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Oak Ridge, Tennessee

EXTERNAL TRANSMITTAL
AUTHORIZED

ORNL
CENTRAL FILES NUMBER

58-10-15

DATE: October 6, 1958

COPY NO. 52

SUBJECT: SPECTROGRAPHIC ANALYSIS OF NORMAL HUMAN TISSUE
FROM SEATTLE AND TACOMA, WASHINGTON

TO: K. Z. Morgan

MASTER

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Michael Hardwick and K. K. McDaniel

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SPECTROGRAPHIC ANALYSIS OF NORMAL HUMAN TISSUE FROM SEATTLE AND TACOMA, WASHINGTON

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All tissues reported in this document were received from Seattle and Tacoma, Washington. They were collected, ashed and analyzed according to the methods described in ORNL-CF-57-2-2.

In the following tables the average value of μg per gm of tissue for those elements which appear in every sample of a tissue is the arithmetical mean of the individual values. For those tissues in which an element does not appear in every sample, the lowest value is reported as less than the limit of sensitivity of the method for that element in that tissue. For example, of the 19 brains analyzed all contained copper and the average value is the arithmetical mean of the 19 individual values; the high value is the highest of the 19 values; and the low value is the lowest of the 19 samples. Only five brain samples contained lead; therefore, the average value is omitted; the high value is the highest of the five values; and the low value is less than the lowest limit of sensitivity.

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Table 1

Concentrations of Elements in Wet Tissue (Arranged by Elements)

Tissue: Aorta (6 samples analyzed)

Average per cent ash	1.6	Average per cent dry weight	39
Highest per cent ash	3.6	Highest per cent dry weight	47
Lowest per cent ash	0.8	Lowest per cent dry weight	33

Element	Number of Samples Containing Element		Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	5	1H	0.47	0.94 (5.0)	0.019
Barium	6		0.086	0.18	0.023
Bismuth	1			0.24	<0.032
Boron					
Cadmium	4	2 N.D.	1.3	1.8	0.45
Calcium	6		870	2400	120
Cesium					
Chromium	5	1H	0.03	0.067 (0.32)	0.004*
Cobalt	1			0.16	<0.016
Copper	5	1L	1.1	1.9	0.73 (0.09)
Gold					
Iron	6		50	79	23
Lead	6		3.5	11	0.27
Magnesium	6		170	350	75
Manganese	6		0.16	0.25	0.07
Molybdenum					
Nickel	3	3 N.D.	0.26	0.52	0.09*
Phosphorus	6		1200	2500	460
Potassium	6		910	1200	390
Rubidium					
Silver	5	1 N.D.	0.01	0.018	<0.004
Strontium	6		0.43	1.2	0.13
Tin	6		0.27	0.61	<0.15*
Titanium	3	3 N.D.	0.33	0.61	0.11
Vanadium					
Zinc	6		30	54	11

N.D. Not determined

* Trace

Antimony, arsenic, beryllium, gallium, lanthanum, niobium, ruthenium, thallium and zirconium were sought in every sample, but were not detected.

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Table 2

Concentrations of Elements in Wet Tissue (Arranged by Elements)

Tissue: Brain (19 samples analyzed)

Average per cent ash	1.6	Average per cent dry weight	34
Highest per cent ash	1.9	Highest per cent dry weight	45
Lowest per cent ash	1.4	Lowest per cent dry weight	25

Element	Number of Samples Containing Element		Average Value for Samples Containing Element (μg/g.)	Highest Value (μg/g.)	Lowest Value (μg/g.)
Aluminum	18	1H	0.29	1.1 (8.4)	0.08
Barium	18	1 N.D.	0.022	0.042	0.005*
Bismuth	1			0.47	<0.028
Boron	1	3*		0.16	<0.14
Cadmium					
Calcium	19		60	85	39
Cesium					
Chromium	11	3*		0.17	<0.0028
Cobalt					
Copper	19		7.3	14	4.9
Gold					
Iron	19		67	92	50
Lead	5	9*		0.43	<0.07
Magnesium	19		160	200	110
Manganese	19		0.48	0.68	0.38
Molybdenum					
Nickel	*	1*		<0.15*	<0.07*
Phosphorus	19		3900	4800	3400
Potassium	19		2700	3400	2100
Rubidium					
Silver	16			0.049	<0.007
Strontium	19		0.022	0.055	0.012
Tin					
Titanium					
Vanadium					
Zinc	19		17	59	6.5

N.D. Not Determined

* Trace

Antimony, arsenic, beryllium, gallium, lanthanum, niobium, ruthenium, thallium and zirconium were sought in every sample, but were not detected.

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Table 3

Concentrations of Elements in Wet Tissue (Arranged by Elements)

Tissue: Breast (3 samples analyzed).

Average per cent ash	0.4	Average per cent dry weight	59
Highest per cent ash	0.6	Highest per cent dry weight	72
Lowest per cent ash	0.3	Lowest per cent dry weight	38

Element	Number of Samples Containing Element	Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	3	0.31	0.45	0.093
Barium	3	0.008	0.011	0.006
Bismuth				
Boron	1	2*	0.06*	<0.03
Cadmium				
Calcium	3	32	53	15
Cesium				
Chromium	3	0.014	0.022	0.007
Cobalt				
Copper	3	0.71	1.1	0.47
Gold				
Iron	3	6.1	7.2	3.9
Lead	1	1*	<0.03	<0.015
Magnesium	3	24	35	16
Manganese	3	0.044	0.07	0.025
Molybdenum				
Nickel	1		~ 0.06	<0.015
Phosphorus	3	330	600	180
Potassium	3	310	430	210
Rubidium				
Silver				
Strontium	3	0.02	0.023	0.018
Tin	3	0.066	0.11	<0.03*
Titanium	1		0.03	<0.015
Vanadium				
Zinc	3	3.4	4.1	3

N.D. Not determined

* Trace

Antimony, arsenic, beryllium, gallium, lanthanum, niobium, ruthenium, thallium and zirconium were sought in every sample, but were not detected.

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Table 4

Concentrations of Elements in Wet Tissue (Arranged by Elements)

Tissue: Diaphragm (16 samples analyzed)

Average per cent ash	0.9	Average per cent dry weight	32
Highest per cent ash	1.3	Highest per cent dry weight	44
Lowest per cent ash	0.6	Lowest per cent dry weight	25

Element	Number of Samples Containing Element		Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	15	1H	0.4	1.1 (2.7)	0.08
Barium	16		0.018	0.034	0.002
Bismuth					
Boron	1	1*		0.18	<0.06
Cadmium	2			0.69	<0.3
Calcium	16		37	100	18
Cesium					
Chromium	16		0.034	0.058	0.011
Cobalt	1			0.19	<0.012
Copper	16		1.4	2.2	1.1
Gold					
Iron	16		54	97	31
Lead	16		0.13	0.25	0.09
Magnesium	16		168	250	81
Manganese	16		0.24	0.49	0.13
Molybdenum					
Nickel	7	1*		1.4	<0.03
Phosphorus	16		1300	1700	770
Potassium	16		2100	3300	1300
Rubidium					
Silver	3	1H		0.008 (7.8)	<0.003
Strontium	16		0.023	0.062	0.01
Tin	16		0.19	0.38	0.09
Titanium	9	1*		0.72	<0.03
Vanadium					
Zinc	16		51	68	33

N.D. Not determined

* Trace

Antimony, arsenic, beryllium, gallium, lanthanum, niobium, ruthenium, thallium and zirconium were sought in every sample, but were not detected.

Table 5

Concentrations of Elements in Wet Tissue (Arranged by Elements)

Tissue: Esophagus (9 samples analyzed)

Average per cent ash 0.9 Average per cent dry weight 24
 Highest per cent ash 1.1 Highest per cent dry weight 30
 Lowest per cent ash 0.5 Lowest per cent dry weight 11

Element	Number of Samples Containing Element		Average Value for Samples Containing Element (μg/g)	Highest Value (μg/g)	Lowest Value (μg/g)
Aluminum	7	2H	0.51	1.4 (4.4)	<0.10
Barium	9		0.05	0.13	<0.002
Bismuth					
Boron	3			0.42	<0.05
Cadmium	1			0.93	<0.25
Calcium	9		77	170	34
Cesium					
Chromium	9		0.038	0.095	0.01
Cobalt	1			0.077	<0.01
Copper	9		1.2	2.3	0.53
Gold					
Iron	9		71	190	29
Lead	9		0.27	0.77	0.10
Magnesium	9		130	360	75
Manganese	9		0.2	0.28	0.08
Molybdenum					
Nickel	5			0.65	<0.095
Phosphorus	9		900	1400	440
Potassium	9		1500	2500	780
Rubidium					
Silver	4	1*		0.007	<0.0025
Strontium	9		0.074	0.21	0.022
Tin	9		0.3	0.63	<0.08*
Titanium	7			1.0	0.033
Vanadium					
Zinc	9		36	97	12

N.D. Not determined

* Trace

Antimony, arsenic, beryllium, gallium, lanthanum, niobium, ruthenium, thallium and zirconium were sought in every sample, but were not detected.

