helpful in confirming their identification. An additional advantage of this technique is that since individual amines are separated from a complex mixture of urinary amines, material derived from a much greater quantity of original urine can later be subjected to paper chromatography.

When the pooled chloroform extracts of 10 schizophrenic urines were subjected to ion-exchange column chromatography, no 3,4-dimethoxyphenylethylamine was detected in the effluent zone in which the compound should have been eluted had it been present in the extracts. Since as little as 1 or 2 μg could have been detected in this effluent zone, it is likely that if 3,4-dimethoxyphenylethylamine was present in the urines of the 10 schizophrenic patients at all, it occurred in an average concentration of not more than 1 μg/1,000 mg creatinine equivalent.

Other experiments in progress have demonstrated that many amines excreted in normal human urine are derived from dietary plant sources, or as a result of enzymatic activity by intestinal bacteria. Unlike the subjects examined by Friedhoff and Van Winkle[1,2] and by Takesada *et al.*[4], all except one of our patients had been on a strictly plant-free diet for some time before, as well as during, the period of urine collection. In addition, all of them had very recently been admitted to hospital, and they may have had insufficient opportunity to acquire an intestinal flora characteristic of chronically hospitalized psychotics. This may account for our failure to detect 3,4-dimethoxyphenylethylamine in the urine of schizophrenics.

Since Friedhoff and Van Winkle[3] have reported the conversion of intravenously injected dopamine to 3,4-dimethoxyphenylethylamine in schizophrenics, and since banana is known to contain appreciable quantities of dopamine[11], it seemed possible that this fruit might serve as an indirect dietary source of urinary 3,4-dimethoxyphenylethylamine. A normal adult male was fed 1,054 g of banana pulp (12 bananas) during a 30-min period, after having been for 5 days on a plant-free diet. Urine was collected for 12 h after the ingestion of banana, and a 300-mg creatinine equivalent was extracted by the method of Friedhoff and Van Winkle[1,2]. The extract was subjected to ion-exchange column chromatography as described above, and appropriate zones of the column effluent were then chromatographed two-dimensionally on paper. No 3,4-dimethoxyphenylethylamine was detected, although the dopamine metabolite 3-methoxy-4-hydroxyphenylethylamine was present in the extract.

Although the number of patients we have examined is small, we think it unlikely that the urinary excretion of 3,4-dimethoxyphenylethylamine is characteristic of schizophrenia, or that this amine is causally related to the mental dysfunction of schizophrenia.

This work was supported by grants from the Medical Research Council of Canada, and the Richard W. Lippman Memorial Fund. We thank Dr. James G. Foulks for advice.

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The identification of 3,4-dimethoxyphenylethylamine in human urine[1] has been confirmed by published reports from two other laboratories, each using methods different from ours[2,3]. We have now analysed more than 250 urine samples from acute schizophrenic patients. The findings in these studies are consistent with our original data. In addition we have isolated sufficient quantity of 3,4-dimethoxyphenylethylamine from pooled urine obtained from schizophrenic patients to obtain a melting point (hydrochloride m.p. 152°–154° C). Therefore, the presence of this compound in urine would seem to be well established. Perry *et al.* imply that their failure to find 3,4-dimethoxyphenylethylamine in 10 patients on a plant-free diet demonstrates that this compound is of plant origin. However, they have not shown that they are able to detect 3,4-dimethoxyphenylethylamine in subjects eating a diet that includes plants. It is, therefore, not possible to assess their techniques in the face of the many analytical hazards involved in detecting a few micrograms of an amine in large volumes of urine. Our own *in vivo* and *in vitro* investigations using isotopes provide evidence that 3,4-dimethoxyphenylethylamine is of endogenous origin[4]. As we have pointed out previously, the significance of these findings in the genesis of schizophrenia cannot at present be assessed.

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MISCELLANEOUS

Preservation of Starch-gel Electrophoresis Strips

In their recent communication[1], Dangerfield and Faulkner state that for plasticizing of starch gels "the use of glycerol–acetic acid solution without gelatin or agar is possible, but leads to contraction and distortion."

A method which avoids distortion of pherograms on starch gels during plasticizing with glycerol–acetic acid solution has recently been published[2]. According to this method the thin gel layer which has been rinsed free of background stain is immersed in an aqueous solution of 15 per cent glycerol and 2 per cent acetic acid for 30 min, then placed on a glass plate and covered with a thin, water-permeable, transparent or translucent cellulose sheet for drying in a warm air stream (at 50° C to 55° C). The borders of the cellulose-covered gel should be weighted for the first few hours of drying in order to avoid warping. The drying process is accompanied by a slight but three-dimensionally uniform contraction, and there is no distortion at all. For interpretation of a pherogram a slight, uniform contraction is non-interfering and insignificant.

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When a conventional starch strip washed in glycerol solution is placed on a glass or 'Perspex' plate and dried,