

reform 1:500000, Propionic acid 1:10000000) they restrict their action to the lipid surface, which they weaken thus facilitating the amoeboid motion.

When applied in somewhat greater quantities a second factor becomes of importance viz. the noxious effect of these substances on the protoplasm. All these substances indeed penetrate easily into the cells, thus causing paralysis.

3. *Soaps*, such as propionate, butyrate and formiate. These substances, unlike the fat dissolving substances, do *not* enter into the phagocytes. Their action upon the phagocytes is therefore entirely different from that of the fat-dissolving substances, for even when applied in high concentrations (1:250), in concentrations in which the fat dissolving substances would inevitably kill the cells, *they have a very favourable effect upon phagocytosis.*

When applied in still greater quantities their action is a pernicious one, but this may be due to the solution being too hyperisotonic.

Further it is a remarkable fact — and in this respect the soaps are distinguished from calcium as well as from the fat dissolving substances — that within rather wide limits, the degree to which phagocytosis is promoted is independent of the amount of soap, found in the solution. (Cf. Tables II and IV.)

The researches, described above, have given rise to different questions, which, owing to the present circumstances we cannot enter into now.

Physiological Laboratory.

Groningen, January, 1913

Astronomy. — “*A proof of the constancy of the velocity of light*”.

By Prof. W. DE SITTER.

(Communicated in the meeting of February 22, 1913)

In the theory of Ritz light emitted by a source moving with velocity u is propagated through space in the direction of the motion of the source with the velocity $c + u$, c being the velocity of light emitted by a motionless source. In other theories (LORENTZ, EINSTEIN) the velocity of light is always c , independent of the motion of the source. Now it is easily seen that the hypothesis of Ritz leads to results which are absolutely inadmissible.

Consider one of the components of a double star, and an observer situated at a great distance Δ . Let at the time t , the projection of

