

Prussia and the empire together would form a fairer basis for comparison with the United States than would the empire alone, because the latter leaves the civil administration almost entirely to the individual states. The comparison with Prussia and the empire together, however, would not be exact, as in Prussia the nation assumes some functions which are here left to the states; but it is safe to say, that, if we could compare with accuracy the expenditures for like purposes in Prussia and the empire together and in the United States, it would be found that the proportions in each of war expenditures were nearly the same; and of course, if we consider the *productive* expenditures of the German states, the percentage of war expenditures will be much smaller than in this country.

I do not mean to deny Mr. Atkinson's general statement that a larger proportion of expenditures goes for war purposes in Europe than in the United States, nor to underestimate the other burdens which a great standing army imposes, but merely to point out, that, so far as state expenditure for war purposes is concerned, the difference between this and other countries is not so great as we are apt to think, and that in the case of Germany it is doubtful if whatever difference there may be is in our favor.

Mr. Atkinson also holds "that the revenue of state forests, mines, and other instrumentalities of subsistence . . . constitute as true a tax upon the people as if they had been assessed directly on their property."

That is a question that ought to be determined before we begin to make comparisons. If we intend to count profits from lands, mines, and railroads as taxes in Europe, we must do so in this country.

If the consumer is served equally well and cheaply by a private and public producer, profits are no more a tax in one case than in the other. It would be difficult to convince any one that it makes no difference to the German tax-payer whether governments derive from the profits of railroads a revenue sufficient to pay the interest on the public debts, as is the case in the German states, or whether that revenue comes from taxation, provided the railroads are as well managed as they would be if government did not control them.

HENRY B. GARDNER.

Johns Hopkins Univ., Baltimore, March 21.

The characteristic curves of composition.

With regard to Professor Mendenhall's novel paper on 'The characteristic curves of composition,' in your issue of March 11 (No. 214), which proposes to represent and compare the orthographical productions of writers by a statistical and graphical method, it seems to me, that, interesting and instructive as are the results he has reached, they are confined to a range of inquiry too narrow to bring into sufficient relief the personal idiosyncrasies of individual writers, and to a kind of enumeration in which personal peculiarities are too much marked by the particular language in which they write.

That the characteristic curve is principally controlled by the language in which the composition is written, is evident from the comparatively small difference to be found between the various English writers between whom comparison is made, as well as from the marked departure from this general shape of the English curve to be seen in that of Caesar's 'Commentaries.' The curve found for any

other Latin author would presumably not differ from this one more than the curves of various English writers differ from each other.

What the general shape of the characteristic curve may be for any writer is determined, then, principally by the language in which he writes.

It would be interesting to compare several languages with each other, so as to obtain approximately the normal curve for each. An inflected language, like Greek, Latin, or German, will, of necessity, have its normal curve largely affected by the numerous letters forming the terminations. Moreover, any tendency toward the formation of compound words, such as *Pferdebahnwagon*, or toward agglutination, would also have its effect upon the shape of the curve. Such a comparison would doubtless furnish tests on which to build new arguments and comparisons respecting the vexed question of Teutonicity, and the like.

But to return to the point with which I began; viz., that there are other characteristics of writers equally susceptible of treatment by the statistical and graphical method, in which their personal peculiarities differ more widely, and which are therefore more characteristic than the habitual selection and use of long or short words. For example: it seems to me that the length of the sentences employed by a writer is such a peculiarity, and one which, although influenced somewhat by the particular language in which he writes, is nevertheless an expression of his habits, feeling, taste, and individuality to such an extent as to exhibit necessarily some characteristics which would distinguish him in a marked manner from other writers.

The length of the adjective modifiers of substantives seems also to be a particular well suited to bring out individual characteristics by a similar enumeration. In this category may be mentioned also the length of the adverbial expressions; the complexity of the verbs; as well as the character of the vocabulary as regards derivation from Anglo-Saxon, French, Latin, Greek, etc. The list of fit subjects of enumeration can be extended at will.

It would seem probable that a discussion of the results obtained by the simultaneous application of several of these enumerations would, in any case of disputed authorship, afford decisive tests such as could not be obtained from any one of them singly; and by its help the person making the investigation could exhibit to the public how weighty the evidence may be on which his judgment is based.

H. T. EDDY.

Cincinnati, March 14.

Earthquake weather at sea.

Your European exchanges have no doubt given you so full reports of the recent earthquake in this region, that it would be impossible for me to add any thing that would interest you or your readers. You may be interested, however, to have somewhat in as detail a report of earthquake weather at sea, such was encountered by the steamship *Gottardo* on its last trip from New York.

We sailed from New York on the 19th of February, and had disagreeable weather almost from the hour we left Sandy Hook. On Tuesday, the 23d, began a series of storms which kept by us almost constantly until we sighted the African coast outside the Straits of Gibraltar. The disturbance began about 4 P.M.