pathology; that the study of diseases of the brain throws much light upon normal mental processes. In a future edition we hope to find a more thorough investigation of the facts of pathology. Dr. Calderwood has made a distinct advance from the old position, which limited the study of psychology to the facts presented by self-consciousness. In this direction there is room for farther advance. The candor of the author, his critical acumen, and his freedom from irritation in stating or examining opposing views, fit him for the work he is doing in an eminent degree. His style is finished and attractive. The book, with its numerous illustrations, is pleasant reading, and will doubtless reach a third edition. It will be of interest and of service to those who, from lack of familiarity with German, are unable to read the superior work of Wundt, *Grundzüge der physiologischen-psychologie.*

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## *THE GOVERNMENT AGRICULTURAL REPORT.*

*Report of the commissioner of agriculture for the year 1883.* Washington, *Government printing-office*, 1883. 496 p., 11 pl. 8°.

THE present volume is the twenty-third, we believe, of a series eminently well qualified to excite the curiosity of a scientific inquirer. It must, in truth, be admitted that the volumes of this series are less peculiar, on the whole, than their immediate predecessors, the so-called agricultural portion of the old patent-office reports; but the new dispensation has been odd enough, and it will doubtless be freely commented upon by future historians on this account. Taking the volumes one with another, the investigator will find in them a considerable mass of 'statistics' at which he may well look askance; divers reports 'of divisions' or of specialists, of every conceivable grade of mediocrity, illumined at rare intervals by glints of sense or strength; while occasionally he will come across papers of real excellence. In addition to the official lucubrations, there has generally been published a considerable bulk of twaddle, pure and simple, obtained 'by favor of representative farmers,' and published, evidently, for the purpose of pleasing the writers. Such men are, in truth, representative specimens of the class which finds comfort and satisfaction on seeing its name in print. People of this sort have always hung like an incubus on the agricultural newspapers of the country, in spite of all the asphyxiative devices known to editors; but it is specially offensive to behold them emblazoned on the very escutcheon of the greatest nation on earth, — on the facet, namely, presented by one of the most conspicuous of the governmental establishments. It is but mild reproof to say that the department of agriculture has, from the beginning, kept well behind and below the standards of science and knowledge actually existent in the country. With regard to the matter of statistics, it is gratifying as well as in some sort amusing, to be assured officially that they are now valuable. The commissioner says (p. 9), "The division of statistics has never done better work than in the past year. It has advanced its standing for accuracy and breadth in this and in foreign countries. *Its aim is in direct contrast with the prevalent haste and superficiality of the day, towards completeness and fulness of statement, a true parallelism in comparison, and legitimacy in deduction,*" — a sentiment so elevated that we are constrained to print it in italics.

So long as men are men, there will doubtless be found two opposing camps to debate the question of the barren fig-tree. There will be those to cry, 'How long, O Lord, how long?' and to pray for means of radical destruction; while others of sanguine mood, together with all those who find comfort and shelter in the shadow which the tree casts, will insist on the continuance of processes of manuring, watering, grafting, caprificating, tinkering, and cosseting, even to the end of time. Thanks to such fostering care, the department of agriculture continues to live its life; and it is but fair to say, that, for the year now in question, some of its twigs or branches do give evidence of a certain vigor and comeliness. The reports of the entomologists in particular, and of the veterinarians, are noteworthy and praiseworthy. Professor Riley's report shows, as usual, the hand of a master in all its parts. Some of the experimental work relating to the destruction of insects will be found interesting by not a few general readers, more especially the results of trials of emulsions of petroleum used as insecticides. The discovery that petroleum can be applied in this way is manifestly one of very great practical importance for farmers, gardeners, and vine-dressers. Professor Packard's report on the causes of destruction of evergreen forests in northern New England and New York is full of interest and instruction. It is an excellent example of the manner in which technical scientific reports should be written.

