1. finding a test for leukosis in chickens, a cancer disease that now costs farmers thousands of dollars a year, 2. producing better vaccines by establishing accurate measurements for the proper balance between virus and immune antibodies, and 3. studying the human influenza virus.

Only 1/30 of a drop of unpurified blood plasma is needed for the counting process. Spun down in a centrifuge with a force 13,000 times that of gravity, the virus particles contained in the plasma descend to the bottom of a test tube, where a jelly-like substance called agar has been placed to collect the particles. From the agar, the particles are transferred to a collodion coating and placed under an electron microscope, ready for counting. In a few seconds the number of particles in a given area is determined.

A quick calculation yields the number in the particular sample of plasma used, usually one cubic centimeter.

The purification of the virus of all foreign matter, which was necessary in the old counting processes, is what made them take so long. They also required samples of plasma 10,000 times the size used in the new process. This means that, whereas formerly several chickens were needed to supply enough plasma for virus counting after purification, now a single three-day old chick can give the required small sample and still survive the loss.

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## AERONAUTICS

**2,500 MPH Winds Sweep  
Through Wind Tunnel**

► A SUPERSONIC wind tunnel, billed as the world's most powerful, now is under construction at the Arnold Engineering Development Center at Tullahoma, Tenn.

To be used by the Air Force in developing future planes and guided missiles, the tunnel will be fed by five giant compressors running in tandem. The finished machine will generate 216,000 horsepower and produce gales of 2,500 miles an hour.

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