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LEAD ACETATE, 22-MONTH CHRONIC TOXICITY STUDY - RATS

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15. Supplementary Notes
Attached to final report is supplemental Pathology Report: Compendium Summary of Renal Tissues

16. Abstracts
Lead acetate was incorporated into basal laboratory diet at concentrations of 0, 10, 50, 100 and 1000 ppm (calculated on the basis of lead) and offered to groups of male and female albino rats for 22 months. No compound effect was demonstrated at any test level with regard to appearance, behavior, food consumption, growth, survival, or hematologic and clinical chemistry results. Increased kidney weights, histopathological alterations in the liver (nodular hyperplasia and vacuolated hepatocytes), and unique and distinctive pathologic changes in the kidneys (intranuclear inclusion bodies and cytomegaly) were observed in the 1000-ppm group. Atypical renal epithelial hyperplasia was seen in decreasing numbers of animals from the 1000, 100 and 50-ppm groups. Murine nephropathy was found in all treatment groups but the frequency and severity was similar to that observed in the control group.

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HAZLETON LABORATORIES, INC.
TRW LIFE SCIENCES CENTER

Sponsor: American Petroleum Institute Date: February 28, 1969

Material: Lead Acetate

Subject: FINAL REPORT
22-Month Chronic Toxicity Study - Rats
Project No. 229-100

SUMMARY

This study was conducted to evaluate and characterize the effects of long-term dietary administration of Lead Acetate in male and female albino rats. Lead Acetate was administered to the rats for 22 months at dietary levels of 10, 50, 100, and 1000 ppm (calculated on the basis of 54.6% lead content). Criteria evaluated for a toxic effect were physical appearance, behavior, growth, food consumption, survival, clinical laboratory results, organ weights, and gross and microscopic pathology.

No compound effect was demonstrated at any test level with regard to physical appearance, behavior, growth, food consumption, survival, and clinical laboratory results.

During the early part of the study, body weight gains and food consumption in the 100 ppm and 1000 ppm male groups were somewhat lower than the control; however, after this initial lag, growth and food consumption for these groups were comparable with the control.

The clinical values for the test groups showed no significant differences from those for the controls. Hemoglobin determinations for the 1000 ppm male group were somewhat lower than the controls but within normal range for laboratory rats.

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At 12 months, the glucose-6-phosphatase determinations for the 100 and 1000 ppm groups were lower than the controls; however, the terminal glucose-6-phosphatase values for all test groups were comparable with those for the controls.

The blood lead content determined at 12 and 22 months for the high level rats was somewhat elevated compared with the control values. There was also an increase of delta-aminolevulinic acid in the urine of the high level animals at each determination and at 22 months, an increase of coproporphyrin in the urine.

Statistical evaluation of organ weight data revealed significantly increased kidney/body weight ratios for the 1000 ppm male groups sacrificed at six and 12 months and significantly increased kidney weights and ratios for the males and females in the 1000 ppm group sacrificed after 22 months. Grossly, the kidneys of the 1000 ppm rats which died late in the study or were sacrificed at termination presented more alterations than those from rats in the control and other test groups.

Histopathological evaluation of tissue sections revealed a definite compound effect in the kidneys of the rats at each test level and in the livers of the rats in the 1000 ppm test group. Pathologic changes in the kidneys were characterized mainly by alterations of individual renal epithelial cells including regenerative forms, hyperplasia, and neoplasia of the tubular epithelium with development of renal adenoma or adenocarcinoma. Both the incidence and the degree of regenerative epithelium in the cortical tubules were greater in the test rats with a definite dosage relationship. Neoplastic renal alterations were observed in male rats only. Compound-related, histopathologic alterations in the liver consisted of nodular hyperplasia with vacuolated hepatocytes observed primarily in the 1000 ppm females.

MATERIAL

Identification Lead Acetate.

Description A white, granular powder.

Receipt On August 16, 1966, from J. T. Baker Chemical Company.

Purity Dosage levels calculated on the basis of the lead content (54.6% by weight) of the Lead Acetate.

METHODS

Experimental Animals

Three hundred male and 300 female weanling albino rats of the Charles River Caesarean-derived strain.

Weight Range at Initiation: Males - 96 to 148 grams; females - 93 to 142 grams.

Housing: Individually in elevated wire mesh cages.

Diet: Appropriate diet and water available ad libitum.

Animal Groups and Dietary Levels

Method of Grouping: Stratified randomization.

Group No.	No. of Animals at Initiation* male	female	Dietary Level ppm - calculated for lead
1 (control)	100	100	0
2	50	50	10
3	50	50	50
4	50	50	100
5	50	50	1000

* After four weeks on the study (on October 7, 1966), six male and six female rats from the control and each test group were transferred to Project No. 229-107 (Pharmacology Division); during Week 6 (on October 18, 1966) three control rats, one male and two females, were transferred to Project No. 229-111 (Electron Microscopy Laboratory).

A separate group of five rats of each sex (Group No. 5B - not included in the initial number of rats on the study) received 1000 ppm of the test material for four weeks and was then transferred to Project 229-110 (Radiobiology Division).

Diet Preparation

The control rats received a basal diet of ground Purina Laboratory Chow. The test material was incorporated into the basal diet on a weight-per-weight basis and mixed in a Patterson-Kelley, twin-shell blender to provide the desired dietary levels (based on lead content) for the test groups. Fresh diets were prepared weekly. Samples of the test material, the basal diet, and the mixed diets were analyzed for lead content at initiation (first mixes) and at one, three, six, nine, and 12 months.

Observations and Records

Records of individual body weights and food consumption and the general appearance and behavior of each rat were maintained weekly for the first six months, twice monthly for the seventh through 12th months, and monthly for the remainder of the study. Observations for mortality were made daily. Records were maintained on the incidence, location, and size of palpable tissue masses noted during the study.

Clinical Laboratory Studies

The following clinical studies were performed on five rats of each sex from each group.

Hematology:

Intervals - One, three, six, 12, 18, and 22 months.

Determinations - Erythrocyte counts; total and differential leukocyte counts; reticulocyte counts; platelet counts; and hematocrit, hemoglobin, and coagulation time determinations.

Biochemistry:

Intervals - Three, six, 12, and 22 months.

Determinations - Blood urea nitrogen, serum glutamic-oxaloacetic transaminase, alkaline phosphatase, fasting blood sugar, glucose-6-phosphatase, cholinesterase in red blood cells and plasma (cholinesterase not determined at 22 months); in addition, lactic dehydrogenase (at six, 12, 18, and 22 months), methemoglobin (at 12 months only), and lead concentration.

Urine Analyses:

Intervals - Three, six, 12, and 22 months.

Determinations - Appearance, pH, specific gravity, sugar, protein, bilirubin, occult blood, and microscopic examination of the sediment; in addition, determination of coproporphyrin and d-aminolevulinic acid.

No terminal clinical studies performed on Group No. 4.

Blood samples were obtained from the tail vein or intestinal vein or aorta (biochemical determinations at six, 12, and 22 months).

Urine samples were collected from rats housed overnight in individual metabolism cages and pooled by sex for each group.

Terminal Studies

Deaths: Necropsies were performed on all animals which died during the study or were sacrificed due to moribund condition; gross observations were recorded and representative tissues preserved.

Sacrifices (By Exsanguination Under Diabutal Anesthesia) Took Place at the Following Intervals:

At Six, 12, and 18 Months - Ten rats of each sex from the control group and five rats of each sex from each test group.

At 22 Months - All survivors.

Tissue Preservation: The following tissues from each sacrificed rat were preserved in 10% neutral buffered formalin: brain, pituitary, spinal cord, eye, thyroid, thymus, lung, heart, liver, spleen, kidney, adrenal, stomach, pancreas, small intestine, large intestine, mesenteric lymph node, urinary bladder, testis, ovary, uterus, skin, bone, bone marrow, skeletal muscle with nerve, and all unusual lesions encountered.

Organ Weights: The weights of the heart, liver, spleen, kidneys, and gonads were recorded prior to fixation; thyroid and adrenals were weighed after fixation. Organ/body weight ratios were determined.

Histopathological Examination: After the six- and 12-month sacrifices on the following tissues from the control, 100, and 1000 ppm level groups: brain (five sections), spinal cord, pituitary, thyroid, lung, heart, liver, spleen, kidney, adrenal, stomach, pancreas, small intestine, large intestine, testis, ovary, bone, bone marrow, and unusual lesions.

After the terminal sacrifice on the following tissues from five male and five female rats from the control and each test group: brain, thyroid, liver, kidney, and bone with bone marrow; in addition, on samples of other grossly altered organs from rats sacrificed at termination and on selected samples of grossly altered organs from rats that died during the study.

All remaining tissues are held at Hazleton Laboratories, Inc., for possible future reference.

Statistical Evaluation

Criteria: Survival at 26, 52, 76, and 92 weeks; growth rate and food consumption at six and 12 months; and terminal body weights, organ weights, and organ/body weight ratios.

Methods: Life-table technique for analysis of survival; analysis of variance, or F-test, at the 5% probability level for the remaining criteria; preliminary tests (where applicable) by the methods of Rao, Bartlett, Scheffe, Sachs, and Fisher-Behrens (modified t-test).

References: Ostle, B., Statistics in Research; Iowa State College Press, Ames, Iowa, 1956; Snedecor, G. W., Statistical Methods, Iowa State College Press, Ames, Iowa, 1956; Sachs, R., Toxicol. Appl. Pharmacol. 1, 203, 1959; Sachs, R., J. Assoc. Offic. Agr. Chemists 42, 741, 1959.

RESULTS

Appearance and Behavior

No signs of a compound effect with regard to physical appearance and behavior were observed among the test rats at any dietary level. Signs of respiratory involvement (wheezing, labored respiration, and a discharge from the nose and/or eyes) were noted with comparable frequency in all groups including the control. The incidence of these signs was slight to moderate during the first year and increased gradually as the study progressed. Late in the first year and throughout the second year, an increasing number of control and test rats exhibited the usual signs of aging: a rough, discolored fur coat; sores on the body, tail, or forepaws; alopecia on the abdomen, back, or hips; reddened eyelids; a hunched position; stains on the facial fur; and/or staining of the abdominal fur by urine.

Incidental observations in one or a few rats included opacity of the right eye (also described as a white film over the eye) noted in a male control rat beginning at Week 18; spastic head movements exhibited by another male control beginning in Week 42; and persistent circling to one side or "spinning" while being handled - observed during the second year in one female control, three 10 ppm rats, two 50 ppm, and one 100 ppm level rat. This response was not

noted among the high level (1000 ppm) animals and was considered unrelated to compound administration.

The following number of rats in each group exhibited one or several palpable tissue masses, nodules, or wart-like skin lesions.

Group No.	Males	Females	No. of Rats in Group*	
			male	female
1 (control)	4	21	83	82
2	4	9	39	38
3	2	9	38	39
4	2	10	39	37
5	3	10	36	39

* Number remaining after six-month sacrifice.

The great majority of the tissue masses appeared during the second year of the study. Externally palpable tissue masses, for the most part associated with the mammary glands, are a common occurrence in aging laboratory rats and unrelated to administration of the test compound.

Growth, Food Consumption, and Survival

Mean body weights, weight ranges, food consumption values, and survival data are presented in Table No. 1. Pertinent data are presented graphically in Figures No. 1 (growth and food consumption) and No. 2 (compound consumption).

Statistical analysis performed at six and 12 months did not reveal any significant differences between growth rate and food consumption for the various test groups and those for the corresponding controls.

Inspection of the data revealed somewhat lower mean body weights for the high level (1000 ppm) male group and, to a lesser degree, for the 100 ppm

males compared with the male control. This was probably attributable to the slightly reduced food consumption in these groups during the early part of the study (through approximately the 18th week). After this initial lag, weight gains and food consumption for the two higher male test groups were comparable with those for the male controls (mean weight gains from Weeks 19 through 52 - 86 grams for the 100 ppm group and 111 grams for the 1000 ppm group compared with 100 grams for the control). Growth and food consumption for the males at the 10 and 50 ppm levels and for all female test groups were comparable with the respective controls. Fluctuations in mean body weights for all groups including the controls during the latter months of the study reflected the increased mortality rate and increased incidence of spontaneous disease during this period. Growth and food consumption data for the second year were not evaluated statistically.

Survival in the test groups was not adversely affected by dietary administration of Lead Acetate. At the end of the first year, survival at the high test level (1000 ppm) was 90.6% in the male group and 100% in the female group. Survival data remained comparable among the high level and the control groups until termination of the study. The mortality rate for the various test groups was low to moderate through the 18th month (highest in the 100 ppm male and female groups). During the last three months of the study, the incidence of deaths due to spontaneous disease increased in all groups including the control group.

Survival data at 92 weeks are presented below.

Dietary Level ppm	Mean Survival Time - Days male	Mean Survival Time - Days female	Percent Survival ± s.e. male	Percent Survival ± s.e. female
Control	612	631	76.1 ± 5.3	87.9 ± 4.0
10	601	625	79.4 ± 7.0	95.2 ± 3.4
50	581	620	66.6 ± 8.5	77.7 ± 7.0
100	594	582	64.6 ± 8.0	66.2 S- ± 8.6
1000	587	627	80.9 ± 6.7	87.1 ± 6.0

s.e. = standard error

S- = Significantly lower than control

Clinical Laboratory Studies

The results of clinical studies are presented in Tables No. 2, No. 2A, No. 2B (hematological values); No. 3, No. 3A, No. 3B, No. 3C, No. 3D (biochemical values); No. 4, and No. 4A (results of urine analyses).

The clinical values for the test rats showed no significant differences from control values.

Hemoglobin determinations for the high level (1000 ppm) male group were, at most intervals, somewhat lower than the control values but still within normal range for laboratory rats. At termination, the hemoglobin values for the three female test groups (10, 50, and 1000 ppm) were lower than the female controls, but no dose-related, downward trend was evident. At the 12-month interval, the glucose-6-phosphatase determinations for both sexes at the 100 and 1000 ppm levels were markedly decreased compared with control values. At the remaining intervals, prior to 12 months and at termination, glucose-6-phosphatase values for the various male and female test groups were within normal limits and comparable with the respective control values. The group mean lactic dehydrogenase values determined at

18 months (male and female groups) and at termination (female groups) ranged rather widely but showed no consistent pattern that could be associated with administration of the test material. The terminal lactic dehydrogenase values for the male control and test groups were comparable. The blood lead content determined at 12 and 22 months for the high level (1000 ppm) animals was somewhat elevated; however, the lead content in the blood of control rats was also high. Apart from occasional elevated or decreased individual control or test values (low hematocrit or hemoglobin, low platelet, high reticulocyte counts, or high blood urea nitrogen), the remaining hematological or biochemical values were within normal limits and comparable among the groups.

The urine samples from high level males and females revealed an increase in coproporphyrin (at 22 months) and in delta-aminolevulinic acid (at each determination). Otherwise, the results of urine analyses were within normal limits and comparable between the test and respective control groups. Proteinuria, ranging in degree from slight to severe, was present in all samples collected at 12 and 22 months from the male groups and, to a lesser degree, also in the samples from the female groups. This was a common finding in the urine of aging laboratory rats.

Gross Observations at Necropsy

The detailed gross findings at necropsy in the rats which were sacrificed at six-month intervals or at termination, or which died during the study, are on file at Hazleton Laboratories, Inc. A summary of these findings follows.

The organs and viscera of the test rats which were sacrificed at six and 12 months showed no consistent gross changes other than also seen in control rats.

At six months, the organs of the great majority of the sacrificed control and test rats had a normal appearance. Isolated gross findings were randomly distributed in the various groups and were not remarkable. At the 12-month sacrifice, gross signs of lung involvement (distention, consolidation, or abscess formation) were noted in a few control rats and test rats at each dietary level. Infrequent gross alterations in other organs included discolored livers and/or kidneys; dilation of the renal pelvis; enlarged adrenals; an enlarged pituitary (1000 ppm rat); and two bear-shaped tissue masses in the right uterine horn (control rat). A 1000 ppm female showed enlargement of the liver and adrenals, an ovarian cyst, and a subcutaneous tissue mass.

Lung involvement was the most common finding in control and test rats which died during the first year. Gross alterations in the livers and kidneys were similar to those seen at the 12-month sacrifice; and in a few animals, enlargement of the pituitary, thyroid, adrenals, or the spleen was noted. Unusual lesions were found as follows: a tissue mass in the lung (50 ppm female); a greenish nodule in the left kidney, greatly enlarged greenish tinged liver, and cervical and mesenteric lymph nodes (50 ppm male Rat No. 58-692; histopathological diagnosis - infiltrating myelogenous leukemia); a renal nodule (diagnosis - neoplasm of undetermined origin), nodules in the abdominal fat (diagnosis - hemangiosarcoma), and a subcutaneous nodule histologically identified as undifferentiated sarcoma were found in female Rat No. 58-875 in the 100 ppm group; a 1000 ppm male (Rat No. 58-901) presented a tissue mass in the chest cavity identified histologically as a liposarcoma.

Necropsies performed on the rats sacrificed after 18 months revealed kidneys with a pitted, greenish tinged cortex in three of five males and in one

female in the high level (1000 ppm) test group, and the livers of three high level females contained numerous firm, yellow areas. Additional gross alterations in various organs of high level rats were similar to those observed at the 12-month sacrifice in both control and test rats. The incidence of lung finding and enlarged pituitaries and adrenals was greater than at 12 months but was comparable among the groups.

At the terminal sacrifice, an increased number of rats in the high level test group, particularly among the males, presented grossly altered kidneys compared with the control and other test groups. There was also an increased incidence of kidney findings in high level rats which died late in the study. These findings included enlargement of the kidneys, a rough or greenish tinged cortex, and cortical cysts occasionally extending into the medulla or discoloration of the medulla. Nodules or firm, yellow areas in the kidneys were noted grossly in one rat each at the 50 and 100 ppm level and in eight high level rats (five males and three females). The right kidney of a high level male (Rat No. 58-909 - terminal sacrifice) was involved in a large tissue mass; and one kidney of another high level male (Rat No. 58-890 - died in Week 85) was distorted by a large, firm, pale yellow-pink nodule. These two lesions were identified histologically as renal tubular adenocarcinomas.

Gross findings in other organs including the liver and the incidence of these findings at termination or in rats that died late in the study were generally comparable among the various groups including the controls except for a relatively larger number of yellow-tinged livers noted in the high level female group. Other gross changes in the liver included discolored or thickened, rounded lobes of granular or friable consistency; a rough, uneven surface; or dark red indentations

on the surface of the lobes. Nodules in the liver were noted in five control rats, in six high level rats, and in one or two rats at the lower test levels. The most common findings in both control and test rats were gross signs of lung disease, enlarged pituitary glands, and enlarged and/or discolored ("speckled") adrenals. Incidental, less frequent, gross changes in other organs included abscesses (pus) in the ear; nodular or cystic thymic tissue; enlarged thyroids or parathyroids; dilatation of the thoracic aorta; thickening of the heart muscle; thickened stomach walls or sore-like areas in the stomach lining; enlarged or small spleens; enlarged cervical or mesenteric lymph nodes; firm nodules in the pancreas or mesentery; thickened bladder walls or bladder stones (two instances); small, soft, bluish testes; ovarian cysts; and firm bodies or fluid in the uterine horns.

Unusual lesions or tissue masses in the body cavities involving various organs were noted grossly as follows: a mass of soft, fat-like tissue in the chest cavity attached to the backbone (each in a female control and two male test rats - 50 and 100 ppm levels, respectively); a tissue mass in the chest cavity attached to the rib cage (1000 ppm male); a tissue mass involving the thymus (50 ppm female); a mass involving the lung and thymus (1000 ppm female); a tissue mass in the liver (100 ppm male); a tissue mass in the abdominal cavity (each in a 10 ppm male and a 50 ppm female); another tissue mass in the abdominal cavity involving various organs (1000 ppm female); and a soft mass protruding from the vagina (1000 ppm female).

Externally palpable tissue masses or nodules noted during the study in control and test rats were confirmed at necropsy to be subcutaneously located and, for the most part, associated with the mammary gland.

Organ Weights

Mean terminal body weights, organ weights, organ/body weight ratios, and their respective standard deviations for the control and test groups are presented in Tables No. 5 (six-month sacrifice), No. 6 (12-month sacrifice), No. 7 (18-month sacrifice), and No. 8 (termination).

Statistical analysis revealed the following significantly increased values for the test groups in comparison with control values.

At Six Months: Kidney/body weight ratio for the males at the 1000 ppm level.

At 12 Months: Kidney/body weight ratio for the 1000 ppm males and terminal body weight and liver, spleen, kidney, and adrenal weights for the 1000 ppm females.

At 18 Months: Thyroid weight and thyroid/body weight ratios for the 1000 ppm males and heart and spleen weights and heart and spleen/body weight ratios for the 50 ppm females.

At Termination: Liver/body weight ratios for the 10 ppm and 1000 ppm males; heart weights for the 100 ppm and 1000 ppm males; thyroid weights and thyroid/body weight ratios and kidney weights and kidney/body weight ratios for the 1000 ppm males and females; adrenal/body weight ratio for the 1000 ppm females; and testes/body weight ratio for the 1000 ppm males.

The kidney weights determined at six, 12, and 18 months and the kidney/body weight ratio at 18 months for the 1000 ppm male group were higher than the corresponding control values but not to a statistically significant degree. The consistently increased kidney values for the high level males at each interval

and for the high level females at the terminal sacrifice were, possibly, a reflection of compound-induced, histopathological alterations observed in the kidneys of high level rats.

The significantly increased liver ratios and increased liver weights determined at the terminal sacrifice for the male test groups showed no dose-related trends (weights highest at the two lowest levels) and were, probably, not meaningful, although some histopathological alterations were seen in the livers of the high level rats. The terminal liver values for the high level female group were comparable with the controls, although histologically, alterations in the liver were more pronounced in the high level females than in the males.

The increased thyroid weights and ratios determined at 18 months (males only) and at termination (males and females) for the high level group, as well as the increased values obtained at the various intervals for other organs in the test groups, were also not considered to be meaningful since these findings showed no consistent pattern and were not supported by any histopathological alterations in the organs.

Microscopic Pathology

Microscopic evaluation of tissue sections at three and 12 months and at termination of the study was performed by Leonard D. Shott, D.V.M., Ph.D., Pathologist.

Summaries of microscopic findings, incidence tables of histologic alterations, and detailed findings at each interval are appended to this report.

Submitted by

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Toxicology Division

Report Preparation: M. Kundzin
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mtg

EXPLANATION FOR FOOTNOTES

Values in parenthesis are not included in the mean.

Key to urine analysis table is as follows:

T P YEL = turbid pale yellow

V T YEL = very turbid yellow

C YEL = clear yellow

0 = negative

T = trace (±)

1 = slight (+)

2 = moderate (++)

3 = marked (+++)

4 = severe (++++)

__/ = denotes change in sample size

S+ = Significantly higher than control

S- = Significantly lower than control

Table No. 1 – Mean body weights, weight ranges, food consumption, and survival data for (☒ male, ☐ female) albino rats.

LEAD ACETATE FOR 22 MONTHS

TIME INTERVAL	CONTROL				10 PPM				50 PPM				100 PPM			
	WT.	WT. RANGE	FOOD	SURV.	WT.	WT. RANGE	FOOD	SURV.	WT	WT. RANGE	FOOD	SURV.	WT.	WT. RANGE	FOOD	SURV.
weeks	g.	g.	g.		g.	g.	g.		g.	g.	g.		g.	g.	g.	
0	126	96-147	0	100/100	126	101-147	0	50/50	125	100-147	0	50/50	126	99-148	0	50/50
1	178	112-216	135	100/100	176	100-208	138	50/50	182	151-212	142	50/50	174	141-216	135	50/50
2	230	145-270	155	100/100	229	161-270	158	50/50	236	200-282	159	50/50	222	164-278	154	50/50
4	313	213-378	174	93/93	310	240-349	170	44/44	320	245-392	182	44/44	303	240-358	174	44/44
8	437	319-524	193	93/93	434	333-492	196	44/44	437	365-545	196	43/44	426	326-487	197	44/44
12	501	367-600	190	93/93	492	400-583	192	44/44	500	412-637	198	43/44	490	391-560	190	44/44
16	548	392-672	185	93/93	543	425-667	184	44/44	554	446-725	185	43/44	534	431-615	176	44/44
20	570	426-700	181	93/93	566	465-676	173	44/44	573	476-725	180	43/44	554	457-644	172	44/44
24	582	432-733	174	93/93	581	474-719	168	44/44	590	487-765	174	43/44	566	462-640	169	44/44
28	602	443-773	179	83/83	590	410-718	164	39/39	605	520-689	172	38/39	581	477-670	162	39/39
32	622	466-799	166	83/83	610	337-740	160	39/39	627	550-723	169	38/39	600	466-701	163	39/39
36	634	469-841	162	83/83	631	536-771	159	38/39	637	556-744	163	38/39	611	466-714	164	39/39
40	645	494-844	155	83/83	638	543-787	149	38/39	642	549-762	156	38/39	623	460-723	155	39/39
44	652	492-841	165	82/83	640	550-778	157	38/39	641	411-755	157	37/39	627	471-729	160	39/39
48	651	499-844	156	82/83	646	510-786	156	38/39	652	543-773	153	36/39	631	500-729	152	39/39
52	662	522-834	167	82/83	653	565-800	161	37/39	650	534-758	163	36/39	633	508-743	158	39/39
56	661	512-844	176	70/73	658	520-802	162	32/34	648	522-775	177	30/34	637	516-749	167	32/34
60	664	511-810	173	69/73	665	516-790	177	31/34	655	457-779	175	30/34	647	518-752	168	31/34
64	668	524-831	172	69/73	665	486-793	175	30/34	649	333-783	168	30/34	659	545-750	170	29/34
68	659	520-827	161	67/73	652	449-770	163	30/34	658	533-762	163	27/34	644	440-740	159	28/34
72	657	517-839	162	67/73	652	582-777	173	28/34	653	444-766	166	27/34	650	391-956	161	28/34
76	653	425-835	170	66/73	651	545-763	169	28/34	641	356-767	169	27/34	638	462-731	158	26/34
80	660	453-831	177	50/62	652	564-775	177	23/29	643	470-762	167	21/29	622	291-749	165	20/29
84	665	510-837	173	48/62	650	533-791	175	23/29	646	382-761	166	21/29	646	480-794	156	19/29
88	669	507-849	164	47/62	654	560-795	168	22/29	656	440-778	162	20/29	648	452-841	163	17/29
92	662	460-833	162	46/62	621	422-780	172	22/29	644	391-796	171	18/29	636	417-833	143	16/29

Table No. 1 – Mean body weights, weight ranges, food consumption, and survival data for (☒ male, ☐ female) albino rats.

LEAD ACETATE FOR 22 MONTHS

TIME INTERVAL	1000 PPM															
	WT	WT RANGE	FOOD	SURV	WT.	WT RANGE	FOOD	SURV.	WT	WT RANGE	FOOD	SURV	WT	WT RANGE	FOOD	SURV
weeks	g.	g.	g.		g.	g.	g.		g.	g.	g.		g.	g.	g.	
0	125	98-146	0	50/50												
1	172	132-201	134	50/50												
2	219	153-246	153	50/50												
4	296	230-342	176	44/44												
8	407	342-472	185	42/44												
12	464	398-544	180	42/44												
16	495	348-588	164	42/44												
20	537	453-648	178	42/44												
24	556	453-680	175	42/44												
28	574	438-711	175	36/39												
32	594	482-724	164	36/39												
36	610	487-756	163	36/39												
40	617	491-738	158	36/39												
44	626	504-775	163	35/39												
48	627	496-791	158	35/39												
52	635	495-802	163	35/39												
56	627	506-827	164	30/34												
60	636	515-833	174	30/34												
64	642	517-839	174	30/34												
68	639	528-843	163	30/34												
72	637	474-831	157	29/34												
76	625	360-829	163	29/34												
80	629	522-857	171	23/29												
84	635	522-863	166	23/29												
88	632	522-873	156	22/29												
92	615	533-843	159	22/29												

Table No. 1 – Mean body weights, weight ranges, food consumption, and survival data for (☐ male, ☒ female) albino rats.

LEAD ACETATE FOR 22 MONTHS

TIME INTERVAL	CONTROL				10 PPM				50 PPM				100 PPM			
	WT.	WT. RANGE	FOOD	SURV.	WT.	WT. RANGE	FOOD	SURV.	WT.	WT. RANGE	FOOD	SURV	WT	WT. RANGE	FOOD	SURV.
weeks	g.	g.	g.		g.	g.	g.		g.	g.	g.		g.	g.	g.	
0	118	93-140	0	100/100	117	98-138	0	50/50	118	97-142	0	50/50	117	95-138	0	50/50
1	152	131-178	117	100/100	152	126-184	117	50/50	154	126-193	121	50/50	148	94-172	118	50/50
2	176	143-202	123	100/100	177	155-215	126	50/50	179	140-221	127	50/50	173	99-210	122	50/50
4	210	173-243	125	94/94	212	176-248	130	44/44	216	180-245	131	44/44	206	114-260	126	44/44
8	256	198-322	145	92/92	261	206-312	147	44/44	264	210-322	140	44/44	258	202-329	141	42/44
12	280	215-341	133	92/92	287	226-339	145	44/44	289	227-379	136	44/44	286	231-380	139	42/44
16	298	233-375	135	92/92	309	244-366	131	44/44	310	246-390	127	44/44	306	244-408	129	42/44
20	313	241-400	130	92/92	320	236-391	130	44/44	328	251-396	129	44/44	320	252-449	131	42/44
24	320	221-408	130	92/92	331	241-417	123	43/44	334	262-419	125	44/44	329	268-458	132	42/44
28	334	253-430	124	82/82	342	241-438	129	38/39	341	269-442	121	39/39	340	266-463	131	37/39
32	347	271-436	118	82/82	358	248-475	124	38/39	354	273-459	123	38/39	356	282-493	123	37/39
36	359	263-452	118	82/82	368	253-513	123	38/39	364	288-479	121	38/39	368	287-525	121	37/39
40	369	263-466	117	82/82	378	237-522	117	38/39	372	271-491	120	38/39	375	295-536	119	37/39
44	375	271-490	118	82/82	384	202-538	118	38/39	379	291-520	125	38/39	379	275-546	122	37/39
48	375	281-524	113	82/82	385	194-532	113	38/39	381	298-523	113	38/39	374	253-558	108	37/39
52	387	277-512	133	82/82	398	263-529	133	37/39	393	307-531	130	38/39	388	241-569	131	36/39
56	398	287-524	138	72/72	397	260-512	133	32/34	396	310-537	136	33/34	393	247-584	133	31/34
60	409	286-532	140	72/72	400	264-528	136	32/34	402	314-545	135	33/34	405	260-595	129	30/34
64	418	284-532	145	71/72	412	272-533	140	32/34	411	244-567	141	33/34	406	242-608	138	30/34
68	403	267-531	118	70/72	400	276-528	119	32/34	397	309-542	123	33/34	398	174-590	128	29/34
72	400	288-533	119	69/72	393	278-530	120	32/34	399	296-558	128	32/34	403	246-563	127	28/34
76	420	266-548	144	68/72	413	292-555	142	32/34	405	261-583	146	31/34	417	192-568	144	27/34
80	437	270-571	148	58/62	420	303-550	138	27/29	415	230-594	143	26/29	425	231-570	142	22/29
84	448	224-594	143	55/62	428	293-560	141	27/29	421	206-602	139	25/29	452	273-593	139	21/29
88	452	208-605	134	54/62	430	293-574	124	27/29	431	286-600	125	22/29	438	258-576	132	21/29
92	454	220-606	132	54/62	424	266-586	129	27/29	439	260-601	147	21/29	449	327-590	141	18/29

Table No. 1 – Mean body weights, weight ranges, food consumption, and survival data for (☐ male, ☒ female) albino rats.

LEAD ACETATE FOR 22 MONTHS

TIME INTERVAL	1000 PPM															
	WT	WT RANGE	FOOD	SURV	WT	WT. RANGE	FOOD	SURV.	WT	WT RANGE	FOOD	SURV	WT	WT RANGE	FOOD	SURV
weeks	g.	g	g.		g.	g.	g.		g.	g.	g.		g.	g.	g.	
0	118	103-138	0	50/50												
1	148	129-172	120	50/50												
2	173	151-194	126	50/50												
4	209	184-238	139	44/44												
8	254	212-294	142	44/44												
12	285	245-336	140	44/44												
16	302	261-361	128	44/44												
20	317	260-384	136	44/44												
24	325	271-399	130	44/44												
28	335	276-407	125	39/39												
32	354	293-424	131	39/39												
36	363	297-439	125	39/39												
40	376	302-453	122	39/39												
44	385	309-502	128	39/39												
48	392	301-619	116	39/39												
52	404	299-699	136	39/39												
56	392	277-488	132	34/34												
60	407	327-512	141	33/34												
64	420	333-515	146	33/34												
68	406	320-530	121	33/34												
[illegible]	399	318-518	117	33/34												
[illegible]6	415	320-529	143	32/34												
[illegible]	429	340-557	142	26/29												
[illegible]	442	311-570	138	25/29												
88	436	276-583	135	25/29												
92	432	250-594	134	25/29												

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	---RBC-- MILLIONS	---WBC--- THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASO %	NUC.RBC /100WBC
						CONTROL								
58388	M	1	51.0	14.8	6.84	30.5	0	0	9	91	0	0	0	
58389	M	1	54.0	14.9	6.54	27.1	0	0	7	93	0	0	0	
58390	M	1	47.0	13.8	6.12	19.8	0	0	9	91	0	0	0	
58391	M	1	48.0	13.7	6.52	17.9	0	0	25	74	0	1	0	
58392	M	1	48.0	13.8	6.03	23.4	0	0	17	83	0	0	0	
MEAN	M	1	49.6	14.2	6.41	23.7								

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	RBC MILLIONS	WBC THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASO %	NUC.RBC /100WBC
						10 PPM								
58588	M	1	44.5	14.4	6.26	37.2	0	0	2	98	0	0	0	
58589	M	1	47.5	14.4	6.66	13.4	0	0	11	88	0	1	0	
58590	M	1	45.0	12.9	6.21	31.2	0	0	12	87	1	0	0	
58591	M	1	49.5	14.8	6.69	24.6	0	0	5	95	0	0	0	
58592	M	1	51.5	14.9	7.20	17.8	0	0	21	79	0	0	0	
MEAN	M	1	47.6	14.3	6.60	24.8								
						50 PPM								
58688	M	1	48.0	14.4	6.58	16.5	0	0	11	88	0	1	0	
58689	M	1	50.0	15.1	6.18	13.5	0	0	5	94	0	1	0	
58690	M	1	55.5	15.7	6.44	37.1	0	0	4	94	0	2	0	
58691	M	1	48.0	14.4	6.33	17.5	0	0	29	70	0	1	0	
58692	M	1	50.0	14.1	6.51	22.1	0	0	8	92	0	0	0	
MEAN	M	1	50.3	14.7	6.41	21.3								

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	---RBC-- MILLIONS	---WBC--- THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASO %	NUC.RBC /100WBC
						100 PPM								
58788	M	1	49.0	12.6	6.41	20.4	0	0	12	88	0	0	0	
58789	M	1	47.0	13.8	6.33	22.9	0	0	20	80	0	0	0	
58790	M	1	51.0	14.9	6.00	19.6	0	0	15	85	0	0	0	
58791	M	1	47.5	14.1	6.23	27.6	0	0	5	95	0	0	0	
58792	M	1	53.0	15.7	6.73	23.7	0	0	39	61	0	0	0	
MEAN	M	1	49.5	14.2	6.34	22.8								
						1000 PPM								
58888	M	1	46.0	13.7	6.55	15.3	0	0	14	86	0	0	0	
58889	M	1	47.5	13.8	6.06	17.9	0	0	18	82	0	0	0	
58890	M	1	47.0	13.5	6.36	32.6	0	0	3	97	0	0	0	
58891	M	1	44.0	12.6	6.26	31.3	0	0	8	89	0	3	0	
58892	M	1	45.0	12.6	5.69	24.5	0	0	9	89	0	2	0	
MEAN	M	1	45.9	13.2	6.18	24.3								

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	---RBC-- MILLIONS	---WBC--- THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASO %	NUC.RBC /100WBC
						CONTROL								
58388	M	3	57.0	15.7	9.97	17.6	0	0	10	79	0	1	0	
58389	M	3	51.0	13.7	7.11	19.0	0	0	19	89	0	2	0	
58390	M	3	50.5	14.4	7.27	14.0	0	0	8	92	0	0	0	
58391	M	3	53.5	14.5	7.22	15.1	0	0	16	84	0	0	0	
58392	M	3	50.0	14.9	6.73	19.5	0	0	15	82	0	3	0	
MEAN	M	3	52.4	14.6	7.66	17.0								

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	---RBC-- MILLIONS	---WBC--- THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MOND %	EOSIN %	BASO %	NUC.RBC /100WBC
						10 PPM								
58588	M	3	50.0	14.5	7.76	19.4	0	0	6	91	0	3	0	
58589	M	3	52.0	15.0	7.63	14.2	0	0	12	83	0	5	0	
58590	M	3	48.0	14.4	8.45	15.6	0	0	10	89	0	1	0	
58591	M	3	51.0	15.3	7.32	16.8	0	0	7	93	0	0	0	
58592	M	3	54.0	15.8	6.98	17.0	0	0	14	85	0	1	0	
MEAN	M	3	51.0	15.0	7.63	16.6								
						50 PPM								
58688	M	3	53.0	15.8	7.72	16.7	0	0	9	91	0	0	0	
58689	M	3	49.0	13.7	6.91	13.1	0	0	9	91	0	0	0	
58690	M	3	48.5	14.1	7.40	20.0	0	0	8	90	0	2	0	
58691	M	3	49.0	14.4	6.95	17.2	0	0	12	87	0	1	0	
58692	M	3	52.0	14.5	8.10	17.1	0	0	10	90	0	0	0	
MEAN	M	3	50.3	14.5	7.42	16.8								

