

chapter, and the author concludes that it was derived from the basic igneous rocks themselves. De Launay, Perkins, and other mining authorities share that view, which has, however, been rejected by Prof. Louis, who considers that the gold came from quartz veins in the schists and gneisses, and also by Mr. J. A. Spurr, who thinks it is derived from the acid igneous rocks, and was introduced in solutions connected with the intrusion of dykes of the ultra-acid rock which he has called alaskite. Some of the placer gold has been derived directly from quartz veins formed in the superficial sheets of laterite that cover much of the country, but the gold in these veins is no doubt derived from the primary deposits in the underlying rocks. The gold in the secondary veins in the laterite sometimes occurs in rich pockets. It is therefore not surprising that the placer gold includes small nuggets. Mr. Brown, however, strongly supports the view that gold is present dissolved in the soil waters, and is thus carried into the drifts and there chemically deposited. As a proof of the solubility of the gold in the waters of the soil, he refers to its presence in the vegetation. The occurrence of gold in the trees growing on gold-fields has been repeatedly affirmed and denied. Mr. Harrison accordingly carefully assayed samples of wood from the interior of trees, and proved that the ashes contain gold up to several grains per ton. The establishment of this fact by Mr. Harrison is an important contribution to the problems of gold deposition; nevertheless, the information he gives as to the distribution of the alluvial gold suggests that the bulk of it is of detrital origin.

(2) Mr. Johnson's book contains less original matter. It is a short summary, in sixty-one pages of large type, of the chief facts as to the distribution of base metals in South Africa. It is prefaced by a brief theoretical introduction, and concludes with some pages of practical hints to prospectors. It is a useful guide to recent literature, and to mining work on the base metals in South Africa. The author adopts the American quantitative classification of rocks, and his short theoretical statement gives the arguments fairly for both sides of disputed questions. J. W. G.

OUR BOOK SHELF.

The Method and Scope of Genetics. An Inaugural Lecture delivered on October 23, 1908. By Prof. W. Bateson, F.R.S. Pp. iv+49. (Cambridge: University Press, 1908.) Price 1s. 6d. net.

THE University of Cambridge is to be congratulated in respect of the professorship of biology, which it founded last year, with the aid of an anonymous benefactor. It is to be congratulated because it has had the wisdom to recognise the import and the promise of a kind of inquiry which is still young (though it justified itself long ago at Down, at Brünn, and elsewhere), and has hitherto had very little academic recognition; for although the professorship bears the comprehensive title "of biology," it was founded with the understanding that the holder should apply himself to a particular class of physiological problems—those of heredity and variation—the study of which is denoted by the new term "genetics." Some years ago, in the University of Edinburgh, thanks, we believe, to the energy of Prof. Cossar Ewart, whose

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"Penycuik Experiments" have been so important in themselves and in their incentive, there was established a lectureship on the physiology of reproduction, which has been filled by Dr. A. H. H. Marshal with conspicuous success.

But Cambridge has gone one better—we hope the equivalent Scottish step will soon follow—in instituting this professorship of biology, ear-marked to mean genetics. The University of Cambridge is not less to be congratulated on being able to secure for this new professorship an investigator like Mr. Bateson—on whom Darwin's mantle has fallen—whose critical insight, patience, ingenuity of experiment and infectious enthusiasm have won him the respect and admiration of all the biologists of to-day.

In his inaugural lecture Prof. Bateson shows that the claims put forward in the name of genetics are high, and that they are not high without reason. "Mendel's clue has shown the way into a realm of nature which for surprising novelty and adventure is hardly to be excelled." "It is no hyperbolic figure that I use when I speak of Mendelian discovery leading us into a new world, the very existence of which was unsuspected before." Let us notice some of the progressive results which warrant these enthusiastic statements. A great law of inheritance has been discovered, and a simple hypothetical *rationale* of the law has been suggested. The duality of inheritance which the cytologist had demonstrated in his own way has been likewise proved—one may almost say played with—experimentally. Curiously puzzling phenomena have been made plain. Fresh light has been thrown on reversion and on variation. A new *point d'appui* has been found for physiological chemistry, and from cases so different as cinnamon-canaries and sweet peas, currant-moths and colour-blindness, it seems as if we were on the eve of discovering something of the mystery of sex. And, besides all this, "if we want to raise mangels that will not run to seed, or to breed a cow that will give more milk in less time, or milk with more butter and less water, we can turn to genetics with every hope that something can be done in these laudable directions." Even in regard to human kind it does not seem any longer an idle dream to see an art of eugenics rising on the foundations of genetics. J. A. T.

Hydraulic Générale. By A. Boulanger. 2 Vols. Tome i., Principes et Problèmes Fondamenteaux. Pp. xvi +382. Tome ii., Problèmes à Singularités et Applications. Pp. vii+299. (Paris: Octave Doin et Fils.) Price 10 francs.

THE science of hydraulics in France has long been served by distinguished and devoted adherents—to instance only a few, Bazin, St. Venant, Du Buat, Prony, and Boussinesq. The numerous contributions of this last-named exponent, during a period of nearly forty years, to the Academy of Sciences and other scientific bodies, are familiar enough to students of the subject, but, owing to their detached and voluminous character (the total publications of the eminent man of science amount to 1800 quarto pages), they have not hitherto been conveniently adapted to the requirements of systematic study, and it has long been felt that a *résumé* of their more important conclusions would be of great service. In the instance, therefore, of the director of the Bibliothèque de Mécanique, and with the concurrence of M. Boussinesq himself, the present work was undertaken with this end in view.

There are two volumes, the first being devoted to a demonstration of fundamental principles and to the statement of general phenomena, appertaining as much to the province of the physicist as to that of the engineer. Thus, after an introduction on the laws