

The Representation of the Working Classes, by R. Wauchope (Ridgway);—Some Real Wants, and some Legitimate Claims of the Working Classes, by W. T. Marrett (Mawson);—Industrial Labour: where and how to get it, by J. Gregory (Kelly);—Trade Unions, Combinations, and Strikes, by M. Bunting (Stevens);—and An Inquiry into the Law of "Strikes," by E. D. Lucas (Macmillan).

LAW OF NEW MEXICO

THE ORIGIN OF SPECIES

This question occupies as much attention in America as in England. At the American Academy of Arts and Sciences it has been repeatedly under consideration; and we find, in the Report of the Proceedings, which has just reached us, the following Summary of the argument of Prof. Asa Gray, the distinguished botanist.

Prof. Geys criticized in detail several of the positions taken at the preceding meeting by Mr. Lowell, Prof. Bews, and Prof. Agassiz, respectively;—pointing that he had no doubt that variation and natural selection would have to be admitted as operative in nature, but were probably inadequate to the work which they had been put

to. He maintained—
1. That varieties abundantly occur in nature, at least among plants; and that very few of them can be of hybrid origin; that hybridisation gives rise to no new features, but only analogies; and, if combined, blends, the characters of sorts before separate; and that a hybrid origin was entirely out of the question in species which had no congeners, or in the country to which they were indigenous, yet that such species diverged into varieties as readily as any other. As to the general denial, 1, that there is any such thing as natural selection, and 2, that there is any variation in species for natural selection to act upon, he could not conceive how such denial was to be supported; but to answer his purpose it would have to be carried to the length of denying that the individuals of a species ever have anything which they did not inherit—slight variations, accumulated by inheritance, and what the theory is in question makes of—taking little or no account of many sudden and sharp variations, such instances of the latter being cited, which he could not understand.

latter kind could certainly be adduced.

2. In opposition to the view that such variations as cultivation or domestication so copiously afford are of no account in the discussion, and have no counterpart in nature, Prof. Gray maintained, that the varieties of cultivation afforded direct evidence of the essential variability of species: that no

domesticated plant had refused to vary; that those of recent introduction, such as California annuals, mostly began to sport very promptly, sometimes even in the first or second generation; man having done nothing more than to sow the seed here instead of in California, perhaps in no better soil. Here the variations were as natural as those of the wild plant in its native soil. Man produces no

organic variations, but merely directs a power which he did not originate, and by selection and close breeding preserves the incipient variety which else would probably be lost, and gives it a choice opportunity to vary more. Consider, he remarked, how small the chance of the survival of any variety when originated in its native habitat, surrounded by its fellows,—when not one seed out of a hundred or a thousand ever comes to germinate, and not a moiety of those ever succeed in becoming a plant,—and when, of those that do grow up and blossom, the danger is imminent that the flowers may be fertilized by the pollen of some of its absent neighbors of other wild plantations of the same species.—In endeavoring what plants may possibly be in our gardens, mostly raised from a small quantity of seeds to begin with, probably all the present stock, where they are almost sure to self-fertilize in the first generation,—where every desirable variation is watched for, and cared for, and kept separate; and it may be confidently inferred that they vary in cultivation, at first, much as they would have varied in the wild state, if such favorable opportunity had there occurred. Cultivated civilization under artificial selection would of course force some of these results to an extreme newness in some cases, giving to long-cultivated varieties

a character of their own. Yet they may not deviate more widely from the wild type than do some of the wild varieties of many plants of wide geographical range. Moreover, Prof. Gray maintained that there occur in nature the same kinds of variation as those to which we owe our improved fruits, &c.; that such originate not merely in nature, and develop to a certain extent, enough to show the same cause operating in free as in con-

treated nature; enough to have shown the cultivator what he should take in hand; enough to render it likely that most of our cultivated species of fruit began their career of improvement before man took them in hand. Instances of such variations in the wild state were adduced from our Hawthorns, especially *Cavendishi*, from our Wild Red Plum, Wild Chestnut, and especially from our Wild Grapes and Hickories.