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	---RBC-- MILLIONS	---WBC--- THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASO %	NUC.RBC /100WBC
						100 PPM								
58788	M	3	45.5	13.4	6.79	19.2	0	0	8	90	0	2	0	
58789	M	3	52.0	14.2	6.53	17.8	0	0	5	95	0	0	0	
58790	M	3	51.0	15.5	7.71	17.1	0	0	7	92	0	1	0	
58791	M	3	51.0	14.5	7.87	25.3	0	0	2	98	0	0	0	
58792	M	3	56.0	15.3	8.83	16.3	0	0	9	80	0	1	0	
MEAN	M	3	51.1	14.6	7.55	19.1								
						1000 PPM								
58388	M	3	49.0	14.2	7.39	18.2	0	0	7	92	0	1	0	
58889	M	3	51.0	13.9	7.76	15.1	0	0	16	81	0	3	0	
58890	M	3	48.5	14.0	7.83	19.2	0	0	8	91	0	1	0	
58891	M	3	46.5	13.8	7.91	17.4	0	0	4	95	0	1	0	
58892	M	3	32.5	14.5	8.41	19.5	0	0	4	96	0	0	0	
MEAN	M	3	45.5	14.1	7.86	17.9								

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	---RBC-- MILLIONS	---WBC--- THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASO %	NUC.RBC /100WBC
						CONTROL								
58388	M	6	53.0	15.2	8.75	25.1	0	0	24	76	0	0	0	
58389	M	6	53.0	13.8	7.07	20.8	0	0	17	82	0	1	0	
58390	M	6	49.0	13.8	6.01	20.0	0	0	9	91	0	0	0	
58391	M	6	50.0	14.8	5.40	17.0	0	0	19	81	0	0	0	
58392	M	6	50.0	14.8	6.64	29.2	0	0	16	83	0	1	0	
MEAN	M	6	51.0	14.5	6.77	22.4								

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	---RBC-- MILLIONS	---WBC--- THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASC %	NUC.RBC /100WBC
						10 PPM								
58588	M	6	55.0	15.3	7.27	22.2	0	0	7	93	0	0	0	
58589	M	6	54.0	13.8	7.19	16.1	0	0	5	94	0	1	0	
58590	M	6	50.0	14.1	5.82	21.5	0	0	11	89	0	0	0	
58591	M	6	51.0	13.9	5.43	25.5	0	0	16	84	0	0	0	
58592	M	6	51.0	14.4	6.92	23.1	0	0	5	95	0	0	0	
MEAN	M	6	52.2	14.3	6.53	21.7								
						50 PPM								
58688	M	6	51.0	14.1	5.87	25.7	0	0	7	91	0	2	0	
58689	M	6	48.5	14.4	6.03	20.4	0	0	13	86	0	1	0	
58690	M	6	47.0	13.1	5.35	26.4	0	0	21	79	0	0	0	
58691	M	6	48.0	14.4	6.15	21.6	0	0	6	93	0	1	0	
58692	M	6	50.0	14.1	7.76	26.6	0	0	19	78	0	3	0	
MEAN	M	6	48.9	14.0	6.23	24.1								

TABLE NO. 2 - HEMATOLUGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	---RBC-- MILLIONS	---WBC--- THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASO %	NUC.RBC /100WBC
						100 PPM								
58788	M	6	53.0	14.8	7.72	24.3	0	0	13	86	0	1	0	
58789	M	6	49.0	13.8	6.35	23.8	0	0	11	86	0	3	0	
58790	M	6	56.0	15.4	7.26	20.5	0	0	21	79	0	0	0	
58791	M	6	53.0	15.8	8.17	34.9	0	0	8	90	0	2	0	
58792	M	6	57.0	16.0	7.91	23.4	0	0	8	89	0	3	0	
MEAN	M	6	53.6	15.2	7.48	23.0								
						1000 PPM								
58888	M	6	51.0	14.1	7.26	28.7	0	0	19	78	0	3	0	
58889	M	6	53.0	14.8	7.32	25.3	0	0	23	73	0	3	1	
58890	M	6	49.0	14.1	7.51	17.2	0	0	17	83	0	0	0	
58891	M	6	48.0	13.1	5.46	35.3	0	0	15	84	0	0	1	
58892	M	6	46.0	12.7	6.34	23.5	0	0	9	91	0	0	0	
MEAN	M	6	49.4	13.8	6.78	26.0								

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	---RBC-- MILLIONS	---WBC--- THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASO %	NUC.RBC /100WBC
						CONTROL								
58388	M	12	54.0	13.7	8.16	18.8	0	0	25	70	0	5	0	
58389	M	12	47.0	14.0	7.32	9.4	0	0	12	83	0	4	1	
58390	M	12	46.0	14.0	6.74	15.4	0	0	5	94	0	1	0	
58391	M	12	49.0	14.6	7.40	16.5	0	0	8	89	0	3	0	
58392	M	12	47.0	14.0	5.50	15.8	0	0	20	77	0	2	1	
MEAN	M	12	48.6	14.1	7.02	15.2								

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	---RBC-- MILLIONS	---WBC--- THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASO %	NUC.RBC /100WBC
						10 PPM								
58588	M	12	46.0	12.6	6.23	15.0	0	0	12	87	0	1	0	
58589	M	12	47.0	12.9	5.24	10.7	0	0	23	72	0	4	1	
58590	M	12	48.0	13.1	6.65	14.6	0	0	31	66	1	2	0	
58592	M	12	48.0	14.6	7.72	13.6	0	0	10	84	0	2	4	
58593	M	12	48.0	13.5	6.32	21.8	0	0	7	90	0	2	1	
MEAN	M	12	47.4	13.3	6.43	15.1								
						50 PPM								
58688	M	12	47.5	14.2	6.85	23.2	0	0	14	84	0	1	1	
58689	M	12	47.0	14.2	5.08	16.2	0	0	13	86	0	1	0	
58690	M	12	46.0	13.5	7.12	23.1	0	0	16	82	0	0	2	
58691	M	12	41.0	12.2	5.72	23.4	0	0	19	81	0	0	0	
58693	M	12	50.0	14.4	6.20	11.9	0	0	14	82	1	3	0	
MEAN	M	12	46.3	13.7	6.19	19.6								

17 22910

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	---RBC-- MILLIONS	---WBC--- THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASO %	NUC.RBC /100WBC
						100 PPM								
58788	M	12	47.0	14.4	7.18	12.6	0	0	8	90	1	1	0	
58789	M	12	48.0	15.0	7.85	12.6	0	0	12	86	1	1	0	
58790	M	12	47.0	14.0	7.43	14.4	0	0	19	80	0	1	0	
58791	M	12	48.0	15.0	7.60	17.2	0	0	13	86	0	1	0	
58792	M	12	50.0	15.0	7.63	25.8	0	0	13	87	0	0	0	
MEAN	M	12	48.0	14.7	7.54	14.2								
						1000 PPM								
58889	M	12	43.0	13.3	7.65	29.6	0	0	25	73	0	1	1	
58890	M	12	47.0	13.5	8.30	17.1	0	0	15	85	0	0	0	
58891	M	12	50.0	14.8	8.34	12.7	0	0	11	88	0	1	0	
58892	M	12	44.0	13.7	7.31	15.6	0	0	9	89	1	1	0	
58894	M	12	48.0	13.5	7.23	19.8	0	0	12	83	1	4	0	
MEAN	M	12	46.4	13.8	7.77	16.3								

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	---RBC-- MILLIONS	---WBC--- THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASO %	NUC.RBC /100WBC
CONTROL														
58389	M	18	49.0	14.1	5.82	10.8	0	0	31	66	0	3	0	
58390	M	18	55.0	17.2	4.60	18.4	0	0	21	76	2	1	0	
58391	M	18	50.0	15.9	6.63	18.5	0	0	36	61	2	1	0	
58392	M	18	44.0	13.9	5.37	22.6	0	0	28	67	0	5	0	
58393	M	18	47.0	14.6	6.78	24.3	0	2	29	66	1	2	0	
MEAN	M	18	49.0	15.1	5.84	18.9								

19 -22910

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	---RBC-- MILLIONS	---WBC--- THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASO %	NUC.RBC /100WBC
						10 PPM								
58588	M	18	47.0	14.8	6.74	16.3	0	0	26	73	0	1	0	
58589	M	18	51.0	15.2	7.14	15.7	0	1	27	70	0	2	0	
58592	M	18	49.0	15.2	8.17	19.8	0	1	24	72	2	0	1	
58593	M	18	47.0	14.8	7.81	20.0	0	1	28	68	1	2	0	
58595	M	18	51.0	15.4	6.20	16.5	0	0	22	76	0	2	0	
MEAN	M	18	49.0	15.1	7.21	17.7								
						50 PPM								
58688	M	18	45.0	13.7	6.66	18.1	0	0	13	82	1	4	0	
58689	M	18	50.0	13.2	5.97	17.9	0	0	22	77	0	1	0	
58690	M	18	45.0	13.2	6.41	21.6	0	0	31	66	0	3	0	
58693	M	18	48.0	14.8	7.59	14.6	0	0	32	64	0	4	0	
58694	M	18	40.0	11.0	5.02	19.9	0	0	46	52	0	2	0	
MEAN	M	18	45.6	13.2	6.33	18.4								

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	---RBC-- MILLIONS	---WBC--- THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASO %	NUC.RBC /100WBC
						100 PPM								
58788	M	18	47.0	14.8	6.63	14.9	0	0	19	78	0	3	0	
58790	M	18	50.0	15.4	5.66	14.6	0	0	40	55	1	4	0	
58791	M	18	48.0	14.1	6.26	32.4	0	0	34	62	0	4	0	
58795	M	18	48.0	13.7	6.04	18.8	0	0	28	68	0	4	0	
58799	M	18	50.0	13.7	5.88	21.4	0	0	24	71	1	4	0	
MEAN	M	18	48.6	14.3	6.09	20.4								
						1000 PPM								
58889	M	18	51.0	13.9	6.46	18.0	0	0	36	58	0	6	0	
58890	M	18	42.0	11.5	6.52	25.2	0	0	36	61	0	3	0	
58891	M	18	48.0	14.8	7.60	19.4	0	0	33	65	0	2	0	
58893	M	18	43.0	13.0	6.60	21.2	0	0	34	63	1	2	0	
58894	M	18	45.0	13.7	6.57	18.6	0	0	35	62	2	1	0	
MEAN	M	18	45.8	13.4	6.75	20.5								

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	---RBC-- MILLIONS	---WBC--- THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASO %	NUC.RBC /100WBC
							CONTROL							
58388	M	22	47.0	14.1	7.55	11.2	0	0	53	46	0	1	0	
58389	M	22	49.0	13.5	8.32	12.1	0	0	40	55	1	4	0	
58390	M	22	46.0	13.2	7.74	21.1	0	0	51	49	0	0	0	
58391	M	22	46.0	13.5	7.86	7.2	0	0	46	52	0	2	0	
58392	M	22	47.0	12.7	7.79	12.3	0	0	32	64	1	3	0	
MEAN	M	22	47.0	13.4	7.85	12.8								

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	---RBC-- MILLIONS	---WBC--- THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASO %	NUC.RBC /100WBC
						10 PPM								
58588	M	22	43.0	13.8	7.68	15.6	0	0	38	60	1	1	0	
58589	M	22	45.0	13.8	7.89	14.6	0	0	29	71	0	0	0	
58590	M	22	51.0	14.8	8.27	13.3	0	0	45	55	0	0	0	
58591	M	22	49.0	14.1	8.20	21.7	0	0	40	57	1	2	0	
58592	M	22	45.0	13.8	7.42	14.7	0	0	37	61	0	2	0	
MEAN	M	22	46.6	14.1	7.89	16.0								
						50 PPM								
58688	M	22	44.0	11.4	5.83	17.2	0	0	20	77	1	2	0	
58689	M	22	49.0	15.2	8.11	13.4	0	0	33	62	0	5	0	
58690	M	22	41.0	12.2	7.23	16.5	0	0	30	69	1	0	0	
58691	M	22	44.0	13.2	7.75	10.8	0	0	35	61	1	3	0	
58693	M	22	45.0	13.5	7.80	9.0	0	0	30	70	0	0	0	
MEAN	M	22	44.6	13.1	7.34	13.4								

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	---RBC-- MILLIONS	---WBC--- THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EUSIN %	BASO %	NUC.RBC /100WBC
						1000 PPM								
58889	M	22	47.0	11.8	7.75	16.6	0	0	37	62	0	1	0	
58891	M	22	52.0	16.5	8.84	14.0	0	0	40	60	0	0	0	
58893	M	22	40.0	10.7	7.14	15.0	0	0	34	64	0	2	0	
58894	M	22	40.0	10.4	7.63	21.2	0	0	38	61	0	1	0	
58895	M	22	48.0	13.0	8.12	21.6	0	0	40	58	0	2	0	
MEAN	M	22	45.4	12.5	7.90	17.7								

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	---RBC-- MILLIONS	---WBC--- THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASO %	NUC.RBC /100WBC
						CONTROL								
58488	F	1	48.5	14.4	6.52	19.4	0	0	7	93	0	0	0	
58489	F	1	49.5	14.1	6.89	16.4	0	0	16	84	0	0	0	
58490	F	1	47.0	14.4	6.50	19.0	0	0	13	86	0	1	0	
58491	F	1	48.5	14.9	6.31	20.8	0	0	4	96	0	0	0	
58492	F	1	47.0	14.1	6.27	18.5	0	0	8	92	0	0	0	
MEAN	F	1	48.1	14.4	6.50	18.8								

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	---RBC-- MILLIONS	---WBC--- THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASO %	NUC.RBC /100WBC
						10 PPM								
58638	F	1	49.0	14.8	6.55	14.6	0	0	10	90	0	0	0	
58639	F	1	50.0	16.0	6.71	25.8	0	0	6	93	0	1	0	
58640	F	1	48.0	14.8	6.40	17.2	0	0	9	91	0	0	0	
58641	F	1	48.0	15.7	7.15	13.4	0	0	17	83	0	0	0	
58642	F	1	50.0	14.8	6.83	15.8	0	0	13	87	0	0	0	
MEAN	F	1	49.0	15.2	6.73	17.4								
						50 PPM -								
58738	F	1	49.0	14.9	6.32	15.6	0	0	14	85	0	1	0	
58739	F	1	46.5	14.6	6.53	31.0	0	0	5	95	0	0	0	
58740	F	1	51.0	15.4	7.60	15.4	0	0	10	90	0	0	0	
58741	F	1	46.0	14.1	5.91	23.4	0	0	14	86	0	0	0	
58742	F	1	47.0	15.1	6.41	22.4	0	0	7	90	0	1	0	
MEAN	F	1	47.9	14.8	6.55	21.6								

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	RBC MILLIONS	WBC THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASO %	NUC.RBC /100WBC
						100 PPM								
58838	F	1	49.5	14.6	6.57	19.5	0	0	7	91	0	2	0	
58839	F	1	46.5	14.4	7.14	18.9	0	0	9	91	0	0	0	
58840	F	1	49.0	15.5	7.28	16.6	0	0	18	81	0	1	0	
58841	F	1	48.0	15.2	7.76	21.4	0	0	11	89	0	0	0	
58842	F	1	47.0	14.1	5.81	20.8	0	0	8	92	0	0	0	
MEAN	F	1	48.0	14.8	6.91	19.4								
						1000 PPM								
58938	F	1	45.5	14.1	6.36	17.3	0	0	13	86	0	1	0	
58939	F	1	46.0	14.6	6.73	16.2	0	0	12	87	0	1	0	
58940	F	1	45.5	14.4	6.80	19.2	0	0	13	87	0	0	0	
58941	F	1	47.0	15.1	6.96	17.1	0	0	7	93	0	0	0	
58942	F	1	48.0	16.0	7.00	24.1	0	0	10	89	0	1	0	
MEAN	F	1	46.4	14.8	6.95	18.8								

77 -3291

TABLE NO. 2 • HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	---RBC--- MILLIONS	---WBC--- THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASO %	NUC.RBC /100WBC
							CONTROL							
58488	F	3	46.5	14.7	6.17	18.4	0	0	7	92	0	1	0	
58489	F	3	50.5	14.7	7.48	14.8	0	0	18	80	1	1	0	
58490	F	3	48.0	15.6	7.96	13.0	0	0	1	99	0	0	0	
58491	F	3	47.0	14.9	6.85	11.2	0	0	17	81	0	2	0	
58492	F	3	49.0	16.2	6.63	14.1	0	0	0	99	0	1	0	
MEAN	F	3	48.2	15.2	7.42	14.3								

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	---RBC-- MILLIONS	---WBC--- THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASO %	NUC.RBC /100WBC
						10 PPM								
58638	F	3	49.0	16.9	7.65	11.4	0	0	19	80	0	1	0	
58639	F	3	49.0	15.4	7.35	11.4	0	0	2	98	0	0	0	
58640	F	3	48.0	16.0	7.79	14.7	0	0	5	95	0	0	0	
58641	F	3	49.0	14.9	7.62	11.9	0	0	17	80	2	1	0	
58642	F	3	48.0	14.9	8.39	12.6	0	0	10	90	0	0	0	
MEAN	F	3	48.6	15.6	7.76	12.4								
						50 PPM								
58738	F	3	47.5	15.1	7.70	12.8	0	0	5	95	0	0	0	
58739	F	3	47.0	15.2	7.68	20.5	0	0	13	87	0	0	0	
58740	F	3	50.0	14.7	7.87	14.4	0	0	13	87	0	0	0	
58741	F	3	49.5	16.2	8.56	16.2	0	0	14	86	0	0	0	
58742	F	3	50.0	15.6	7.83	14.0	0	0	8	90	0	2	0	
MEAN	F	3	48.8	15.4	7.93	15.6								

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	---RBC-- MILLIONS	---WBC--- THUUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASO %	NUC.RBC /100WBC
						100 PPM								
58839	F	3	46.0	13.8	8.20	16.2	0	0	9	90	0	1	0	
58840	F	3	49.0	16.0	8.03	13.7	0	0	23	76	0	1	0	
58841	F	3	50.5	15.2	8.39	10.2	0	0	13	82	0	5	0	
58842	F	3	45.0	12.7	8.77	21.7	0	0	11	87	0	2	0	
58843	F	3	49.0	16.0	7.20	13.1	0	0	5	95	0	0	0	
MEAN	F	3	47.9	14.7	8.12	15.0								
						1000 PPM								
58938	F	3	48.5	15.6	8.51	20.4	0	0	6	92	0	2	0	
58939	F	3	48.0	14.5	8.05	14.9	0	0	7	93	0	0	0	
58940	F	3	47.5	15.2	8.59	14.6	0	0	11	88	0	1	0	
58941	F	3	49.0	14.9	8.31	14.6	0	0	6	93	0	1	0	
58942	F	3	52.0	16.0	7.84	10.1	0	0	7	92	0	1	0	
MEAN	F	3	49.0	15.2	8.26	14.9								

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	RBC MILLIONS	WBC THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASO %	NUC.RBC /100WBC
						CONTROL								
58488	F	6	47.5	13.4	6.77	14.6	0	0	8	89	0	3	0	
58489	F	6	47.0	13.6	7.52	13.3	0	0	30	69	0	1	0	
58490	F	6	48.0	14.1	6.09	22.8	0	0	15	83	0	1	1	
58491	F	6	48.5	13.8	7.03	19.3	0	0	18	79	0	3	0	
58492	F	6	48.0	14.1	6.53	16.8	0	0	4	94	0	2	0	
MEAN	F	6	47.8	13.8	6.79	17.4								

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	---RBC-- MILLIONS	---WBC--- THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASO %	NUC.RBC /100WBC
						10 PPM								
58639	F	6	50.0	13.8	6.89	16.4	0	0	20	77	0	3	0	
58640	F	6	46.0	14.8	7.26	15.0	0	0	24	76	0	0	0	
58641	F	6	47.5	14.4	7.64	14.7	0	0	40	60	0	0	0	
58642	F	6	50.5	14.8	7.26	14.5	0	0	17	81	0	2	0	
58643	F	6	50.5	15.6	6.55	27.8	0	0	14	86	0	0	0	
MEAN	F	6	48.9	14.7	7.12	17.7								
						50 PPM								
58738	F	6	50.0	14.6	6.87	23.8	0	0	26	72	0	2	0	
58739	F	6	48.0	14.6	6.80	22.2	0	0	17	81	0	1	1	
58740	F	6	46.5	14.4	7.96	16.6	0	0	24	75	0	1	0	
58741	F	6	46.0	13.4	7.62	16.3	0	0	19	78	0	3	0	
58742	F	6	49.0	14.8	7.47	17.7	0	0	12	86	0	2	0	
MEAN	F	6	47.9	14.4	7.34	19.3								

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	---RBC-- MILLIONS	---WBC--- THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASO %	NUC.RBC /100WBC
						100 PPM								
58839	F	6	46.0	13.4	6.63	18.1	0	0	8	90	0	1	1	
58840	F	6	51.0	15.2	7.24	21.3	0	0	17	80	0	2	1	
58841	F	6	50.0	15.2	7.51	15.2	0	0	15	80	0	2	3	
58842	F	6	50.5	14.8	7.26	17.3	0	0	22	73	0	4	1	
58843	F	6	46.5	14.4	7.83	15.5	0	0	13	87	0	0	0	
MEAN	F	6	48.8	14.6	7.29	17.5								
						1000 PPM								
58938	F	6	46.5	13.9	7.63	15.9	0	0	28	69	0	3	0	
58939	F	6	50.5	13.8	7.56	17.4	0	0	27	67	0	5	1	
58940	F	6	48.0	14.4	7.16	14.8	0	0	13	84	0	1	2	
58941	F	6	50.0	14.8	7.11	14.2	0	0	6	91	0	3	0	
58942	F	6	50.0	15.0	7.12	15.6	0	0	13	83	0	3	1	
MEAN	F	6	49.0	14.4	7.32	15.6								

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	---RBC-- MILLIONS	---WBC--- THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASO %	NUC.RBC /100WBC
						CONTROL								
58488	F	12	47.0	15.3	7.08	23.2	0	0	6	93	1	0	0	
58489	F	12	46.5	14.8	7.72	23.1	0	0	13	86	0	1	0	
58490	F	12	44.0	14.6	6.45	11.7	0	0	28	71	0	1	0	
58491	F	12	45.5	14.2	5.25	9.1	0	0	44	52	1	2	1	
58492	F	12	42.0	13.5	6.32	8.5	0	0	22	76	0	2	0	
MEAN	F	12	45.0	14.5	6.56	15.1								

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	RBC MILLIONS	WBC THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASO %	NUC.RBC /100WBC
						10 PPM								
58639	F	12	48.0	15.9	7.28	9.2	0	0	26	67	0	5	0	
58640	F	12	40.0	13.7	7.10	6.9	0	0	26	70	1	3	0	
58641	F	12	42.0	14.8	7.07	7.6	0	0	33	67	0	0	0	
58642	F	12	45.0	16.4	6.57	6.6	0	1	19	77	0	3	0	
58643	F	12	42.0	14.4	5.48	6.4	0	0	13	86	0	1	0	
MEAN	F	12	43.4	15.0	6.70	7.3								
						50 PPM								
58738	F	12	39.0	12.2	6.71	11.4	0	0	29	71	0	0	0	
58739	F	12	42.5	14.2	7.03	9.2	0	0	22	78	0	0	0	
58740	F	12	45.0	13.1	6.72	12.6	0	0	20	74	1	5	0	
58741	F	12	43.0	11.3	6.48	12.6	0	0	24	73	0	1	2	
58742	F	12	45.0	14.4	6.92	6.4	0	0	17	81	0	1	1	
MEAN	F	12	42.9	13.0	6.77	10.4								

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	---RBC-- MILLIONS	---WBC--- THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MOND %	EOSIN %	BASO %	NUC.RBC /100WBC
						100 PPM								
58839	F	12	48.0	15.0	7.81	9.5	0	0	17	75	5	2	1	
58840	F	12	44.0	15.0	6.85	7.8	0	0	23	75	1	1	0	
58841	F	12	45.0	14.2	8.00	8.3	0	0	21	76	0	2	1	
58843	F	12	43.0	15.3	6.91	7.2	0	0	9	83	2	6	0	
58844	F	12	39.5	12.6	6.69	7.2	0	0	12	85	0	3	0	
MEAN	F	12	43.9	14.4	7.25	8.0								
						1000 PPM								
58939	F	12	37.0	13.3	6.87	9.3	0	0	32	65	0	3	0	
58940	F	12	44.0	14.8	7.63	24.4	0	0	22	74	1	3	0	
58941	F	12	43.0	14.4	6.48	7.3	0	0	26	69	1	4	0	
58942	F	12	41.0	14.2	7.32	8.6	0	0	18	82	0	0	0	
58944	F	12	40.0	13.1	6.48	12.5	0	0	20	76	0	2	2	
MEAN	F	12	41.0	14.0	6.96	9.4								

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	RBC MILLIONS	WBC THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASO %	NUC.RBC /100WBC
						CONTROL								
58493	F	18	43.0	14.6	6.89	12.6	0	0	30	68	0	2	0	
58494	F	18	44.0	14.6	6.03	15.3	0	0	28	68	1	3	0	
58495	F	18	46.0	14.3	4.87	13.4	0	0	33	65	0	2	0	
58497	F	18	47.0	15.4	7.02	13.0	0	0	55	43	1	1	0	
58498	F	18	46.0	13.5	5.94	17.5	0	0	28	70	0	2	0	
MEAN	F	18	45.2	14.5	6.15	14.4								

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	RBC MILLIONS	WBC THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASO %	NUC.RBC /100WBC
						10 PPM								
58639	F	18	51.0	15.9	5.90	16.5	0	0	28	70	1	1	0	
58640	F	18	47.0	11.5	5.38	15.8	0	0	44	53	1	2	0	
58641	F	18	47.0	14.1	6.51	12.6	0	0	56	42	0	2	0	
58642	F	18	48.0	15.7	5.78	21.4	0	0	26	70	0	4	0	
58643	F	18	40.0	12.8	6.53	18.3	0	0	28	71	1	0	0	
MEAN	F	18	46.6	14.0	6.02	16.9								
						50 PPM								
58738	F	18	48.0	14.1	6.46	18.2	0	0	43	56	0	1	0	
58739	F	18	47.0	16.5	5.81	23.0	0	0	28	72	0	0	0	
58740	F	18	40.0	14.1	5.48	18.3	0	0	38	59	0	3	0	
58741	F	18	48.0	13.2	5.91	17.6	0	1	47	50	1	1	0	
58742	F	18	47.0	14.3	6.22	13.7	0	0	30	66	0	4	0	
MEAN	F	18	46.0	14.4	5.98	18.2								

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	---RBC-- MILLIONS	---WBC--- THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASO %	NUC.RBC /100WBC
						100 PPM								
58839	F	18	49.0	13.0	7.93	13.0	0	0	34	59	0	7	0	
58840	F	18	48.0	15.4	6.10	21.1	0	0	34	62	0	4	0	
58841	F	18	47.0	14.7	6.28	18.1	0	0	30	66	0	4	0	
58843	F	18	48.0	14.8	7.48	11.3	0	0	28	71	0	1	0	
58844	F	18	46.0	13.3	6.32	7.9	0	0	31	63	0	6	0	
MEAN	F	18	47.6	14.1	6.82	14.3								
						1000 PPM								
58938	F	18	53.0	18.5	6.51	14.6	0	0	23	75	0	2	0	
58939	F	18	45.0	13.7	7.04	13.7	0	0	34	61	0	5	0	
58940	F	18	47.0	13.7	6.89	8.4	0	0	16	72	4	8	0	
58941	F	18	43.0	12.8	5.87	13.6	0	0	34	64	0	2	0	
58942	F	18	48.0	13.9	6.28	18.0	0	0	31	68	0	1	0	
MEAN	F	18	47.2	14.5	6.52	13.7								

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	---RBC-- MILLIONS	---WBC--- THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASO %	NUC.RBC /100WBC
						CONTROL								
58488	F	22	52.0	15.8	8.93	18.4	0	0	35	65	0	0	0	
58489	F	22	49.0	14.6	8.06	12.8	0	0	30	67	1	2	0	
58490	F	22	53.0	16.0	8.76	12.9	0	0	39	60	1	0	0	
58491	F	22	51.0	14.8	8.39	11.0	0	0	36	62	1	1	0	
58492	F	22	49.0	14.6	8.45	17.9	0	0	35	64	0	1	0	
MEAN	F	22	50.8	15.2	8.52	14.6								

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	---RBC-- MILLIONS	---WBC--- THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASO %	NUC.RBC /100WBC
						10 PPM								
58639	F	22	35.0	15.5	5.83	18.7	0	0	34	65	1	0	0	
58640	F	22	44.0	11.1	7.91	10.9	0	0	37	63	0	0	0	
58641	F	22	29.0	6.5	3.16	21.6	0	0	32	67	1	0	0	
58642	F	22	52.0	13.8	8.42	22.3	0	0	36	60	0	4	0	
58643	F	22	50.0	13.2	8.59	14.7	0	0	39	60	1	0	0	
MEAN	F	22	42.0	12.0	6.78	17.6								
						50 PPM								
58738	F	22	49.0	14.1	8.04	14.3	0	0	48	51	0	1	0	
58739	F	22	49.0	14.1	8.30	14.4	0	0	35	64	0	1	0	
58740	F	22	46.0	12.5	7.77	12.6	0	0	50	49	1	0	0	
58741	F	22	41.0	14.3	7.08	21.8	0	0	62	34	1	3	0	
58742	F	22	51.0	11.8	8.15	12.8	0	0	39	57	1	3	0	
MEAN	F	22	47.2	13.4	7.87	15.2								

TABLE NO. 2 - HEMATOLOGICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	HCT %	HGB %	---RBC-- MILLIONS	---WBC--- THOUSANDS	DIFFERENTIAL META %	BAND %	SEG %	LYMPH %	MONO %	EOSIN %	BASO %	NUC.RBC /100WBC
						1000 PPM								
58938	F	22	51.0	15.2	6.79	7.9	0	0	45	54	0	1	0	
58939	F	22	39.0	11.4	5.11	8.8	0	0	48	62	0	0	0	
58940	F	22	45.0	13.0	7.23	16.8	0	0	50	50	0	0	0	
58942	F	22	43.0	12.7	7.09	18.2	0	0	59	40	1	0	0	
58944	F	22	45.0	12.1	7.86	15.4	0	0	64	35	0	1	0	
MEAN	F	22	44.6	12.9	6.82	13.4								

42

Table No. 2A - Hematological values for male and female albino rats.

LEVEL ppm feed/day	SEX	RAT NO.	PLATELETS per cmm.	RETICULOCYTE %
		ONE-MONTH INTERVAL		
Control	M	58-388	858,000	1.6
	M	58-389	1,330,000	1.6
	M	58-390	1,214,000	2.0
	M	58-391	1,224,000	1.6
	M	58-392	986,000	1.2
		Mean	1,122,000	1.6
10 ppm	M	58-588	1,442,000	2.2
	M	58-589	1,372,000	2.6
	M	58-590	1,026,000	1.4
	M	58-591	1,232,000	0.4
	M	58-592	1,194,000	0.2
		Mean	1,253,000	1.4
50 ppm	M	58-688	1,142,000	0.8
	M	58-689	926,000	0.2
	M	58-690	784,000	0.2
	M	58-691	1,540,000	2.0
	M	58-692	1,100,000	1.6
		Mean	1,100,000	0.9
100 ppm	M	58-788	1,342,000	2.0
	M	58-789	1,110,000	2.0
	M	58-790	1,086,000	0.2
	M	58-791	1,100,000	0.8
	M	58-792	1,490,000	0.1
		Mean	1,200,000	1.0

C81

Table No. 2A - Continued

LEVEL, ppm [illegible]/day	SEX	RAT NO.	PLATELETS per cmm.	RETICULOCYTE %
		ONE-MONTH INTERVAL		
1000 ppm	M	58-888	880,000	0.4
	M	58-889	810,000	3.8
	M	58-890	1,180,000	3.6
	M	58-891	850,000	8.2
	M	58-892	814,000	9.6
		Mean	906,900	5.1
Control	F	58-488	1,120,000	0.1
	F	58-489	1,250,000	1.2
	F	58-490	1,300,000	0.1
	F	58-491	1,140,000	0.8
	F	58-492	1,280,000	1.0
		Mean	1,200,000	0.6
10 ppm	F	58-638	920,000	0.8
	F	58-639	750,000	1.4
	F	58-640	720,000	1.2
	F	58-641	520,000	2.0
	F	58-642	1,000,000	1.6
		Mean	800,000	1.4
50 ppm	F	58-738	840,000	0.2
	F	58-739	790,000	1.2
	F	58-740	1,112,000	0.8
	F	58-741	830,000	0.6
	F	58-742	770,000	1.8
		Mean	900,000	0.9
100 ppm	F	58-838	778,000	0.6
	F	58-839	1,290,000	1.0
	F	58-840	1,220,000	1.4
	F	58-841	1,030,000	2.8
	F	58-842	1,254,000	0.6
		Mean	1,100,000	1.3

C32

Table No. 2A - Continued

LEVEL ppm lead/day	SEX	RAT NO.	PLATELETS per cmm.	RETICULOCYTE %
		ONE-MONTH INTERVAL		
1000 ppm	F	58-938	1,134,000	1.6
	F	58-939	1,588,000	0.6
	F	58-940	1,342,000	1.6
	F	58-941	708,000	0.8
	F	58-942	654,000	1.0
		Mean	1,100,000	1.0
		THREE-MONTH INTERVAL		
Control	M	58-388	890,000	1.4
	M	58-389	696,000	0.8
	M	58-390	906,000	1.2
	M	58-391	1,084,000	1.0
	M	58-392	1,106,000	1.2
		Mean	936,000	1.1
10 ppm	M	58-588	1,024,000	0.6
	M	58-589	1,116,000	1.2
	M	58-590	1,074,000	2.6
	M	58-591	972,000	0.6
	M	58-592	1,250,000	0.8
		Mean	1,087,000	1.2
50 ppm	M	58-688	1,034,000	0.4
	M	58-689	1,146,000	0.2
	M	58-690	1,122,000	0.2
	M	58-691	1,140,000	1.0
	M	58-692	1,082,000	0.6
		Mean	1,113,000	0.5
100 ppm	M	58-788	776,000	1.4
	M	58-789	1,110,000	0.4
	M	58-790	1,176,000	0.6
	M	58-791	1,258,000	1.2
	M	58-792	1,512,000	0.1
		Mean	1,166,000	0.7

Table No. 2A - Continued

LEVEL ppm lead/day	SEX	RAT NO.	PLATELETS per cmm.	RETICULOCYTE %
		THREE-MONTH INTERVAL		
1000 ppm	M	58-888	916,000	1.0
	M	58-889	1,030,000	1.4
	M	58-890	1,564,000	2.8
	M	58-891	980,000	1.6
	M	58-892	1,106,000	1.0
		Mean	1,119,000	1.6
Control	F	58-488	960,000	0.2
	F	58-489	920,000	1.0
	F	58-490	1,032,000	1.2
	F	58-491	864,000	1.4
	F	58-492	1,052,000	0.4
		Mean	966,000	0.8
10 ppm	F	58-638	866,000	0.6
	F	58-639	1,128,000	2.2
	F	58-640	1,520,000	1.2
	F	58-641	1,438,000	1.8
	F	58-642	1,420,000	0.8
		Mean	1,274,000	1.3
50 ppm	F	58-738	1,612,000	0.4
	F	58-739	1,610,000	1.4
	F	58-740	1,306,000	1.2
	F	58-741	1,516,000	0.6
	F	58-742	1,000,000	0.2
		Mean	1,409,000	0.8
100 ppm	F	58-839	1,634,000	0.1
	F	58-840	1,266,000	0.4
	F	58-841	1,268,000	0.8
	F	58-842	1,000,000	0.2
	F	58-843	1,082,000	1.0
		Mean	1,250,000	0.5

Table No. 2A - Continued

LEVEL ppm lead/day	SEX	RAT NO.	PLATELETS per cmm.	RETICULOCYTE %
		THREE-MONTH INTERVAL		
1000 ppm	F	58-938	1,184,000	0.8
	F	58-939	1,120,000	0.6
	F	58-940	1,110,000	1.0
	F	58-941	898,000	0.2
	F	58-942	1,250,000	0.2
		Mean	1,112,000	0.6
		SIX-MONTH INTERVAL		
Control	M	58-388	785,000	0.8
	M	58-389	940,000	0.4
	M	58-390	880,000	0.1
	M	58-391	1,015,000	0.8
	M	58-392	1,360,000	1.4
		Mean	996,000	0.7
10 ppm	M	58-588	1,040,000	1.8
	M	58-589	1,110,000	0.4
	M	58-590	975,000	1.2
	M	58-591	1,380,000	3.0
	M	58-592	775,000	2.6
		Mean	1,056,000	1.8
50 ppm	M	58-688	1,525,000	1.2
	M	58-689	1,446,000	0.6
	M	58-690	1,380,000	2.2
	M	58-691	1,626,000	0.4
	M	58-692	1,680,000	0.5
		Mean	1,531,000	1.0
100 ppm	M	58-788	1,316,000	1.2
	M	58-789	988,000	1.9
	M	58-790	1,276,000	2.3
	M	58-791	1,066,000	0.4
	M	58-792	1,104,000	1.7
		Mean	1,150,000	1.5

Table No. 2A - Continued

LEVEL ppm lotal/day	SEX	RAT NO.	PLATELETS per cmm.	RETICULOCYTE %
		SIX-MONTH INTERVAL		
1000 ppm	M	58-888	1,174,000	2.5
	M	58-889	804,000	0.9
	M	58-890	994,000	2.0
	M	58-891	1,240,000	1.6
	M	58-892	1,226,000	1.3
		Mean	1,088,000	1.7
Control	F	58-488	988,000	1.0
	F	58-489	1,236,000	1.2
	F	58-490	664,000	0.8
	F	58-491	1,328,000	0.8
	F	58-492	1,334,000	0.2
		Mean	1,110,000	0.8
10 ppm	F	58-639	1,284,000	3.4
	F	58-640	1,620,000	1.0
	F	58-641	1,056,000	0.8
	F	58-642	1,218,000	1.4
	F	58-643	1,180,000	1.8
		Mean	1,272,000	1.7
50 ppm	F	58-738	990,000	2.0
	F	58-739	1,128,000	1.6
	F	58-740	1,118,000	2.0
	F	58-741	1,078,000	0.2
	F	58-742	1,040,000	0.3
		Mean	1,071,000	1.2
100 ppm	F	58-839	1,244,000	1.2
	F	58-840	1,258,000	1.5
	F	58-841	1,150,000	0.6
	F	58-842	1,302,000	0.4
	F	58-843	1,154,000	2.0
		Mean	1,222,000	1.1

