one. Positive transfer to the human skin was accomplished in these latter 2 cases.

In the animal experiments, in 14 animals in whom asthma was produced, there was one passive transfer to the human skin, and 3 suggestive transfers. In the passive transfer to normal guinea pigs there were 2 positive and 7 suggestive reactions in 16 animals injected.

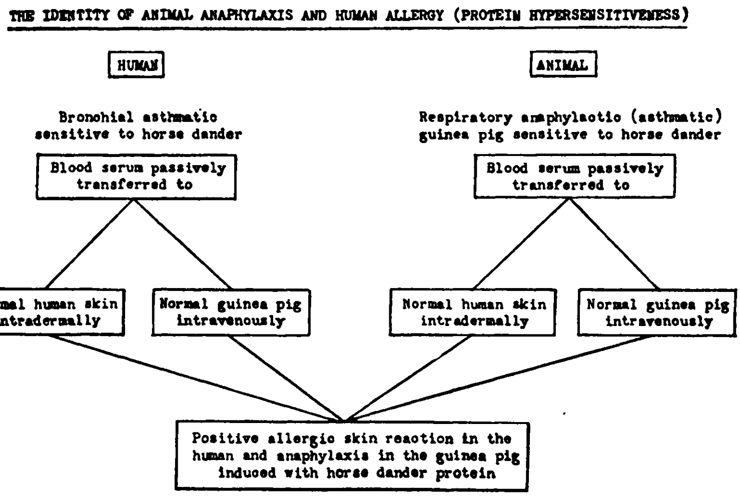

FIG. 1.

In Fig. 1 the results are correlated and show that the blood of a human asthmatic and the blood of an asthmatic guinea pig can passively sensitize the normal human skin and normal guinea pigs.

We deem our results indicate that hypersensitiveness in man and anaphylaxis in the lower animal are fundamentally dependent on a common anaphylactic antibody and that the distinction between anaphylactic antibody and the atopic reagin is untenable.

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Adsorption of Glucose Galactose Mixtures in the Intestine.

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Plant and animal membranes exhibit selective permeability for chemically related substances. The diffusion of simple carbohydrates through the glomerular membrane of the kidney, through the intestinal wall and through the membrane of monocellular organisms has been the subject of a great number of investigations. In several instances, paradoxical phenomena were observed, *e. g.*, that glucose and fructose are taken up by yeast at the same rate when offered singly, but glucose is preferred from a mixture of the two. Chemical reactions following the entry of the substances into the cell are responsible for this unusual behavior. The sugar absorbed from the intestinal wall is carried away subsequently through the mesenteric circulation and does not undergo chemical changes before reaching the liver. On the other hand, in the yeast cell, where the sugar reacts chemically in the immediate proximity of the membrane, the reaction products of the one substance may influence the diffusion of the other one.

In a series of experiments, Cori[1] and Nagano[2] established the absorption coefficients of various monosaccharides in the intestinal tract of the rat. These coefficients referring to glucose as 100, are 110 for galactose, 43 for fructose, 19 for mannose, etc. But from a mixture of equal parts of galactose and glucose, glucose was preferred at a rate of 100:68.[3]

We tried to repeat Cori's experiment using polarimetric analysis. Cori's criticism of acute experiments is justified as to the absolute amounts absorbed because of the influence of narcosis and laparatomy on the rate of absorption and because of the variations of body weight and intestinal surface used. However, as we were interested only in the relative rate of absorption of glucose and galactose, we found it most convenient to use the isolated intestinal loop of the rabbit.

Animals fasted 48 hours were narcotized with ether, a loop of the small intestine was clamped off and 50 cc. of 10% glucose-galactose mixture was injected into the intestinal lumen. Three samples were withdrawn after given intervals and analyzed polarimetrically and by Hanes'[4] modification of the Hagedorn Jensen method. For the last sample all the remaining fluid was withdrawn from the loop. The total volume was greater than the amount injected because the hypertonic sugar solution attracted water from the tissues.

The reduction values were interpolated from glucose and galactose curves obtained by Hanes' method. The $[\alpha]_D^{20}$ of a 10% solution of glucose and galactose, $52.5° + 81.1°/2 = +66.8°$, was verified. The $[\alpha]_D^{20}$ of the solutions removed varied between

1 Cori, C. F., PROC. SOC. EXP. BIOL. AND MED., 1925, xxii, 495.
2 Nagano, J., *Pflüger's Arch. f. ges. Phys.*, 1902, xc, 389.
3 Cori, C. F., PROC. SOC. EXP. BIOL. AND MED., 1926, xxiii, 290.
4 Hanes, C. S., *Biochem. J.*, 1929, xxiii, 99.

