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LEAD IN BLOOD IN INHABITANTS OF OSLO-NYDALEN EXPOSED TO AIR LEAD FROM INDUSTRIAL AND VEHICULAR SOURCES

PART II

by

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Foreword

In February 1984, the values of blood lead were investigated in the inhabitants of the Oslo-Nydalen area (moderately exposed to lead primarily from industrial and vehicular sources) and Sørumsand (control low exposure area). The values of lead in blood were correlated to exposure to lead in air. Part I summarizes the principle findings of the study.

Part II of this report is a collection of Appendices that summarize analyses that were considered peripheral to the main body of the report. These were principally: 1) means and standard deviations of blood lead correlations by different socio-economic categories, and 2) additional analyses of extra hematological parameters measured in the original study.

It is essential to refer to Part 1 for a description of variables and methodology used, in addition to a previous report (Clench-Aas et al., 1980) for details on the control town Sørumsand.

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APPENDIX I

Means, standard deviations and samples size (N) of parameters that were not included in further analysis because of insignificance.

Values expressed as µg/dl.

where B-Pb (µg/dl) = B-Pb (µmol/l) x 20.72

Values were then hematocrit adjusted

$$\text{CB-Pb} = \frac{\text{B-Pb x 45.0}}{\text{measured hematocrit}}$$

Table I-1: Blood lead (µg/dl) concentrations in individuals living in Oslo-Nydalen and Sørumsand by social class.

			Social Class [1]				
			A	B	C	D	F
Oslo-Nydalen:	Adult Males	Mean	6.2[2]	6.7	6.7	5.3	9.8
		St.dev	2.2	2.2	3.8	-	6.2
		(N)	39	38	14	1	13
	Adult Females	Mean	5.6	5.3	4.6	6.1	6.6
		St.dev	2.2	1.8	2.8	1.8	-
		(N)	40	48	33	7	1
	Children	Mean	6.2	6.1	5.9	7.1	-
		St.dev	2.1	2.1	2.2	2.4	-
		(N)	46	45	22	8	-
Sørumsand:	Adult Males	Mean	5.8	6.1	10.0	-	3.2
		St.dev	1.3	-	5.7	-	1.0
		(N)	18	1	4	-	2
	Adult Females	Mean	3.6	4.7	5.7	5.1	2.8
		St.dev	1.5	2.4	1.3	3.9	1.0
		(N)	22	15	10	3	3
	Children	Mean	4.6	4.1	3.5	-	-
		St.dev	2.0	0.6	0.3	-	-
		(N)	12	2	6	-	-

1 Social class definitions: see Appendix I, Part I.

2 Blood lead concentrations are hematocrit adjusted.

3 Occupationally exposed individuals are removed from data set prior to data analysis.

Table I-2 : Blood lead (µg/dl) concentrations in individuals of the two towns by number of hobbies which can be considered to expose individuals to lead.

			Number of lead exposed hobbies		
			0	1	2
Oslo - Nydalen	Males	Mean	6.8	6.2[1]	8.7
		St.dev	3.5	1.6	2.3
		N	89	11	6
	Females	Mean	5.7	6.2	-
		St.dev	2.8	3.5	-
		N	152	3	-
Sørumsand	Males	Mean	6.0	7.2	-
		St.dev	2.1	4.5	-
		N	19	7	-
	Females	Mean	3.9	5.8	-
		St.dev	2.0	-	-
		N	52	1	-

[1] Blood lead concentrations are hematocrit adjusted. Occupationally exposed individuals are removed from data set prior to data analysis.

Table I-3: Blood lead (µg/dl) concentrations as a function of smoking habits and social class in Oslo-Nydalen.

			Social Class[1]			
			A	B	C	D
ADULT SMOKERS	Never smoked	Mean	5.6[2]	6.0	5.0	5.6
		St.dev	1.7	1.8	2.9	2.2
		(N)	37	31	18	4
	Former smoker	Mean	6.6	5.4	4.1	-
		St.dev	3.6	2.0	2.0	-
		(N)	8	21	10	-
	Occasional smoker	Mean	6.0	6.8	5.0	-
		St.dev	1.9	2.7	2.3	-
		(N)	12	8	6	-
	1 - 9 cigarettes	Mean	5.6	7.2	12.5	-
		St.dev	2.4	2.1	7.5	-
		(N)	11	6	2	-
	10 - 29 cigarettes	Mean	6.7	5.7	5.5	5.9
		St.dev	2.8	2.1	3.1	0.9
		(N)	11	20	11	3
	>30 + cigarettes	Mean	-	-	-	8.0
		St.dev	-	-	-	-
		(N)	-	-	-	1
Children exposed to passive smoking	NO	Mean	6.4	6.6	3.8	7.1
		St.dev	2.2	2.1	0.7	2.8
		(N)	34	24	8	6
	YES	Mean	5.9	5.6	7.2	7.3
		St.dev	2.1	2.1	1.7	1.5
		(N)	12	21	14	2

[1] Social class defined in Appendix I, Part I.

[2] Blood lead concentrations are hematocrit adjusted
Occupationally exposed individuals removed from data set prior to data analysis.

APPENDIX II

Results of the analyses of hematocrit

Occupationally exposed individuals
removed from data set prior to data analysis

Table II-1: Frequency distribution of measured hematocrits in the inhabitants of Oslo-Nydalen with relevant statistics:

VARIABLE-FIELD: 109- 112 HEMATOCRIT
47 SUBJECTS EXCLUDED DUE TO UNPERMITTED VALUES
LOWER RANGE LIMIT : 30.000
UPPER RANGE LIMIT : 50.500
NUMBER OF CUTS : 10

VALUE INTERVAL			FREQ.	PROS.	ONE X REPRESENTS 3 SUBJECTS
30.000	-	31.864	3	0.7%	X
31.865	-	33.727	1	0.2%	X
33.728	-	35.591	16	3.8%	XXXXXX
35.592	-	37.455	35	8.3%	XXXXXXXXXXXX
37.456	-	39.318	53	12.5%	XXXXXXXXXXXXXXXXX
39.319	-	41.182	108	25.5%	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
41.183	-	43.045	87	20.6%	XXXXXXXXXXXXXXXXXXXXXXXXXXXX
43.046	-	44.909	31	7.3%	XXXXXXXXXXX
44.910	-	46.773	42	9.9%	XXXXXXXXXXXXXX
46.774	-	48.636	30	7.1%	XXXXXXXXXX
48.637	-	50.500	15	3.5%	XXXXX

NO.OF S:	423.000	SUMX:	17605.000	MEDIAN <=	41.000
MINIMUM:	30.000	MAXIMUM:	50.500	VALUESPAN:	20.500
MODE:	40.000	FREQUENCY:	53.000	NO.OF VALUES:	37
MEAN:	41.619	ST.DEV.:	3.708	ST.ERR.MEAN:	0.180
SKEWNESS:	0.109	KURTOSIS:	-0.025	GINI-INDEX:	0.050

Table II-2: Means and standard deviations of hematocrit by age group in Oslo-Nydalen.
(0 = 0-9 yrs, 1 = 10-19 yrs, 2 = 20-29 yrs etc.) in:

a) Males; b) Females.

a)

GROUPVARIABLES:
VAR. NO. 8 (21) AGE
STATISTICVARIABLES:
VAR. NO. 109 - 112 HEMATOCRIT
SUBGROUP: 1 (OUT: 236) 7(1/2)

