MEDICINE

Sulfa Drug Control of Colds Hinted in Report of Tests

Treatment With Sulfadiazine Causes Improvement in Most of Group of Children in One Type of Infection

HOPE that with the aid of the sulfa drugs we might get through next winter and succeeding winters with fewer bad colds, attacks of bronchitis and pneumonia, appears in a report by Dr. Morris Siegel, of New York (*Journal, American Medical Association,* July 4).

Sulfadiazine, given on the very first day a sore throat or other symptoms of a cold appear, can apparently speed recovery and prevent the cold from developing into pneumonia or into an attack of bronchitis severe enough to keep the patient in bed or maybe send him to the hospital.

Dr. Siegel gave this treatment, during an epidemic last winter, to a group of feebleminded children who were particularly susceptible to colds and other infections of nose, throat and lungs. As controls, one-half of the children in each of the same two cottages at Letchworth Village were not given the sulfadiazine treatment the first day they showed symptoms, although all of them were given such ordinary care as their symptoms required.

"Most of the patients receiving sulfadiazine improved after 24 hours," Dr. Siegel reports. "A few had a secondary rise in temperature within 72 hours after premature withdrawal of the drug and some showed no evidence of improvement.

"For the first 12 hours after treatment was begun there was often no perceptible difference between the treated and control cases. Within 24 to 36 hours, however, there were usually signs of improvement in the treated group. The temperature fell and remained low. The patient appeared less toxic. His appetite returned and he was no longer restless and apathetic but brighter and more cheerful. Signs of infection, such as coryza (running nose) and cough, still persisted in many cases but the infection appeared to be subsiding, as if the inflammation had abruptly passed the acute stage."

During a second epidemic of a milder kind of infection, the sulfadiazine treatment did not seem to have much effect. This, Dr. Siegel believes, is probably because the second kind of infection was caused by a virus, which was not susceptible to the action of sulfadiazine.

This suggests that effective control of colds, bronchitis and the like by sulfa drug treatment would depend on whether or not they were caused by germs of the kind that can be overcome by the drugs. Since germs of this kind are believed to be the cause of many of the worst symptoms of colds and the reason for colds lasting so long and so frequently ending in pneumonia, the chances seem bright for the sting of the common cold being drawn by the sulfa drugs.

Science News Letter, July 11, 1942

PSYCHOLOGY

Muscle of Ear Acts To Protect Against Noise

MEN subjected to the din of mechanized warfare or the crashes and shrieks of war production may have their ears protected by nature with "built-in" ear defenders.

A muscle of the ear, the stapedius muscle, which acts to rock that bone in the ear that looks like a horse's stirrup, serves as a damping agent to protect the inner ear against excessive noise. This was learned in animal experiments conducted by Drs. Ernest Glen Wever and Charles W. Bray, at Princeton Univer-

LIGHTNING DID THIS

The holes in this ball were made by lightning during the seven years that the ball rested on top of an 878-foot antenna tower in Nashville, Tenn. From the size of the hole, the amount of electricity contained in the stroke can be calculated. It is surprisingly small. The stroke that produced the biggest hole, nearly an inch in diameter, contained only enough electricity to light a 40-watt lamp about 80 seconds. The holes are being examined by Dr. Karl B. McEachron, left, and J. H. Hagenguth of the General Electric High Voltage Laboratory, who devised the calculations.

sity (*Journal of Experimental Psychology*, July).

This function of the stapedius muscle may be partly the explanation of why you become temporarily deafened, especially to conversational tones, while you are exposed to loud noise like that of an airplane engine or a boiler factory.

Not only does tension of this muscle reduce the sensitivity of the ear to all noise, but it acts differentially to reduce the response more to low tones than to high ones. A peculiarity of its action is that for certain tones of middle range, a slight tension of the muscle actually improves the hearing.

This would seem to indicate a minimum amount of noise may aid the hearing of some tones, such as those used in speech.

