troversy, the xenophobic attitude toward "foreign" scientific theories—all of these increase the gulf between East and West. At a time when the equilibrium of peace is more than precarious, the added heat, from which no light can be expected to come, dangerously increases the chances of an explosion.

To estimate the real significance of these events for the development of Soviet biology and medicine is not an easy task. So far, the actual content of the journals has not changed. Will the storm affect only the political teapot, and does it represent a phenomenon which must be explained primarily in terms of internal power politics? It may be noted that Lysenko directed his campaign, started as far back as 1935, against Nikolai I. Vavilov, whom he finally (in 1939) replaced as president of the Lenin All-Union Academy of Agriculture. This may be a part of the story but is certainly not all of it.

The climate of opinion, the "Zeitgeist" characterized by nationalism, curiously intertwined with communist ideology, provided both stimulus and receptive ground for the flowering of Lysenkoism. Lysenko's slipshod methods were repeatedly criticized. C. D. Darlington. (*J. Hered.*, 1947, 38, 145) pointed out that in "proving" the inheritance of environmental effects Lysenko began the experiments with a mixed stock, omitting to use proper controls and repudiating statistical tests. This laxity in scientific standards, which seems to heap gold and honor on Lysenko, is likely to be contagious in the Soviet Union.

Competent geneticists are in agreement that Lysenko's views would never be discussed, had they not become of political importance in the Soviet Union: "Lysenko displays an astronishing ignorance of the real nature of the views he is attacking. Several of his own purported results are at variance with the general experience—work carried on over many years, with many kinds of organisms, in many parts of the world" (Sturtevant, A. H. Personal communication, 1949). This will not prevent satellite minds, not necessarily residing in satellite countries, from swallowing eagerly, the "new line," hook and sinker. What would Descartes say to his compatriot Marcel Prenant. (*Science and Soc.*, 1948–49, 13, 50–54), who defends the Soviet Michurinists by arguing that "In a socialist country menaced by aggression, as is the U.S.S.R. today, biologists who are aware of their responsibilities *have more urgent things to do than to touch up the details of theory*"? (Italics mine.)

The implications of the genetics controversy reach not only beyond the field of genetics (Huxley, J. *Heredity east and west: Lysenko and world science.* New York: Henry Schuman, 1949) but also beyond the geographical frontier of the USSR. Like Stahl's theory of phlogiston, the heat substance lost in the process of burning, the exhumed theory of the inheritance of acquired characteristics, reinforced by the spirit of scientific dogmatism, may prove to be a real handicap to the progress of scientific biology in a large part of the world.

JOSEF BROŽEK

Laboratory of Physiological Hygiene
University of Minnesota, Minneapolis

Atomic Energy and the New Dictionaries

It is pertinent to the current evaluation of *The American College Dictionary* and *Webster's New Collegiate Dictionary* to report that an examination of them for words used in nuclear physics and chemistry, especially those concerned with the development of atomic energy, shows *WNCD* superior both in number of entries and informativeness of definition. One hundred twenty-four expressions were looked up in both dictionaries. The entry was counted only if the expression was defined in the nuclear sense. And the entry was still counted if if gave no definition at all but referred to another entry defined in the nuclear sense. Of the 124 expressions, 83 were not found in either dictionary, 23 were found in both, 15 were found in *WNCD* alone, and 3 in *The ACD* alone. Of the 83 not found in either dictionary, most are too recent, technical, or transitory for inclusion, but a few omissions seem odd even when time is considered. *Reactor,* for example, does not appear in either dictionary; nor do *atom smasher, electrostatic generator, Mev, particle* and *particle accelerator, radioactive isotope,* and *triton.* More surprising than the omission of *reactor* is the omission of *uptake,* which has long been in use generally among biologists to mean to absorb and retain, and is now appearing in nuclear writings: "The uptake of radioactivity by the land and water organisms. . . ." (U. S. Atomic Energy Commission. *Atomic Energy Development 1947–1948,* Washington, D. C., p. 93).

The 15 expressions contained in *WNCD* but not in *The ACD* are *fission* (*The ACD* does not have the nuclear application), *meson* (*The ACD* has *mesotron* but not *meson*), *metastable state, microcurie* (under *micro*), *moderator, nuclear energy, nucleon, nucleonics, penetrometer, photodisintegration, photoelectron, radioelement, reaction* (nuclear), *servo* (*system*), and *tracer* (*radioactive*). The three in *The ACD* but not in *WNCD* are *classify* (in the sense of to put into a secret class), *radioactive series,* and *cloud chamber*—this last is a curious oversight by *WNCD.* The fact that *The ACD* (copyright 1947) is some two years older than *WNCD* (copyright 1949) may account in part for the larger number of nuclear entries in the latter; on the other hand, according to advertisements *The ACD* totally has more entries than *WNCD,* 132,000 to 125,000. But what accounts for the superiority of *WNCD* in the definitions of words common to both dictionaries seems to be simply greater care plus larger space.

The definitions of the 23 expressions that both dictionaries contain were compared for informativeness—a combination of accuracy, quantity, precision, and clarity. Neither was better than the other in nine words, *WNCD* was better in 12, and *The ACD* was better in two. The 12 terms in the definitions of which I found *WNCD* superior are *betatron, chain reaction, curie, Geiger counter, half-life, isotope, meson-mesotron, pair production, photoelectric, pile, positron,* and *radioactive-radioactivity. The ACD* two are *atomic bomb* and *dosimeter.* Three examples will show what I mean by a better definition—in the first one *The ACD* is better; in the second and third, *WNCD.*

(1) atomic bomb

The ACD: 1. A bomb whose potency is derived from nuclear fission of atoms of fissionable material, with consequent conversion of part of their mass into energy. 2. A bomb whose explosive force comes from a chain reaction based on nuclear fission in U-235 or in plutonium. It was first used militarily on Hiroshima, Japan (August 6, 1945). The explosion of such a bomb is extremely violent and is attended by great heat, a brilliant light, and strong gamma-ray radiation.

WNCD: A bomb whose violent explosive power is due to the sudden release of atomic energy. The release results from the splitting, or fission, of heavy nuclei (plutonium, uranium) by bombardment with particles (neutrons).

(2) Geiger counter

The ACD: An instrument for detecting and counting ionizing particles, consisting of a tube which conducts electricity when the gas within is ionized by such a particle. It is used in measuring the degree of radio-activity in an area left by the explosion of an atom bomb, in investigations of cosmic rays, etc.

WNCD: [After Hans *Geiger* (b. 1882), German physicist.] *Physics.* A thin-walled metallic cylindrical tube with a needle-like electrode projecting within, which detects the passage through its walls of every ionizing particle, such as a cosmic-ray particle, by the momentary current set up on ionization of the contained gas. A similar sensitive counting tube, the *Geiger-Müller counter* . . . containing a slender axial wire, is used for detecting radioactivity and making quantitative measurements.

(3) pile

The ACD: 7. *Nuclear Physics.* A latticework of uranium and various moderating substances used to produce plutonium in the original harnessing of atomic energy. It is essentially a means of controlling the nuclear chain reaction.

WNCD: 5. *Physics & Chem.* An arrangement of fissionable material, with a moderator (as carbon or heavy water, for slowing down neutrons) and regulating devices, designed for producing and controlling a chain reaction, as for making plutonium from uranium or producing atomic energy, by the action of neutrons;—called specif. *atomic pile, chain-reacting pile.*

The ACD usually gives the shorter definition, but the longer definition in *WNCD* I found to be more informative without any sacrifice of clearness.

E. N. LOCKARD

Chicago City Junior College
Argonne National Laboratory

Scientific Book Register

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