Table 6

Concentrations of Elements in Wet Tissue (Arranged by Elements)

Tissue: Heart (19 samples analyzed)

Average per cent ash	1.0	Average per cent dry weight	29
Highest per cent ash	1.2	Highest per cent dry weight	36
Lowest per cent ash	0.8	Lowest per cent dry weight	24

Element	Number of Samples Containing Element	Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	19	0.043	2.4	0.08
Barium	19	0.022	0.051	0.005
Bismuth				
Boron	1	1*	<0.09	<0.08
Cadmium	1		1.0	<0.4
Calcium	19	38	82	13
Cesium				
Chromium	19	0.04	0.22	0.007
Cobalt	5	1*	0.16	<0.016
Copper	19	4.4	6.8	2.6
Gold				
Iron	19	67	100	48
Lead	19	0.13	0.27	0.09
Magnesium	19	170	260	100
Manganese	19	0.33	0.6	0.18
Molybdenum				
Nickel	11	2*	0.42	<0.04
Phosphorus	19	1700	2900	1000
Potassium	19	2200	3000	1500
Rubidium				
Silver		2*	<0.005	<0.004
Strontium	19	0.023	0.06	0.012
Tin	12	6*	0.43	<0.04
Titanium	3		0.18	<0.04
Vanadium				
Zinc	19	34	45	13

N.D. Not determined

* Trace

Antimony, arsenic, beryllium, gallium, lanthanum, niobium, ruthenium, thallium and zirconium were sought in every sample, but were not detected.

Table 7

Concentrations of Elements in Wet Tissue (Arranged by Elements)

Tissue: Intestine - Duodenum (15 samples analyzed)

Average per cent ash 0.7 Average per cent dry weight 23
 Highest per cent ash 0.9 Highest per cent dry weight 40
 Lowest per cent ash 0.4 Lowest per cent dry weight 14

Element	Number of Samples Containing Element	Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	15	0.55	2.1	0.08
Barium	15	0.032	0.17	0.002
Bismuth	1		0.38	<0.016
Boron	7	2*	0.22	<0.04
Cadmium	8	3*	2.5	<0.2
Calcium	15	50	130	16
Cesium				
Chromium	15	0.024	0.037	0.012
Cobalt	1	1*	0.11	<0.008
Copper	15	2.6	7.0	1.0
Gold				
Iron	15	44	63	26
Lead	15	0.24	0.74	0.07
Magnesium	15	97	130	48
Manganese	14	1H	0.58	1.1
			(6.3)	0.31
Molybdenum		1*	<0.07*	<0.016
Nickel	9	1*	0.16	<0.02
Phosphorus	15	1200	1900	770
Potassium	15	1200	1600	600
Rubidium				
Silver	6	4*	0.05	<0.002
Strontium	15	0.064	0.15	0.021
Tin	15	0.31	0.95	<0.09*
Titanium	4	3*	0.2	<0.04
Vanadium				
Zinc	15	19	30	9.8

N.D. Not determined

* Trace

Antimony, arsenic, beryllium, gallium, lanthanum, niobium, ruthenium, thallium and zirconium were sought in every sample, but were not detected.

Table 8

Concentrations of Elements in Wet Tissue (Arranged by Elements)

Tissue: Intestine - Jejunum (18 samples analyzed)

Average per cent ash	0.9	Average per cent dry weight	23
Highest per cent ash	1.1	Highest per cent dry weight	29
Lowest per cent ash	0.5	Lowest per cent dry weight	15

Element	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aluminum	18	0.50	2.3	0.07
Barium	18	0.039	0.10	0.013
Bismuth				
Boron	9	2*	0.24	<0.05
Cadmium	8	3*	1.4	0.25
Calcium	18	59	170	20
Cesium				
Chromium	17	0.032	0.09	0.013
Cobalt		1*	<0.036*	<0.01
Copper	18	2.1	4.5	1.1
Gold				
Iron	18	55	210	11
Lead	18	0.23	0.84	<0.05
Magnesium	18	130	290	80
Manganese	18	0.84	1.9	0.19
Molybdenum	1	1*	0.10	<0.02
Nickel	8	1*	0.22	<0.0025
Phosphorus	18	1500	2400	770
Potassium	18	1600	2500	600
Rubidium				
Silver	5	5*	0.018	<0.0025
Strontium	18	0.062	0.28	0.012
Tin	18	0.63	3.9	<0.09*
Titanium	4	1*	0.44	<0.0025
Vanadium				
Zinc	18	22	44	13

N.D. Not determined

* Trace

Antimony, arsenic, beryllium, gallium, lanthanum, niobium, ruthenium, thallium and zirconium were sought in every sample, but were not detected.

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Table 9

Concentrations of Elements in Wet Tissue (Arranged by Elements)

Tissue: Intestine - Ileum (12 samples analyzed)

Average per cent ash	0.7	Average per cent dry weight	29
Highest per cent ash	0.9	Highest per cent dry weight	65
Lowest per cent ash	0.1	Lowest per cent dry weight	18

Element	Number of Samples Containing Element	Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	12	0.89	4.8	0.08
Barium	12	0.07	0.17	0.005
Bismuth	2		0.52	<0.004
Boron	3	2*	0.9	<0.01
Cadmium	2	3*	0.59	<0.05
Calcium	12	82	220	6.9
Cesium				
Chromium	12	0.037	0.072	0.008
Cobalt	2	1*	0.16	<0.002
Copper	12	1.7	3.2	0.13
Gold				
Iron	12	27	75	1.8
Lead	12	0.16	0.30	0.03
Magnesium	12	120	160	11
Manganese	12	0.94	4.2	0.05
Molybdenum	1		0.066	<0.004
Nickel	10		0.37	<0.0005
Phosphorus	12	960	1500	100
Potassium	12	1200	1800	340
Rubidium				
Silver	8	1*	0.02	<0.0005
Strontium	12	0.21	>1.4	0.013
Tin	12	0.92	4.1	0.12
Titanium	6	3*	0.38	<0.005
Vanadium				
Zinc	12	34	140	1.8

N.D.: Not determined

* Trace

Antimony, arsenic, beryllium, gallium, lanthanum, niobium, ruthenium, thallium and zirconium were sought in every sample, but were not detected.

Table 10

Concentrations of Elements in Wet Tissue (Arranged by Elements)

Tissue: Intestine - Cecum (1 sample analyzed)

Average per cent ash 0.9 Average per cent dry weight 25
 Highest per cent ash Highest per cent dry weight
 Lowest per cent ash Lowest per cent dry weight

Element	Number of Samples Containing Elements	Average Value for Samples Containing Element (μg/g)	Highest Value (μg/g)	Lowest Value (μg/g)
Aluminum	1	0.22		
Barium	1	0.046		
Bismuth				
Boron				
Cadmium				
Calcium	1	99		
Cesium				
Chromium	1	0.017		
Cobalt				
Copper	1	3.5		
Gold				
Iron	1	36		
Lead	1	0.14		
Magnesium	1	240		
Manganese	1	1.1		
Molybdenum	1*	<0.09*		
Nickel				
Phosphorus	1	1800		
Potassium	1	1600		
Rubidium				
Silver				
Strontium	1	0.048		
Tin	1	0.45		
Titanium	1	<0.09*		
Vanadium				
Zinc	1	20		

N.D. Not determined

* Trace

Antimony, arsenic, beryllium, gallium, lanthanum, niobium, ruthenium, thallium and zirconium were sought in every sample, but were not detected.

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Table 11

Concentrations of Elements in Wet Tissue (Arranged by Elements)

Tissue: Intestine - Sigmoid Colon (16 samples analyzed)

Average per cent ash 0.6 Average per cent dry weight 37
 Highest per cent ash 0.9 Highest per cent dry weight 70
 Lowest per cent ash 0.3 Lowest per cent dry weight 22

Element	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aluminum	16	1.1	3.1	0.14
Barium	15	0.093	0.27 ($\gg 0.7$)	0.014
Boron	5	3*	0.31	<0.03
Cadmium	4	2*	0.9	<0.15
Calcium	16	87	250	26
Cesium				
Chromium	16	0.072	0.54	0.005
Cobalt	3	1*	0.16	<0.006
Copper	16	1.4	2.1	0.95
Gold				
Iron	16	22	52	6.6
Lead	16	0.14	0.59	<0.04
Magnesium	16	140	320	45
Manganese	15	0.66	1.8 ($\gg 3$)	0.22
Molybdenum				
Nickel	15	0.27	1.6	0.09
Phosphorus	16	820	1500	300
Potassium	16	1100	2000	300
Rubidium				
Silver	9		0.065	<0.0015
Strontium	16	0.14	0.4	0.016
Tin	16	0.85	4.1	0.04
Titanium	16	0.10	0.36	<0.04
Vanadium	1		0.075	<0.003
Zinc	16	23	44	9.6

N.D. Not determined

* Trace

Antimony, arsenic, beryllium, gallium, lanthanum, niobium, ruthenium, thallium and zirconium were sought in every sample, but were not detected.

