The active imagination starts with the unhappiness Wolfgang Pauli must have felt for many years. He could not bring the two schools together. By the older school Pauli means theoretical physics. The modern school stands for depth psychology. The girl from Küsnacht is Marie-Louise von Franz. Pauli hopes that she, as a reflection of his soul, can help him to bring theoretical physics and depth psychology together. To that end he enters in his imagination the house of von Franz. Immediately he hears the voice of his inner master. The conical paper bags of the master refer to the so-called Minkowski light cones in relativity theory (Rohrlich, 1987, 75-86). The sheets of the conical bags seem to connect events that occur at different points of time but are related to each other through their common meaning. The year 1913 is the year in which Pauli’s godfather Ernst Mach introduced young Wolfi into the world of classical physics. He was used to sit with his grandmother, a singer at the Imperial Opera in Vienna, at the piano (Enz, 1994, 14). But apparently he stopped piano playing at the age of thirteen.

The anima in the figure of the dark lady wants to give him a piano lesson. In his essay on background physics from June 1948 Pauli had remarked that tones serve very well as symbols: ‘With their connection to music, they represent feeling, – the very thing that physics cannot express’ (Meier, 2002, 194). The piano lesson is clearly meant as development of the feeling function. That is why he begins to speak about Marie-Louise von Franz. Her mother is said to have destroyed her femininity. In various interviews von Franz actually speaks about the marriage of her parents as a disaster. She could not cope with her mother (Zundel, 1987, 38).

After a while Pauli hears a command. The master says: “Captain.” As may be concluded from the words that are derived from the Catholic Mass the master is compared here with Christ. Just as Christ healed the servant of the captain in Kapernaum, so could the master heal the daughter of the captain in Vienna. This captain stands presumably for the scientific spirit in Vienna around the year 1913, as it had been embodied by Pauli’s father, a university professor in chemistry (Meier, 2002, 96), and Ernst Mach, who had been a professor in physics at the universities of Prague and Vienna (Meier, 2002, 111). This spirit has a sick daughter, a sick soul. She apparently suffers under a purely rationalistic view of the world. But unlike the officer in Kapernaum the captain in Vienna does not speak the words. As a consequence the master has to turn round.
In the next section various shadow figures appear. The captain of Köpenick comes from a novel by Carl Zuckmayer. He is a charlatan. The charlatan in Pauli’s own personality is the Russian censor who censors everything that is not in accordance with the contemporary mode of scientific thinking. The master wants to break through this censorship, since he finds Pauli particularly suited as a bridge to the world of modern science. The physicist, however, is afraid of him, since he has the double nature of the alchemical Christ-figure Mercurius. He is both good and evil. Having admitted this duality Pauli begins to understand that white and black, good and evil are not absolute opposites. It then turns out that the white keys represent for Pauli the good or spiritual side, and the black keys the evil or material side of reality. In Christian theology there is a split between black and white. But the keyboard of the piano bridges this split. The minor chords stand for the dark, female yin and the major chords for the light, male yang. According to the I Ching these two primal powers are related to the Tao: ‘That which lets now the dark, now the light appear is Tao’ (Wilhelm, 1968, 297). The dark lady turns out to be a personification of the Chinese Tao.

In the next part of the Piano Lesson, physics is seen as the attempt to understand the world without listening to the piano music of the slit-eyed lady. She clearly represents the anima mundi, the soul of the world, whereas the master personifies the spirit of matter. Physicists are regarded as censors. Some physicists want to return to the deterministic world of classical physics by introducing into quantum physics so-called hidden parameters. One of them is Louis de Broglie from France (Bell, 1987, 111). The belief in strict causality has in former days been used as a pitchfork to drive the world soul out of our view of the cosmos. But the Roman poet Horace already remarked: ‘Even though you drive nature away with a pitchfork, she will always return’ (Horace, Epistulae, I, X, 24).

The ‘best of the censors’ understand the world as ruled by blind chance, but according to the Chinese lady chance changes in response to the master’s commands. Pauli agrees. As a consequence the strange people from his dreams approach him. This motif probably means that he should address his insights not to his colleagues, but to people who are yet unknown to him. The sole exception is Max Delbrück (1906-1981), the physicist who had entered biology to investigate what Niels Bohr had called the ‘elementary fact of life’ that could not be reduced to the laws of physics (Delbrück, 1966). Seeing Delbrück has the effect that Pauli loses the ground under his feet. As would turn out later in his life there is a tendency in him to flee into biology instead of staying rooted in depth psychology. But in the lecture to the strangers he actually tries to build a bridge between depth psychology and biology. He advances the hypothesis that meaningful coincidences in biological evolution are connected with a psychic factor. He relates this factor to the phenomena of extra sensory perception (ESP) studied by Rhine and to the synchronistic occurrences studied by Jung.

