

for the year ending June 1, 1886, states that the great equatorial has been chiefly employed in the examination and sketching of southern nebulae. The nebula in Orion, and the Trifid and Omega nebulae have received special attention. 351 observations of miscellaneous nebulae have been made, resulting in 226 drawings, and the discovery of 233 nebulae which are supposed not to have been hitherto detected. Only a few nights have been suited to the micrometrical measurement of double stars; 76 observations have, however, been made. Observations of three comets have been made. Tuttle's comet was observed at only one other observatory, Nice, in France; and Barnard's comet of 1886 was observed at this place three weeks later than elsewhere. The small equatorial has been employed in revising the catalogue of stars south of 23° . The observations for the revision of the 23° zone are now practically completed. The director, Ormond Stone, expresses the opinion that the past year has been, without exception, the poorest for astronomical observations which he has ever known. Not only have there been an unusual number of cloudy nights, but even on clear nights the definition has been almost always extremely poor.

— An interesting combination of the Coulier-Aitken theory of the control of dust on cloud-formation with Thomson's investigation of the effect of surface form on evaporation has lately been made by Dr. Robert v. Helmholtz. He finds that a definite and perceptible cooling of a mass of moist air below its dew-point is needed before any condensation begins, and ascribes this to the facility with which the first-formed water-droplets would evaporate on account of their sharply curved surfaces; so that super-saturation is needed to begin their formation. At the same time, the degree of super-saturation ordinarily needed is less than that required in dust-free air, because the dust particles diminish the surface-curvature of a given minute volume of water; and also, at the beginning of condensation, the particles may prevent evaporation from the surface of water that is attached to them. Filtered air has been carried to tenfold super-saturation without a trace of mistiness.

LETTERS TO THE EDITOR.

**.*Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.*

Ely's Labor movement in America.

ALTHOUGH I have never before written any thing in reply to the censures of a reviewer, I feel moved to say a few words about the critique of my 'Labor movement in America' which appeared in *Science* for Oct. 15.

There are several reasons for this departure from my ordinary course. First, other authors have

established the precedent, and *Science* has already published statements in reply to severe criticism of a book. While an author should doubtless decline to discuss his own capacity or general qualifications for his task, it may be very proper for him to call attention to positive misstatements of his reviewers. I am inclined to think it desirable that this should become general, as it would perhaps lead people to read a book carefully before reviewing it, — a thing which may be regarded as exceptional at present. Second, while it is doubtless not worth while to notice those who fail to distinguish between a torrent of personal abuse and serious criticism, it cannot be incompatible with one's self-respect to point out the errors of fact in a critique written by a person like N. M. B., who evidently desires simply to give expression to truth, and not to vilify an author. Third, a review is read by many who never see the book reviewed; and it may even be my duty to correct serious misapprehensions to which the article by N. M. B. must give rise, especially as they relate to such grave and pressing problems of the hour.

N. M. B. says that I seem to uphold "the extremists in their contention that all the evils of the present state of society are due to private property and the lack of proper co-operation in production and distribution." This is simply inconceivable to me; for the exact opposite is stated, I think I may safely say, fifty times in the book reviewed. I can find no more rational explanation for this astounding assertion of N. M. B. than that during a nap between chapters it came to him in a dream. If I held the opinion attributed to me, the remedy for social evils would be the abolition of private property; in other words, the socialistic programme. Is it not a little strange, that, with one exception, the sharpest attack on the book should have appeared in the organ of the socialistic labor party, while other reviewers complain because I leave nearly every thing to sympathy and benevolence, and furnish no adequate room for the activity of the state? The truth is, I point out many causes for the evils of present society, as intemperance, imperfect ethical development of man (which N. M. B. acknowledges, thereby falling into self-contradiction), unchastity, ignorance of the simplest laws of political economy, extravagance, and, in fact, 'the wickedness of human nature.' When, in his reproof of me because I failed to see so deeply as an ancient sage, N. M. B. goes on to ask labor agitators and 'their allies among professed political economists' whether the social, political, economic, and ethical elevation of men at large, and the human nature that is in them, is not what is wanted, he repeats my own words. I have dwelt at length on this point because I regard the accusation brought against me as a serious one. While I would not reproach N. M. B. with malevolence, I do bring against him the charge of culpable negligence. This is not the only case where the reviewer dwells on objections to the programmes of labor organizations, which I have pointed out, in such manner as to convey the impression that I have failed to see them. He does this in the discussion of the financial platform of the knights of labor. N. M. B. still labors under the delusion that men in masses in this country strike, and do all sorts of dreadful things, because some one 'snaps his fingers.' No doubt, he has read it in his daily paper; but for a man of scientific pretensions to repeat it, shows a strange ignorance of human nature and of the operations of the mind of

man. A knowledge of natural phenomena is now regarded as a necessary qualification in a man who would instruct others in natural sciences. At some future time a knowledge of social and industrial phenomena will be considered a desirable qualification in a writer on economic topics: when that happy time comes, we will hear less about 'some one snapping his fingers' and turning the world upside down.

