It was the year when a giant tsunami struck Japan. The magnitude of the earthquake was 8.2–8.5 on the Richter scale. The tsunami spread over Hokkaido to Miyagi Prefecture submerging everything in its way —Kamaishi Town in Kamihei District, Yoshihama Village and Ayasato Village, Kesen District in Iwate Prefecture and Onagawa Town in Miyagi Prefecture. At some places, the tsunami reached the height of 38.2 m above sea level. It was 15 June 1896. My mother's mother's mother Yoki Muto was three years old.

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I open my eyes in bed. The clock is ticking. I turn the light on. The light flickers on. I am 34 years old. If I had married at the age of 16 and had children when I was 18, like my mother's mother's mother, then my child would be 16 by now.

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In 1896, the same year the tsunami came, Europe was all about the X-ray discovered by Wilhelm Conrad Röntgen. Tagged "X" as the unknown quantity, it took the world by surprise, by showing the finger bones



Daughter's daughter's daughter

with a ring worn and the inside of a machine. In Paris, France, physicist Antoine Henri Becquerel, who heard about the discovery of the X-ray, exposed a photographic plate with uranium salt during an experiment on fluorescence. This was the discovery of radiation.

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When I was 16, my mother took me on a trip to Paris. In the 5<sup>th</sup> arrondissement of Paris, we walked, with the river Seine behind us, from the Gare d'Austerlitz metro station to Rue Buffon. I was wearing my brand new Converse sneakers. I really wanted to dress up for Paris, so I nagged my mother enough to buy me a new pair at a local discount shoe store under an expressway overpass in Nerima, Tokyo. We strolled through the Paris Botanical Gardens. It was originally designed as the royal medicinal herb garden for Louis XIII. There was a rose garden, garden of the Alps and a zoo. I saw a Robinia pseudoacacia from the seventeenth century and pistachio trees from the eighteenth century. I saw the endangered Przewalski's wild horse. It was said that Becquerel discovered radiation there at the Maison de Cuvier. But now, I can't seem to remember the scenery as I saw it then.

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In 1898, at the physiochemical school on Rue Lhomond in Paris, Marie and Pierre Curie discovered polonium and radium. Polonium was named after Marie's home country Poland, and radium comes from the Latin word for ray. Marie also named the term "radiation". 45 months later, the Curies succeeded in extracting pure radium by treating 11 tons of uraninite. The three of them, Becquerel and the Curies, were awarded the Nobel Prize in Physics. It was for the "extraordinarily remarkable merit achieved by joint research on the radioactive phenomenon discovered by Henri Becquerel". One day, Becquerel was handed a glass tube of radium from the Curies that gave out a white bluish light. It was radium and what Marie called the "fairy light". Walking the streets of Paris with a light in his pocket, he ended up with a burn scar on the skin.

