themselves a full year in chemistry in connection with the war emergency, the University of Pittsburgh will offer an eight-credit course in general chemistry during the eight weeks from June 26 to August 19. To enable college and university students to advance similarly, an eight-week course in organic chemistry will be offered for eight credits. Also beginning on June 26, twelve-week (full semester) courses will be offered in inorganic, analytical, organic and physical chemistry, and graduate courses in the field of advanced organic (type reactions and microanalysis) and physical chemistry, enzymes, kinetics and plastics. A special course covering "Recent Developments in Theoretical and Applied Chemistry" will be given for instructors in preparatory schools. Only full-time regular staff members will be in charge of these courses.

IT is reported in *The Times,* London, that the plan to train 50,000 pharmacists in China during the next ten years is being helped by the Pharmaceutical Society of Great Britain, which is sponsoring a proposal to offer scholarships of £700, to include traveling expenses, for each of two years at the University of London to Chinese pharmaceutical graduates who undertake to return as teachers.

DISCUSSION

EDITORIAL CHANGES IN SCIENTIFIC PAPERS[1]

PROFESSOR BOYD'S protest[2] against certain editorial practices deals mainly with the question whether such a term as "horse serum" is good English. That matter might have been disposed of more briefly. No one blessed with horse sense would call it "equine sense"; any one who did might arouse a horse-laugh. And if a serum obtained from a horse is "equine," one obtained from a donkey could only be "asinine."

More serious questions are brought up by Professor Boyd's observing that many manuscripts are completely reworked, and incidentally altered in meaning, without consulting the author. That seems hard to justify except on the ground either of great haste or of editorial infallibility. But the plea of haste would rarely be valid; and I have seen many manuscripts that had suffered editorial changes for the worse. As to matter that one sees only in print, it is impossible to determine just how good or bad the editing has been. Unfortunately for those who edit, their mistakes are open to the censure of critical readers, whereas the improvements they make are generally unperceived. It does not seem uncharitable, however, to assume that when a printed article contains obvious errors in syntax and punctuation, or when it is ineffective in ways that could easily be remedied, it has not been so well edited as it might have been; and that, it seems to me, is the case with much current scientific literature. If, as is probable, the faults of style in printed manuscripts were mostly in the original manuscripts and merely left in by the editors, most scientific manuscripts need more editing than they now receive. But more editing would not help unless it were good editing, and I believe that the quality of our editing could be improved (1) by assigning each of the several tasks that editing comprises to a person having special aptitude for that task, and (2) by humanizing the relations between editors and authors.

Editing begins with an administrative task, usually assumed by an editor in chief—that of determining what shall be published. Another task, essentially clerical, is the insuring of compliance with printers' conventions—including hyphens, for example, but not punctuation. A third consists in trying to improve the literary style by making it not only correct but effective.

For this work, which is what most people have in mind when they use the word "editing," I can think of no better name than "literary editing." One shrinks a little from using the word "literary," which may suggest, to some readers, endowing the style of all authors alike with qualities that are "literary" in the sense of "arty." But a good literary editor would surely not try to make either a G. K. Gilbert or a John Doe write like Walter Pater—nor yet like Ernie Pyle. He would always wish the style to be characteristic of its author's better self, and also suitable to its purpose, which would not be that of either Pyle or Pater.

By way of equipment, the literary editor would need more than a little stock of rules learned by rote, eked out with a few taboos, in the dim light of which he might revise each sentence by itself until it was grammatically correct. One who works in such a fashion may forget that a sentence can be correct and yet absurd when considered in relation to its context. Good editing, like all intelligent reading, all effective writing, and all rational thought, is a matter of relations. A good editor, therefore, will not be exclusively concerned with mere correctness; he will try to help the author make relations clear, and to bring out the relative importance of things by proper distribution of emphasis. He needs a literary sense, which I take to mean good judgment, drawn from a store of subconscious memories of his reading, as to what constitutes good usage. He needs also a critical sense,

[1] Published by permission of the director of the Geological Survey, U. S. Department of the Interior.

