

not yet senile. A degenerate organism can transmit to its offspring the morbid peculiarities, but, as a rule, the stock soon dies out.

In like manner, mysticism is treated with considerable detail as a pathological phenomenon, without a hint that it is ever anything else, and it is only in a succeeding chapter that we are told that "Mysticism is the habitual condition of the human race, and in no way an eccentric disposition of mind," and that the difference between what may be termed normal and pathological mysticism is that "the healthy man is in a condition to obtain sharply defined presentations from his own immediate perceptions, and to comprehend their real connection. The mystic, on the contrary, mixes his ambiguous, cloudy, half-formed liminal representations with his immediate perceptions, which are thereby disturbed and obscured."

In his fourth chapter the author discusses the causes of the disorder, summing them up as alcohol and tobacco, the growth of cities, and excessive fatigue due to the great increase in the number of sense impressions, perceptions and motor impulses which are experienced in a given unit of time. His argument from the supposed increase of insanity has no sound basis, for there is no good evidence that it has increased, and on this point the recent report of the General Board of Commissioners in Lunacy for Scotland is very satisfactory. The argument that the present generation is aging much more rapidly than the preceding one because there are more deaths from heart disease, apoplexy, etc., now than formerly is also fallacious. Deaths from all the causes which chiefly affect persons over fifty years of age are becoming more frequent, because the proportion of persons over fifty years of age is becoming larger, and the death rates of children are becoming smaller.

His therapeutics are not very definite,

being mainly the promotion of education, the condemnation of works trading on unchastity, and the branding of the pornographer with infamy. This is rather the treatment of a symptom than of the disease itself.

The real problem of dealing with the degenerate, and of checking their increase, is no doubt mainly connected with the conditions of city life and the increasing use of mechanism, and is to be solved by changes in municipal organization adapted to the new conditions of the day, combined with intelligent direction of the work of private associations of various kinds.

The work of Nordau should be carefully read by every one who is interested in social progress; the translation is excellent, and it is a book well calculated to make one think. His dogmatic statements as to the mechanism of nerve cells in mental phenomena are, for the most part, pure hypotheses based on materialism and taking no account of the persistence of individual consciousness, but they are in many ways suggestive and interesting; and while one must object to some of his premises, his conclusions with regard to the majority of the authors whom he discusses will probably be accepted by the majority of persons who are competent to form a definite opinion on the subject.

J. S. BILLINGS.

*Darwinism and Race Progress.* By JOHN BERRY HAYCRAFT, M. D., D. Sc., F. R. S. E., Professor of Physiology, University College, Cardiff. London, Swan, Sonneschein & Co. New York, Charles Scribner's Sons. 1895.

This is an eminently sensible book, and besides its scientific interest it deserves the study of social reformers and religious teachers. Dr. Haycraft holds that the muscles and brains of a race are not bound to decay, but that the human species in

civilized countries is in fact deteriorating because we are breeding from inferior types. The increased knowledge of recent years is being applied to free mankind from those hardships and diseases which have beset them. But although we may improve an individual during his lifetime, both in physical capacity and mental and moral power, this improvement is not transmitted in any appreciable degree to the offspring, who have therefore to begin again where the parents began. Men can leave their full purses to their sons, but no legacies of mental and moral improvement, or not much. Therefore the action of healthy surroundings will never produce a robust race out of a feeble race, nor will the action of the best educational system ever devised develop a race of wise men out of a race of fools.

This leads our author to a discussion of the question whether acquired characters are inherited, or whether the reproductive cells remain unaffected by local changes in the body cells, and he sides with Darwin and Weismann rather than with Lamarck and Herbert Spencer. Racial change is brought about by selection, *i. e.*, by the death or nonproductiveness of certain sorts of individuals, so that the others alone remain; and if this remnant is organically superior, then the next generation will be so. But at present we are not perpetuating our best. The gardener perfects his stock by selecting seed only from the best; and improved breeds of cattle are produced in the same way—not by any new method of ventilating the cowshed, nor by any freshly discovered patent fodder—yet we foolishly fancy we can regenerate society by better food and improved dwellings. We must resort to selection rather. Preventive medicine is saving us from small-pox, measles, typhoid fever, etc.; but these diseases previously exercised a selective influence to carry off the feeblest, who are now preserved to

