

Vegetable Rennet.

I HAVE been endeavouring to make a list of plants—leaves, flowers, seeds, etc.—used in various countries for coagulating milk in place of rennet, obtained from the stomachs of young animals; and I shall be glad to learn of any additions that might be made to the following list:—*Galium verum*, *Withania coagulans*, *Ficus Carica*, *Cynara cardunculus*, *Cynara scolymus*, *Carduus nutans*, *Cnicus benedictus*, *Drosera peltata*, *Datura Stramonium*, *Pisum sativum*, *Lupinus hirsutus*, *Ricinus hirsutus*, *Pinguicula vulgaris*, *Leucas cephalotes*, *Crotalaria Burhia*, *Rhazya stricta* and *Streblus asper*.

With regard to some of the plants named above, I would note that the references are not very clear as to their use for milk coagulation. Any information as to plants used in former days or at the present time would be welcome and useful. A Hindu, also an orthodox Jew, cannot touch, I understand, a milk product that has been coagulated by rennet obtained from a calf's stomach, and must therefore use a vegetable coagulant; and I believe that there are other races in other parts of the world which use vegetable coagulants. So far as I am aware, an approximately complete list of plants used in various parts of the world for coagulating milk does not exist, and where a reference is found, details given are scanty as to part of plant used, its preparation, and method of use.

R. HEDGER WALLACE.

4 East Grove, Cardiff, September 20.

A Question of Nomenclature.

IN his notice of Mr. S. Q. Hayes's "Switching Equipment for Power Control" in NATURE of September 16, p. 374, your reviewer, commenting on current Americanese, says: "Electrical engineers talked about 'omnibus bars' thirty years ago, it then became 'bus bars,' and now apparently it has become 'busses.'" Webster, who may be considered as an authority on the language of that great nation, defines a buss as "a kiss; a rude or playful kiss; a smack," and quotes Herrick to the effect that:

Kissing and bussing differ both in this,
We buss our wantons, but our wives we kiss.

So that although in both "bus bars" and "busses" there is intimate contact and at times electricity passes, it can scarcely be said that the two terms are synonymous. Nor can it be said that the introduction of such terms into electrical engineering is to be commended.

F. H. MASTERS.

Capillarity.

IN a letter on capillarity in NATURE for September 16, p. 377, Mr. Wilson Taylor shows how difficult it is to account on physical grounds for the phenomena exhibited by liquid films.

It may not be out of place in the circumstances to refer to Irving Langmuir's views on this subject, given by him in a paper on "The Constitution and Fundamental Properties of Solids and Liquids. II. Liquids" (Am. Chem. Soc., vol. xxxix., September 1917, p. 1852). Langmuir cites a few of the cases in which the forces between the molecules have been considered to be radial forces which vary solely as a function of the distance between molecules. In all these cases the investigator has considered the phenomena to be physical in nature. He then goes on to remark: "The chemist, on the other hand, in studying the properties of matter, usually employs totally different methods. He is often most interested in the qualita-

tive aspects of the problem, and the quantitative relationships are usually limited to those deducible from the law of multiple combining proportions, the law of mass action, or the principles of thermodynamics. When the chemist does consider the forces acting between atoms and molecules, he does not look upon these as forces of attraction between the centres of the molecules, but he thinks rather of the specific nature of the atoms forming the molecules and the manner in which these atoms are already combined with each other. He thinks of molecules as complex structures, the different portions of which can act entirely differently towards any given reagent. Furthermore, he considers that the forces involved in chemical changes have a range of action which is usually much less than the diameter of a molecule, and perhaps even less than that of an atom."

What has been termed the Classical Theory of surface forces has proved useful in its day; but it unfortunately ignores *chemical affinity*.

R. M. DEELEY.

Tintagil, Kew Gardens Road, Kew, Surrey,
September 15.

Lead and Animal Life.

DR. GARRETT'S communication in NATURE of September 16, p. 380, on the effect of a lead salt on Lepidopterous larvæ, is particularly interesting to one who has been working on an allied subject. Recent investigations of my own on the fauna of lead-polluted streams in North Cardiganshire, as reported at the Hull meeting of the British Association, point to the presence of dissolved lead-salts in these rivers as distinctly inimical to the aquatic population, in particular to the larvæ of certain insect-groups, such as Trichoptera, which are normally non-existent in these streams, though well represented in their neighbours.

The case of fattening of Weardale sheep on lead-polluted pastures may perhaps provide a parallel; while it is quite possible that small doses of lead may have a tonic effect, cases of lead-poisoning proper among farm live-stock in general are common in certain districts (see a paper on "Plumbism in N. Cards." by E. Morgan, *Journal of U.C.W. Agricultural Dept.*, 1915), and usually the poisoning is of the type known as "chronic," the effect being slow and cumulative, as is also established in the case of lead-poisoning as an industrial disease. It would be interesting to know whether Dr. Garrett's experiments have extended over more than one generation of Lepidoptera, and whether the reproductive faculties were in any way affected.

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Polar and Non-Polar Valency in Organic Compounds.

THERE is an increasing tendency on the part of organic chemists to apply the Berzelius dualistic theory, in a modified form, to organic compounds. In many theories of valency, individual groups are considered to be more or less electropositive or electronegative, and it is possible to arrange these groups, approximately, in a table of descending electropositive character. A difficulty which arises in examining this conception is to visualise the transference of anything less than one electron between the group and the remainder of the molecule. There appear to be at least two kinds of forces operating between atoms in a molecule, which can