

GENETICS

Russian Genetics and Chickens

Russian genetics lag behind Western research. One experiment being undertaken by Soviet geneticists demonstrates chicken feathers turn color through blood transfusions.

By HOWARD SIMONS

► THERE IS ONE field of scientific study in which most Western researchers, and even a few Russian researchers, agree that the Soviet Union is not ahead of the United States in its achievements. This is biology, particularly genetics.

Dr. Bentley Glass of Johns Hopkins University once gave a talk in which he credited the Russian scientist Karpechenko with having produced the first, man-made species of plant. Karpechenko, Dr. Glass explained, crossed the cabbage with the radish. The first hybrid was completely sterile. The Russian continued his experiments and finally produced a completely fertile form that he named "Raphanobrassica," a scientific name which might be rendered in common language as "rabbage." The new plant species, Dr. Glass said, was agriculturally "worthless." It combined the prickly, inedible leaves of the radish with the miserable root system of the cabbage.

More Rabbage

Contemporary Russian genetics, from the point of view of the vast majority of Western observers, is, in many respects, like Karpechenko's rabbage. It, too, although found in some fertile forms, is for the most part, considered worthless. And, it tends to combine the "prickly, inedible leaves" of Lysenko's theories with the "miserable root system" of Communism.

No other Russian science has received so much publicity for so long a time as has Russian genetics. Nor has any other Russian science been subjected to as much ideological and political pressure as has Russian genetics.

Trofim Lysenko, the "prophet" of Marxist genetics, is, to this day, both a fact and a factor in Russian genetics. It is even possible that he is a more important figure under Khrushchev than he was under Stalin. Both are the sons of peasants. Both are Ukrainians. But of more importance than their kindred beginnings, Lysenko's theories lend themselves very well to Khrushchev's latest crop-rattlings.

Lysenko's work in trying to transform spring varieties of wheat into winter varieties and raising the butter-fat content in dairy cattle, both being experimented with along his prescribed lines of Michurinist-adopted genetics, carry a bigger premium today than they did a decade ago when he was climbing toward his summit. Success with his experiments would enhance Khrushchev's agricultural program at home, and add valuable fuel to the Cold War

agricultural fire the Russian dictator lighted recently.

This is not to say that Lysenko is as omnipotent and as infallible today as he was under Stalin. Despite Khrushchev's blessings, given to Lysenko as recently as December 1957, a group of Russian "classical" geneticists does exist in the Soviet Union. That they may be in a power struggle with Lysenko and his followers seems likely. A possible "straw in the wind," as one American geneticist has termed it, popped up following the now famous Pugwash Conference in the form of a statement by a group of Soviet scientists concerning the question of prohibition of atomic weapons and of their tests. It was signed by 196 Russian scientists, including A. Nesmeyanow, president of the Soviet Academy of Sciences, Peter Kapitza, Nobelist N. Semenov and others of the Red scientific hierarchy. Included, too, were several "classical" geneticists. Conspicuously missing were the signatures of Lysenko and company. Which group will win this genetics power struggle, like other power struggles in contemporary Russia, is anyone's guess.

The greenhouse in which Lysenko's hybrid science is being nurtured, experimented with and brought to fruition is a small,

squat gray building, about a half-hour's drive from Red Square. It sits in the middle of a peasant village that only recently has been swallowed by greater Moscow. It is the Moscow Institute of Genetics, headed by the same Trofim Dennissovitch Lysenko.

On the day I visited the Institute, Dr. Lysenko was "still vacationing in Solchi." I was met at the entrance to the Institute—that faces a field of 100% Russian hybrid corn, and which, like the Institute, is free of Western influence—by a smiling man in a double-breasted blue serge suit.

Lysenko's Assistant

He introduced himself as Dr. N. F. Kushner, professor of animal genetics and director of the Institute's poultry breeding program. After the exchange of a few pleasantries I asked Dr. Kushner about Lysenko. Of his boss, colleague and friend, he had this to say:

"Lysenko's principal point of view about heredity is still the predominant view held by the great majority of Russian biologists. It is still the point of view being taught in our schools. But, as in other countries, we have many theories and are continually discussing other points of view."

Dr. Kushner, who had exchanged some of these views with other geneticists throughout the world at an international meeting held in Japan in 1956, made it clear that he is a firm and devoted believer in both Lysenko the man and Lysenko the scientist.