	NUMBER OF SUBJECTS COUNTED	LEFTOUT	SUM	MINIMUM	MAXIMUM	MEAN-VALUE	STANDARD-DEVIATION	STANDARD ERROR OF THE MEAN
0	39.	18.	1527.000	34.000	45.000	39.154	2.583	0.414
1	56.	2.	2291.500	34.000	47.000	40.920	2.847	0.380
2	2.	1.	93.000	45.000	48.000	46.500	2.121	1.500
3	53.	1.	2413.000	35.500	50.500	45.528	3.084	0.424
4	38.	2.	1724.000	37.000	50.000	45.368	2.733	0.443
5	5.	0.	211.500	34.500	50.000	42.300	6.350	2.840
6	1.	1.	49.500	49.500	49.500	49.500	0.000	0.000
7	5.	1.	207.000	35.000	46.000	41.400	4.037	1.806
8	8.	0.	354.500	37.000	50.500	44.312	4.598	1.626
9	1.	0.	44.000	44.000	44.000	44.000	0.000	0.000
TOTAL	208.	26.	8915.000	34.000	50.500	42.861	4.001	0.277

ANALYSIS OF VARIANCE FOR 10 GROUPS
BETWEEN SUM OF SQUARES = 1463.9729 VARIANCE = 162.6637 NDF = 9
WITHIN SUM OF SQUARES = 1849.4836 VARIANCE = 9.3408 NDF = 198
TOTAL SUM OF SQUARES = 3313.4565 VARIANCE = 16.0070 NDF = 207
F-VALUE = 17.414 PROBABILITY = 0.00000 ***

b)

GROUPVARIABLES:
VAR. NO. 8 (21) AGE
STATISTICVARIABLES:
VAR. NO. 109 - 112 HEMATOCRIT
SUBGROUP: 2 (OUT: 234) 7(1/2)

	NUMBER OF SUBJECTS COUNTED	LEFTOUT	SUM	MINIMUM	MAXIMUM	MEAN-VALUE	STANDARD-DEVIATION	STANDARD ERROR OF THE MEAN
0	28.	14.	1098.500	31.000	46.000	39.232	2.679	0.506
1	43.	3.	1731.000	35.000	44.000	40.256	2.394	0.365
2	4.	0.	175.000	40.500	48.500	43.750	3.476	1.738
3	83.	0.	3348.500	31.000	45.500	40.343	2.826	0.310
4	33.	1.	1356.000	35.500	47.500	41.091	2.632	0.458
5	3.	0.	118.500	37.500	41.000	39.500	1.803	1.041
6	2.	1.	78.000	38.000	40.000	39.000	1.414	1.000
7	2.	0.	84.000	41.000	43.000	42.000	1.414	1.000
8	11.	2.	455.000	30.000	50.000	41.364	5.848	1.763
9	6.	0.	245.500	36.000	43.500	40.917	2.654	1.083
TOTAL	215.	21.	8690.000	30.000	50.000	40.419	2.947	0.201

ANALYSIS OF VARIANCE FOR 10 GROUPS
BETWEEN SUM OF SQUARES = 123.2039 VARIANCE = 13.6893 NDF = 9
WITHIN SUM OF SQUARES = 1735.1218 VARIANCE = 8.4640 NDF = 205
TOTAL SUM OF SQUARES = 1858.3257 VARIANCE = 8.6838 NDF = 214
F-VALUE = 1.617 PROBABILITY = 0.11204

Table II-3: Means and standard deviations of hematocrit in children exposed to passive smoking and unexposed children in Oslo-Nydalen.

GROUPVARIABLES:
VAR. NO. 28 PASSIVE SMOKING
STATISTICVARIABLES:
VAR. NO. 109 - 112 HEMATOCRIT

		NUMBER OF SUBJECTS COUNTED	LEFTOUT	SUM	MINIMUM	MAXIMUM	MEAN-VALUE	STANDARD-DEVIATION	STANDARD ERROR OF THE MEAN
0	NO	82.	17.	3272.000	31.000	44.500	39.902	2.484	0.274
1	YES	66.	19.	2617.000	34.000	47.000	39.652	2.672	0.329
TOTAL		148.	36.	5889.000	31.000	47.000	39.791	2.563	0.211

ANALYSIS OF VARIANCE FOR 2 GROUPS

BETWEEN SUM OF SQUARES =	2.3024	VARIANCE =	2.3024	NDF = 1
WITHIN SUM OF SQUARES =	963.7043	VARIANCE =	6.6007	NDF = 146
TOTAL SUM OF SQUARES =	966.0067	VARIANCE =	6.5715	NDF = 147
F-VALUE =	0.349	PROBABILITY =	0.55558	

Table II-4: Means and standard deviations of hematocrit as a function of smoking in Oslo-Nydalen in:

a) Adult males; b) Adult females.

a)

```
GROUPVARIABLES:
VAR. NO.  32        SMOKING
STATISTICVARIABLES:
VAR. NO. 109 - 112  HEMATOCRIT
 SUBGROUP: 1 (OUT: -9824)    7(1/2)
```

	NUMBER OF SUBJECTS COUNTED	LEFTOUT	SUM	MINIMUM	MAXIMUM	MEAN-VALUE	STANDARD-DEVIATION	STANDARD ERROR OF THE MEAN
0 NEVER	43.	3.	1948.000	34.500	50.000	45.302	3.130	0.477
1 PREV	24.	2.	1070.500	37.000	50.500	44.604	3.668	0.749
2 OCCAS	12.	0.	539.500	35.500	49.000	44.958	3.506	1.012
3 SMOKE	39.	2.	1765.500	35.000	50.500	45.269	3.479	0.557
TOTAL	118.	7.	5323.500	34.500	50.500	45.114	3.365	0.310

```
ANALYSIS OF VARIANCE FOR    4 GROUPS
BETWEEN SUM OF SQUARES =        8.9939    VARIANCE =      2.9980 NDF =     3
WITHIN SUM OF SQUARES  =     1316.2117    VARIANCE =     11.5457 NDF =   114
TOTAL SUM OF SQUARES   =     1325.2056    VARIANCE =     11.3265 NDF =   117
F-VALUE                =        0.260     PROBABILITY = 0.85431
```

b)

```
GROUPVARIABLES:
VAR. NO.  32        SMOKING
STATISTICVARIABLES:
VAR. NO. 109 - 112  HEMATOCRIT
 SUBGROUP: 2 (OUT:   125)    7(1/2).
```

	NUMBER OF SUBJECTS COUNTED	LEFTOUT	SUM	MINIMUM	MAXIMUM	MEAN-VALUE	STANDARD-DEVIATION	STANDARD ERROR OF THE MEAN
0 NEVER	75.	2.	3060.000	31.000	49.000	40.800	3.071	0.355
1 PREV	20.	1.	803.500	34.500	43.000	40.175	2.278	0.509
2 OCCAS	17.	0.	700.500	37.000	48.500	41.206	2.681	0.650
3 SMOKE	43.	1.	1744.000	30.000	50.000	40.558	3.504	0.534
TOTAL	155.	4.	6308.000	30.000	50.000	40.697	3.057	0.246

```
ANALYSIS OF VARIANCE FOR    4 GROUPS
BETWEEN SUM OF SQUARES =       11.4768    VARIANCE =      3.8256 NDF =     3
WITHIN SUM OF SQUARES  =     1427.2715    VARIANCE =      9.4521 NDF =   151
TOTAL SUM OF SQUARES   =     1438.7483    VARIANCE =      9.3425 NDF =   154
F-VALUE                =        0.405     PROBABILITY = 0.74981
```