Table 12

Concentrations of Elements in Wet Tissue (Arranged by Elements)

Tissue: Kidney (20 samples analyzed)

Average per cent ash	1.0	Average per cent dry weight	27
Highest per cent ash	1.2	Highest per cent dry weight	39
Lowest per cent ash	0.8	Lowest per cent dry weight	20

Element	Number of Samples Containing Element	Average Value for Samples Containing Element (μg/g)	Highest Value (μg/g)	Lowest Value (μg/g)
Aluminum	20	0.44	5.0	0.08
Barium	19	0.022	0.041	0.007
Bismuth	5		8.4	<0.032
Boron	4*		<0.11	<0.08
Cadmium	20	30	240	7.1
Calcium	20	92	250	32
Cesium				
Chromium	19	0.029	0.08	0.01
Cobalt	3		0.24	<0.016
Copper	20	2.8	3.5	1.5
Gold				
Iron	20	92	1700	52
Lead	20	1.4	3.2	0.4
Magnesium	20	140	230	86
Manganese	20	1.5	2.4	0.55
Molybdenum	18	0.28	0.46	0.15
Nickel	6		0.47	<0.04
Phosphorus	20	1600	3100	1200
Potassium	20	1800	2900	1400
Rubidium				
Silver	1	2*	0.009	<0.004
Strontium	20	0.062	0.14	0.021
Tin	20	0.29	0.57	<0.10*
Titanium	3		0.37	<0.04
Vanadium				
Zinc	20	58	100	28

N.D. Not determined

* Trace

Antimony, arsenic, beryllium, gallium, lanthanum, niobium, ruthenium, thallium and zirconium were sought in every sample, but were not detected.

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Table 13

Concentrations of Elements in Wet Tissue (Arranged by Elements)

Tissue: Larynx (1 sample analyzed)

Average per cent ash 0.39 Average per cent dry weight 38
 Highest per cent ash Highest per cent dry weight
 Lowest per cent ash Lowest per cent dry weight

Element	Number of Samples Containing Element	Average Value for Samples Containing Element (μg/g)	Highest Value (μg/g)	Lowest Value (μg/g)
Aluminum	1	0.23		
Barium	1	0.18		
Bismuth				
Boron	1*	<0.39*		
Cadmium				
Calcium	1	3900		
Cesium				
Chromium	1	0.23		
Cobalt				
Copper	1	5.7		
Gold				
Iron	1	47		
Lead	1	1.2		
Magnesium	1	430		
Manganese				
Molybdenum				
Nickel				
Phosphorus	1	3900		
Potassium	1	1200		
Rubidium				
Silver	1	0.043		
Strontium	1	1.0		
Tin	1*	<0.39*		
Titanium				
Vanadium				
Zinc	1	62		

N.D. Not determined

* Trace

Antimony, arsenic, beryllium, gallium, lanthanum, niobium, ruthenium, thallium and zirconium were sought in every sample, but were not detected.

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Table 14

Concentrations of Elements in Wet Tissue (Arranged by Elements)

Tissue: Liver (21 samples analyzed)

Average per cent ash	1.1	Average per cent dry weight	40
Highest per cent ash	1.4	Highest per cent dry weight	56
Lowest per cent ash	0.8	Lowest per cent dry weight	25

Element	Number of Samples Containing Element		Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	19	2H	0.73	1.8 (10)	0.19
Barium	21		0.022	0.15	<0.005
Bismuth	2			0.062	<0.032
Boron	4	3*		0.13	<0.08
Cadmium	21		2.2	7.2	<0.5
Calcium	21		34	82	16
Cesium					
Chromium	21		0.026	0.15	<0.001*
Cobalt	12	1*		0.97	<0.016
Copper	21		9.3	25	1.4
Gold					
Iron	21		190	460	48
Lead	21		1.8	6.0	0.60
Magnesium	21		140	200	105
Manganese	21		3.2	5	0.4
Molybdenum	20		0.89	1.6	0.11
Nickel	5			0.21	<0.04
Phosphorus	21		2400	3500	1200
Potassium	21		2200	3600	1600
Rubidium					
Silver	20		0.028	0.068	<0.005
Strontium	21		0.02	0.072	0.011
Tin	21		0.59	1.6	0.12
Titanium	7	1*		1.4	<0.04
Vanadium					
Zinc	21		49	91	13

N.D. Not determined

* Trace

Antimony, arsenic, beryllium, gallium, lanthanum, niobium, ruthenium, thallium and zirconium were sought in every sample, but were not detected.

Table 15

Concentrations of Elements in Wet Tissue (Arranged by Elements)

Tissue: Lung (19 samples analyzed)

Average per cent ash	1.2	Average per cent dry weight	23
Highest per cent ash	1.6	Highest per cent dry weight	28
Lowest per cent ash	1.0	Lowest per cent dry weight	19

Element	Number of Samples Containing Element	Average Value for Samples Containing Element (μg/g)	Highest Value (μg/g)	Lowest Value (μg/g)
Aluminum	19	16	>>52	2.4
Barium	19	0.26	1.3	0.041
Bismuth				
Boron	2	4*	<0.13	<0.1
Cadmium	11	1*	2.9	<0.5
Calcium	19	110	240	61
Cesium				
Chromium	19	0.34	1.0	0.043
Cobalt	4	1*	0.33	<0.02
Copper	19	1.8	3.4	1.3
Gallium	11	0.026		<0.01
Iron	19	240	1200	91
Lead	19	0.82	2.5	0.22
Magnesium	19	120	210	76
Manganese	19	0.44	0.86	0.18
Molybdenum				
Nickel	15		0.81	<0.05
Phosphorus	19	1400	2200	1000
Potassium	19	2200	3800	1500
Rubidium				
Silver	2	2*	0.008	<0.001
Strontium	19	0.13	1.1	0.04
Tin	19	1.2	11	0.19
Titanium	19	8.2	56	0.42
Vanadium	12	1*	0.48	<0.01
Zinc	19	17	23	12

N.D. Not determined

* Trace

Antimony, arsenic, beryllium, gold, lanthanum, niobium, ruthenium, thallium and zirconium were sought in every sample, but were not detected.

SEATTLE AND TACOMA

Table 16

Concentrations of Elements in Wet Tissue. (Arranged by Elements)

Tissue: Muscle (22 samples analyzed)

Average per cent ash	1.1	Average per cent dry weight	30
Highest per cent ash	2.1	Highest per cent dry weight	41
Lowest per cent ash	0.8	Lowest per cent dry weight	23

Elements	Number of Samples Containing Element		Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	21	1H	0.29	1.9 (4.3)	0.059
Barium	22		0.028	0.15	<0.003
Bismuth					
Boron	2			0.19	<0.08
Cadmium					
Calcium	21	1H	28	54 (380)	13
Cesium					
Chromium	21	1H	0.04	0.34 (2.4)	0.007
Cobalt					
Copper	22		1.2	2.5	0.54
Gold					
Iron	22		46	69	1.28
Lead	10	3*		0.29	<0.04
Magnesium	22		230	420	120
Manganese	22		0.15	0.33	0.064
Molybdenum					
Nickel	4	1*		0.143	<0.04
Phosphorus	22		2000	3900	1200
Potassium	22		3000	5800	550
Rubidium					
Silver	2	1*		0.023	<0.004
Strontium	22		0.023	<0.12	<0.009
Tin	6	3*		0.55	<0.04
Titanium	3			0.73	<0.04
Vanadium					
Zinc	22		72	230	26

N.D. Not determined

* Trace

Antimony, arsenic, beryllium, gallium, lanthanum, niobium, ruthenium, thallium and zirconium were sought in every sample, but were not detected.

SEATTLE AND TACOMA

Table 17

Concentrations of Elements in Wet Tissue (Arranged by Elements)

Tissue: Omentum (12 samples analyzed)

Average per cent ash	0.12	Average per cent dry weight	89
Highest per cent ash	0.3	Highest per cent dry weight	94
Lowest per cent ash	0.05	Lowest per cent dry weight	80

Elements	Number of Samples Containing Element	Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	12	0.46	2.9	0.034
Barium	12	0.006	0.016	0.001
Bismuth	1		0.04	<0.002
Boron	2	1*	0.022	<0.005
Cadmium	6		0.26	<0.025
Calcium	12	8.1	25	3.8
Cesium				
Chromium	12	0.0095	0.018	0.002
Cobalt	3	1*	0.029	<0.001
Copper	12	0.25	0.55	0.072
Gold				
Iron	12	13.3	35	3.8
Lead	12	0.058	0.15	0.022
Magnesium	12	19	56	4
Manganese	12	0.05	0.13	0.01
Molybdenum	1		0.013	<0.002
Nickel	10	1*	0.26	<0.0025
Phosphorus	12	148	390	70
Potassium	12	230	660	80
Rubidium				
Silver	8	3*	0.002	<0.00025
Strontium	12	0.007	0.03	0.002
Tin	11	0.03	0.34	<0.009
Titanium	11	0.062	0.39	<0.004
Vanadium				
Zinc	12	2.3	5.1	0.9

N.D. Not determined

* Trace

Antimony, arsenic, beryllium, gallium, lanthanum, niobium, ruthenium, thallium and zirconium were sought in every sample, but were not detected.

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Table 18

Concentrations of Elements in Wet Tissue (Arranged by Elements)

Tissue: Ovary (2 samples analyzed)

Average per cent ash	1.2	Average per cent dry weight	20
Highest per cent ash	1.4	Highest per cent dry weight	21
Lowest per cent ash	0.96	Lowest per cent dry weight	20

Tissue	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aluminum	2	0.11	0.12	0.10
Barium	2	0.017	0.023	0.011
Bismuth				
Boron	1*		<0.095*	<0.095
Cadmium	1		1.1	<0.48
Calcium	2	51	65	37
Cesium				
Chromium	2	0.014	0.015	0.013
Cobalt				
Copper	2	1.4	1.7	1.0
Gold				
Iron	2	84	96	71
Lead	2	0.13	0.17	0.095
Magnesium	2	84	110	62
Manganese	2	0.22	0.28	0.16
Molybdenum				
Nickel				
Phosphorus	2	1200	1400	1100
Potassium	2	1700	1800	1700
Rubidium				
Silver	1*		<0.005*	<0.0048
Strontium	2	0.038	0.056	0.016
Tin	2	0.21	0.26	0.16
Titanium				
Vanadium				
Zinc	2	16	16	16

N.D. Not determined

* Trace

Antimony, arsenic, beryllium, gallium, lanthanum, niobium, ruthenium, thallium and zirconium were sought in every sample, but were not detected.