[2] SCIENCE, 98: 197, August 27, 1943.

in order to see what is wrong when he has trouble in understanding what the author says, or when his interest flags, and in order to find a remedy. The critical temper is commonly regarded, indeed, as unamiable, but a literary editor who was not critical would be no better than a piano-tuner who was tone deaf. Without a critical sense, the literary editor could not do what he has most at heart, which is to help the author make the best of his case.

He must also instinctively desire, one would imagine, to make his purposes understood by the author. That he can do to some extent by writing explanatory notes on the manuscript, and by sending a letter to the author when the manuscript is returned to him for consideration. The most obvious reason for sending back the edited manuscript is to give the author a chance to correct possible alterations of meaning. But the marginal notes and a considerate personal letter will, moreover, dispose him to consider the changes on their merits. When he can do that, he is likely to accept rather extensive changes without protest, and to point out those that he thinks unwarranted with some degree of good humor. When, on the other hand, he finds unexplained alterations in a proof that is accompanied by a request to "correct only typographical errors," his judgment is clouded by a sense of injury; he sees only the changes that he dislikes, and is in no mood to appreciate other changes which, could he consider them calmly, he might gratefully acknowledge to be improvements.

Other good effects are likely to ensue. The author may learn something that will make him write a little better for the rest of his life. Yes, and the editor may learn something to his own equally lasting advantage. A breaking down of icy walls, a climbing down from ivory towers, a letting in of air, would make for better editing as well as better writing.

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E. H. MCCLELLAND, in his retort[1] to Dr. Boyd's objections to arbitrary editorial changes of nouns to adjectives[2] makes the flat statement that it is a fallacy that parts of speech may be connected without the use of connectives. One would like to know his authority for this statement. Whatever its basis, the rule seems definitely disproved by the facts that (a) languages exist, like Chinese, in which no connectives are ever used, (b) the English language is full of expressions, such as "fence post," "rat poison," "medicine man," etc., which demonstrate very clearly that the use of nouns as adjectives, at least in a great many cases, is consistent with the genius of the language. No connectives are used in such expressions, and none are needed.

Whereas the traditional usage sounds familiar and is understood, the "reformers," who apparently want an adjectival form for every noun used as an adjective, seem to be attempting to foist off on us forms which are unnecessary and repugnant, such as "tetanal toxin," "porcine serum," etc. Furthermore, Mr. McClelland ignores the fact that in many cases the change to an adjectival form actually alters the meaning of the expression. "Porcine," for example, is certainly generally used to mean "looking like a pig," and we do not want to imply that there is anything piggy about the appearence of pig serum. Some pedants might perhaps say that in spite of this unfortunate connotation of "porcine," it should still be used instead of pig in expressions in which "pig" functions as an adjective, just to keep the proportion of adjectival form in use as high as possible. These same persons, however, would probably not consider changing "body blow" to "corporeal blow." As a matter of fact, in general, changing nouns to adjectives has an effect on the meaning which the proponents of the measure seem to ignore. It adds an attribution, often absent when the modifier is a noun, of the properties of the modifier to the noun modified. Thus "funeral parlor" means simply a parlor for funerals, whereas "funereal parlor" means a parlor which is "sad and solemn; dismal; mournful" (and not necessarily used for funerals). This fact probably partly explains the irritation felt by authors at finding nouns in their manuscript changed to adjectives on the printed page.

The most important point of all, however, seems to be that such changes of ordinary expressions into extraordinary expressions simply add another overtone of the bizarre to what is in too many scientific papers an already somewhat strained and unnatural style. They make it more difficult for the reader to find out what the author is trying to say, and this is often difficult enough, particularly when the subject is not too familiar to the reader. Even if there were some philological reason for wanting the change (which there is not), it would still be desirable to avoid it, since the primary purpose of writing, of scientific writing at least, is to convey something to the reader.