CSS

Table No. 2A - Continued

LEVEL ppm lead/day	SEX	RAT NO.	PLATELETS per cmm.	RETICULOCYTE %
		SIX-MONTH INTERVAL		
1000 ppm	F	58-938	1,122,000	1.1
	F	58-939	1,018,000	0.8
	F	58-940	826,000	1.0
	F	58-941	656,000	2.3
	F	58-942	1,002,000	1.4
		Mean	925,000	1.3

Table No. 2A - Continued

LEVEL ppm lead/day	SEX	RAT NO.	PLATELETS per cmm.	RETICULOCYTE %
		12-MONTH INTERVAL		
Control	M	58-388	990,000	0.8
	M	58-389	1,066,000	0.6
	M	58-390	1,302,000	2.1
	M	58-391	1,092,000	1.9
	M	58-392	932,000	1.3
		MEAN	1,076,000	1.3
10 ppm	M	58-588	792,000	1.4
	M	58-589	1,592,000	1.6
	M	58-590	1,110,000	1.8
	M	58-592	870,000	2.2
	M	58-593	1,424,000	2.5
		MEAN	1,158,000	1.9
50 ppm	M	58-688	1,094,000	1.6
	M	58-689	1,296,000	1.3
	M	58-690	1,802,000	1.2
	M	58-691	1,274,000	4.2
	M	58-693	1,004,000	1.9
		MEAN	1,294,000	2.0
100 ppm	M	58-788	1,192,000	1.6
	M	58-789	846,000	1.2
	M	58-790	1,096,000	1.5
	M	58-791	1,076,000	1.7
	M	58-792	1,286,000	1.9
		MEAN	1,099,000	1.6
1000 ppm	M	58-889	1,186,000	1.0
	M	58-890	1,038,000	1.4
	M	58-891	1,006,000	1.4
	M	58-892	852,000	2.9
	M	58-894	1,092,000	2.6
		MEAN	1,035,000	1.9

Table No. 2A - Continued

LEVEL ppm lead/day	SEX	RAT NO.	PLATELETS per cmm.	RETICULOCYTE %
		12-MONTH INTERVAL		
Control	F	58-488	996,000	2.4
	F	58-489	806,000	1.2
	F	58-490	1,228,000	2.1
	F	58-491	1,422,000	1.8
	F	58-492	1,116,000	1.3
		MEAN	1,114,000	1.8
10 ppm	F	58-639	1,392,000	2.0
	F	58-640	1,226,000	1.8
	F	58-641	874,000	2.4
	F	58-642	990,000	2.2
	F	58-643	978,000	2.3
		MEAN	1,092,000	2.1
50 ppm	F	58-738	1,156,000	1.8
	F	58-739	1,020,000	2.2
	F	58-740	1,168,000	3.0
	F	58-741	1,246,000	2.5
	F	58-742	1,044,000	2.0
		MEAN	1,127,000	2.3
100 ppm	F	58-839	1,040,000	1.3
	F	58-840	848,000	2.0
	F	58-841	952,000	2.7
	F	58-843	1,090,000	1.7
	F	58-844	1,592,000	1.6
		MEAN	1,104,000	1.9
1000 ppm	F	58-939	1,324,000	2.9
	F	58-940	784,000	2.7
	F	58-941	1,222,000	3.0
	F	58-942	1,194,000	3.1
	F	58-944	1,320,000	2.3
		MEAN	1,169,000	2.8

Table No. 2A - Continued

LEAD ACETATE

LEVEL ppm lead/day	SEX	RAT NO.	PLATELETS per cmm.	RETICULOCYTE %
		18 MONTHS		
Control	M	58-389	910,000	0.6
	M	58-390	738,000	1.9
	M	58-391	550,000	2.0
	M	58-392	858,000	1.6
	M	58-393	606,000	2.5
		MEAN	732,000	1.7
10 ppm	M	58-588	656,000	1.7
	M	58-589	400,000	1.0
	M	58-592	600,000	0.7
	M	58-593	104,000	1.5
	M	58-595	1,078,000	1.7
		MEAN	568,000	1.3
50 ppm	M	58-688	506,000	2.1
	M	58-689	500,000	1.6
	M	58-690	764,000	2.5
	M	58-693	540,000	2.4
	M	58-694	686,000	1.7
		MEAN	599,000	2.1
100 ppm	M	58-788	610,000	1.9
	M	58-790	632,000	2.0
	M	58-791	792,000	1.4
	M	58-795	750,000	1.1
	M	58-799	588,000	2.0
		MEAN	674,000	1.7
1000 ppm	M	58-889	916,000	3.7
	M	58-890		2.5
	M	58-891	792,000	2.7
	M	58-893	766,000	2.0
	M	58-894	622,000	2.3
		MEAN	774,000	2.6

Table No. 2A - Continued

LEAD ACETATE

LEVEL ppm lead/day	SEX	RAT NO.	PLATELETS per cmm.	RETICULOCYTE %
		18 MONTHS - Continued		
Control	F	58-493	814,000	2.5
	F	58-494	856,000	2.0
	F	58-495	886,000	1.8
	F	58-497	912,000	1.5
	F	58-498	1,114,000	2.1
		MEAN	916,000	2.0
10 ppm	F	58-639	884,000	3.3
	F	58-640	854,000	6.3
	F	58-641	798,000	5.1
	F	58-642	710,000	2.6
	F	58-643	1,198,000	1.5
		MEAN	889,000	3.8
50 ppm	F	58-738	670,000	2.0
	F	58-739	692,000	2.5
	F	58-740	732,000	1.9
	F	58-741	738,000	2.7
	F	58-742	654,000	2.3
		MEAN	697,000	2.3
100 ppm	F	58-839	198,000	2.6
	F	58-840	936,000	2.2
	F	58-841	672,000	2.5
	F	58-843	876,000	2.6
	F	58-844	928,000	1.8
		MEAN	722,000	2.3
1000 ppm	F	58-938	746,000	4.1
	F	58-939	910,000	1.9
	F	58-940	626,000	2.0
	F	58-941	512,000	2.9
	F	58-942	602,000	2.0
		MEAN	679,000	2.6

Table No. 2A - Continued

LEAD ACETATE

LEVEL ppm lead/day	SEX	RAT NO.	PLATELETS per cmm.	RETICULOCYTE %
		TERMINAL		
Control	M	58-388	970,000	1.1
	M	58-389	890,000	0.9
	M	58-390	600,000	0.6
	M	58-391	800,000	1.6
	M	58-392	800,000	0.8
		MEAN	812,000	1.0
10 ppm	M	58-588	620,000	0.5
	M	58-589	860,000	0.9
	M	58-590	900,000	1.2
	M	58-591	830,000	0.4
	M	58-592	870,000	1.1
		MEAN	816,000	0.8
50 ppm	M	58-688	890,000	1.4
	M	58-689	730,000	2.0
	M	58-690	970,000	0.7
	M	58-691	950,000	1.5
	M	58-6[illegible]	820,000	1.8
		MEAN	872,000	1.5
1000 ppm	M	58-889	660,000	0.8
	M	58-891	960,000	0.8
	M	58-893	830,000	2.4
	M	58-894	870,000	1.0
	M	58-895	830,000	1.5
		MEAN	830,000	1.3

Table No. 2A - Continued

LEAD ACETATE

LEVEL ppm lead/day	SEX	RAT NO.	PLATELETS per cmm.	RETICULOCYTE %
		TERMINAL		
Control	F	58-488	940,000	1.1
	F	58-489	1,030,000	1.1
	F	58-490	770,000	1.2
	F	58-491	790,000	1.6
	F	58-492	1,020,000	1.2
		MEAN	910,000	1.2
10 ppm	F	58-639	1,270,000	1.0
	F	58-640	600,000	1.5
	F	58-641	1,110,000	10.0
	F	58-642	900,000	1.1
	F	58-643	960,000	1.6
		MEAN	968,000	3.0
50 ppm	F	58-738	990,000	1.2
	F	58-739	950,000	1.5
	F	58-740	960,000	0.8
	F	58-741	1,120,000	1.3
	F	58-742	820,000	1.8
		MEAN	968,000	1.3
1000 ppm	F	58-938	180,000	1.8
	F	58-939	860,000	1.6
	F	58-940	540,000	1.6
	F	58-942	720,000	1.7
	F	58-944	900,000	1.8
		MEAN	640,000	1.7

Table No. 2B - Hematological values for male and female albino rats.

LEAD ACETATE

LEVEL ppm lead/day	SEX	RAT NO.	COAGULATION TIME min.	sec.
		ONE MONTH		
Control	M	58-388	0	46
	M	58-389	0	49
	M	58-390	0	59
	M	58-391	1	04
	M	58-392	0	52
		MEAN	0	54
10	M	58-588	0	50
	M	58-589	1	14
	M	58-590	1	04
	M	58-591	0	52
	M	58-592	0	54
		MEAN	0	58
50	M	58-688	1	08
	M	58-689	1	00
	M	58-690	0	40
	M	58-691	0	58
	M	58-692	1	15
		MEAN	1	00
100	M	58-788	1	02
	M	58-789	1	01
	M	58-790	0	43
	M	58-791	0	58
	M	58-792	1	06
		MEAN	0	58
1000	M	58-888	1	03
	M	58-889	1	09
	M	58-890	1	04
	M	58-891	1	09
	M	58-892	0	58
		MEAN	1	04

Table No. 2B - Continued

LEAD ACETATE

LEVEL ppm lead/day	SEX	RAT NO.	COAGULATION TIME min.	sec.
		ONE MONTH		
Control	F	58-488	0	46
	F	58-489	0	59
	F	58-490	1	14
	F	58-491	1	10
	F	58-492	1	12
		MEAN	1	04
10	F	58-638	1	06
	F	58-639	0	45
	F	58-640	1	02
	F	58-641	1	16
	F	58-642	1	12
		MEAN	1	04
50	F	58-738	0	42
	F	58-739	1	01
	F	58-740	0	57
	F	58-741	1	05
	F	58-742	1	13
		MEAN	1	00
100	F	58-838	1	18
	F	58-839	0	59
	F	58-840	1	06
	F	58-841	1	01
	F	58-842	0	58
		MEAN	1	04
1000	F	58-938	1	07
	F	58-939	1	17
	F	58-940	0	47
	F	58-941	1	14
	F	58-942	1	15
		MEAN	1	08

Table No. 2B - Continued

LEAD ACETATE

LEVEL ppm lead day	SEX	RAT NO.	COAGULATION TIME min.	sec.
		THREE MONTHS		
Control	M	58-388	1	53
	M	58-389	1	08
	M	58-390	1	26
	M	58-391	1	35
	M	58-392	1	02
		MEAN	1	24
10	M	58-588	0	56
	M	58-589	1	21
	M	58-590	1	13
	M	58-591	0	58
	M	58-592	1	12
		MEAN	1	08
50	M	58-688	0	42
	M	58-689	1	52
	M	58-690	1	47
	M	58-691	1	54
	M	58-692	1	18
		MEAN	1	22
100	M	58-788	1	08
	M	58-789	0	57
	M	58-790	1	08
	M	58-791	1	26
	M	58-792	1	28
		MEAN	1	05
1000	M	58-888	0	48
	M	58-889	1	17
	M	58-890	1	27
	M	58-891	1	06
	M	58-892	1	09
		MEAN	1	01

Table No. 2B - Continued

LEAD ACETATE

LEVEL ppm lead/day	SEX	RAT NO.	COAGULATION TIME min.	sec.
		THREE MONTHS		
Control	F	58-488	1	09
	F	58-489	1	01
	F	58-490	1	05
	F	58-491	1	09
	F	58-492	1	02
		MEAN	1	05
10	F	58-638	1	08
	F	58-639	0	50
	F	58-640	1	19
	F	58-641	1	30
	F	58-642	1	24
		MEAN	1	06
50	F	58-738	0	48
	F	58-739	1	09
	F	58-740	1	00
	F	58-741	1	14
	F	58-742	1	18
		MEAN	1	05
100	F	58-839	1	19
	F	58-840	1	06
	F	58-841	1	11
	F	58-842	1	13
	F	58-843	1	07
		MEAN	1	11
1000	F	58-938	0	56
	F	58-939	0	46
	F	58-940	1	18
	F	58-941	1	28
	F	58-942	1	01
		MEAN	1	05

Table No. 2B - Continued

LEAD ACETATE

LEVEL ppm lead/day	SEX	RAT NO.	COAGULATION TIME min.	sec.
		SIX MONTHS		
Control	M	58-388	1	05
	M	58-389	1	15
	M	58-390	1	23
	M	58-391	1	28
	M	58-392	1	35
		MEAN	1	21
10	M	58-588	1	42
	M	58-589	1	31
	M	58-590	1	10
	M	58-591	1	30
	M	58-592	1	36
		MEAN	1	30
50	M	58-688	1	20
	M	58-689	1	30
	M	58-690	1	21
	M	58-691	1	26
	M	58-692	1	30
		MEAN	1	25
100	M	58-788	1	29
	M	58-789	1	46
	M	58-790	1	24
	M	58-791	1	32
	M	58-792	1	44
		MEAN	1	35
1000	M	58-888	1	10
	M	58-889	1	38
	M	58-890	1	44
	M	58-891	1	30
	M	58-892	1	45
		MEAN	1	33

Table No. 2B - Continued

LEAD ACETATE

LEVEL ppm lead/day	SEX	RAT NO.	COAGULATION TIME min.	sec.
		SIX MONTHS		
Control	F	58-488	1	06
	F	58-489	1	36
	F	58-490	1	03
	F	58-491	1	01
	F	58-492	1	25
		MEAN	1	14
10	F	58-639	1	28
	F	58-640	1	39
	F	58-641	1	27
	F	58-642	1	25
	F	58-643	1	20
		MEAN	1	28
50	F	58-738	1	36
	F	58-739	1	35
	F	58-740	1	38
	F	58-741	1	29
	F	58-742	1	24
		MEAN	1	32
100	F	58-839	1	30
	F	58-840	0	57
	F	58-841	1	31
	F	58-842	1	20
	F	58-843	1	30
		MEAN	1	14
1000	F	58-938	1	26
	F	58-939	1	20
	F	58-940	1	34
	F	58-941	1	31
	F	58-942	1	35
		MEAN	1	29

CTS

Table No. 2B - Continued

LEAD ACETATE

LEVEL ppm lead/day	SEX	RAT NO.	COAGULATION TIME min.	sec.
		12 MONTHS		
Control	M	58-388	1	17
	M	58-389	1	20
	M	58-390	1	05
	M	58-391	1	30
	M	58-392	1	27
		MEAN	1	20
10	M	58-588	1	26
	M	58-589	0	57
	M	58-590	1	09
	M	58-592	1	32
	M	58-593	1	29
		MEAN	1	19
50	M	58-688	1	07
	M	58-689	1	12
	M	58-690	1	12
	M	58-691	1	10
	M	58-693	1	15
		MEAN	1	11
100	M	58-788	1	28
	M	58-789	1	31
	M	58-790	1	15
	M	58-791	1	14
	M	58-792	1	26
		MEAN	1	23
1000	M	58-889	1	08
	M	58-890	1	15
	M	58-891	1	26
	M	58-892	1	31
	M	58-894	1	27
		MEAN	1	21

Table No. 2B - Continued

LEAD ACETATE

LEVEL ppm lead/day	SEX	RAT NO.	COAGULATION TIME min.	sec.
		12 MONTHS		
Control	F	58-488	0	52
	F	58-489	1	05
	F	58-490	1	21
	F	58-491	1	07
	F	58-492	1	15
		MEAN	1	08
10	F	58-639	1	12
	F	58-640	1	04
	F	58-641	1	14
	F	58-642	1	17
	F	58-643	1	26
		MEAN	1	15
50	F	58-738	1	22
	F	58-739	1	19
	F	58-740	1	13
	F	58-741	1	01
	F	58-742	1	36
		MEAN	1	18
100	F	58-839	1	20
	F	58-840	1	12
	F	58-841	0	57
	F	58-843	1	12
	F	58-844	1	21
		MEAN	1	12
1000	F	58-939	1	05
	F	58-940	1	01
	F	58-941	1	31
	F	58-942	0	57
	F	58-944	1	29
		MEAN	1	13

Table No. 2B - Continued

LEAD ACETATE

LEVEL ppm lead/day	SEX	RAT NO.	COAGULATION TIME min.	sec.
		18 MONTHS		
Control	M	58-389	1	42
	M	58-390	1	15
	M	58-391	1	25
	M	58-392	1	07
	M	58-393	1	26
		MEAN	1	23
10 ppm	M	58-588	1	03
	M	58-589	0	52
	M	58-592	0	56
	M	58-593	1	15
	M	58-595	0	44
		MEAN	0	58
50 ppm	M	58-688	1	16
	M	58-689	1	50
	M	58-690	1	35
	M	58-693	1	56
	M	58-694	1	31
		MEAN	1	38
100 ppm	M	58-788	1	32
	M	58-790	1	24
	M	58-791	1	11
	M	58-795	0	47
	M	58-799	1	09
		MEAN	1	13
1000 ppm	M	58-889	0	59
	M	58-890	1	34
	M	58-891	1	31
	M	58-893	1	17
	M	58-894	1	45
		MEAN	1	25

Table No. 2B - Continued

LEAD ACETATE

LEVEL ppm lead/day	SEX	RAT NO.	COAGULATION TIME min.	COAGULATION TIME sec.
		18 MONTHS - Continued		
Control	F	58-493	0	57
	F	58-494	0	59
	F	58-495	1	08
	F	58-497	1	03
	F	58-498	1	13
		MEAN	1	04
10 ppm	F	58-639	1	00
	F	58-640	1	15
	F	58-641	1	32
	F	58-642	0	59
	F	58-643	1	08
		MEAN	1	11
50 ppm	F	58-738	1	46
	F	58-739	1	39
	F	58-740	1	49
	F	58-741	1	43
	F	58-742	1	58
		MEAN	1	47
100 ppm	F	58-839	1	31
	F	58-840	1	39
	F	58-841	1	16
	F	58-843	1	13
	F	58-844	1	20
		MEAN	1	24
1000 ppm	F	58-938	1	44
	F	58-939	1	12
	F	58-940	1	26
	F	58-941	1	30
	F	58-942	1	40
		MEAN	1	30

Table No. 2B - Continued

LEAD ACETATE

LEVEL ppm lead/day	SEX	RAT NO.	COAGULATION TIME min.	sec.
		TERMINAL		
Control	M	58-388	1	10
	M	58-389	1	16
	M	58-390	0	34
	M	58-391	1	31
	M	58-392	1	10
		MEAN	1	08
10 ppm	M	58-588	1	08
	M	58-589	1	48
	M	58-590	0	54
	M	58-591	1	26
	M	58-592	1	20
		MEAN	1	19
50 ppm	M	58-688	1	07
	M	58-689	1	40
	M	58-690	1	28
	M	58-691	1	30
	M	58-693	1	24
		MEAN	1	26
1000 ppm	M	58-889	1	32
	M	58-891	1	45
	M	58-893	1	00
	M	58-894	0	59
	M	58-895	1	44
		MEAN	1	24

Table No. 2B - Continued

LEAD ACETATE

LEVEL ppm lead/day	SEX	RAT NO.	COAGULATION TIME min.	COAGULATION TIME sec.
		TERMINAL		
Control	F	58-483	1	31
	F	58-489	1	09
	F	58-490	1	32
	F	58-491	1	33
	F	58-492	0	59
		MEAN	1	19
10 ppm	F	58-639	1	09
	F	58-640	1	29
	F	58-641	1	19
	F	58-642	1	31
	F	58-643	1	42
		MEAN	1	26
50 ppm	F	58-738	1	27
	F	58-739	1	26
	F	58-740	1	26
	F	58-741	0	58
	F	58-742	1	21
		MEAN	1	20
1000 ppm	F	58-938	1	48
	F	58-939	1	24
	F	58-940	1	26
	F	58-942	1	48
	F	58-944	0	45
		MEAN	1	26

TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				CONTROL			
58393	M	3	78	21.0		2.6	12.9
58394	M	3	87	15.0		4.1	13.2
58395	M	3	78	12.0		2.4	12.1
58396	M	3	78	33.0		2.4	14.1
58397	M	3	84	24.0		4.7	12.2
MEAN	M	3	81	21.0		3.2	12.9

TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				10 PPM			
58593	M	3	93	15.0		2.3	13.7
58594	M	3	105	12.0		1.6	13.2
58595	M	3	75	21.0		2.2	13.8
58596	M	3	81	18.0		1.7	14.1
58597	M	3	81	15.0		3.5	12.2
MEAN	M	3	87	16.2		2.3	13.4
				50 PPM			
58693	M	3	75	15.0		2.0	11.9
58694	M	3	78	13.5		2.2	12.3
58695	M	3	87	15.0		2.4	13.8
58696	M	3	78	27.0		3.1	15.1
58697	M	3	84	19.5		3.2	12.7
MEAN	M	3	80	18.0		2.6	13.2

TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				100 PPM			
58793	M	3	84	15.0		2.4	13.6
58794	M	3	87	13.5		2.1	13.4
58795	M	3	75	18.0		3.3	12.9
58796	M	3	78	21.0		3.4	12.8
58797	M	3	75	16.5		2.6	13.0
MEAN	M	3	80	16.8		2.8	13.1
				1000 PPM			
58894	M	3	81	19.5		2.8	12.1
58895	M	3	78	18.0		2.4	12.0
58896	M	3	75	16.5		4.2	12.7
58897	M	3	84	24.0		3.4	12.0
58898	M	3	78	18.0		3.5	13.8
MEAN	M	3	79	19.2		3.3	12.5

TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				CONTROL			
58393	M	6	75	21.0			12.8
58394	M	6	75	24.0			22.0
58395	M	6	75	21.0			15.6
58396	M	6	69	21.0			15.3
58397	M	6	75	18.0			12.0
MEAN	M	6	74	21.0			13.9

TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				10 PPM			
58593	M	6	72	22.5			13.2
58594	M	6	72	27.0			15.4
58595	M	6	75	30.0			12.0
58596	M	6	63	18.0			12.3
58597	M	6	75	18.0			10.8
MEAN	M	6	71	21.4			12.7
				50 PPM			
58693	M	6	78	18.0			13.8
58694	M	6	69	16.5			14.3
58695	M	6	72	24.0			13.0
58696	M	6	66	18.0			12.5
58697	M	6	72	19.5			12.5
MEAN	M	6	71	19.2			13.2

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TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA-UNITS	PROTH TIME SECS.
				100 PPM			
58793	M	6	66	18.0			13.6
58794	M	6	66	21.0			15.0
58795	M	6	63	18.0			15.8
58796	M	6	69	19.5			13.5
58797	M	6	69	90.0			16.5
MEAN	M	6	67	19.1			14.9
				1000 PPM			
58894	M	6	69	18.0			13.8
58895	M	6	66	18.0			14.5
58896	M	6	66	18.0			14.5
58897	M	6	69	16.5			14.8
58898	M	6	72	15.0			15.4
MEAN	M	6	68	17.1			14.6

TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				CONTROL			
58476	M	6				4.5	
58477	M	6				2.0	
58478	M	6				2.1	
58479	M	6				2.1	
58480	M	6				1.4	
MEAN	M	6				2.4	

TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				10 PPM			
58627	M	6				1.1	
58628	M	6				2.0	
58629	M	6				1.7	
58630	M	6				1.4	
58631	M	6				1.5	
MEAN	M	6				1.5	
				50 PPM			
58727	M	6				1.8	
58728	M	6				2.6	
58729	M	6				1.5	
58731	M	6				1.1	
MEAN	M	6				1.8	
				100 PPM			
58827	M	6				1.5	
58828	M	6				1.4	
58829	M	6				1.6	
58830	M	6				1.6	
58831	M	6				1.8	
MEAN	M	6				1.6	
				1000 PPM			
58927	M	6				2.7	
58928	M	6				2.6	
58929	M	6				2.4	
58930	M	6				1.6	
58931	M	6				2.1	
MEAN	M	6				2.3	

TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				CONTROL			
58461	M	12	94	17.9			14.9
58462	M	12	88	15.6			14.3
58463	M	12	90	19.1			14.4
58464	M	12	131	11.5			13.2
58465	M	12	69	18.5			13.6
MEAN	M	12	94	16.5			14.1

TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				10 PPM			
58622	M	12	114	12.7			14.0
58623	M	12	105	14.7			14.2
58624	M	12	104	16.2			14.0
58625	M	12	122	13.9			12.5
58626	M	12	134	11.0			13.9
MEAN	M	12	116	13.7			13.7
				50 PPM			
58722	M	12	146	10.5			13.7
58723	M	12	136	12.3			13.5
58724	M	12	115	14.9			15.4
58725	M	12	124	10.2			14.2
58726	M	12	119	10.6			14.0
MEAN	M	12	128	11.7			14.2

TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				100 PPM			
58822	M	12	105	17.4			13.7
58823	M	12	121	17.4			13.2
58824	M	12	91	12.1			13.8
58825	M	12	126	14.0			14.7
58826	M	12	105	11.3			13.0
MEAN	M	12	110	14.4			13.7
				1000 PPM			
58925	M	12	97	13.7			14.1
58922	M	12	79	16.2			13.7
58923	M	12	91	14.6			12.8
58924	M	12	87	16.4			14.3
58926	M	12	112	19.9			13.9
MEAN	M	12	93	16.2			13.8

TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				CONTROL			
58461	M	12				3.2	
58462	M	12				1.4	
58463	M	12				1.2	
58464	M	12				1.8	
58465	M	12				4.8	
MEAN	M	12				2.5	

TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				10 PPM			
58622	M	12				3.2	
58623	M	12				3.8	
58624	M	12				1.4	
58625	M	12				1.8	
58626	M	12				1.8	
MEAN	M	12				2.4	
				50 PPM			
58722	M	12				2.6	
58723	M	12				1.6	
58724	M	12				2.0	
58725	M	12				0.6	
58726	M	12				3.6	
MEAN	M	12				2.1	

TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBIND RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				100 PPM			
58822	M	12				0.8	
58823	M	12				0.8	
58824	M	12				2.6	
58825	M	12				0.8	
58826	M	12				1.6	
MEAN	M	12				1.3	
				1000 PPM			
58922	M	12				1.6	
58923	M	12				2.2	
58924	M	12				2.2	
58925	M	12				2.4	
58926	M	12				1.6	
MEAN	M	12				2.0	

TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				CONTROL			
58393	M	22	70	80.0		1.2	11.8
58394	M	22	125	21.5		1.2	13.6
58396	M	22	180	24.0		0.9	11.6
58397	M	22	90	16.5		1.8	11.0
58399	M	22	116	14.5		1.1	12.4
MEAN	M	22	116	31.3		1.2	12.1

TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				10 PPM			
58593	M	22	133	19.0		2.1	11.8
58595	M	22	129	15.0		1.3	11.3
58596	M	22	99	16.0		1.5	11.7
58597	M	22	101	19.5		1.1	12.1
58599	M	22	126	14.0		1.4	12.2
MEAN	M	22	118	16.7		1.5	11.8
				50 PPM			
58697	M	22	125	14.0		1.7	12.3
58698	M	22	114	24.0		1.9	11.8
58699	M	22	160	12.0		1.8	12.5
58700	M	22	108	14.0		2.4	11.4
58704	M	22	140	13.0		2.0	12.6
MEAN	M	22	129	15.4		2.0	12.1

TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				1000 PPM			
58898	M	22	136	11.0		1.7	11.8
58899	M	22	131	16.0		1.9	13.0
58900	M	22	120	22.5		1.4	12.9
58902	M	22	110	14.0		1.0	11.7
58903	M	22	120	18.0		2.2	12.0
MEAN	M	22	123	16.3		1.7	12.3

TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				CONTROL			
58493	F	3	90	15.0		1.8	13.0
58494	F	3	81	16.5		1.8	13.2
58495	F	3	87	19.5		1.2	12.6
58496	F	3	78	15.0		2.1	13.1
58497	F	3	78	21.0		2.8	13.8
MEAN	F	3	83	17.4		1.9	13.1

TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				10 PPM			
58643	F	3	75	18.0		3.4	12.7
58644	F	3	84	19.5		2.8	12.2
58645	F	3	78	21.0		3.1	12.4
58646	F	3	75	33.0		2.0	11.8
58647	F	3	75	19.5		3.2	13.2
MEAN	F	3	77	22.2		2.9	12.5
				50 PPM			
58743	F	3	81	15.0		2.2	12.6
58744	F	3	87	16.5		1.6	12.5
58745	F	3	78	13.5		1.4	12.2
58746	F	3	78	15.0		5.6	13.0
58747	F	3	75	18.0		1.4	12.7
MEAN	F	3	80	15.6		2.4	12.6

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TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				100 PPM			
58844	F	3	84	15.0		3.1	12.8
58845	F	3	84	19.5		2.4	13.6
58847	F	3	93	13.5		2.7	14.1
58848	F	3	84	15.0		2.8	14.2
58849	F	3	87	18.0		3.1	12.6
MEAN	F	3	86	16.2		2.8	13.5
				1000 PPM			
58943	F	3	81	22.5		1.5	12.8
58944	F	3	75	15.0		1.4	13.4
58945	F	3	96	15.0		2.1	13.9
58946	F	3	78	18.0		1.0	14.0
58947	F	3	84	16.5		2.0	12.8
MEAN	F	3	83	17.4		1.6	13.4

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TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				CONTROL			
58493	F	6	81	75.0			13.4
58494	F	6	84	18.0			14.2
58495	F	6	78	18.0			14.5
58496	F	6	72	18.0			15.4
58497	F	6	84	21.0			13.8
MEAN	F	6	80	18.8			14.3

TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				10 PPM			
58644	F	6	81	15.0			12.5
58645	F	6	81	16.5			14.2
58646	F	6	87	16.5			13.0
58647	F	6	87	19.5			16.2
58648	F	6	81	18.0			15.8
MEAN	F	6	83	17.1			14.3
				50 PPM			
58743	F	6	75	19.5			16.0
58744	F	6	75	21.0			15.8
58745	F	6	90	18.0			16.3
58746	F	6	81	18.0			14.6
58747	F	6	75	19.5			14.6
MEAN	F	6	79	19.2			15.5

TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				100 PPM			
58844	F	6	84	15.0			14.0
58845	F	6	81	18.0			14.5
58847	F	6	78	18.0			14.2
58848	F	6	75	15.0			14.2
58849	F	6	84	18.0			15.8
MEAN	F	6	80	16.8			14.5
				1000 PPM			
58943	F	6	93	19.5			16.8
58944	F	6	81	21.0			17.3
58945	F	6	87	18.0			15.4
58946	F	6	87	18.0			13.4
58947	F	6	81	16.5			15.8
MEAN	F	6	86	18.6			15.7

TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				CONTROL			
58575	F	6					
58576	F	6				2.3	
58577	F	6				1.9	
58578	F	6				2.4	
58579	F	6				2.1	
MEAN	F	6				1.7	
						2.1	

TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				10 PPM			
58678	F	6				2.5	
58679	F	6				2.7	
58680	F	6				2.4	
58681	F	6				2.1	
MEAN	F	6				2.4	
				50 PPM			
58777	F	6				2.1	
58778	F	6				2.1	
58779	F	6				1.2	
58780	F	6				1.2	
58781	F	6				1.1	
MEAN	F	6				1.5	
				100 PPM			
58877	F	6				2.5	
58878	F	6				1.0	
58879	F	6				1.2	
58880	F	6				1.6	
58881	F	6				1.2	
MEAN	F	6				1.5	
				1000 PPM			
58977	F	6				2.2	
58978	F	6				1.9	
58979	F	6				0.9	
58980	F	6				1.3	
58981	F	6				2.4	
MEAN	F	6				1.7	

TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				CONTROL			
58560	F	12	91	14.8			13.6
58561	F	12	90	17.0			14.9
58562	F	12	103	13.1			14.2
58563	F	12	103	15.2			15.3
58564	F	12	136	17.2			13.6
MEAN	F	12	105	15.5			14.3

TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				10 PPM			
58672	F	12	119	10.3			14.4
58673	F	12	111	19.3			13.0
58674	F	12	110	10.7			13.8
58675	F	12	101	12.5			14.7
58676	F	12	104	13.1			14.2
MEAN	F	12	109	13.2			14.0
				50 PPM			
58772	F	12	89	12.5			13.8
58773	F	12	110	14.9			14.6
58774	F	12	108	12.7			14.2
58775	F	12	116	14.8			12.9
58776	F	12	115	10.7			13.3
MEAN	F	12	108	13.1			13.8

TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				100 PPM			
58871	F	12	98	14.2			12.8
58872	F	12	102	17.2			14.3
58873	F	12	110	10.3			15.0
58874	F	12	110	15.6			14.4
58876	F	12	112	26.1			14.6
MEAN	F	12	106	16.7			14.2
				1000 PPM			
58972	F	12	108	8.2			13.9
58973	F	12	108	18.3			13.8
58974	F	12	121	11.0			14.6
58975	F	12	87	10.7			14.4
58976	F	12	91	19.5			14.7
MEAN	F	12	103	13.5			14.3

TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				CONTROL			
58560	F	12				0.4	
58561	F	12				0.6	
58562	F	12				1.2	
58563	F	12				0.6	
58564	F	12				1.4	
MEAN	F	12				0.8	

TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				10 PPM			
58672	F	12				0.6	
58673	F	12				1.0	
58674	F	12				0.4	
58675	F	12				0.6	
58676	F	12				1.0	
MEAN	F	12				0.7	
				50 PPM			
58772	F	12				2.4	
58773	F	12				1.0	
58774	F	12				0.4	
58775	F	12				1.0	
58776	F	12				0.8	
MEAN	F	12				1.1	

TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				100 PPM			
58871	F	12				0.6	
58872	F	12				0.8	
58868	F	12				3.6	
58874	F	12				0.6	
58876	F	12				0.6	
MEAN	F	12				1.2	
				1000 PPM			
58870	F	12				3.8	
58973	F	12				0.8	
58974	F	12				0.7	
58975	F	12				0.4	
58976	F	12				1.4	
MEAN	F	12				1.4	

TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				CONTROL			
58493	F	22	155	14.0		1.0	11.2
58494	F	22	167	19.0		1.6	12.0
58498	F	22	150	18.0		1.1	13.0
58499	F	22	100	15.5		1.9	12.6
58505	F	22	124	17.0		1.1	12.5
MEAN	F	22	139	16.7		1.3	12.3

98 22918

TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				10 PPM			
58644	F	22	170	15.0		0.8	13.8
58646	F	22	215	41.0		0.9	13.3
58648	F	22	185	12.0		1.4	13.6
58649	F	22	164	14.0		1.5	12.5
58654	F	22	149	15.0		0.9	17.0
MEAN	F	22	177	19.4		1.1	14.0
				50 PPM			
58745	F	22	126	23.0		1.6	12.8
58748	F	22	156	14.0		0.7	13.2
58757	F	22	112	14.0		1.2	13.0
58761	F	22	140	18.0		1.6	18.0
58763	F	22	190	18.0		1.4	12.2
MEAN	F	22	145	17.4		1.3	13.8

TABLE NO. 3 - BIOCHEMICAL VALUES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

ANIMAL NUMBER	SEX	TIME INTERVAL MONTHS	SUGAR MG.%	BUN MG. %	SG-PT R-F UNITS	ALK. PO4 KA UNITS	PROTH TIME SECS.
				1000 PPM			
58952	F	22	95	13.0		0.8	13.4
58955	F	22	109	15.0		1.0	12.0
58956	F	22	174	15.0		3.1	13.0
58957	F	22	165	16.0		0.9	13.0
58959	F	22	156	22.0		0.7	
MEAN	F	22	140	16.2		1.3	12.9

Table No. 3A - Biochemical values for male and female albino rats.