SEATTLE AND TACOMA

Table 19

Concentrations of Elements in Wet Tissue (Arranged by Elements)

Tissue: Pancreas (14 samples analyzed)

Average per cent ash	0.9	Average per cent dry weight	51
Highest per cent ash	1.4	Highest per cent dry weight	68
Lowest per cent ash	0.2	Lowest per cent dry weight	26

Element	Number of Samples Containing Element	Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	14	0.28	0.69	0.12
Barium	14	0.027	0.067	0.002
Bismuth				
Boron	5	3*	0.14*	<0.02
Cadmium	11		1.1	<0.1
Calcium	14	63	130	15
Cesium				
Chromium	14	0.022	0.055	0.001*
Cobalt				
Copper	14	2.1	9.2	0.49
Gold				
Iron	14	58	140	9
Lead	14	0.52	1.0	0.09
Magnesium	14	150	270	25
Manganese	14	2	3.3	0.14
Molybdenum	1		0.45	<0.008
Nickel	3		4.3	<0.01
Phosphorus	14	2000	3400	370
Potassium	14	1900	2900	340
Rubidium				
Silver	5		0.06	<0.001
Strontium	14	0.026	0.073	0.01
Tin	9	2*	1.0	<0.01
Titanium	2		0.10	<0.02
Vanadium				
Zinc	14	27	60	8.2

N.D. Not determined

* Trace

Antimony, arsenic, beryllium, gallium, lanthanum, niobium, ruthenium, thallium and zirconium were sought in every sample, but were not detected.

SEATTLE AND TACOMA

Table 20

Concentrations of Elements in Wet Tissue (Arranged by Elements)

Tissue: Prostate (8 samples analyzed)

Average per cent ash	1.0	Average per cent dry weight	29
Highest per cent ash	1.2	Highest per cent dry weight	65
Lowest per cent ash	0.7	Lowest per cent dry weight	21

Element	Number of Samples Containing Element		Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	7	1H	0.30	0.72	0.16
Antimony	0			(110)	
Barium	8		0.025	0.036	0.017
Bismuth	1			0.33	<0.028
Boron	2			0.17	<0.07
Cadmium	3	2*		1.3	<0.35
Calcium	8		210	300	120
Cesium					
Chromium	8		0.022	0.056	<0.001*
Cobalt		1*		<0.028*	<0.014
Copper	8		0.86	1.3	0.12
Gold					
Iron	8		60	270	14
Lead	8		0.18	0.45	<0.1
Magnesium	8		160	240	18
Manganese	0		0.18	0.23	0.12
Molybdenum					
Nickel	2			0.77	<0.035
Phosphorus	8		1000	1500	920
Potassium	8		1900	2400	330
Rubidium					
Silver	1			<0.006	<0.0035
Strontium	8		0.13	0.28	0.021
Tin	8		0.21	0.36	<0.11*
Titanium	2			5.6	<0.035
Vanadium	1			0.026	<0.007
Zinc	8		180	290	97

N.D. Not determined

* Trace

Antimony, arsenic, beryllium, gallium, lanthanum, niobium, ruthenium, thallium and zirconium were sought in every sample, but were not detected.

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Table 21

Concentrations of Elements in Wet Tissue (Arranged by Elements)

Tissue: Spleen (17 samples analyzed)

Average per cent ash	1.4	Average per cent dry weight	31
Highest per cent ash	1.9	Highest per cent dry weight	65
Lowest per cent ash	0.9	Lowest per cent dry weight	20

Element	Number of Samples Containing Element		Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	17		1.3	14	0.10
Barium	17		0.031	0.16	0.011
Bismuth					
Boron	1	1*		0.24	<0.09
Cadmium	1	1*		0.81	<0.45
Calcium	15	2H	34	66 (680)	20
Cesium					
Chromium	15		0.026	0.059	0.001*
Cobalt	1			0.12	<0.018
Copper	17		1.2	1.6	0.95
Gold					
Iron	17		300	730	110
Lead	17		0.76	3.2	0.17
Magnesium	17		140	320	64
Manganese	17		0.22	0.37	0.15
Molybdenum					
Nickel	2	1*		0.23	<0.045
Phosphorus	17		2300	3100	1600
Potassium	17		2900	4100	520
Rubidium					
Silver	1			<0.009	<0.0045
Strontium	17		0.055	0.074	0.02
Tin	14		0.35	0.82	0.09
Titanium	6	1*		0.85	<0.045
Vanadium					
Zinc	16		18	26	11

N.D. Not determined

* Trace

Antimony, arsenic, beryllium, gallium, lanthanum, niobium, ruthenium, thallium and zirconium were sought in every sample, but were not detected.

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Table 22

Concentrations of Elements in Wet Tissue (Arranged by Elements)

Tissue: Stomach (19 samples analyzed)

Average per cent ash 0.7 Average per cent dry weight 27
 Highest per cent ash 1.3 Highest per cent dry weight 52
 Lowest per cent ash 0.3 Lowest per cent dry weight 17

Element	Number of Samples Containing Element	Average Value for Samples Containing Element (μg/g)	Highest Value (μg/g)	Lowest Value (μg/g)
Aluminum	19	0.34	1.9	0.044
Barium	19	0.028	0.044	0.005
Bismuth	1		0.062	<0.012
Boron	6	5*	0.14	<0.03
Cadmium	5	3*	0.84	<0.15
Calcium	19	54	100	14
Cesium				
Chromium	19	0.031	0.18	0.004
Cobalt	5		0.19	<0.006
Copper	19	1.8	3.4	0.42
Gold				
Iron	19	38	96	8
Lead	19	0.18	0.76	0.04
Magnesium	19	120	230	42
Manganese	19	0.41	0.87	0.11
Molybdenum	1		0.038	<0.012
Nickel	7		0.37	<0.015
Phosphorus	19	1100	1500	640
Potassium	19	1400	2200	650
Rubidium			0.006	
Silver	3	1*	0.006	<0.0015
Strontium	19	0.048	0.16	0.01
Tin	18	0.16	1.8	0.06
Titanium	3	1*	0.43	<0.015
Vanadium				
Zinc	19	20	39	12

N.D. Not determined

* Trace

Antimony, arsenic, beryllium, gallium, lanthanum, niobium, ruthenium, thallium and zirconium were sought in every sample, but were not detected.

Table 23

Concentrations of Elements in Wet Tissue (Arranged by Elements)

Tissue: Testis (4 samples analyzed)

Average per cent ash	1.0	Average per cent dry weight	20
Highest per cent ash	1.1	Highest per cent dry weight	27
Lowest per cent ash	0.8	Lowest per cent dry weight	16

Element	Number of Samples Containing Element	Average Value for Samples Containing Element (μg/g)	Highest Value (μg/g)	Lowest Value (μg/g)
Aluminum	4	0.65	1.2	0.15
Barium	4	0.022	0.029	0.019
Bismuth				
Boron				
Cadmium	1*		<0.55*	<0.4
Calcium	4	78	120	44
Cesium				
Chromium	4	0.027	0.042	0.013
Cobalt				
Copper	4	0.8	0.95	0.72
Gold				
Iron	4	32	44	18
Lead	4	0.17	0.3	0.08
Magnesium	4	160	250	120
Manganese	4	0.26	0.35	0.12
Molybdenum				
Nickel				
Phosphorus	4	1200	1600	880
Potassium	4	2100	2500	1800
Rubidium				
Silver				
Strontium	4	0.067	0.12	0.042
Tin	3	0.27	0.4	0.2
Titanium	1		0.16	<0.04
Vanadium				
Zinc	4	18	22	14

N.D. Not determined

* Trace

Antimony, arsenic, beryllium, gallium, lanthanum, niobium, ruthenium, thallium and zirconium were sought in every sample, but were not detected.

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Table 24

Concentrations of Elements in Wet Tissue (Arranged by Elements)

Tissue: Trachea (5 samples analyzed)

Average per cent ash	1.3	Average per cent dry weight	33
Highest per cent ash	1.7	Highest per cent dry weight	43
Lowest per cent ash	1.0	Lowest per cent dry weight	27

Element	Number of Samples Containing Element	Average Value for Samples Containing Element (μg/g)	Highest Value (μg/g)	Lowest Value (μg/g)
Aluminum	5	4.7	12	0.46
Barium	5	0.079	0.13	0.026
Bismuth				
Boron	3	1*	0.2	<0.1
Cadmium	1	1*	<0.50*	<0.5
Calcium	5	420	620	200
Cesium				
Chromium	5	0.22	0.83	0.016
Cobalt	2		0.08	<0.02
Copper	5	0.93	1.4	0.54
Gold				
Iron	5	64	90	47
Lead	5	0.73	1.2	0.37
Magnesium	5	140	220	88
Manganese	5	0.27	0.48	0.14
Molybdenum				
Nickel	5	0.18	0.39	<0.001
Phosphorus	5	790	1200	480
Potassium	5	1300	1700	1100
Rubidium				
Silver	2	1*	0.01	<0.005
Strontium	5	0.22	0.32	0.12
Tin	5	0.39	0.49	0.15
Titanium	4	0.67	1.7	0.073
Vanadium				
Zinc	5	14	22	8.7

N.D. Not determined

* Trace

Antimony, arsenic, beryllium, gallium, lanthanum, niobium, ruthenium, thallium and zirconium were sought in every sample, but were not detected.