## ERIKA KOBAYASHI HALF-LIFE CALENDAR: RADIUM-226

<u> </u>	) 1960 [] 1961	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500
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2	1903	2003	2103 2104	2203	2303	2403	2503	2603	2703	2803	2903	3003	3103	3203	3302	3402	3502
Kan	1905	2004	2104	2204 2205	2304 2305	2404 2405	2504	2604 2605	2704 2705	2804 2805	2904 2905	3004 3005	3104 3105	3204 3205	3304 3305	3404 3405	
2	1906	2006	2106	2206	2306	2406	2506	2606	2706	2806	2906	3006	3106	3206	3306	3406	
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	1926	2026	2126	2226	2326	2426	2526	2626	2726	2825	2925 2926	3025 3026	3125 3126	3225 3226	3325 3326	3425 3426	
	1927	2027 2028	2127 2128	2227 2228	2327 2328	2427 2428	2527 2528	2627 2628	2727 2728	2827 2828	2927 2928	3027	3127	3227	3327	3427	
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	1932	2032	2132	2232	2332	2432	2532	2632	2732	2832	2932	3031	3131 3132	3231 3232	3331 3332	3431 3432	
	1933 1934	2033 2034	2133	2233 2234	2333 2334	2433 2434	2533 2534	2633 2634	2733 2734	2833 2834	2933 2934	3033 3034	3133 3134	3233	3333	3433	
	1935	2035	2135	2235	2335	2435	2535	2635	2735	2835	2935	3035	3135	3234 3235	3334 3335	3434 3435	
	1936 1937	2036 2037	2136 2137	2236 2237	2336 2337	2436 2437	2536 2537	2636 2637	2736 2737	2836	2936 2937	3036 3037	3136 3137	3236 3237	3336	3436	
	1938	2038	2138	2238	2338	2438	2538	2638	2738	2838	2938	3038	3138	3238	3337 3338	3437 3438	
	1939	2039 2040	2139 2140	2239 2240	2339 2340	2439	2539 2540	2639	2739 2740	2839 2840	2939 2940	3039 3040	3139 3140	3239 3240	3339 3340	3439	
	1941	2041	2141	2241	2341	2441	2541	2641	2741	2841	2941	3041	3141	3240	3341	3440 3441	
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ali -	1947	2047	2147	2247	2347	2447	2547	2647	2747	2847	2947	3047	3147	3247	3347	3447	
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	1950	2050 2051	2150 2151	2250 2251	2350	2450	2550	2650	2750	2850	2950	3050	3150	3250	3350	3450	
·	1952	2052	2152	2252	2351 2352	2451	2551 2552	2651 2652	2751 2752	2851 2852	2951 2952	3051 3052	3151 3152	3251 3252	3351 3352	3451 3452	
5	1953	2053 2054	2153 2154	2253 2254	2353 2354	2453 2454	2553	2653	2753	2853	2953	3053	3153	3253	3353	3453	
	1955	2055	2155	2255	2354	2454	2554 2555	2654 2655	2754 2755	2854 2855	2954 2955	3054 3055	3154 3155	3254 3255	3354 3355	3454 3455	
	1956	2056 2057	2156 2157	2256 2257	2356 2357	2456 2457	2556	2656	2756	2856	2956	3056	3156	3256	3356	3456	
	1958	2058	2158	2258	2358	2458	2557 2558	2657 2658	2757 2758	2857 2858	2957 2958	3057 3058	3157 3158	3257 3258	3357 3358	3457 3458	
	1959	2059 2060	2159 2160	2259 2260	2359 2360	2459 2460	2559 2560	2659	2759	2859	2959	3059	3159	3259	3359	3459	
	1961	2061	2161	2261	2361	2461	2561	2660	2760 2761	2860 2861	2960 2961	3060 3061	3160 3161	3260 3261	3360	3460 3461	
	1962	2062	2162	2262 2263	2362 2363	2462 2463	2562 2563	2662	2762	2862	2962	3062	3162	3262	3362	3462	
	1964	2064	2164	2264	2364	2464	2564	2663 2664	2763 2764	2863 2864	2963 2964	3063 3064	3163 3164	3263 3264	3363 3364	3463 3464	
	1965	2065	2165	2265 2266	2365 2366	2465	2565 2566	2665 2666	2765	2865 2866	2965 2966	3065 3066	3165	3265	3365	3465	
	1967	2067	2167	2267	2367	2467	2567	2667	2767	2867	2967	3067	3166 3167	3266 3267	3366 3367	3466 3467	
	1968	2068	2168	2268	2368 2369	2468	2568	2668 2669	2768	2868	2968 2969	3068 3069	3168	3268 3269	3368 3369	3468 3469	
	1970	2070	2170	2270	2370	2470	2570	2670	2770	2870	2970	3070	3170	3270	3370	3470	
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	1973	2073	2173	2273	2373	2473	2573	2673	2773	2873	2973	3073	3173	3273	3373	3473	
	1975	2074 2075	2174 2175	2274 2275	2374 2375	2474 2475	2574 2575	2674 2675	2774	2874 2875	2974 2975	3074 3075	3174 3175	3274 3275	3374 3375	3474 3475	
	1976	2076 2077	2176 2177	2276 2277	2376 2377	2476	2576	2676	2776	2876	2976	3076	3176	3276	3376	3476	
	1978	2078	2178	2278	2378	2478	2577 2578	2677 2678	2777	2877 2878	2977 2978	3077 3078	3177 3178	3277 3278	3377 3378	3477 3478	
	1979	2079 2080	2179 2180	2279 2280	2379 2380	2479	2579	2679	2779	2879	2979	3079	3179	3279	3379	3479	
	1981	2081	2180	2280	2380	2480 2481	2580 2581	2680 2681	2780 2781	2880 2881	2980 2981	3080 3081	3180	3280 3281	3380 3381	3480 3481	
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	1985	2085	2185	2285	2385	2485	2585	2685	2785	2885	2985	3085	3185	3285	3385	3485	
	1987	2086 2087	2186 2187	2286 2287	2386 2387	2486 2487	2586 2587	2686 2687	2786 2787	2886 2887	2986 2987	3086 3087	3186 3187	3286 3287	3386 3387	3486 3487	
	1988	2088 2089	2188	2288	2388	2488	2588	2688	2788	2888	2988	3088	3188	3288	3388	3488	
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	1991	2091	2191	2291	2391	2491	2591	2691	2791	2891	2991	3091	3191	3291	3391	3491	
10	1993	2092 2093	2192 2193	2292 2293	2392 2393	2492 2493	2592 2593	2692 2693	2792 2793	2892 2893	2992 2993	3092 3093	3192 3193	3292 3293	3392 3393	3492 3493	
-	1994	2094	2194	2294	2394	2494	2594	2694	2794	2894	2994	3094	3194	3294	3394	3494	
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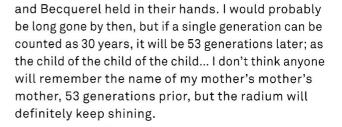
Yoki, my mother's mother's mother had a child, and that child had a child, and that child had a child, and another child later, here I am.

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Every time I hear the word Becquerel on the TV news, I think about my mother, my mother's mother, and my mother's mother's mother and the streets of Paris. I remember taking photos on Avenue des Champs Élysées, the cold morning air as I awoke at a hotel near the Gare du Nord, having salt and butter ramen in a ramen noodle shop and arguing with my mother in front of the Pantheon. Things invisible to the eye flowed into my body and the room. They shone. They left a mark.

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As they say the half-life for radium-226 is 1601 years, so 3503 will be the half-life for the radium that Marie



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Now, I live in my mother's mother's house. My mother's mother who was 93 years old when she passed on last Christmas. The house is a small wooden two-storey building. The front door was dark brown but I painted it white. The white turnip soup is almost ready. The laurel tree in the yard had died from a disease. Soon, the night will come. I throw my hair ribbons on the floor. I was going to watch a DVD, but I hit the off switch. The light goes out. I close my eyes, in bed. I sleep. Soon, morning will come.



Daughter's daughter



Daughter

Erika Kobayashi, *A Story of Mothers* 小林工リカ, translated by Kenichi Eguczhi.

Erika Kobayashi, *Half-Life Calendar: Radium-226*, drawings, 1601 numbered calendars, distributed in Tokyo, Auckland, New York, Maebashi, design by Mina Tabei.

## THE NUCLEAR CULTURE SOURCE BOOK

EDITED BY ELE CARPENTER

> black dog publishing

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