

The results showed that the content of ^{41}K in plasma potassium was distinctly higher than in mineral potassium contained in ordinary potassium chloride (A.R.). The average increase was 2.5 per cent, the individual figures varying between 1.8 and 3.2 per cent. This increase was of the same order as that found in potassium from bone-marrow. Since potassium from all normal tissues other than bone-marrow has shown a ^{41}K content close to that of mineral potassium, it appears that the assimilation of potassium by the cell is connected with an isotope effect. A kinetic mechanism, concerned with the movements of ^{41}K and ^{40}K atoms, can be devised to account for this effect.

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¹ Lasnitzki, A., and Brewer, A. K., *NATURE*, **142**, 533 (1938).

Nature of the Feulgen Reaction with Nucleic Acid

THROUGH the courtesy of Messrs. Barber and Price I have now seen particulars of the tests referred to in their criticism¹ of my note² on the nature of the Feulgen reaction with nucleic acid. It is obvious from their account that they have failed to see the main point of my suggestion, that is, that polymerization, via a nitrogen linkage, between leuco-base of fuchsine and the purines available in hydrolysed chromatin is just as likely to result in a coloured product as the similar polymerization between aldose and leuco-base via an oxygen linkage. Their experiments, though apparently made in good faith, were mainly concerned with certain elementary details of the Feulgen reaction which have no bearing on my suggestion.

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¹ Barber, H. N., and Price, J. R., *NATURE*, **146**, 335 (1940).

² Semmens, C. S., *NATURE*, **146**, 130 (1940).

MR. SEMMENS' "suggestion" that purines available in hydrolysed chromatin might be responsible for Feulgen staining was quite clear to us, and it was to test it that we re-examined the behaviour of certain purines with the Feulgen reagent. Since these experiments were a repetition of Semmens', their bearing on the point in question should be sufficiently clear to him. We consider his suggestion untenable because our tests, contrary to his, show that purines do not give any colour with the Feulgen reagent.

The reason we repeated these experiments was that they led to a grave theoretical difficulty, namely, that yeast nucleic acid and thymonucleic acid, which have the same purine components, give a different Feulgen reaction. This difference we consider (in agreement with the general view) as due to the different carbohydrate components of the two acids.

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Mind and Matter

MAY I say how touched I am by the spirit with which your reviewer, F. S. Marvin, points the moral "that mind and not matter rules the world"¹. I also was taught to believe that mind came first, and I should naturally prefer to retain a conviction which has been sufficient for so many generations of historians and philosophers. But admittedly, the bearing of this observation lies in the application of it, and I am compelled to ask myself how I am to apply the priority of mind to my own detailed and perhaps trivial explorations.

I am concerned with chromosomes. Some people have come to look upon these microscopic whims as determining (if one may speak of determination) the properties of heredity and development. Now if the chromosomes determine the development of the whole organism, of which the mind is one (albeit the most precious) aspect, then these scarcely animate particles of matter, the mutations of which obey elementary physical laws, can determine the difference between mind and no mind at all; and particularly, if I were to follow this argument, I should be led to a most disturbing conclusion, namely, that the sperm which will give rise to a man (and his mind) differs from one which will give rise to a female of the species (and her mind) merely by the absence of a piece of one chromosome, a speck of matter. To this end are we led through blindly following the sophistries of material dialecticism, which (as Mr. Marvin laments) are so prevalent to-day. This view needs only to be stated for its contradictory nature to become evident.

On the other hand, if mind or spirit or purpose determine both sex and loss of chromosome at the same time, everything will, I suppose, be clear and straightforward. I say, 'I suppose', since Plato and Aristotle were unfamiliar with this situation, and Epicurus in any event gives me the wrong answer. I now turn to Mr. Marvin in confidence that he will be able to tell me (with or without the help of Dr. Federn) how I may come to apprehend a deeper truth from the misleading images recorded by science. Then I may perhaps myself be able to rewrite the present theory of heredity with a proper appreciation of higher things.

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¹ *NATURE*, **146**, 670 (1940).