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Table 25

Concentrations of Elements in Wet Tissue (Arranged by Elements)

Tissue: Urinary Bladder (16 samples analyzed)

Average per cent ash	0.7	Average per cent dry weight	38
Highest per cent ash	1.1	Highest per cent dry weight	49
Lowest per cent ash	0.5	Lowest per cent dry weight	28

Element	Number of Samples Containing Element	Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	16	0.37	0.66	0.12
Barium	16	0.022	0.046	0.011
Bismuth	1		1.4	<0.02
Boron	6	2*	0.40	<0.05
Cadmium	4	2*	0.63	<0.25
Calcium	16	80	150	7.7
Cesium				
Chromium	16	0.027	0.051	0.006
Cobalt	3		0.18	<0.01
Copper	16	0.90	1.8	0.53
Gold				
Iron	16	24	48	7
Lead	16	0.12	0.21	<0.07*
Magnesium	16	110	290	45
Manganese	16	0.16	0.43	0.064
Molybdenum				
Nickel	7	1*	0.63	<0.0025
Phosphorus	16	860	1900	520
Potassium	16	1500	2800	680
Rubidium				
Silver	3	1*	0.077	<0.0025
Strontium	16	0.16	0.18	0.0277
Tin	16	0.25	1.1	<0.06*
Titanium	5		0.67	<0.025
Vanadium				
Zinc	16	25	39	12

N.D. Not determined

* Trace

Antimony, arsenic, beryllium, gallium, lanthanum, niobium, ruthenium, thallium and zirconium were sought in every sample, but were not detected.

Table 26

Concentrations of Elements in Wet Tissue (Arranged by Elements)

Tissue: Uterus (4 samples analyzed)

Average per cent ash	1.0	Average per cent dry weight	23
Highest per cent ash	1.1	Highest per cent dry weight	24
Lowest per cent ash	0.9	Lowest per cent dry weight	22

Element	Number of Samples Containing Element		Average Value for Samples Containing Element (μg/g)	Highest Value (μg/g)	Lowest Value (μg/g)
Aluminum	3	1H	0.12	0.18 (4.6)	0.54
Barium	4		0.018	0.024	0.007
Bismuth					
Boron		1*		<0.09*	<0.09
Cadmium	1			0.86	<0.45
Calcium	4		47	60	33
Cesium					
Chromium	4		0.021	0.031	0.008
Cobalt					
Copper	4		1.0	1.3	0.67
Gold					
Iron	4		35	61	24
Lead	1	1*		0.2	<0.0045
Magnesium	4		114	140	80
Manganese	4		0.18	0.22	0.15
Molybdenum					
Nickel					
Phosphorus	4		1300	1400	1200
Potassium	4		1900	2400	1500
Rubidium					
Silver					
Strontium	4		0.029	0.053	0.015
Tin	3	1*		0.42	<0.009
Titanium	2			0.9	<0.045
Vanadium					
Zinc	4		35	44	22

N.D. Not determined

* Trace

Antimony, arsenic, beryllium, gallium, lanthanum, niobium, ruthenium, thallium and zirconium were sought in every sample, but were not detected.

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Table 27

Concentrations of Elements in Wet Tissue (Arranged by Elements)

Tissue: Vagina (3 samples analyzed)

Average per cent ash	0.7	Average per cent dry weight	28
Highest per cent ash	0.9	Highest per cent dry weight	30
Lowest per cent ash	0.6	Lowest per cent dry weight	27

Element	Number of Samples Containing Element	Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	3	0.2	0.3	0.14
Barium	3	0.016	0.019	0.011
Bismuth				
Boron				
Cadmium	1		<0.3	<0.3
Calcium	3	67	84	49
Cesium				
Chromium	3	0.018	0.03	0.009
Cobalt				
Copper	3	0.83	0.84	0.81
Gold				
Iron	3	29	40	14
Lead	3	0.092	0.105	<0.07*
Magnesium	3	83	105	44
Manganese	3	0.089	0.10	0.084
Molybdenum				
Nickel	1		0.105	<0.045
Phosphorus	3	660	760	490
Potassium	3	1500	2300	1000
Rubidium				
Silver	1		0.023	<0.003
Strontium	3	0.038	0.046	0.026
Tin	2		0.24	<0.045
Titanium				
Vanadium				
Zinc	3	19	24	12

N.D. Not determined

* Trace

Antimony, arsenic, beryllium, gallium, lanthanum, niobium, ruthenium, thallium and zirconium were sought in every sample, but were not detected.

Table 28

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Aluminum

Tissue	Number of Samples Analyzed	Number of Samples Containing Element		Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	6	5	1H	0.47	0.94 (5.0)	0.19
Brain	19	18	1H	0.29	1.1 (8.4)	0.08
Breast	3	3		0.31	0.45	0.093
Diaphragm	16	15	1H	0.4	1.1 (2.7)	0.08
Esophagus	9	7	2H	0.51	1.4 (4.4)	<0.10
Heart	19	19		0.43	2.4	0.08
Intestine						
Duodenum	15	15		0.55	2.1	0.08
Jejunum	18	18		0.50	2.3	0.07
Ileum	12	12		0.89	4.8	0.08
Cecum	1	1		0.22		
Sigmoid Colon	16	16		1.1	3.1	0.14
Kidney	20	20		0.44	5.0	0.08
Larynx	1	1		0.23		
Liver	21	19	2H	0.73	1.8 (10)	0.19
Lung	19	19		16	>>52	2.4
Muscle	22	21	1H	0.29	1.9 (4.3)	0.059
Omentum	12	12		0.46	2.9	0.034
Ovary	2	2		0.11	0.12	0.10
Pancreas	14	14		0.28	0.69	0.12
Prostate	8	7	1H	0.30	0.72 (110)	0.16
Spleen	17	17		1.3	14	0.10
Stomach	19	19		0.34	1.9	0.044
Testis	4	4		0.65	1.2	0.15
Trachea	5	5		4.7	12	0.46
Urinary Bladder	16	16		0.37	0.66	0.12
Uterus	4	3	1H	0.12	0.18 4.6	0.054
Vagina	3	3		0.2	0.3	0.14

* Trace

** Composited value

L. Very low value omitted

H. Very high value omitted

N.D. Not determined

Table 29

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Barium

Tissue	Number of Samples Analyzed	Number of Samples Containing Element		Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	6	6		0.086	0.18	0.023
Brain	19	18	1H	0.022	0.042	0.005*
Breast	3	3		0.008	0.011	0.006
Diaphragm	16	16		0.018	0.034	0.002
Esophagus	9	9		0.05	0.13	<0.002
Heart	19	19		0.022	0.051	0.005
Intestine						
Duodenum	15	15		0.032	0.17	0.002
Jejunum	18	18		0.039	0.10	0.013
Ileum	12	12		0.07	0.17	0.005
Cecum	1	1		0.046		
Sigmoid Colon	16	15	1H	0.093	0.27 ($\gg 0.7$)	0.014
Kidney	20	19		0.022	0.041	0.007
Larynx	1	1		0.18		
Liver	21	21		0.022	0.15	<0.005
Lung	19	19		0.26	1.3	0.041
Muscle	22	22		0.028	0.15	<0.003
Omentum	12	12		0.006	0.016	0.001
Ovary	2	2		0.017	0.023	0.011
Pancreas	14	14		0.027	0.067	0.002
Prostate	8	8		0.025	0.036	0.017
Spleen	17	17		0.031	0.16	0.011
Stomach	19	19		0.028	0.044	0.005
Testis	4	4		0.022	0.029	0.019
Trachea	5	5		0.079	0.13	0.026
Urinary Bladder	16	16		0.022	0.046	0.011
Uterus	4	4		0.018	0.024	0.007
Vagina	3	3		0.016	0.019	0.011

* Trace

** Composited value

L. Very low value omitted

H. Very high value omitted

N.D. Not determined

Table 30

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Bismuth

Tissue	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	6	1	0.24		
Brain	19	1	0.47		
Breast	3				
Diaphragm	16				
Esophagus	19				
Heart	19				
Intestine					
Duodenum	15	1	0.38		
Jejunum	18				
Ileum	12	2		0.52	<0.004
Cecum	11				
Sigmoid Colon	16				
Kidney	20	5		8.4	<0.032
Larynx	1				
Liver	21	2		0.062	<0.032
Lung	19				
Muscle	22				
Omentum	12	1	0.04		
Ovary	2				
Pancreas	14				
Prostate	8	1	0.33		
Spleen	17				
Stomach	19	1	0.062		
Testis	4				
Trachea	5				
Urinary Bladder	16	1	1.4		
Uterus	4				
Vagina	3				