Table II-5: Multiple regression of:

Hematocrit versus natural logarithm of blood lead, smoking (passive smoking in children), sex, social class, iron use and age in

a) children living in Oslo-Nydalen and Sørumsand (control)

Results: There is a significant positive correlation between age and hematocrit

b) adults, living in Oslo-Nydalen and Sørumsand (control)

Results: Women have significantly lower hematocrit levels than men.

a)

VARIABLES IN EQUATION : (CONSTANT= 36.0754)

ID	B - COEFFISIENT	STD.ERROR	F TO REMOVE	P-VALUES FOR B	STANDARDIZED BETA B (R.PART)	95% CONF.INT. UPPER	LOWER
8	0.341	0.071	23.299	0.000	0.4032	0.4814	0.2014

VARIABLES NOT IN EQUATION :

ID	PARTIAL CORR.	TOLERANCE	F TO ENTER
140	-0.0743	0.9929	0.6605
46	-0.0510	0.9962	0.3106
50	-0.0988	0.9798	1.1725
7	-0.0276	0.9997	0.0906
28	-0.0856	0.9985	0.8791

0* * * * * F-LEVELS (4.000 , 3.900) OR TOLERANCE INSUFFICIENT FOR FURTHER STEPPING

SUMMARY TABLE :

STEP NR.	MULT.R	MULT.RSQ	INCREASE IN RSQ	RESIDUAL EFFECT	F-VALUE FOR E/I	VAR. NR ENTER	VAR. NR REMOVED	VAR. NAME
1	0.4032	0.1626	0.1626	0.9151	23.299	8		AGE

b)

VARIABLES IN EQUATION : (CONSTANT= 49.7437)

ID	B - COEFFISIENT	STD.ERROR	F TO REMOVE	P-VALUES FOR B	STANDARDIZED BETA B (R.PART)	95% CONF.INT. UPPER	LOWER
7	-4.552	0.415	120.190	0.000	-0.5842	-3.7341	-5.3703

VARIABLES NOT IN EQUATION :

ID	PARTIAL CORR.	TOLERANCE	F TO ENTER
140	0.0644	0.9260	0.9628
31	0.0295	0.9860	0.2010
46	-0.0129	0.9991	0.0384
48	0.1059	0.9701	2.6193
50	-0.1134	0.9654	3.0106
8	-0.0188	0.9994	0.0021

0* * * * * F-LEVELS (4.000 , 3.900) OR TOLERANCE INSUFFICIENT FOR FURTHER STEPPING

SUMMARY TABLE :

STEP NR.	MULT.R	MULT.RSQ	INCREASE IN RSQ	RESIDUAL EFFECT	F-VALUE FOR E/I	VAR. NR ENTER	VAR. NR REMOVED	VAR. NAME
1	0.5042	0.3413	0.3413	0.8116	120.190	7		SEX

APPENDIX III

Results of the analyses of hemoglobin.

Occupationally exposed individuals
removed from data set prior to
data analysis

Table III-1: Frequency distributions of hemoglobin concentrations (g/dl) in the inhabitants of Oslo-Nydalen with relevant statistics:

VARIABLE-FIELD: 117- 120 HEMOGLOBIN
46 SUBJECTS EXCLUDED DUE TO UNPERMITTED VALUES
LOWER RANGE LIMIT : 10.000
UPPER RANGE LIMIT : 17.700
NUMBER OF CUTS : 10

VALUE INTERVAL			FREQ.	PROS.	ONE X REPRESENTS 3 SUBJECTS
10.000	-	10.700	6	1.4%	XX
10.701	-	11.400	6	1.4%	XX
11.401	-	12.100	31	7.3%	XXXXXXXXXX
12.101	-	12.800	63	14.9%	XXXXXXXXXXXXXXXXXXXX
12.801	-	13.500	126	29.7%	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
13.501	-	14.200	58	13.7%	XXXXXXXXXXXXXXXXXX
14.201	-	14.900	63	14.9%	XXXXXXXXXXXXXXXXXXXX
14.901	-	15.600	34	8.0%	XXXXXXXXXX
15.601	-	16.300	23	5.4%	XXXXXXXX
16.301	-	17.000	11	2.6%	XXXX
17.001	-	17.700	2	0.5%	X

	VALUES	SUBJECTS
BELOW RANGE :	0	0
BEYOND RANGE:	0	0
WITHIN RANGE:	59	424

NO.OF S:	424.000	SUMX:	5796.200	MEDIAN <=	13.500
MINIMUM:	10.000	MAXIMUM:	17.700	VALUESPAN:	7.700
MODE:	13.100	FREQUENCY:	35.000	NO.OF VALUES:	59
MEAN:	13.670	ST.DEV.:	1.328	ST.ERR.MEAN:	0.064
SKEWNESS:	0.313	KURTOSIS:	0.148	GINI-INDEX:	0.054

Table III-2: Means and standard deviations of hemoglobin (g/dl) concentrations by age group in Oslo-Nydalen. (0 = 0-9 yrs, 1 = 10-19 yrs, 2 = 20-29 yrs etc.) in:

a) Males; b) Females.

GROUPVARIABLES:
VAR. NO. 8 (21) AGE
STATISTICVARIABLES:
VAR. NO. 117 - 120 HEMOGLOBIN
SUBGROUP: 1 (OUT: 236) 7(1/2)

a)

	NUMBER OF SUBJECTS COUNTED	LEFTOUT	SUM	MINIMUM	MAXIMUM	MEAN-VALUE	STANDARD-DEVIATION	STANDARD ERROR OF THE MEAN
0	39.	18.	504.600	11.500	14.700	12.938	0.767	0.123
1	56.	2.	760.800	11.500	15.700	13.586	0.970	0.130
2	2.	1.	30.200	14.700	15.500	15.100	0.566	0.400
3	53.	1.	801.100	11.400	17.400	15.115	1.098	0.151
4	38.	2.	577.400	12.100	17.700	15.195	1.170	0.190
5	5.	0.	70.200	11.400	16.600	14.040	2.432	1.087
6	1.	1.	17.000	17.000	17.000	17.000	0.000	0.000
7	5.	1.	65.300	11.000	15.100	13.060	1.457	0.652
8	8.	0.	111.100	12.000	15.900	13.887	1.562	0.552
9	1.	0.	13.300	13.300	13.300	13.300	0.000	0.000
TOTAL	208.	26.	2951.000	11.000	17.700	14.187	1.424	0.099

ANALYSIS OF VARIANCE FOR 10 GROUPS

BETWEEN SUM OF SQUARES =	182.8270	VARIANCE =	20.3141	NDF = 9
WITHIN SUM OF SQUARES =	236.9406	VARIANCE =	1.1967	NDF = 198
TOTAL SUM OF SQUARES =	419.7676	VARIANCE =	2.0279	NDF = 207
F-VALUE =	16.976	PROBABILITY =	0.00000 ***	

GROUPVARIABLES:
VAR. NO. 8 (21) AGE
STATISTICVARIABLES:
VAR. NO. 117 - 120 HEMOGLOBIN
SUBGROUP: 2 (OUT: 234) 7(1/2)

b)