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IN Dr. Boyd's paper published in SCIENCE on August 27, 1943, he stated most effectively the position against "Arbitrary Editorial Changes in Scientific Papers" (or in any other signed papers, for that matter). Dr. Boyd supported his arguments on the basis of: (1) the genius of the English language, citing philologic authority; (2) the preferences of scientific writers; (3) clarity, and (4) the right of an author

[1] SCIENCE, January 21, 1944.
[2] SCIENCE, August 27, 1943.

not to have changes made in his work without his permission.

In his letter of January 21, 1944, E. H. McClelland ignores Dr. Boyd's reasoning and supports his objection to Dr. Boyd's position solely by the statement that "equine serum" is exact and can not be misunderstood, whereas "horse serum" might be interpreted to mean a number of different things.

According to the definition, given in Webster's New International Dictionary, of "equine" when used as an adjective, "equine serum" might mean "serum of a horse," "serum pertaining to a horse," or, God save the mark, "serum resembling a horse."

Incidentally, what would Mr. McClelland prefer to corn whisky?

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AN article appeared in SCIENCE (January 21, 1944) written by E. H. McClelland, in which he justified the change made by the editor of some journal in a manuscript of Dr. William C. Boyd. Dr. Boyd objected to the change from "horse serum" to "equine serum." Mr. McClelland laments the omission of connectives in English speech which results in nouns modifying nouns and believes this practice is a serious factor in the impairment of the English language. He claims that the change from "horse serum" to "equine serum" not only elevates the words from the dismal category of bad English, but also restores them to the realm of clarity from that of ambiguity.

As grammar is the basis of correct speech, we violate one of its rules by permitting a noun to modify a noun. But since the pattern of language is subject to evolution, is there any reason why a noun may not transmigrate to an adjective?

And as for ambiguity even the dictionary does not claim that "equine" will define serum any more rigorously than "horse," for in Funk and Wagnalls' "New Standard Dicitionary" (unabridged) "equine" means "of, pertaining to, or like a horse," so one has still to make a choice to suit the context.

Also in that dictionary "horse" has done very well as an abortive noun and gallops over more than a page (!) as an adjective.

Perhaps the answer to all the argument is to confer on "horse" a new degree and give him his A.D.J. It is noteworthy that "human" has done as much for himself, so why not bestow a similar honor upon this other noble animal?

All of which may merely serve to evoke equine cachinnations.

ANN O. EDISON

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IN the discussion of editorial changes in scientific papers started by Dr. William Boyd[1] and continued by E. H. McClelland[2] there is one topic of importance that is hinted at but, it seems to us, not sufficiently emphasized. Leaving aside the merits of the point principally at issue, the use of substantives to modify nouns, we have the question of authorship and responsibility. Is the author responsible for the language employed in the paper, or is the editor responsible? When the reader detects inaccurate statements or faulty grammar in a paper, should he blame the author or should he blame the editor? The position often taken, that the author should determine the content of the paper and the editor the form, is not tenable. Every scientist well knows that the alteration of a single word or the misplacing of a single comma may totally change the meaning of a sentence. There can be no satisfactory division of responsibility unless the editor is willing to make himself the joint author of every paper.

It appears that friction between editors and authors could be avoided if they would govern themselves by the following principles. No editorial alterations, however trifling, shall be made without the consent of of the author. Consent may be given verbally, or by initialing a proof. If the author is furnished with a proof that is not in exact agreement with the copy he shall be privileged to approve it, to insist that it be made to agree with the copy or to withdraw the paper. But if the proof is typographically correct and in exact agreement with the copy, the author shall be bound to approve it without change, if the editor insists.

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SCIENTIFIC BOOKS

VITAMINS AND HORMONES

Vitamins and Hormones. Advances in Research and Applications. Edited by ROBERT S. HARRIS and KENNETH V. THIMANN. Volume I. With a foreword by E. V. MCCOLLUM. 1943. New York: Academic Press, Inc., Publishers. Price, $6.50.

THE present volume of "Vitamins and Hormones" constitutes the beginning of a new periodic publication and is planned to be the first of a succession of yearly volumes, which—in the words of the editors—

[1] SCIENCE, August 27, 1943.
[2] SCIENCE, January 21, 1944.