* Trace

** Compositied value

L. Very low value omitted

H. Very high value omitted

N.D. Not determined

Table 31

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Boron

Tissue	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	6				
Brain	19	1	3*	0.16	<0.14
Breast	3	1	2*	0.06*	<0.03
Diaphragm	16	1	1*	0.18	<0.06
Esophagus	9	3		0.42	<0.05
Heart	19	1	1*	<0.09	<0.08
Intestine					
Duodenum	15	7	2*	0.22	<0.04
Jejunum	18	9	2*	0.24	<0.05
Ileum	12	3	2*	0.9	<0.01
Cecum	1				
Sigmoid Colon	16	5	3*	0.31	<0.03
Kidney	20		4*	<0.11	<0.08
Larynx	1		1*	<0.39*	
Liver	21	4	3*	0.13	<0.08
Lung	19	2	4*	<0.13	<0.1
Muscle	22	2		0.19	<0.08
Omentum	12	2	1*	0.022	<0.005
Ovary	2		1*	<0.095*	
Pancreas	14	5	3*	0.14*	<0.02
Prostate	8	2		0.17	<0.07
Spleen	17	1	1*	0.24	<0.09
Stomach	19	6	5*	0.14	<0.03
Testis	4				
Trachea	5	3	1*	0.2	<0.1
Urinary Bladder	16	6	2*	0.40	<0.05
Uterus	4		1*	<0.09*	
Vagina	3				

* Trace

** Composited value

L. Very low value omitted

H. Very high value omitted

N.D. Not determined

Table 32

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Cadmium

Tissue	Number of Samples Analyzed	Number of Samples Containing Element		Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	6	4	2N.D.	1.3	1.8	0.45
Brain	19					
Breast	3					
Diaphragm	16	2			0.69	<0.3
Esophagus	9	1		0.93		
Heart	19	1		1.0		
Intestine						
Duodenum	15	8	3*		2.5	<0.2
Jejunum	18	8	3*		1.4	0.25
Ileum	12	2	3*		0.59	<0.05
Cecum	1					
Sigmoid Colon	16	4	2*		0.9	<0.15
Kidney	20	20		30	240	7.1
Larynx	1					
Liver	21	21		2.2	7.2	<0.5
Lung	19	11	1*		2.9	<0.5
Muscle	22					
Omentum	12	6			0.26	<0.025
Ovary	2	1		1.1		
Pancreas	14	11			1.1	<0.1
Prostate	8	3	2*		1.3	<0.35
Spleen	17	1	1*		0.81	<0.45
Stomach	19	5	3*		0.84	<0.15
Testis	4		1*	0.55*		
Trachea	5		1*	<0.5*		
Urinary Bladder	16	4	2*		0.63	<0.25
Uterus	4	1		0.86		
Vagina	3	1		<0.3		

* Trace

** Composited value

L. Very low value omitted

H. Very high value omitted

N.D. Not determined

Table 33

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Calcium

Tissue	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	6	6	870	24000	120
Brain	19	19	60	85	39
Breast	3	3	32	53	15
Diaphragm	16	16	37	100	18
Esophagus	9	9	77	170	34
Heart	19	19	38	82	13
Intestine					
Duodenum	15	15	50	130	16
Jejunum	18	18	59	170	20
Ileum	12	12	82	220	6.9
Cecum	1	1	99		
Sigmoid Colon	16	16	87	250	26
Kidney	20	20	92	250	32
Larynx	1	1	3900		
Liver	21	21	34	82	16
Lung	19	19	110	240	61
Muscle	22	21	28	54	13
				(380)	
Omentum	12	12	8.1	25	3.8
Ovary	2	2	51	65	37
Pancreas	14	14	63	130	15
Prostate	8	8	210	300	120
Spleen	17	15	34	66	20
				(680)	
Stomach	19	19	54	100	14
Testis	4	4	78	120	44
Trachea	5	5	420	620	200
Urinary Bladder	16	16	80	150	7.7
Uterus	4	4	47	60	33
Vagina	3	3	67	84	49

* Trace

** Composited value

L. Very low value omitted

H. Very high value omitted

N.D. Not determined

Table 34

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Chromium

Tissue	Number of Samples Analyzed	Number of Samples Containing Element		Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	6	5	LH	0.03	0.067 (0.32)	0.004*
Brain	19	11	3*		0.17	<0.0028
Breast	3	3		0.014	0.022	0.007
Diaphragm	16	16		0.034	0.058	0.011
Esophagus	9	9		0.038	0.095	0.01
Heart	19	19		0.04	0.22	0.007
Intestine						
Duodenum	15	15		0.024	0.037	0.012
Jejunum	18	17		0.032	0.09	0.013
Ileum	12	12		0.037	0.072	0.008
Cecum	1	1		0.017		
Sigmoid Colon	16	16		0.072	0.54	0.005
Kidney	20	19		0.029	0.08	0.01
Larynx	1	1		0.23		
Liver	21	21		0.026	0.15	<0.001*
Lung	19	19		0.34	1.0	0.043
Muscle	22	21	LH	0.04	0.34 (2.4)	0.007
Omentum	12	12		0.0095	0.018	0.002
Ovary	2	2		0.014	0.015	0.013
Pancreas	14	14		0.022	0.055	0.001*
Prostate	8	8		0.022	0.056	<0.001*
Spleen	17	15		0.026	0.059	0.001*
Stomach	19	19		0.031	0.18	0.004
Testis	4	4		0.027	0.042	0.013
Trachea	5	5		0.22	0.83	0.016
Urinary Bladder	16	16		0.027	0.051	0.006
Uterus	4	4		0.021	0.031	0.008
Vagina	3	3		0.018	0.03	0.009

* Trace

** Composited value

L. Very low value omitted

H. Very high value omitted

N.D. Not determined

Table 35

Concentrations of Elements in Wet Tissue
(Arranged by Elements)

Element: Cobalt

Tissue	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	6	1	0.16		
Brain	19				
Breast	3				
Diaphragm	16	1	0.19		
Esophagus	9	1	0.077		
Heart	19	5	1*	0.16	<0.016
Intestine					
Duodenum	15	1	1*	0.11	<0.008
Jejunum	18		1*	<0.036*	<0.01
Ileum	12	2	1*	0.16	<0.002
Cecum	1				
Sigmoid Colon	16	3	1*	0.16	<0.006
Kidney	20	3		0.24	<0.016
Larynx	1				
Liver	21	12	1*	0.97	<0.016
Lung	19	4	1*	0.33	<0.02
Muscle	22				
Omentum	12	3	1*	0.029	<0.001
Ovary	2				
Pancreas	14				
Prostate	8		1*	<0.028*	<0.014
Spleen	17	1	0.12		<0.018
Stomach	19	5	0.19		<0.006
Testis	4				
Trachea	5	2		0.08	<0.02
Urinary Bladder	16	3		0.18	<0.01
Uterus	4				
Vagina	3				

* Trace

** Composited value

L. Very low value omitted

H. Very high value omitted

N.D. Not determined

Table 36

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Copper

Tissue	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	6	5	1L	1.1	1.9
					0.73 (0.09)
Brain	19	19		7.3	14
Breast	3	3		0.71	1.1
Diaphragm	16	16		1.4	2.2
Esophagus	9	9		1.2	2.3
Heart	19	19		6.8	6.8
Intestine					
Duodenum	15	15		2.6	7.0
Jejunum	18	18		2.1	4.5
Ileum	12	12		1.7	3.2
Cecum	1	1		0.35	
Sigmoid Colon	16	16		1.4	2.1
Kidney	20	20		2.8	3.5
Larynx	1	1		5.7	
Liver	21	21		9.3	25
Lung	19	19		1.8	3.4
Muscle	22	22		1.2	2.5
Omentum	12	12		0.25	0.55
Ovary	2	2		1.4	1.7
Pancreas	14	14		2.1	9.2
Prostate	8	8		0.86	1.3
Spleen	17	17		1.2	1.6
Stomach	19	19		1.8	3.4
Testis	4	4		0.8	0.95
Trachea	5	5		0.93	1.4
Urinary Bladder	16	16		0.90	1.8
Uterus	4	4		1.0	1.3
Vagina	3	3		0.83	0.84

* Trace

** Composited value

L. Very low value omitted

H. Very high value omitted

N.D. Not determined

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Table 37

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Iron

Tissue	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	6	6	50	79	23
Brain	19	19	67	92	50
Breast	3	3	6.1	7.2	3.9
Diaphragm	16	16	54	97	31
Esophagus	9	9	71	190	29
Heart	19	19	67	100	48
Intestine					
Duodenum	15	15	44	63	26
Jejunum	18	18	55	210	11
Ileum	12	12	27	75	1.8
Cecum	1	1	36		
Sigmoid Colon	16	16	22	52	6.6
Kidney	20	20	92	170	52
Larynx	1	1	47		
Liver	21	21	190	460	48
Lung	19	19	240	1200	91
Muscle	22	22	46	69	28
Omentum	12	12	13.3	35	3.8
Ovary	2	2	84	96	71
Pancreas	14	14	58	140	9
Prostate	8	8	60	270	14
Spleen	17	17	300	730	110
Stomach	19	19	38	96	8
Testis	4	4	32	44	18
Trachea	5	5	64	90	47
Urinary Bladder	16	16	24	48	7
Uterus	4	4	35	61	24
Vagina	3	3	29	40	14

