

Letters

Russian Genetics: Emerging from Lysenko

Minor errors of commission and omission in Langer's account of the visit to this country of the four eminent Russian geneticists (8 Sept., p. 1153) may add up to a distorted picture of the situation. It was only at the international genetics congress in Montreal, in 1958, that the Soviet delegation was monopolized by Lysenkoists. No Soviet delegates attended the congresses in Edinburgh in 1939, Stockholm in 1948, or Bellagio in 1953. At The Hague congress in 1963, there were several genuine geneticists, including one of the four recent visitors, D. K. Belayev, certainly no Lysenkoist. Another visitor, Academician N. P. Dubinin, visited New York for the meeting of a Committee of the United Nations in 1966, attended the Mendel Centennial in Czechoslovakia in 1965, and also visited some western European countries. It is true that most geneticists now in Russia are either old or very young, and the contingent of intermediate age is in short supply. However, the average age of the four recent visitors is below 60; far from being exclusively scientific bureaucrats or "operators," they are quite active in teaching a crop of eager new geneticists. Dubinin published in 1966 and 1967 four books with an aggregate total of 1685 pages. Two of the four books are written for wide audiences, and the other two are serious treatises of a kind no American geneticist would be ashamed to write or an American publisher to publish. It is true that during his period of overlordship, Lysenko saw to it that positions of influence were filled with his followers, and many of these people continue holding their positions. Consider, however, these interesting statistical estimates. There were between 100 and 200 highly qualified geneticists in Russia before Lysenko's period of dominance (the number evidently depends on narrow

or broad definitions of "geneticist"). Of these, only two became active protagonists of Lysenko. Of the several hundred quasi-geneticists who made their careers under Lysenko only one seems staunchly faithful to the "master." Others have reformed, and some of these, *mirabile dictu*, are publishing tolerably good papers in the newly-founded journal, *Genetika*!

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Rioting Patterns

"Riots: the more there are, the less we understand" (11 Aug., p. 663) sounded very familiar and reminded me of my own emotions during the few riots I experienced in the Netherlands during its occupation by Germany in World War II. As a born Dutchman, I was on the side of the rioters; we all experienced the tremendous lift a riot gave to the feelings of solidarity between the rioters and their kin.

A riot is not a planned, logical action but a purely emotional outburst. Its driving force is a combination of hope and impatience—there is a general feeling that the future holds an improvement—and one just can't wait idly. Catastrophical as the immediate results may be, the rioters are filled with elation by the fact that they are doing something. And they want to do whatever has the greatest immediate effect and offers the quickest satisfaction: they loot to obtain trophies, not to get merchandise they could use profitably. Loot has to have symbolic value; strictly utilitarian goods are set on fire!

Two summers ago I stopped with a motor-home at a service station in Navaho territory, and the Navaho attendant inadvertently filled my drinking-water tank with gas. He just couldn't stop

laughing, and called all his comrades to see. A larger and larger group gathered, watching us with glee while we laboriously rinsed out the water-tank as none of them lifted a finger to help. Suddenly I understood the situation: I was in occupied territory, and this time I represented the Occupational Forces! How well I recognized their feelings (although at that moment it gave scant satisfaction) and I knew that the last thing I should do was to try to fraternize. Ethnic minority groups must really feel the same way as nations under occupation. In the summer riots, the Occupational Force was not the police officers or National Guard, but the White Man, which means me and probably the majority of the readers of *Science*. The Occupational Force may have the best intentions towards the suppressed minority—they may really care—but this does not necessarily cause appreciation! There is only one prevailing sentiment: the Occupational Force should get out!

It seems to me that it is the recently demonstrated drive towards improvement of the Negro's lot, which is the cause of the riots Samuelson discusses; the more generally this improvement becomes felt, the more impatience rises, the more riots we will see. The only reasonable way to reduce the number of incidents is *not* to fraternize, but "to get out fast," to give the minorities the maximum possible amount of autonomy, even if hurrying means gross imperfection. Only hurry will remove the dangerous gradients of hope and impatience; riots are the fruits of the inertia of the Occupational Force.

Of course, the Occupational Force can also move in instead of out, and drastically reduce all hope to zero. For a model example of this classical technique, we only have to study how Russia quelled the biggest riot of the last decennia: the Hungarian uprising of 1956. But one probably has to be a Communist to approve of such methods!

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Enforcement of Animal Care Bill

Recently passed legislation provided that standards for research animal care and housing be set by the Secretary of Agriculture. The National Society for Medical Research "led the opposition

against the bill when it was before Congress" (News in Brief, 21 July, p. 287). The NSMR has frequently voiced its favor of high standards, but consistently opposed legislation providing for meaningful enforcement. It has denied the existence of bad facilities and care (hearings on H.R. 1937 and H.R. 3557, 28-29 Sept. 1962, p. 317) until examples of these were made public. When it became clear that some sort of regulatory legislation was inevitable, it attempted to substitute nominal for real enforcement procedures.

