



Werner Heisenberg Falls in Love: The Love Letters of the Nobel-Winning Pioneer of Quantum Mechanics and Originator of the Uncertainty Principle

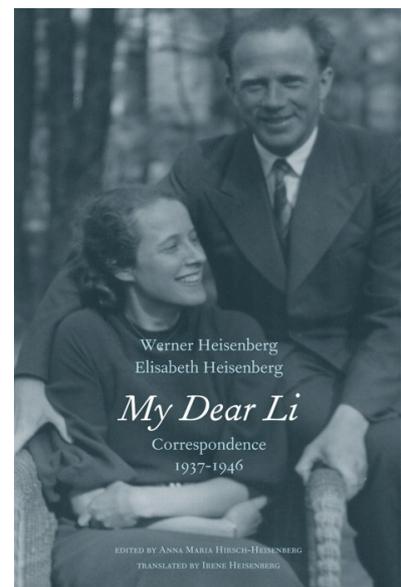
“Life’s essence should always be clearly noticeable behind the love, or the music, or the work.”

BY MARIA POPOVA

Between the time Albert Einstein composed his courtship letters and Richard Feynman wrote his extraordinary letter to his departed wife, another Nobel-winning physicist contributed to the small and singularly beautiful canon of scientists’ love letters.

Two years after he received the Nobel Prize for his uncertainty principle — a supreme bow before the limits of knowledge, stating that the more precisely we know the position of a given particle, the less precise our measurement of its momentum, and vice versa — **Werner Heisenberg** (December 5, 1901–February 1, 1976) lurched into the ultimate unknown with absolute certainty: He fell in love.

Troubled by the tensions cusp on war, accused of being a “white Jew” by the Nazi media for teaching Einstein’s theory of relativity in his university course, and feeling like dark political agendas were keeping him from his calling — “the undisturbed inquiry into nature” — Heisenberg found solace in his spiritual practice: playing music (which we now know benefits the brain more than any other activity).





Werner Heisenberg

On the evening of January 28, 1937, at a musical gathering where he played piano accompanied by two violinist friends, thirty-five-year-old Heisenberg met twenty-one-year-old Elisabeth Schumacher — a bright and beautiful young woman who had just left art school to pursue a career in publishing. He was instantly taken with her, and she with his Beethoven. (What consonance Heisenberg would have felt in Margaret Fuller’s assertion that “all truth is comprised in music and mathematics.”) Brought together by music, Werner and Elisabeth quickly found that their very souls spoke a common language. Fourteen days later, they were engaged. They remained together until death did them part.

In the first of their surviving love letters, collected and edited by their eldest daughter in **My Dear Li: Correspondence, 1937–1946** (public library), Heisenberg, elated in his contained way, writes to his mother exactly two weeks after the fateful encounter:

Yesterday — assuming your approval — I became engaged. The friendship with Elisabeth is scarcely fourteen days old and arose out of an, at first, seemingly casual conversation at a social gathering, in which a close affinity of opinions on matters of central importance emerged between the two of us. This mutual understanding, in which one, as it were, only needed to continue a conversation begun a long time ago, soon went so deep that it seemed natural to me to ask Elisabeth whether she would like to be with me forever.



The newly engaged Werner and Elisabeth, 1937.

Werner and Elisabeth set their wedding date for April 29 — exactly three months after the day they met — and began planning their life together, peering with the eyes of new love into a shared future of limitless possibility. On March 15, Heisenberg speaks to the sense, familiar to anyone who has ever been in love, of having known the beloved since the dawn of time:

Dear Elisabeth!

It is strange to think that this is the first letter I am writing to you. For it actually seems to me as though, for many years already, we have been close and acquainted, and the present state of being alone is only a painful interruption in an ever-beautiful, already almost accustomed shared life. I am indebted to you for bringing me so much peace and security and am looking forward with my every thought to the time when, together, we can enjoy the daily changes between the serious and the beautiful. Thank you for everything!

After telling Elisabeth that he has just received a warm congratulatory letter from his friend Wolfgang Pauli — who has in the midst of co-inventing synchronicity with Carl Jung — Heisenberg adds a note of unadorned sweetness:

What might you be doing this evening? I want to get in an hour of piano practice, and then catch up on sleep, and I hope that you too are fully compensating for the shorter periods of sleep over the last few weeks.