become race-producers. Leprosy also exterminates the unhealthy, and must be looked upon as a friend to humanity. The germs of phthisis or scrofula are our racial friends. Sufferers from phthisis are prone to other diseases as well, and are unsuited for the battle of life, yet because of a certain attractiveness of personal appearance they easily marry, and they leave a large progeny. It follows that by exterminating the bacillus of consumption and giving this delicate and fragile type of persons an advantage in the struggle of life we may imperil the well-being of the future of the race. Even drink may be looked upon as a selective agency, constantly thinning the ranks of those who are weak enough by nature to give way to it, and leaving unharmed those with healthy tastes and sound moral constitutions. Besides the diseased and the drunken there are the incorrigibly criminal, the class whose feet take by nature the crooked path, and who at present are allowed to transmit the taint and the tendency.

What is the remedy? The argument might seem to give a moral sanction to the broadcast scattering of the germs of disease, and to the leaving of unlimited whisky on the doorsteps of our weaker neighbors. But no! other ways are open to us. As regards drink, indeed, Dr. Haycraft would not impose any other restraining influence than a man's own conscience and sense of self-respect. But as regards persons tainted with disease, he does not suggest any such merciless measure as a lethal chamber for them or their offspring. He is content that preventive medicine should continue its work, so beneficent to the individual; but he thinks we ought to replace one selective agency by another. There is already a widespread feeling against the marriage of persons with a distinct family history of insanity. He would try to strengthen that feeling and extend it to other forms of weakness and

disease. In the course of time public opinion might sanction legislation of a prohibitive character. As to inveterate criminals, we must bring our minds to the remedy of the perpetual confinement of the irreclaimable, so that they may die out and leave no successors.

After discussing the competition of brain against brain and the fact that property is not always acquired by the most capable, and considering the effect of modern democratic attempts to equalize the struggle, as also the question of the relative sterility of the capables and the possible swamping of the capables by the incapables, our author says he cannot doubt that by selection England, in a hundred years, might have its average man and woman as well endowed in body and mind as are the best of us to-day.

It should be mentioned that Dr. Haycraft has a high regard for the deserving poor and wishes to see the criminal and vagrant class separated from them in our poor-houses and treated differently.

GEO. ST. CLAIR.

CARDIFF, WALES.

*A Short History of Chemistry.* By F. P. VENABLE, PH. D. 12 mo. Pp. viii., 163. Boston, D. C. Heath & Co. 1894. Price, \$1.00.

What may be called the historical habit of mind is of great value to the student of any science. Many things are constantly met with which can only be understood in the light of their historical setting. This is especially true in the case of a science which has seen so many vicissitudes and so many changes in its point of view as has chemistry. For this reason a book which gives a clear, concise outline of the historical development of the science is sure to find an extensive field of usefulness.

The present author follows, in general, the division into periods as given by Kopp,

but discusses the periods of Medical Chemistry and of Phlogiston together under the head of 'Qualitative Chemistry' and adds a period to which the name of Structural Chemistry is given. The opinion is expressed that this period has already passed and that we are entering upon a new and different phase of development for the science. His characterization of the present tendencies of the science is, however, necessarily vague and unsatisfactory.

The book is well written and there appear to be few errors. On page 141 the value of 15.96 for the atomic weight of oxygen is based, incorrectly, on the authority of Stas, instead of on that of Dumas and of Erdmann and Marchand.

For any student who desires more than a very elementary knowledge of the science, the book must, of course, be considered as an outline which is to be filled out by extensive reading of larger works. But, whether used by itself or in connection with other books or lectures, it is hoped that a book which is so easily accessible to every one will give a new impetus to a phase of chemical study which has been too much neglected.

W. A. NOYES.

ROSE POLYTECHNIC INSTITUTE.

*A Laboratory Manual containing directions for a course of experiments in Organic Chemistry systematically arranged to accompany Remsen's Organic Chemistry* by W. R. ORNDORFF. Boston, Heath & Co. 1894.

As indicated by the title, this manual contains directions for the experiments in Remsen's Organic Chemistry in a form suitable for students in the laboratory. The page being printed on but one side, ample room is left for the student's observations and, as the text-book is not open before him, he is led to observe for himself, instead of merely trying to see what the text-book says he should. As stated by Professor Remsen in the preface, "Great care has been taken to