"News about the fact that Lysenko



CHICKEN CHANGE — Russian laboratory assistants show off chickens whose feathers underwent a change in color after blood transfusions. The experiments are being conducted by a Soviet geneticist at the Moscow Institute of Genetics, headed by Trofim Lysenko.

stepped down as president of the Academy [In April 1956 Lysenko asked to be relieved of his duties as president of the All-Union Lenin Academy of Agricultural Science.] had a bad effect on the scientists in Japan and other countries," Dr. Kushner said.

"But to assign to this event anything more than the simple fact that he wanted to return to the laboratory and his scientific studies, was, and is, a grave mistake. He is still a highly respected scientist in the Soviet Union. He is still director of this Institute, a member of the presidium of the Soviet Academy of Sciences, a deputy of the Supreme Soviet of the U.S.S.R., and a member of the commission granting higher degrees to university graduates.

"It is well known that Lysenko is a good scientist, but a poor administrator of science."

Current Research

At this point in the interview, I asked Dr. Kushner if he could describe a current experiment that follows the lines of Lysenko's genetics.

"But of course," he answered traditionally, "we are presently working with chickens and blood transfusions. Blood is taken from purebred red New Hampshires and transfused into purebred White Leghorn pullets ranging in age from three to four months. Twice weekly for five months, each of the Leghorns receives 150 cubic centimeters of the New Hampshire blood."

The treated hens are then crossed to pure White Leghorn cocks and the eggs incubated and hatched. What results, Dr. Kushner explained with satisfaction, are chicks with a definite and noticeable change in plumage. Fifteen to 20% of the first generation appear with anywhere from one to 50 grayish feathers. In the succeeding generations, there is an increase in the number of offspring and the number of feathers with a marked pigmentation change. The percentages are far smaller for the controls that did not receive transfusions, Dr. Kushner said.

"New" Chickens

Here, the good Russian scientist stopped and made a hurried telephone call, and in a few minutes two women assistants dressed in white laboratory smocks and surgeon-like skull-caps arrived carrying both living and dead examples of the experiment.

"They look like Plymouth Rocks," he exclaimed, and I had to agree. The embryos and preserved chicks were left as Exhibit A, but the clucking Exhibit B's were taken away by his assistants.

(Recently Dr. Jacques Benoit and his associates in France reported to the French Academy of Sciences that they had succeeded in changing the hereditary characteristics of ducks by injecting them with a sex gland extract from another type of duck. Although most Western scientists remain skeptical, a few believe these experiments, as well as those by the Russians, will cause a revolution in classical genetics.)

When the assistants left I turned to Dr. Kushner and asked him if one could carry the results of his experimentation a bit further and apply it to humans. Could

one, I asked, transfuse the blood of a man with one color of skin to that of another with a different color of skin and get a pigmentation change in the offspring?

"I cannot answer your question directly," Dr. Kushner said, "because I have had no first-hand experience with this type of experimentation. But, I think someone in your country has.

"When I was a doctor serving with the Red Army on the German front during the Great War, I heard many stories of how your soldiers refused blood transfusions if they knew the blood had come from a black man. I think these soldiers must have had some knowledge of a scientific study carried on in your country that showed the color of a man's skin can be affected by blood transfusions."

My explanations were that what Dr. Kushner had probably heard were cases of deep-seated racial prejudice, and that most, if not all, the scientific evidence on the subject points in the opposite direction, and the added fact that the donor's skin color does not appear on bottles of blood. They were met with a shrug.

Science News Letter, May 10, 1958

MEDICINE

Mother's Polio Shots Protect Unborn Baby

➤ WOMEN who receive polio shots during pregnancy not only protect themselves but provide the unborn infant protection that lasts as long as three months after birth.

Studies of 142 mothers-to-be showed the benefits of Salk shots were passed on to the infants, Dr. Gordon C. Brown of the University of Michigan School of Public Health reported to the Society of American Bacteriologists meeting in Chicago.

Although doctors have long suspected that polio vaccine might have carry-over value for infants, Dr. Brown's study provided the first laboratory confirmation of this belief.

Dr. Brown found the higher the level of protection given the mother, the longer the protection lasted for the infant. Also, vaccinated mothers gave their children protection of the same potency and duration as those mothers who acquired a similar level of immunity through natural exposure to the disease.