* Trace

** Composited value

L. Very low value omitted

H. Very high value omitted

N.D. Not determined

Table 38

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Lead

Tissue	Number of Samples Analyzed	Number of Samples Containing Element		Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	6	6		3.5	11	0.27
Brain	19	15	9*		0.43	<0.07
Breast	3	1	1*		< 0.03	<0.015
Diaphragm	16	16		0.13	0.25	0.09
Esophagus	9	9		0.27	0.77	0.10
Heart	19	19		0.13	0.27	0.09
Intestine						
Duodenum	15	15		0.24	0.74	0.07
Jejunum	18	18		0.23	0.84	<0.05
Ileum	12	12		0.16	0.30	0.03
Cecum	11	11		0.14		
Sigmoid Colon	16	16		0.14	0.59	<0.04
Kidney	20	20		1.4	3.2	0.40
Larynx	1	1		1.2		
Liver	21	21		1.8	6.0	0.60
Lung	19	19		0.82	2.5	0.22
Muscle	22	10	3*		0.29	<0.04
Omentum	12	12		0.058	0.15	0.022
Ovary	2	2		0.13	0.17	0.095
Pancreas	14	14		0.52	1.0	0.09
Prostate	8	8		0.18	0.45	<0.1
Spleen	17	17		0.76	3.2	0.17
Stomach	19	19		0.18	0.76	0.04
Testis	4	4		0.17	0.3	0.08
Trachea	5	5		0.73	1.2	0.37
Urinary Bladder	16	16		0.12	0.21	<0.07*
Uterus	4	1	1*		0.2	<0.0045
Vagina	3	3		0.092	0.105	<0.07*

* Trace

** Compositd value

L. Very low value omitted

H. Very high value omitted

N.D.. Not determined

Table 39

Concentrations of Elements in Wet Tissue

(Arranged by Tissues)

Element: Magnesium

Tissue	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	6	6	170	350	75
Brain	19	19	160	200	110
Breast	3	3	24	35	16
Diaphragm	16	16	168	250	81
Esophagus	9	9	130	360	75
Heart	19	19	170	260	100
Intestine					
Duodenum	15	15	97	130	48
Jejunum	18	18	130	290	80
Ileum	12	12	120	160	11
Cecum	1	1	240		
Sigmoid Colon	16	16	140	320	45
Kidney	20	20	140	230	86
Larynx	1	1	430		
Liver	21	21	140	200	105
Lung	19	19	120	210	76
Muscle	22	22	230	420	120
Omentum	12	12	19	56	4
Ovary	2	2	84	110	62
Pancreas	14	14	150	270	25
Prostate	8	8	160	240	18
Spleen	17	17	140	320	64
Stomach	19	19	120	230	42
Testis	4	4	160	250	120
Trachea	5	5	140	220	88
Urinary Bladder	16	16	110	290	45
Uterus	4	4	114	140	80
Vagina	3	3	83	105	44

* Trace

** Composited value

L. Very low value omitted

H. Very high value omitted

N.D. Not determined

Table 40

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Manganese

Tissue	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	6	6	0.16	0.25	0.07
Brain	19	19	0.48	0.68	0.38
Breast	3	3	0.044	0.07	0.025
Diaphragm	16	16	0.24	0.49	0.13
Esophagus	9	9	0.2	0.28	0.08
Heart	19	19	0.33	0.6	0.18
Intestine					
Duodenum	15	14	1H 0.58	1.1 (6.3)	0.31
Jejunum	18	18	0.84	1.9	0.19
Ileum	12	12	0.94	4.2	0.05
Cecum	1	1	1.1		
Sigmoid Colon	16	15	1H 0.66	1.8 ($>>3$)	0.22
Kidney	20	20	1.5	2.4	0.55
Larynx	1	1			
Liver	21	21	3.2	5	0.4
Lung	19	19	0.44	0.86	0.18
Muscle	22	22	0.15	0.33	0.064
Omentum	12	12	0.05	0.13	0.01
Ovary	2	2	0.22	0.28	0.16
Pancreas	14	14	2	3.3	0.14
Prostate	8	8	0.18	0.23	0.12
Spleen	17	17	0.22	0.37	0.15
Stomach	19	19	0.41	0.87	0.11
Testis	4	4	0.26	0.35	0.12
Trachea	5	5	0.27	0.48	0.14
Urinary Bladder	16	16	0.16	0.43	0.064
Uterus	4	4	0.18	0.22	0.15
Vagina	3	3	0.089	0.10	0.084

* Trace

** Composited value

L. Very low value omitted

H. Very high value omitted

N.D. Not determined

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Table 41

Concentrations of Elements in Wet Tissue

(Arranged by Tissues)

Element: Molybdenum

Tissue:	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	6				
Brain	19				
Breast	3				
Diaphragm	16				
Esophagus	9				
Heart	19				
Intestine					
Duodenum	15	1*	<0.07*		
Jejunum	18	1		0.10	<0.02
Ileum	12	1	0.066		
Cecum	1	1*	<0.09*		
Sigmoid Colon	16				
Kidney	20	18	0.28	0.46	0.15
Larynx	1				
Liver	21	20	0.89	1.6	0.11
Lung	19				
Muscle	22				
Omentum	12	1	0.013		
Ovary	2				
Pancreas	14	1	0.45		
Prostate	8				
Spleen	17				
Stomach	19	1	0.038		
Testis	4				
Trachea	5				
Urinary Bladder	16				
Uterus	4				
Vagina	3				

* Trace

** Composited value

L. Very low value omitted

H. Very high value omitted

N.D. Not determined

Table 42

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Nickel

Tissue	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element: ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	6	3	3N.D.	0.26	0.52
Brain	19	1*		<0.15*	<0.07
Breast	3	1		~0.06	<0.015
Diaphragm	16	7	1*	1.4	<0.03
Esophagus	9	5	0.23	0.65	<0.095
Heart	19	11	2*	0.42	<0.04
Intestine					
Duodenum	15	9	1*	0.16	<0.02
Jejunum	18	8	1*	0.22	<0.0025
Ileum	12	10		0.37	<0.0005
Cecum	1				
Sigmoid Colon	16	15	0.27	1.6	0.09
Kidney	20	6		0.47	<0.04
Larynx	1				
Liver	21	5		0.21	<0.04
Lung	19	15		0.81	<0.05
Muscle	22	4	1*	0.14	<0.04
Omentum	12	10	1*	0.26	<0.0025
Ovary	2				
Pancreas	14	3		4.3	<0.01
Prostate	8	2		0.77	<0.035
Spleen	17	2	1*	0.23	<0.045
Stomach	19	7		0.37	<0.015
Testis	4				
Trachea	5	5	0.18	0.39	<0.001
Urinary Bladder	16	7	1*	0.63	<0.0025
Uterus	4				
Vagina	3	1		0.105	<0.045

* Trace

** Composited value

L. Very low value omitted

H. Very high value omitted

N.D. Not determined

Table 43

Concentrations of Elements in Wet Tissue

(Arranged by Tissues)

Element: Phosphorus

Tissues	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	6	6	1200	2500	460
Brain	19	19	3900	4800	3400
Breast	3	3	330	600	180
Diaphragm	16	16	1300	1700	770
Esophagus	9	9	900	1400	440
Heart	19	19	1700	2900	1000
Intestine					
Duodenum	15	15	1200	1900	770
Jejunum	18	18	1500	2400	770
Ileum	12	12	960	1500	100
Cecum	1	1	1800		
Sigmoid Colon	16	16	820	1500	300
Kidney	20	20	1600	3100	1200
Larynx	1	1	3900		
Liver	21	21	2400	3500	1200
Lung	19	19	1400	2200	1000
Muscle	22	22	2000	3900	1200
Omentum	12	12	148	390	70
Ovary	12	12	1200	1400	1100
Pancreas	14	14	2000	3400	370
Prostate	8	8	1000	1500	920
Spleen	17	17	2300	3100	1600
Stomach	19	19	1100	1500	640
Testis	4	4	1200	1600	880
Trachea	5	5	790	1200	480
Urinary Bladder	16	16	860	1900	520
Uterus	4	4	1300	1400	1200
Vagina	3	3	660	760	490

* Trace

** Compositied value

L. Very low value omitted

H. Very high value omitted

N.D. Not determined

Table 44

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Potassium

Tissue	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	6	6	910	1200	390
Brain	19	19	2700	3400	2100
Breast	3	3	310	430	210
Diaphragm	16	16	2100	3300	1300
Esophagus	9	9	1500	2500	780
Heart	19	19	2200	3000	1500
Intestine					
Duodenum	15	15	1200	1600	600
Jejunum	18	18	1600	2500	600
Ileum	12	12	1200	1800	340
Cecum	1	1	1600		
Sigmoid Colon	16	16	1100	2000	300
Kidney	20	20	1800	2900	1400
Larynx	1	1	1200		
Liver	21	21	2200	3600	1600
Lung	19	19	2200	3800	1500
Muscle	22	22	3000	5800	550
Omentum	12	12	230	660	80
Ovary	2	2	1700	1800	1700
Pancreas	14	14	1900	2900	340
Prostate	8	8	1900	2400	330
Spleen	17	17	2900	4100	520
Stomach	19	19	1400	2200	650
Testis	4	4	2100	2500	1800
Trachea	5	5	1300	1700	1100
Urinary Bladder	16	16	1500	2800	680
Uterus	4	4	1900	2400	1500
Vagina	3	3	1500	2300	1000

* Trace

** Composited value

L. Very low value omitted

H. Very high value omitted

N.D. Not determined

Table 45

Concentrations of Elements in Wet Tissue

(Arranged by Tissues)

