living organisms. The chief chemical difference between them lies in the carbohydrate part of the nucleotide: in one nucleic acid it is a pentose, *d*-ribose; in the other it is a desoxypentose, *d*-ribodesose. The two nucleic acids are therefore called by chemists ribose and desoxyribose. The only biological terms equivalent to ribose and desoxyribose refer to the sources from which the two acids are most frequently isolated. Ribose nucleic acid is called 'yeast nucleic acid', and the desoxyribose type is called 'thymus nucleic acid'. Since the former was originally obtained from yeast plants, while the latter was most readily available from the thymus glands of animals, the acids are also called 'plant nucleic acid' and 'animal nucleic acid' respectively, with the distinct implication, indeed sometimes the direct statement, that these two terms express the true difference in distribution of the two nucleic acids in living organisms.

We now know that this is wholly misleading. Ribose nucleic acid is not restricted to plant tissues, nor desoxyribose to animal tissues; both occur widely in both animals and plants. Indeed both the yeast cell and the thymus gland cell undoubtedly contain both acids. Thus, as biological terms, 'yeast nucleic acid' and 'thymus nucleic acid' are to be avoided to-day; and some contemporary writers prefer to use the biologically quite non-committal terms 'ribose' and 'desoxyribose'.

It seems to us that recent work has made the distinctive distributions of the two nucleic acids clear enough, so that the introduction of a new terminology for biological use is justified. From studies of the highly specific nucleal reaction of Feulgen, from Behrens' work on the separation of nuclear and cytoplasmic constituents of the cell, from the results of photochemical analysis, especially by Caspersson, and from direct analysis by us of chromatin itself, it is now clear that desoxyribose nucleic acid is normally restricted to the chromatin of the cell nucleus, and that the chromatin contains none of the ribose type of nucleic acid. We therefore suggest that *chromonucleic acid* be used instead of 'thymus nucleic acid' as a biological term for the substance described chemically by the term 'desoxyribose nucleic acid'. It is now certain that the ribose nucleic acid, by contrast, is found either in the cell cytoplasm or in the plasmosome (nucleolus) of the cell nucleus; it is not a constituent of the nuclear chromatin itself. We therefore suggest *plasmonucleic acid* as a useful substitute for 'yeast nucleic acid' and as the biological equivalent for the chemical term 'ribose nucleic acid'.

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[1] Mirsky, A. E., "Advances in Enzymology", **3**, 1-34 (1943).

A Specific Reaction for Ascorbic Acid

ON adding hydrochloric acid to a solution of ascorbic acid, reversible oxidation with 2 : 6-dichlorophenolindophenol and iodine becomes progressively slower as the mineral acid content increases. When the hydrochloric acid concentration reaches 20 per cent in the case of indophenol and 29 per cent in the case of iodine, reduction of the reagent is completely inhibited. On diluting the acid mixture with water, the total reducing capacity of the ascorbic acid is restored, and can be titrated with both reagents. This property is exhibited only by ascorbic acid, and, consequently, substances which interfere in the titration under the usual conditions can be differentiated from the vitamin. With certain other reducing substances the rate of reduction of the reagents is somewhat retarded, but reduction proceeds to completion. With orange juice a small titration is observed in the presence of the mineral acid, and the true ascorbic acid content is obtained either by subtracting this figure from the original titration value or by determining the renewed titration value obtained on diluting with water. With fruits and vegetables of high vitamin content (guava, lucerne and parsley) no interfering substance is found to be present.

The method is particularly useful with glucoreductone produced from glucose and hot alkali, as this substance under the usual conditions of titration is indistinguishable from ascorbic acid. By keeping the hydrochloric acid concentration at 20 per cent this reductone can be titrated with indophenol to completion, the pink colour persisting for 20 sec. at the end-point. With iodine in the presence of 29 per cent acid the titration is not accurate. The high apparent ascorbic acid figure produced with metaphosphoric acid extracts of biscuit, to which concentrated orange juice had been added, was definitely proved to be due to a reductone-like substance only.

Thiosulphate can be differentiated from ascorbic acid similarly using indophenol or iodine. Certain modifications are necessary in applying the method to urine analyses. The new technique provides (*a*) a simple method by which ascorbic acid can be identified in solution, and (*b*) in the case of unknown material, fresh evidence as to whether ascorbic acid is the reducing substance present.

A suggested explanation of the phenomenon is that in the presence of an abundance of hydrogen ions ascorbic acid is completely converted into the non-reducing keto-form. On dilution with water, enolization results with a restoration of the reducing capacity.

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Anabiosis in a Soil Ciliate

INVESTIGATORS of the microfauna of the soil have frequently remarked upon the rapidity with which active ciliates make their appearance when samples of dried or partly dried soil are moistened for examination in the laboratory. The conclusion has been drawn that these ciliates cannot be in the encysted condition but are capable of remaining active in soils containing a very low percentage of water.

Some light has been thrown on this matter in the course of recent investigations on the bionomics of a little-known holotrichous ciliate, *Balantiophorus minutus* Schew., which has been frequently reported from soil. In agar plate cultures of this ciliate, it was observed that not only could it remain active in very restricted films of water, wriggling between the bacterial masses on the surface of the agar in an almost amœboid fashion, but also that it was capable of passing into a condition of suspended animation,