Only one other point. N. M. B. says I gather facts to suit a preconceived theory. If he had read the book more carefully, he would have learned the true state of the case; namely, that I began my investigation with a theory opposed to labor organizations, but was converted from my former opinion by an overwhelming and irresistible array of facts disclosed by serious investigation.

N. M. B. is not the only one who exhibits gross carelessness in reviews. The fault is common; and my own conscience pricks me when I remember one critique which I wrote several years ago. But it is time to emphasize the duty which a reviewer owes not merely to the author, but to the general public, to master the contents of a book before presenting an estimate of it to the world. RICHARD T. ELY.

Johns Hopkins university,
Baltimore, Oct. 22.

In a criticism of Professor Ely's 'Labor movement in America,' by N. M. B., in your issue of Oct. 15, it is stated that the evils which socialists ascribe to 'the institution of private property' are not the true cause of the evils or labor troubles, but that they are caused, as Aristotle held, by the 'wickedness of human nature.' No standard for good and bad is given by N. M. B., and the reader is left at a loss what 'wickedness' may be according to Aristotle or N. M. B. It is fair to presume that selfishness—utter, brutal, unmodified selfishness, the mere following-out of the brutal, selfish instincts of man, regardless of the welfare or interest of other selves—is what Aristotle and N. M. B. mean.

"Every one for himself, the devil take the hindmost," is, then, the expression of the greatest wickedness or worst trait of human nature: that is individualism, pure and simple. Opposed to that, on the other extreme, as absolute goodness, would be altruism. Between the two, as the golden mean, is equity, or socialism, — live and let live; each for all, and all for each. The history or evolution of human nature—that is, the ego-altruistic or ethical part of human nature—is simply a development from the utter selfishness of the lowest brutes to the social instinct of man. That is the very thing that makes man, or the human character of the animal man. As man develops from a mere individualist, he becomes, therefore, better according to the degree in which he develops his social or equity nature; that is, as he grows to be a socialist. That answers Mr. N. M. B.'s question, whether these labor agitators consider it is the wickedness (total depravity?) of man that needs to be reformed, or the economic-social institutions. The answer is, Both. Human nature has developed already from a low, beastly, selfish savage, to a golden-rule man; but our economic institutions are not yet brought into accord with that development of our human nature. To do that is the work and objects of the socialistic agitators. When that is done, it will again have a reflex action on our nature (like all material environment or social institutions), and help to make human nature still better than it now is.

ONE OF THE AGITATORS.

On the figures illustrating zoölogical literature.

When a zoölogist takes up his pen, brush, or pencil with the intention of executing a drawing of a zoölogical subject, either new or old, with the view of publishing it to the world, he assumes, in my opinion, one of the greatest responsibilities that can fall to the lot of man. This responsibility is none the less, of course, when the zoölogist is obliged to review the work done for him in this way by others, and applies to all manner of figurative illustration for zoölogical literature. On the other hand, I think science is fully as much in debt to him who furnishes her literature with an absolutely accurate, clear, and instructive figure, as she is to the writer who produces in type a full, trustworthy, and comprehensive description of the same subject. And, indeed, in many particulars, a good drawing of any object in nature, in the vast majority of cases, leaves a much more lasting impression upon the mind of the student than does sometimes the most lucid of descriptions. For instance, if we had never seen an elephant, nor a good figure of one, how different would be the ideas of different persons, were they to attempt to draw an elephant simply from a description, however good that description might be! How important it is, then, that original figures in zoölogy, including all its branches, should be as perfect and correct likenesses of the object they depict, as possible!

The writer, who has thus far contributed some thousand original drawings to the various departments of zoölogy, feels that no one more than himself needs the greatness of this responsibility laid before him, and I am fully aware of the shortcomings of some of my early attempts; but, be it said in justice to myself, I believe at the present writing duplicates, either in press or in the hands of publishers, of all of those that evidently required special improvement, are now furnished.

Great encouragement is held out in the future to all naturalists, in the numerous methods that are being perfected, by means of which the originals are accurately transferred to metal without the interference of another hand; and more especially does this encouragement come to those naturalists who take great pains, and are skilful with their work.

Electrotypy, however, and the ease it affords for reproducing all manner of work, threaten such scientists and naturalists who illustrate their own writings, with another danger, for which steps must soon be taken to protect them. This danger comes more especially from that class of writers who are either indifferent artists or will not take the time to make their own figures. Such people are apt to become very lax in the principles which pertain even to the matter of courtesy in the premises, and often, without your leave or by your leave, copy the drawings of others by electrotypy to illustrate their own books, which latter are only too often hastily made in other particulars.

And should an author have his writings and carefully executed drawings come out from the government press, why then these people to whom I allude seem to think that they are under no obligation of any kind whatever, and immediately plunder any thing they see fit to use. This is a great injustice to the original artist and describer: for in time it is sure to rob him of his right, as government publications are rarely seen by the public at large; and the first thing he knows his unacknowledged draw-