

MEDICINE

Safer Use of Sulfas

Wider benefits from drugs may result from research. Toxic symptoms prevented in rats. Experiments hint of discovery of new B vitamins.

► GREATER, because safer, usefulness for the sulfa drugs and the discovery of several new B vitamins may result from research by Dr. S. S. Spicer, Dr. Floyd S. Daft, Dr. L. L. Ashburn and Dr. W. H. Sebrell, of the National Institute of Health, U. S. Public Health Service. Results of their research so far are reported in *Science* (Oct. 2) with more details scheduled for early publication in *Public Health Reports*.

The remarkable achievements of the sulfa drugs in fighting germ infections, from pneumonia to infections in wounds, have been somewhat offset by the development in occasional patients of what doctors call "toxic reactions" to the drugs. Among these reactions, which both deny the patient the benefit of the drug and give him another ailment to fight, is agranulocytosis. In this condition the granulocytes, white blood cells that fight germ diseases, are greatly reduced in numbers. About three out of every 100 patients given sulfa drugs develop either agranulocytosis or anemia. Thirty or forty have already died of agranulocytosis following sulfa drug treatment.

This condition may result because the sulfa drugs interfere with the production or action of some as yet unknown vitamin, it appears from the experiments by the Public Health Service scientists. If that proves to be the case, suitable doses of the vitamin may make possible the safer use of the sulfa drugs in many more patients.

Rats have so far been the patients in these latest discoveries, so the scientists are cautious about promising too much benefit for humans. Rats on a purified diet supplemented by all known B vitamins needed to keep rats healthy develop agranulocytosis from sulfaguanidine and sulfasuxadine, two of the newest sulfa drugs. They also develop hardening and calcification of the blood vessels; necrosis and calcification of voluntary muscles; and a skin disease. The latter can be successfully treated or prevented with biotin.

The other symptoms can be overcome by doses of materials extracted from liver and yeast. These materials are not any of the known B vitamins and

the doses effective in overcoming toxic effects of sulfa drugs are so small the scientists feel sure the materials must be vitamins.

The search for possible new vitamins started this work which may lead to greater benefits from sulfa drugs. A number of scientists had found that sulfaguanidine retarded the growth of young rats fed a purified diet. Rats manufacture some growth vitamins in their intestinal tracts, so it was thought the sulfa drug effect on rat growth might be due to interference with this vitamin manufacture.

Investigation of this problem led to the realization that probably several new vitamins existed which could be discovered with the aid of the sulfa drugs. But the possibility of increasing the effectiveness of sulfa drug treatment is so important at the present time that the work is now being pushed along those lines.

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ENGINEERING

New RCA Laboratories Dedicated at Princeton

► "ELECTRON HOUSE," new home of RCA Laboratories, was dedicated in Princeton, where a year ago there was

only quiet, green New Jersey farmland.

It is a 488-foot long, three-story structure with 150 laboratory bays in which almost every kind of research related to radio and electronics can be undertaken. Considered "one of America's great arsenals of science," many of the projects are now military and secret. From these new laboratories are sure to come new developments not only important in war but useful in the peace that is to follow.

Laboratories in the new building are devoted to television, optics, chemistry, acoustics, electron tube making, radio facsimile, cathode ray, transmitter tubes, etc. A high frequency laboratory is on the roof. In a corner of the 260-acre area is a field laboratory. In an extensive model shop all sorts of experimental instruments are made as they are needed.

For research with fluorescent or "glow" materials, the chemical laboratory has several dust-proof rooms. The rooms of the optics laboratory can be opened up so as to get several hundred feet of space in which to test long beams of light. A free sound room, three stories high, is so heavily padded and acoustically "dead" that one of the scientists explained that spoken words sound "as if you are going under ether." This room does for sound what a darkroom does for light.

Supply shafts of unique design run from basement to roof in 104 locations to carry all sorts of electricity, gas, water, compressed air and gases, etc. to 420 work benches. There are little workshops in the corridors on each floor where a researcher can go to make with his own hands a part that he needs immediately.



NEW LABORATORIES—This is the new building of RCA Laboratories, facing the afternoon sunshine.