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November 15, 1972

M. E. MAXFIELD (3)
EMPLOYEE RELATIONS
HASKELL LAB.

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LEAD FEEDING STUDY: RECOVERY PHASE HASKELL LAB.

This letter summarizes the results of a second analysis of the recovery data from the lead feeding study done in Spring 1971. This analysis differs from the initial one in that it includes the control data which the other omitted. (These data consist of blood lead and ALA dehydrase measurements made on all dogs at three separate times prior to their beginning a lead-free diet).

As before, the blood lead and ALA dehydrase readings were averaged over the dogs in each group (one lead-free and two test groups) and expressed as functions of time. The model used was $\log_{10} y = b_0 + b_1 \log_{10} t$. Male and female data were fitted separately. A weighted regression was done, giving the control point three times the weight of any other point, since the control measurements were made on three occasions.

The results are as follows:

1. The male and female control groups do not show a significant rate of change in either blood lead or ALA dehydrase. All the test groups do have significant slopes. See Table I for the coefficients of the equations.

There is no difference in the rates of blood lead decrease of Group II (low lead) and Group III (high lead). Rates of increase in ALA dehydrase for these two groups are significantly different.

2. The time required for Groups II and III to reach the level of the control group ranges from 15 to 2,188 weeks. Table II gives the time in weeks necessary for the test groups to reach control level. Beneath each entry is the 95 percent confidence interval for the intersection.

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3. The rate of ALA dehydrase increase for the low lead groups is distinguishably different from the rate of decrease of blood lead. For the high lead groups, the rates are not different for the males and just significantly different for the females.

Graphs of the fitted equations are attached.

ENGINEERING SERVICE DIVISION

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Attachments

TABLE 1: $\log_{10} y = b_0 + b_1 \log_{10} t$

BLOOD LEAD		b_0	b_1^*	$\text{adj. } R^2$
Males: Group	I	.6105**	--	--
	II	1.3579	-.5150	.82
	III	1.9485	-.4260	.87
Females: Group	I	.4520**	--	--
	II	1.4269	-.5440	.80
	III	1.8887	-.4270	.83
ALA DEHYDRASE				
Males: Group	I	1.4343**	--	--
	II	1.1538	.1970	.64
	III	.3510	.5820	.96
Females: Group	I	1.3805**	--	--
	II	1.1112	.2300	.91
	III	.3022	.6650	.97

* b_1 denotes the rate of change of the response.

**The regression is non-significant. The number in the table represents the average $\log_{10} y$.

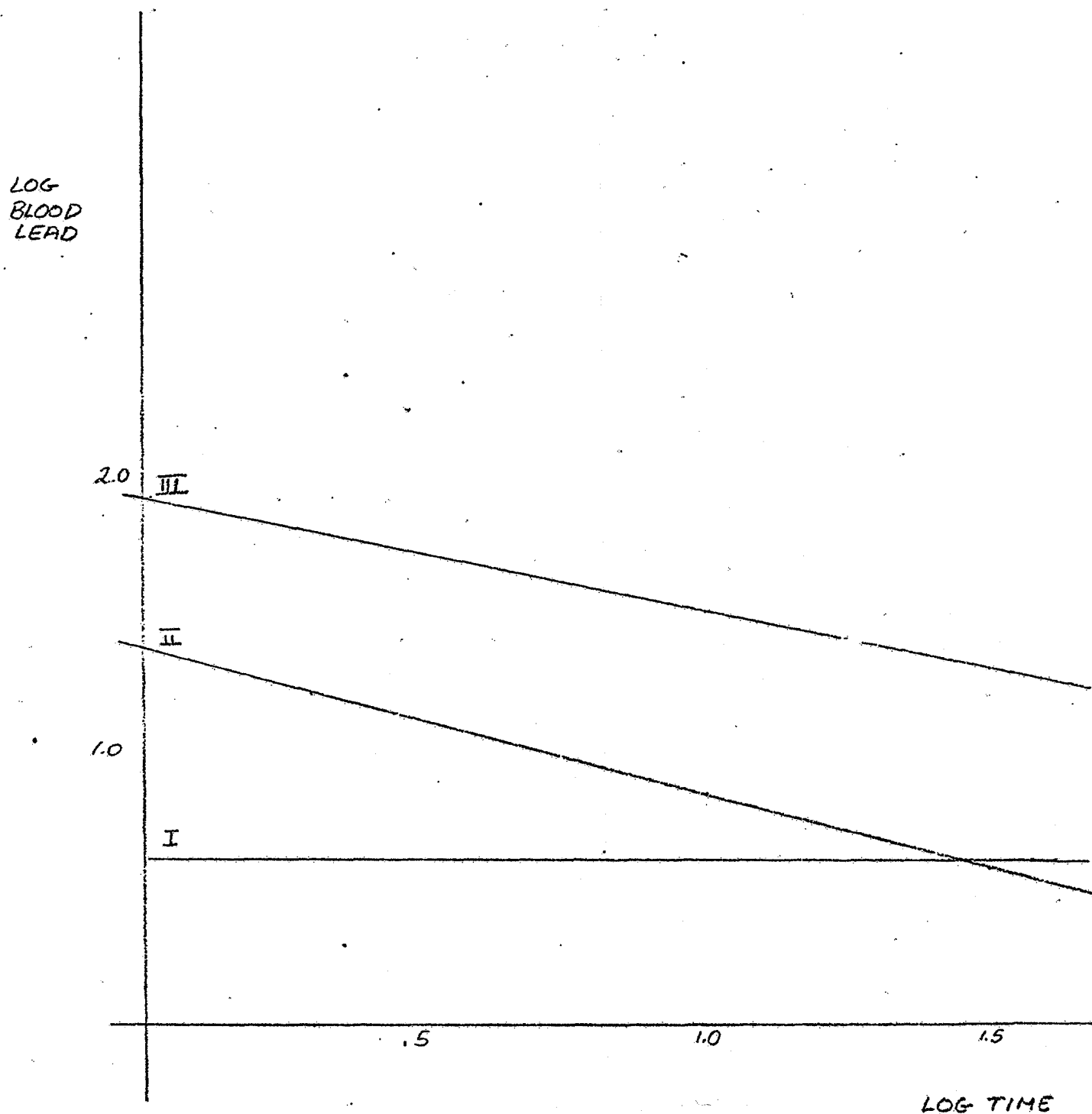
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TABLE 2: INTERSECTION TIME IN WEEKS