LEVEL ppm lead/day	SEX	RAT NO.	SG-OT R-F units
		THREE-MONTH INTERVAL	
Control	M	58-393	28
	M	58-394	37
	M	58-395	32
	M	58-396	28
	M	58-397	31
		Mean	31
10 ppm	M	58-593	26
	M	58-594	37
	M	58-595	31
	M	58-596	31
	M	58-597	37
		Mean	32
50 ppm	M	58-693	46
	M	58-694	37
	M	58-695	34
	M	58-696	37
	M	58-697	32
		Mean	37
100 ppm	M	58-793	34
	M	58-794	32
	M	58-795	41
	M	58-796	37
	M	58-797	32
		Mean	35
1000 ppm	M	58-894	46
	M	58-895	46
	M	58-896	37
	M	58-897	37
	M	58-898	41
		Mean	41

Table No. 3A - Continued

LEVEL ppm lead/day	SEX	RAT NO.	SG-OT R-F units
		THREE-MONTH INTERVAL	
Control	F	58-493	26
	F	58-494	32
	F	58-495	31
	F	58-496	31
	F	58-497	32
		Mean	30
10 ppm	F	58-643	41
	F	58-644	31
	F	58-645	39
	F	58-646	34
	F	58-647	41
		Mean	37
50 ppm	F	58-743	28
	F	58-744	28
	F	58-745	28
	F	58-746	60
	F	58-747	31
		Mean	35
100 ppm	F	58-844	39
	F	58-845	31
	F	58-847	31
	F	58-848	28
	F	58-849	37
		Mean	33
1000 ppm	F	58-943	32
	F	58-944	32
	F	58-945	31
	F	58-946	31
	F	58-947	28
		Mean	31

Table No. 3A - Continued

L.T.L. ppm lead/day	SEX	RAT NO.	SG-OT R-F units
		SIX-MONTH INTERVAL	
Control	M	58-476	80
	M	58-477	80
	M	58-478	76
	M	58-479	88
	M	58-480	70
		Mean	78.8
10 ppm	M	58-627	80
	M	58-628	95
	M	58-629	101
	M	58-630	76
	M	58-631	95
		Mean	89.4
50 ppm	M	58-727	91
	M	58-728	70
	M	58-729	88
	M	58-731	73
		Mean	80.5
100 ppm	M	58-827	70
	M	58-828	67
	M	58-829	80
	M	58-830	76
	M	58-821	76
		Mean	73.8
1000 ppm	M	58-927	88
	M	58-928	84
	M	58-929	76
	M	58-930	73
	M	58-931	88
		Mean	81.8

Table No. 3A - Continued

LEVEL ppm lead/day	SEX	RAT NO.	SG-OT R-F units
		SIX-MONTH INTERVAL	
Control	F	58-575	135
	F	58-576	108
	F	58-577	88
	F	58-578	120
	F	58-579	108
		Mean	111.8
10 ppm	F	58-678	165
	F	58-679	73
	F	58-680	88
	F	58-681	84
		Mean	102.5
50 ppm	F	58-777	73
	F	58-778	84
	F	58-779	95
	F	58-780	88
	F	58-781	80
		Mean	84
100 ppm	F	58-877	73
	F	58-878	95
	F	58-879	101
	F	58-880	129
	F	58-881	95
		Mean	98.6
1000 ppm	F	58-977	150
	F	58-978	80
	F	58-979	88
	F	58-980	80
	F	58-981	80
		Mean	95.6

Table No. 3A - Continued

LEVEL ppm lead/day	SEX	RAT NO.	SG-OT R-F units
		12-MONTH INTERVAL	
Control	M	58-560	105.0
	M	58-561	127.5
	M	58-562	87.5
	M	58-563	72.5
	M	58-564	127.5
		MEAN	104.0
10 ppm	M	58-672	82.5
	M	58-673	95.5
	M	58-674	82.5
	M	58-675	110.0
	M	58-676	87.0
		MEAN	91.5
50 ppm	M	58-772	145.0
	M	58-773	126.0
	M	58-774	55.0
	M	58-775	72.0
	M	58-776	45.0
		MEAN	88.6
100 ppm	M	58-871	112.5
	M	58-872	57.5
	M	58-868	105.0
	M	58-874	112.5
	M	58-876	80.0
		MEAN	93.5
1000 ppm	M	58-870	80.0
	M	58-973	127.0
	M	58-974	102.5
	M	58-975	65.0
	M	58-976	110.0
		MEAN	96.9

Table No. 3A - Continued

LEVEL ppm lead/day	SEX	RAT NO.	SG-2T R-F units
		12-MONTH INTERVAL	
Control	F	58-461	87.5
	F	58-462	130.0
	F	58-463	100.0
	F	58-464	160.0
	F	58-465	127.5
		MEAN	121.0
10 ppm	F	58-622	122.5
	F	58-623	95.0
	F	58-624	62.5
	F	58-625	110.0
	F	58-626	67.5
		MEAN	91.5
50 ppm	F	58-722	90.0
	F	58-723	146.5
	F	58-724	70.0
	F	58-725	112.5
	F	58-726	90.0
		MEAN	101.8
100 ppm	F	58-822	70.0
	F	58-823	127.5
	F	58-824	100.0
	F	58-825	125.0
	F	58-826	126.0
		MEAN	109.7
1000 ppm	F	58-922	130.0
	F	58-923	150.0
	F	58-924	130.0
	F	58-925	110.0
	F	58-926	122.5
		MEAN	128.5

Table No. 3A - Continued

LEVEL ppm lead/day	SEX	RAT NO.	SG-OT R-F units
		TERMINAL	
Control	M	58-393	140.0
	M	58-394	113.0
	M	58-396	82.0
	M	58-397	113.0
	M	58-399	106.0
		MEAN	110.8
10 ppm	M	58-593	86.0
	M	58-595	113.0
	M	58-596	132.0
	M	58-597	115.0
	M	58-599	97.0
		MEAN	108.6
50 ppm	M	58-697	125.0
	M	58-698	109.0
	M	58-699	115.0
	M	58-700	215.0
	M	58-704	130.0
		MEAN	138.8
1000 ppm	M	58-898	121.0
	M	58-899	110.0
	M	58-900	(>250.0)
	M	58-902	(>250.0)
	M	58-903	127.0
		MEAN	119.3

Table No. 3A - Continued

LEVEL ppm lead/day	SEX	RAT NO.	SG-OT R-F units
		TERMINAL	
Control	F	58-493	91.0
	F	58-494	80.0
	F	58-498	108.0
	F	58-499	109.0
	F	58-505	93.0
		MEAN	96.2
10 ppm	F	58-644	79.0
	F	58-646	45.0
	F	58-648	104.0
	F	58-649	81.0
	F	58-654	108.0
		MEAN	83.4
50 ppm	F	58-745	149.0
	F	58-748	84.0
	F	58-757	104.0
	F	58-761	81.0
	F	58-763	100.0
		MEAN	103.6
1000 ppm	F	58-952	127.0
	F	58-955	104.0
	F	58-956	77.0
	F	58-957	74.0
	F	58-959	173.0
		MEAN	111.0

Table No. 3B - Biochemical determinations for male and female albino rats.

LEVEL ppm lead/day	SEX	RAT NO.	GLUCOSE-6-PHOSPHATE	CHOLINESTERASE RBC	CHOLINESTERASE PLASMA
		THREE-MONTH INTERVAL			
Control	M	58-398	1.5	0.238	0.425
	M	58-399	2.0	0.230	0.303
	M	58-400	4.5	0.172	0.328
	M	58-401	2.5	0.206	0.345
	M	58-402	1.0	0.206	0.311
		Mean	2.3	0.210	0.342
10 ppm	M	58-598	0.5	0.188	0.303
	M	58-599	1.5	0.188	0.354
	M	58-600	0	0.165	0.362
	M	58-601	2.0	0.206	0.311
	M	58-602	3.5	0.180	0.311
		Mean	1.5	0.185	0.328
50 ppm	M	58-698	1.0	0.180	0.320
	M	58-699	1.0	0.172	0.320
	M	58-700	2.5	0.165	0.320
	M	58-701	3.5	0.180	0.311
	M	58-702	3.0	0.172	0.267
		Mean	2.2	0.174	0.308
100 ppm	M	58-798	2.0	0.180	0.328
	M	58-799	0.5	0.180	0.328
	M	58-800	1.0	0.188	0.311
	M	58-801	1.5	0.214	0.267
	M	58-802	2.0	0.172	0.286
		Mean	1.4	0.187	0.304
1000 ppm	M	58-899	0	0.206	0.320
	M	58-900	2.5	0.180	0.303
	M	58-901	3.0	0.180	0.320
	M	58-902	3.0	0.206	0.320
	M	58-903	3.0	0.206	0.328
		Mean	2.3	0.196	0.318

Table No. 3B - Continued

LEVEL ppm lead/day	SEX	RAT NO.	GLUCOSE-6-PHOSPHATE	CHOLINESTERASE RBC	CHOLINESTERASE PLASMA
		THREE-MONTH INTERVAL			
Control	F	58-498	1.5	0.185	0.950
	F	58-499	4.5	0.180	0.855
	F	58-500	4.0	0.149	0.817
	F	58-501	3.0	0.180	0.950
	F	58-502	3.0	0.214	1.058
		Mean	3.2	0.182	0.927
10 ppm	F	58-648	0.5	0.180	0.900
	F	58-649	1.0	0.180	1.178
	F	58-650	0.5	0.172	1.448
	F	58-651	2.0	0.172	1.672
	F	58-652	1.3	0.172	1.220
		Mean	1.1	0.175	1.284
50 ppm	F	58-748	5.5	0.180	1.117
	F	58-749	3.0	0.180	0.855
	F	58-750	4.0	0.188	1.033
	F	58-751	1.0	0.157	1.100
	F	58-752	2.0	0.157	0.842
		Mean	3.1	0.172	0.990
100 ppm	F	58-850	0.5	0.172	1.403
	F	58-851	5.0	0.172	0.842
	F	58-852	2.5	0.149	0.758
	F	58-853	3.5	0.180	1.092
	F	58-854	1.0	0.180	1.633
		Mean	2.5	0.171	1.156
1000	F	58-948	2.0	0.180	1.067
	F	58-949	0.5	0.172	0.833
	F	58-950	2.5	0.188	1.108
	F	58-951	1.5	0.180	0.858
	F	58-952	0	0.165	0.808
		Mean	1.3	0.177	0.935

Table No. 3B - Continued

LEAD ACETATE

LEVEL ppm lead/day	SEX	RAT NO.	GLUCOSE-6-PHOSPHATE	CHOLINESTERASE RBC	CHOLINESTERASE PLASMA
		SIX-MONTH INTERVAL			
Control	M	58-476	0	0.667	0.552
	M	58-477	1.5	0.708	0.536
	M	58-478	0.5	0.650	0.337
	M	58-479	2.0	0.733	0.379
	M	58-480	2.0	0.642	0.320
		MEAN	1.2	0.680	0.425
10	M	58-627	1.0	0.767	0.370
	M	58-628	0	0.650	0.387
	M	58-629	1.0	0.608	0.387
	M	58-630	0.5	0.617	0.412
	M	58-631	2.5	0.683	0.442
		MEAN	1.0	0.665	0.400
50	M	58-727	2.5	0.567	0.345
	M	58-728	0	0.542	0.345
	M	58-729	1.5	0.525	0.328
	M	58-731	1.0	0.642	0.320
		MEAN	1.3	0.569	0.335
100	M	58-827	0.5	0.683	0.362
	M	58-828	1.0	0.667	0.379
	M	58-829	1.5	0.683	0.345
	M	58-830	0.5	0.517	0.412
	M	58-831	1.0	0.517	0.320
		MEAN	0.9	0.613	0.364
1000	M	58-927	1.0	0.667	0.370
	M	58-928	2.5	0.716	0.396
	M	58-929	2.5	0.708	0.417
	M	58-930	2.0	0.675	0.283
	M	58-931	1.0	0.667	0.303
		MEAN	1.8	0.687	0.354

Table No. 3B - Continued

LEAD ACETATE

LEVEL ppm lead/day	SEX	RAT NO.	LACTIC DEHYDROGENASE
		SIX-MONTH INTERVAL	
Control	M	58-476	1,430
	M	58-477	1,390
	M	58-478	1,420
	M	58-479	1,380
	M	58-480	1,400
		MEAN	1,404
10	M	58-627	1,360
	M	58-628	1,420
	M	58-629	1,400
	M	58-630	1,350
	M	58-631	1,400
		MEAN	1,386
50	M	58-727	1,430
	M	58-728	1,320
	M	58-729	1,390
	M	58-731	1,400
		MEAN	1,385
100	M	58-827	1,260
	M	58-828	1,320
	M	58-829	1,390
	M	58-830	1,430
	M	58-831	1,400
		MEAN	1,360
1000	M	58-927	1,270
	M	58-928	1,330
	M	58-929	1,270
	M	58-930	1,420
	M	58-931	1,450
		MEAN	1,348

Table No. 3B - Continued

LEAD ACETATE

LEVEL ppm lead/day	SEX	RAT NO.	GLUCOSE-6-PHOSPHATE	CHOLINESTERASE RBC	CHOLINESTERASE PLASMA
		SIX-MONTH INTERVAL			
Control	F	58-575	0.5	0.898	0.917
	F	58-576	3.0	0.882	0.925
	F	58-577	2.0	0.849	0.858
	F	58-578	1.5	0.817	0.800
	F	58-579	0.5	0.849	0.858
		MEAN	1.5	0.859	0.872
10	F	58-678	2.0	0.889	0.950
	F	58-679	1.0	0.930	0.900
	F	58-680	0	0.825	0.883
	F	58-681	0	0.825	1.042
		MEAN	0.8	0.867	0.944
50	F	58-777	2.5	0.784	1.067
	F	58-778	0.5	0.809	0.808
	F	58-779	0.5	0.783	0.992
	F	58-780	0.5	0.717	0.933
	F	58-781	1.0	0.700	0.741
		MEAN	1.0	0.759	0.908
100	F	58-877	0.5	0.809	1.017
	F	58-878	2.5	0.882	1.075
	F	58-879	1.0	0.800	0.875
	F	58-880	1.5	0.743	0.883
	F	58-881	0.5	0.874	1.083
		MEAN	1.2	0.822	0.987
1000	F	58-977	2.5	0.850	0.808
	F	58-978	2.0	0.849	0.825
	F	58-979	0.5	0.905	1.050
	F	58-980	0.5	0.898	1.083
	F	58-981	2.0	0.883	1.075
		MEAN	1.5	0.877	0.968

Table No. 3B - Continued

LEAD ACETATE

LEVEL ppm lead/day	SEX	RAT NO.	LACTIC DEHYDROGENASE
		SIX-MONTH INTERVAL	
Control	F	58-575	1,100
	F	58-576	1,110
	F	58-577	1,200
	F	58-578	1,220
	F	58-579	1,160
		MEAN	1,158
10	F	58-678	1,210
	F	58-679	1,240
	F	58-680	980
	F	58-681	1,200
		MEAN	1,158
50	F	58-777	960
	F	58-778	1,010
	F	58-779	810
	F	58-780	1,210
	F	58-781	1,140
		MEAN	1,026
100	F	58-877	920
	F	58-878	700
	F	58-879	1,160
	F	58-880	920
	F	58-881	940
		MEAN	928
1000	F	58-977	810
	F	58-978	1,000
	F	58-979	1,040
	F	58-980	1,180
	F	58-981	1,200
		MEAN	1,046

Table No. 3B - Continued

LEAD ACETATE

LEVEL ppm lead/day	SEX	RAT NO.	GLUCOSE-6-PHOSPHATE	CHOLINESTERASE PBC	CHOLINESTERASE PLASMA
		12-MONTH INTERVAL			
Control	M	58-460	5.4	0.683	0.742
	M	58-466	4.4	0.691	0.581
	M	58-468	3.8	0.683	0.525
	M	58-469	5.1	0.683	0.623
	M	58-470	5.1	0.708	0.733
		MEAN	4.8	0.690	0.641
10	M	58-622	4.0	0.766	0.775
	M	58-623	4.4	0.658	0.700
	M	58-624	5.0	0.674	0.564
	M	58-625	4.6	0.633	0.589
	M	58-626	1.7	0.683	0.656
		MEAN	3.9	0.643	0.657
50	M	58-722	2.5	0.614	0.615
	M	58-723	5.7	0.666	0.539
	M	58-724	1.1	0.666	0.510
	M	58-725	4.4	0.586	0.690
	M	58-726	5.9	0.644	0.510
		MEAN	3.9	0.641	0.573
100	M	58-815	0	1.089	1.300
	M	58-818	0.4	1.050	0.716
	M	58-819	1.1	0.783	0.933
	M	58-820	0.9	0.808	0.816
	M	58-821	0	0.958	0.716
		MEAN	0.5	0.938	0.896
1000	M	58-916	0	0.991	0.665
	M	58-917	0	0.883	0.800
	M	58-918	0	0.853	0.841
	M	58-919	0	0.842	0.750
	M	58-920	0	0.833	0.742
		MEAN	0	0.880	0.760

Table No. 3B - Continued

LEAD ACETATE

LEVEL ppm lead/day	SEX	RAT NO.	LACTIC DEHYDROGENASE
		12-MONTH INTERVAL	
Control	M	58-461	630
	M	58-462	>2,000
	M	58-463	720
	M	58-464	1,250
	M	58-465	1,510
		MEAN	1,230
10	M	58-622	1,060
	M	58-623	1,620
	M	58-624	740
	M	58-625	1,300
	M	58-626	1,490
		MEAN	1,242
50	M	58-722	1,440
	M	58-723	1,620
	M	58-724	1,620
	M	58-725	1,740
	M	58-726	570
		MEAN	1,398
100	M	58-822	1,100
	M	58-823	840
	M	58-824	380
	M	58-825	570
	M	58-826	1,720
		MEAN	922
1000	M	58-922	980
	M	58-923	1,350
	M	58-924	1,350
	M	58-925	1,490
	M	58-926	1,360
		MEAN	1,306

Table No. 3B - Continued

LEAD ACETATE

LEVEL ppm lead/day	SEX	RAT NO.	GLUCOSE-6-PHOSPHATE	CHOLINESTERASE RBC	CHOLINESTERASE PLASMA
			12-MONTH INTERVAL		
Control	F	58-566	5.4	0.766	1.358
	F	58-567	5.4	0.816	1.445
	F	58-568	6.4	0.791	1.321
	F	58-569	6.6	0.700	1.309
	F	58-559	0.7	0.891	1.300
		MEAN	4.9	0.793	1.347
10	F	58-672	2.7	0.594	0.725
	F	58-673	3.3	0.611	1.066
	F	58-674	4.2	0.611	1.150
	F	58-675	4.2	0.666	1.016
	F	58-676	5.0	0.652	1.000
		MEAN	3.9	0.627	0.991
50	F	58-772	4.4	0.594	1.083
	F	58-773	4.6	0.683	1.220
	F	58-774	4.6	0.666	0.833
	F	58-775	4.1	0.641	0.991
	F	58-776	5.0	0.683	1.128
		MEAN	4.5	0.653	1.051
100	F	58-866	0	0.975	0.725
	F	58-867	0	1.163	1.487
	F	58-868	0	1.064	1.436
	F	58-869	0	1.016	1.538
	F	58-870	0	0.766	1.470
		MEAN	0	0.997	1.331
1000	F	58-967	0	0.900	1.368
	F	58-966	0	0.950	1.368
	F	58-969	0	0.916	1.462
	F	58-970	0.5	0.875	1.368
	F	58-971	0	0.833	1.245
		MEAN	0.1	0.895	1.362

Table No. 4A - Urine analyses performed on pooled samples from groups of male and female albino rats.

LEAD ACETATE FOR 22 MONTHS

LEVEL ppm	NO. OF RATS	SEX	D-LEVULINIC ACID INTERVALS			COPROPORPHYRIN INTERVALS*	
			THREE-MONTH mg/100 ml.	SIX-MONTH mg/100 ml.	22-MONTH mg/100 ml.	12-MONTH mg/vol	22-MONTH mg/vol
Control	5	M	0.158	0.120	0.30	1.42	0.2797
	5	F	0.191	0.051	0.30	1.09	0.0603
10	5	M	0.222	0.111	0.33	1.27	0.5088
	5	F	0.268	0.091	0.25	1.04	0.1556
50	5	M	0.160	0.057	0.41	0.97	0.5104
	5	F	0.210	0.019	0.44	0.43	0.1525
100	5	M	0.139	0.057	NOT	0.61	NOT
	5	F	0.153	0.040	PERFORMED	0.53	PERFORMED
1000	5	M	0.383	0.398	1.30	1.53	2.3840
	5	F	0.556	0.130	0.68	1.15	1.0448

* No coproporphyrin detected at the three- and six-month intervals.

Table No. 5 – Mean terminal body weights, organ weights, organ/body weight ratios, and standard deviations for male and female albino rats.

LEAD ACETATE FOR SIX MONTHS

			BODY WEIGHT		THYROID				HEART			
LEVEL	SEX	n	WEIGHT	s	WEIGHT	s	RATIO	s	WEIGHT	s	RATIO	s
ppm			g.	g.	g.	g.	%	%	g.	g.	%	%
CONTROL	M	10	582	55	0.036	0.007	0.0061	0.0010	1.76	0.28	0.302	0.036
10	M	5	589	79	0.037	0.004	0.0063	0.0010	1.67	0.17	0.286	0.040
50	M	5	589	100	0.035	0.004	0.0061	0.0013	1.77	0.38	0.304	0.070
100	M	5	554	42	0.040	0.009	0.0073	0.0019	1.64	0.16	0.296	0.016
1000	M	5	522	62	0.032	0.003	0.0062	0.0010	1.57	0.13	0.304	0.037
CONTROL	F	10	324	30	0.028	0.005 [9/]	0.0088	0.0018 [9/]	1.26	0.29	0.393	0.060
10	F	5	321	18	0.033	0.010	0.010	0.003	1.13	0.14	0.367	0.043
50	F	5	331	52	0.028	0.007	0.0088	0.0038	1.07	0.15	0.328	0.060
100	F	5	330	21	0.029	0.007	0.0086	0.0023	1.16	0.12	0.356	0.023
1000	F	5	293	29	0.030	0.006	0.010	0.002	1.16	0.16	0.401	0.079

Table No. 5 – Mean terminal body weights, organ weights, organ/body weight ratios, and standard deviations for male and female albino rats.

LEAD ACETATE FOR SIX MONTHS

			BODY WEIGHT		LIVER				SPLEEN			
LEVEL ppm	SEX	n	WEIGHT g.	s g.	WEIGHT g.	s g.	RATIO %	s %	WEIGHT g.	s g.	RATIO %	s %
CONTROL	M	10	582	55	15.15	3.13	2.59	0.37	0.75	0.19	0.13	0.03
10	M	5	589	79	15.04	3.32	2.54	0.34	0.70	0.06	0.12	0.01
50	M	5	589	100	16.67	3.56	2.82	0.16	0.67	0.06	0.15	0.04
100	M	5	554	42	14.62	2.11	2.64	0.32	0.66	0.07	0.12	0.01
1000	M	5	522	62	14.75	3.28	2.80	0.27	0.75	0.12	0.14	0.01
CONTROL	F	10	324	30	8.73	2.10	2.68	0.30	0.52	0.08	0.16	0.02
10	F	5	321	18	7.98	0.56	2.50	0.30	0.54	0.07	0.17	0.01
50	F	5	351	52	8.62	0.99	2.62	0.17	0.59	0.07	0.18	0.04
100	F	5	330	21	9.25	0.90	2.80	0.25	0.54	0.03	0.17	0.01
1000	F	5	293	29	8.00	1.30	2.73	0.22	0.50	0.04	0.19	0.02

Table No. 5 – Mean terminal body weights, organ weights, organ/body weight ratios, and standard deviations for male and female albino rats.

LEAD ACETATE FOR SIX MONTHS

			BODY WEIGHT		KIDNEYS				ADRENALS			
LEVEL ppm	SEX	n	WEIGHT g.	s g.	WEIGHT g.	s g.	RATIO %	s %	WEIGHT g.	s g.	RATIO %	s %
CONTROL	M	10	582	55	3.49	0.48	0.600	0.052	0.057	0.007	0.0098	0.0009
10	M	5	589	79	3.32	0.45	0.563	0.038	0.062	0.011	0.011	0.002
50	M	5	589	100	3.90	0.66	0.664	0.072	0.052	0.013	0.0090	0.0024
100	M	5	554	42	3.31	0.27	0.601	0.058	0.053	0.008	0.0096	0.0017
1000	M	5	522	62	3.69	0.64	0.706 S+	0.054	0.053	0.003	0.010	0.001
CONTROL	F	10	324	50	2.16	0.43 2/	0.666	0.100 2/	0.079	0.013 2/	0.026	0.006 2/
10	F	5	321	18	2.07	0.07	0.648	0.052	0.076	0.009	0.024	0.003
50	F	5	331	52	2.06	0.26	0.634	0.063	0.079	0.004	0.024	0.004
100	F	5	330	21	2.45	0.31	0.745	0.115	0.091	0.014	0.028	0.004
1000	F	5	293	29	2.17	0.21	0.742	0.023	0.077	0.005	0.027	0.003

Table No. 5 – Mean terminal body weights, organ weights, organ/body weight ratios, and standard deviations for male and female albino rats.

LEAD ACETATE FOR SIX MONTHS

			BODY WEIGHT		TESTES				OVARIES			
LEVEL	SEX	n	WEIGHT	s	WEIGHT	s	RATIO	s	WEIGHT	s	RATIO	s
ppm			g.	g.	g.	g.	%	%	g.	g.	%	%
CONTROL	M	10	582	55	3.65	0.26	0.63[illegible]	0.044				
10	M	5	589	79	3.70	0.50	0.633	0.089				
50	M	5	589	100	3.67	0.18	0.637	0.111				
100	M	5	554	42	3.60	0.12	0.654	0.064				
1000	M	5	522	62	3.57	0.22	0.692	0.091				
CONTROL	F	10	324	50					0.130	0.050 [2/]	0.0497	0.0214 [2/]
10	F	5	321	18					0.133	0.029	0.0414	0.0089
50	F	5	331	52					0.129	0.046	0.0392	0.0124
100	F	5	330	21					0.129	0.046	0.0392	0.0124
1000	F	5	293	29					0.104	0.031 [4/]	0.0352	0.0092 [4/]

Table No. 6 – Mean terminal body weights, organ weights, organ/body weight ratios, and standard deviations for male and female albino rats.

LEAD ACETATE FOR 12 MONTHS

			BODY WEIGHT		THYROID				HEART			
LEVEL ppm	SEX	n	WEIGHT g.	S g.	WEIGHT g.	S g.	RATIO %	S %	WEIGHT g.	S g.	RATIO %	S %
CONTROL	M	10	626	75	0.033	0.006	0.0053	0.0008	1.90	0.36	0.305	0.060
10	M	5	597	49	0.038	0.014	0.0065	0.0024	1.89	0.32	0.316	0.046
50	M	5	669	49	0.034	0.007	0.0050	0.0010	1.91	0.27	0.286	0.052
100	M	5	606	35	0.025	0.006	0.0042	0.0014	1.97	0.27	0.325	0.034
1000	M	5	656	67	0.040	0.011	0.0061	0.0014	2.07	0.33	0.314	0.026
CONTROL	F	10	359	49	0.031	0.006	0.0087	0.0021	1.23	0.23	0.343	0.046
10	F	5	410	51	0.028	0.004	0.0069	0.0017	1.34	0.30	0.324	0.049
50	F	5	386	56	0.022	0.006	0.0056	0.0017	1.25	0.26	0.324	0.048
100	F	5	374	48	0.032	0.004 [4/]	0.0089	0.0012 [4/]	1.34	0.13	0.364	0.061
1000	F	5	480 S+	108	0.035	0.005	0.0077	0.0022	1.35	0.09	0.291	0.057

Table No. 6 – Mean terminal body weights, organ weights, organ/body weight ratios, and standard deviations for male and female albino rats.

LEAD ACETATE FOR 12 MONTHS

			BODY WEIGHT		LIVER				SPLEEN			
LEVEL	SEX	n	WEIGHT	s	WEIGHT	s	RATIO	s	WEIGHT	s	RATIO	s
ppm			g.	g.	g.	g.	%	%	g.	g.	%	%
CONTROL	M	10	626	75	14.35	1.94	2.30	0.19	0.96	0.31	0.15	0.04
10	M	5	597	49	15.45	1.27	2.60	0.25	0.82	0.16	0.14	0.03
50	M	5	669	49	17.82	2.10	2.66	0.16	0.86	0.07	0.13	0.01
100	M	5	606	55	14.01	1.44	2.34	0.15	0.91	0.16	0.15	0.02
1000	M	5	656	67	16.25	2.66	2.48	0.33	1.00	0.22	0.153	0.034
CONTROL	F	10	359	49	8.65	1.00	2.43	0.27	0.55	0.07	0.16	0.03
10	F	5	410	51	10.06	1.14	2.46	0.15	0.57	0.17	0.14	0.03
50	F	5	386	56	9.90	1.28	2.57	0.21	0.52	0.10	0.14	0.04
100	F	5	374	48	9.15	1.22	2.45	0.20	0.55	0.05	0.15	0.02
1000	F	5	480 S+	108	10.88 S+	1.41 4/	2.50	0.26 4/	0.68 S+	0.15	0.15	0.04

Table No. 6 – Mean terminal body weights, organ weights, organ/body weight ratios, and standard deviations for male and female albino rats.

LEAD ACETATE FOR 12 MONTHS

			BODY WEIGHT		KIDNEYS				ADRENALS			
LEVEL ppm	SEX	n	WEIGHT g.	s g.	WEIGHT g.	s g.	RATIO %	s %	WEIGHT g.	s g.	RATIO %	s %
CONTROL	M	10	626	75	3.58	0.37	0.575	0.051	0.061	0.011	0.0096	0.0013
10	M	5	597	49	3.41	0.38	0.569	0.028	0.061	0.006	0.010	0.001
50	M	5	669	49	4.01	0.50	0.600	0.071	0.066	0.007	0.0099	0.0009
100	M	5	606	35	4.00	0.66	0.657	0.110	0.066	0.007 [4/]	0.011	0.001
1000	M	5	656	67	4.36	0.44	0.666 **	0.038	0.064	0.006	0.0098	0.0008
CONTROL	F	10	359	49	2.25	0.17	0.636	0.093	0.083	0.011	0.023	0.004
10	F	5	410	51	2.40	0.27	0.594	0.108	0.080	0.018	0.019	0.004
50	F	5	366	56	2.37	0.25	0.618	0.060	0.081	0.010	0.021	0.003
100	F	5	374	48	2.36	0.32	0.632	0.064	0.098	0.031	0.027	0.010
1000	F	5	480 S+	108	3.12 S+	0.54	0.665	0.130	0.116 S+	0.044	0.0242	0.0052

Table No. 6 - Mean terminal body weights, organ weights, organ/body weight ratios, and standard deviations for male and female albino rats.

LEAD ACETATE FOR 12 MONTHS

			BODY WEIGHT		TESTES				OVARIES			
LEVEL ppm	SEX	n	WEIGHT g.	s g.	WEIGHT g.	s g.	RATIO %	s %	WEIGHT g.	s g.	RATIO %	s %
CONTROL	M	10	626	75	3.86	0.30	0.623	0.075				
10	M	5	597	49	3.84	0.54	0.644	0.072				
50	M	5	669	49	3.90	0.28	0.584	0.044				
100	M	5	606	35	3.95	0.52	0.656	0.116				
1000	M	5	656	67	3.73	0.16	0.572	0.047				
CONTROL	F	10	359	49					0.140	0.034	0.0396	0.0116
10	F	5	410	51					0.160	0.043	0.0389	0.0084
50	F	5	386	56					0.143	0.053 [4/]	0.0369	0.0145 [4/]
100	F	5	374	46					0.146	0.034	0.0399	0.0126
1000	F	5	480 S+	108					0.146	0.018 [4/]	0.0333	0.0033 [4/]

Table No. 7 – Mean terminal body weights, organ weights, organ/body weight ratios, and standard deviations for male and female albino rats.

LEAD ACETATE FOR 18 MONTHS

LEVEL	SEX	n	BODY WEIGHT		THYROID					
			WEIGHT	s	WEIGHT	s	RATIO	s	WEIGHT	
ppm			g.	g.	g.	g.	%	%	g.	
CONTROL	M	10	634	64	0.040	0.008	0.0063	0.0010	2.03	0.3
10	M	5	658	80	0.044	0.006	0.0067	0.0007	2.09	0.2
50	M	5	645	44	0.039	0.009	0.0060	0.0010	2.20	0.1
100	M	5	667	45	0.048	0.007	0.0073	0.0012	2.05	0.3
1000	M	5	524	149	0.057 S+	0.015	0.010 S+	0.004	2.32	0.4
CONTROL	F	10	406	47	0.033	0.004	0.0081	0.0005	1.49	0.2
10	F	5	448	69	0.038	0.005	0.0087	0.0017	1.42	0.1
50	F	5	389	57	0.034	0.008	0.0088	0.0013	2.04 S+	0.3
100	F	5	398	66	0.035	0.007	0.0088	0.0016	1.46	0.1
1000	F	5	426	47	0.035	0.004	0.0082	0.0016	1.60	0.2

Table No. 7 – Mean terminal body weights, organ weights, organ/body weight ratios, and standard deviations for male and female albino rats.

LEAD ACETATE FOR 18 MONTHS

LEVEL	SEX	n	BODY WEIGHT		LIVER				SPLEEN			
			WEIGHT	s	WEIGHT	s	RATIO	s	WEIGHT	s	RATIO	s
ppm			g.	g.	g.	g.	%	%	g.	g.	%	%
CONTROL	M	10	634	64	20.75	4.89	3.29	0.77	0.92	0.30	0.15	0.05
10	M	5	658	80	19.69	3.57	3.04	0.71	0.96	0.26	0.15	0.05
50	M	5	645	44	19.35	1.87	2.99	0.13	1.14	0.26	0.176	0.035
100	M	5	667	45	18.30	3.30	2.74	0.46	0.94	0.10	0.14	0.01
1000	M	5	584	149	19.41	1.46	3.33	1.18	1.07	0.20	0.189	0.040
CONTROL	F	10	476	47	14.11	2.28	3.47	0.26	0.62	0.12	0.15	0.03
10	F	5	448	69	15.76	3.26	3.59	0.95	0.74	0.11	0.17	0.02
50	F	5	389	57	13.61	1.58	3.53	0.39	0.88 S+	0.07	0.23 S+	0.02
100	F	5	398	60	12.57	0.74	3.21	0.37	0.73	0.09	0.19	0.04
1000	F	5	426	47	14.52	1.70	3.41	0.26	0.75	0.22	0.18	0.06

Table No. 7 – Mean terminal body weights, organ weights, organ/body weight ratios, and standard deviations for male and female albino rats.

LEAD ACETATE FOR 18 MONTHS

LEVEL	SEX	n	BODY WEIGHT		KIDNEYS				ADRENALS			
			WEIGHT	s	WEIGHT	s	RATIO	s	WEIGHT	s	RATIO	s
ppm			g.	g.	g.	g.	%	%	g.	g.	%	%
CONTROL	M	10	634	64	4.69	1.25	0.740	0.204	0.067	0.015	0.011	0.003
10	M	5	658	80	4.73	1.20	0.743	0.293	0.071	0.017	0.011	0.002
50	M	5	645	44	4.82	0.49	0.747	0.054	0.064	0.009	0.010	0.002
100	M	5	667	45	4.40	0.68	0.659	0.067	0.061	0.008	0.0091	0.0010
1000	M	5	584	149	5.23	0.44	0.980	0.421	0.074	0.009	0.014	0.004
CONTROL	F	10	406	47	2.79	0.32	0.690	0.065	0.093	0.023	0.023	0.006
10	F	5	448	69	2.96	0.65	0.664	0.190	0.108	0.049	0.025	0.013
50	F	5	389	57	3.17	0.20	0.829	0.121	0.115	0.039	0.030	0.012
100	F	5	398	68	3.05	0.30	0.778	0.127	0.106	0.046	0.027	0.013
1000	F	5	426	47	3.53	0.55	0.829	0.103	0.125	0.041	0.030	0.012

Table No. 7 – Mean terminal body weights, organ weights, organ/body weight ratios, and standard deviations for male and female albino rats.

LEAD ACETATE FOR 18 MONTHS

			BODY WEIGHT		TESTES				OVARIES			
LEVEL	SEX	n	WEIGHT	s	WEIGHT	s	RATIO	s	WEIGHT	s	RATIO	s
ppm			g.	g.	g.	g.	%	%	g.	g.	%	%
CONTROL	M	10	634	64	3.69	0.25	0.586	0.054				
10	M	5	658	80	3.96	0.57	0.606	0.090				
50	M	5	645	44	3.92	0.36	0.610	0.065				
100	M	5	667	45	3.94	0.39	0.593	0.061				
1000	M	5	584	149	3.95	0.44	0.709	0.170				
CONTROL	F	10	406	47					0.132	0.021	0.0326	0.0047
10	F	5	448	69					0.153	0.024	0.0349	0.0061
50	F	5	389	57					0.111	0.012	0.0289	0.0047
100	F	5	398	66					0.102	0.019	0.0259	0.0056
1000	F	5	426	47					0.123	0.020	0.0266	0.0037

Table No. 8 - Mean terminal body weights, organ weights, organ/body weight ratios, and standard deviations for male and female albino rats.

LEAD ACETATE FOR 22 MONTHS

			BODY WEIGHT		THYROID					
LEVEL ppm	SEX	n	WEIGHT g.	s g.	WEIGHT g.	s g.	RATIO %	s %	WEIGHT g.	s g.
CONTROL	M	40	610	86	0.037	0.008	0.0062	0.0016	1.96	0.30
10.0	M	19	584	75	0.041	0.008	0.0071	0.0018	2.04	0.25
50.0	M	15	607	116	0.040	0.008	0.0068	0.0017	2.06	0.48
100.0	M	14	605	59	0.038	0.009	0.0063	0.0014	2.21 S+	0.34
1000.0	M	21	552	90	0.047 S+	0.009	0.0085 S+	0.0017	2.30 S+	0.44
CONTROL	F	49	430	72	0.034 47/	0.006	0.0080 47/	0.0013	1.46	0.21
10.0	F	24	388	92	0.032	0.006	0.0086	0.0024	1.42	0.25
50.0	F	18	427	86	0.036 16/	0.010	0.0084 16/	0.0015	1.61	0.27
100.0	F	18	424	64	0.038	0.012	0.0091	0.0028	1.59	0.33
1000.0	F	23	396	97	0.039 S+	0.008	0.011 S+	0.003	1.51	0.29

Table No. 8 - Mean terminal body weights, organ weights, organ/body weight ratios, and standard deviations for male and female albino rats.

LEAD ACETATE FOR 22 MONTHS

LEVEL ppm	SEX	n	BODY WEIGHT WEIGHT g.	BODY WEIGHT s g.	LIVER WEIGHT g.	LIVER s g.	LIVER RATIO %	LIVER s %	S WEIGHT g.	S s g.
CONTROL	M	40	610	86	14.93	2.58	2.47	0.43	0.99	0.32
10.0	M	19	584	75	16.24	3.39	2.80 S+	0.56	1.04	0.46
50.0	M	15	607	116	15.83	3.20	2.69	0.72	0.96	0.26
100.0	M	14	605	59	15.14	1.63	2.53	0.40	0.95	0.25
1000.0	M	21	552	90	15.28	3.03	2.82 S+	0.68	0.89	0.21
CONTROL	F	49	430	72	11.59	2.84	2.73	0.71	0.66	0.17
10.0	F	24	388	92	11.08	2.52	2.96	0.77	0.62 22/	0.17
50.0	F	18	427	86	10.88	3.41	2.64	1.15	0.69	0.32
100.0	F	18	424	64	11.60	1.80	2.78	0.61	0.69	0.19
1000.0	F	22	396	97	11.43	3.37	2.98	0.94	0.68	0.20

Table No. 8 - Mean terminal body weights, organ weights, organ/body weight ratios, and standard deviations for male and female albino rats.

LEAD ACETATE FOR 22 MONTHS

			BODY WEIGHT		KIDNEYS				ADRENALS			
LEVEL ppm	SEX	n	WEIGHT g.	s g.	WEIGHT g.	s g.	RATIO %	s %	WEIGHT g.	s g.	RATIO %	s %
CONTROL	M	40	610	86	4.28	0.97	0.712	0.173	0.080 [36/]	0.033	0.013 [36/]	0.005
10.0	M	19	584	75	4.47	1.03	0.782	0.238	0.079	0.020	0.014	0.005
50.0	M	15	607	116	4.45	1.45	0.770	0.344	0.067	0.022	0.011	0.005
100.0	M	14	605	59	4.36	0.54	0.730	0.135	0.071	0.011	0.012	0.002
1000.0	M	21	552	90	5.82 [20/] S+	2.25	1.08 [20/] S+	0.46	0.080 [20/]	0.018	0.015 [20/]	0.004
CONTROL	F	49	430	72	2.85	0.63	0.673	0.158	0.102 [48/]	0.024	0.0249 [48/]	0.0080
10.0	F	24	388	92	2.70	0.41	0.725	0.173	0.105 [23/]	0.029	0.0284 [23/]	0.0107
50.0	F	18	427	86	2.85	0.47	0.690	0.180	0.113 [16/]	0.036	0.0271 [16/]	0.0110
100.0	F	18	424	64	2.93 [17/]	0.40	0.688 [17/]	0.093	0.116 [17/]	0.032	0.0282 [17/]	0.0103
1000.0	F	23	396	97	3.46 S+	0.83	0.920 S+	0.324	0.131	0.084	0.0335 S+	0.0184

Table No. 8 – Mean terminal body weights, organ weights, organ/body weight ratios, and standard deviations for male and female albino rats.