Now the results of NSMR's own survey make it "questionable" whether most research institutions will "be in compliance with the law when it becomes effective. . . ." The survey results indicate that in about half of our research institutions conditions are below even the very modest minimum standards promulgated under the law. . . . Some research institutions already meet these standards. For others, it will mean an additional expenditure. These funds will be well spent if they result in facilities of which we need not feel ashamed. The need for enforcement by an impartial agency is clearer than ever. Of utmost importance at this time is an adequate appropriation by Congress for implementation of P.L. 89-544.

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Sewage: A Rose by Another Name

It is not my intent to deprecate the efforts of Mateles and others (15 Sept., p. 1322) and those cited by the authors to produce single-cell protein (SCP) from hydrocarbons. In fact, fermentation may be more efficient than conventional agriculture in converting petroleum into protein. There are, however, other potential substrates for SCP that are now in the category of misplaced resources. They are domestic effluents and solid organic wastes (commonly known as sewage and garbage). Enormous sums of money are spent to degrade these by-products of our society and dilute them into air and water. For example, most of the present efforts of the Federal Water Pollution Control Administration appear to be directed toward dispersal by the usual, expensive methods of sanitary engineering. Yet, it is recognized that without additional tertiary treatment we are merely transferring problems

and nuisances from one place to another.

Why cannot fermentation systems be designed to convert organic wastes into SCP? The problem of converting so-called nasty materials into an approved food has been solved in the case of fish protein concentrate. Why not turn some attention to sewage protein concentrate? Of course, this rose would have to be called by another name, but it could be just as nutritious as SCP, FPC, or filet mignon.

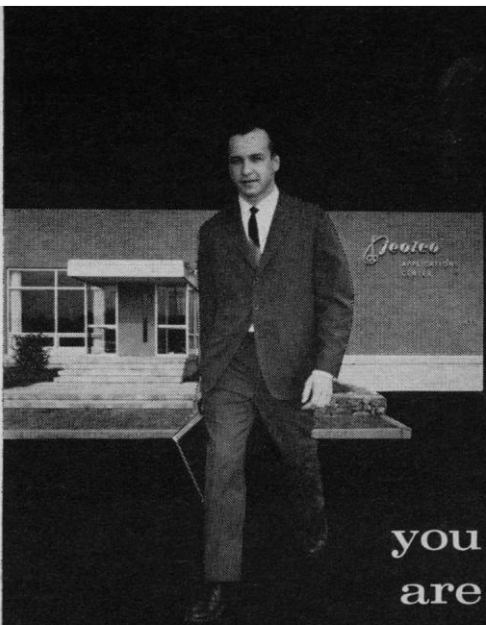
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Vitamin D and Skin Pigments

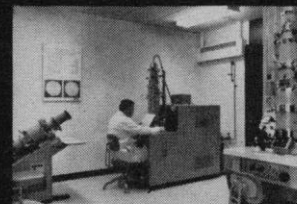
Loomis points out that the white race evolved in Europe because pigmented individuals develop vitamin D deficiency during the sunless winter months ("Skin-pigment regulation of vitamin D biosynthesis in man," 4 Aug., p. 501). His argument loses force when he states that native Africans are black (melanin granules) and Orientals yellow (keratohyaline granules) because individuals without this pigmentation suffered overproduction of vitamin D in equatorial latitudes. Even in this age of bikinis, the only reported cases of hypervitaminosis D are due to oral ingestion, though the chronic effects of slightly elevated vitamin D probably deserve further investigation. A more likely explanation of why light-skinned peoples suffer in the tropics, now as well as when the races were evolving, is found in solar-dependent skin cancer and simple sunburn [see, for example, F. Daniels, *Med. Clin. No. Amer.* 49, 565 (1965)]. Both these disorders are extremely common in Floridians of northern European extraction.

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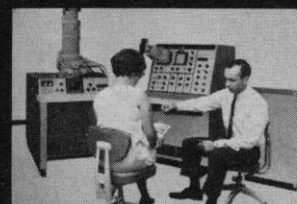
In his article in the *Handbook of Physiology* (1), F. Daniels discusses the difficulties in viewing black skin as an adaptation to strong solar radiation. In particular, he says that Blum (2) has raised the question that must be answered and can be stated: "How can nondisabling sunburn, the mildly disfiguring effects of chronic solar exposure, and skin cancers occurring well past the reproductive years, have a genetic selection value?" Daniels then sug-



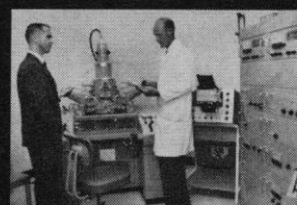
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