

To anticipate obvious criticism, it should be remembered that these formulæ are at present somewhat theoretical, owing to the necessity of *postulating* the initial equation $z = Mf$; but, as I have mentioned before, more empirical methods of statistical analysis are always available which may ultimately help to justify and establish such postulated equations.

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¹ NATURE, 141, 246 (Feb. 5, 1938).

"Foundations of Terrestrial Life"

IN the brief account in NATURE¹ (Dec. 25, 1937) of a lecture by Sir Frederick Keeble on "Foundations of Terrestrial Life: The Soil and the Green Plant", the conclusion to which he had come is stated thus: "This hypothesis is that the health and strength of people and their evolution, and the permanence of human societies depend on the soil and the green

plant." This recognition of the fundamental importance of the green plant suggests a reference to another but very ancient résumé of science contained in the much-discussed first chapter of Genesis (verse 30). "And to every beast of the earth and to every fowl of the heavens and to every creeping-one upon the earth in which is the soul of life, I have given every greenness of herb for food." (President Harper's translation.) The customary translation is "every green herb"; but the Hebrew words are far more emphatic than the English translation; they read: "every greenness of green herb". The Hebrew word for "green herb" is one of the widest significance, and seems, according to Gesenius, to include every herb that has food value both for man and beast.

It is interesting to observe that the earliest and the latest pronouncements of science on this point are in perfect accord.

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¹ NATURE, 140, 1107 (1937).

Points from Foregoing Letters

A CURVE showing the average number of insects at various heights up to 2,000 ft., and diagrams indicating the comparative distribution of the nine more important families of insects, are submitted by Prof. A. C. Hardy and P. S. Milne. High temperature and low humidity were found to favour the aerial drift of insects. The insects were caught in nets 3 ft. in diameter, carried into the air by kites. The authors point out that wind-borne insects contribute not only to the spread of insect pests but also may possibly be carriers of foot-and-mouth disease.

Sir Joseph Larmor considers that if mountain ranges rest on a viscous foundation of *denser* material then, as the mountains accumulate locally, they would gradually sink down. The roots of the mountain would thus penetrate into the denser viscous material to an extent exceeding the height of the mountain, in order to compensate for the extra column aloft, very much like a submerged iceberg.

A description of the methods used in the preparation of the soluble amino-acid oxidizing enzyme of Krebs (from pig's kidney) and of its coenzyme (from horse-heart muscle) is given by Dr. F. B. Straub. The activity of the coenzyme is found to be proportional to its flavine content, and the author considers that flavine may be part of the active compound.

Nucleotidase (an enzyme which hydrolyses phosphoric esters) splits off the phosphate group from the molecule of cozymase (a coenzyme assisting the oxidation of carbohydrate), according to N. B. Das and Prof. H. v. Euler. The dephosphorylation takes place more slowly than in the case of the adenylic and inosinic acids. Dihydrocozymase also is dephosphorylated about twice as fast as cozymase, and this is attributed by the authors to the dibasic character of the former.

For the determination of the biological activity of urinary gonad-stimulating hormones (Gonan, Physex, etc.), P. G. Marshall prefers the vaginal-smear method in rats to the corpus luteum method in mice. Also in the case of the standardization of the hormone

of pregnant mares' serum (Serogan, Antex) the author considers the vaginal-smear technique in rats preferable to the determination of the increase of ovary weight in mice, and gives the ratio of the mouse unit (amount necessary to double the weight of ovaries in four days) to the rat unit (amount needed to produce oestrus in 2½ days in 60 per cent of the immature rats).

In a grasshopper hybrid, studied by H. Klingstedt, owing to a failure in the separation of chromatids at anaphase, the chromatids often break or the separation of nuclei may be prevented. This abnormality is ascribed to a maintenance of metaphase attraction beyond its normal limit.

Prof. R. R. Gates and S. V. Mensinkai state that the double structure of chromosomes at metaphase was observed in preparations fixed with various reagents, and this excludes Dr. Darlington's objection, that the double-thread appearance is due to the treatment employed. The authors point out that much other evidence favours their view, and cast doubt on the X-ray experiments which have led Dr. Darlington to the opinion that chromosomes must be single in the anaphase and telophase stages.

R. S. Hawes describes the behaviour of the serpulid worm *Marifugia cavatica* in the inland limestone caves of Herzegovina which are flooded in winter and dry in summer. In the calcareous tubes of these worms he has found gemmules of the sponge *Ephydatia mülleri*. Only 2 per cent of these gemmules of the cave-dwelling species germinated under experimental conditions which were suitable for the development of the surface species *Spongilla lacustris* (which conditions had also been found to be suitable for the nearly related surface species *E. fluviatilis*).

Experiments carried out by Dr. G. Eloff and V. L. Bosazza show that chitin of approximately 0.02 mm. in thickness absorbed wave-lengths less than 3650 Å. The biological effects are in keeping with the physical data. A Hanovia quartz mercury vapour lamp was used.