



MARS

This photograph made at Yerkes Observatory at the time of a previous close approach shows the planet that has been the subject of so much discussion among astronomers and laymen.

The new 82-inch McDonald Observatory telescope, world's second largest, on Mt. Locke, Tex., recently dedicated, will be used on Mars for the first time. A special camera has been built for this purpose.

Color photographs will be taken with the 40-inch reflector of the U. S. Naval Observatory at Washington and the planet will also be observed visually with the historic 26-inch lens telescope.

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MEDICINE

20,000 Fever Treatments Of 4,000 Patients Surveyed

THE IDEA of deliberately giving a sick person a high fever in order to cure him is such a contradiction of old established ideas about illness and its treatment that it is no wonder it has attracted wide attention among laymen as well as physicians.

Fever treatment has been tried for a great variety of ailments and much knowledge about its use has accumulated in the past eight or ten years, during which the method attained popularity. An analysis of some 20,000 treatments given to over 5,000 patients was presented by Dr. John D. Currence, of New York Post-Graduate Medical School and Hospital, Columbia University, at the

last meeting of the American Medical Association.

"Strongest indications" for giving fever treatment, according to Dr. Currence, are gonorrhea (fever treatment combined with the new chemical remedy, sulfanilamide, is suggested) and complications of gonorrhea such as arthritis, complications of syphilis (again in combination with chemical treatment), such as optic atrophy, paresis and locomotor ataxia; Sydenham's chorea, familiarly known as St. Vitus' dance; early multiple sclerosis; and certain types of rheumatic disorders. Favorable results have been reported in cases of intractable bronchial asthma, undulant fever, encephalitis (so-called sleeping sickness), and a variety of skin ailments.

PHYSICS

Physicists May Have New Link Between Atoms and Gravitation

Decay of the Mesotron May Provide Long-Sought Connection Between Atomic and Large-Scale Forces

OUT of the discovery of the mesotron particle, now shown to be the piercing component of cosmic rays, science has come across a new dimensional constant that may be the long-sought, never-found connecting link between small-scale atomic forces and large gravitational forces.

In a significant report (*Nature*, July 1), Prof. P. M. S. Blackett of Manchester University, describes the new constant which is the mean "life" of the mesotron particle at rest. It turns out to be 25 ten-millionths of a second (2.5×10^{-8} seconds).

The mesotron is the heavyweight kind of electron that spontaneously disintegrates with extreme rapidity; so fast in fact that it is only with extreme difficulty it can be detected.

"It is more convenient to consider not the average life," says Prof. Blackett, "but the related fundamental length which equals 7.5 times 10^4 centimeters."

This length comes out to be 2,460 feet and is obtained by multiplying the "life" time by the speed of light.

If the length of 2,460 feet (which is the average distance traveled by the average mesotron before it disintegrates) is to be related to the other natural constants like the charge on the electron, Planck's constant and the speed of light, "it is clearly necessary to include the

gravitational constant G," says Prof. Blackett.

Fever treatment helps the patient get well, it is believed, by its effect on invading disease germs and by stimulating chemical and physiological reactions in the patient's body. It either kills germs or checks their growth and mobilizes some of the body's germ fighters. It causes dilation of the blood vessels, increased velocity of the blood flow, an increase in pulse and breathing rates, and an increased volume output of the heart. The blood-cell producing system is stimulated.

Conditions in which this treatment should not be used include heart and blood vessel and kidney disorders, pregnancy, active tuberculosis, alcoholism and general debility.

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In calculations involving the gravitational constant of mesotrons, Prof. Blackett is able to work backward and compute the average path-length of travel of a mesotron. It comes out to be of the same order of magnitude as that obtained from physical measurements.

"It would be attractive to conclude from this result that perhaps the decay of the mesotron may provide a link between atomic and gravitational phenomena," says the British scientist.

There is one possibility which might make his whole argument invalid, explains Prof. Blackett. It is the unlikely possibility that the life-time of the mesotron as measured in the earth's atmosphere may not be the same as that in free space, but may depend on local conditions such as local gravitational fields, or electric and magnetic forces.

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● RADIO ●

Robert P. Shaw, director of the New York Museum of Science and Industry, will be the guest scientist on "Adventures in Science" with Watson Davis, director of Science Service, over the coast to coast network of the Columbia Broadcasting System, Monday, July 31, 5:45 EDST, 4:45 EST, 3:45 CST, 2:45 MST, 1:45 PST. Listen in on your local station. Listen in each Monday.