

Germany, we may well hope for further fruits of this initiative here. Perhaps this building will house joint laboratories for the solution of questions affecting all manufactures alike; or experimental stations for the study of natural products not yet utilized; or a cooperative bureau of standardization for analytical methods; or a national welfare bureau for employees in chemical factories. This building does not owe its erection to some benevolent demigod, extending his protecting wing over people unable to care for themselves; it is a building by the chemists, of the chemists, and for the chemists. May it ever serve as an exemplar of unselfish patriotic cooperation!"

Pages 128-129: "... For, strange as it may seem to the layman, who has seen the ugliest blots on a landscape designated as chemical factories, who has sniffed with disgust a chemical odor, has been urged to believe that the chemist's shadow contaminates pure foods, and has been taught in school that alchemy spelled fraud and sorcery, our science is one calculated to develop the ideal side of human nature, and the chemist, more perhaps than the votary of natural science or the devotee of the so-called humanities, is led to an intense interest in human development. . . ."

Page 129: "... Our science aspires not only to know, but also to do. On the one hand, it leads us to delve into the secrets of nature, in the minute atom as well as in the far distant stars, in the living cell as well as in the crystallized relics of the convulsions from which this earth was born; on the other, it leads us to apply this knowledge to the immediate needs of man, be it in safeguarding his health, in ministering to his material or esthetic wants, or in regulating his commerce and in facilitating his utilization of the earth's resources. . . ."

"... There are two ways of aiding a man or a cause: by addition to the income or reduction of the expense. The pecuniary result to the beneficiary may be the same, but the moral one is far different; it is not only the beggar who is pauperized by the cash gift and uplifted by the aid which enables him to earn

his own livelihood. Arts and sciences may be stimulated by prizes and scholarships beyond a doubt, but the relation between donor and recipient is not free from restraint and the probability of human error in the selection of the right incumbent makes the method a wasteful one at best. . . ."

Part I. contains also his lectures on the "Fundamental Ideas of Physical Chemistry," "Osmotic Pressure," "Electrolytic Dissociation," "Atoms and Molecules," "Hypothesis of Radiant Matter," all models of clear exposition of difficult subjects.

The 170 pages of the second part of the volume relate exclusively to original experimental investigations carried out by Morris Loeb since 1885. His latest contribution "Studies in the Speed of Reductions" was read by him at the International Congress of Chemistry in 1912, a few days before his untimely death, which took him away in the prime of life, from his family and his many friends.

L. H. BAEKELAND

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*Curious Lore of Precious Stones.* By GEORGE FREDERICK KUNZ. Philadelphia and London, J. B. Lippincott Company. 1913. Pp. xiv + 406. Six color plates, 22 double tones and 24 line cuts.

The object of this book, as stated in the preface, is to "indicate and illustrate the various ways in which precious stones have been used at different times and among different peoples, and more especially to explain some of the curious ideas and fancies which have gathered around them. Many of these ideas may seem strange to us now, and yet when we analyze them we find they have their roots either in some intrinsic quality of the stones or else in an instinctive appreciation of their symbolic significance. Through manifold transformations this symbolism has persisted to the present day."

To the interesting task thus outlined Dr. Kunz has brought a lifelong familiarity with gems, knowledge gained by the formation of several collections illustrating the folk-lore of precious stones and the possession of what is

on this subject probably the most comprehensive library in the world. That Dr. Kunz treats the subject sympathetically is to be expected; that he will lead others to similarly regard it is a probable and desirable result of his book. Whoever thinks that superstition is dead among civilized peoples and that only in an age of darkness could a belief in the powers of such insensate bits of matter as gems gain credence, should read the chapter on "Ominous and Luminous Stones" and learn how the innocent and charming opal, regarded entirely without prejudice in the sixteenth century, came, in the nineteenth century, to be invested with fear and dread. All jewelers know that the superstition regarding the opal at the present day seriously interferes with its sale even among the most enlightened. Dr. Kunz evidently would not desire to perpetuate superstitions regarding precious stones, but that they should be invested with sentiment he approves. Thus in the chapter in birthstones (a subject which he treats exhaustively) he says:

"Sentiment, true sentiment, is one of the best things in human nature. While if darkened by fear it may lead to pessimism, with all the evils which such a state of mind implies, if illumined by hope it gives to humanity a brighter forecast of the future, an optimism that helps people over difficult passages in their lives. Thus, sentiment must not be neglected, and nothing is more likely to destroy it than the conviction that it is being constantly exploited for purposes of commercialism. For this reason, the interest as well as the inclination of all who are concerned in this question of birthstones should induce a very careful handling of the subject."

