The Thomas Jefferson approach 1790–1830	= method of greatest divisors
The Daniel Webster approach 1840	= method of major fractions
The Samuel Vinton approach 1850–1900	= Vinton method
The sliding divisor approach 1910–1930	= modernized Webster method
The mathematical approach 1940	= method of equal proportions
The double method approach ?	= modernized Jefferson method

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TICK PARASITES ON CAPE COD

DURING the summer of 1926 the chalcid fly *Hunterellus hookeri* How., with which *Ixodiphagus caucurtei* du Buyson has been shown to be identical,[1] was released on the island of Naushon in southern Massachusetts by Larousse, King and Wolbach,[2] in an attempt to control the American dog tick, *Dermacentor variabilis* Say. Specimens of this fly were taken on the island the following summer. Furthermore, a parasitized tick was found there in 1929 by Hertig[3] in a lot of some 400 nymphs of *D. variabilis*. The parasites were not identified.

In July and early August of 1940, 1,470 engorged immature ticks were collected on Naushon Island. Of these 90 per cent. were *D. variabilis,* 513 larvae and 841 nymphs, and the remainder were of the genus *Ixodes,* 113 larvae and 23 nymphs. The *Ixodes* that reached the adult stage proved to be *I. ricinus scapularis,* and it is believed that the others were the same. One larva of *D. variabilis* yielded two specimens of *Ixodiphagus texanus* How. This is believed to be the first report of this species as a parasite of the American dog tick. But it is not the first record in this part of the country, for the U. S. Department of Agriculture, Bureau of Entomology and Plant Quarantine, has a number of records from Oak Bluffs, Massachusetts, in *Haemaphysalis leoporis-palustris* and *Ixodes dentatus.*

Hunterellus hookeri was not found parasitizing any of the above-mentioned ticks. However five adults were collected in the hair of a Setter dog, two about July 28 and three about August 20. Since the average life of an adult is about forty-eight hours, there probably is a fairly large population of the fly on the island, which is principally parasitizing some species other than *D. variabilis.* The only previous report of adults seen in nature is by Cooley.[4] It is felt that the introduction of *H. hookeri* is not a useful measure for the control of the American dog tick.

I am indebted to Dr. A. B. Gahan and Dr. C. N. Smith, of the Bureau of Entomology and Plant Quarantine, for assistance with the identifications; and to Dr. H. S. Forbes for hospitality and assistance.

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[1] A. B. Gahan, *Proc. Ent. Soc. of Wash.,* 36: 89, 1934.
[2] SCIENCE, 67: 351, 1928.
[3] A. Hertig, personal communication.
[4] *Onderstepoort Jour. Vet. Sci.,* 3: 23, 1934.

THE EFFECTIVE PRESENTATION OF SCIENTIFIC REPORTS

CONGRATULATIONS to Professor E. F. DuBois, of Cornell University Medical School, for the intriguing and worthwhile discussion which he has precipitated by his note of March 13 in SCIENCE on the effective oral presentation of scientific material.

The additional comments of John B. Lucke, Gilbert Dalldorf and Jean Broadhurst in SCIENCE for April 10, reveal further thinking on this truly commendable topic of discussion.

Perhaps no group of men in the country are more aware of the deficiencies of scientific papers, as read at many science meetings, than are the members of the National Association of Science Writers; those professional journalists who devote their full time to the reporting of the news of science and who attend, constantly, the major science meetings of the nation.

As a member of the National Association of Science Writers, and with the past benefit of many discussions with its members on this very subject, the following suggestions are offered for the research scientists.

The greatest fault of scientists would appear to be that they try to present material orally which is intended primarily for publication in a technical magazine.

No matter how skilled an orator a man may be, the unwise choice of words for spoken delivery can not overcome this basic handicap. The technical terminology of almost any phase of science is certainly near the peak of boredom for the human ear.

Lack of skill in oral presentation is a handicap, but one can not chide the research scientist too much on this score, for he has other things to do beside taking elocution lessons.

Nor can one expect a scientist to rehearse his address with the intensity of the director of a radio program who has nothing else in the world to do.