LEAD ACETATE FOR 22 MONTHS

			BODY WEIGHT		TESTES				OV	
LEVEL	SEX	n	WEIGHT	s	WEIGHT	s	RATIO	s	WEIGHT	s
ppm			g.	g.	g.	g.	%	%	g.	g.
CONTROL	M	40	610	86	3.56	0.44	0.592	0.095		
10.0	M	19	584	75	3.61	0.50	0.624	0.087		
50.0	M	15	607	116	3.32	0.94	0.546	0.122		
100.0	M	14	605	59	3.62	0.55	0.602	0.094		
1000.0	M	21	552	90	3.70	0.55	0.682^{S+}	0.124		
CONTROL	F	49	430	72					0.150	0.10
10.0	F	24	388	92					0.142	0.04
50.0	F	18	427	86					0.128	0.06
100.0	F	18	424	64					0.151	0.03
1000.0	F	23	396	97					0.143	0.06

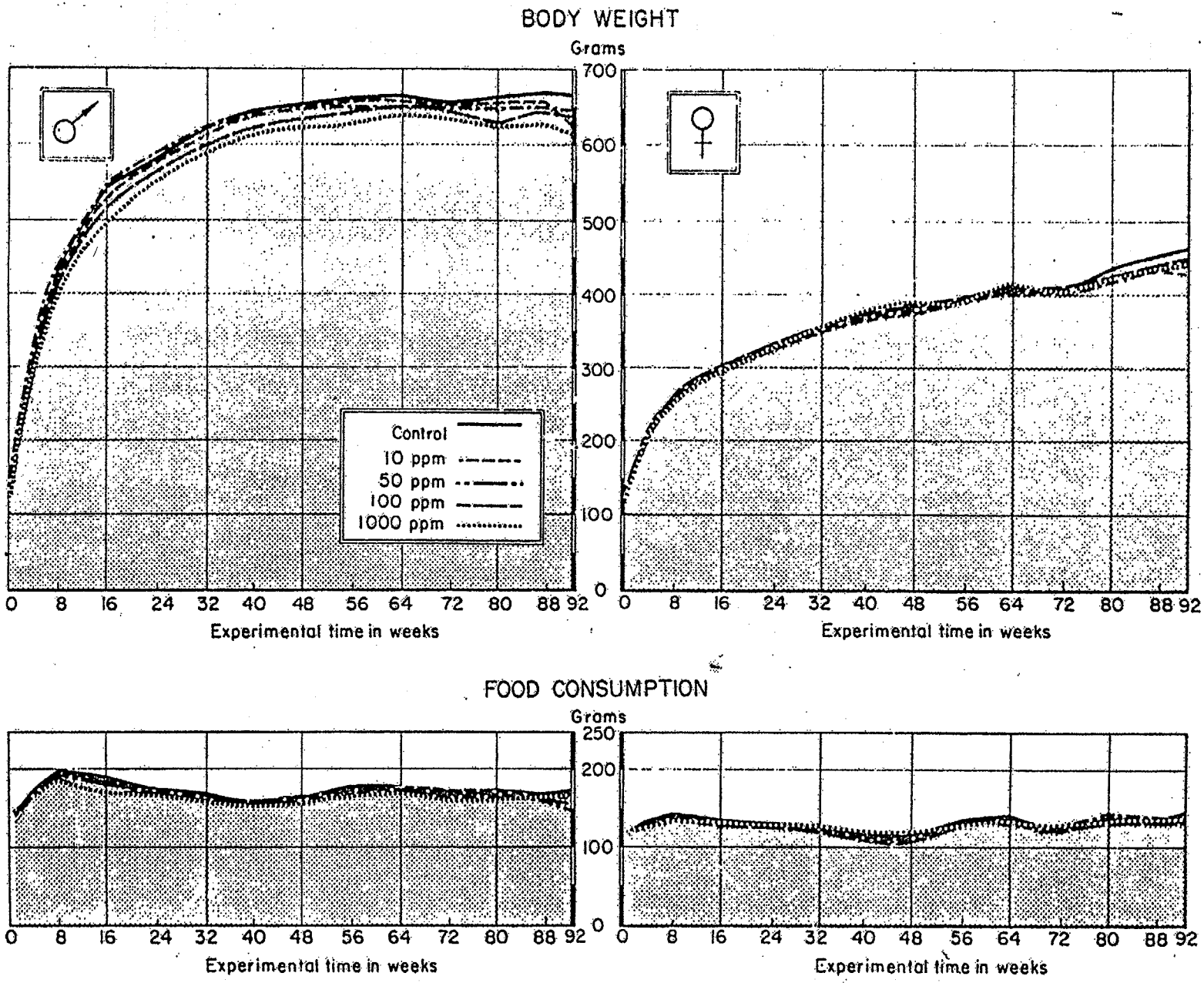

Figure No. 1 – Mean body weight and food consumption for male and female albino rats which served as controls or received the indicated dietary levels of lead acetate.

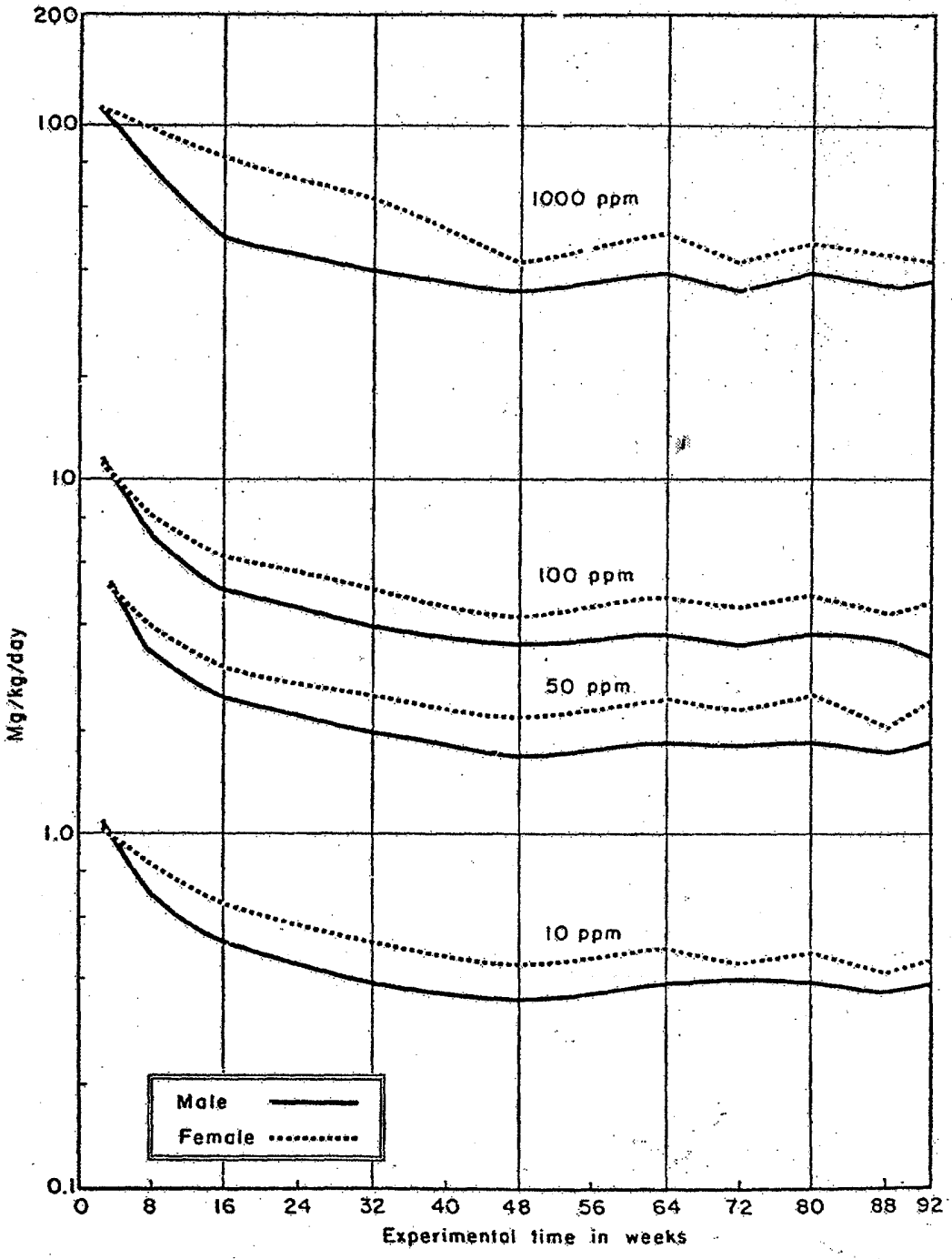

Figure No. 2 – Mean compound consumption for male and female albino rats which received the indicated dietary levels of lead acetate.

HISTOPATHOLOGICAL EVALUATION OF MALE AND FEMALE ALBINO RATS SACRIFICED AFTER SIX MONTHS

LEAD ACETATE

CONTROL
Male Rat No. 58-471

Gross:

No gross alterations were observed at necropsy.

Microscopic:

Pituitary: Two small nodules of hypertrophic chromophobes were present within the pars distalis. The remainder of the gland was histologically normal.

Thyroid: Appeared to be in a state of low activity.

Lung: Slightly congested. Alveolar walls were slightly thickened in some areas by hypertrophy of the septal cells.

Spleen: A moderate number of active lymphoid follicles were present. Macrophages within the red pulp had phagocytized a moderate amount of yellow to amber pigment. A small number of megakaryocytes were present within the red pulp.

Adrenal: A solitary nodule of hypertrophic cells of the zona fasciculata was present. This nodule was adjacent to the zona glomerulosa. Some of the individual cells within this nodule contained large vacuoles within the cytoplasm. The remainder of the gland was histologically normal.

Small Intestine: There were small numbers of neutrophils present throughout the lamina propria.

Testis: Spermatogenic activity normal and moderate.

Bone: The bone section examined was histologically normal. The bone marrow accompanying the section of bone contained a predominant amount of fat. Myeloid and erythrogenesis were present and both series were producing mature cells.

Bone Marrow: The bone marrow originating from the sternum contained a considerable amount of fat. Moderate numbers of both erythroid and myeloid series were producing mature cells. Moderate numbers of megakaryocytes were present throughout the sternal and femoral bone marrow.

The following organs were within the limits of expected histologic appearance: brain, spinal cord, heart, liver, kidney, stomach, pancreas, and large intestine.

CONTROL
Male Rat No. 58-472

Gross:

No gross alterations were observed at necropsy.

Microscopic:

Thyroid: Appeared to be in a state of low activity.

Lung: Contained free blood which probably gained the alveoli at death. A mineralized lesion was present within the intima of one of the larger arteries in the lungs of the section examined. Small numbers of alveoli contained an eosinophilic fibrillar material, which was probably deposited after death and, therefore, artifactual.

Spleen: Moderate numbers of active lymphoid follicles were present throughout the spleen. Small numbers of megakaryocytes were present within the red pulp. A small amount of yellow to golden brown pigment was contained within macrophages of the red pulp.

27

Kidney: The pelvic epithelium was focally hyperplastic. Small variably sized foci of nonsuppurative inflammation were scattered throughout the cortex of the kidney. An occasional glomerulus was hypercellular and completely filled the urinary space. An occasional tubule contained proteinaceous material.

Adrenal: Several small nodules of hyperplastic cells within the zona fasciculata were present.

Testis: Moderate and normal spermatogenic activity.

Bone Marrow: Large numbers of megakaryocytes were in both sections of bone marrow. The marrow was also very cellular and contained elements of both the myeloid and erythroid series with maturation of both series.

The following organs were within the limits of expected histologic appearance: brain, pituitary, spinal cord, heart, liver, stomach, pancreas, small intestine, large intestine, and bone.

CONTROL
Male Rat No. 58-473

Gross:

No gross alterations were observed at necropsy.

Microscopic:

Brain: Occasional neuron within the brain stem contained a muddy red, very finely granular material within the cytoplasm. The remainder of the brain sections examined were histologically normal.

Thyroid: The follicles were of various sizes from very small to large. The lining epithelium of the various follicles also varied with the smaller follicles exhibiting a more plump epithelial cell. Histologically the thyroids appeared to be moderately active.

Lung: The lung was moderately congested. Some of the alveoli appeared emphysematous. Small lymphoreticular aggregates were present around some of the arterioles and bronchi. Alveolar walls were slightly thickened from the congestion and also from small numbers of lymphocytes and occasional neutrophils. On occasion, the septal cells within the alveolar wall were hypertrophic.

Liver: Small nonsuppurative inflammatory foci were scattered throughout the liver mainly at the portal triads. On occasion, the hepatocytes adjacent to the central veins were slightly hypertrophic.

Spleen: Large numbers of mature and productive lymphoid follicles were scattered throughout the spleen. A small amount of yellow to golden brown pigment was contained within macrophages of the red pulp. An occasional megakaryocyte was present within the red pulp. A slight amount of extramedullary hematopoiesis was present.

Kidney: Small foci of nonsuppurative inflammation were scattered throughout the cortex of the kidney. Some collecting tubules and an occasional proximal convoluted tubules contained hemoglobin casts.

Testis: Spermatogenic activity normal and moderate.

Bone Marrow: Moderate numbers of megakaryocytes were present within the femoral bone marrow. The myeloid and erythroid components were well populated. Maturation was completed in both series. The megakaryocytes in the bone marrow of the sternum were more numerous than in the femoral bone marrow.

The following organs were within the limits of expected histologic appearance: pituitary, spinal cord, heart, adrenal, stomach, pancreas, small intestine, large intestine, and bone.

CONTROL
Male Rat No. 58-474

Gross:

No gross alterations were observed at necropsy.

Microscopic:

Pituitary: Small groups of chromophobes were hypertrophic.

Thyroid: Variably sized follicles were scattered throughout this organ. The character of the epithelium and colloid suggested a low level of activity.

Lung: A small number of alveoli contained eosinophilic fibrillar to granular material. The alveolar walls were in some areas slightly thickened from small numbers of lymphocytes.

Liver: Variably sized, usually small focal nodules of lymphocytes, throughout. Most of these aggregates were present around the portal triads. On occasion, lymphoid aggregates were within the midzonal areas of the liver lobules unassociated with changes in the hepatocytes.

Spleen: Moderate numbers of mature and active lymphoid follicles were scattered at random throughout the spleen.

Kidney: A moderate number of the epithelial cells of the proximal convoluted tubules contained within their cytoplasm, a very fine granular yellow to golden brown pigment.

Testis: Spermatogenic activity normal and moderately high.

Femoral
Bone Marrow: Femoral bone marrow contained large numbers of megakaryocytes. Maturing elements of both the myeloid and erythroid series were present.

Sternal
Bone Marrow: Moderately high numbers of megakaryocytes were present. Maturing elements of both the myeloid and erythroid series were present.

The following organs were within the limits of expected histologic appearance: brain, spinal cord, heart, adrenal, stomach, pancreas, small intestine, large intestine, and bone.

CONTROL
Male Rat No. 58-475

Gross:

No gross alterations were observed at necropsy.

Microscopic:

Brain: The meninges were slightly infiltrated with mononuclear cells. Small foci, some of which were linear, of fresh blood were scattered throughout the cerebral cortex. There were no inflammatory reactions or components about these focal hemorrhages.

Spinal
Cord: Small foci of fresh blood were present throughout the grey matter, which was unassociated with any other histologic change.

Thyroid: Variably sized follicles comprised the gland. The epithelium lining the follicles varied from a very low squamous to a low cuboidal. The size of the follicles, nature of the colloid, and of the epithelium suggested a low to moderate activity.

Lung: Small numbers of small foci of hyperplastic lymphoid elements were scattered at random throughout the lung. Some free fresh blood was observed within the alveoli. Moderate numbers of alveoli were emphysematous.

Liver: Small foci of lymphocytes were scattered throughout the liver, especially around the portal areas. The remainder of the liver was histologically unaltered.

Spleen: Moderate numbers of active lymphoid follicles were scattered throughout the substance of the spleen. Small numbers of megakaryocytes were observed within the red pulp.

Kidney: Scattered throughout both the cortex and the medulla were variably sized foci of lymphocytes. Some of the inflammatory foci were associated with the glomeruli and extended from the glomeruli into the surrounding parenchyma. The epithelial cells of the proximal convoluted tubules, in some areas, contained variably sized vacuoles. Some of these tubules, also, contained an eosinophilic fibrillar to granular material. The epithelium of the pelvic mucosa was slightly hyperplastic. The submucosa was slightly infiltrated with lymphocytes.

Testis: Spermatogenic activity was normal and moderately high.

Femoral
Bone Marrow: Femoral bone marrow contained numerous megakaryocytes. This marrow was also highly populated by both erythroid and myeloid elements. Critical evaluation was precluded by artifactual smudging of these cells.

Sternal
Bone Marrow: A large number of megakaryocytes were present. Maturing elements of both the erythroid and myeloid series were present.

The following organs were within the limits of expected histologic appearance: pituitary, heart, stomach, adrenal, pancreas, small intestine, large intestine, and bone.

CONTROL
Male Rat No. 58-476

Gross:

No gross alterations were observed at necropsy.

Microscopic:

Thyroid: A great range of the size of the follicles was present. The epithelium of the follicles was most commonly squamous with some tending toward low cuboidal. The histologic appearance of this gland reflected low activity.

Lung: This organ was slightly congested. Some alveolar walls were thickened by a moderate influx of lymphocytes and occasional hypertrophy of the residing septal cells. The remainder of the lung was not remarkable.

Spleen: A moderate number of active germinal follicles were present within the spleen. Moderate numbers of megakaryocytes were scattered throughout the red pulp.

Testis: The number of secondary spermatocytes in some of the tubules was low. Most tubules exhibited normal spermatogenesis with moderate numbers of sperms being produced.

Bone Marrow: Large numbers of megakaryocytes were present both within the sternal and femoral bone marrow. Both sections of bone marrow were moderately populated and maturing elements of both erythroid and myeloid series were present.

The following organs were within the limits of expected histologic appearance: brain, pituitary, spinal cord, heart, liver, kidney, adrenal, stomach, pancreas, small intestine, large intestine, and bone.

CONTROL
Male Rat No. 58-477

Gross:

Lung: At necropsy there were red areas on the surface of the lung.

Microscopic:

Thyroid: Extreme variety in follicular size was present. Epithelium of the follicles varied from squamous to low cuboidal and the colloid stained variably eosinophilic. The histologic criteria of this gland revealed a state of low activity.

Lung: The lung was slightly congested. Lymphoreticular follicles were hyperplastic to a slight degree around some of the bronchioles. The alveolar walls were slightly thickened from a light influx of mononuclear cells, mainly, lymphocytes and by some hypertrophy of the residing septal cells.

Liver: Small foci of lymphocytes scattered throughout the liver with some associated with the portal areas and others within the midzonal region of the portal section of the lobule. Some of the foci were associated with eosinophilic debris, which had displaced the hepatocytes. Frank necrosis of the hepatocytes was not observed. The size of the hepatocytes varied within the different regions of the liver lobule. More commonly those associated near the central vein were larger cells than those near

the portal area of the lobule. The size of the nuclei within the hepatocytes of the various zones varied tremendously.

Spleen: The spleen contained moderate numbers of various-sized lymphoid follicles.

Kidney: The kidney was moderately congested. Small foci of lymphocytes were scattered throughout the kidney and, on occasion, these foci surrounded tubules, whose epithelium had undergone some hyperplasia. The epithelium of the convoluted tubules in some areas had undergone vacuolation.

Adrenal: The cytoplasm of the cells of the zona fasciculata was variably vacuolated.

Testis: Spermatogenic activity was normal and moderate.

Bone Marrow: The femoral bone marrow was moderately cellular with considerable numbers of fat cells replacing the hematogenic elements. Moderate numbers of megakaryocytes were present within this bone marrow. Maturing elements of the myeloid and erythroid series were present. The sternal bone marrow contained large numbers of megakaryocytes, small to moderate numbers of fat cells, and considerable numbers of the hematogenic cells. Maturing elements of the myeloid and erythroid series were present.

The following organs were within the limits of expected histologic appearance: brain, pituitary, spinal cord, heart, stomach, pancreas, small intestine, large intestine, and bone.

CONTROL
Male Rat No. 58-478

Gross:

No gross alterations were observed at necropsy.

Microscopic:

Brain: Small numbers of lymphocytes had infiltrated the meninges.

Thyroid: The thyroid gland was comprised of variably sized follicles. The epithelium lining of the follicles varied from a squamous to low cuboidal. The histologic appearance of this gland indicated moderate activity.

Lung: The lung was moderately congested. Variably sized, usually small, foci of lymphocytes were scattered throughout the lung. Most of these foci were in association with blood vessels or bronchioles. The alveolar walls were thickened by small numbers of lymphocytes and neutrophils, accompanied by hypertrophy of the septal cells.

Heart: One small focus of degeneration accompanied by a small number of lymphocytes.

Liver: Small foci of lymphocytes scattered throughout the liver, more commonly associated with the portal triads.

Spleen: Moderate numbers of active lymphoid follicles were present. Small numbers of megakaryocytes were present within the red pulp. Moderate numbers of small foci of extramedullary hematopoiesis were also present within the red pulp. Moderate to large numbers of macrophages contained a golden brown to yellow granular pigment.

Kidney: On occasion, the cells lining the parietal layer of Bowman's capsule had undergone metaplasia to a cuboidal type of epithelium. In other cases and with other glomeruli, the entire layer was thickened somewhat. The cytoplasm of some of the proximal convoluted tubules had a fibrillar appearance to it with these strands arranged in a parallel fashion perpendicular to the lumen.

Small
Intestine: Small numbers of eosinophils and lymphocytes were present within the submucosa.

Testis: Spermatogenic activity was normal and moderate.

Bone Marrow: Large numbers of megakaryocytes were present within the femoral marrow. A moderate amount of fat cells were present within the marrow. The myeloid and erythroid series were moderately cellular with both exhibiting maturing forms. Sternal bone marrow contained large numbers of megakaryocytes. The myeloid and erythroid series were plentifully represented and both exhibited maturing forms. The numbers of maturing myeloid elements were moderately high.

The following organs were within the limits of expected histologic appearance: pituitary, spinal cord, stomach, adrenal, pancreas, large intestine, and bone.

CONTROL
Male Rat No. 58-479

Gross:

Kidney: A dark purple zone was noted at the cortical medullary junction.

Microscopic:

Pituitary: Small numbers of the chromophobes contained vacuolated cytoplasm which, in turn, contained fibrillar or angular strands of material. Some of the chromophobes contained a very finely granulated, slightly eosinophilic material within the cytoplasm.

Thyroid: The gland was composed of variably sized follicles. The epithelium lining these follicles varied from a squamous to a definite cuboidal. The appearance of the colloid, follicles, and the epithelium suggested moderate activity.

Lung: Lung was slightly congested. The alveolar walls were slightly thickened by small numbers of lymphocytes and hypertrophic septal cells. On occasions, small numbers of neutrophils were also present within the alveolar wall.

Liver: Small numbers of hepatocytes, usually arranged in foci, contained vacuoles within the cytoplasm. These cells were present throughout the lobule but more commonly near the portal region.

Spleen: Moderate numbers of active germina. follicles were scattered throughout the spleen. Foci of extramedullary hematopoiesis were present within the red pulp.

Kidney: The proximal and distal convoluted tubules contained eosinophilic material which was either granular throughout or in small variably sized globules. Some of the distal tubules exhibited hypertrophy of the epithelial cells and, on occasion, minimal hyperplasia. The cytoplams of some of the cells lining the proximal and distal convoluted tubules contained vacuoles. Considerable numbers of proximal and distal convoluted tubules were dilated.

Adrenal: The cytoplasm of most of the cells of the zona fasciculata was finely vacuolated. Small nodules of hypertrophic cells within this zone were also present.

Small Intestine: A small number of eosinophils and neutrophils were present in the mucosa of the small intestine.

Large Intestine: Moderate numbers of neutrophils were associated around vessels, which were in turn associated with a rather diffuse lymphoid infiltration. The mucosa at this level was unaltered.

Testis: Spermatogenic activity was moderately high and normal.

Bone Marrow: The femoral bone marrow contained considerable numbers of fat cells. Moderate numbers of megakaryocytes were scattered throughout the marrow. Critical evaluation of the myeloid and erythroid series was impossible in the femoral bone marrow; however, the cellularity was moderate. The sternal bone marrow contained large numbers of megakaryocytes. The myeloid and erythroid elements were present in high numbers with both elements exhibiting maturing forms.

The following organs were within the limits of expected histologic appearance: brain, spinal cord, heart, pancreas, stomach, and bone.

CONTROL
Male Rat No. 58-480

Gross:

Lung: Dark red areas were noted on the surface of the lungs.

Microscopic:

Thyroid: Variably sized follicles were present. The epithelium of the larger follicles was predominantly squamous while that of the smaller follicles tended towards cuboidal. The histologic appearance of this gland would place its activity low.

Lung: Considerable amounts of free blood was present in the alveoli and the bronchi.

Heart: Some foci of degeneration of the myocardial fibers were present and were accompanied by small numbers of lymphocytes and histocytes.

Liver: Small foci of lymphocytes were aggregated around the portal, and on occasion, the central areas of the liver lobule.

Spleen: Moderate numbers of mature active germinal follicles were present. Considerable numbers of macrophages within the red pulp contained a yellow-brown granular pigment. Small numbers of megakaryocytes were present.

Kidney: The cytoplasm of a small number of the epithelial cells of distal convoluted tubule contained vacuoles. Rarely a collecting tubule contained a deeply basophilic aggregate of small granules that appeared to be mineral.

Adrenal: Artifactual tearing of the adrenal precluded critical evaluation; however, the cytoplasm of most of the cells of the zona fasciculata contained vacuoles.

Pancreas: A small focus of lymphocytes was present and in association with acini that were undergoing early degeneration. This focus was neither extensive nor exciting a more severe reaction.

Testis: The organ was not histologically altered. The spermatogenic activity was moderate to high and normal.

Bone Marrow: Moderate numbers of fat cells were present within the femoral bone marrow. Moderate to high numbers of megakaryocytes were scattered throughout the bone marrow. The myeloid and erythroid series was adequately represented both by numbers and maturing elements. The sternal bone marrow contained large numbers of megakaryocytes and large numbers of both myeloid and erythroid elements with maturing forms present in the latter.

The following organs were within the limits of expected histologic appearance: brain, pituitary, spinal cord, stomach, small intestine, large intestine, and bone.

CONTROL
Female Rat No. 58-570

Gross:

No gross alterations were observed at necropsy.

Microscopic:

Thyroid: Variably sized follicles were scattered throughout this organ. The epithelium was of a squamous to low cuboidal type and the colloid was of a homogeneous and slightly eosinophilic in color. Activity low.

Lung: The lung was moderately congested. Small numbers of lymphocytes and neutrophils were present within the septal wall causing a thickening of the structures. This was of a uniform character and constituted a low grade interstitial pneumonia.

Liver: Considerable variation in the size of the nuclei was noted throughout the section examined. Some of the nuclei appeared to be hyperchromatic. Considerable numbers of the hepatic cells were binucleated. Occasionally a hepatocyte contained vacuolated cytoplasm. Small foci of lymphocytes were occasionally observed near the portal triads. The staining character of the hepatocytes was variable with some taking a distinct eosinophilic stain whereas others were more pale and somewhat granular.

Spleen: Moderate numbers of mature lymphoid follicles was present within the spleen. Small numbers of megakaryocytes were present within the red pulp.

The following organs were within the limits of expected histologic appearance: brain, spinal cord, heart, stomach, pancreas, small intestine, large intestine, and bone.

CONTROL
Female Rat No. 58-572

Gross:

Lung: The lungs were dark pink in color at necropsy.

Microscopic:

Thyroid: This gland was composed of variably sized follicles. The epithelium of the follicles varied from squamous to low cuboidal. This histologic appearance accompanied with the staining quality of the colloid suggested that the gland was in a state of low to moderate activity.

Lung: The lung was moderately congested. Some of the alveolar walls were thickened from the congestion coupled with small numbers of lymphocytes and occasionally hypertrophic septal cells. Some of the alveoli appeared slightly emphysematous.

Spleen: Moderate numbers of lymphoid follicles were present. Small numbers of megakaryocytes within the red pulp. Macrophages within the red pulp contained within their cytoplasm a yellow to brownish yellow granular pigment.

Kidney: The corticomedullary junction was moderately congested and some of the collecting tubules at this level contained a homogeneous eosinophilic material. On occasion, a collecting tubule contained a darkly basophilic granule, which appeared to be mineral.

Pancreas: A small artery within the pancreas was surrounded and invaded by mononuclear cells, mainly lymphocytes, and small numbers of plasma cells and neutrophils. This inflammatory reaction was limited to the immediate vicinity of the vessel and did not involve the surrounding parenchyma.

Ovary: Several Graafian follicles and atretic follicles were present within the section of ovary examined.

Bone Marrow: The femoral bone marrow contained considerable amounts of fat. Moderate numbers of megakaryocytes were present. The myeloid and erythroid elements were fairly numerous and maturing forms were observed in both series. The sternal bone marrow contained some fat. Megakaryocytes were present in considerable numbers. The myeloid and erythroid series exhibited numerous maturing elements.

The following organs were within the limits of expected histologic appearance: brain, pituitary, spinal cord, heart, liver, adrenal, stomach, small intestine, large intestine, and bone.

CONTROL
Female Rat No. 58-573

Gross:

No gross alterations were observed at necropsy.

Microscopic:

Thyroid: Variably sized follicles comprised this gland. The epithelium of the follicles varied from a squamous to cuboidal. The activity of this gland would be placed in low to moderate range.

Lung: The lung was slightly congested. The alveolar walls were very slightly infiltrated by lymphocytes resulting in some thickening in some areas.

Liver: Small foci of lymphocytes were scattered throughout the parenchyma of the liver. These focal infiltrations were unassociated with other pathologic change in the liver.

Spleen: Moderate numbers of active lymphoid follicles were present. Moderate numbers of macrophages within the red pulp contained a yellow to yellow-brown granular pigment. Small numbers of megakaryocytes were present within the red pulp. Small foci of extramedullary hematopoiesis were present just beneath the capsule.

Ovary: Variably sized Graafian follicles and corpora lutea were present, which indicated, histologically, normal activity.

Bone Marrow: Considerable amount of fat was present within the femoral bone marrow. Low numbers of megakaryocytes were present. Maturing elements of a moderately populated myeloid and erythroid series were present. Sternal bone marrow similar to femoral.

The following organs were within the limits of expected histologic appearance: brain, pituitary, spinal cord, heart, kidney, adrenal, stomach, pancreas, small intestine, large intestine, and bone.

CONTROL
Female Rat No. 58-574

Gross:

No gross alterations were observed at necropsy.

Table No. 3B - Continued

LEAD ACETATE

LEVEL ppm lead/day	SEX	RAT NO.	LACTIC DEHYDROGENASE
		12-MONTH INTERVAL	
Control	F	58-560	790
	F	58-561	720
	F	58-562	840
	F	58-563	680
	F	58-564	750
		MEAN	756
10	F	58-672	790
	F	58-673	1,050
	F	58-674	1,060
	F	58-675	1,380
	F	58-676	1,190
		MEAN	1,094
50	F	58-772	980
	F	58-773	930
	F	58-774	870
	F	58-775	870
	F	58-776	1,480
		MEAN	1,026
100	F	58-871	900
	F	58-872	1,740
	F	58-868	1,300
	F	58-874	1,350
	F	58-876	740
		MEAN	1,206
1000	F	58-870	(>2,000)
	F	58-973	(>2,000)
	F	58-974	640
	F	58-975	1,380
	F	58-976	1,180
		MEAN	1,067

Table No. 3B - Continued

LEAD ACETATE

LEVEL - ppm lead diy	SEX	RAT NO.	LACTIC DEHYDROGENASE
		18 MONTHS	
Control	M	58-389	(720)
		REPEAT	1100
	M	58-390	(>2000)
		REPEAT	(>2000)
	M	58-391	(740)
		REPEAT	680
	M	58-392	(520)
		REPEAT	720
	M	58-393	(600)
		REPEAT	1290
		MEAN	948
10 ppm	M	58-588	(800)
		REPEAT	460
	M	58-589	(800)
		REPEAT	340
	M	58-592	(500)
		REPEAT	280
	M	58-593	(>2000)
		REPEAT	360
	M	58-595	(>2000)
		REPEAT	430
		MEAN	374
50 ppm	M	58-688	(1690)
		REPEAT	980
	M	58-689	(1080)
		REPEAT	540
	M	58-690	(1020)
		REPEAT	760
	M	58-693	(390)
		REPEAT	360
	M	58-694	(680)
		REPEAT	880
		MEAN	704

Table No. 3B - Continued

LEAD ACETATE

LEVEL ppm lead/day	SEX	RAT NO.	LACTIC DEHYDROGENASE
		18 MONTHS - Continued	
100 ppm	M	58-788	(620)
		REPEAT	360
	M	58-790	(640)
		REPEAT	280
	M	58-791	(480)
		REPEAT	280
	M	58-795	(1800)
		REPEAT	700
	M	58-799	(940)
		REPEAT	540
		MEAN	432
1000 ppm	M	58-889	(920)
		REPEAT	870
	M	58-890	(720)
		REPEAT	200
	M	58-891	(760)
		REPEAT	180
	M	58-893	(980)
		REPEAT	300
	M	58-894	(520)
		REPEAT	540
		MEAN	418

Table No. 3B - Continued

LEAD ACETATE

LEVEL ppm lead, day	SEX	RAT NO.	LACTIC DEHYDROGENASE
		18 MONTHS - Continued	
Control	F	58-493	(>2000)
		REPEAT	1520
	F	58-494	(>2000)
		REPEAT	850
	F	58-495	(1080)
		REPEAT	880
	F	58-497	(1840)
		REPEAT	1260
	F	58-498	(540)
		REPEAT	1690
		MEAN	1240
10 ppm	F	58-639	(720)
		REPEAT	580
	F	58-640	(>2000)
		REPEAT	410
	F	58-641	(250)
		REPEAT	320
	F	58-642	(1100)
		REPEAT	920
	F	58-643	(>2000)
		REPEAT	1200
		MEAN	686
50 ppm	F	58-738	(1580)
		REPEAT	1490
	F	58-739	(1390)
		REPEAT	1400
	F	58-740	(1840)
		REPEAT	1040
	F	58-741	(>2000)
		REPEAT	1670
	F	58-742	(1880)
		REPEAT	410
		MEAN	1202

Table No. 3B - Continued

LEAD ACETATE

LEVEL ppm lead/day	SEX	RAT NO.	LACTIC DEHYDROGENASE
		18 MONTHS - Continued	
100 ppm	F	58-839	(1720)
		REPEAT	930
	F	58-840	(1490)
		REPEAT	500
	F	58-841	(>2000)
		REPEAT	500
	F	58-843	(1070)
		REPEAT	1180
	F	58-844	(820)
		REPEAT	520
		MEAN	686
1000 ppm	F	58-938	(800)
		REPEAT	1100
	F	58-939	(500)
		REPEAT	500
	F	58-940	(460)
		REPEAT	580
	F	58-941	(1200)
		REPEAT	(>2000)
	F	58-942	(770)
		REPEAT	580
		MEAN	690

Table No. 3B - Continued

LEAD ACETATE

LEVEL ppm lead/day	SEX	RAT NO.	GLUCOSE-6-PHOSPHATE
		TERMINAL	
Control	M	58-393	10.0
	M	58-394	15.1
	M	58-396	15.0
	M	58-397	14.1
	M	58-399	15.3
		MEAN	13.9
10	M	58-593	12.1
	M	58-595	16.0
	M	58-596	14.1
	M	58-597	20.0
	M	58-599	10.1
		MEAN	14.5
50	M	58-697	17.5
	M	58-698	15.0
	M	58-699	14.4
	M	58-700	14.7
	M	58-704	14.1
		MEAN	15.1
1000	M	58-898	13.0
	M	58-899	12.9
	M	58-900	9.1
	M	58-902	15.0
	M	58-903	CLOT
		MEAN	12.5

Table No. 3B - Continued

LEAD ACETATE

LEVEL ppm lead/day	SEX	RAT NO.	GLUCOSE-6-PHOSPHATE
		TERMINAL	
Control	F	58-493	9.3
	F	58-494	16.4
	F	58-498	17.2
	F	58-499	15.3
	F	58-505	15.1
		MEAN	14.7
10	F	58-644	16.0
	F	58-646	17.1
	F	58-648	16.2
	F	58-649	7.1
	F	58-654	13.1
		MEAN	13.9
50	F	58-745	14.0
	F	58-748	10.2
	F	58-757	CLOT
	F	58-761	19.0
	F	58-763	13.5
		MEAN	14.2
1000	F	58-952	17.2
	F	58-955	CLOT
	F	58-956	14.3
	F	58-957	17.1
	F	58-959	13.1
		MEAN	15.4

Table No. 3B - Continued

LEAD ACETATE

LEVEL ppm lead/day	SEX	RAT NO.	GLUCOSE-6-PHOSPHATE
		TERMINAL	
Control	F	58-493	9.3
	F	58-494	16.4
	F	58-498	17.2
	F	58-499	15.3
	F	58-505	15.1
		MEAN	14.7
10	F	58-644	16.0
	F	58-646	17.1
	F	58-648	16.2
	F	58-649	7.1
	F	58-654	13.1
		MEAN	13.9
50	F	58-745	14.0
	F	58-748	10.2
	F	58-757	CLOT
	F	58-761	19.0
	F	58-763	13.5
		MEAN	14.2
1000	F	58-952	17.2
	F	58-955	CLOT
	F	58-956	14.3
	F	58-957	17.1
	F	58-959	13.1
		MEAN	15.4

Table No. 3B - Continued

LEAD ACETATE

LEVEL ppm lead/day	SEX	RAT NO.	LACTIC DEHYDROGENASE
		TERMINAL	
Control	F	58-493	700
	F	58-494	880
	F	58-498	1200
	F	58-499	940
	F	58-505	1340
		MEAN	1012
10 ppm	F	58-644	360
	F	58-646	250
	F	58-648	300
	F	58-649	410
	F	58-654	1490
		MEAN	562
50 ppm	F	58-745	280
	F	58-748	920
	F	58-757	(>2000)
	F	58-761	920
	F	58-763	(>2000)
		MEAN	707
1000 ppm	F	58-952	1300
	F	58-955	(>2000)
	F	58-956	920
	F	58-957	1740
	F	58-959	(>2000)
		MEAN	1320

Table No. 3C - Biochemical values for male and female albino rats.