And again,

"Sentiment may best be expressed as the feeling of one who, on a warm summer's day, is rowing along a shady brook or resting in some sylvan dell, with nothing to interfere with his tranquil mood and nothing to spur him on to action; thus he has only suggestions of hope and indulges in rosy views of life. Reality, on the other hand, may be likened to

a crisp winter's morning when one is filled with exhilaration, conscious of the tingle of the cold, but comfortable in the knowledge of wearing a tightly buttoned garment which will afford protection should the elements become disturbing. Superstition, lastly, may be said to resemble a dark, cold, misty night, when the moon is throwing malevolent shadows which are weird and distorted, while the cold seems to seize one by the throat and arouse a passionate desire to free one's self from its grip in some way, to change a horrible nightmare into a pleasant dream."

It is probable that it is in the explanations which he gives of the causes of the "curious ideas and fancies" which have gathered around precious stones that Dr. Kunz makes his most important contribution to the subject of his book. So far as the present writer is aware, this has never been attempted before so carefully, or at least with so keen a sense of the mutual relations of the various factors involved. Thus the results of crystal gazing are shown to be due to hypnotism; fancy for birthstones to tradition; the powers of colored stones to color effects, and so on. Besides those already mentioned, some of the subdivisions of the subject treated are, "Talismans and Amulets," "Engraved and Carved Gems" and "The Therapeutic Use of Precious Stones."

As a compendium of the virtues and powers ascribed to precious stones, this work is probably not entirely exhaustive, but it is not meant by this statement to imply that the book is not comprehensive. An exhaustive catalogue of the various attributes of precious stones would probably lack the readableness with which Dr. Kunz has succeeded in investing his work in a remarkable degree. In typography and illustrations the book exhibits the sumptuousness which has always marked Dr. Kunz's works. Some further indication than is given of the size of the objects represented in the plates might be desirable and one could wish more of the jewels to have been represented in color. These are, however, but slight shortcomings in a book which can hardly fail in any part

to interest the student of precious stones and of mind.

OLIVER C. FARRINGTON

*The Anarchist Ideal and Other Essays.* By R. M. WENLEY.

This contribution of Professor Wenley's must be accepted as it is offered, as a record of varied interests. The topics considered, which in part appeal to the man of science, are various. The essay which gives the name to the volume is entirely retrospective in its view and supplies a parallel in Greek life for the independence of thought and the revolt from established conventions, of which theoretical position the anarchist is a practical and an extreme expression; it is a study of the intellectual sources of the anarchist position. Its value consists in broadening the historical aspect of movements which in their modern setting are overshadowed by local situations. Similarly retrospective is the essay upon "Plutarch and His Age." The central position in the volume is given to a review of the early movement towards physiological psychology. This is an able presentation of the philosophical positions which preceded and guided the formation of psychology as a scientific pursuit. The complex origins are traceable primarily to German philosophers as well as to such men as Weber, Fechner, Lotze, Helmholtz and Wundt, whose philosophical interest was joined to their more rigidly scientific investigations. It is Professor Wenley's purpose to supply not a narrative of the contributions of these men, but rather an interpretation of the intellectual movement which guided them towards the consummation to which they severally but differently contributed. On the whole the two educational essays, the one on "Heredity and Education" and the other on the "University in the United States," give ampler opportunity for Professor Wenley's individuality of thought and for the display of the temper of his opinions. By long residence a member of the professorial guild in this country, yet by training and tradition equally at home in the intellectual perspective of English and Scot-

tish universities, he is in a peculiarly favorable position to perform the functions of comparative criticism which he judiciously exercises. Considerate alike of the inevitable shortcomings of educational provisions in the pioneering stage and of the success which has attended them, he retains the fundamental critical attitude in view of old-world standards; he retains also the rare gift of seeing things as they are, despite the enveloping fog which optimism so commonly breeds. The chief note of his complaint is the neglect of individuality and the lack of professional opportunity within academic life for the man of parts, whose development does not conform to the conventional channels of preferment. In a like sympathetic spirit he attempts to portray for English readers some of the peculiar problems which beset American universities, and does so with remarkable success. From beginning to end the volume is characterized by a directness of statement and an insight into relations which gives the whole a higher value than the seemingly casual treatment suggests.

JOSEPH JASTROW

#### THE PHYLOGENETIC RELATIONSHIPS OF THE OYSTERS

DR. JAWORSKI, of Bonn, has given in the "Zeitschrift für Induktive Abstammungs- und Vererbungslehre" an interesting discussion of the phylogenetic relationships of the oysters. The material upon which he bases his new *Ostrea* genealogy was collected in the middle Jurassic (Dogger) of northern Peru.

Jaworski's theory is based on the discovery of a new ostreid in the Peruvian Jurassic of considerable dimensions—approximately those of a large *Ostrea virginica*, though much more massive—characterized by (1) incurved and strongly gyrate umbones (those of *Ostrea sensu stricto* are approximately straight); (2) by a broad and greatly elevated hinge area (that of *Ostrea* is moderately low, and either broad or narrow); (3) by a ligament partly internal and partly external, located in large measure behind the beaks and produced beyond the hinge area proper (that of *Ostrea* is wholly