	NUMBER OF SUBJECTS COUNTED	LEFTOUT	SUM	MINIMUM	MAXIMUM	MEAN-VALUE	STANDARD-DEVIATION	STANDARD ERROR OF THE MEAN
0	28.	14.	361.700	10.400	14.900	12.918	1.006	0.190
1	44.	2.	582.600	11.700	14.900	13.241	0.807	0.122
2	4.	0.	56.600	13.300	15.900	14.150	1.193	0.597
3	83.	0.	1090.000	10.000	15.500	13.133	1.018	0.112
4	33.	1.	443.500	12.000	15.300	13.439	0.841	0.146
5	3.	0.	38.500	12.000	13.700	12.833	0.850	0.491
6	2.	1.	24.800	11.800	13.000	12.400	0.849	0.600
7	2.	0.	27.400	12.900	14.500	13.700	1.131	0.800
8	11.	2.	142.800	10.000	15.500	12.982	1.725	0.520
9	6.	0.	77.300	10.900	13.700	12.883	1.015	0.414
TOTAL	216.	20.	2845.200	10.000	15.900	13.172	1.005	0.068

ANALYSIS OF VARIANCE FOR 10 GROUPS

BETWEEN SUM OF SQUARES =	11.3236	VARIANCE =	1.2582	NDF = 9
WITHIN SUM OF SQUARES =	205.6698	VARIANCE =	0.9984	NDF = 206
TOTAL SUM OF SQUARES =	216.9934	VARIANCE =	1.0093	NDF = 215
F-VALUE =	1.260	PROBABILITY =	0.26050	

Table III-3: Means and standard deviation of hemoglobin (g/dl) concentrations in children exposed to passive smoking and unexposed children in Oslo-Nydalen.

GROUPVARIABLES:
VAR. NO. 28 PASSIVE SMOKING
STATISTICVARIABLES:
VAR. NO. 117 - 120 HEMOGLOBIN

		NUMBER OF SUBJECTS COUNTED	LEFTOUT	SUM	MINIMUM	MAXIMUM	MEAN-VALUE	STANDARD-DEVIATION	STANDARD ERROR OF THE MEAN
0	NO	82.	17.	1073.800	10.400	15.100	13.095	0.855	0.094
1	YES	67.	18.	884.600	11.500	15.700	13.203	0.863	0.105
TOTAL		149.	35.	1958.400	10.400	15.700	13.144	0.857	0.070

ANALYSIS OF VARIANCE FOR 2 GROUPS

BETWEEN SUM OF SQUARES =	0.4290	VARIANCE =	0.4290	NDF = 1
WITHIN SUM OF SQUARES =	108.3775	VARIANCE =	0.7373	NDF = 147
TOTAL SUM OF SQUARES =	108.8065	VARIANCE =	0.7352	NDF = 148
F-VALUE =	0.582	PROBABILITY =	0.44671	

Table III-4: Means and standard deviations of hemoglobin (g/dl) concentrations as a function of smoking in Oslo-Nydalen in:

a) Adult males; b) Adult females.

GROUPVARIABLES:
VAR. NO. 32 SMOKING
STATISTICVARIABLES:
VAR. NO. 117 - 120 HEMOGLOBIN
SUBGROUP: 1 (OUT: -9824) 7(1/2)

a)

	NUMBER OF SUBJECTS COUNTED	LEFTOUT	SUM	MINIMUM	MAXIMUM	MEAN-VALUE	STANDARD-DEVIATION	STANDARD ERROR OF THE MEAN
0 NEVER	43.	3.	640.800	11.400	16.700	14.902	1.222	0.186
1 PREV	24.	2.	355.000	12.100	17.400	14.792	1.598	0.326
2 OCCAS	12.	0.	180.900	11.400	17.700	15.075	1.428	0.412
3 SMOKE	39.	2.	584.000	11.000	17.000	14.974	1.289	0.206
TOTAL	118.	7.	1760.700	11.000	17.700	14.921	1.333	0.123

ANALYSIS OF VARIANCE FOR 4 GROUPS

BETWEEN SUM OF SQUARES =	0.8121	VARIANCE =	0.2707	NDF = 3
WITHIN SUM OF SQUARES =	206.9650	VARIANCE =	1.8155	NDF = 114
TOTAL SUM OF SQUARES =	207.7770	VARIANCE =	1.7759	NDF = 117
F-VALUE =	0.149	PROBABILITY =	0.93008	

GROUPVARIABLES:
VAR. NO. 32 SMOKING
STATISTICVARIABLES:
VAR. NO. 117 - 120 HEMOGLOBIN
SUBGROUP: 2 (OUT: 125) 7(1/2)

b)

	NUMBER OF SUBJECTS COUNTED	LEFTOUT	SUM	MINIMUM	MAXIMUM	MEAN-VALUE	STANDARD-DEVIATION	STANDARD ERROR OF THE MEAN
0 NEVER	75.	2.	986.800	10.100	15.500	13.157	1.046	0.121
1 PREV	20.	1.	261.500	10.300	14.700	13.075	1.098	0.246
2 OCCAS	17.	0.	231.700	12.200	15.900	13.629	0.918	0.223
3 SMOKE	43.	1.	569.400	10.000	15.500	13.242	1.085	0.166
TOTAL	155.	4.	2049.400	10.000	15.900	13.222	1.052	0.084

ANALYSIS OF VARIANCE FOR 4 GROUPS

BETWEEN SUM OF SQUARES =	3.5845	VARIANCE =	1.1948	NDF = 3
WITHIN SUM OF SQUARES =	166.8209	VARIANCE =	1.1048	NDF = 151
TOTAL SUM OF SQUARES =	170.4054	VARIANCE =	1.1065	NDF = 154
F-VALUE =	1.082	PROBABILITY =	0.35882	

Table III-5: Multiple regression of:

Hemoglobin versus natural logarithm of blood lead, smoking (passive smoking in children),sex, social class, iron use and age in:

a) children living in Oslo-Nydalen and Sørumsand.

Results: There is a significant correlation of age (increasing with age) with hemoglobin.

b) adults living in Oslo-Nydalen and Sørumsand.

Results: There is a significant correlation of sex, (females have lower), and alcohol consumption (increasing hemoglobin with increasing alcohol consumption) with hemoglobin.

See text Part I - for commentary.

a)

VARIABLES IN EQUATION : (CONSTANT= 12.1997)

ID	B - COEFFISIENT	STD.ERROR	F TO REMOVE	P-VALUES FOR B	STANDARDIZED BETA B (R.PART)	95% CONF.INT. UPPER	LOWER
8	0.092	0.024	14.108	0.000	0.3243	0.1403	0.0434

VARIABLES NOT IN EQUATION :

ID	PARTIAL CORR.	TOLERANCE	F TO ENTER
140	-0.1323	0.9929	2.1202
46	0.0317	0.9962	0.1197
50	-0.0306	0.9798	0.1113
7	-0.1174	0.9997	1.6617
28	0.0754	0.9985	0.6809

* * * * * F-LEVELS (4.000 , 3.900) OR TOLERANCE INSUFFICIENT FOR FURTHER STEPPING

SUMMARY TABLE :

STEP NR.	MULT.R	MULT.RSQ	INCREASE IN RSQ	RESIDUAL EFFECT	F-VALUE FOR E/I	VAR. NR ENTER	VAR. NR REMOVED	VAR. NAME
1	0.3243	0.1052	0.1052	0.9459	14.108	8		AGE

b)