LEAD ACETATE

LEVEL ppm lead/day	SEX	RAT NO.	METHEMOGLOBIN %
		12-MONTH INTERVAL	
Control	M	58-461	1.0
	M	58-462	0.0
	M	58-463	1.5
	M	58-464	1.5
	M	58-465	1.1
		MEAN	1.0
10	M	58-622	2.8
	M	58-623	3.3
	M	58-624	3.7
	M	58-625	3.8
	M	58-626	2.9
		MEAN	3.3
50	M	58-722	4.1
	M	58-723	3.2
	M	58-724	3.8
	M	58-725	3.5
	M	58-726	3.5
		MEAN	3.6
100	M	58-871	1.3
	M	58-872	3.2
	M	58-873	QNS
	M	58-874	1.9
	M	58-876	3.0
		MEAN	2.4
1000	M	58-972	QNS
	M	58-973	3.6
	M	58-974	2.5
	M	58-975	2.0
	M	58-976	2.0
		MEAN	2.5

Table No. 3C - Continued

LEAD ACETATE

LEVEL ppm lead/day	SEX	RAT NO.	METHEMOGLOBIN %
		12-MONTH INTERVAL	
Control	F	58-560	3.0
	F	58-561	2.0
	F	58-562	1.6
	F	58-563	2.9
	F	58-564	2.0
		MEAN	2.3
10	F	58-672	4.0
	F	58-673	4.2
	F	58-674	3.9
	F	58-675	2.9
	F	58-676	2.2
		MEAN	3.4
50	F	58-772	6.2
	F	58-773	5.4
	F	58-774	3.8
	F	58-775	4.6
	F	58-776	5.0
		MEAN	5.0
100	F	58-822	3.3
	F	58-823	3.3
	F	58-824	3.3
	F	58-825	3.3
	F	58-826	1.7
		MEAN	3.0
1000	F	58-922	2.2
	F	58-923	3.8
	F	58-924	3.7
	F	58-925	2.7
	F	58-926	1.9
		MEAN	2.9

Table No. 3D - Lead content determinations performed on pooled whole blood samples from groups of male and female albino rats.

LEAD ACETATE FOR 22 MONTHS

LEVEL ppm	NO. OF RATS	SEX	INTERVALS OF DETERMINATION THREE-MONTH mg/100 ml.	SIX-MONTH mg/100 ml.	12-MONTH mg/100 ml.	22-MONTH mg/100 ml.
Control	5	M	ND	ND	42.7	25
	5	F	ND	ND	22.4	25
10	5	M	ND	ND	36.1	32
	5	F	ND	ND	19.3	32
50	5	M	ND	ND	37.6	42
	5	F	ND	ND	32.9	46
100	5	M	ND	ND	27.7	NO DETERMINATIONS DONE
	5	F	ND	ND	35.4	
1000	5	M	ND	ND	86.6	92
	5	F	ND	ND	69.4	78

ND = Nondetectable

TABLE NO. 4 - URINE ANALYSES OF POOLED SAMPLES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

NO. OF RATS	S E X	TIME INT. MTHS	APPEAR.	PH	SP.GR.	SUG.	ACE-TONE	PRO-TEIN	BILI-RUBIN	OCCULT BLOOD	VOL.	RBC	WBC	EPITH	AMORPH.	CRYST.	BACT.	SPERM
									CONTROL									
00005	M	3	T YEL	7	1.019	0	0	1	0	0				0-1		MANY	MANY	
									10 PPM									
	M	3	T YEL	8	1.021	0	0	T	0	0		0-1				MANY	MANY	
									50 PPM									
	M	3	T YEL	9	1.022	0	0	1	0	0						MANY	MANY	FEW
									100 PPM									
	M	3	T YEL	7	1.014	0	0	T	0	0						MANY	MANY	FEW
									1000 PPM									
	M	3	T YEL	8	1.018	0	0	T	0	0					LITTLE	MANY	MANY	FEW

TABLE NO. 4 - URINE ANALYSES OF POOLED SAMPLES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

NO. OF RATS	S E X	TIME INT. MTHS	APPEAR.	PH	SP.GR.	SUG.	ACE-TONE	PRO-TEIN	BILI-RUBIN	OCCULT BLOOD	VOL.	RBC	WBC	EPITH	AMORPH.	CRYST.	BACT.	SPERM
								CONTROL										
00005	F	3 T	YEL	7	1.021	0	0	T	0	0					LITTLE	MANY	MANY	
								10 PPM										
	F	3 T	YEL	6	1.021	0	0	T	0	0				0-1	LITTLE	MANY		
								50 PPM										
	F	3 T	YEL	7	1.024	0	0	T	0	0						FEW	MANY	
								100 PPM										
	F	3 T	YEL	9	1.018	0	0	T	0	0					LITTLE	MANY	MANY	
								1000 PPM										
	F	3 T	YEL	7	1.013	0	0	0	0	0						MANY	MANY	

TABLE NO. 4 - URINE ANALYSES OF POOLED SAMPLES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

NO. OF RATS	SEX	TIME INT. MTHS	APPEAR.	PH	SP.GR.	SUG.	ACE-TONE	PRO-TEIN	BILI-RUBIN	OCCULT BLOOD	VOL.	RBC	WBC	EPITH	AMORPH.	CRYST.	BACT.	SPERM
									CONTROL									
00005	M	6	T P	YEL	9	1.010	0	0	1	0	0				MANY		MANY	
									10 PPM									
	M	6	T P	YEL	9	1.012	0	0	1	0	0				MANY		MANY	
									50 PPM									
	M	6	T P	YEL	9	1.010	0	0	1	0	0		0-1		FEW		MANY	FEW
									100 PPM									
	M	6	T P	YEL	8	1.011	0	0	1	0	0				MANY		MANY	FEW
									1000 PPM									
	M	6	T P	YEL	9	1.010	0	0	1	0	0				MANY		MANY	FEW

TABLE NO. 4 - URINE ANALYSES OF POOLED SAMPLES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

NO. OF RATS	S E X	TIME INT. MTHS	APPEAR.	PH	SP.GR.	SUG.	ACE-TONE	PRO-TEIN	BILI-RUBIN	OCCULT BLOOD	VOL.	RBC	WBC	EPITH	AMORPH.CRYST.	BACT.	SPERM
									CONTROL								
00005	F	6	T P YEL	9	1.010	0	0	T	0	0					MANY	MANY	
									10 PPM								
	F	6	T P YEL	9	1.010	0	0	1	0	0					MANY	MANY	
									50 PPM								
	F	6	T P YEL	8	1.015	0	0	T	0	0					MANY	MANY	
									100 PPM								
	F	6	T P YEL	9	1.015	0	0	1	0	0				LITTLE	MANY	MANY	
									1000 PPM								
	F	6	T P YEL	7	1.010	0	0	T	0	0				LITTLE	MANY	MANY	

TABLE NO. 4 - URINE ANALYSES OF POOLED SAMPLES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

NO. OF RATS	SEX	TIME INT. MTHS	APPEAR.	PH	SP.GR.	SUG.	ACE-TONE	PRO-TEIN	BILI-RUBIN	OCCULT BLOOD	VOL.	RBC	WBC	EPITH	AMORPH.	CRYST.	BACT.	SPERM
								CONTROL										
00005	M	12	V T YEL	9	1.022	0	0	3	0	0				LITTLE	MANY	MANY		FEW
								10 PPM										
	M	12	T YEL	8	1.016	0	0	1	0	0					MANY	MANY		
								50 PPM										
	M	12	T YEL	9	1.023	0	0	3	0	0					MANY	MANY		FEW
								100 PPM										
	M	12	T YEL	8	1.021	0	0	2	0	0		0-1			MANY	MANY		
								1000 PPM										
	M	12	T YEL	8	1.021	0	0	3	0	0					MANY	MANY		

TABLE NO. 4 - URINE ANALYSES OF POOLED SAMPLES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

NO. OF RATS	S E X	TIME INT. MTHS	APPEAR.	PH	SP.GR.	SUG.	ACE-TONE	PRO-TEIN	BILI-RUBIN	OCCULT BLOOD	VOL.	RBC	WBC	EPITH	AMORPH.	CRYST.	BACT.	SPERM
									CONTROL									
00005	F	12 T	YEL	7	1.014	0	0	1	0	0				0-1			MANY	MANY
									10 PPM									
	F	12 T	YEL	7	1.015	0	0	T	0	0		0-1	0-1				MANY	MANY
									50 PPM									
	F	12 T	YEL	7	1.013	0	0	1	0	0							FEW	MANY
									100 PPM									
	F	12 T	YEL	8	1.016	0	0	2	0	0							MANY	MANY
									1000 PPM									
	F	12 T	YEL	6	1.014	0	0	1	0	0				0-1			FEW	MANY

TABLE NO. 4 - URINE ANALYSES OF POOLED SAMPLES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

NO. OF RATS	S E X	TIME INT. MTHS	APPEAR.	PH	SP.GR.	SUG.	ACE-TONE	PRO-TEIN	BILI-RUBIN	OCCULT BLOOD	VOL.	RBC	WBC	EPITH	AMORPH.	CRYST.	BACT.	SPERM
								CONTROL										
00005	M	22 T	YEL	8	1.012	0	0	1	0	0				MANY			MANY	
								10 PPM										
	M	22 T	YEL	7	1.016	0	0	4	0	0				FEW			MANY	
								50 PPM										
	M	22 T	YEL	8	1.020	0	0	4	0	0				FEW			MANY	
								1000 PPM										
	M	22 T	YEL	6	1.021	0	0	4	0	0				FEW			MANY	

TABLE NO. 4 - URINE ANALYSES OF POOLED SAMPLES FOR MALE AND FEMALE ALBINO RATS.
LEAD ACETATE FOR 22 MONTHS

NO. OF RATS	S E X	TIME INT. MTHS	APPEAR.	PH	SP.GR.	SUG.	ACE-TONE	PRO-TEIN	BILI-RUBIN	OCCULT BLOOD	VOL.	RBC	WBC	EPITH	AMORPH.	CRYST.	BACT.	SPERM
									CONTROL									
00005	F	22 C	YEL	5	1.005	0	0	1	0	0		0-1		FEW	MANY			
									10 PPM									
	F	22 T	YEL	7	1.012	0	0	4	0	0				FEW	MANY			
									50 PPM									
	F	22 T	YEL	6	1.016	0	0	1	0	0				FEW	MANY			
									1000 PPM									
	F	22 T	YEL	7	1.020	0	0	4	0	0				FEW	MANY			

1000 PPM
Male Rat No. 58-930

Gross:

No gross alterations were noted at necropsy.

Microscopic:

Pituitary: A moderate number of basophils were slightly hypertropic.

Thyroid: Variably sized follicles comprised section of gland examined. Epithelium lining the follicles varied from squamous to cuboidal. The colloid was of a light eosinophilic color. Histologically this gland appeared to be in a moderate state of activity.

Lung: The lung was moderately congested. Small foci of hyperplastic lymphoreticular elements were present next to the bronchioles. Alveolar walls were slightly thickened from an influx of lymphocytes and by hypertrophy of the alveolar septal cells.

Liver: The nucleus of an occasional hepatocyte was hyperchromatic and both it and the cell were enlarged approximately one and one-half to two times normal size. Some of the central veins were ectatic.

Spleen: Moderate number of active lymphoid follicles were present. Small numbers of megakaryocytes were present within the red pulp. A brown to golden yellow granular pigment was present within the cytoplasm of macrophages within the red pulp. Small foci of extramedullary hematopoiesis were present just beneath the capsule.

Kidney: Small number of glomeruli were atrophic. The parietal layer of Bowman's capsule of these glomeruli and others was thickened by hypertrophy and some hyperplasia of the epithelial cell and from the increased

thickness of the basement membrane. Some of the epithelial cells of the proximal convoluted tubules exhibited degenerative and regenerative changes. Many of these cells were eosinophilic cytoplasm, hyperchromatic nuclei, and rarely the individual cells were greatly enlarged up to two times normal size. The nuclei of these larger cells were also increased in dimensions and quite often hyperchromatic. In some of the proximal convoluted tubules, the epithelium was frankly necrotic. Some of the nuclei of the proximal convoluted tubules contained an inclusion which was composed of small granules or a single droplet. The inclusion stained from a faint yellow-orange to a light pink. Small numbers of proximal convoluted tubules and collecting tubules contained a homogeneous eosinophilic cast material.

Adrenal: Most of the cells of the zona fasciculata exhibited vacuolation of the cytoplasm.

Testis: The spermatogenic activity was normal and moderate.

Bone Marrow: The femoral bone marrow contained moderate amounts of fat. The hematogenic elements were represented by moderate numbers of megakaryocytes and moderate numbers of maturing elements of the myeloid and erythroid series. The sternal bone marrow contained a slight amount of fat. Moderate numbers of megakaryocytes were present, as were moderate numbers of the myeloid and erythroid series. Most of the latter series exhibited maturing elements.

The following organs were within the limits of expected histologic appearance: brain, spinal cord, heart, stomach, pancreas, small intestine, large intestine, and bone.

232

1000 PPM
Male Rat No. 58-931

Gross:

No gross alterations were observed at necropsy.

Microscopic:

Pituitary: A moderate number of basophils were hypertrophic.

Thyroid: This gland was composed of follicles of various sizes. Larger and intermediately sized follicles were less numerous than the smaller follicles. The smaller follicles were lined by cuboidal epithelium. The colloid contained within the follicles was uniformly eosinophilic. The histologic appearance of this gland would place it in the moderately active category.

Lung: Alveolar walls were slightly thickened from small numbers of lymphocytes and, on occasion, hypertrophy of the septal cells.

Liver: A considerable number of the hepatocytes exhibited an increased granularity to the cytoplasm accompanied by distinct eosinophilia resulting in swelling of these cells and narrowing of the sinusoids. Small foci of necrosis of hepatocytes were present which were accompanied by small numbers of lymphocytes.

Spleen: Moderate numbers of active lymphoid follicles were present. Small foci of extramedullary hematopoiesis were present. Moderate numbers of macrophages contained a brown to yellow-brown granular pigment within the cytoplasm. Extramedullary hematopoiesis was noted to be scattered throughout the substance of the red pulp in small foci. Megakaryocytes were infrequently observed within the red pulp.

Kidney: On occasion, the parietal layer of Bowman's capsule was thickened from hypertrophy of the epithelial cells accompanied by thickening of the basement membrane. Some of the cells lining the proximal convoluted tubules exhibited various stages of degeneration characterized by slight swelling of the cells, increased granulation within the cytoplasm, and rarely hyaline droplet formation. The nuclei of a considerable number of the cells of the proximal convoluted tubules contained inclusions which were granular to droplet in formation and a light orange to light pink in tinctorial quality. On occasion, giant epithelial cells were observed lining the proximal convoluted tubules. These cells contained nuclei which were up to two times the normal size. Small amounts of an eosinophilic material were contained within the lumens of the proximal convoluted tubules, distal convoluted tubules, and collecting tubules.

Adrenal: A moderate number of the cells within the zona fasciculata exhibited vacuolation within the cytoplasm.

Pancreas: Small focus of inflammation was present within the pancreas which was characterized by small numbers of lymphocytes and early fibrosis.

Testis: Small number of tubules contained exfoliated secondary spermatocytes and other cellular debris. Most of the tubules, however, exhibited normal and moderate spermatogenic activity.

Bone Marrow: Femoral bone marrow contained considerable amounts of fat. The hematogenic elements were represented by considerable numbers of megakaryocytes and maturing elements of both myeloid and erythroid

series. Sternal bone marrow contained very little fat. Large numbers of megakaryocytes were present, as were large numbers of myeloid and erythroid elements. Both of the latter series exhibited maturing forms.

The following organs were within the limits of expected histologic appearance: brain, spinal cord, heart, stomach, small intestine, large intestine, and bone.

1000 PPM
Female Rat No. 58-977

Gross:

No gross alterations were noted at necropsy.

Microscopic:

Thyroid: This organ was composed of small, medium, and large follicles. The epithelium lining the follicles varied from a squamous to a low cuboidal in the large to small follicles, respectively. Activity was low.

Lung: One small focus of hyperplastic lymphoid reticular cells was present near a bronchiole.

Liver: Occasionally, the sinusoids near the central veins were dilated. Small foci of lymphocytes were observed in the parenchyma, not necessarily associated with any other pathologic alteration.

Spleen: A moderate number of active lymphoid follicles were present. Large amounts of a brown to yellow-brown granular pigment were contained within macrophages in the red pulp. Megakaryocytes were observed within both the red and white pulp in moderate numbers. Small foci of extramedullary hematopoiesis were present beneath the capsule.

Kidney: Some collecting tubules and distal convoluted tubules were dilated. On occasion, the parietal epithelium of Bowman's capsule exhibited hyperchromatic nuclei and, rarely, hyperplastic changes. Some of the proximal convoluted tubules exhibited early degenerative changes, characterized by swelling of the cells, increased eosinophilia, and, in some cases, sloughing of the cell into the lumen. Some of the tubules exhibited a decrease in the number of cells within the epithelium. Small numbers of very large epithelial cells were aligned along the proximal convoluted tubules. The latter cells exhibited large nuclei that were regular in internal structure to hyperchromatic. Considerable numbers of the epithelial cells lining the proximal convoluted tubule contained intranuclear inclusions which were pink in tinctorial quality. Some of the cells which contained these inclusions exhibited degenerative changes, whereas others were not. Distal convoluted and collecting tubules contained, on occasion, similar inclusions. Degenerative changes observed within the proximal tubules were not observed in the lower parts of the nephron and collecting tubule.

Small Intestine: Small numbers of neutrophils were present within the lamina propria.

Ovary: Graafian follicles, corpora lutea, and atretic follicles were present.

Bone Marrow: The femoral bone marrow contained some fat. The hematogenic elements were represented by large numbers of megakaryocytes and maturing elements of both the erythroid and myeloid series. The

sternal bone marrow contained less fat than the femoral bone marrow. Large numbers of megakaryocytes were present, as were maturing elements of both the myeloid and erythroid series.

The following organs were within the limits of expected histologic appearance: brain, pituitary, spinal cord, adrenal, heart, stomach, pancreas, large intestine, and bone.

1000 PFM
Female Rat No. 58-978

Gross:

No gross alterations were observed at necropsy.

Microscopic:

Thyroid: The gland was composed of small, medium, and large follicles which were lined by cuboidal to squamous epithelium. The histologic appearance of this gland would place it in the moderately active category.

Lung: Free fresh blood was observed within the bronchioles and alveoli, as were considerable amounts of a very fine fibrin meshwork. These reflected, most probably, the method of sacrifice.

Heart: The myocardium was moderately congested.

Liver: Considerable numbers of the sinusoids were dilated, especially near the central veins.

Spleen: The lymphoid follicles exhibited moderate activity. Low to moderate amounts of a yellow to brown granular pigment were contained within the macrophages of the red pulp. Low numbers of megakaryocytes

were present within the red pulp. Foci of extramedullary hematopoiesis were present throughout the red pulp.

Kidney: The glomeruli were slightly congested. The parietal layer of Bowman's capsule was thickened from slight hypertrophy of the epithelial cells. The epithelium of the proximal convoluted tubule exhibited degenerative changes characterized by vacuolation and granulation of the cytoplasm. The cytoplasm often was of a deeper eosinophilic color than the more normal epithelial cells. The nuclei contained inclusions which were granular to droplet, quite homogeneous, and from a light orange to eosinophilic in color. The inclusions were observed both within the nuclei of degenerating and more normal epithelial cells. The proximal convoluted tubules exhibited these changes much more frequently and with a greater severity than did the distal convoluted tubules.

Adrenal: Moderate numbers of cells in the zona fasciculata contained cytoplasmic vacuoles.

Stomach: A slight amount of hyperkeratosis was present.

Ovary: Graafian follicles and atretic follicles were observed within the substance of the ovary, indicating activity.

Bone Marrow: The sternal bone marrow contained moderate amounts of fat. The hematogenic elements consisted of moderate numbers of megakaryocytes and maturing elements of the myeloid and erythroid series. The femoral bone marrow contained considerable amounts of fat. Hematogenic elements consisted of moderate numbers of megakaryocytes and maturing elements of both the myeloid and erythroid series.

238

The following organs were within the limits of expected histologic appearance: brain, pituitary, spinal cord, pancreas, small intestine, large intestine, and bone.

1000 PPM
Female Rat No. 58-979

Gross:

No gross alterations were observed at necropsy.

Microscopic:

Thyroid: This gland was composed of small, medium, and large follicles with homogeneous eosinophilic colloid. The epithelium lining the follicles was more commonly squamous in character; however, the smaller follicles were often lined by a low cuboidal epithelium. This gland was in a state of low activity.

Lung: Large aggregates of hyperplastic lymphoreticular elements were present around bronchioles and vessels. The lung was moderately congested. The alveolar walls were thickened from hypertrophy of the septal cells, congestion, and very few leukocytes which were mainly lymphocytes.

Liver: An occasional small focus of extramedullary hematopoiesis was present. Small numbers of the sinusoids near the central veins were slightly dilated.

Spleen: Active lymphoid follicles were scattered throughout the spleen. Small to moderate numbers of macrophages within the red pulp contained granular yellow to yellow-brown to brown pigment within the cytoplasm.

Small numbers of megakaryocytes were present within the red pulp. Small foci of extramedullary hematopoiesis were present within the red pulp.

Kidney: Some of the proximal convoluted tubules exhibited early degenerative changes, characterized by swelling of the cells, increased eosinophilia, and vacuolation. The nuclei of these cells and others often contained inclusions which were granular to homogeneous and a light orange to a light eosinophilic color. The distal convoluted tubules and collecting tubules exhibited, on occasion, the inclusions; however, degenerative changes and the numbers of inclusions were much less than in the proximal convoluted tubules.

Adrenal: Considerable numbers of the cells in the zona fasciculata exhibited cytoplasmic vacuolation.

Stomach: Slight amount of hyperkeratosis.

Ovary: Graafian follicles, corpora lutea, and atretic follicles were present indicating activity.

Bone Marrow: The femoral bone marrow contained some fat. Considerable numbers of megakaryocytes were present. The myeloid and erythroid elements were numerous and represented by maturing forms. The sternal bone marrow contained some fat. Large numbers of megakaryocytes were present. The hematogenic elements were numerous and well represented by maturing elements.

The following organs were within the limits of expected histologic appearance: brain, pituitary, spinal cord, heart, pancreas, small intestine, large intestine, and bone.

1000 PPM
Female Rat No. 58-980

Gross:

No gross alterations were observed at necropsy.

Microscopic:

Spinal Cord: The spinal cord was severely distorted and precluded critical histologic examination.

Thyroid: Small, medium, and large follicles comprised this gland. The colloid was of a homogeneous eosinophilic tinctorial quality, and the follicles were lined by squamous to low cuboidal epithelium. The gland was in a low to moderate state of activity.

Lung: Small foci of hyperplastic lymphoreticular elements were present around some of the bronchioles and vasculature. The alveolar walls were thickened from slight congestion, hypertrophy of the septal cells, and small numbers of lymphocytes.

Heart: A slight amount of fibrosis in the ventricular septum.

Spleen: Moderately active lymphoid follicles were scattered throughout the spleen. A small amount of yellow to brown granular pigment was contained within the cytoplasm of macrophages within the red pulp. Small numbers of megakaryocytes were present within the red pulp.

Kidney: An occasional glomerulus was atrophic. The parietal layer of Bowman's capsule of some of the glomeruli was thickened from hypertrophy of the epithelial cells. Early hyperplastic changes were rarely observed. Considerable numbers of the proximal convoluted tubules

exhibited degenerative changes within the epithelium. These changes were characterized by swelling of the cells, increased eosinophilia, granularity, and vacuolation of the cytoplasm. In some cases, the epithelial cell was sloughed into the lumen of the tubules. Considerable numbers of giant cells were present within the epithelium of these tubules. These larger cells contained very large nuclei that were, in turn, hyperchromatic in many instances. Many of the proximal convoluted cells contained intranuclear inclusions which varied from a granule to a homogeneous droplet and from an orange to an eosinophilic color. The proximal tubules were much more severely affected and more regularly affected than were the distal convoluted tubules or collecting tubules. Intranuclear inclusions were observed within some of the epithelial cells of the latter tubules, however. Eosinophilic homogeneous material, probably proteinaceous, was contained within some of the collecting tubules.

Adrenal: The cells of the zona fasciculata were vacuolated.

Ovary: Corpora lutuea, atretic follicles, and Graafian follicles were observed indicating activity.

Bone Marrow: The femoral bone marrow contained considerable amounts of fat. The hematogenic elements consisted of small to moderate numbers of megakaryocytes and maturing elements of both myeloid and erythroid series. The sternal bone marrow consisted of a moderate amount of fat. The hematogenic elements in this marrow consisted of moderate numbers of megakaryocytes and numerous maturing elements of both the myeloid and erythroid series.

242

The following organs were within the limits of expected histologic appearance: brain, pituitary, liver, stomach, pancreas, small intestine, large intestine, and bone.

1000 PPM.
Female Rat No. 58-981

Gross:

No gross alterations were observed at necropsy.

Microscopic:

Thyroid: Small, medium, and large follicles comprised this gland. The epithelium lining the various follicles varied from squamous to plump cuboidal, and the colloid contained within the follicles was a faint eosinophilic color. The histologic appearance of this gland would place it in the moderate activity category.

Lung: Moderate congestion. Large, irregularly shaped, mineralized plaques were present within the intima of one of the larger arteries. Alveolar walls were slightly thickened due to a slight amount of congestion, hypertrophy of the septal cells, and small numbers of lymphocytes.

Spleen: Active lymphoid follicles were scattered throughout the substance of the spleen. Small to moderate amounts of a yellow to brown granular pigment were contained within macrophages of the red pulp. Small numbers of megakaryocytes were present in the red pulp. Considerable numbers of foci of extramedullary hematopoiesis were present.

Kidney: Considerable numbers of proximal convoluted tubules exhibited degenerative changes including increased eosinophilia of the epithelial

cells, hypertrophy, cloudy swelling, desquamation of the cell into the lumen, and epithelial cells without nuclei. Rarely, foci of regenerative epithelium were observed. The nuclei of many of the epithelial cells lining the proximal convoluted tubules contained inclusions which were granular to droplet in formation and orange to light pink in tinctorial quality. Moderate numbers of very large epithelial cells were present which contained very large nuclei that were, in turn, hyperchromatic. Some of the distal convoluted tubules exhibited degenerative changes but not nearly as severe nor as extensive as the changes observed in the proximal tubules. The collecting tubules were, for the most part, spared of pathologic alteration.

Adrenal: Moderate numbers of the cells in the zona fasciculata exhibited cytoplasmic vacuolation.

Ovary: Graafian follicles, corpora lutea, and atretic follicles were present indicating cyclic activity of the ovary.

Bone Marrow: The femoral bone marrow contained considerable amounts of fat. The hematogenic elements were represented by numerous megakaryocytes and maturing elements of both the myeloid and erythroid series. The sternal bone marrow contained considerable amounts of fat. The hematogenic elements consisted of numerous megakaryocytes and maturing elements of both the myeloid and erythroid series.

The following organs were within the limits of expected histologic appearance: brain, pituitary, spinal cord, heart, liver, stomach, pancreas, small intestine, large intestine, and bone.

214

SUMMARY

Tissues derived from equal-sized groups of male and female rats, one-half of which were either treated with 100 ppm or 1000 ppm lead acetate, revealed, when compared to similar tissues from untreated male and female rats, appreciable alterations in the kidneys. Other tissues including samples from brain, spinal cord, pituitary, thyroid, adrenal, lung, heart, liver, spleen, stomach, pancreas, intestine, ovary, testis, bone, and bone marrow from the control and both treatment groups failed to exhibit appreciable between group differences, histologically, which could be assigned to treatment effect.

The proximal convoluted tubules from the group of animals that received 100 ppm lead acetate exhibited in seven of the 10 rats slight to moderate vacuolation and a minimal to slight incidence of degeneration of the epithelium. Characteristically, the degenerative lesions consisted of slight hypertrophy, increased eosinophilia of the cytoplasm, and loss of the brush border. On occasion, an eosinophilic to orange, angular to granular material was present within the nucleus of some epithelial cells lining the proximal tubules. Degenerative alterations were not constantly evident in those cells with the inclusion material. Tubular cast material was observed in eight of the 10 animals examined. The distal convoluted tubules from this group of rats failed to exhibit appreciable changes histologically.

The samples of kidney tissue examined from the rats that received low ppm exhibited a slight to moderate incidence of degeneration of the epithelial cells in eight of the 10 animals. Intranuclear inclusion material was observed in all animals from a slight to a moderately severe incidence in the epithelial cells of the proximal tubules. Seven of the 10 animals from this group exhibited a slight to moderate incidence of very large epithelial cells along the course of the proximal tubules. Both the cytoplasm and nucleus of these cells were increased in volume up to three times the normal. The significance of these cells was indeterminable. Minimal to slight degenerative changes were observed in the cells lining the distal convoluted tubules of three of the 10 animals examined. Intranuclear inclusion material was observed on occasion in these cells.

In conclusion, the administration of lead acetate for six months to male and female rats, resulted in histologic alterations in the tubular structures of the kidneys when compared to the same tissues from control (untreated) rats. The tubular changes observed in the kidneys derived from the low level lead acetate treated animals consisted of vacuolation and mild degeneration, primarily of the proximal convoluted tubules, accompanied by an increase in cast material throughout the nephron and into the collecting tubules. Inclusion material was observed within some of the nuclei of the proximal convoluted tubules. The kidney tissues derived from the high level lead acetate treatment group exhibited slightly more degeneration of the epithelium lining the proximal convoluted tubules

coupled with intranuclear inclusions and megalocytosis. The distal convoluted tubules from this group exhibited a slight amount of degeneration and occasional intranuclear inclusions. Other tissues from the control and treated animals failed to reveal appreciable differences histologically.

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HISTOPATHOLOGICAL EVALUATION OF MALE AND FEMALE ALBINO RATS SACRIFICED AFTER SIX MONTHS

LEAD ACETATE

KEY:

P = Present

NS = No Section

X = Not Remarkable

+/0 = Minimal

1 = Slight

2 = Moderate

3 = Moderate to Severe

4 = Severe

HISTOPATHOLOGICAL EVALUATION OF MALE AND FEMALE ALBINO RATS SACRIFICED AFTER SIX MONTHS

LEAD ACETATE

Animal No.	BRAIN		PITUITARY		THYROID			LUNG				HEART		LIVER		
	Not Remarkable	Lymphocytic Infiltration of Meninges	Not Remarkable	Foci of Hypertrophic Chromophobes	Not Remarkable	Low Activity	Moderate Activity	Interstitial Pneumonitis	Mineral Deposition in Vasculature	Emphysema	Aspirated Blood	Not Remarkable	Degenerative Foci in Myocardium	Not Remarkable	Foci of Mononuclear Cells	Extramedullary Hematopoiesis
							CONTROL - MALE									
58-471	X			1		P	+/0					X		X		
58-472	X		X			P			P			X		X		
58-473	X		X				P 1			1		X			1	
58-474	X		X			P	+/0					X			+/0	
58-475		1	X				P 1			2		X			1	
58-476	X		X			P	1					X		X		
58-477	X		X			P	1					X			1	
58-478		1	X				P 1						P		1	
58-479	X			+/0			P 1					X		X		
58-480	X		X			P					P		P		+/0	
							CONTROL - FEMALE									
58-570	X		X			P	1					X			+/0	
58-571	X		X			P	1					X			+/0	
58-572	X		X				P 1			+/0		X		X		
58-573	X		X				P 1					X			+/0	
58-574	X		X				P 2					X			+/0	
58-575	X		X		X						P	X			1	1
58-576	X		X				P 2					X		X		
58-577	X		X				P			1	P	X			1	1
58-578	X		X				P 1					X		X		
58-579	X		X				P 1					X			1	

218

Animal No.	SPLEEN				KIDNEY						
					GLOMERULI			PROXIMAL CONVOLUTED TUBULES	DISTAL CONVOLUTED TUBULES		
	Numbers of Lymphoid Follicles	Siderocytosis	Megakaryocytes	Extramedullary Hematopoiesis	Not Remarkable	Atrophic	Hypercellularity	Vacuolation	Vacuolation	Epithelial Hyperplasia	
					CONTROL - MALE (Continued)						
58-471	2	2	1		X						
58-472	2	+/0	1				1				
58-473	3	1	+/0	1							
58-474	2				X						
58-475	2		1				1	1			
58-476	2		2		X						
58-477	2							1	1		
58-478	2	2	1	2	X						
58-479	2			1				1	1	+/0	
58-480	2	2	1						2		
					CONTROL - FEMALE (Continued)						
58-570	2	1	1						1		
58-571	2	3									
58-572	2	2	1								
58-573	2	2	1	1	X						
58-574	2	1	1	1		+/0		1			
58-575	2	2	1	1				2			
58-576	2	2	3	1							
58-577	2	2	1	1				1			
58-578	2	2	1	1				3			
58-579	2	3	1	1			1	3			

Animal No.	KIDNEY (Continued)					ADRENAL		STOMACH	PANCREAS			SMALL INTEST.	LARGE INTEST.	
	Dilatation of Tubules	Tubular Casts	Congestion	Nonsuppurative Interstitial Inflammation	Mineral Deposits in Tubules	Not Remarkable	Foci of Hyperplastic Zona Fasciculata Cells	Not Remarkable	Not Remarkable	Inflammatory Foci	Pigmentation	Not Remarkable	Enteritis	Not Remarkable	Colitis
CONTROL - MALE (Continued)															
58-471							+/0	X	X				+/0	X	
58-472		1		1			1	X	X			X		X	
58-473		2		1		X		X	X			X		X	
58-474						X		X	X			X		X	
58-475		1		1		X		X	X			X		X	
58-476						X		X	X			X		X	
58-477			2	1		X		X	X			X		X	
58-478						X		X	X				+/0	X	
58-479	2						2	X	X				1		
58-480					1	X		X		+/0		X		X	
CONTROL - FEMALE (Continued)															
58-570						X		X	X			X		X	
58-571	1	1				X		X	X			X		X	
58-572		1			1	X		X		1		X		X	
58-573						X		X	X			X		X	
58-574	1	1				X		X			1	X		X	
58-575		2				X		X	X			X		X	
58-576		1		1		X		X	X			X		X	
58-577						X		X	X			X		X	
58-578						X		X	X			X		X	
58-579		1				X		X	X			X		ES	

Animal No.	TESTIS		OVARY	BONE MARROW						BONE
				FEMORAL			STERNAL			
	Spermatozoa Precursors Free in Lumen	Spermatogenesis	Ovarian Activity	Fat Content	Myeloid and Erythroid Hematogenesis	Megakaryocytes	Fat Content	Hematogenesis	Megakaryocytes	Not Remarkable
				CONTROL - MALE (Continued)						
58-471		2		3	2	2	2	2	2	X
58-472		2			3	3		3	3	X
58-473	P	2			2	2		2	3	X
58-474		3			2	3		2	2	X
58-475		3			3	3		2	3	X
58-476		2			2	3		2	3	X
58-477		2		3	2	2	2	2	3	X
58-478		2		2	2	3		2		X
58-479		3		3	P	2			3	X
58-480		3		2	2	2		3	3	X
				CONTROL - FEMALE (Continued)						
58-570			P	3	2	2	3	2	2	X
58-571			P	2	3	3	2	3	3	X
58-572			P	3	2	2	1	3	3	X
58-573			P	3	2	1	3	2	1	X
58-574			P	3	2	2	1	3	2	X
58-575			P	3	1	2	3	2	2	X
58-576			P	1	2	2		3	2	X
58-577			P	2	1	1		2	2	X
58-578			P	2	2	2	1	2	2	X
58-579			P	3	1	1	2	2	2	X

252

Animal No.	BRAIN	PITUITARY		THYROID			LUNG					HEART		LIVER		
	Not Remarkable	Not Remarkable	Foci of Hypertrophic Chromophobes	Not Remarkable	Low Activity	Moderate Activity	Not Remarkable	Interstitial Pneumonitis	Mineral Deposition in Vasculature	Emphysema	Aspriated Blood	Not Remarkable	Degenerative Foci in Myocardium	Not Remarkable	Foci of Mononuclear Cells	Extramedullary Hematopoiesis
100 PPM - MALE																
58-827	X	X				P		1			P	X			1	
58-828	X	X				P	NS					X		X		
58-829	X	X				P		1			P	X			1	1
58-830	X	X				P		1				X		X		
58-831	X	X		NS				1	P				P		1	
100 PPM - FEMALE																
58-877	X	X				P		1				X				1
58-878	X		1			P	X					X		X		
58-879	X	X				P		1				X		X		
58-880	X	X			P			2			P	X			1	1
58-831	X	X				P		1				X		X		
1000 PPM - MALE																
58-927	X	X				P		2				X			1	
58-928	X	X				P		2	P	1			P	X		
58-929	X				P			2					P	X		
58-930	X					P		1				X		X		
58-931	X					P		1				X		X		
1000 PPM - FEMALE																
58-977	X	X			P		X					X			1	
58-978	X	X				P					P	X		X		
58-979	X	X			P			1				X				1
58-980	X	X				P		1				X		X		
58-981	X	X				P		1	P			X		X		

Animal No.	SPLEEN				KIDNEY										
					GLOMERULI		PROXIMAL CONVOLUTED TUBULES						DISTAL CONVOLUTED TUBULES		
	Numbers of Lymphoid Follicles	Siderocytosis	Megakaryocytes	Extramedullary Hematopoiesis	Atrophic	Hypercellularity	Vacuolation	Epithelial Degeneration	Intranuclear Inclusion Bodies	Protein Imbibition	Megalocytosis	Epithelial Hyperplasia	Epithelial Degeneration	Intranuclear Inclusion Bodies	
100 PPM - MALE (Continued)															
58-827	2	1	1	1				1				+/0			
58-828	2		+/0	1		3		1				+/0			
58-829	2	1		1			+/0	+/0				2			
58-830	2	1		1			1		+/0	1					
58-831	2	2	1	1			1	1							
100 PPM - FEMALE (Continued)															
58-877	2	1	1	1	1		1		1						
58-878	2	2	1	1			2		+/0						
58-879	2	2	3	3			2	1							
58-880	2	3	1	2			1	1							
58-881	2	2	1	1	2			+/0							
1000 PPM - MALE (Continued)															
58-927	3	2		1		1	2		1	1	2				
58-928	2	1	2	1		1	1		3	3	2				
58-929	2	3	1	1		1		2	2					1	
58-930	2	1	1	1	1			1	1		1				
58-931	2	2	1	1				1	3		1				
1000 PPM - FEMALE (Continued)															
58-977	2	3	2	1				1	1		1			1	
58-978		1	1	1				1	1				+/0		
58-979		2	1	1				1	2					1	
58-980	2	1	1		1			2	2		2		+/0	1	
58-981	2	2	1	2				2	2		2		1		

Animal No.	KIDNEY (Continued)			ADRENAL		STOMACH		PANCREAS		SMALL INTEST.		LARGE INTEST.	TESTIS		OVARY
	Dilatation of Tubules	Tubular Casts	Nonsuppurative Interstitial Inflammation	Not Remarkable	Foci of Hyperplastic Zona Fasciculata Cells	Not Remarkable	Hyperkeratosis	Not Remarkable	Inflammatory Foci	Not Remarkable	Enteritis	Not Remarkable	Spermatozoa Precursors Free in Lumen	Spermatogenesis	Ovarian Activity
100 PPM - MALES (Continued)															
58-827		1		X		X		X		X		X		2	
58-828		1		X		X		X		X		X		2	
58-829		2		X		X		X		X		X		2	
58-830		1		X		X		X		X		X		2	
58-831				X		X		X		X		X		2	
100 PPM - FEMALE (Continued)															
58-877		1		X		X		X		X		X			P
58-878	2	2		X			1	X		X		X			P
58-879		2		X			1	X		X		X			P
58-880	1	1			1	X		X		X		X			P
58-881	1			X		X		X		X		X			P
1000 PPM - MALE (Continued)															
58-927		1	1	X		X		X		X		X		2	
58-928			+/0	X		X		X		X		X	P	2	
58-929	+/0	2		X		X		X		X		X		1	
58-930		1		X		X		X		X		X		2	
58-931		1		X		X			1	X		X	P	2	
1000 PPM - FEMALE (Continued)															
58-977	1			X		X		X			1	X			P
58-978				X			1	X		X		X			P
58-979				X			1	X		X		X			P
58-980		1		X		X		X		X		X			P
58-981				X		X		X		X		X			P

Animal No.	BONE MARROW						BONE	
	FEMORAL			STERNAL				
	Fat Content	Myeloid and Erythroid Hematogenesis	Megakaryocytes	Fat Content	Hematogenesis	Megakaryocytes	Not Remarkable	Fibrous Tissue at Epiphysis
100 PPM - MALE (Continued)								
58-827	1	3	3	1	3	3	X	
58-828	3	1	1	2	2	2	X	
58-829	3	2	2	NS				1
58-830		3	2		3	2	X	
58-831	1	3	2	2	3	2	X	
100 PPM - FEMALE (Continued)								
58-877	1	3	2	1	3	3	X	
58-878	3	2	2	2	3	3	X	
58-879	3	2	2	2	2	2	X	
58-880	1	3	2	1	3	3	X	
58-881	3	2	2	2	3	2	X	
1000 PPM - MALE (Continued)								
58-927		3	3		3	3	X	
58-928	2	3	3	2	3	3	X	
58-929	1	3	3	1	3	3	X	
58-930	2	2	2	1	2	2	X	
58-931	3	2	2	1	3	3	X	
1000 PPM - FEMALE (Continued)								
58-977	1	3	3	1	3	3	X	
58-978	3	2	2	2	2	2	X	
58-979	1	2	3	1	2	3	X	
58-980	3	2	2	2	2	2	X	
58-981	3	2	2	3	2	2	X	

HISTOPATHOLOGICAL EVALUATION FOR MALE AND FEMALE ALBINO RATS
SACRIFICED AFTER 12 MONTHS

LEAD ACETATE

CONTROL
Male Rat No. 58-460

GROSS	MICROSCOPIC
Thyroid:	Thyroid:
No alterations described.	Small- and medium-sized follicles predominate with larger follicles at periphery.
	Colloid light eosinophilic and quite homogeneous.
	Epithelium predominantly low with some plump cuboidal.
	Activity moderate.
Lung:	Lung:
No alterations described.	Slight congestion.
	Minimal chronic murine pneumonia characterized by focal nodular lymphoreticular hyperplasia in perivascular and peribronchial tissues.
	Minimal thickening of alveolar walls by hypertrophy and hyperplasia of alveolar septal cells along with infiltrations of mononuclear inflammatory cells and small numbers of neutrophils.
	One large vessel contained a mineral deposit within the wall.
Liver:	Liver:
No alterations described.	Minimal periportal cholangitis characterized by infiltrations of the portal areas by mononuclear inflammatory cells.
	Rarely a focus of mononuclear cells within the parenchyma unassociated with hepatocytes.