Dr. Salmon's report on the work and plans of the veterinarians is indicative of scientific

enlightenment and of high ambition. The tone, withal, of a good part of his report, is excellent. To follow in the footsteps of Pasteur and Koch in the study of contagious diseases, to popularize the results of these investigators, and to surpass their results when possible, are certainly aims worthy the aspiration of any man. But the sympathizing reader cannot avoid the thought, that, while anticipation must necessarily come before fulfilment, past history most distinctly teaches that high hopes of future deeds and glory are wholly out of place in the offices and laboratories of the American agricultural department. The methods of Pasteur not only require intelligence, experience, scrupulosity, and the peculiar knack or good judgment which constitutes the so-called gift for experimentation, but the experimenter must needs have composure of mind, and a sense of continuity; i.e., a reasonable certainty of furtherance and support from year to year, such as a connection with the department of agriculture is little calculated to give. One of the chief objects of Dr. Salmon is said to be to discover the best means of introducing and diffusing the European methods of inoculation for rendering fowl, cattle, sheep, and hogs, insusceptible to various contagious diseases. To an ordinary citizen it would have seemed manifest that the veterinary profession throughout the country must be a fitting vehicle, both for the conveyance of the necessary viruses, and the application of them. It would seem, too, as if the members of the veterinary profession, if anybody, would be keenly alive to the duty of procuring the needful 'attenuated virus,' even if the object had to be studied in European laboratories. Where such enormous money interests are at issue, and open, for that matter, for the remuneration of competent practitioners, it seems well-nigh incredible that the profession should idly await the action of a government official before advancing upon the common enemy with all the appliances of modern warfare. It is plain enough that the protection of domestic animals from contagious diseases is a subject which must necessarily become very prominent in this country in the near future; and time alone can tell how the doings of the unattached veterinary doctors will compare with those of their brethren in government employ. But assuredly there must be some misconception lurking in the minds of the department officials, if they really suppose that the veterinary profession is necessarily incompetent to deal with a problem because, forsooth, the known methods of solving it happen to be delicate and expensive. We would have argued, rather, that it would be distinctly discreditable to the profession in this country, unless it should be found foremost in applying known remedies of approved efficacy.

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## *THE PANTHER-CREEK COAL-BASIN.*

*Second geological survey of Pennsylvania, A. A. First report of progress in the anthracite coal region. The geology of the Panther-Creek basin, or eastern end of the southern field.* By CHARLES A. ASHBURNER. Harrisburg, *Survey*, 1883. 47+ 407 p., 7 pl. 8°.

THERE is evidently some divergence of opinion as to what is the proper scope of, and what the best method of conducting, a geological survey. All, undoubtedly, would admit, to the public at least, that its primary object is the development of the mineral resources of the region under survey. As to whether, for the accomplishment of this purpose, it is better to devote the main part of the work to those general questions which form the basis of all geological investigation, making the practical application of geology to economic ends a secondary matter, or whether, on the other hand, it is better to lay more stress upon the practical solution of the problems of most pressing economic importance, and let the facts which bear upon the general questions slowly accumulate, to be treated systematically later on, there is, however, less unanimity.

The second geological survey of Pennsylvania has apparently followed the latter system; and Mr. Ashburner's work in the anthracite regions is among the best specimens of this kind of work. In his prefatory letter he says, —

"My principal object has been to make the results of the survey practically useful to those directly interested in the exploration and exploitation of the anthracite fields; and therefore the work in the field has been prosecuted under the constant review of those connected with or engaged in the mining of coal.

"The policy of pushing the purely geological and mining work of the survey at the outset, in order that practical men might see some results, and be able to judge their utility, not only to themselves, but to all having interest in the anthracite region, has proved a wise one. The publication (in advance of the report) of 13 atlas sheets, accompanying this report, has already secured to the survey the support of every one in the region, from the miner engaged in cutting coal in the mines, to the presidents of coal transportation companies, all of whom were unanimous in urging the appropriation which was made by the legislature of 1883."

The maps themselves have already been referred to in this journal (vol. i, p. 309). The