However, the polio protection given infants by their mothers diminished as the babies grew older.

The research indicates parents can now insure continuous protection against polio for their children from the moment of birth. Dr. Brown urged prospective mothers to complete the series of three shots and start vaccinations for infants at age three months.

Dr. Catherine J. Carroll, also of the University, assisted in the research, which was supported by the National Foundation for Infantile Paralysis.

Science News Letter, May 10, 1958

A device to count and measure fog particles makes it possible for one man to measure and record, with one hand, at an average rate of 3,300 particles per hour.

OPTICAL BARGAINS

See the Stars, Moon, Planets Close Up!
3" REFLECTING TELESCOPE

60 to 160 Power — An Unusual Buy!



Famous Mt. Palomar Type Assembled—ready to use! You'll see the Rings of Saturn, the fascinating planet Mars, huge craters on the Moon, Star Clusters, Moons of Jupiter in detail. Galaxies! Aluminized and overcoated 3" diameter high-speed f/10 mirror. Equatorial mount with lock on both axes. An Optical Finder Telescope, always so essential, is also included. Low cost accessory eyepiece available for power up to 320. Sturdy, hardwood, portable tripod. Free with scope—valuable star chart and 272 page "Astronomy Book". Order by Stock No. Send check or M.O.—Money-back guarantee! Stock No. 85,050-Q (Shipping wt. 10 lbs.) \$29.50 f.o.b. Barrington, N. J.

4 1/4" ASTRONOMICAL TELESCOPE



Mt. Palomar type! Up to 270 Power. A fine Reflector Telescope complete with real Equatorial Mount and Tripod and 6X Finder. Aluminum tube, 4 1/4" dia. mirror, rack and pinion focusing eye-piece holder, 2 eyepieces and mounted Barlow Lens for 40X, 90X, 120X and 270X. Low cost accessory eyepiece available for power up to 540. Shipping wt. approx. 25 lbs. Stock No. 85-006-Q, complete, \$74.50 f.o.b. Barrington, N. J.



STAR AND SATELLITE PATHFINDER

'Road Map' of the heavens! A rotating chart—shows well over 500 stars in relationship to each other at any selected day and hour. Table on reverse side supplies valuable information on constellations, planets, meteor showers, etc. Included free with order—STAR PATHS Instruction Booklet—shows how to use "Star and Satellite Pathfinder"—contains simplified drawings of celestial sphere, key points of meridian, time correction tables, other valuable data. Stock No. 9227-Q50c Postpaid

AMERICA NEEDS SCIENTISTS!

Stimulate Boys interest—request our FREE CATALOG-Q featuring hundreds of scientific and astronomical items. No better time than in this INTERNATIONAL GEOPHYSICAL YEAR!

BUILD A SOLAR ENERGY FURNACE

Great Project for Geophysical Year!

A fascinating new field. You can build your own Solar Furnace for experimentation—many practical uses. It's easy—inexpensive, use your scrap wood. We furnish instruction booklet. This sun powered furnace will generate terrific heat—2000° to 3000°. Fuses Enamel to metal. Produces many unusual fusing effects. Sets paper aflame in seconds. Use our Fresnel Lens—1 1/2" diameter...f/1.14". Stock No. 70,130-Q package of 1...\$6.00 Postpaid

ONLY \$4.50 ppd.



New! 2 in 1 Combination Pocket-Size 50 POWER MICROSCOPE

and

10 POWER TELESCOPE

Useful Telescope and Microscope combined in one amazing, precision instrument. Imported! No larger than a fountain pen. Telescope is 10 Power. Microscope magnifies 50 Times. Sharp focus at any range. Handy for sports, looking at small objects, just plain snooping. Send Check or M.O. Satisfaction Guaranteed

Order Stock No. 30,059-Q4.50

FREE CATALOG-Q

Yours for the Asking

America's No. 1 source of supply for experimenters, hobbyists. Complete line of Astronomical Telescope parts and assembled Telescopes. Also huge selection of lenses, prisms, war surplus optical instruments, parts and accessories. Telescopes, microscopes, satellite scopes, binoculars, infrared sniperscopes, items for making "Science Fair" projects, etc. Request Catalog-Q.

Order by Stock No.—Send Check Satisfaction Guaranteed

EDMUND SCIENTIFIC CO.

BARRINGTON, NEW JERSEY