CONTROL
Male Rat No. 58-460 (Continued)

GROSS	MICROSCOPIC
Kidney:	Kidney:
No alterations described.	Moderate numbers of epithelial cells lining the proximal convoluted tubules contained a yellow to brown granular pigment.
	Slight congestion.
	Slight increase in protein imbibition by cells lining proximal convoluted tubules characterized by small droplets of an eosinophilic material within the cytoplasm.
	Occasional proximal convoluted tubule contained a droplet to globular cast material that was eosinophilic and quite homogeneous in nature.
	Slight focal chronic nephritis characterized by infiltration of interstitium by mononuclear inflammatory cells.
	Rarely a collecting tubule contained a homogeneous eosinophilic cast material.
	One small focus of proximal convoluted tubules had changes characteristic of a nephrosis characterized by a swelling of the epithelial cells, large numbers of protein droplets within the cytoplasm (eosinophilic droplets) and contained a homogeneous eosinophilic material within the lumen.
	Occasional collecting duct dilated and contained an eosinophilic cast material.

CONTROL
Male Rat No. 58-460 (Continued)

GROSS	MICROSCOPIC
	Occasional tubule within cortex contained regenerative epithelial cells.
Spleen:	Spleen:
No alterations described.	Moderately high lymphoid activity.
	Moderate reticuloendothelial activity.
	Moderately large amount of a brown to yellow granular pigment within macrophages.
	Minimal amount of extramedullary hematopoiesis.
Pancreas:	Pancreas:
No alterations described.	Slight amount of a yellow to brown granular, quite refractile pigment deposited in the interstitial cells associated with the islets.
Duodenum:	Duodenum:
No alterations described.	Slight infiltration of the lamina propria by mononuclear inflammatory cells and by eosinophils.
	Minimal congestion.
	Slight mitotic activity of epithelial cells in the mucosa.
Colon:	Colon:
No alterations described.	Minimal congestion.
	Slight mitotic activity of the mucosa.

CONTROL
Male Rat No. 58-460 (Continued)

GROSS	MICROSCOPIC
Testis:	Testis:
No alterations described.	Spermatogenic activity normal and moderately high.
	Occasional mononuclear spermatozoal precursor in lumen.
Bone Marrow:	Bone Marrow:
No alterations described.	Moderately large numbers of megakaryocytes.
	Numerous maturing elements of both myeloid and erythroid series.
	Activity moderately high.

The following organs were neither described grossly nor remarkable microscopically: brain, pituitary, spinal cord, adrenal, heart, stomach, and bone.

CONTROL
Male Rat No. 58-461

GROSS	MICROSCOPIC
Thyroid:	Thyroid:
No alterations described.	Medium and large follicles predominated. Colloid light eosinophilic and quite homogenous. Epithelial predominantly squamous to low cuboidal. Activity low.
Lung:	Lung:
No alterations described.	No tissue available for sectioning or examination.
Liver:	Liver:
No alterations described.	Slight pericholangitis characterized by infiltration of portal areas by mononuclear inflammatory cells.
Heart:	Heart:
No alterations described.	Slight congestion.
Kidney:	Kidney:
No alterations described.	Slight congestion. Rarely a collecting tubule dilated and contained an eosinophilic homogeneous cast material. Minimal amount of a yellow to brown granular pigment within macrophages of interstitium or within epithelial cells lining proximal convoluted tubules.

CONTROL
Male Rat No. 58-461 (Continued)

GROSS	MICROSCOPIC
	Minimal focal chronic interstitial nephritis characterized by small accumulations of mononuclear inflammatory cells.
Spleen:	Spleen:
No alterations described.	Moderately high lymphoid activity. Moderate reticuloendothelial activity. Moderate amount of a yellow to brown granular pigment within macrophages. Slight extramedullary hematopoiesis.
Stomach:	Stomach:
No alterations described.	Moderate focal vasculitis of blood vessels of muscularis characterized by infiltrations of eosinophils into the vascular walls and perivascular tissues.
Pancreas:	Pancreas:
No alterations described.	Slight amount of a yellow to brown granular pigment within interstitial cells.
Duodenum:	Duodenum:
No alterations described.	Slight enteritis characterized by infiltrations of lamina propria by mononuclear inflammatory cells along with moderate numbers of eosinophils. Slight mitotic activity of the epithelial cells in the mucosa.

CONTROL
Male Rat No. 58-461 (Continued)

GROSS	MICROSCOPIC
Colon:	Colon:
No alterations described.	Slight mitotic activity of the epithelial cells in the mucosa. Slight congestion.
Testis:	Testis:
No alterations described.	Spermatogenic activity normal and moderately high. Occasional mononuclear spermatozoal precursor within lumen of seminiferous tubules.
Bone Marrow:	Bone Marrow:
No alterations described.	Moderate numbers of megakaryocytes. Moderate numbers of maturing elements of myeloid and erythroid series. Activity appeared moderate.

The following organs were neither described grossly nor remarkable microscopically: brain, pituitary, spinal cord, adrenal, and bone.

CONTROL
Male Rat No. 58-462

GROSS	MICROSCOPIC
Thyroid:	Thyroid:
No alterations described.	Small, medium, and large follicles with the former two predominating. Colloid light eosinophilic and quite homogeneous Epithelium predominantly cuboidal to tall cuboidal in the smaller follicles and squamous in the larger follicles. Minimal folding of the epithelium. Activity moderately high.
Lung:	Lung:
White spots observed after fixation.	Slight chronic murine pneumonia characterized by perivascular and peribronchial focal nodular lymphoid hyperplasia. Slight congestion. One of the larger vessles had a mineralized plaque within the wall.
Liver:	Liver:
No alterations described.	Slight pericholangitis characterized by infiltrations of the portal areas by small numbers of mononuclear inflammatory cells. Rarely a small focus of mononuclear cells in parenchyma unassociated with hepatopathy.

CONTROL
Male Rat No. 58-462 (Continued)

GROSS	MICROSCOPIC
Heart:	Heart:
No alterations described.	Slight congestion. Minimal focal myocardial areas characterized by infiltrations of mononuclear inflammatory cells accompanied by minimal fibrosis.
Kidney:	Kidney:
No alterations described.	Minimal amount of a yellow to brown granular pigment within epithelial cells.
Spleen:	Spleen:
No alterations described.	Moderately high lymphoid activity. Moderate reticuloendothelial activity. Moderate amount of a yellow to brown granular pigment within macrophages. Moderate extramedullary hematopoiesis.
Duodenum:	Duodenum:
No alterations described.	Slight infiltration of lamina propria by mononuclear inflammatory cells along with some eosinophils. Slight mitotic activity in the epithelium.
Colon:	Colon:
No alterations described.	Minimal infiltration of mucosa by eosinophils. Minimal mitotic activity.
Testis:	Testis:
No alterations described.	Spermatogenic activity normal and moderately high.

CONTROL
Male Rat No. 58-462 (Continued)

CROSS	MICROSCOPIC
Bone Marrow:	Bone Marrow:
No alterations described.	Moderate numbers of megakaryocytes. Moderate numbers of maturing elements of both myeloid and erythroid series. Activity appeared moderate.

The following organs were neither described grossly nor remarkable microscopically: brain, pituitary, spinal cord, adrenal, stomach, pancreas, and bone.

CONTROL
Male Rat No. 58-463

GROSS	MICROSCOPIC
Thyroid:	Thyroid:
No alterations described.	Small, medium, and large follicles with the small and medium sized predominating. Colloid light eosinophilic and quite homogeneous. Epithelium predominantly cuboidal with some folding. Activity moderately high.
Lung:	Lung:
No alterations described.	Moderately severe chronic murine pneumonia characterized by focal nodular perivascular and peribronchial lymphoreticular infiltration and hyperplasia with extension and compression of surrounding parenchyma, accompanied by ectasia of bronchioles which contained polymorphonuclear leukocytes (bronchiectatic abscess). Lymphoid infiltrates involved mucosa of bronchioles. Slight congestion. Slight emphysema. Slight focal thickening of alveolar walls by hypertrophy and minimal hyperplasia of alveolar cells. One of the larger vessels contained a mineral plaque within the wall.

Microscopic:

Thyroid: This organ was composed of follicles, which were in turn basically of two sizes. The larger follicles were lined by a squamous to low cuboidal epithelium whereas the smaller follicles, which were quite uniform in size, were lined by a more cuboidal epithelium. The colloid had a tinctorial quality of faint eosinophilic nature and was homogeneous. The histologic appearance of the gland would place it in the range of moderate activity.

Lung: The lung was slightly congested. The alveolar walls were thickened from a combination of the congestion accompanied by some lymphocytes and few neutrophils. The septal cells were somewhat hypertrophic in some areas and several foci of hyperplasia of the septal cells had occurred near some bronchial aggregates of lymphoreticular cells which had undergone hyperplasia. Some of the alveoli contained a homogeneous eosinophilic material, which in turn contained a fibrillar eosinophilic material. The lesions in this animal's lungs were compatible with those of mild or early chronic murine pneumonia.

Liver: Small foci of lymphocytes were scattered throughout the parenchyma and were not associated with other pathologic change in the liver.

Spleen: Moderate numbers of active lymphoid follicles were present. Small foci of extramedullary hematopoiesis were present within the red pulp. Small numbers of megakaryocytes were scattered throughout the red pulp. A small amount of yellow to brown pigment was contained within macrophages of the red pulp. Some of the proximal convoluted tubules contained within the cytoplasm of the epithelium variably sized, usually small vacuoles. On occasion, an atrophic glomerulus was observed.

Kidney: Small nonsuppurative inflammatory foci at corticomedullary junction. Proximal convoluted tubules exhibited vacuolated cytoplasm. Occasional hemoglobin cast in collecting tubules. Slight dilation of some collecting tubules. Interstitium in pelvis contained slight nonsuppurative focus of inflammation.

Adrenal: A small amount of a golden brown-yellow pigment was contained within the cytoplasm of the cells of the zona fasciculata and zona reticularis.

Pancreas: Small numbers of reticular cells contained within their cytoplasm golden brown to yellow granules of pigment. The pancreatic acini and islets of Langerhans were normal histologically.

Ovary: Variably sized Graafian follicles and corpora lutea were present indicating functional activity of this organ.

Bone Marrow: The femoral marrow contained considerable numbers of fat. Moderate numbers of megakaryocytes were present as were maturing elements of myeloid and erythroid series. The sternal bone marrow contained some fat, moderate numbers of megakaryocytes, and moderately high numbers of maturing elements of both the myeloid and erythroid series.

The following organs were within the limits of expected histologic appearance: brain, pituitary, spinal cord, heart, stomach, small intestine, large intestine, and bone.

CONTROL
Female Rat No. 58-575

Gross:

Lung: Dark red areas were noted on the surface of the lungs.

Microscopic:

Lung: Macrophages within alveolar cells contained small amounts of a granular golden brown pigment. The lung was slightly congested. Moderate amounts of free blood were observed within the alveoli of some bronchioles which was probably the result of the necropsy procedure.

Liver: Small foci of lymphocytes were scattered throughout the liver. An occasional small focus of extramedullary hematopoiesis was present within the parenchyma of the liver.

Spleen: Moderate numbers of active lymphoid follicles were present. Small numbers of megakaryocytes were present. An occasional focus of extramedullary hematopoiesis was present. Macrophages within the red pulp contained both the yellow to brown, yellow-brown pigment within the cytoplasm; also, other macrophages had phagocytized erythrocytes.

Kidney: The collecting tubules contained a homogeneous eosinophilic material. The epithelium of some proximal convoluted tubules contained variably sized, usually quite large, vacuoles.

Ovary: Graafian follicles and corpora lutea were present indicating normal function of the ovary by histologic criteria.

Bone Marrow: The femoral marrow contained considerable amount of fat. Small to moderate numbers of megakaryocytes were present. The myeloid and erythroid elements were not numerous; however, maturing forms were present in both series. The bone marrow of the sternum contained considerable quantities of fat accompanied by moderate numbers of megakaryocytes. The hematogenic system was moderately populated with maturing forms of both the myeloid and erythroid series.

The following organs were within the limits of expected histologic appearance: brain, pituitary, spinal cord, heart, adrenal, stomach, pancreas, small intestine, large intestine, and bone.

CONTROL
Female Rat No. 58-578

Gross:

No gross alterations were observed at necropsy.

Microscopic:

Thyroid: The follicles were various sizes. The epithelium lining the follicles was most commonly of cuboidal shape. The colloid was faintly eosinophilic and fibrillar in nature. The histologic appearance of this gland would place it in a moderately active category.

Lung: A small number of lymphoreticular foci were present associated with bronchioles and blood vessels. Some of the alveoli contained an eosinophilic fibrillar to granular material. The alveolar walls were slightly thickened by hypertrophy of the septal cell and influx of small numbers of lymphocytes and occasional neutrophil. The lung was slightly congested.

Liver: One of the central veins within the liver was surrounded by a focus of necrosis of the hepatic cells. This focus contained moderate numbers of lymphocytes and a few neutrophils and scanning processes in the form of immature fibroblast and early collagen deposition.

Spleen: A moderate number of lymphoid follicles were present. The reticuloendothelium component of this spleen was moderately hyperplastic. Consider-

able numbers of megakaryocytes were present throughout the red pulp. Moderate numbers of macrophages within the red pulp contained a brown to golden brown granular pigment. Small foci of extramedullary hematopoiesis were also present.

Kidney: The kidney was moderately congested. An eosinophilic homogeneous material was present within the urinary spaces of some of the glomeruli. There were small foci of lymphocytes scattered throughout the interstitium of the cortex. Some of the collecting tubules and proximal and distal convoluted tubules contained eosinophilic cast material.

Adrenals: Small foci of cells of the zona fasciculata were hypertrophic and contained large follicles within their cytoplasm and associated cells. One group of cells of the zona arcuate were hypertrophic and quite vacuolated.

Ovary: Graafian follicles and atretic follicles were present.

Bone Marrow: The femoral marrow was moderately populated by hematopoietic elements. Moderate numbers of megakaryocytes were present. The myeloid and erythroid series were well represented both in numbers and maturing forms. Small amount of fat was present within the femoral bone marrow. Sternal bone marrow contained moderate numbers of megakaryocytes. The myeloid and erythroid series were represented by large numbers of cell exhibiting maturing forms.

The following organs were within the limits of expected histologic appearance: brain, pituitary, spinal cord, heart, stomach, pancreas, small intestine, large intestine, and bone.

CONTROL
Female Rat No. 58-578

Gross:

Lung: The lung exhibited dark red areas throughout its substance.

Kidney: Cystic structures surrounded both kidneys at necropsy.

Microscopic:

Thyroid: Follicles of varying sizes comprised the gland. The epithelium lining these follicles varied from a squamous to low cuboidal. The collagen was somewhat variable in staining intensity from a pale to a darker eosinophilic and was homogeneous in appearance. Histologically this gland appeared to be in a state of moderate activity.

Lung: Small numbers of alveoli were emphysematous. Fresh blood was contained within some alveoli and bronchioles.

Liver: Small foci of lymphocytes were scattered throughout the heart, some associated with the portal structures; however, some were within the midzonal region of the lobules. Occasionally some small foci of hepatocytes contained vacuoles within the cytoplasm. In the section examined, a small focus of extramedullary hematopoiesis was present.

Spleen: Moderate numbers of active lymphoid follicles were present. Low numbers of megakaryocytes were present with the red pulp. An occasional focus of extramedullary hematopoiesis was present within the red pulp usually just beneath the capsule. Erythrophagia was common. Moderate numbers of macrophages within the red pulp contained a yellow to golden brown granular pigment.

Kidney: The cytoplasm of the epithelial cells lining the proximal convoluted tubules had, on occasion, variably sized vacuoles.

Stomach: The mucosa contained one focus of mature fibrous connective tissue which was accompanied by considerable numbers of inflammatory cells, mainly neutrophils and occasional lymphocytes.

Large Intestine: Nematodes were present within the lumen of the large intestine. Considerable amount of mucus was also present within the lumen.

Ovary: Several Graafian follicles, corpora lutea, and atretic follicles present indicating normal function, histologically.

Bone Marrow: The femoral bone marrow contained a moderate amount of fat. Small numbers of megakaryocytes were present and the hematopoietic elements were represented by maturing forms. The latter cells were not especially numerous. The sternal bone marrow contained moderate numbers of megakaryocytes and was well populated with the hematopoietic elements. Maturing forms of both the erythroid and myeloid series were present.

The following organs were within the limits of expected histologic appearance: brain, pituitary, spinal cord, heart, adrenal, pancreas, small intestine, and bone.

CONTROL
Female Rat No. 58-578

Gross:

No gross alterations were observed at necropsy.

Microscopic:

Thyroid: Variably sized follicles comprised the gland. The epithelium lining the various follicles varied from squamous to a low cuboidal. The colloid was of a faint eosinophilic color and homogeneous in nature. Histologically, the thyroid appeared to be in the state of moderate activity.

Lung: Some of the alveolar walls were thickened from hypertrophy of the septal cells, in some areas by a homogeneous eosinophilic material, and on occasion, small numbers of lymphocytes. Small foci of hyperplastic lymphoreticular elements were present around some of the vessels and bronchioles.

Spleen: A moderate number of lymphoid follicles were present. Small foci of extramedullary hematopoiesis were present within the red pulp, especially near the capsule. Small numbers of megakaryocytes were present within the red pulp. Moderate number of macrophages within the red pulp contained a yellow to golden brown pigment within the cytoplasm.

Kidney: Considerable numbers of the proximal convoluted tubules contained cytoplasmic vacuoles.

Ovary: Graafian follicles, corpora lutea, and atretic follicles were present indicating functional activity of this organ.

Bone Marrow: The femoral bone marrow contained a moderate amount of fat. Moderate numbers of megakaryocytes were present. The hematogenic elements were moderately populated by developing forms of both the myeloid and erythroid series. Sternal bone marrow contained a small amount of fat. Moderate numbers of megakaryocytes were present. Cells of the myeloid and the erythroid series were present in moderate numbers and both mature and immature forms were present.

204

The following organs were within the limits of expected histologic appearance: brain, pituitary, spinal cord, heart, liver, adrenal, stomach, pancreas, small intestine, large intestine, and bone.

CONTROL
Female Rat No. 58-579

Gross:

No gross alterations were noted at necropsy.

Microscopic:

Spinal Cord: Small amount of mineral in the leptomeninges.

Thyroid: Variably sized follicles comprised the gland. Squamous to low cuboidal epithelium lined the follicles. The colloid was of a fine granular to fibrinous character. Histologically the activities of this gland appeared to be slight to moderate.

Lung: Considerable portion of the section examined exhibited atelectasis. The alveolar walls were slightly thickened by hypertrophy of the septal cells and accompanied by a small or slight influx of lymphocytes and occasional neutrophils. The lung was slightly congested. Small foci of lymphoreticular elements were present about some of the bronchioles and some of the blood vessels.

Liver: Small foci of lymphocytes were scattered throughout the liver more commonly associated, however, with the portal areas.

Spleen: Moderate numbers of lymphoid follicles were present throughout the spleen. Small foci of extramedullary hematopoiesis were present within

the red pulp. Small numbers of megakaryocytes were present within the red pulp. Macrophages contained considerable amounts of yellow to golden brown pigment.

Kidney: Some of the glomeruli were hypercellular and swollen. Considerable numbers of the epithelial cells of the proximal convoluted tubules contained vacuoles within the cytoplasm. Some of these same tubules contained eosinophilic cast material.

Large Intestine: No section was available for examination.

Ovary: Graafian follicles, corpora lutea, and atretic follicles were present indicating activity of this organ.

Bone Marrow: The femoral bone marrow contained considerable amounts of fat. Small numbers of megakaryocytes were present. The hematogenic elements were present in low numbers with both myeloid and erythroid series represented by mature and immature forms. The sternal bone contained less fat and considerably more hematogenic elements including megakaryocytes and myeloid and erythroid cells. Elements that were maturing were present in both of the latter two series.

The following organs were within the limits of expected histologic appearance: brain, pituitary, heart, adrenal, stomach, pancreas, small intestine, large intestine, and bone.

100 PPM
Male Rat No. 58-827

Gross:

At necropsy the lungs exhibited dark red areas.

Microscopic:

Pituitary: The section of tissue submitted for examination was too small to evaluate.

Thyroid: This gland was comprised of small, medium, and large follicles with the medium follicles predominating. The colloid was of an eosinophilic color and quite homogeneous. The epithelium lining the follicles was predominantly cuboidal, varying from a low to plump cuboidal. The gland was moderately active.

Lung: A large amount of blood was present within alveoli and bronchioles. This was possibly artifactually produced at necropsy. Focally, the alveolar septa were thickened by hypertrophy of the septal cells, slight influx of lymphocytes, and neutrophils.

Liver: Small collections of lymphocytes were present about the portal triads.

Spleen: Active lymphoid follicles were present. Small amounts of a brown to yellow granular pigment were contained within the cytoplasm of macrophages within the red pulp. Small numbers of megakaryocytes were present within the red pulp. Small foci of extramedullary hematopoiesis were present.

Kidney: Some of the proximal convoluted tubules exhibited slight hypertrophy and loss of brush border of the epithelial cells. Hyperplasia was rarely observed in the same tubules. Some of the proximal convoluted tubules contained eosinophilic fibrillar to granular material and sloughed epithelial cells.

Testis: Spermatogenic activity was moderate.

227

Bone Marrow: The femoral and sternal bone marrow contained small amounts of fat. The hematogenic elements were represented by large numbers of megakaryocytes and numerous maturing elements of both the myeloid and erythroid series.

The following organs were within the limits of expected histologic appearance: brain, spinal cord, adrenal, heart, stomach, pancreas, small intestine, large intestine, and bone.

100 PPM
Male Rat No. 58-828

Gross:

No gross alterations observed at necropsy.

Microscopic:

Thyroid: This gland was composed of small, medium, and large follicles, and the colloid was of an eosinophilic color and granular in appearance. The epithelium lining the follicles was of a plump cuboidal nature. Activity moderate.

Lung: The lung was omitted from this animal.

Liver: Most of the hepatocytes were slightly swollen, which resulted in the diminution of the size of the sinusoids.

Spleen: Active lymphoid follicles were present. A very small amount of a brown to yellow granular pigment was present within macrophages of the red pulp. A few small foci of extramedullary hematopoiesis were present just beneath the capsule. Very small numbers of megakaryocytes were present within the red pulp.

Kidney: Considerable numbers of the glomeruli were swollen and somewhat hypercellular. In these, the urinary space was obliterated. The epithelium of the parietal layer of Bowman's capsule was also hypertrophic. Some of the proximal convoluted tubules exhibited quite advanced degenerative changes characterized by swelling of the cells, increased eosinophilia of the cytoplasm, increased granularity of the cytoplasm, and, in some cases, vacuolation of the cytoplasm. Regeneration of the epithelium was often observed nearby. The interstitium about the degenerating tubules often exhibited early fibroplasia. These lesions were, however, quite focal. Focally, the epithelium of the proximal convoluted tubules was hyperplastic. Hematogeneous casts were observed on occasion in the collecting tubules. Small amounts of a brown-yellow pigment were seen within the cytoplasm of some of the proximal convoluted tubules.

Adrenal: Considerable numbers of the cells in the zona fasciculata exhibited vacuolated cytoplasm.

Testis: Spermatogenic activity was moderate.

Bone Marrow: The femoral bone marrow contained considerable amounts of fat. The hematogenic elements consisted of small numbers of megakaryocytes and maturing elements of both the myeloid and erythroid series. The sternal bone marrow contained less fat than the femoral bone marrow. Moderate numbers of megakaryocytes were present, as were numerous elements of both the myeloid and erythroid series. The latter two hematogeneous elements exhibited maturing forms.

The following organs were within the limits of expected histologic appearance: brain, pituitary, spinal cord, heart, stomach, pancreas, small intestine, large intestine, and bone.

100 PPM
Male Rat No. 58-829

Gross:

Liver: The liver was dark purple-red in color.

Microscopic:

Thyroid: The gland was composed of small, medium, and large follicles filled with a light eosinophilic colloid and lined by cuboidal epithelium in the main. The activity of this gland would be placed in a moderate category.

Lung: A considerable amount of free fresh blood within the alveolar lumen and bronchioles. Lymphoreticular hyperplasia was present around the semibronchioles and vessels. The latter alteration was neither extensive nor large in amount. Some of the alveolar walls were slightly distended by hypertrophy of the alveolar septal cells. An occasional megakaryocyte was present within the lung.

Liver: Small foci of mononuclear cells were scattered throughout the substance of the liver. Some of these foci appeared to be extramedullary hematopoiesis, while others were composed mainly of lymphocytes.

Spleen: Active lymphoid follicles were present. A small amount of brown to yellow-brown granular pigment was contained within macrophages of

the red pulp. Small foci of extramedullary hematopoiesis were present, especially, just beneath the capsule.

Kidney: Some of the proximal convoluted tubules exhibited very early degenerative changes, characterized by slight swelling of the epithelial cells, slight increased eosinophilia, granulation within the cytoplasm, and vacuolation. Some of these cells were sloughed into the lumen of the tubule. Moderate numbers of foci of hyperplasia of of the epithelium of these tubules were observed. Proximal convoluted tubules, distal convoluted tubules, and collecting tubules contained eosinophilic homogeneous cast material. Hemoglobin casts were rarely observed.

Testis: Spermatogenic activity was moderate.

Bone: Small amounts of fibrous connective tissue were incorporated within the zone of mineralized cartilage. The bone sporules being produced were normal.

Bone Marrow: The femoral bone marrow contained considerable amounts of fat. Moderate numbers of megakaryocytes were present. Numerous maturing elements of both the erythroid and myeloid series were present.

The following organs were within the limits of expected histologic appearance: brain, pituitary, spinal cord, heart, adrenal, stomach, pancreas, small intestine, and large intestine.

100 PPM
Male Rat No. 58-830

Gross:

No gross alterations were observed at necropsy.

Microscopic:

Thyroid: The gland was comprised of small, medium, and large follicles, with the smaller follicles predominating. The larger follicles, which tended to be at the periphery, contained an eosinophilic homogeneous to finely fibrillar colloid. The epithelium lining the larger follicles tended to be more squamous, whereas, that which lined the smaller follicles was of a cuboidal nature. The activity of this gland would be categorized as low to moderate.

Lung: The lung was slightly congested. The aveolar walls were thickened focally by hypertrophy of the septal cells; slight influx of mononuclear cells, mainly lymphocytes; and a slight amount of congestion. Small foci of lymphoreticular nodules were present, especially near bronchioles and arterioles.

Liver: A slight amount of fibroplasia within the portal triads. In some areas, the hepatocytes were swollen resulting in diminution of the size of the sinusoids. Some hepatocytes contained vacuoles within the cytoplasm.

Spleen: Active lymphoid follicles were present. Small numbers of megakaryocytes were present within the red pulp. On occasion, small foci of extramedullary hematopoiesis were present. Small numbers of macrophages within the red pulp contained a yellow to brown granular pigment within the cytoplasm.

Kidney: Some of the proximal convoluted tubules contained globules of eosinophilic debris. The epithelial cells of the proximal convoluted

tubules were somewhat swollen and granular in appearance. Rarely, intranuclear inclusions, which were granular to droplet formations and a light orange to a light pink in color, were observed. Similar inclusions were observed rarely in the nuclei of distal convoluted tubules. The distal convoluted tubules contained cast material which was rather homogeneous and eosinophilic.

Adrenal: The cells in the zona fasciculata were finely vacuolated.

Testis: Spermatogenic activity was moderate.

Bone Marrow: The femoral bone marrow was populated by moderate numbers of megakaryocytes and numerous hematogenic elements of both the myeloid and erythroid series. Both of the latter series exhibited maturing forms. The sternal bone marrow did not differ from the femoral marrow.

The following organs were within the limits of expected histologic appearance: brain, pituitary, spinal cord, heart, stomach, pancreas, small intestine, large intestine, and bone.

100 PPM
Male Rat No. 58-831

Gross:

Liver: The liver exhibited a mottled surface at necropsy.

Microscopic:

Thyroid: No section was available for examination.

Lung: Small foci of lymphoreticular elements were present around some of the larger bronchioles. One of the larger vessels contained a rather extensive mineralized plaque that occupied the intima and part of the media. The lung was slightly congested.

Heart: One small focus of myocarditis was observed within the wall of right ventricle. Inflammatory cells were predominantly lymphocytes.

Liver: A considerable amount of blood was present within the sinusoids. Small foci of lymphocytes were present within the parenchyma of the liver and occasionally around the portal triads.

Spleen: Active lymphoid follicles were present. Moderate numbers of macrophages within the red pulp contained a granular yellow to yellow-brown pigment. Small numbers of megakaryocytes were present within the red pulp. Small numbers of foci of extramedullary hematopoiesis were present, usually just beneath the capsule.

Kidney: Moderate numbers of cells of the proximal convoluted tubules contained a yellow to yellow-brown granular pigment within the cytoplasm. Some of the proximal convoluted tubules exhibited alteration of the epithelium, characterized by vacuolatior, increased eosinophilia, and sloughing of the cell into the lumen.

Adrenal: A considerable number of the cells of the zona fasciculata contained vacuoles.

Testis: Spermatogenic activity was moderate.

Bone Marrow: A small amount of fat within the femoral bone marrow. The hematogenic elements consisted of moderate numbers of megakaryocytes and numerous maturing elements of both the myeloid and erythroid series.

The sternal bone marrow contained moderate amounts of fat. Hematogenic elements consisted of moderate numbers of megakaryocytes and numerous maturing forms of the myeloid and erythroid cells.

The following organs were within the limits of expected histologic appearance: brain, pituitary, spinal cord, stomach, pancreas, small intestine, large intestine, and bone.

100 PPM
Female Rat No. 58-877

Gross:

No gross alterations were observed.

Microscopic:

Thyroid: This gland was composed of follicles varying from small to large which contained homogeneous eosinophilic colloid and which were lined by squamous to cuboidal epithelium. This gland would be classified as moderately active.

Lung: The major bronchioles were surrounded by lymphoreticular aggregates which had infiltrated the mucosa in many parts. The remainder of the lung was without significant alteration.

Liver: Several small foci of extramedullary hematopoiesis were contained within the substance of the liver.

Spleen: Active lymphoid follicles were present. Small numbers of megakaryocytes were present. Small foci of extramedullary hematopoiesis were present. A moderate number of macrophages in the red pulp contained a yellow to brown granular pigment within their cytoplasm.

Kidney: The epithelium of some of the proximal convoluted tubules was swollen and exhibited some vacuolation. Rarely, nuclei of these cells contained inclusions which were granular or droplet in formation and usually pink in color. Occasionally, the distal convoluted tubule and collecting tubules contained eosinophilic homogeneous cast material. Most of the glomeruli appeared to be somewhat atrophic with the urinary spaces dilated. Some of the collecting tubules contained hemoglobin casts.

Adrenal: Most of the cells of the zona fasciculata contained cytoplasmic vacuoles.

Ovary: Graafian follicles and few atretic follicles were present.

Bone Marrow: The femoral bone marrow contained some fat. Moderate numbers of megakaryocytes and numerous maturing elements of the myeloid and erythroid series were present. The sternal bone marrow contained small amounts of fat. Large numbers of megakaryocytes and maturing elements of both the myeloid and erythroid series were present.

The following organs were within the limits of expected histologic appearance: brain, pituitary, spinal cord, heart, stomach, pancreas, small intestine, large intestine, and bone.

100 PPM
Female Rat No. 58-878

Gross:

No gross alterations were observed at necropsy.

Microscopic:

Pituitary: Several small nodules of hypertrophic chromophobes.

Thyroid: This gland was composed of small, medium, and large follicles which contained a rather homogeneous eosinophilic colloid. The epithelium lining the follicles varied from squamous to a plump cuboidal. The appearance of this gland would place it in the low to moderate active category.

Spleen: Active lymphoid follicles were present. Moderate amounts of brown to yellow-brown pigment were contained within macrophages within the red pulp. Small numbers of foci of extramedullary hematopoiesis were present within the red pulp. Small numbers of megakaryocytes were present.

Kidney: Considerable estasia and filling of some of the collecting tubules with homogeneous eosinophilic proteinaceous material. The epithelial cells of considerable numbers of the proximal convoluted tubules exhibited swelling, loss of brush border, and cytoplasmic vacuolation. Rarely, intranuclear inclusions were observed that were bright pink in staining color and were granular to droplet in appearance.

Adrenal: Considerable numbers of the cells of the zona fasciculata contained cytoplasmic vacuoles.

Stomach: A slight amount of hyperkeratosis.

Ovary: Several Graafian follicles were present.

Bone Marrow: The femoral bone marrow contained considerable amounts of fat. The hematogenic elements consisted of moderate numbers of

megakaryocytes and maturing elements of both the myeloid and erythroid series. The sternal bone marrow contained less fat than the femoral bone marrow. Considerable numbers of megakaryocytes were present as were numerous developing forms of the myeloid and erythroid series.

The following organs were within the limits of expected histologic appearance: brain, spinal cord, lung, heart, liver, pancreas, small intestine, large intestine, and bone.

100 PPM
Female Rat No. 58-879

Gross:

No gross alterations were noted at necropsy.

Microscopic:

Brain: Small foci of fresh hemorrhage within the brain stem without surrounding reaction.

