

MEDICINE

Serum Plus Sulfapyridine Advised for Pneumonia

THE COMBINATION of both anti-pneumonia serum and the new chemical remedy, sulfapyridine, is more successful in treating pneumonia than either serum or chemical remedy alone, Dr. Maxwell Finland, of Thorndyke Memorial Laboratory, Boston, told members of the Conference of Health Officers and Public Health Nurses meeting at Sarasota Springs, N. Y.

Serum can be used and will be successful in about two-thirds of the cases of pneumonia due to the pneumococcus, Dr. Finland said. Sulfapyridine is probably useful in all types of pneumococcus pneumonia and is probably as successful as the older remedy, sulfanilamide, in treating infections with the hemolytic streptococcus. Sulfapyridine may also be useful in some cases of infection with

another very common germ, the staphylococcus aureus.

Typing and other tests to determine the kind of germ causing the pneumonia should be done, Dr. Finland believes, even if the doctor expects to treat the patient with a chemical remedy instead of serum. Then if it turns out that the patient cannot stand the drug, serum can be given without further delay.

Fathers Get Best Food

FATHERS may feel they do not always get their due but when it comes to food, fathers in poor families get the best of it, a survey of 100 Toronto families shows. Results of the survey, made on families not on relief with an average weekly income per person of \$3.48, were

reported by Dr. E. W. McHenry, of the Toronto University School of Hygiene.

On the average, Dr. McHenry said, the families secured about three-fourths of the total amount of food they needed. Only three of the 100 families received an adequate total amount of food.

The men got nearly nine-tenths of the amount of protein they needed, but the women received less than three-fourths of the needed amount. The children received only half the calcium (lime) they needed but half the men actually got more calcium than they needed. This was believed due to the fact that cheese was used generously in the men's diet but was not given to the children, and the children failed to get enough milk.

Almost all the men received more iron than they needed but the mothers and children received only one-half of a suitable supply.

The inadequate food supply of the mother, Dr. McHenry pointed out, not only prejudices her health but has a harmful effect on her child if she is carrying or nursing one.

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PHYSICS

High Altitude Neutrons Are Clue to New Atom-Smashing

NEUTRAL atomic fragments by the billions, 1,000 times more plentiful at 13 miles overhead than at sea level, give the first clue to a new kind of atom smashing, Dr. S. A. Korff of the Franklin Institute's Bartol Research Foundation suggested to the American Physical Society meeting at Princeton.

The fragments are neutrons, atomic particles without electrical charge that have amazing ability to pierce all atoms.

Sending a new type of neutron detector 70,000 feet up in unmanned balloons, Dr. Korff found that while cosmic ray intensity was increasing 100 times over sea level intensities the neutron intensity was increasing by 1,000 times.

Explaining the origin of the stratosphere neutrons, Dr. Korff said:

"If a cosmic ray collides with a nitrogen nucleus and completely disrupts it, seven neutrons will be liberated. The presence of neutrons may be an indication of some such explosion induced by cosmic rays in our atmosphere. Cosmic rays are the only agency with sufficient energy to produce such a disruption. Possibly these neutrons are the clue to

an important new atom-smashing process."

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Egg-Shaped Charge

SCIENTISTS have a new electrical picture of the unseeable atom—an egg-shaped glob of electrical charge.

The new atom portrait was painted verbally by a three-man research team from Columbia University, Prof. I. I. Rabi, Drs. L. M. B. Kellogg and N. F. Ramsay, and Prof. J. R. Zacharias of the College of the City of New York.

Telling their scientific colleagues that they had "confirmed the existence of the deuteron quadrupole moment" the Columbia investigators described how they made the discovery of egg-shaped electrical pattern for deuterium atoms. Deuterons are the electrically charged nuclei of this rare kind of heavyweight hydrogen.

The new results of egg-shaped electrical distribution are helping the mathematical physicists in their important calculations of the inter-nuclear forces;

forces which determine how all material matter is put together.

What the experiment really detects is the resonance vibrations of the nuclei in terms of exactly known radio frequencies. Plotting out the measurements the scientists obtain curves on which resonance points resemble spectral lines on a photographic plate.

In fact, the operations of the molecular beam apparatus are in many ways comparable to those of a spectrograph except it works with radio waves instead of rays of light.

Where a spectrograph picks up light rays and forms characteristically-placed spectral lines, the Rabi equipment detects characteristic resonance points formed by the magnetic properties of the atoms and molecules. The placement of these points is likewise unique for each element.

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Regimentation in Extreme

SOME of the dictator nations which like to order and regiment the lives of all their inhabitants could get some ideas on super-regimentation from an experiment described to the meeting.

Dr. Sidney Siegel, Westinghouse research fellow, described his ability to produce single crystals of gold-copper alloys which, in some cases, contain one septillion atoms (1,000,000,000,000,000,-