

future before it as awaited *Crelle's Journal* half a century ago.

The only method of "endowing the research" of the pure mathematician is to give him a journal, and this the Johns Hopkins University has done for America. Two years ago it seemed a question whether it was worth while to apply to the Cambridge Commissioners to endow mathematics in a similar manner in England. On the whole it seemed better not to make such an application, as the obvious difficulties in the way of the editorship, &c., of a subsidised journal would be considerable, and the existing journals, which support themselves, seem to fairly meet the demand. But for the foundation of the London Mathematical Society in 1865 the want of a large mathematical journal would have become pressing; as it is, the *Proceedings* of this Society may now be regarded as taking the place of a leading English journal. The journal, however, has two important advantages over the publications of a society: (1) the printing of the papers is unaccompanied by the formalities of reading, being reported on by referees, &c.; (2) the journal is much the more procurable, especially if separate numbers be required; it also affords more rapid publication.

J. W. L. GLAISHER

OUR BOOK SHELF

Six Life Studies of Famous Women. By M. Betham Edwards. (London: Griffith and Farran, 1880.)

THIS is a readable and instructive collection of studies, containing, among others, notices of two women notable in their different ways in the history of science—Caroline Herschel and Alexandrine Tinné, the famous African explorer. The studies are marked by care and neatness, and are on the whole fair estimates of the work and life of the subjects. They are accompanied by six well-executed steel portraits.

LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.]

[The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to ensure the appearance even of communications containing interesting and novel facts.]

Lord Rosse's Telescope.

IN an article in the *Times* newspaper there occurs the passage—"With regard to the mighty mirror of the Parsonstown reflector M. Struve has spoken in no very complimentary terms. It was said of Sir W. Herschel's four-foot reflector that it 'bunched a star into a cocked hat;' but even this is scarcely less satisfactory than M. Struve's remark that at Parsonstown 'they showed me something which they said was Saturn, and I believed them.'" This revival of the statement attributed by Mr. Proctor in *Fraser's Magazine* for December, 1869, to "a distinguishing (*sic*) astronomer," has called forth the appended letter from the Imperial Astronomer of Russia. It is satisfactory to receive direct from M. Struve a statement of his experience of the performance of the six-foot instrument. ROSSE

25, Chesham Place, S.W., May 26, 1880.

"MY DEAR LORD ROSSE.—Yesterday evening a friend conveyed to me a note, inserted in the *Times* of April 3, under the title 'Three Giant Telescopes,' in which I am told of having expressed myself in a very uncourteous manner on the optical qualities of the great reflector constructed by your late father. I beg leave to say that those expressions are altogether invented

by the anonymous author of the note, or, at least, quite a voluntary and thoroughly wrong interpretation of what I may have said. I am sorry my name is abused in such a manner by people who probably have a design of their own in depreciating the performances of the instrument, the construction of which marked in itself a high progress in optics and mechanics, and which in its space-penetrating power has not had any rival until now, though certainly with regard to definition (particularly when the mirror is considerably out of horizontal position) there are other instruments superior to it. "OTTO STRUVE
"Pulkova, April 14"

Brain Dynamics

IN his clearly-written letter on this subject Mr. Tolver Preston seems to think that the reconciliation which he offers between Free Will and Necessity is a novel one. In this, however, he is mistaken, as the supposed reconciliation was very distinctly stated by the late Prof. Clifford in his lecture at St. George's Hall on "Body and Mind." But of more importance than the novelty of the reconciliation is the question as to its validity, and it is on this question that I shall make a few remarks.

The suggested reconciliation is as follows:—No upholder of Free Will can desire to maintain that a man may act, or desire and will to act, otherwise than in conformity with his character; for to maintain this would be to maintain that a man may act at random, without reference to any fixed principles of action, and that the Will is free only in the sense of being erratic. But if it is admitted that by freedom of the Will is meant freedom to choose within the lines laid down by previous character, and freedom, therefore, to shape future character by present volitions, it follows that upholders of the Free Will doctrine ought not to quarrel with those who uphold the doctrine of Necessity as due to "brain dynamics"; for the latter doctrine supplies the very basis which the former doctrine requires. It shows why the Will always acts in accordance with previous character; it shows that the Will can never be free in the sense of being lawless, or not determined by adequate causes; and it shows that the Will must be free in the sense of being able to choose between motives supplied by the structure of pre-formed character. Thus, it is represented, believers in Free Will ought to welcome modern physiology with all its "materialistic" deductions from "brain dynamics" to mental changes. For, unless these persons desire to land themselves in that quagmire of hopeless nonsense—the conclusion that volitions are uncaused—they have no alternative but to conclude that volitions are determined by motives, which are themselves determined by previous character. But if once volitions are thus conceded to enter the stream of causation, the more rigid the causation, the better for such freedom as remains, seeing that the latter, if always strictly determined, can never be lawless or erratic. Now of all things rigid, that which is least open to any suspicion of laxity is physical causation. Consequently, if the Determinism of Psychology admits of being resolved into the Neurality of Physiology, believers in the Freedom of the Will ought to rest peacefully satisfied that while they are free to act within the limits prescribed by their own characters, they have the sure and certain guarantee of physical causation that their volitions can never break out into activity at random. Or, as Mr. Tolver Preston puts it: "Solely in virtue of the fact that there is strict Causal Sequence in nature are the actions brought into strict conformity with individual brain structures (or with character). If the principles of dynamics were not rigid, or if the laws of nature were liable to alteration, a man's actions might sometimes be in harmony with his brain structure [character], sometimes in discord with it; or any number of persons, though possessing totally different brain-structures [characters], might act identically. The questionable expediency of the proceedings of those who are disposed to grumble at what they term the 'iron' laws of nature becomes apparent here."

Such, I think, is a full statement of the suggested reconciliation. I shall now proceed to show that as a reconciliation it is utterly futile.

There is nothing to be said against the reasoning as far as it goes; but it is curious, if not unsatisfactory, that both Prof. Clifford and Mr. Preston should have performed their little play without letting us know that the Prince of Denmark has been omitted. His name in this case is Responsibility. No doubt it is perfectly true that the suggested reconciliation shows to all believers in Free Will that their belief ought only to include freedom "as freedom to act in accordance with" character;