Thyroid: Small, medium, and large follicles containing homogeneous eosinophilic colloid and lined by low to plump cuboidal epithelium. This gland was in the state of low to moderate activity.

Lung: Small nodules of lymphoreticular hyperplasia at the level of the larger bronchioles. The alveolar walls were slightly thickened from hypertrophy of the septal cells.

Liver: A small focus of necrosis was present within the substance of the liver attended by infiltration of mononuclear cells. Occasional small focus of vacuolated hepatocytes.

Spleen: Active lymphoid follicles were present. Considerable numbers of megakaryocytes were scattered throughout the spleen. Moderate amounts of brown to yellow-brown granular pigment were contained within macrophages of the red pulp. Considerable numbers of foci of extramedullary hematopoiesis were present.

Kidney: Most of the proximal convoluted tubules exhibited at least some vacuolation in the cytoplasm. These cells also exhibited some loss of brush border and slight hypertrophy. Eosinophilic material was often contained within their lumen. The cortex was slightly congested as was the medulla.

Adrenal: Most of the cells of the zona fasciculata contained vacuolated cytoplasm.

Stomach: A slight amount of hyperkeratosis.

Ovary: Small numbers of Graafian follicles and several of corpora lutea were present.

Bone Marrow: The femoral bone marrow contained considerable amounts of fat. Moderate numbers of megakaryocytes and hematogenic elements were present. The erythroid and myeloid series were represented by maturing forms. The sternal bone marrow contained some fat. The hematogenic elements were represented by moderate numbers of megakaryocytes and considerable numbers of maturing elements of both the erythroid and myeloid series.

The following organs were within the limits of expected histologic appearance: pituitary, spinal cord, heart, pancreas, small intestine, large intestine, and bone.

100 PPM
Female Rat No. 58-880

Gross:

No gross alterations were noted at necropsy.

Microscopic:

Thyroid: The small specimen submitted for examination consisted of small to large follicles that contained a homogeneous eosinophilic colloid and lined by squamous to low cuboidal epithelium. The activity of this gland would be placed in the low category.

Lung: The alveolar walls were moderately thickened by hypertrophy of the septal cells and a slight influx of mononuclear cells, predominantly lymphocytes. Some of the alveoli contained eosinophilic fibrillar material, most probably fibrin. Some free fresh blood was present within the alveoli and bronchial lumens.

Liver: Small infiltrations of lymphocytes around many of the portal triads. Small foci of extramedullary hematopoiesis were present.

Spleen: Active lymphoid follicles were present. Large amounts of a brownish to yellow-brown pigment were contained within macrophages of the red pulp. A moderate number of small foci of extramedullary hematopoiesis were present. Small numbers of megakaryocytes were present.

Kidney: Moderate numbers of collecting tubules contained an eosinophilic homogeneous proteinaceous material. Some of these tubules were quite distended and filled with this material. The epithelium of considerable numbers of the proximal convoluted tubules was hypertrophic with

loss of the brush border, slight vacuolation, and slight increased eosinophilia of the cytoplasm. Some of the epithelial cells were distinctly eosinophilic and undergoing degenerative changes.

Adrenal: This gland was quite uniformly, severely congested throughout. One nodule of hyperplasia was present within the zona fasciculata. There were a few small nodules of hypertrophy of the cells in the zona fasciculata also.

Ovary: Maturing Graafian follicles and corpora lutea were present.

Bone Marrow: The femoral bone marrow contained some fat. The hematogenic elements consisted of moderate numbers of megakaryocytes and numerous developing myeloid and erythroid elements. The sternal bone marrow contained small amounts of fat. Large numbers of megakaryocytes were present as were numerous elements of the myeloid and erythroid series.

The following organs were within the limits of expected histologic appearance: brain, pituitary, spinal cord, heart, stomach, pancreas, small intestine, large intestine, and bone.

100 PPM
Female Rat No. 58-881

Gross:

No gross alterations were observed at necropsy.

Microscopic:

Thyroid: Small, medium, and large follicles comprised this gland. The colloid was of an eosinophilic and fibrillar to granular in appearance.

The epithelium lining the follicles was squamous in the larger follicles and tended toward a plump cuboidal in the smaller follicles. The activity of this gland would place it in the slight to moderate range.

Lung: Slightly congested. Most of the alveolar walls were slightly thickened from hypertrophy of the septal cells, the congestion, and very small numbers of infiltrating lymphocytes.

Liver: The sinusoids were quite dilated. A considerable amount of a homogeneous eosinophilic proteinaceous material was present at the central vein.

Spleen: Active lymphoid follicles were present. A moderate amount of brown to yellow-brown granular pigment was contained within macrophages of the red and white pulp. Small numbers of megakaryocytes were present as were small numbers of extramedullary hematopoiesis.

Kidney: Moderate numbers of glomeruli were slightly atrophic. Some of the collecting tubules were dilated. The epithelium of a small number of the proximal convoluted tubules was swollen and slightly more eosinophilic than normal. Occasionally, individual epithelial cells within the tubules exhibited degenerative changes and rarely necrotic epithelial cells were observed.

Adrenal: A moderate number of the cells of the zona fasciculata contained cytoplasmic vacuoles.

Ovary: Numbers of developing Graafian follicles, corpora lutea, and atretic follicles were present.

Bone Marrow: Considerable amount of fat was present within the femoral bone marrow. Hematogenic elements consisted of moderate numbers of megakaryocytes and developing forms of both the myeloid and erythroid series. The sternal bone marrow consisted of moderate amounts of fat, moderate numbers of megakaryocytes, and numerous developing forms of both the myeloid and erythroid series.

The following organs were within the limits of expected histologic appearance: brain, pituitary, spinal cord, heart, stomach, pancreas, small intestine, large intestine, and bone.

1000 PPM
Male Rat No. 58-927

Gross:

No gross alterations observed at necropsy.

Microscopic:

Pituitary: Small numbers of the chromophobes contained large vacuoles within their cytoplasm.

Thyroid: The follicles comprising this gland were of various sizes; however, the epithelium lining the individual follicles was most commonly cuboidal in appearance. The colloid was eosinophilic and quite homogeneous in character. The histologic appearance of this gland placed it in a moderate active category.

Lung: The lung was moderately congested. Alveolar walls were thickened from hypertrophy of the septal cells, influx of lymphocytes, and the congestion. Nodules of lymphoreticular elements were eccentrically

placed about some of the bronchioles and blood vasculature and, in some cases, these nodules invaded the wall of the bronchioles and involved the epithelium.

Liver: Small foci of lymphocytes scattered throughout the liver with larger numbers at the portal areas.

Spleen: Considerable amber pigment in macrophages of red pulp. Slight amount of extramedullary hematopoiesis. Large number of active follicles.

Kidney: Small foci of lymphocytes were scattered throughout the section of kidney examined and constituted a focal nonsuppurative chronic inflammation. Some of the glomeruli were hypercellular. The Bowman's capsules surrounding these glomeruli were, on occasion, thickened due to increased thickness of the basement membrane and, in other cases, due to hypertrophy of the lining epithelial cell. Most of the proximal convoluted tubules contained vacuoles within the cytoplasm of the epithelium. A small number of the nuclei of the epithelial cells lining the proximal convoluted tubules contained orange to red inclusion material. Some of these inclusion bodies appeared as a homogeneous droplet; whereas others were quite granular in appearance. In either case the chromatin was marginated around the edge of the nucleus with a fairly distinct halo immediately surrounding the inclusion. A considerable number of both proximal and distal convoluted tubules contained faintly eosinophilic homogeneous cast material. A small number of the epithelial cells of the convoluted

tubules contained cytoplasmic granules that were yellow to brown in color. Some cells of the proximal convoluted tubules were up to three times normal size and contained large vesiculated nuclei. On occasion, an epithelial cell contained eosinophilic rather homogeneous material that was probably proteinaceous.

Stomach: Slight inflammation of muscularis by small numbers of neutrophils and lymphocytes.

Testis: The spermatogenic activity was normal and moderate.

Bone Marrow: The femoral and sternal bone marrow was very cellular and contained large numbers of megakaryocytes and of cells of the erythroid and myeloid series. Maturing elements of both the myeloid and erythroid series were present in large numbers.

The following organs were within the limits of expected histologic appearance: brain, spinal cord, heart, adrenal, pancreas, small intestine, large intestine, and bone.

1000 PPM
Male Rat No. 58-928

Gross:

No gross alterations were observed at necropsy.

Microscopic:

Thyroid: Variably sized follicles comprised this gland. The epithelium was mainly of the low cuboidal type, and the colloid was of a faint eosinophilic staining quality. The histologic appearance of this gland would place it in a moderately active category

Lung: The lung was moderately congested. The alveolar walls were thickened by the congestion, accompanied by hypertrophy of the septal cells, and a moderately heavy influx of lymphocytes. One of the larger vessels near the hilus of the lung contained a mineral plaque within the intima. A focus of lymphoreticular hyperplasia was present within the wall of the bronchus and some lymphoid cells had invaded the submucosa of that bronchus. Some alveoli were emphysematous and others contained a fibrillar eosinophilic material.

Heart: An occasional small focus of myocardial degeneration was present within the papillary muscle with lymphocytes and occasional mast cells.

Liver: A slight amount of portal fibrosis and biliary hyperplasia within the substance of the liver. These alterations were unassociated with inflammatory reactions. Several fairly large cysts were present within substance of the liver. The etiology and contents of these structures were not present within the section examined.

Spleen: Moderate numbers of active lymphoid follicles were present. Small foci of extramedullary hematopoiesis were present. Moderate numbers of megakaryocytes were present. Small amount of a golden brown to yellow pigment was contained within the cytoplasm of macrophages within the red pulp.

Kidney: An occasional glomerulus was hypercellular and had rarely undergone sclerotic changes. The epithelial lining of the parietal layer of Bowman's capsule was hypertrophic in some areas, and the associated basement membrane was thickened. Considerable numbers of proximal convoluted tubules contained faintly eosinophilic globular material.

A moderate number of these cells were enlarged three times the normal size and contained very large, vesiculated nuclei. The cytoplasm of the epithelial cells lining these tubules was on occasion vacuolated, and the nuclei of a considerable number of these cells contained inclusion bodies. These bodies varied in size and shape and tinctorial properties. The smaller ones were granular and faintly eosinophilic and possessed an orange cast; whereas, the larger ones often assumed an angular shape and were faintly eosinophilic. A moderate number of these epithelial cells also contained a granular pigment which was brown to yellow in color. Regeneration of the tubular epithelium was observed on occasion. A moderate amount of connective tissue hyperplasia was also present throughout the section observed; however, the incidence of inflammation was low.

Adrenal: The cytoplasm of the cells of the zona arcuata was uniformly vacuolated. The capsule of this organ was rather irregular and had a roughened appearance.

Testis: On occasion, tubules contained precursors to spermatozoa which were mainly sloughed secondary spermatocytes. The other tubules exhibited normal and moderate spermatogenic activity.

Bone Marrow: The femoral bone marrow contained a moderate amount of fat. The hematogenic elements were quite well populated, however, with considerable numbers of megakaryocytes and maturing forms of both the erythroid and myeloid elements. The sternal bone marrow also contained considerable numbers of fat. Moderate numbers of megakaryocytes were present as were maturing elements of both the myeloid and

227

erythroid series. The latter series were not as densely populated as observed in the femoral bone marrow.

The following organs were within the limits of expected histologic appearance: brain, pituitary, spinal cord, stomach, pancreas, small intestine, large intestine, and bone.

1000 PPM
Male Rat No. 58-929

Gross:

No gross alterations were observed at necropsy.

Microscopic:

Pituitary: Some groups of basophils appeared to be slightly hypertrophic with small vacuoles and strands of basophilic material throughout the cytoplasm. Small numbers of these cells contained very large single vacuoles within the cytoplasm.

Thyroid: The section of thyroid examined contained variably sized follicles which were lined by very low cuboidal epithelium. Activity was low.

Lung: This tissue was moderately congested. One bronchus was quite severely involved with a fairly large nodule of hyperplastic lymphoreticular elements. The outer zones of this lymphoid tissue contained cells of hyperchromatic nuclei, evidence of mitotic activity, and some extension from the primary focus into the surrounding lung parenchyma. The epithelium lining of the bronchus was extensively infiltrated with the lymphoid cells and some neutrophils. In some areas, the epithelium

was destroyed or removed by the underlying influx of lymphoid cells. Alveolar septae were thickened from hypertrophied septal cells, lymphocytes, and small numbers of neutrophils. In some areas, an eosinophilic fibrillar material was also deposited within the alveolar walls.

Heart: A small focus of myocarditis was present within the subepicardium. The AV valve of the left ventricle had undergone slight myxoid degeneration. These changes had resulted in the heart valve becoming thicker.

Spleen: Moderate numbers of active lymphoid follicles were present. Considerable numbers of macrophages within the red pulp contained a brown to yellow granular pigment. Erythrophagia was common in the red pulp. Small foci of extramedullary hematopoiesis were present, especially under the capsule. Small numbers of megakaryocytes were present within the red pulp.

Kidney: Some of the glomeruli appeared to be hypercellular and somewhat swollen. The parietal layer of Bowman's capsule was often thickened due to hypertrophy and hyperplasia of the epithelial cells. Some of the epithelial cells lining the proximal convoluted tubules were undergoing degenerative changes exemplified by an irregularly affinitive for eosin, hypertrophy of the cell, and a definite granularity to the cytoplasmic content. The nuclei of many of these cells contained variably sized eosinophilic droplets. In some areas the epithelium exhibited regenerative changes. Some of the cells of the proximal convoluted tubules were enlarged and the nuclei were tremendously enlarged and contained three to four of the eosinophilic droplets.

Nuclei of the distal convoluted tubules contained, on occasion, similar droplets as was observed in the nuclei of the proximal tubules; however, degeneration of the distal tubules was not as commonly observed as in the proximal. Many of the proximal, distal, and collecting tubules contained various amounts of an eosinophilic homogeneous to granular material. An occasional collecting tubule was dilated; and, in one instance, the epithelium was very hyperplastic.

Adrenal: Small number of the cells in the zona fasciculata were vacuolated.

Pancreas: In one focus a moderate amount of mature fibrous connective tissue was present dividing and surrounding some acini of the pancreas resulting in atrophy of these. A group of islets of Langerhans was also separated by considerable amounts of the fibrous connective tissue.

Testis: Small numbers of tubules exhibited a general suppression of the spermatogenic activity characterized by fewer numbers of maturing spermatozoa and fewer numbers of primary spermatocytes. The germinal epithelium was unaffected in the section examined.

Bone Marrow: The sternal and femoral bone marrow contained a small quantity of fat. The hematogenic elements were numerous with large numbers of megakaryocytes and maturing elements of both the myeloid and erythroid series.

The following organs were within the limits of expected histologic appearance: brain, spinal cord, liver, stomach, small intestine, large intestine, and bone.

CONTROL
Male Rat No. 58-463 (Continued)

GROSS	MICROSCOPIC
Liver:	Liver:
No alterations described.	Slight pericholangitis characterized by infiltration of mononuclear inflammatory cells into the portal areas.
Heart:	Heart:
No alterations described.	Slight congestion. Slight myocarditis involving the tip of one of the atria characterized by infiltration of the musculature by inflammatory cells, predominantly lymphocytes accompanied by slight edema and minimal congestion. Moderate focal and linear myocarditis involving both walls and interventricular septum characterized by a slight degeneration of myocardial fibers accompanied by infiltrations of inflammatory cells, predominantly lymphocytes and some edema.
Kidney:	Kidney:
No alterations described.	Rarely a deposit of mineral within the collecting tubules of the papilla. Occasional collecting tubule contained an eosinophilic fibrillar to homogeneous cast material. Minimal amount of a yellow to brown granular pigment within epithelial cells lining proximal convoluted tubules.

CONTROL
Male Rat No. 58-463 (Continued)

GROSS	MICROSCOPIC
	Minimal hyperplasia of pelvic epithelium. Slight congestion. Minimal interstitial nephritis characterized by focal infiltrations of mononuclear inflammatory cells.
Spleen: No alterations described.	Spleen: Moderately high lymphoid activity. Moderately large amount of a yellow to brown granular pigment within macrophages. Moderate reticuloendothelial activity. Moderate extramedullary hematopoiesis.
Pancreas: No alterations described.	Pancreas: Slight amount of a yellow to brown granular pigment deposited within interstitial cells.
Duodenum: No alterations described.	Duodenum: Minimal focal nodular lymphoid hyperplasia within lamina propria. Slight infiltration of lamina propria by mononuclear inflammatory cells along with minimal numbers of eosinophils. Minimal congestion. Slight mitotic activity of epithelial cells in mucosa.

CONTROL
Male Rat No. 58-463 (Continued)

GROSS	MICROSCOPIC
Colon:	Colon:
No alterations described.	No tissue available for sectioning or histologic examination.
Testis:	Testis:
No alterations described.	Spermatogenic activity normal and moderately high. Occasional tubule contained one to several mononuclear spermatozoal precursors.
Bone Marrow:	Bone Marrow:
No alterations described.	Moderate number of megakaryocytes. Moderate numbers of maturing elements of both myeloid and erythroid series. Hematogenic activity appeared moderate.

The following organs were neither described grossly nor remarkable microscopically: brain, pituitary, spinal cord, adrenal, stomach, and bone.

270

CONTROL
Male Rat No. 58-464

GROSS	MICROSCOPIC
Thyroid:	Thyroid:
No alterations described.	Small, medium, and large follicles. Colloid light eosinophilic and homogeneous to granular. Epithelium varied from squamous in the larger to fairly tall cuboidal the smaller follicles. Activity moderate.
Lung:	Lung:
No alterations described at necropsy; however, after fixation cystic-appearing structures present on the surface.	Moderately severe chronic murine pneumonia characterized by infiltration and hyperplasia of lymphoreticular elements in the peribronchial and perivascular tissues with extension into the parenchyma, accompanied by slight hyperplasia of the alveolar septal cells. Slight collapse of adjacent lung tissue. Alveolar walls focally thickened by the hyperplasia of the septal cells along with minimal congestion. Slight emphysema. Minimal amount of a yellow to brown granular pigment within macrophages associated with the lymphoid infiltration and also occasionally within septal cells in parenchyma.

271

CONTROL
Male Rat No. 58-464 (Continued)

GROSS	MICROSCOPIC
Liver:	Liver:
No alterations described.	Slight pericholangitis characterized by infiltration of portal areas by mononuclear inflammatory cells.
Kidney:	Kidney:
No alterations described.	Slight congestion. Moderate amount of a yellow to brown granular pigment within some epithelial cells lining proximal convoluted tubules. Slight focal interstitial nephritis characterized by infiltration of mononuclear inflammatory cells. Rarely a collecting tubule dilated and contained a homogeneous eosinophilic cast material. Rarely a tubule contained a concentrically laminated basophilic material, possibly mineral deposit. Minimal chronic pyelitis characterized by infiltration of the subpelvic epithelium by mononuclear inflammatory cells. Slight congestion.
Spleen:	Spleen:
No alterations described.	Moderately high lymphoid activity. Moderate extramedullary hematopoiesis.

CONTROL
Male Rat No. 58-464 (Continued)

GROSS	MICROSCOPIC
	Slight reticuloendothelial activity. Moderate amount of a yellow to brown granular pigment within macrophages.
Stomach: No alterations described.	Stomach: Slight amount of fibrous connective tissue within deeper portions of mucosa accompanied by minimal dilatation of glands and some atrophy of the deeper glands.
Duodenum: No alterations described.	Duodenum: Slight infiltration of lamina propria by mononuclear inflammatory cells, accompanied by a few eosinophils. Minimal congestion in mucosa. Slight epithelial mitotic activity.
Colon: No alterations described.	Colon: Slight congestion. Minimal epithelial mitotic activity.
Testis: No alterations described.	Testis: Normal spermatogenic activity and moderately high.
Bone Marrow: No alterations described.	Bone Marrow: Moderately large numbers of megakaryocytes. Numerous maturing elements of both myeloid and erythroid series. Activity moderately high.

373

CONTROL
Male Rat No. 58-464 (Continued)

GROSS	MICROSCOPIC

The following organs were neither described grossly nor remarkable microscopically: brain, pituitary, spinal cord, adrenal, heart, pancreas, and bone.

CONTROL
Male Rat No. 58-465

GROSS	MICROSCOPIC
Pituitary:	Pituitary:
No alterations described.	No section available for examination.
Thyroid:	Thyroid:
No alterations described.	Small, medium, and large follicles throughout. Colloid light eosinophilic and quite homogeneous. Epithelium low cuboidal to cuboidal. Activity moderate.
Lung:	Lung:
Greatly distended and postcaval lobe had small abscess.	Section examined severely altered by inflammatory changes characteristic of advanced stages of chronic murine pneumonia complex and included septal cell hyperplasia, bronchiectatic abscesses, peribronchiolar and perivascular lymphoreticular infiltrations and hyperplasia with compression of adjacent parenchyma. Slight congestion. Slight emphysema.
Liver:	Liver:
No alterations described.	Moderate reticuloendothelial hyperplasia. Moderate extramedullary hematopoiesis. Slight pericholangitis. Slight bile duct hyperplasia.

CONTROL
Male Rat No. 58-465 (Continued)

GROSS	MICROSCOPIC
Heart:	Heart:
No alterations described.	Slight congestion. Minimal focal myocarditis characterized by infiltrations of mononuclear inflammatory cells associated with small numbers of swollen eosinophilic homogeneous myocardial fibers.
Kidney:	Kidney:
No alterations described.	Slight congestion. Occasional collecting tubule slightly ectatic and contained a homogeneous bright eosinophilic cast material. Minimal focal interstitial nephritis characterized by infiltrations of small numbers of mononuclear inflammatory cells within the cortex.
Spleen:	Spleen:
No alterations described.	Moderately high lymphoid activity. Moderately high reticuloendothelial activity. Moderately large amount of extramedullary hematopoiesis. Moderately large amount of a yellow to brown granular pigment within macrophages.
Stomach:	Stomach:
No alterations described.	Slight dilatation of deeper glands of mucosa.

CONTROL
Male Rat No. 58-465 (Continued)

GROSS	MICROSCOPIC
Pancreas:	Pancreas:
No alterations described.	Moderate amount of a yellow to brown granular pigment within interstitial cells.
Duodenum:	Duodenum:
No alterations described.	Moderate infiltration of lamina propria by mononuclear inflammatory cells accompanied by small numbers of eosinophils.
	Minimal focal nodular lymphoid hyperplasia of lamina propria.
	Slight congestion.
	Minimal epithelial mitotic activity.
Colon:	Colon:
No alterations described.	Minimal focal nodular lymphoid hyperplasia.
	Minimal epithelial mitotic activity.
Testis:	Testis:
No alterations described.	Spermatogenic activity normal and moderately high.
	Rarely a seminiferous tubule contained mononuclear spermatozoal precursors within the lumen.
Bone Marrow:	Bone Marrow:
No alterations described.	Moderately large numbers of megakaryocytes.
	Numerous maturing elements of both myeloid and erythroid series.
	Activity moderately high.

277

CONTROL
Male Rat No. 58-465 (Continued)

GROSS	MICROSCOPIC

The following organs were neither described grossly nor remarkable microscopically: brain, spinal cord, adrenal, and bone.

CONTROL
Male Rat No. 58-466

GROSS	MICROSCOPIC
Thyroid:	Thyroid:
No alterations described.	Small, medium, and large follicles with the large- and medium-sized predominating. Colloid fairly bright eosinophilic and quite homogeneous. Epithelium varied from squamous in the large to cuboidal in the smaller follicles. Activity moderate.
Lung:	Lung:
No alterations described.	Slight congestion. Minimal chronic murine pneumonia characterized by minimal infiltration and hyperplasia of lymphoreticular elements into the perivascular and peribronchial tissues. Minimal thickening of the alveolar septa by congestion and hypertrophy of septal cells along with minimal infiltration of mononuclear inflammatory cells (considered part of the murine pneumonia complex).
Liver:	Liver:
No alterations described.	Slight pericholangitis characterized by infiltration of the portal areas by mononuclear inflammatory cells. Minimal bile duct hyperplasia.

CONTROL
Male Rat No. 58-466 (Continued)

GROSS	MICROSCOPIC
Heart:	Heart:
No alterations described.	Minimal focal myocarditis characterized by small numbers (as foci) of eosinophilic, homogeneous, swollen myocardial fibers accompanied by an interstitial inflammatory reaction and minimal fibrosis.
	Minimal congestion.
Kidney:	Kidney:
No alterations described.	Slight congestion.
	Moderately severe changes of rat nephritis characterized by dilatation and regenerative forms of the proximal convoluted tubules and of collecting tubules accompanied by an eosinophilic homogeneous cast material in the tubules.
	Slight interstitial inflammation characterized by infiltrations of moderate numbers (focally) of mononuclear inflammatory cells.
	Slight pyelitis characterized by inflammation of the pelvic epithelium by mononuclear inflammatory cells.
	Moderate numbers of collecting tubules dilated and contained the eosinophilic cast material.

CONTROL
Male Rat No. 58-466 (Continued)

GROSS	MICROSCOPIC
	Slight to moderate glomerulosclerosis characterized by deposition of fibrous connective tissue within the glomerular tuft with or without thickening of the parietal layer of Bowman's capsule and with or without adhesions of the parietal and visceral layers. Moderate amount of a yellow to brown granular pigment within epithelial cells, predominantly lining the proximal convoluted tubules. Slight tubular nephrosis characterized by swelling and degenerative changes within the epithelial cells lining the proximal convoluted tubules.
Spleen:	Spleen:
No alterations described.	Moderately high lymphoid activity. Slight reticuloendothelial activity. Moderate extramedullary hematopoiesis. Moderate amount of a yellow to brown granular pigment within macrophages.
Stomach:	Stomach:
No alterations described.	Minimal focal gastritis characterized by infiltration of mononuclear inflammatory cells in the mucosa, focally.
Pancreas:	Pancreas:
No alterations described.	Minimal amount of a yellow to brown granular pigment within interstitial cells.

CONTROL
Male Rat No. 58-466 (Continued)

GROSS	MICROSCOPIC
Duodenum:	Duodenum:
No alterations described.	Moderate infiltration of lamina propria by mononuclear inflammatory cells along with some neutrophils and eosinophils. (Moderate enteritis.)
	Slight mitotic activity in the epithelium.
Colon:	Colon:
No alterations described.	Minimal epithelial mitotic activity.
Testis:	Testis:
No alterations described.	Spermatogenic activity normal and moderately high.
	Occasional mononuclear spermatozoal precursor free within the lumen.
Bone Marrow:	Bone Marrow:
No alterations described.	Smudging precluded very critical evaluation; however, moderate numbers of both myeloid and erythroid series present; however, degree of maturation undeterminable.
	Moderate numbers of megakaryocytes.
	Activity appeared moderate.

The following organs were neither described grossly nor remarkable microscopically: brain, pituitary, spinal cord, adrenal, pancreas, and bone.

CONTROL
Male Rat No. 58-468

GROSS	MICROSCOPIC
Thyroid:	Thyroid:
No alterations described.	Small, medium, and a few large follicles present. Colloid fairly bright eosinophilic and quite homogeneous. Epithelium predominantly fairly tall cuboidal. Activity moderate.
Lung:	Lung:
No alterations described.	Moderate lesions of chronic murine pneumonia characterized by infiltrations and hyperplasia of peribronchial and perivascular lymphoid elements. Moderate infiltration of mucosa of bronchioles. Moderate focal thickening of alveolar septa by hypertrophy and hyperplasia of alveolar septal cells. Slight congestion.
Liver:	Liver:
No alterations described.	Minimal focal accumulations of mononuclear cells within parenchyma unassociated with hepatopathy. Slight pericholangitis characterized by infiltrations of portal areas by mononuclear inflammatory cells.

CONTROL
Male Rat No. 58-468 (Continued)

GROSS	MICROSCOPIC
Heart:	Heart:
No alterations described.	Slight congestion.
Kidney:	Kidney:
"One kidney contained small, firm granules."	Slight congestion. Small numbers of collecting tubules slightly dilated and contained a homogeneous eosinophilic cast material. Occasional proximal convoluted tubule dilated and epithelium swollen and vacuolated and contained variably sized, usually small, eosinophilic droplets (possibly proteinaceous). Occasional tubule had regenerative epithelial cells. Slight nephritis characterized by infiltration of the interstitium by mononuclear inflammatory cells, focally. Collecting tubules in medulla contained, on occasion, a homogeneous eosinophilic cast material. Slight hyperplasia of pelvic epithelium.
Spleen:	Spleen:
No alterations described.	Moderately high lymphoid activity. Moderately large amount of a yellow to brown granular pigment with macrophages.

CONTROL
Male Rat No. 58-468 (Continued)

GROSS	MICROSCOPIC
	Moderate amount of extramedullary hematopoiesis.
	Moderate reticuloendothelial activity.
Duodenum:	Duodenum:
No alterations described.	Slight infiltration of lamina propria by mononuclear inflammatory cells and some eosinophils.
	Slight mitotic activity of epithelium.
Colon:	Colon:
No alterations described.	Moderate focal nodular lymphoid hyperplasia within lamina propria with extension into the mucosa.
	Minimal epithelial mitotic activity.
	Minimal infiltration of eosinophils into lamina propria.
Testis:	Testis:
No alterations described.	Spermatogenic activity normal and moderately high.
	Moderate numbers of tubules contained few to several mononuclear spermatozoal precursors in the lumen.
Bone Marrow:	Bone Marrow:
No alterations described.	Moderate numbers of megakaryocytes.
	Smudging precluded critical evaluation of other hematogenic elements; however, appeared to be present in moderately large numbers.
	Activity appeared moderately high.

225

CONTROL
Male Rat No. 58-468 (Continued)

GROSS	MICROSCOPIC

The following organs were neither described grossly nor remarkable microscopically: brain, pituitary, spinal cord, adrenal, stomach, pancreas, and bone.

CONTROL
Male Rat No. 58-469

GROSS	MICROSCOPIC
Thyroid:	Thyroid:
No alterations described.	Small, medium, and large follicles.
	Smaller follicles predominated.
	Colloid light eosinophilic.
	Epithelium predominantly fairly tall cuboidal.
	Activity moderately high.
Lung:	Lung:
No alterations described.	Slight chronic murine pneumonia characterized by infiltration of the peribronchial and perivascular tissues by lymphoreticular elements.
	Slight thickening of alveolar septa by hypertrophy and hyperplasia of alveolar septal cells along with slight infiltration of mononuclear inflammatory cells and slight congestion.
Liver:	Liver:
Firm, yellow areas in median lobe.	Moderate pericholangitis characterized by infiltrations of moderate numbers of mononuclear inflammatory cells into the portal areas.
	Slight bile duct proliferation.
	Occasional focus of mononuclear cells within parenchyma associated with small numbers of hepatic cells that had undergone degenerative and necrotic alterations.
	Minimal fibrosis of the portal areas.

CONTROL
Male Rat No. 58-469 (Continued)

GROSS	MICROSCOPIC
Heart:	Heart:
No alterations described.	Slight focal myocarditis characterized by infiltration of the mononuclear cells and reticular cell hyperplasia associated with degenerate or necrotic myocardial fibers.
	Minimal congestion.
Kidney:	Kidney:
No alterations described.	Slight amount of a yellow to brown granular pigment within some of the epithelial cells lining the proximal convoluted tubules.
	Slight congestion.
	Slight interstitial nephritis characterized by infiltrations of small numbers of lymphocytes into the cortex.
Spleen:	Spleen:
No alterations described.	Moderately high lymphoid activity.
	Moderately large amount of reticuloendothelial activity.
	Moderately large amount of extramedullary hematopoiesis.
	Moderately large amount of a yellow to brown granular pigment with macrophages.
Stomach:	Stomach:
No alterations described.	Minimal vasculitis characterized by infiltration of mononuclear cells into the perivascular connective tissue and into the vessel wall.

CONTROL
Male Rat No. 58-469 (Continued)

GROSS	MICROSCOPIC
Pancreas:	Pancreas:
No alterations described.	Slight amount of a yellow to brown granular pigment.
Duodenum:	Duodenum:
No alterations described.	Slight congestion. Slight infiltration of lamina propria by mononuclear inflammatory cells and some eosinophils. Slight epithelial mitotic activity.
Colon:	Colon:
No alterations described.	Slight mitotic activity of the epithelium.
Testis:	Testis:
No alterations described.	Spermatogenic activity high and normal. Occasional seminiferous tubule contained a few to some mononuclear spermatozoal precursors.
Bone Marrow:	Bone Marrow:
No alterations described.	Smudging precluded meaningful evaluation.

The following organs were neither described grossly nor remarkable microscopically: brain, pituitary, spinal cord, adrenal, and bone.

CONTROL
Male Rat No. 58-470

GROSS	MICROSCOPIC
Brain:	Brain:
No alterations described.	Slight thickening of meninges over cerebellum. (Significance of this singular change unknown.)
Thyroid:	Thyroid:
No alterations described.	Small, medium, and large follicles. Colloid light eosinophilic and quite homogeneous. Epithelium varied from squamous in the larger to cuboidal in the smaller follicles. Activity moderate.
Lung:	Lung:
No alterations described.	Slight chronic murine pneumonia characterized by infiltration of the perivascular and peribronchial tissues by lymphoreticular elements with slight hyperplasia. Slight thickening of alveolar walls by infiltrations of mononuclear inflammatory cells along with some hypertrophy and hyperplasia of alveolar septal cells and slight congestion. One of the larger vessels contained within the wall a mineralized plaque. Minimal emphysema.
Liver:	Liver:
No alterations described.	Slight pericholangitis characterized by infiltration of mononuclear inflammatory cells into the portal areas.

CONTROL
Male Rat No. 58-470 (Continued)

GROSS	MICROSCOPIC
	Rarely a focus of mononuclear cells within parenchyma unassociated with hepatocytes.
Heart:	Heart:
No alterations described.	Slight congestion.
	Moderate vasculitis of one of the coronary vessels characterized by infiltration of mononuclear inflammatory cells into the wall of the vessel.
Kidney:	Kidney:
No alterations described.	Slight congestion.
	Minimal amount of a brown to yellow pigment within epithelial cells.
Spleen:	Spleen:
No alterations described.	Moderately high lymphoid activity.
	Moderately large amount of a brown to yellow granular pigment within macrophages.
	Moderate amount of reticuloendothelial activity.
	Moderate extramedullary hematopoiesis.
Duodenum:	Duodenum:
No alterations described.	Moderate infiltration of lamina propria by mononuclear inflammatory cells and polymorphonuclear cells.
	Minimal congestion.
	Slight to moderate epithelial mitotic activity.

CONTROL
Male Rat No. 58-470 (Continued)

GROSS	MICROSCOPIC
Colon:	Colon:
No alterations described.	Slight nodular lymphoid hyperplasia.
	Minimal colitis characterized by infiltration of small numbers of eosinophils into the lamina propria.
	Slight epithelial mitotic activity.
Testis:	Testis:
No alterations described.	Spermatogenic activity normal and moderately high.
Bone Marrow:	Bone Marrow:
No alterations described.	Smudging precluded critical evaluation; however, moderate numbers of hematogenic elements appeared to be present.
	Activity appeared moderate.

The following organs were neither described grossly nor remarkable microscopically: pituitary, spinal cord, adrenal, stomach, pancreas, and bone.

CONTROL
Female Rat No. 58-560

GROSS	MICROSCOPIC
Thyroid:	Thyroid:
No alterations described.	Large follicles predominated. Epithelium predominantly squamous to a very low cuboidal. Activity low.
Lung:	Lung:
No alterations described.	Slight congestion. Slight chronic murine pneumonia characterized by infiltrations of lymphoreticular elements in the perivascular and peribronchial tissues. Slight thickening focally of alveolar septum by hyperplasia of the septal cells. Minimal amount of a yellow to brown quite highly refractile pigment associated with the lesions of the pneumonia.
Liver:	Liver:
No alterations described.	Minimal bile duct proliferation. Rarely a focus of mononuclear cells in parenchyma unassociated with hepatopathy.
Heart:	Heart:
No alterations described.	Slight congestion.
Kidney:	Kidney:
No alterations described.	Minimal congestion.

CONTROL
Female Rat No. 58-560 (Continued)

GROSS	MICROSCOPIC
	Minimal amount of a yellow to brown granular pigment within cells lining the proximal convoluted tubules.
	Occasional focus of cortical tubules contained regenerative epithelium.
	Minimal interstitial nephritis characterized by infiltrations of mononuclear inflammatory cells.
	Occasional collecting tubule contained a homogeneous eosinophilic cast.
Spleen:	Spleen:
No alterations described.	Moderately high lymphoid activity.
	Moderately large amount of a yellow to brown granular pigment within macrophages.
	Slight amount of extramedullary hematopoiesis.
	Moderate reticuloendothelial activity.
Pancreas:	Pancreas:
No alterations described.	Minimal amount of a yellow to brown granular pigment within interstitium.
Duodenum:	Duodenum:
No alterations described.	Slight enteritis characterized by infiltration of mononuclear inflammatory cells and a few eosinophils into the lamina propria.
	Slight mitotic activity within mucosa.

CONTROL
Female Rat No. 58-560 (Continued)

GROSS	MICROSCOPIC
Colon:	Colon:
No alterations described.	Slight mitotic activity within the mucosa.
Ovary:	Ovary:
No alterations described.	No section available for examination.
Bone Marrow:	Bone Marrow:
No alterations described.	Smudging precluded critical evaluation; however, hematogenic elements appeared to be present in moderately high numbers.

The following organs were neither described grossly nor remarkable microscopically: brain, pituitary, spinal cord, adrenal, stomach, and bone.

CONTROL
Female Rat No. 58-561

GROSS	MICROSCOPIC
Pituitary:	Pituitary:
No alterations described.	No section available for examination.
Thyroid:	Thyroid:
No alterations described.	Large follicles predominated. Epithelium predominantly squamous to low cuboidal. Activity low.
Lung:	Lung:
No alterations described.	Minimal chronic murine pneumonia characterized by infiltration of lymphoreticular elements in the perivascular and peribronchial areas. Slight congestion. Slight thickening of alveolar walls by infiltration of small number of mononuclear cells along with minimal hypertrophy of alveolar septal cells.
Kidney:	Kidney:
No alterations described.	Minimal amount of a yellow to brown quite highly refractile granular pigment within epithelial cells lining proximal convoluted tubules. Minimal nephritis characterized by infiltrations of interstitium by small numbers of mononuclear inflammatory cells, focally.