What scientists can do, however, is to rise above the laziness whereby they try to kill two birds with one stone. More effort needs to be made to tell their research story simply and with a minimum of technical terms which seem to be the trademark of any technical report at a scientific meeting.

If reports to scientific meetings are intended for later publication, as many of them are, let there be two drafts made of them; one to be mailed to the editor of

a technical journal and the other summarizing the findings for quick and compact oral presentation.

Actually, many of the reports to any large scientific meeting—say the Christmas meetings of the American Association for the Advancement of Science—never see permanent record in print.

Space available in technical journals to-day is much too precious to record, for all posterity, every obscure and minor advance of science. These minor papers, which make up the bulk of almost any meeting, can serve their function best if they are presented most attractively to the listening audience, for that is about as far as they will go; that and perhaps the title, and a short abstract in the program of the meeting.

In preparing an effective oral presentation of their subject-matter it might be wise for scientists to adopt something of the technique of the professional science writers who place the question, "What does it mean?" at the top of their list of requirements.

Every one, layman and scientist alike, is interested in what any new discovery in science means to the broad path of progress. That is why the newspaper reporting of science for the layman emphasizes the significance of a discovery in the very first paragraph. If the significance were buried at the end of the paper, in the fashion of a scientific report, no one would ever bother to read it.

Scientists may not like to hear it put so bluntly but, seriously, no one in the world cares what they are doing, or how they did it or even who did it. All people are interested in about any scientific discovery is, "What does it mean?"

The technical details, occupying so great a part of technical scientific reports, interest only other specialists in that particular field. The rare exceptions are those reports important enough to have wide applications in other fields of science.

This situation is true even within a given branch of science and in physics—as an example—the boredom among the electrical experts when the band spectroscopists are talking is equalled only by the boredom among the latter, when the former speak. The same thing might well be said of the various specialists in the medical sciences when they listen to each other's papers.

All this means that a scientist, in reporting his work to a scientific society, might come to the meeting armed with two manuscripts. One would be his technical paper that he hopes may some day appear in print; the kind of report which he now reads to a bored audience. This report he would keep out of sight in his innermost pocket. Its sole use would be for those very few interested individuals who come up to him after the talk for more technical details.

The other manuscript would be his oral presentation. It would tell the story of his work in a simple, summary fashion with the emphasis on what has been accomplished, rather than on how it was done. It would be intended to tell the story for *intelligent* but *ignorant* laymen, for scientists—outside their own specialized niche in science—are just that. As such they are interested in what a new discovery means rather than the specific details of how it was done.

Mr. Lucke, in his comments in SCIENCE for April 10, rightly takes scientists to task for "reading" their reports in a fumbling, halting fashion.

However, most scientists, if they will prepare their material simply for oral presentation and use a minimum of scientific terms, will find that they will be able to "read" their papers with effectiveness and with interest to their audience.

Scientists are obviously too busy—or should be too busy—with their research to have time to take a course in public speaking (although if their reputation rises to such a degree that they are in demand for many addresses they ought to consider this possibility).

However, mere reading of a statement written in oral English, in contrast to written and scientific English, can be very effective.

The best spokesman in the world to-day is President Roosevelt. He *reads* his fireside chats. Not every one can be a Roosevelt in radio or speaking style, but every one can say things simply. Every one can avoid the laziness, for that is what it is, of trying to kill two birds with one stone by trying to read a complex scientific article whose ultimate end is to appear in print in a scientific publication. Even the President couldn't do that and make any one enjoy it.

ROBERT D. POTTER,
Science Editor, The American Weekly

SCIENTIFIC BOOKS

ROTATIONS IN PSYCHOLOGY AND THE STATISTICAL REVOLUTION

Factor Analysis. A Synthesis of Factorial Methods. By KARL J. HOLZINGER and HARRY H. HARMAN. Chicago: The University of Chicago Press. 1941. $5.00.

AMONG 24 variates the number of correlation coefficients is $24 \times 23/2 = 276$, and one might perhaps imagine that about half of these would be positive and half negative. Actually, when Holzinger and Swineford worked out the correlations among 24 mental