of the coil is tangent to the top of the head. If, however, the head be placed either at the top or the bottom of the coil so that the axis of the coil passes through the head from front to back or vice versa, *i.e.*, if the axis of the coil and the occipito-frontal axis are parallel, there is a marked lessening of the effect. When the head is placed so that the axis of the coil takes the third direction, *i.e.*, along the line from ear to ear, the effect is restored to the higher intensity.

The general direction of the optic pathway is parallel to the occipito-frontal axis. In the positions of the head in which the effect is greatest this axis is perpendicular to the direction of the magnetic field, and parallel to the same when the effect is least. This therefore suggests the presence of an induced electromotive force in the filament of the optic nerve. This explanation is hardly tenable however since in each of the positions of the head the optic nerve was practically at the center of a magnetic field symmetrical in the horizontal plane. Consequently the induced electromotive force mentioned should only occur when the head is shifted away from the center of symmetry; the coil was not large enough to permit any appreciable movement of this nature. There remains the fact that at the ends of the coil the magnetic field is sharply divergent, and if the sensations are due to a magnetic property of the tissues or nerves of the head, variations would be expected under the conditions in which they are observed. Professor Dunlap to whom are due the initiative and principal labor of the experiments, hopes to carry the investigation further.

Professor Dunlap has published a description of the same experiments in a letter to Science (N. S. XXXIII, 68–71, 1911) in which they are described from the point of view of the psychologist. The reader who may be interested in this phase of the subject is therefore referred to Professor Dunlap's letter.

The Legitimacy of the Terms "Decelerate" and "Deceleration"

BY CHARLES P. STEINMETZ

As the propriety of using the terms "decelerate" and "deceleration" has been challenged in the PROCEEDINGS, and as I have used these terms to a considerable extent for some years, a defense of their legitimacy appears appropriate.

Incidentally, it is interesting to note that in the last edition of the Century Dictionary the terms "decelerate" and "deceleration" are recognized as correct English.

The justification of these terms depends on the answer to the three questions:

1. Whether it is permissible to introduce new terms into an existing language.

2. Whether there is a need for the terms "decelerate" and "decleration."

3. Whether these terms are formed correctly.

1. With the progress of the human race, new ideas are evolved, and new expressions for them have to be introduced into the language, and the development of a language thus can be closed only when it has become a dead language. This is not the case with the Latin language, as it is the language of scientific and engineering terminology and certainly not with the English language, and it will therefore be generally conceded that it is legitimate to introduce new terms into the English language, if they are needed.

2. The question thus is, whether the terms "deceleration" and "decelerate" are needed? "Deceleration" is synonymous with "retardation", and thus would not be needed, though it offers some advantage in its antithesis to "acceleration". The noun "deceleration" has been introduced as natural consequence of the verb "decelerate". This is *not* synonymous with "retard". "Accelerate" is a verb transitive and intransitive: "The mo-

tors accelerate the train ". " The train accelerates ". " Retard " however is verb transitive only: " The brakes retard the train ", but *not* " The train retards ". With the development of engineering, and more particularly the theory of electric railroading, the need appeared of a verb transitive and intransitive, having the opposite meaning of " accelerate ". Three ways for satisfying this need were available:

a. To extend the meaning of " retard ", by using it as verb intransitive. This has been done to some extent, and such expressions as " The train retards ", can be found in engineering literature. Such extension of the use of a term which had already a fixed meaning, is however hardly desirable.

b. To use the Anglo-Saxon expression: " slow down " and " speed up ". The objection thereto is the absence of corresponding nouns, as composite nouns " the speeding up ", " the slowing down ", are not best language. The main objection however is the unintelligibility of these terms to foreigners, as anybody will appreciate when attempting to read a technical publication in one of those languages where a mistaken patriotism had led to a nationalization of technical terms.

c. The introduction of the term " decelerate ". The latter appears the most feasible solution, and entirely legitimate, if the term is correctly formed.

3. Question then is, whether " decelerate " is correct in its derivation. That is, whether it is permissible to denote by the prefix de- the reversal of an idea, when the prefix ad- represents accentuation. I believe this is the case, and is in accordance with the use of these prefixes, and analogies to " celero ", " accelero ", " decelero ", can be found. Such an analogy, for instance, appears to me given by the terms " scando ", " ascendo ", " descendo " (climb, climb up, climb down), which all three are classic Latin.

In conclusion then, it seems to me:

1. It is permissible to add to a living language by the formation of new terms, if these terms are needed and are correctly formed.

2. The verb " decelerate " is needed, and with it the noun " deceleration ".

3. It is derived correctly, in accordance with the usage of the Latin language.

Desirable Technical Words

BY E. E. F. CREIGHTON

It has been predicted that the scientist of the future would necessarily be forced to become a narrow specialist on account of the great volume of accumulated information on a multiplicity of subjects. It seems, however, that this tendency to narrowness will be fully compensated by an opposite one in the form of general or universal laws which apply with equal force to many or all branches of science. Such universal laws might make it possible for even a mediocre mind of the future to comprehend as easily as a brilliant mind of the present, branches as widely separated as chemistry and psychology.

Teachers to-day and many engineers are forced to carry much useless dead wood and students usually waste much more time and mental energy than is necessary. An example, perhaps the most deplorable, is the use of the English system of weights and measures. Another example is the use of technical words which have various meanings. Universal laws will naturally come about as more data are collected and digested, but the waste of brain energy on needless complication will continue by the law of usage unless a constant effort is made to classify and simplify our technical language. It behooves, us, therefore, to examine carefully every new word and term that enters the technical vocabulary. Once fixed in the literature, objectionable words assume the form of the English incubus in weights and measures.

A class of the most objectionable words are words of general meaning in common use in non-technical language