	<u>Group II/Group I</u>	<u>Group III/Group I</u>
Blood lead, males	28 (19.8, 46.0)	1308 (463, 7817)
Blood lead, females	65 (43.6, 97.5)	2188 (892, 9103)
ALA dehydrase, males	25 (12.2, 199.)	73 (48.4, 140.6)
ALA dehydrase, females	15 (9.3, 31.6)	41 (32.2, 57.9)

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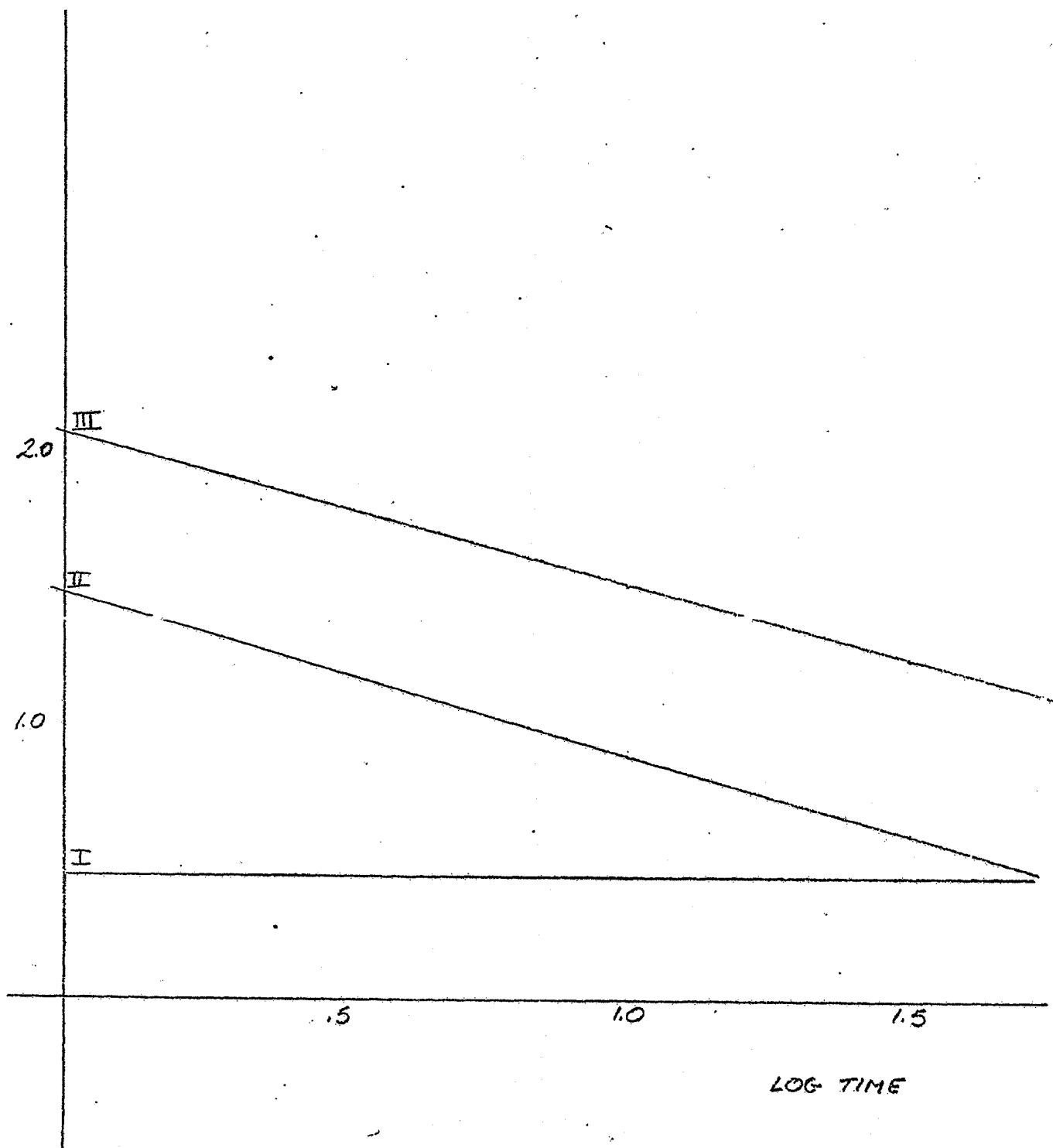
BLOOD LEAD-MALES