TABLE I.

Time min.	Sugar Solution withdrawn cc.	% sugar	$[\alpha]_D^{20}$	% glucose total sugar	Glucose gm.	Galactose gm.	Total gm.	Remarks
0	50*	10.0	66.8°	50.0	2.50	2.50	5.00	Rabbit 1
25	18	6.24	66.0°	53.0	0.59	0.53	1.12	2.6 kg.
50	17	4.14	65.2°	55.5	0.39	0.31	0.70	loop=40
75	37	4.17	67.1°	49.0	0.75	0.79	1.54	cm.
Total unabsorbed					1.73	1.63	3.36	rate
Total absorbed				47.1	0.77	0.87	1.64	**100:113**
0	48*	10.0 †	67.85°	46.0	2.21	2.59	4.80	Rabbit 2
25	15	6.43†	68.7°	43.0	0.42	0.55	0.97	2.2 kg.
60	12	5.08†	66.35°	51.5	0.31	0.30	0.61	loop=50
85	30	3.82†	67.3°	48.0	0.55	0.59	1.14	cm.
Total unabsorbed†					1.28	1.44	2.72	rate
Total absorbed				44.7	0.93	1.15	2.08	**100:123‡**
0	50*	10.0	66.8°	50.0	2.50	2.50	5.00	Rabbit 3
30	18	2.48	67.0°	49.0	0.22	0.23	0.45	2.0 kg.
70	19	1.92	64.5°	53.0	0.21	0.15	0.36	loop=80
85	25	2.72	67.2°	48.0	0.33	0.35	0.68	cm.
Total unabsorbed					0.76	0.73	1.49	rate
Total absorbed				48.3	1.74	1.77	3.61	**100:102**

* Injected. † By Bertrand.
‡ Rate of gl:gal 100:105 calculated on 50:50 mixture.

TABLE II.

Time (min.)	Total		mgm. in 100 cc. non-fermentable reducing	Glucose	Galactose (=increase of non-fermentable over fasting)
0	ear	126	29	97	0
20	,,	181	62	119	33
20	portal	243	76.5	166.5	47.5
60	ear	95	68	27*	39
60	portal	260	62	198	33

* The drop of glucose to 27 mg./100 cc. in the peripheral circulation following prolonged ingestion of a non-fermentable sugar is remarkable. A similar observation in humans will be reported by Fischer and Reiner elsewhere.

+64.5° and +68.7°, corresponding to 55.5 and 43% glucose. In the last column of Table I are given the relative rates of glucose: galactose absorption.

Blood was withdrawn from the ear-vein and from a mesenteric vessel of rabbit 3 and analysed by the Hagedorn Jensen method before and after the removal of fermentable sugar according to Somogyi's procedure.[5]

Conclusion: The relative rate glucose :galactose is unity within the

[5] Somogyi, M., *J. Biol. Chem.*, 1927, lxxv, 33.

limits of error with a slight preference for galactose in accordance with Cori's experiments on ingestion of individual sugars. The reversion of this relation for glucose-galactose mixtures was not observed under our experimental conditions.

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Endogenous Stimulation of Albino Rat Fetuses.

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Studies upon the progressive development of muscular activity of albino rat fetuses, from 15 days to almost 21 days after insemination, have been made.

During this study it has been found that fetuses of about 18 days after insemination do not respond to tactile stimulation of the hands. But, on ligation of the umbilical cord they give a very characteristic waving of the hand shortly after the time of ligature. This waving of the hand has a short duration and is followed by strong body movements typical of fetuses of that stage of development.

Fetuses of about 19 days after insemination begin to respond to tactile stimulation of the hands, and about 19½ days after insemination one can obtain discrete reflexes from this member. Thus stimulation of the dorsal side of the hand causes an extension of the hand with spreading of the fingers, while stimulation of the volar side of the hand causes flexion of the hand with closure of the fingers.

At this stage (19½ days) one cannot arouse the fetuses by stimulation of the hind legs. But on ligation of the umbilical cord the first observable movement is flexion of the hind legs which is then followed by waving of the hands and finally the characteristic body movements of this age.

These observations seem to indicate that the motor nerve reaches these parts sooner than the sensory nerve, also that it is possible to stimulate directly by means of metabolites (CO_2) the centers that control these movements.