

14. E. S. G. Barron *et al.*, *J. Gen. Physiol.* 32, 537 (1949); E. S. G. Barron and S. L. Sek, *ibid.* 35, 865 (1952).
15. A. A. Tydell and H. Kensten, *Proc. Soc. Exptl. Biol. Med.* 48, 521 (1941).
16. W. Bloom, *Histopathology of Irradiation* (McGraw-Hill, New York, 1948).
17. It has recently been shown that the microsomal fraction in certain cells contains enzymes capable of promoting glycolytic reactions [V. R. Potter, R. O. Recknagel, R. B. Hurlbert, *Federation Proc.* 10, 646 (1951)]. Whether these enzymes of the microsomes are actually carrying out a high proportion of the glycolysis that occurs in the cells tested remains to be proved. Moreover, in most of the cells which we have chosen to demonstrate our point, microsomes are present as a lower proportion of the total volume than they are in other cells. In certain tumor cells [J. M. Price *et al.*, *Cancer Research* 9, 96 (1949)] and in the growing amoeba [D. Mazia and D. M. Prescott, *Biochim. et. Biophys. Acta* 17, 23 (1955)], it has been definitely demonstrated that the nucleus is very active in glycolytic synthesis as compared with the cytoplasm.
18. B. Mendel *et al.*, *Cancer Research* 6, 495 (1946).
19. E. M. Gal, F.-H. Fung, D. M. Greenberg, *ibid.* 12, 574 (1952).
20. V. A. Potter and K. P. DuBois, *J. Biol. Chem.* 142, 417 (1942); "Biological energy transformations and the cancer problem," in *Advances in Enzymology* (Interscience, New York, 1946).
21. E. J. Hart, "Radiation chemistry," in *Annual Review of Physical Chemistry*, G. K. Rollefson and R. E. Powells, Eds. (Annual Reviews, Stanford, Calif., 1954), vol. 5, chapt. 7.
22. L. Michaelis, *Biol. Bull.* 96, 293 (1949); J. Weiss, *Nature* 133, 648 (1934).
23. H. Stern, *Science* 121, 144 (1955).
24. Some support for this notion is gained from the fact that merely increasing the oxygen tension as Conger and Fairchild did [A. D. Conger and L. M. Fairchild, *Proc. Natl. Acad. Sci. U.S.* 38, 289 (1952)] will cause chromosome breakage in the dividing cell. However, while suggestive, this does not necessarily apply to interphase cell death.
25. R. Lemberg and J. W. Legge, *Biological Function of Catalase, Hematin Compounds and Bile Pigments* (Interscience, New York, 1949).
26. E. E. Osgood, *Am. J. Roentgenol. Radium Therapy* 48, 214 (1942).

Zeno Payne Metcalf, Distinguished Entomologist

Zeno Payne Metcalf was a tireless worker to the very last, for he was in his office working on the catalog of the Homoptera of the world until noon of the day he died. He devoted his whole professional life to North Carolina State College and brought international repute to that institution. He died at his home at Raleigh, N.C., 5 January 1956. Even though he had suffered poor health for many months, he died quite suddenly and unexpectedly while talking to his wife and daughter.

Dr. Metcalf was the author of nine books and an active member of 36 learned and professional societies. He was a key speaker at the International Congress of Zoology, which convened in Paris in July 1948, and at the International Congress of Entomologists, which met in Stockholm in August 1948. In addition, he was president of three major national scientific organizations, the Entomological Society of America, the Ecological Society of America, and the American Microscopical Society—a distinction that is

accorded few scientists in the United States.

Dr. Metcalf also served on the editorial boards of four national professional journals and was the author of 96 professional publications. At the time of his death he was engaged in preparing a 42-volume catalog of the Homoptera of the world. Fifteen volumes had been or were in press at the time of his death, and several more volumes are almost ready to go to press. An attempt is being made to provide means of completing the entire set of 42 volumes. Dr. Metcalf has spent much of the past 40 years collecting notes for the series. In an effort to obtain material, he read and checked more than 20,000 books and papers dealing with insects and visited all the principal libraries in the United States and England. The order Homoptera comprises about 4000 described genera and 30,000 described species. The catalog now contains 512,000 references, probably the greatest catalog of any order of insects to be found anywhere in the world.

A native of Lakeville, Ohio, Dr. Metcalf was educated at Ohio State University, where he received his A.B. degree in 1908, and at Harvard University, where he earned his D.Sc. degree in 1924.

Prior to joining the North Carolina State College Faculty in 1912 he was an instructor in entomology at Michigan State College (1907–08) and was on the staff of the North Carolina State Department of Agriculture (1908–12). He joined the North Carolina State College faculty as entomologist with the experiment station and as professor of zoology and entomology. He was visiting professor in the summer session at Ohio State University in 1916 and 1918 and in the summer session at the University of Michigan in 1926. During the school year of 1935–36 he served as visiting professor of zoology at Duke University. Dr. Metcalf was head of the department of zoology and entomology, North Carolina State College, from 1912 to 1950. He was director of instruction in the School of Agriculture at North Carolina State College during the years 1923–44; director of graduate studies at the college, 1940–43, and associate dean of the Graduate School of the Consolidated University, 1943–50. He retired from administrative duties in 1950 and later devoted his full time to teaching, research, and writing.

He was active in both civic and professional affairs and was a former president of the North Carolina Academy of Science. He was also a fellow of the American Association for the Advancement of Science and the Entomological Society of America.

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Natural laws there probably are, rigid and unchanging ones at that. Understand them and they are beneficent; we can use them for our purposes and make them the slaves of our desires. Misunderstand them and they are monsters who may grind us to powder or crush us in the dust.—HENRY A. ROWLAND.