

PHYSICS

Unit Particles of Matter May Have Varying Charges

THE ATOMIC building blocks of unit mass, known as protons and neutrons, may have electrical charges upon them that vary in magnitude from six times the famous "e" charge to no charge at all as is true of the neutron.

This is suggested by Dr. M. Delbruck of the Wills Physical Laboratory of the University of Bristol, England, in a communication to *Nature*.

The charge "e" is that found negatively on the electron and the positive charge normally on the proton, or positive electron, is of the same magnitude but of the opposite or positive sign.

Dr. Delbruck suggests that unit particles may have arbitrary, positive and negative values of charge which under the quantum theory may vary only by multiples of "e."

This new suggestion may explain, in Dr. Delbruck's opinion, the secondary radiations of high energy and ionizing

power that cosmic rays produce when they smash into the atmosphere. These extremely vigorous radiations have been detected along the tracks of cosmic rays both in America and Europe. Dr. Delbruck considers them likely to be particles of mass one and charge between five and six times "e."

He believes the highly charged unit particles may also explain the puzzling fact that cosmic ray particles are absorbed largely high in the earth's atmosphere. He visualizes unit cosmic rays as particles of mass one created in interstellar space with high positive charges. These do not collect electrons for compensating their charge until they enter the earthly atmosphere. There they pick up electrons and lose part of the charge. The ionizing power thus decreases due to loss of charge, rather than because of reduction of number of particles as it is now assumed to be the case.

Science News Letter, November 26, 1932

MEDICINE

Synthetic Anemia Produced By "Ginger Jake" Poison

RESEARCH which disclosed the cause of "ginger jake" paralysis may also shed light on the cause of certain obscure nervous diseases and even possibly infantile paralysis. So Dr. M. I. Smith of the U. S. National Institute of Health, has reported.

The "ginger jake" paralysis which afflicted a large number of people in the Midwest and Southwest two years ago was caused by adulteration of the Jamaica ginger beverage with a compound known technically as tri-ortho cresyl phosphate. This compound had never been known medicinally but had never been studied pharmacologically. It had been used for many years as a plasticizer in industry.

After discovering that it was the cause of the paralysis epidemic, Dr. Smith and associates proceeded to investigate the compound further. The

fact that it is closely related to carbolic acid and other phenolic compounds widely used in medicine demanded a more intimate knowledge of its effect on the animal body, Dr. Smith explained.

A number of compounds more or less closely related chemically to tri-ortho cresyl phosphate have been studied at the Institute. One of these compounds was found to attack specifically certain well-defined conducting tracts in the spinal cord. It produced a degeneration comparable to that of pernicious anemia and to such conditions as locomotor ataxia. Another compound produced injuries to the central nervous system not unlike those of infantile paralysis.

Further investigation will, Dr. Smith believes, give a clue to how similar injuries and degenerations take place in an illness like infantile paralysis, and may even point the way to curative measures.

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White Pine

WHEN the Pilgrims landed on the western and rock-bound coast of New England, they found two principal foes to fight. The Indians were inclined to be friendly at first, but the forest never was. The heritage of our ancestors had to be hewed out of the forest by hand, and for long the forest always threatened to return as soon as the ax gathered the first flecks of rust.

But now, even as we incline to romanticize over the banished Indian, we also mourn the departed forest. The great pine wilderness our fathers fought finally surrendered and went down in crashing defeat. And then we realized that we had fought the pines too long, and that in slaying almost the last of them we were destroying creatures that were no longer enemies but useful servants. Now we wish we had the white pines back, but they do not come back. In their place come weedy members of the yellow pine tribe, not nearly so valuable nor so beautiful. White pines have to be planted and coaxed to live.

And even then they may not survive. To crown our self-made misfortunes, the white pine blister rust has come. This terrible tree disease has run wild in the remnants of the once great white pine forests, and threatens to wipe out what is left of the species, and it has already gained a foothold among the pines of the Pacific Northwest. It finds an ally in the almost universally distributed wild currants and gooseberries, for it lives part of its life on their leaves, before shifting over to the pine. In places where the white pine is of more value than the plantings of small-fruits, the currants and gooseberries of the gardens and orchards are being rooted out wholesale in an effort to stop this plague.

Science News Letter, November 26, 1932