oxygen/hr./mgm., while two sets of slices from the same rat in the chloride medium each gave a rate of 4·7 μl. oxygen/hr./mgm.

There was a tendency for the oxygen uptake to fall slightly during the second hour in the chloride-free media, though the slices appeared normal to the naked eye after two hours, and determination of their water content showed that no significant swelling had occurred.

These preliminary observations suggest that the normal respiration of adult rat kidney slices depends upon the proper concentrations of the various cations in the medium, and that the anions which accompany them are relatively unimportant.

J. R. Robinson

Department of Experimental Medicine,
University of Cambridge.
Dec. 16.

[1] Laser, H., *Biochem. J.*, **36**, 319 (1942).
[2] Cutting, M., and McCance, R. A., *J. Physiol.*, **104**, 288 (1946).
[3] Robinson, J. R., *Biochem. J.*, **45**, 68 (1949).

Intravascular Electronic Manometer

We have recently developed in these laboratories a recording manometer which has been employed with success in the measurement of intra-arterial and intra-cardiac pressure-cycles in man.

A cardiac catheter or needle in the appropriate vessel is connected by a lead pipe to a pressure head fitted with a bronze diaphragm of diameter 15 mm., and thickness 0·22 mm., the whole being filled with sterile normal saline. The responses of the diaphragm to fluid pressure are measured with a mechano-electronic transducing valve, type *RCA* 5734. This valve translates mechanical deviation of a stylus into an electrical potential, and has the important characteristic of responding to zero frequency, thus making possible the recording of static as well as dynamic pressures. In our instrument a mechanical device brings the stylus of the valve into gentle and measurable contact pressure with the diaphragm, and the potential produced by subsequent pressure variations is measured with an oscilloscope and recorded photographically.

The sensitivity of the instrument is such that simple amplification only is required, and at the greatest sensitivity used, a full-scale deflexion of the oscilloscope is obtained with a pressure of 10 cm. of saline. By varying the degree of amplification any desired sensitivity may be chosen, making it possible to select any portion of the pressure curve and to magnify it for detailed examination.

Since the movement of the diaphragm is small, flow effects are virtually eliminated, and the instrument has a linear response to pressure changes.

A paper describing this manometer and its application to intra-cardiac pressure recording is in course of preparation.

W. Melville Arnott
Gordon Cumming
P. Davison
A. Campbell Pincock

Department of Medicine,
Queen Elizabeth Hospital,
University of Birmingham.
Dec. 20.

"Soviet Genetics: the Real Issue"

I do not propose touching upon points where Dr. Julian Huxley and I must agree to differ in his recent *Nature* articles[1], so the relation of science and politics, and the 1948 Moscow discussion on genetics, will be ignored. I must, however, lay stress upon a point where Huxley is principally wrong.

Soviet science is mainly, though not completely, utilitarian. New biological theory based on experimentally proved facts opens up new perspectives for the development of new ideas and new aspects for practical application, especially in agriculture. These applications, though as yet not fully exhausted, have resulted in a remarkable rise of production within the Soviet Union.

The theoretical basis of the new Soviet science lies in the recognition of different developmental stadiums in the life of living organisms. Genetic potentialities of a living being in the different stadiums seem to differ markedly. This opens up the possibility of influencing organisms in certain different directions.

Environmental influences cause a disturbance of the hereditary characters—giving not strictly Lamarckian effects, but a state of 'shattered' inheritance, which may lead to stabilization of new features.

All this leads to a considerable smoothing down of the sharp line drawn between pheno- and genotypical changes.

My own experiments show that 'dauermodifications' or 'phenocopies' in *Drosophila* may, through selection, be changed into true mutations.

All these facts, as well as the results of vegetative grafting, must convince us that the fundamentals of classical genetics require a profound revision, especially in their Weissmannian aspects.

This calls for an exhaustive and impartial scrutiny of facts. Unfortunately, one cannot claim that this is the case in Dr. Huxley's article.

T. Marchlewski

The Jagellonian University,
Cracow.
Nov. 29.

[1] *Nature*, **163**, 935, 974 (1949).

No one disputes the recent rise in agricultural production in the Soviet Union. Prof. E. Ashby, in a recent broadcast (*Listener*, March 30, 1950), has directed attention to it, and to the fact that productivity "has even approached the yields reported for similar climates in Western countries". While, however, Dr. Marchlewski asserts that this is due to the application of "new biological theory" (presumably including new genetic theory), Ashby concludes that it was the result of the application of common sense and some very elementary practical measures, none of them involving genetics, to an extremely backward condition of agricultural practice. And he stresses that, to achieve this result, Lysenko was indispensable.

Dr. Marchlewski then makes certain genetical assertions of a revolutionary nature: (1) that different developmental stages (phases) of an organism differ in their genetic potentialities; (2) that there is such a condition as 'shattered' inheritance, which permits of something like Lamarckian effects; (3) that phenocopies can be "changed into true mutations" by selection. None of these points has yet been satisfactorily established in principle, and such empirical data relevant to them as are available