VARIABLES IN EQUATION : (CONSTANT= 16.1696)

ID	B - COEFFISIENT	STD.ERROR	F TO REMOVE	P-VALUES FOR B	STANDARDIZED BETA B (R.PART)	95% CONF.INT. UPPER	LOWER
48	0.214	0.078	7.480	0.007	0.1426	0.3685	0.0599
7	-1.627	0.145	125.309	0.000	-0.5837	-1.3404	-1.9130

VARIABLES NOT IN EQUATION :

ID	PARTIAL CORR.	TOLERANCE	F TO ENTER
140	0.0238	0.9189	0.1299
31	0.0753	0.9482	1.3133
46	-0.0456	0.9533	0.4798
50	-0.0914	0.9646	1.9364
0	-0.1096	0.9563	2.7945

* * * * * F-LEVELS (4.000 , 3.900) OR TOLERANCE INSUFFICIENT FOR FURTHER STEPPING

SUMMARY TABLE :

STEP NR.	MULT.R	MULT.RSQ	INCREASE IN RSQ	RESIDUAL EFFECT	F-VALUE FOR E/I	VAR. NR ENTER	VAR. NR REMOVED	VAR. NAME
1	0.6048	0.3658	0.3658	0.7964	133.811	7		SEX
2	0.6210	0.3857	0.0199	0.7838	7.480	48		ALCOHOL CONSUMPTION

APPENDIX IV

Results of the analyses of Mean Cell Hemoglobin Concentration (MCHC)

$$MCHC = \frac{\text{Hemoglobin}}{\text{Hematocrit}} \times 100$$

Occupationally exposed individuals removed from data set prior to data analysis

Table IV-1: Frequency distributions of mean cell hemoglobin concentration (MCHC) in the inhabitants of Oslo-Nydalen with relevant statistics.

VARIABLE-FIELD: 125- 129 MCHC
47 SUBJECTS EXCLUDED DUE TO UNPERMITTED VALUES
LOWER RANGE LIMIT : 27.330
UPPER RANGE LIMIT : 37.000
NUMBER OF CUTS : 10

VALUE INTERVAL			FREQ.	PROS.	ONE X REPRESENTS 4 SUBJECTS
27.330 -	28.209		2	0.5%	X
28.210 -	29.088		1	0.2%	X
29.089 -	29.967		4	0.9%	X
29.968 -	30.846		26	6.1%	XXXXXXX
30.847 -	31.725		50	11.8%	XXXXXXXXXXXX
31.726 -	32.605		80	18.9%	XXXXXXXXXXXXXXXXXXX
32.606 -	33.484		129	30.5%	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
33.485 -	34.363		81	19.1%	XXXXXXXXXXXXXXXXXXX
34.364 -	35.242		32	7.6%	XXXXXXXX
35.243 -	36.121		14	3.3%	XXXX
36.122 -	37.000		3	0.7%	X

	VALUES	SUBJECTS
BELOW RANGE :	0	0
BEYOND RANGE:	0	0
WITHIN RANGE:	193	423

NO.OF S:	423.000	SUMX:	13895.840	MEDIAN <=	32.820
MINIMUM:	27.330	MAXIMUM:	37.000	VALUESPAN:	9.670
MODE:	32.750	FREQUENCY:	13.000	NO.OF VALUES:	193
MEAN:	32.851	ST.DEV.:	1.372	ST.ERR.MEAN:	0.067
SKEWNESS:	-0.219	KURTOSIS:	1.075	GINI-INDEX:	0.023

Table IV-2: Means and standard deviations of MCHC by age group in Oslo-Nydalen (0 = 0-9 yrs, 1 = 10-19 yrs, 2 = 20-29 yrs etc.) in:

a) Males; b) Females.

GROUPVARIABLES:
VAR. NO. 8 (21) AGE
STATISTICVARIABLES:
VAR. NO. 125 - 129 MCHC
SUBGROUP: 1 (OUT: 236) 7(1/2)

a)

	NUMBER OF SUBJECTS COUNTED	LEFTOUT	SUM	MINIMUM	MAXIMUM	MEAN-VALUE	STANDARD-DEVIATION	STANDARD ERROR OF THE MEAN
0	39.	18.	1290.400	30.250	36.380	33.087	1.488	0.238
1	56.	2.	1859.390	31.560	34.810	33.203	0.785	0.105
2	2.	1.	64.950	32.290	32.660	32.475	0.262	0.185
3	53.	1.	1759.910	27.550	35.410	33.206	1.209	0.166
4	38.	2.	1272.200	30.440	36.880	33.479	1.430	0.232
5	5.	0.	165.540	31.460	35.050	33.108	1.285	0.575
6	1.	1.	34.340	34.340	34.340	34.340	0.000	0.000
7	5.	1.	157.600	30.000	32.820	31.520	1.098	0.491
8	8.	0.	250.640	29.540	32.550	31.330	1.095	0.387
9	1.	0.	30.220	30.220	30.220	30.220	0.000	0.000
TOTAL	208.	26.	6885.190	27.550	36.880	33.102	1.288	0.089

ANALYSIS OF VARIANCE FOR 10 GROUPS

BETWEEN SUM OF SQUARES =	54.8138	VARIANCE =	6.0904	NDF = 9
WITHIN SUM OF SQUARES =	288.8102	VARIANCE =	1.4586	NDF = 198
TOTAL SUM OF SQUARES =	343.6240	VARIANCE =	1.6600	NDF = 207
F-VALUE =	4.175	PROBABILITY =	0.00006 ***	

GROUPVARIABLES:
VAR. NO. 8 (21) AGE
STATISTICVARIABLES:
VAR. NO. 125 - 129 MCHC
SUBGROUP: 2 (OUT: 234) 7(1/2)

b)

	NUMBER OF SUBJECTS COUNTED	LEFTOUT	SUM	MINIMUM	MAXIMUM	MEAN-VALUE	STANDARD-DEVIATION	STANDARD ERROR OF THE MEAN
0	28.	14.	922.110	30.250	37.000	32.932	1.461	0.276
1	43.	3.	1415.820	29.260	36.570	32.926	1.481	0.226
2	4.	0.	129.360	31.590	33.330	32.340	0.856	0.428
3	83.	0.	2702.980	27.330	36.000	32.566	1.546	0.170
4	33.	1.	1079.640	30.950	34.920	32.716	0.833	0.145
5	3.	0.	97.460	31.210	34.250	32.487	1.577	0.911
6	2.	1.	63.550	31.050	32.500	31.775	1.025	0.725
7	2.	0.	65.180	31.460	33.720	32.590	1.598	1.130
8	11.	2.	345.770	30.220	33.330	31.434	0.936	0.282
9	6.	0.	188.780	30.270	32.610	31.463	0.951	0.388
TOTAL	215.	21.	7010.650	27.330	37.000	32.608	1.409	0.096

ANALYSIS OF VARIANCE FOR 10 GROUPS

BETWEEN SUM OF SQUARES =	32.5839	VARIANCE =	3.6204	NDF = 9
WITHIN SUM OF SQUARES =	392.0881	VARIANCE =	1.9126	NDF = 205
TOTAL SUM OF SQUARES =	424.6720	VARIANCE =	1.9844	NDF = 214
F-VALUE =	1.893	PROBABILITY =	0.05463	

Table IV-3: Means and standard deviations of MCHC in children exposed to passive smoking and unexposed children in Oslo-Nydalen:

