

se propose, sans doute, en essayant de constituer une algèbre de la logique, d'arriver à un résultat analogue. Mais il est facile de se rendre compte que les points fondamentaux des méthodes mises en avant dans ce but, sont loin de rencontrer un assentiment universel. Il vaudrait donc la peine de discuter au préalable si le problème dont il s'agit est réellement possible, ou si, de fait, on ne poursuit pas une chimère.

La logique est la science du langage, en tant que celui-ci est employé pour le raisonnement. Mais chaque peuple a sa langue, dont le génie diffère, et ce qui n'est pas prouvé, c'est qu'on puisse faire rentrer sans coup de force, sous un formulaire unique et suffisamment simple, les innombrables nuances de la pensée, dont la différence ne se traduit même souvent que par de simples changements de ton.

Qui s'est donné la peine de lire le texte grec des *Analytiques* ne peut méconnaître que la logique d'Aristote est admirablement calquée sur la langue hellène, tandis qu'il est clair qu'elle ne se prête qu'assez imparfaitement aux langues modernes. Ainsi, par exemple, comme, dans la forme canonique d'Aristote, le prédicat s'énonce avant le sujet, l'ordre des figures et des prémisses est, chez lui, tout simple et naturel. Il suffit au contraire de faire en français le premier syllogisme en *Barbara* venu pour sentir qu'il est vicieux de commencer le raisonnement par l'énoncé du moyen, et qu'on devrait intervenir l'ordre des prémisses.

Si M. Peirce était un hellène, je tiens pour assuré qu'il n'aurait point adopté ni les notations qu'il propose, ni les significations qu'il leur donne. Personne, d'un autre côté, ne niera que les tentatives de réforme de la logique ancienne excitent depuis longtemps un intérêt sérieux en Angleterre, tandis qu'elles ne trouvent que peu d'accueil en Allemagne et rencontrent en France une défaveur encore plus grande. Il est facile de donner comme explication, le génie divers des trois peuples voisins; mais ne s'agit-il point, surtout et au fond, de la différence de leurs langues?

PAUL TANNERY.

M. Guyau. — *VERS D'UN PHILOSOPHE*. — 1 vol. Paris, Germer Baillière 1891.

Ce titre est-il pour recommander le livre auprès des philosophes et l'excuser auprès des poètes? Ou bien a-t-il l'intention inversée, qui serait aussi vraisemblable? Peu importe: car il suffit de l'ouvrir pour constater qu'il mérite d'être également bien accueilli des uns et des autres. Nous en avons fini avec cette ombrageuse critique, jadis en honneur, qui enfermait le talent dans des catégories, comme les métiers. Il n'y a plus de jurandes, ni de maîtrises, ni de corporations closes dans le domaine du beau et du vrai; et les philosophes ont le droit de faire des vers, quand ils sont poètes, comme les poètes d'avoir une philosophie quand ils sont penseurs. J'imagine que si Platon, le

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## Scientific Association.

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From a consideration of the probability that an event, which has occurred in all the trials (say  $n$  trials) of a given kind that have been made, will occur in each of the next  $r$  trials of the same kind, we obtain the well known theorem  $\sum_0^r \binom{n+x}{n} = \binom{n+r+1}{n+1}$ . If in the  $n$  trials the event has occurred  $\lambda$  times and failed  $n - \lambda$  times, then by considering the probability that in the next  $r$  trials it will occur  $\mu$  times and fail  $r - \mu$  times, we obtain the theorem, which perhaps is new, that  $\sum_0^r \binom{\lambda+x}{\lambda} \binom{n-\lambda+r-x}{n-\lambda} = \binom{n+r+1}{n+1}$ ; it is to be observed that the value of the sum is independent of  $\lambda$ . From this equation a theorem relating to the determinants of binomial coefficients immediately follows.

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Some new Experiments on the Oxidation of Sulphaminemetatoluic Acid, by R. D. COALE.

If sulphaminemetatoluic acid be oxidized by potassium permanganate in neutral solution, it has been found that the sulphamine group is transformed into the sulpho group, and the product is sulphisophthalic acid. If, however, this oxidation be carried on in alkaline solution, the product belongs to a class of anhydro bodies which have been called sulphinides, and is anhydro-sulphamine-iso-phthalic acid or sulph-inido-iso-phthalic acid. This point is disputed by Jacobsen, and experiments are in progress to definitely settle the matter.

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The Cause of Serial Homology and Bilateral Symmetry, by W. K. BROOKS.

Owing to the length of this paper, only part of it was read. In this portion the writer attempts to show that the explanation which attributes phenomena of this kind to inheritance from a community of independent individuals which have become specialized into a compound organism, is not supported by the facts of embryology, and that even if it were, this would not account for the phenomena, since they exhibit evidence that the bond between serially homologous structures is persistent.

The phenomena in question cannot, at present, be explained by natural selection, and the view that they are due to the direct action of the conditions of life, or to polarity, is also inadequate; and at present we have no explanation of them.

They are so similar to the phenomena of ordinary or special homology, that, so long as they are unexplained, we cannot give unqualified acceptance to the explanation of special homologies, which attributes them to descent with modification.

A New Determination of the Mechanical Equivalent of Heat, by L. B. FLETCHER.

This determination was made by measuring the heat developed by a current of measured strength flowing for a measured time through a wire of measured resistance.

The result is  $J = 42,200,000 \left( \frac{\text{centimeter}}{\text{second}} \right)^2$  gram at  $25.8^\circ \text{C}$ , on the assumption that  $1 \text{ Ohm} = 1 \frac{\text{earth quadrant}}{\text{second}}$ .

The mean of Joule's and Rowland's direct measurements gives  $J = 41,700,000 \left( \frac{\text{centimeter}}{\text{second}} \right)^2$  gram at  $25.8^\circ \text{C}$ . The difference between these two values is about 12 parts in 1,000.

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The Structure of the Gills of Yoldia and Nucula, by K. MITSUKURI.

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In these two genera they are much like the gills of gastropods and cephalopods, and their structure lends support to the view that these forms rather than the lamellibranchs are nearest to the primitive molluscs, and that the gills of ordinary lamellibranchs have gradually assumed nutritive and reproductive functions, as these animals have become adapted to a sedentary life.

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