Science News Letter, July 11, 1942

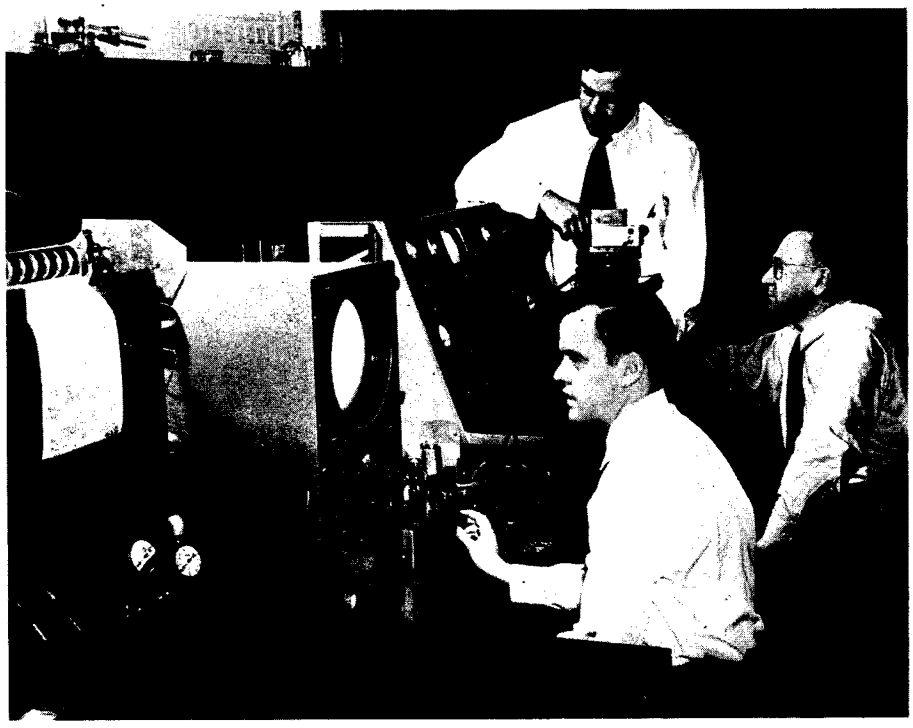
PHYSICS

Electron Microscope Pictures May Be Sent By Television

New Combination With Radio Facsimile Attachment Has Many Unexplored Uses; Now Used To Study Metals

ELECTRON microscope pictures transmitted by television may be one of the future uses of a new scanning microscope now, however, devoted to metallurgical studies to produce better metals for America's war industries.

The new instrument was described by Dr. V. K. Zworykin, associate director of the RCA Laboratories, in a paper read at the Institute of Radio Engineers meeting in Cleveland. Dr. James Hillier and Richard L. Snyder, also of the RCA Laboratories, collaborated in the development of the instrument.



THE SCANNING ELECTRON MICROSCOPE

This instrument scans the specimen television fashion and then builds up its picture on a fluorescent screen. The light from this is then focussed on the sensitive element of a facsimile printer where a print is made. This set-up is especially adapted to examining the surface grain of metals and other opaque objects. The scientists are left to right Dr. James Hillier in the foreground, Dr. V. K. Zworykin and Richard L. Snyder, all of the RCA Laboratories, who developed the instrument.

ETCHED NICKEL

This picture was made by the facsimile printer of the new televising electron microscope and shows what the surface of etched nickel looks like.

The scanning electron microscope, developed over a period of years, combines the electron microscope, television and radio facsimile. It permits study of the grain structure of opaque objects, such as metals, to an order of minute detail never before realized. The full range of its possible uses cannot be judged at this time, Dr. Zworykin cautioned.

In the ordinary electron microscope, the electron beam, like the light in an optical instrument, throws an image of all parts of the object simultaneously on the fluorescent screen. In the scanning instrument, the beam is narrowed down to a spot no more than 1/2,000,000 inch (100 Angstrom units) in diameter — about 1/1,000 the size of a pin point. This tiny spot sweeps back and forth over the specimen, itself only a fraction of an inch in size, scanning it as in a television transmitter, and builds up the image on the fluorescent screen in successive parts. Great difficulties were encountered in obtaining and handling this sub-microscopic spot, Dr. Zworykin said, but they were overcome.

In the present arrangement, the light from the fluorescent image, now ordinary light, is concentrated by an optical lens on the photo-cathode of an electron mul-