GROUPVARIABLES:
VAR. NO. 28 PASSIVE SMOKING
STATISTICVARIABLES:
VAR. NO. 125 - 129 MCHC

		NUMBER OF SUBJECTS COUNTED	LEFTOUT	SUM	MINIMUM	MAXIMUM	MEAN-VALUE	STANDARD-DEVIATION	STANDARD ERROR OF THE MEAN
0	NO	82.	17.	2692.230	30.250	36.000	32.832	1.242	0.137
1	YES	66.	19.	2199.680	29.260	37.000	33.328	1.343	0.165
TOTAL		148.	36.	4891.910	29.260	37.000	33.053	1.307	0.107

ANALYSIS OF VARIANCE FOR 2 GROUPS

BETWEEN SUM OF SQUARES =	9.0111	VARIANCE =	9.0111	NDF = 1
WITHIN SUM OF SQUARES =	242.1754	VARIANCE =	1.6587	NDF = 146
TOTAL SUM OF SQUARES =	251.1865	VARIANCE =	1.7088	NDF = 147
F-VALUE =	5.433	PROBABILITY =	0.02113 *	

Table IV-4: Means and standard deviations of MCHC as a function of smoking in Oslo-Nydalen in:

a) Adult males; b) Adult females.

a)

GROUPVARIABLES:
VAR. NO. 32 SMOKING
STATISTICVARIABLES:
VAR. NO. 125 - 129 MCHC
SUBGROUP: 1 (OUT: -9824) 7(1/2)

	NUMBER OF SUBJECTS COUNTED	LEFTOUT	SUM	MINIMUM	MAXIMUM	MEAN-VALUE	STANDARD-DEVIATION	STANDARD ERROR OF THE MEAN
0 NEVER	43.	3.	1414.310	27.550	35.630	32.891	1.462	0.223
1 PREV	24.	2.	794.840	29.540	36.880	33.118	1.626	0.332
2 OCCAS	12.	0.	402.010	31.950	36.120	33.501	1.244	0.359
3 SMOKE	39.	2.	1289.600	30.000	35.470	33.067	1.191	0.191
TOTAL	118.	7.	3900.760	27.550	36.880	33.057	1.387	0.128

ANALYSIS OF VARIANCE FOR 4 GROUPS

BETWEEN SUM OF SQUARES =	3.6436	VARIANCE =	1.2145	NDF = 3
WITHIN SUM OF SQUARES =	221.4736	VARIANCE =	1.9428	NDF = 114
TOTAL SUM OF SQUARES =	225.1172	VARIANCE =	1.9241	NDF = 117
F-VALUE =	0.625	PROBABILITY =	0.60018	

GROUPVARIABLES:
VAR. NO. 32 SMOKING
STATISTICVARIABLES:
VAR. NO. 125 - 129 MCHC
SUBGROUP: 2 (OUT: 125) 7(1/2)

b)

	NUMBER OF SUBJECTS COUNTED	LEFTOUT	SUM	MINIMUM	MAXIMUM	MEAN-VALUE	STANDARD-DEVIATION	STANDARD ERROR OF THE MEAN
0 NEVER	75.	2.	2420.020	27.330	35.000	32.267	1.460	0.169
1 PREV	20.	1.	650.190	29.850	36.000	32.509	1.465	0.328
2 OCCAS	17.	0.	562.440	31.000	35.470	33.085	1.096	0.266
3 SMOKE	43.	1.	1405.040	30.250	35.290	32.675	1.150	0.175
TOTAL	155.	4.	5037.690	27.330	36.000	32.501	1.359	0.109

ANALYSIS OF VARIANCE FOR 4 GROUPS

BETWEEN SUM OF SQUARES =	11.2098	VARIANCE =	3.7366	NDF = 3
WITHIN SUM OF SQUARES =	273.2507	VARIANCE =	1.8096	NDF = 151
TOTAL SUM OF SQUARES =	284.4606	VARIANCE =	1.8471	NDF = 154
F-VALUE =	2.065	PROBABILITY =	0.10727	

Table IV-5: Multiple regression of:

MCHC versus natural logarithm of blood lead, smoking (passive smoking in children) sex, social class, use of vitamins and iron supplements and age, in:

a) children living in Oslo-Nydalen and Sørumsand (control).

Results: There is a significant correlation of passive smoking with MCHC (increasing MCHC with exposure to passive smoking).

b) adults living in Oslo-Nydalen and Sørumsand (control).

Results: There is a significant effect of
- age - MCHC decreases with increasing age.
- sex - MCHC is lower in women.
- smoking - MCHC increases with increased smoking.

a)

VARIABLES IN EQUATION : (CONSTANT= 32.9469)

ID	B - COEFFISIENT	STD.ERROR	F TO REMOVE	P-VALUES FOR B	STANDARDIZED BETA B (R.PART)	95% CONF.INT. UPPER	LOWER
28	0.677	0.235	8.283	0.005	0.2541	1.1428	0.2113

VARIABLES NOT IN EQUATION :

ID	PARTIAL CORR.	TOLERANCE	F TO ENTER
140	-0.0874	0.9994	0.9153
46	0.1001	0.9672	1.2057
50	0.0992	1.0000	1.1829
8	-0.1251	0.9985	1.8919
7	-0.1170	0.9904	1.6520

* * * * * F-LEVELS (4.000 , 3.900) OR TOLERANCE INSUFFICIENT FOR FURTHER STEPPING

SUMMARY TABLE :

STEP NR.	MULT.R	MULT.RSQ	INCREASE IN RSQ	RESIDUAL EFFECT	F-VALUE FOR E/I	VAR. NR ENTER	REMOVED	VAR. NAME
1	0.2541	0.0646	0.0646	0.9672	8.283	28		PASSIVE SMOKING

b)

VARIABLES IN EQUATION : (CONSTANT= 32.9095)

ID	B - COEFFISIENT	STD.ERROR	F TO REMOVE	P-VALUES FOR B	STANDARDIZED BETA B (R.PART)	95% CONF.INT. UPPER	LOWER
31	0.222	0.098	5.167	0.024	0.1438	0.4145	0.0296
0	-0.018	0.005	12.455	0.001	-0.2218	-0.0080	-0.0284
7	-0.395	0.180	4.810	0.029	-0.1385	-0.0402	-0.7505

VARIABLES NOT IN EQUATION :

ID	PARTIAL CORR.	TOLERANCE	F TO ENTER
140	0.0196	0.8387	0.0876
46	0.0299	0.5186	0.2055
48	0.0742	0.9036	1.2662
50	0.0271	0.9366	0.1688

* * * * * F-LEVELS (4.000 , 3.900) OR TOLERANCE INSUFFICIENT FOR FURTHER STEPPING

SUMMARY TABLE :

STEP NR.	MULT.R	MULT.RSQ	INCREASE IN RSQ	RESIDUAL EFFECT	F-VALUE FOR E/I	VAR. NR ENTER	REMOVED	VAR. NAME
1	0.2280	0.0520	0.0520	0.9737	12.720	8		AGE
2	0.2786	0.0776	0.0257	0.9604	6.425	31		SMOKING
3	0.3107	0.0965	0.0189	0.9505	4.810	7		SEX

APPENDIX V

Results of the analyses of standardized zinc protoporphyrin (ZPP).

