under less favourable conditions this error was ± 10%. The time necessary for one analysis is 12 minutes and may be reduced to one half in routine analysis, when a calibration curve is applied. In combination with paper chromatography the proposed method can be used for other biological material where direct polarographic estimation is not feasible. An alternative method for the determination of UA to the spectrophotometric method most commonly used appears important in view of the present interest centering around this substance as an intermediate in the conversion of histidine to glutamic acid and as a precursor of available formyl group[7,8].

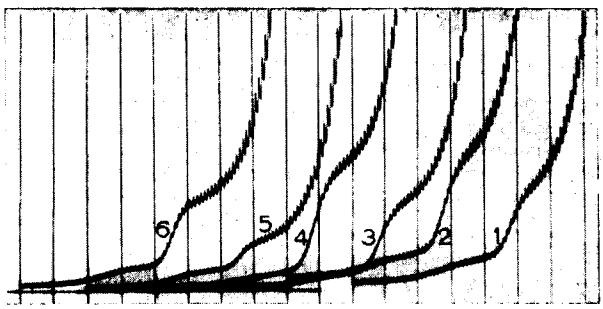

Fig. 2. The wave of UA in sweat samples. 1 ml 0.5 *M* acetate buffer pH 4.7, 0.5 *M* KCl; 1 ml sweat: Curve 1 corresponds to 13.4 mg%, curve 3 to 14.0 mg %, curve 5 to 6.5 mg % UA in sweat. Curves 2, 4, 6 represent the curves of the respective sweat samples after 0.05 ml 138 mg % UA was added.

25 Pairs of results obtained by both methods (average 6.66 mg % for the polarographic, 6.60 for the chromatographic method) were analysed by the method of paired *t*-test. The difference between both methods, which are based on widely different structural features (imidazole ring in chromatographic detection and acrylic side chain in polarographic reduction), was found to be due to chance. This can be taken as evidence for the absence of systematic error in either of them.

By means of both methods the UA content in sweat of subjects with rheumatoid arthritis and of sportsmen before and after muscular effort has been studied. Histidine was estimated by paper chromatography. The results will be published elsewhere.

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On the mechanism of the intestinal absorption of sugars[1]

The current hypotheses on the mechanism of "active" transport of sugar in the intestine postulate an enzymic modification of the sugar molecule at either carbon atom 1 or 6 by phosphorylation[2] or at carbon atom 1 by mutarotation[3]. With respect to the hypothesis of phosphorylation, the recent experiments of SOLS[4] on the substrate specificity of the hexokinase of intestinal mucosa clearly demonstrate that this enzyme cannot participate directly in "active" transport. However, by the methods used, the participation of a different enzyme of phosphorylation could not be disproved.

It occurred to us that direct test of the validity of these hypotheses could be made by the use in absorption experiments of model compounds lacking the hydroxyl function at carbon atoms 1 or 6 and incapable of undergoing phosphorylation or mutarotation. Accordingly, 1-deoxy glucose, 1-deoxy mannose, and 6-deoxy glucose were chosen as test compounds. Glucose and

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3-methyl glucose, both of which have previously been found to be actively transported by the intestine[5,6], were chosen as controls. The experiments were carried out with WILSON's elegant method[6,7] in which everted sacs of the intestine of the golden hamster are used.

The results of these experiments are given in Table I. The data show that 1-deoxy glucose and 6-deoxy glucose were concentrated to a high degree on the serosal side of the preparation as were glucose and 3-methyl glucose, whereas 1-deoxy mannose, consistent with the observations of WILSON AND VINCENT with mannose[6], was not.

TABLE I

THE ABSORPTION OF SUGARS BY THE ISOLATED, EVERTED HAMSTER INTESTINE

Expt. No.	*Substrate*	*Concentrations; μM/ml*		
		inital	*final*	
		both sides	*mucosal*	*serosal*
1	1-deoxy glucose	8.0	6.8	19.8
	glucose	8.0	1.0	26.8
	1-deoxy mannose	8.0	8.0	8.5
	1-deoxy glucose	8.0	6.5	20.4
	glucose	8.0	3.0	25.2
	1-deoxy mannose	8.0	7.5	9.2
2	6-deoxy glucose	4.0	0.65	13.2
	3-methyl glucose	4.0	2.26	7.90
	6-deoxy glucose	4.0	1.79	10.1
	3-methyl glucose	4.0	3.25	5.65

The techniques for use of hamster intestine described by WILSON *et al.*[5,6] were followed in all respects. Segments of about 3 cm in length were cut, beginning at the upper jejunum. The substrates in each experiment are listed in the order of the successive segment used. Equal concentrations of substrate were placed inside and outside the sacs. Incubation was for 1 hour at 37° C. Analyses were made on barium hydroxide-zinc sulfate filtrates of the external medium and of the contents of the sac. The 1-deoxy sugars were assayed by SALO's periodate method[8] with appropriate small correction for reducing sugar. The latter were assayed by the SOMOGYI method[9]. The 1-deoxy compounds (also known as 1,5-sorbitan and 1,5-mannitan) used were the gift of Dr. N. K. RICHTMYER and contained no reducing sugar. The 6-deoxy glucose was the gift of Dr. E. HARDEGGER and contained about 0.5% of glucose, as judged by enzymic assay.

Inasmuch as WILSON AND VINCENT have reported that galactose is also actively transported, the list of compounds which undergo "active" transport now includes a glucose derivative varying from the parent compound in substitution or configuration at carbon atoms 1, 3, 4, or 6. From the standpoint of the chemical reaction which a transported compound might undergo, further studies on model compounds differing from glucose at carbon atom 2 and in the position of the ring are indicated. The fact that 1-deoxy glucose and 6-deoxy glucose are actively transported by the intestine renders untenable the hypotheses that phosphorylation or mutarotation are involved in intestinal absorption.

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