pattern for any reaction under such circumstances involves a temporal factor whether the reactor analyzes the temporal factor or not.

Whether a certain group of reactions to a visual stimulus are of the "simple reaction" or the "complication" type can usually be decided from the average value, even where the conditions of reaction are not fully described. If the average is over 120 *sigma,* the reactions were mostly of the "simple reaction" type, although (if we do not know all the conditions) we can not be assured that some reactions of the other type may not have been mixed in. If, however, the average is under 50 *sigma,* we can be certain that the reactions were practically all of the "complication" type, since the "simple reaction" will seldom occur if conditions are such that the "complication" reaction can occur, and is occurring in the majority of cases.

With these facts in view, it seems to me that there is no room for confusion between the conceptions of the psychologist and those of the astronomers.

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ÆROBIC?

DR. W. W. KEEN'S objection to the word "erobic" (SCIENCE, March 23, p. 360) is perfectly valid. However, the substitute he proposes is equally objectionable. The Greek word is ἀήρ. Like most of our Greek words this comes to us through the Latin transcription, in this case aër, formerly written with a dieresis. Now that the dieresis is no longer in vogue, some confusion is apt to occur. At any rate, the word is a dissyllable and not a diphthong. Dr. Keen would not propose the use of a diphthong in the words aerate, aerial, aeronaut, etc.

ARTHUR W. DOX
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TO THE EDITOR OF SCIENCE—Dr. Dox surely has misread my letter in SCIENCE protesting against "erobic." I urged the retention of the "aer" as a disyllable. Personally I should use the diacritical mark to indicate the proper pronunciation.

The dropping of all accents in French by the newspapers during the war is wrecking their pronunciation, *e.g.,* "Poincaré" is often pronounced "Poin-car" or "Poin-care" and "communiqué" is distorted into "communeek" or even "communeek-quee."

If Dr. Dox will consult the Oxford Dictionary he will find that "disyllable" with one "s" is preferable to double s and that "dipthong" is an obsolete form of "diphthong" which in Greek is spelled with φ and θ (ph and th).

W. W. KEEN.

QUOTATIONS

PARK CONSERVATION

No one can justly charge the American Association for the Advancement of Science with flightiness, or suspect it of being swept off its feet through unpractical sentimentalism. Its strong plea to the governments and people of the United States and Canada that the great wild parks of both countries be more completely safeguarded against commercial exploitation of every form will, therefore, command attention and respect. The resolutions that the association has now issued upon this subject would seem to indicate that it recognizes the threatened encroachment of power developments within the national parks of both countries. Its appeal is not addressed to this particular menace alone, however, but calls attention to the fact that the parks are in many cases open to incursion by those who regard their various natural resources with covetous eyes. Gradually the public is coming to understand that the national parks are by no means as proof against materialistic raids as had been supposed. This call for a greater degree of protection, coming as it does from one of the most distinguished scientific organizations in the world, will tend to emphasize the situation and carry conviction as to its economic importance.

It will not be suspected that this association is unsympathetic with the endeavors of those who are legitimately developing the resources of the two countries. There is more than an implication in its resolutions, though, that it would be poor business to allow the material resources of the parks to be utilized except in those cases where a compelling and unquestionable public necessity exists. To safeguard the parks more thoroughly against unnecessary utilitarian developments, the association recom-

mends that the governments of the United States and Canada amend existing laws and secure such new enactments as may be needed to afford complete conservation to all units of what it terms "a unique continental exposition of inestimable value to science and to the popular education of future generations." —*Boston Evening Transcript.*

SCIENTIFIC BOOKS

Exercise in Education and Medicine. By R. TAIT MCKENZIE, M. D., director of physical education, University of Pennsylvania. The W. B. Saunders Company, Philadelphia, 1923.

Here is a book published by the W. B. Saunders Company of Philadelphia that quite delights us. The author has the courage of his convictions and has dared to put forward as the main title of his book that good virile word exercise—from the Latin exercitium, which originally meant "to drive out," "drive on," "set at work." The derived meanings of this word are full of significance at the present time: "to set in action," "to give employment to," "to school or train"; and consequently "to exert for training or improvement" and "to improve by practice" or "to perform for training."

At an age when the would-be leaders of men and creators of public opinion are playing to the intelligence of the lowest mentality for the sake of reaching the largest numbers, is it not time to call a halt to the descent to moral mushiness and spineless effort and make an appeal for higher standards of mental and physical activity? It does us no good to ascribe our soft, safe and superficial way of doing things to the relaxation that always follows a war. Rather should we profit by the lessons learned in the conflict. The recent war taught us two most valuable lessons—the feebleness and incapacity of over one half of the drafted men for service who had spent little time in exercising for self improvement, and the hardihood and efficiency of the men who were trained by vigorous pursuits for the army. Here again we meet our effective exercitium, the vigorous physical efforts which were first used to train and develop the Roman army which made the term applicable. Again it was *exercitium* that laid the foundation for the training and discipline of the German army. One conquered the world under Caesar, the other held the world at bay for three years under a Prussian Kaiser.

Waiving for the time being the great Christian, moral, ethical or political issues at stake, this fundamental biological principle can not be set aside; we can not get strength, either as individuals or as a nation, without making strong and vigorous efforts. The ability to drive on and guide and direct our efforts toward our own improvement is a God-given faculty that man can not afford to despise. It is only by perfecting our own mechanism that we can hope to maintain a footing in the world and be of any service to others. Here is the philosophy of physical education in a nut shell. The individual gradually acquires those qualities which his special activities require him to put forth. Thus if the activity requires strength, strength will follow with each effort. If it requires skill, skill will come with practice. If it requires alertness, poise, courage, self-command, all these qualities will be further developed as a matter of course.

With these simple fundamental truths in mind, it is interesting to see how Dr. McKenzie has followed the evolution of the general subject of physical education in the United States. Tracing as a physician the physiological effect on the individual of light, heavy and strenuous exercise upon the muscles, heart, lungs and nervous system, he proceeds to analyze the effects of different exercises upon age, sex and occupations.

All exercises are modified in their effects by environments and the supplementary agents of health, air, diet, sleep and clothing—which must be properly regulated and adjusted in order to bring the best results.

He has reviewed the German and the Swedish systems of gymnastics and traced their influence through our American schools and colleges. The influence of English sports and games and the modifying effects of athletics upon our foreign systems of gymnastics develop as we progress through the different chapters. The growth and spread of the general movement for physical improvement of the masses show themselves in the physical program adopted by the Christian Associations,