Zinc protoporphyrin is standardized (CZPP)
as follows.

$$CZPP = \frac{ZPP \times 45.0}{Hematocrit}$$

Occupationally exposed individuals
removed from data set prior to
data analysis

Table V-1: Frequency distributions of zinc protoporphyrin, standardized for hematocrit with relevant statistics for the Oslo-Nydalen area.

```
VARIABLE-FIELD: 145- 149  CZPPHT
    49 SUBJECTS EXCLUDED DUE TO UNPERMITTED VALUES
LOWER RANGE LIMIT :      0.078
UPPER RANGE LIMIT :      1.323
NUMBER OF CUTS    :         10
        VALUE INTERVAL    FREQ. PROS.  ONE X REPRESENTS   3 SUBJECTS
=============================================================================
     0.078 -     0.191      41   9.7%  XXXXXXXXXXXXX
     0.192 -     0.304     119  28.3%  XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
     0.305 -     0.418     109  25.9%  XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
     0.419 -     0.531      87  20.7%  XXXXXXXXXXXXXXXXXXXXXXXXXXX
     0.532 -     0.644      32   7.6%  XXXXXXXXXXX
     0.645 -     0.757      16   3.8%  XXXXXX
     0.758 -     0.870       8   1.9%  XXX
     0.871 -     0.983       2   0.5%  X
     0.984 -     1.097       2   0.5%  X
     1.098 -     1.210       3   0.7%  X
     1.211 -     1.323       1   0.2%  X
=============================================================================
                VALUES SUBJECTS
BELOW RANGE :        0        0
BEYOND RANGE:        0        0
WITHIN RANGE:      259      421
NO.OF S:       421.000   SUMX:        164.419   MEDIAN <=       0.365
MINIMUM:         0.078   MAXIMUM:       1.323   VALUESPAN:      1.245
MODE:            0.300   FREQUENCY:    11.000   NO.OF VALUES:     259
MEAN:            0.391   ST.DEV.:       0.184   ST.ERR.MEAN:    0.009
SKEWNESS:        1.629   KURTOSIS:      4.445   GINI-INDEX:     0.244
```

Table V-2: Frequency distribution of the natural logarithm of zinc protoporphyrin standardized for hematocrit with relevant statistics, for the Oslo-Nydalen area.

VARIABLE-FIELD: 150- 154 LOGCZPPHT
49 SUBJECTS EXCLUDED DUE TO UNPERMITTED VALUES
LOWER RANGE LIMIT : -2.540
UPPER RANGE LIMIT : 0.280
NUMBER OF CUTS : 10

VALUE INTERVAL		FREQ.	PROS.	ONE X REPRESENTS 3 SUBJECTS
-2.540 -	-2.284	1	0.2%	X
-2.283 -	-2.027	5	1.2%	XX
-2.026 -	-1.771	16	3.8%	XXXXXX
-1.770 -	-1.515	36	8.6%	XXXXXXXXXXXX
-1.514 -	-1.258	72	17.1%	XXXXXXXXXXXXXXXXXXXXXXXX
-1.257 -	-1.002	79	18.8%	XXXXXXXXXXXXXXXXXXXXXXXXXX
-1.001 -	-0.745	105	24.9%	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
-0.744 -	-0.489	68	16.2%	XXXXXXXXXXXXXXXXXXXXX
-0.488 -	-0.233	22	5.2%	XXXXXXXX
-0.232 -	0.024	11	2.6%	XXXX
0.025 -	0.280	5	1.2%	XX

	VALUES	SUBJECTS
BELOW RANGE :	0	0
BEYOND RANGE:	0	0
WITHIN RANGE:	152	421

NO.OF S:	421.000	SUMX:	-434.650	MEDIAN <=	-1.000
MINIMUM:	-2.540	MAXIMUM:	0.280	VALUESPAN:	2.820
MODE:	-1.200	FREQUENCY:	11.000	NO.OF VALUES:	152
MEAN:	-1.032	ST.DEV.:	0.444	ST.ERR.MEAN:	0.022
SKEWNESS:	-0.065	KURTOSIS:	0.317	GINI-INDEX:	-0.240

Table V-3: Means and standard deviations of zinc protoporphyrin standardized for hematocrit by age group in Oslo-Nydalen. (0 = 0-9 yrs; 1 = 10-19 yrs; 2 = 20-29 yrs, etc.) in:

a) Males; b) Females.

GROUPVARIABLES:
VAR. NO. 8 (21) AGE
STATISTICVARIABLES:
VAR. NO. 145 - 149 CZPPHT
SUBGROUP: 1 (OUT: 236) 7(1/2)

a)

	NUMBER OF SUBJECTS COUNTED	LEFTOUT	SUM	MINIMUM	MAXIMUM	MEAN-VALUE	STANDARD-DEVIATION	STANDARD ERROR OF THE MEAN
0	39.	18.	13.235	0.150	0.622	0.339	0.127	0.020
1	56.	2.	20.960	0.124	0.697	0.374	0.131	0.018
2	2.	1.	0.653	0.253	0.400	0.326	0.104	0.073
3	53.	1.	18.083	0.078	1.200	0.341	0.191	0.026
4	38.	2.	12.615	0.143	0.805	0.332	0.145	0.024
5	5.	0.	1.592	0.261	0.396	0.318	0.059	0.026
6	1.	1.	0.190	0.190	0.190	0.190	0.000	0.000
7	4.	2.	1.636	0.166	0.861	0.409	0.308	0.154
8	8.	0.	2.809	0.102	1.186	0.351	0.347	0.123
9	1.	0.	0.194	0.194	0.194	0.194	0.000	0.000
TOTAL	207.	27.	71.967	0.078	1.200	0.348	0.164	0.011

ANALYSIS OF VARIANCE FOR 10 GROUPS
BETWEEN SUM OF SQUARES = 0.1227 VARIANCE = 0.0136 NDF = 9
WITHIN SUM OF SQUARES = 5.3902 VARIANCE = 0.0274 NDF = 197
TOTAL SUM OF SQUARES = 5.5130 VARIANCE = 0.0268 NDF = 206
F-VALUE = 0.498 PROBABILITY = 0.87444

GROUPVARIABLES:
VAR. NO. 8 (21) AGE
STATISTICVARIABLES:
VAR. NO. 145 - 149 CZPPHT
SUBGROUP: 2 (OUT: 234) 7(1/2)

b)

	NUMBER OF SUBJECTS COUNTED	LEFTOUT	SUM	MINIMUM	MAXIMUM	MEAN-VALUE	STANDARD-DEVIATION	STANDARD ERROR OF THE MEAN
0	28.	14.	12.393	0.247	0.790	0.443	0.153	0.029
1	42.	4.	16.647	0.157	0.738	0.396	0.156	0.024
2	4.	0.	1.808	0.204	0.728	0.452	0.238	0.119
3	83.	0.	38.847	0.153	1.237	0.468	0.213	0.023
4	33.	1.	13.427	0.185	0.681	0.407	0.128	0.022
5	3.	0.	1.171	0.274	0.585	0.390	0.170	0.098
6	2.	1.	0.530	0.258	0.272	0.265	0.010	0.007
7	2.	0.	0.683	0.296	0.387	0.342	0.064	0.045
8	11.	2.	4.669	0.144	1.323	0.424	0.342	0.103
9	6.	0.	2.452	0.225	0.900	0.409	0.265	0.108
TOTAL	214.	22.	92.452	0.144	1.323	0.432	0.193	0.013

ANALYSIS OF VARIANCE FOR 10 GROUPS
BETWEEN SUM OF SQUARES = 0.2812 VARIANCE = 0.0312 NDF = 9
WITHIN SUM OF SQUARES = 7.6270 VARIANCE = 0.0374 NDF = 204
TOTAL SUM OF SQUARES = 7.9082 VARIANCE = 0.0371 NDF = 213
F-VALUE = 0.836 PROBABILITY = 0.58405

Table V-4: Means and standard deviations of zinc protoporphyrin standardized for hematocrit in children exposed to passive smoking and unexposed children in Oslo-Nydalen.

