Spermatogenesis was found to begin rather abruptly in the middle of December. In the great majority of animals, large quantities of sperm were found in both testes and epididymides from the beginning of January until the beginning of October, when spermatogenetic activity began to decrease. No indication of spermatogenesis and very little sperm storage were observed in the reproductive tracts of the 24 males trapped between October 22 and November 26. Similar inactivity was noted in all but three of the 21 males trapped between November 27 and December 11; spermatogenetic activity was limited in the three exceptional males.

Study of the serially sectioned ovaries involved a search for ripe follicles and particularly for corpora lutea as indicators of imminent or actual ovulation, respectively. Although present in one or both ovaries of four of the 54 females trapped between January 21 and February 15, corpora lutea did not make their appearance in a significant number of cases until the latter part of February. Corpora were present thereafter in significant numbers of specimens until the last part of October. There was no evidence of ovulation in the 69 female tracts from animals taken between October 29 and January 14, with the exception of one pregnant animal trapped on December 11.

Cognizance must be taken of the probability that there are minor variations in the extent of the periods of ovarian and testicular activity from year to year. However, the evidence indicates that in the Maryland muskrat spermatogenesis begins in the middle of December and ovulation in the middle of February and that seasonal gonadal activity terminates in both sexes during the latter part of October.

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"AUDIENCE ENEMIES"

IN SCIENCE for March 13, Dr. DuBois, of Cornell University Medical School, made a vigorous plea for improving the quality of presentation of papers at scientific meetings. He described the common "audience enemies" with such clarity that no possible defense could be offered for the speakers (their number is legion) who fail to recognize that "while effective presentation can never take the place of able investigation, it is the indispensable means of assuring full success to any investigation."[1] However, perhaps the one most common fault indulged in by inexperienced speakers because of stage fright and continued by a large number through sheer inertia is the custom implied by the title, but omitted from the body, of Dr. DuBois's discussion, "the *reading* of scientific papers."

It is bad enough for a teacher to read verbatim to students. They at least have some reason for listening. But for a scientist to address an audience of his peers, no doubt including many of his betters, by literal reading from typed pages, is gross discourtesy. The societies themselves may partly be to blame for the prevalence of this wide-spread "audience enemy." Programs of meetings all too commonly list "papers to be read" or "the following will read papers." Perhaps this time-"honored" custom should not be taken literally and that in such cases "read" really is intended to mean "present." Unfortunately, attendance at scientific meetings would indicate that many of our prominent workers take the literal interpretation and *read* their papers, word for word.

As a consequence, they address their papers and not the audience; they speak in language meant for publication, not oral presentation; they must look up and waste time when a slide appears and then rush back to the typed page after pointing to the screen, in so doing perhaps losing the place. It is virtually impossible for an investigator to make a vigorous oral presentation without looking at and deliberately focussing his attention upon his audience. Reading it is therefore ineffective and, worse, distinctly discourteous. Such a presentation automatically implies that any one could have read the manuscript, but that the investigator did so just to let the audience have a look at him. It also suggests that the speaker is willing to relate his results to his colleagues, but that they are not worth the effort required to prepare an effective oral presentation, utilizing very brief notes, if any.

Aside from papers "read by title only," we might well completely drop the word "read" from our scientific programs and practices.

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THE "audience enemies" Professor DuBois discusses in the March 13 issue of SCIENCE could be effectively controlled if our societies insisted on a rehearsal of their important programs. The officers would have an opportunity of verifying the speaker's ability to be heard and to keep within his scheduled time and might suggest elisions and improvements in arrangement. The radio broadcasters manage to do as much.

GILBERT DALLDORF

A SEVENTH "audience enemy" who should be added to the six described by Dr. E. F. DuBois in SCIENCE for March 13 is the person who reads aloud from his charts or lantern slides every word or number even

[1] Douglas Johnson, *Jour. Geomorphology*, I: 1, 64, 1938.

when "slow readers" can complete such information before the speaker is well started.

Audiences suffer, also, from speakers who discredit themselves by their slovenly pronunciation of basic scientific terms; *e.g.*, expuriment for experiment, chimistry for chemistry, bacterawlgy for bacteriology and vaurus for virus.

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QUOTATIONS

"TO DO SOMETHING FOR THE WELFARE OF MANKIND"[1]

IN these dark days when the world is at war, when democracy is at bay, when no great acumen is required to perceive that a world revolution is in progress—a deep-seated battle between many varying ideologies with no clearly discernible final result—the place, the purposes, the value of the philanthropic foundation may easily come in question. Governments are expending astronomical sums and gigantic efforts for purposes of destruction; of what importance under such circumstances is the welfare of mankind? What values can the few millions of any foundation directed toward such an objective conserve for a future social fabric the pattern of which can be dimly seen, if at all, by the wisest of men?

Is it mere futility to expend money to increase knowledge; to improve the practice of medicine through education and research; to carry out experimental efforts for the improvement of methods for the advance of public health, in days when human life and health are necessarily subject to the needs of war; to devote funds to the improvement of hospital facilities and management; to grant fellowships to brilliant young men that they may be trained for the advance of scientific knowledge; even to attempt to relieve in some slight degree the starvation and misery brought about by the present world upheaval?

The Commonwealth Fund does not believe that such effort is futile. On the contrary, it is the belief of the fund that these undertakings are more important today than ever before. Knowledge and brains still have no substitute. No matter what the future may have in store, knowledge must be conserved and developed, brains must be trained and given opportunity. Not forever will force reign, not always will the organization of society—or its disorganization—preclude the benefits to mankind of scientific discovery, of knowledge, intelligence and understanding. Whatever philanthropic foundations can contribute to the forging of implements for a better day will not be lost. In many conversations during the past two years with able and intelligent leaders in various fields, the outstanding thought has in no instance been one of despair or futility, but rather courage and determination in the belief that now more than ever it is of first importance that the development of potentials for a better and happier world be continued. A few mad men may have seized upon the advances of science for their own destructive ends. But they will pass from the scene. Human living will be reorganized—progress may have been halted; it has not ceased.

Thus it is the duty and the privilege of foundations to "carry on" and to "carry through" to a brighter day. The thought can scarcely be better expressed than in the words of Mr. George W. Gray in the concluding sentences of his tribute to the work of Wickliffe Rose, "Education on an International Scale":

> . . . eclipse is not obliteration. The sun is blackly obscured but it will shine again. Hope feeds on the integrity of law both cosmic and moral. . . . No star is ever lost.

BARRY C. SMITH

[1] Introduction to the twenty-third annual report of the Commonwealth Fund.

SCIENTIFIC BOOKS

RADIATION THERAPY

The Biologic Fundamentals of Radiation Therapy. By FRIEDRICH ELLINGER. Preface by MAURICE LENZ. English translation by REUBEN GROSS. New York: Elsevier Publishing Company, Inc. $5.00.

THE biological action of radiation from x-ray and radium varies according to the conditions of application. With x-ray the primary effect is wholly due to the light of short wave-lengths emitted from the anticathode under the impact of the electron beam. These light rays then set free electrons when they are absorbed. With radium, while the alpha rays are usually removed by screening, beta rays are left unless the filter is heavy. Roentgen rays and gamma rays from radiation do not differ except in wave-length. Hence if the action of radiation is due to electrons no differences in biological effect should be expected from x-ray of different voltages or from radium, provided that the conditions of measurement are strictly comparable. This fact has almost never been considered by students of the problem, and the omission has led to the contradictory statements which still exist in the literature, many of which are quoted by the author. For example, as a proof of the different effects of