characteristic of the guanidino-group. The sharp separation of arginine and homoarginine, each of which contains the same three ionizable groups and which differ only by one carbon atom in chain-length, illustrates the high resolution of basic amino-acids on 15-cm. columns of 'Dowex 50', eluted with nearly neutral buffers. Substitution of a hydroxy-group in homoarginine has the effect of causing an earlier emergence of the hydroxy amino-acid, a result also shown by the pairs lysine and hydroxylysine and alanine and serine.

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Colour Reaction for Deoxyribose Compounds

The two most commonly used methods for detecting deoxyribose compounds are the diphenylamine reaction[1] and the cysteine–sulphuric acid method[2,3], both originally discovered by Dische. Overend and Stacey[4] have made the most recent survey of the usefulness of these methods. Both methods suffer from the same fault, that neither measures pyrimidine-bound deoxyribose quantitatively. Brody[5] has used the cysteine–sulphuric acid method under conditions of precise temperature control for the quantitative determination of deoxyribose nucleic acid. It was not determined whether or not the pyrimidine-bound deoxyribose compounds were as chromogenic as the purine-bound sugars. The observations presented here show that the method can be employed for a variety of compounds containing deoxyribose.

The only change from the description by Brody was to decrease the final volume from 5·55 ml. to 3·33 ml., and the amounts of reagents used were reduced accordingly. The intensity of colour that developed was determined in the Beckman spectrophotometer at 474 mμ. Assuming that each mole of deoxyribose is quantitatively converted to the chromogen, Table 1 shows the apparent molar extinction coefficient of this chromogen as derived from tests with a variety of compounds containing deoxyribose. Within experimental error, the observed molar extinction coefficient is the same. It appears, therefore, that pyrimidine-bound deoxyribose reacts as well, quantitatively, as purine-bound deoxyribose. One can therefore use this method to determine the total deoxyribose content of a given sample. One can also determine the amount of purine-bound and pyrimidine-bound deoxyribose in any sample by a combination of the diphenylamine reaction and the cysteine–sulphuric acid method as described by Brody.

Table 1. Reaction of Deoxyribose Compounds in the Cysteine–Sulphuric Acid Method.
The test was carried out under the conditions described in the text. 50 μgm. of each substance was used, and the apparent molar extinction coefficient calculated from the value obtained

Substance	Apparent molar extinction coefficient of the chromogen ($\times 10^4$)
Adenine deoxyriboside	1·6
Thymidine	1·5
Cytosine deoxyriboside	1·3
Deoxyguanylic acid	1·4
Deoxyadenylic acid	1·3
Thymidylic acid	1·4
Thymidine diphosphate*	1·5
Deoxycytidylic acid	1·5
Thymus deoxyribonucleic acid†	1·4

* A commercial sample obtained from the California Foundation for Biochemical Research, Los Angeles, Calif.
† A commercial sample obtained from General Biochemicals, Inc., Chagrin Falls, Ohio. The apparent molar extinction coefficient was calculated on the basis of the composition of the deoxyribonucleic acid being a statistical tetranucleotide.

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Correlation between Endogenous Auxin and its Destruction *in vivo* by 2 : 4-Dichlorophenoxyacetic Acid in Plants

Several investigators have recently pointed out the accelerating effect of 2 : 4-dichlorophenoxyacetic acid (2,4-D) on the destruction of auxin in dicotyledonous plants[1–3]. In addition, one group[3] has revealed that the opposite effect prevails in oat coleoptile sections, that is, 2,4-D effects a prevention or 'sparing action' of the previously reported destruction of indolylacetic acid in oat coleoptiles[4].

Experiments *in vitro* using etiolated oat coleoptile, pea epicotyl and sunflower hypocotyl sections (3 mm.), have shown that these two phenomena do indeed occur under similarly controlled conditions. Table 1 indicates that 2,4-D in increasing concentrations causes a continuously retarded destruction of added indolylacetic acid (50 mgm./l.) with oat sections. The opposite is shown for the pea and sunflower sections.

Next, intact plants grown in 'Terralite' were sprayed *in vivo* in the greenhouse and in the *Avena* dark room with 1,000 p.p.m. (4×10^{-3} *M* of sodium salt) of 2,4-D and allowed to stand 12–48 hr. (or longer for beans). Plant parts, exclusive of leaves, were extracted in the cold room (0–2° C.) with two successive portions of wet, peroxide-free ether over a 16-hr. period. The extracts were then made up in the usual manner for use in the Went *Avena* assay.

The results, as shown in Table 2, indicate that there is fairly good correlation between the previously cited effect of 2,4-D on auxin destruction (Table 1)