3. The view taken by Mr. Lowell, and especially by Prof. Bowen, that the indefinitely long periods of time which the theory required and assumed was practically equivalent to infinity, and therefore rendered the theory "completely metaphysical in character," Prof. Gray *completely* misapprehended me, mainly to remark that the theory in question would generally be regarded as too materialistic and physical, rather than too metaphysical in character; and that, *a fortiori*, physical geology and physical astronomy would on this principle be metaphysical.

4. Exceptions were taken against the assumption of such a wide distinction, or of any sharply drawn distinction at their confines, between the animal and the vegetable kingdom, and especially against the view that instinct sharply defines the animal kingdom from the vegetable kingdom on the one hand, and from man on the other; and which denies to the higher brutes intelligence, and to man

5. Also, against the view that the psychological elements of the innate actions, whether instinctive or not, are invariable and unchangeable, and of variable instances were adduced, especially recent ones in the works of Fruinhard and of Leidson St. Hildegard, as well as some from personal observation, in which acquired habits or varied instincts were transmitted from the parents to their offspring. That such requirements, once inherited, would be likely to continue heritable, was argued to be the natural consequence of the general law of inheritance, the most fundamental law in physiology ; that it is actually so, Prof. Gray insisted was well known to every breeder of domestic animals.

8. For further instances of the parasite see

domest or fitty, under interbreeding, of altered structure, Prof. Gray added Manx cats and Dorking fowls; and he alluded to well-known cases of six-digitated people, and the like, transmitting the peculiarity to more than half of their children, and even grandchildren; showing that the salient peculiarity tended to be more transmissible than the normal state at the outset; so that, by breeding in and in, it was likely that Ainsworth could soon be made to come as true to the breed as Dorkings.

7. As to the charge that the theory in question denied persistence of type, Prof. Gray remarked that, as the contrary, the theory not only admitted persistence of type, as the term is understood by all naturalists, "but was actually built upon this admitted fact, as one of its main foundations; that, indeed, one of the prominent advantages of this theory was, that it accounted for this long persistence of type, which spans every other theory, and makes scientifically unacceptable for.

8. Finally, as to the charge that the hypothesis in question repudiated design or purpose in nature and the whole doctrine of final causes, Prof. Gray urged—1. That to maintain that a theory of the derivation of one species or sort of animal from another through secondary causes and material agencies negatived design, assumed to concede that whatever in nature is accomplished through secondary causes is so much removed from the sphere of design, or that only that which is supernatural can be regarded or shown to be designed—which no atheist can admit. 2. That the establishment of this particular theory by scientific evidence would leave the doctrine of final causes, utility, special design, or whatever other teleological view, just where they were before its promulgation, in all fundamental respects; that no new kind of difficulty comes in with this theory, i. e., none with which the philosophical naturalist is not already familiar. It is merely the old problem as to how persistence of type and morphological conformity are to be reconciled with special design (with the hypothesis of offering the only scientific, though hypothetical, solution of the question), along with the wider philosophical question, as to what is the relation between orderly natural events and intelligent efficient cause, or Divine agency. In response to which, we have only to adopt Prof. Bowen's own principle of causation,—viz., "That the material no less than the supernatural, the contingent no less than the creation of existence, the origin of an individual, as well as the origin of species and genera, can be explained only by the direct action of an intelligent cause,"—and the special difficulty in harmonizing a theory of the derivation of species with the doctrine of final causes will vanish.

新嘉坡正義、道德與社會政策系

Naples, July, 1866.

"Sir.—Having been appointed under the sanction of an act of Parliament to examine if, in the works hereafter described, there is anything contrary to our holy religion and its ministers, to public morality, to the august person of the King, our Lord, and his royal family, to the royal Government and its course of action, to foreign princes and their representatives, and to the homes of private individuals, we, after having attentively read and examined them, give you this day our poor review of them, as follows. . . . The other work is entitled, "Political and Military History of the War of Independence (Italian)," 1859, composed from Authentic Documents and Relations, by the Advocate Piero Carlo Brugnoli, Deputy in the National Parliament; Turin, 1858. Whence ever should seek in those papers for the true report of the recent facts which have horribly bathed with blood and saddened our Italian Peninsula.