Element: Silver

Tissue	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	6	5	1N.D.	0.01	0.018
Brain	19	16			<0.004
Breast	3				0.049
Diaphragm	16	3	1H		<0.007
Esophagus	9	4	1*	0.008 (7.8)	<0.003
Heart	19		2*	0.007	<0.0025
Intestine				<0.005	<0.004
Duodenum	15	6	4*	0.05	<0.002
Jejunum	18	5	5*	0.018	<0.0025
Ileum	12	8	1*	0.02	<0.0005
Cecum	1				
Sigmoid Colon	16	9		0.065	<0.0015
Kidney	20	1	2*	0.009	<0.004
Larynx	1	1		0.043	
Liver	21	20		0.028	<0.005
Lung	19	2	2*	0.008	<0.001
Muscle	22	2	1*	0.023	<0.004
Omentum	12	8	3*	0.002	<0.00025
Ovary	2		1*	<0.005*	<0.0048
Pancreas	14	5		0.06	<0.001
Prostate	8	1		<0.006	<0.0035
Spleen	17	1		<0.009	<0.0045
Stomach	19	3	1*	0.006	<0.0015
Testis	4		*		
Trachea	5	2	1*	0.01	<0.005
Urinary Bladder	16	3	1*	0.077	<0.0025
Uterus	4				
Vagina	3	1		0.023	<0.003

* Trace

** Composited value

L. Very low value omitted

H. Very high value omitted

N.D. Not determined

Table 46

Concentrations of Elements in Wet Tissue

(Arranged by Tissues)

Element: Strontium

Tissue	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	6	6	0.43	1.2	0.13
Brain	19	19	0.022	0.055	0.012
Breast	3	3	0.02	0.023	0.018
Diaphragm	16	16	0.023	0.062	0.01
Esophagus	9	9	0.074	0.21	0.022
Heart	19	19	0.023	0.06	0.012
Intestine					
Duodenum	15	15	0.064	0.15	0.021
Jejunum	18	18	0.062	0.28	0.012
Ileum	12	12	0.21	>1.4	0.013
Cecum	1	1	0.048		
Sigmoid Colon	16	16	0.14	0.4	0.016
Kidney	20	20	0.062	0.14	0.021
Larynx	1	1	1.0		
Liver	21	21	0.02	0.072	0.011
Lung	19	19	0.13	1.1	0.04
Muscle	22	22	0.023	<0.12	<0.009
Omentum	12	12	0.007	0.03	0.002
Ovary	2	2	0.038	0.056	0.016
Pancreas	14	14	0.026	0.073	0.01
Prostate	8	8	0.13	0.28	0.021
Spleen	17	17	0.055	0.074	0.020
Stomach	19	19	0.048	0.16	0.01
Testis	4	4	0.067	0.12	0.042
Trachea	5	5	0.22	0.32	0.12
Urinary Bladder	16	16	0.16	0.18	0.027
Uterus	4	4	0.029	0.053	0.015
Vagina	3	3	0.038	0.046	0.026

* Trace

** Composited value

L. Very low value omitted

H. Very high value omitted

N.D. Not determined

Table 47

Concentrations of Elements in Wet Tissue

(Arranged by Tissues)

Element: Tin

Tissue	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	6	6	0.27	0.61	<0.15*
Brain	19				
Breast	3	3	0.066	0.11	<0.03*
Diaphragm	16	16	0.19	0.38	0.09
Esophagus	9	9	0.3	0.63	<0.08*
Heart	19	12	6*	0.43	<0.04
Intestine					
Duodenum	15	15	0.31	0.95	<0.09*
Jejunum	18	18	0.63	3.9	<0.09*
Ileum	12	12	0.92	4.1	0.12
Cecum	1	1	0.45		
Sigmoid Colon	16	16	0.85	4.1	0.04
Kidney	20	20	0.29	0.57	<0.10*
Larynx	1		1*	<0.39	
Liver	21	21	0.59	1.6	0.12
Lung	19	19	1.2	11	0.19
Muscle	22	6	3*	0.55	<0.04
Omentum	12	11	0.03	0.34	~0.009
Ovary	2	2	0.21	0.26	0.16
Pancreas	14	9	2*	1.0	<0.01
Prostate	8	8	0.21	0.36	<0.11*
Spleen	17	14	0.35	0.82	0.09
Stomach	19	18	0.16	1.8	0.06
Testis	4	3	0.27	0.4	0.2
Trachea	5	5	0.39	0.49	0.15
Urinary Bladder	16	16	0.25	1.1	<0.06*
Uterus	4	3	1*	0.42	<0.009
Vagina	3	2		0.24	<0.045

* Trace

** Compositied value

L. Very low value omitted

H. Very high value omitted

N.D. Not determined

Table 48

Concentrations of Elements in Wet Tissue

(Arranged by Tissues)

Element: Titanium

Tissue	Number of Samples Analyzed	Number of Samples Containing Element		Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	6	3	3N.D.	0.33	0.61	0.11
Brain	19					
Breast	3	1			0.03	<0.015
Diaphragm	16	9	1*		0.72	<0.03
Esophagus	9	7		0.51	1.0	0.033
Heart	19	3			0.18	<0.04
Intestine						
Duodenum	15	4	3*		0.2	<0.04
Jejunum	18	4	1*		0.44	<0.0025
Ileum	12	6	3*		0.38	<0.005
Cecum	1		1*	<0.09*		
Sigmoid Colon	16	16		0.10	0.36	<0.04
Kidney	20	3			0.37	<0.04
Larynx	1					
Liver	21	7	1*		1.4	<0.04
Lung	19	19		8.2	56	0.42
Muscle	22	3			0.73	<0.04
Omentum	12	11		0.062	0.39	<0.004
Ovary	2					
Pancreas	14	2			0.10	<0.02
Prostate	8	2			5.6	<0.035
Spleen	17	6	1*		0.85	<0.045
Stomach	19	3	1*		0.43	<0.015
Testis	4	1			0.16	<0.04
Trachea	5	4		0.67	1.7	0.073
Urinary Bladder	16	5			0.67	<0.025
Uterus	4	2			0.9	<0.045
Vagina	3					

* Trace

** Composited value

L. Very low value omitted

H. Very high value omitted

N.D. Not determined

Table 49

Concentrations of Elements in Wet Tissue

(Arranged by Tissues)

Element: Vanadium

Tissue	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	6				
Brain	19				
Breast	3				
Diaphragm	16				
Esophagus	9				
Heart	19				
Intestine					
Duodenum	15				
Jejunum	18				
Ileum	12				
Cecum	1				
Sigmoid Colon	16	1		0.075	<0.003
Kidney	20				
Larynx	1				
Liver	21				
Lung	19	12	1*	0.48	<0.01
Muscle	22				
Omentum	12				
Ovary	2				
Pancreas	14				
Prostate	8	1		0.026	<0.007
Spleen	17				
Stomach	19				
Testis	4				
Trachea	5				
Urinary Bladder	16				
Uterus	4				
Vagina	3				

* Trace

** Composited value

L. Very low value omitted

H. Very high value omitted

N.D. Not determined

Table 50
Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Zinc

Tissue	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	6	6	30	54	11
Brain	19	19	17	59	6.5
Breast	3	3	3.4	4.1	3
Diaphragm	16	16	51	68	33
Esophagus	9	9	36	97	12
Heart	19	19	34	45	13
Intestine					
Duodenum	15	15	19	30	9.8
Jejunum	18	18	22	44	13
Ileum	12	12	34	140	1.8
Cecum	1	1	20		
Sigmoid Colon	16	16	23	44	9.6
Kidney	20	20	58	100	28
Larynx	1	1	62		
Liver	21	21	49	91	13
Lung	19	19	17	23	12
Muscle	22	22	72	230	26
Omentum	12	12	2.3	5.1	0.9
Ovary	2	2	16	16	16
Pancreas	14	14	27	60	8.2
Prostate	8	8	180	290	97
Spleen	17	16	18	26	11
Stomach	19	19	20	39	12
Testis	4	4	18	22	14
Trachea	5	5	14	22	8.7
Urinary Bladder	16	16	25	39	12
Uterus	4	4	35	44	22
Vagina	3	3	19	24	12

* Trace

** Composited Value

L. Very low value omitted

H. Very high value omitted

N.D. Not determined

Distribution

- 1-5. K. Z. Morgan
- 6. W. S. Snyder
- 7. E. G. Struxness
- 8. A. M. Weinberg
- 9. J. A. Swartout
- 10. E. J. Murphy
- 11. R. A. Charpie
- 12. H. P. Yockey
- 13. J. A. Norris
- 14. A. C. Upton
- 15. G. W. Royster
- 16-20. M. J. Cook
- 21-46. I. H. Tipton, (UT)
- 47-51. J. C. Hart
- 52. C. S. Shoup (ORO-AEC)
- 53. W. D. Claus (AEC-Washington)
- 54. C. L. Dunham (AEC-Washington)
- 55. H. D. Bruner (AEC-Washington)
- 56. E. L. Grove (U. of Alabama)
- 57. G. M. Dunning (AEC-Washington)
- 58. J. F. Haggerty (AEC-Washington)
- 59. J. F. Bonner (AEC-Washington)
- 60. James Turner (AEC-Washington)
- 61. G. V. Beard (AEC-Washington)
- 62-76. TISE, Oak Ridge
- 77. Health Physics Library
- 78-401. Laboratory Records
- 402-403. Central Research Library
- 404. Document Reference Section
- 405. M. J. Skinner