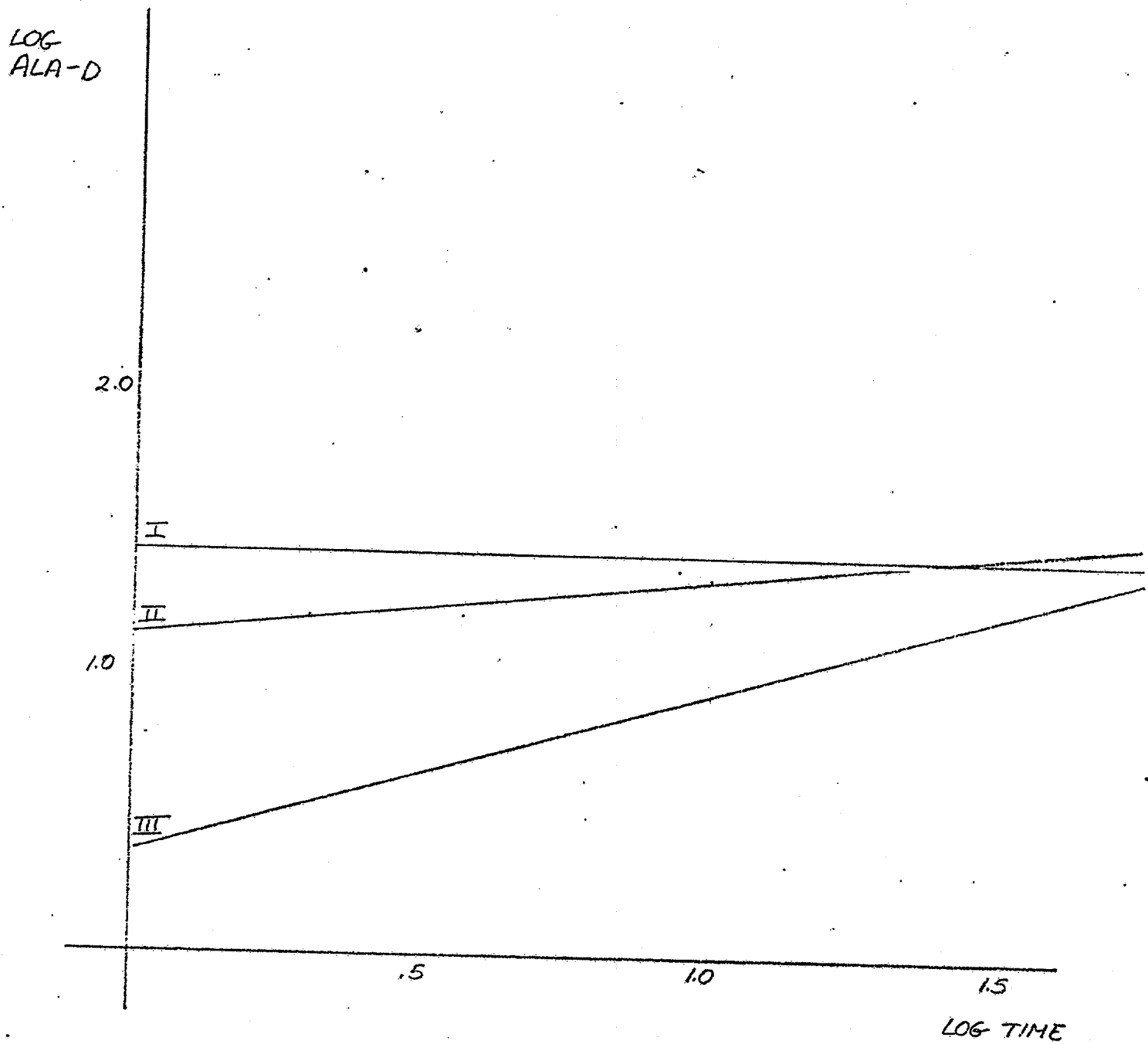
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BLOOD LEAD - FEMALES

LOG
BLOOD
LEAD



ALA DEHYDRASE - MALES



ALA DEHYDRASE - FEMALES