Elisabeth, meanwhile, is trapped in a difficult home commanded by a severe, combustible patriarch “dissatisfied with everything,” further riled by his daughter’s impending

liberation from his grip. “You need unbelievable inner strength here at home,” she tells Werner, “if you want to drown out the stifling atmosphere.” Five weeks before the wedding, she confides in her beloved:

That is the same old misery here, which I always had from when I was a child. They never understand what brings me the greatest joy in life, and what I love about people. And I am not someone who can enjoy happiness all on my own. How good it is to have you, that you are there, and that I can make you a gift of everything and all that I have.

[...]

Good night, love! You are so terribly dear to me, and I find myself almost stranded here without you. I will be with you again in five days. Li.

A day later, she rejoices in the ineffable glory of love:

I have actually not been quite conscious of the fact that these are the first letters we are writing to each other, so much do we already belong together. But today, now, I’m sensing the meagreness of letter writing a bit because my heart is so full, and only such a very small part of it can reach you. And when that is with you, it will have become something quite independent, when in reality it belongs right in the middle of a whole mountain of thoughts and feelings.

The letters flow daily. Heisenberg begins to feel resentful of his work, of how it takes his time and thoughts away from Elisabeth. He tells her:

As soon as you are here again, I want to forget everything that is not only about us. I believe it would be good in general if, during this summer, physics were pushed into a dark corner, to be picked up again later, for first I have more to learn from you than from all the treatises in the world.

Elisabeth’s response presages what would become one of the central pillars of their love and life together — their unconditional support of the other’s fullness of being:

If you wish to take some time off from physics in the summer, dearest, that would naturally be for me a little like being in paradise. And you can be quite sure that I will never be upset later on, when you spend long periods of time on nothing else but physics. It needs you, too — I know that. And I am good on my own, when I know that you love me.

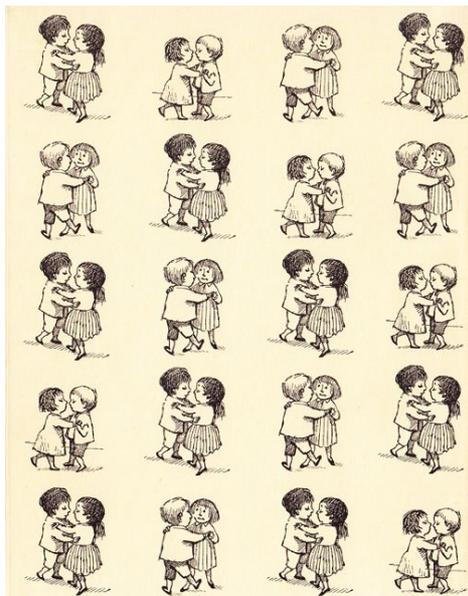


Illustration by Maurice Sendak from *Open House for Butterflies* by Ruth Krauss

Three weeks before the wedding, Elisabeth rejoices at the improbable miracle of two people finding one another:

Love, I often think how strange it is that suddenly everything is on solid ground, all dreams have become reality. How few people have such good fortune!

Werner, meanwhile, struggles to reconcile his trusty faculty of reason with the unreasonableness at the heart of love:

My thoughts are always circling around joining our lives, that common goal in front of us, and it becomes really difficult to wait for the 29th. The truth is I already cannot quite cope without you, although I always remind myself that I have been able to manage for many years and so, according to conventional wisdom, it ought to be possible still. The present mindset is reminiscent of the typical nights before a major tour in the mountains, when you toss and turn in bed in joyful anticipation of the coming morning and with just a little trepidation, lest not all should go well. And only at the moment when you pick up the ice axe in front of the hut do you know that all will go smoothly. How beautiful everything will be, once we are together in the dark by our lake.

