

only between two portions of matter, and that its effects on these portions of matter (measured by the momentum generated in a given time) are equal and opposite. *The stress is measured numerically by the force exerted on either of the two portions of matter*" (the italics are mine).

In making this quotation, as in making other quotations from the same authority in my pamphlet, I appeal from Maxwell the critic to Maxwell the author. The passage just quoted meets so many of the points raised by Professor MacGregor, that I shall trench upon your space no further now, except to thank Professor MacGregor for his general commendation of my pamphlet, and to say that I made my quotation from Minchin, not to support my use of the term 'inertia force,' but because of its recognition of what Minchin there calls the 'kick' of a body 'against change of motion.'

E. H. HALL.

Cambridge, Mass., Feb. 13.

German constructions.

Permit me a few words apropos of the various letters called forth by my remarks about German scientific writings. To Mr. Eggert, who found fault with me so abundantly, there was no possibility of reply, as his motives were emotional, and criticism has nothing to take from emotion except sympathy to understand. Mr. Eggert wrote, "'M' assumes to judge of the literary qualifications of people who use a language with which he himself is less familiar than he is with French and English." I regret that he made this erroneous statement. But experience has shown, that, when people express opinions on subjects they know nothing about, they are not unapt to make serious mistakes, and so Mr. Eggert has blundered about my knowledge of languages.

In regard to Mr. Lea's sentence with the six pronouns in execrable succession: is it much worse than the following sample of what is grammatically good English?—"He said that that that that that man used was incorrect."

Mr. Frazer gives a sentence, which he kindly admits to be obscure, although it follows upon the expression of his admiration of the lucidity of that kind of *emboîtement* phraseology. He admires even this sentence, *Dem, der den, der die, das Verbot enthaltende Tafel abgerissen hat, anzeigt, wird hierdurch eine Belohnung zugesichert*,—"because it says in eighteen words and ninety-five letters what cannot [*sic!*] be literally translated into English in less than nineteen words and one hundred and four letters." A very small difference! Suppose one exclaims 'tram' 'Pferdebahnwagen,'—one word and four letters, and one word and fifteen letters; or 'wood-master' and 'Holzversorgungsinspector.' In Austria the full title of the official is *kaiserlich-königlich-Staatseisenbahnholzversorgungsinspector*. Such petty comparisons are, of course, only *jeux-d'esprit*, and have little argumentative value.

To return: the English of Mr. Frazer's perspicacious phrase might be; in strictly literal translation: "A reward is hereby promised to whomever tells who removed the warning sign,"—thirteen words and sixty-two letters; or if we put, as would be natural in English, 'notice' instead of 'warning sign,' twelve words and fifty-seven letters. There is some difficulty, as there is no exact equivalent for *Verbot*. In English, 'die das Verbot enthaltende Tafel' might well be 'notice to trespassers,' or some-

thing of the kind. It would be interesting to know what Mr. Frazer's lengthy translation was: it can hardly have been any thing but a ludicrous rendering of word for word, and not real English at all, either in spirit or construction. The example will serve my purpose: German permits very lengthy and involved sentences,—I think of my friend, a distinguished professor, who rejoiced that the twelfth part of a work on mineralogy had come; it completed, he said, the first volume, and he hoped to find the verb in the second!—a mere droll exaggeration. But what must be the possibilities of a language when such a joke about it makes one laugh? The gist of the whole matter is, that a great many German writers do display the bad possibilities of their tongue; and when Mr. Frazer says that the best writers seldom or never use the involved sentences, he makes an implication about the good and mediocre writers which shows that he agrees in reality with the general opinion that German authors have too frequently a faulty and obscure style. I commend to his notice Matthew Arnold's criticisms on the Germans, or Rivarol's.

M.

Boston, Feb. 10.

On certain electrical phenomena.

At one time it was very hard for me to believe, indeed, that any person living possessed such a power as being able to shuffle across the carpet of a room, and light the gas as it issued from the jet of the burner, by simply touching it with the tip of the finger. I have at present, however, two friends, at least, among my acquaintances, who seem to be capable of performing this feat at all times, and under any circumstances. Now, I find similar phenomena exhibited to a very high degree in my own person, at Fort Wingate here. This point is over 6,000 feet above sea-level; the only water in the neighborhood is a small pond—a puddle, really—and a few insignificant springs. The air is usually clear, and highly rarified; indeed, all the conditions seem to be favorable to the exhibition of electrical appearances.

Only the other day, while pacing my room, passing, as I did so, each time, over a large woollen Navajo blanket that lay spread out on the floor, a circumstance arose which called upon me to touch the cast-iron urn that ornamented the top of a small wood-stove in the apartment, and which had a fire in it at the time. Before the tip of my index finger touched it, by a distance of fully a centimetre, there was displayed in the intervening space a brilliant electric flash, accompanied by a report that could be distinctly heard in the adjoining room above ordinary conversation. The experiment was repeated three or four times, but the display became more and more feeble with each trial; it regained its original force, however, after I paced across the blanket on the floor a few times. Additional experimentation went to show that this electrical discharge was considerably greater from the tip of the index finger than from any of the others of the hand, and gradually diminished in regular order as we proceeded to the little finger; and, further, it seemed in my case, more evident in the left index rather than in the right one. When all ten finger-tips were drawn together and then brought up to within a centimetre's distance of this stove-urn, the flash and report appeared no greater than it did from the index finger alone.