GROUPVARIABLES:
VAR. NO. 28 PASSIVE SMOKING
STATISTICVARIABLES:
VAR. NO. 145 - 149 CZPPHT

		NUMBER OF SUBJECTS COUNTED	LEFTOUT	SUM	MINIMUM	MAXIMUM	MEAN-VALUE	STANDARD-DEVIATION	STANDARD ERROR OF THE MEAN
0	NO	82.	17.	31.825	0.135	0.790	0.388	0.148	0.016
1	YES	66.	19.	25.783	0.180	0.724	0.391	0.140	0.017
TOTAL		148.	36.	57.608	0.135	0.790	0.389	0.140	0.012

ANALYSIS OF VARIANCE FOR 2 GROUPS

BETWEEN SUM OF SQUARES =	0.0002	VARIANCE =	0.0002	NDF = 1
WITHIN SUM OF SQUARES =	2.8825	VARIANCE =	0.0197	NDF = 146
TOTAL SUM OF SQUARES =	2.8828	VARIANCE =	0.0196	NDF = 147
F-VALUE =	0.012	PROBABILITY =	0.91283	

Table V-5: Means and standard deviations of zinc protoporphyrin standardized for hematocrit as function of smoking in Oslo-Nydalen:

a) Adult males; b) Adult females.

a)

```
GROUPVARIABLES:
VAR. NO.  32        SMOKING
STATISTICVARIABLES:
VAR. NO. 145 - 149  CZPPHT
 SUBGROUP: 1 (OUT: -9824)    7(1/2)
```

	NUMBER OF SUBJECTS COUNTED	LEFTOUT	SUM	MINIMUM	MAXIMUM	MEAN-VALUE	STANDARD-DEVIATION	STANDARD ERROR OF THE MEAN
0 NEVER	42.	4.	13.469	0.105	0.680	0.321	0.128	0.020
1 PREV	24.	2.	9.250	0.142	1.186	0.385	0.221	0.045
2 OCCAS	12.	0.	3.323	0.143	0.456	0.277	0.099	0.029
3 SMOKE	39.	2.	12.991	0.078	1.200	0.333	0.228	0.036
TOTAL	117.	8.	39.033	0.078	1.200	0.334	0.185	0.017

```
ANALYSIS OF VARIANCE FOR   4 GROUPS
BETWEEN SUM OF SQUARES =        0.1100     VARIANCE =      0.0367 NDF =      3
WITHIN SUM OF SQUARES  =        3.8704     VARIANCE =      0.0343 NDF =    113
TOTAL SUM OF SQUARES   =        3.9804     VARIANCE =      0.0343 NDF =    116
F-VALUE                =         1.071      PROBABILITY = 0.36458
```

```
GROUPVARIABLES:
VAR. NO.  32        SMOKING
STATISTICVARIABLES:
VAR. NO. 145 - 149  CZPPHT
 SUBGROUP: 2 (OUT:   125)    7(1/2)
```

b)

	NUMBER OF SUBJECTS COUNTED	LEFTOUT	SUM	MINIMUM	MAXIMUM	MEAN-VALUE	STANDARD-DEVIATION	STANDARD ERROR OF THE MEAN
0 NEVER	75.	2.	31.474	0.186	1.323	0.420	0.204	0.024
1 PREV	20.	1.	9.571	0.216	1.064	0.479	0.207	0.046
2 OCCAS	17.	0.	7.997	0.182	1.237	0.470	0.241	0.058
3 SMOKE	42.	2.	18.300	0.144	1.159	0.436	0.200	0.031
TOTAL	154.	5.	67.342	0.144	1.323	0.437	0.207	0.017

```
ANALYSIS OF VARIANCE FOR   4 GROUPS
BETWEEN SUM OF SQUARES =        0.0761     VARIANCE =      0.0254 NDF =      3
WITHIN SUM OF SQUARES  =        6.4548     VARIANCE =      0.0430 NDF =    150
TOTAL SUM OF SQUARES   =        6.5309     VARIANCE =      0.0427 NDF =    153
F-VALUE                =         0.590      PROBABILITY = 0.62266
 NEW FILTER:
  3(3)
C 7(1/2)
V 8*109,117,125,145
```

Table V-6: Multiple regression of:

The natural logarithm of standardized zinc protoporphyrin versus logarithm of blood lead, passive smoking or smoking, hemoglobin, sex, alcohol consumption, social class, age, and use of iron in Oslo-Nydalen and Sørumsand (control).

Results: 1) There were no significant correlations in children. In adults there was a negative correlation between log-ZPP and hemoglobin, and a positive correlation with alcohol consumption.

VARIABLES IN EQUATION : (CONSTANT= 1.0020)

ID	B - COEFFISIENT	STD.ERROR	F TO REMOVE	P-VALUES FOR B	STANDARDIZED BETA (R.PART)	95% CONF.INT. UPPER	LOWER
48	0.109	0.043	6.373	0.012	0.1597	0.1945	0.0240
117	-0.169	0.029	34.063	0.000	-0.3692	-0.1119	-0.2259

VARIABLES NOT IN EQUATION :

ID	PARTIAL CORR.	TOLERANCE	F TO ENTER
140	0.0776	0.9536	1.3797
31	0.0399	0.9429	0.3636
46	0.0977	0.9531	2.1982
50	0.0622	0.9639	0.8841
8	-0.0377	0.9573	0.3237
7	-0.0030	0.6305	0.0021

* * * * * F-LEVELS (4.000 , 3.900) OR TOLERANCE INSUFFICIENT FOR FURTHER STEPPING

SUMMARY TABLE :

STEP NR.	MULT.R	MULT.RSQ	INCREASE IN RSQ	RESIDUAL EFFECT	F-VALUE FOR E/I	VAR. NR ENTER	REMOVED	VAR. NAME
1	0.3317	0.1100	0.1100	0.9434	20.440	117		HEMOGLOBIN
2	0.3663	0.1341	0.0241	0.9305	6.373	48		ALCOHOL CONSUMPTION

NORSK INSTITUTT FOR LUFTFORSKNING (NILU)
NORWEGIAN INSTITUTE FOR AIR RESEARCH

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		NILU PROSJEKT NR. O-8372	
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3 STIKKORD (à maks. 20 anslag)
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REFERAT (maks. 300 anslag, 7 linjer)
Dette er del II av en rapport med samme tittel hvor innholdet av bly i blod hos barn og voksne i Nydalen i Oslo er sammenlignet med konsentrasjonen av bly i luft.
Del II inneholder vedlegg.

TITLE

ABSTRACT (max. 300 characters, 7 lines)
This is Part II of a report of the same title that examined blood lead concentrations in children and adults as a function of exposure to ambient lead in the Oslo-Nydalen area.
Part II contains only appendices.

*Kategorier: Åpen - kan bestilles fra NILU A
Må bestilles gjennom oppdragsgiver B
Kan ikke utleveres C