There is sweetness even in how benign their first major disagreement is. During a train ride together, when Elisabeth, overcome with joy, began singing, Werner asked her to stop. She took it as a kind of rejection. The next day, in apologizing for having inadvertently hurt

her feelings, he self-consciously confesses his pathological reserve and his core insecurity in being “always afraid of showing something animated to people.” Elisabeth — the more unselfconsciously poetic of the two — responds with loving assurance, sharing her own core vulnerability:

Love, I am so incredibly happy about our every time together. I am so aware how we always move forward in our relationship, how it moves us along, one great step each time. And now one can see ever more clearly and with certainty how likely it is that we will reach all that one possibly can reach. And, you know, the times when I am filled with fear that you might be disappointed with me will be rarer and rarer. People have always objected to my intensity; but I know that you only have to take this into your hand for me to become quite tame again. When I am doubtful, it is never about you but stems from the fact that I do not have very much self-esteem. But if you love me properly, then I will get it too... I think I am only able to help by loving you so much that you soon believe it in the deepest reaches of your own heart.

In a letter penned sixteen days before the wedding, “very late and very tired,” Elisabeth lays out the roadmap for their shared life:

Once we have left the chauffeur at the station and then drive on alone into the totally silent wood at dusk, over the peak where we once watched the sunset — my love, then we will have our whole life ahead of us, and I believe it will be good.

[...]

We must always support each other a lot, so that we do not let the lived life and reality slip through our hands.

Exactly two weeks before the wedding, Werner shares his own vision for their life — a lovely kind of pre-wedding vow:

That we will be together forever, starting in fourteen days — I cannot quite wrap my mind around it; but if it were not to be, I could not do anything at all with my life anymore. In the beginning I will not do much thinking and simply be happy, realizing, gradually, that you are always with me. But later we will want to be conscious of creating a shared life, mindful that honesty is paramount, that life's essence should always be clearly noticeable behind the love, or the music, or the work.

A week before the wedding, the couple receives a peculiar gift from Elisabeth's family — eight volumes of Beethoven piano music for four hands, an inheritance from her

grandfather. “I think I will never have enough courage to play them with you!” she sweetly tells Werner. Three days before the start of their new life, Werner shares a sentiment that appears quite dry on the outside but contains at its heart the most meaningful measure of union there is:

I have the firm conviction that we are a good match for each other and that we are better able to do justice to our place in the world by being together.



The Heisenbergs on their wedding day, April 29, 1937, Berlin.

In the first two years of their marriage, Werner and Elisabeth were inseparable, having little occasion to write letters. At the end of 1937, Elisabeth, pregnant with their first child — which turned out to be children: the twins Wolfgang and Maria — encouraged Werner to take her thirteen-year-old brother skiing. On New Year’s Eve, he writes to his beloved bride from the mountains:

My dear sweet Li... How much beauty the past year has brought me through you! And yet everything up to now strikes me as a mere beginning, only to be followed by even more beauty and togetherness; together we are now able to really shape our lives. I am looking forward so very much to the next period.

As humanity is about to topple into WWII, Elisabeth sends a bittersweet reply:

My love!

Thank you a thousand times for your loving, poignant letter. For me too, it is as though everything up to now has only been a beginning, and that so much more, even better, should come out of this last year. But when I dream about it, I often

flinch; and I hesitate to look toward the future with hope. It is full of horrible apparitions. I cannot believe that there will not be a high price to pay, considering the way people are living now: arrogantly dismissive, in a frenzied intoxication, mocking God. And then all of us will be in for it, regardless. So I am trying to take hold of the present as much as I possibly can and to be happy with the current riches. And these are good enough to be happy from the bottom of our hearts, right?

They remained happy for forty more years — as new parents during a world war, as lifelong partners in each other's flourishing — until Heisenberg died at the age of seventy-five. The letters from the first nine years of their relationship, collected in **My Dear Li**, are strewn with Heisenberg's reflections on science and life — a rare glimpse of the interior world of a scientist who changed our relationship with the universe. Complement them with the love letters of pioneers in other domains of culture — Vladimir Nabokov, Frida Kahlo, Franz Kafka, Kahlil Gibran, Robert and Elizabeth Barrett Browning, Virginia Woolf, John Keats, John Cage, and Hannah Arendt — then revisit Heisenberg's account of Nobel laureate Niels Bohr's nuanced reflections on science and spirituality and the story of how Heisenberg pioneered quantum mechanics, told in jazz for kids.

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