This psychic factor is perceived by the Chinese lady as getting warm. In this way the lecture to the strangers is connected to what she had tried to communicate to Pauli. That is why she remarks that he has fathered a child on her. It has to become a legitimate child. This might mean that Pauli should accept fully the responsibility for being the father of this child. Thereupon the discussion between Pauli and the Chinese lady circles around some problems that were left unsolved in his correspondence with Jung. These problems concerned the role quantum physics played in Pauli’s dreams (Meier, 2002, 118). Pauli now agrees that there are different ways of portraying the same archetypal reality. Underlying these different ways is the notion of number. One could just as well say that everything is vibration, since vibrations are characterized by numbers. Hence for the Chinese
lady numbers and tones are one and the same. Pauli acknowledges this and he tries to sketch a natural philosophy according to which everything that happens is connected with number patterns. If the Chinese lady would be able to give Pauli these number-patterns, he would be able to use them for calculations. One wonders what kind of calculations Pauli has in mind. As would be shown later by Marie-Louise von Franz in her book *Number and Time* (Franz, 1974), divination methods all over the world use number patterns to predict the future. But these methods can never say what actually is going to happen. Even Pauli acknowledges that there will always be a certain freedom in the course of events.

After this discussion the attention shifts to the feeling side of the bridge between physics and psychology. Pauli had fallen in love with Marie-Louise von Franz (Erkelens, 1991, 43) He had projected an aspect of the anima on her. Perhaps this aspect in the Piano Lesson is personified by the sick daughter of the captain in Vienna. The father of von Franz came from Vienna and had been a high officer in the Austrian army (Zundel, 1987, 37). He belonged to the nobility and had fled in 1918 to Switzerland, since he was afraid that the communists would seize power in his homeland. (Isler, 1998, 15). In a certain sense the father of von Franz had also been a captain in Vienna. Hence not only Pauli, but also von Franz had to leave the bourgeois world of Vienna represented by their fathers and find something new. According to Pauli he should try to develop the ability to handle the ‘constellations’ of time. In that case the captain would speak the right word at the right time, so would the master and the girl from Küsnacht could marry. Moreover, the Chinese lady and Pauli would know more about the country in the North. For the first time this country is called the homeland.

Pauli becomes sad when he realizes that he will never enter this homeland. But the Chinese lady points out that he has forgotten the fourth, the timeless: ‘That alone is the unity in the conflict between the three which constitutes life itself.’ Pauli is much impressed by this observation of the Chinese lady. He bows deeply to her and promises that he will try to reconcile the master with the world of science. Then he wants to leave the room where he has met the Chinese lady. But the master says: ‘Wait. Transformation of the centre of evolution.’ This transformation clearly refers to the alchemical transformation from lead to gold.

Then the Chinese lady shows the fourth, the timeless in the form of the ring i, where i is the imaginary unit or square root of minus one. In Pauli’s dreams this symbol has the function of uniting pairs of opposites and thus producing wholeness (Meier, 2002, 195). In mathematics the ring i is called the unit circle in the complex plane. The real and the imaginary axis intersect this circle at the points +1, +i, -1 and -i. The ring i plays a central role in quantum physics (Yang, 1987, 53-64). Without the imaginary unit it is impossible to describe the complementarity of waves and particles mathematically. But here in the *Piano Lesson* the ring i also represents the monad, which in alchemy denotes the subtle body containing all the four elements earth, water, fire and air in one (Franz, 1972, 223).

The ring i is a symbol of wholeness, of what the alchemists called the Round. It is a mandala symbol, expressed in the language of modern mathematics (Spiegelman/Mansfield, 1990). It is the atom, the Greek word that was translated by Cicero as *individuum*, ‘the indivisible’. The ring also ‘turns time into a static image.’ This at least is in accordance with its function in quantum physics. The movement of time in atomic physics is basically circular. The various frequencies are circular (i.e. angular) frequencies (Lévy-Leblond/Balibar, 1990, 7). For a given frequency time is a point running
around the circumference of the timeless image of the ring i. In the field of meditation, the ring i makes the ‘circulation of the light’ possible. It is the sacred precinct, the still place in oneself where the opposites meet. In a transference it symbolizes the hidden marriage relationship which is closed for influences from outside. Marriage is at an archetypal level the union between the anima and its male counterpart in a woman, the animus, between *yin* and *yang*. This realm of the middle between the opposites can only be reached in pairs. It presupposes a transference like the one constellated between Pauli and von Franz.

Finally the ring i turns out to be the hermetically closed vessel needed in alchemy to prevent the spirit of matter from escaping. In the *Piano Lesson* this spirit is called the master. His voice has been transformed and he speaks from the centre of the ring now. The words ‘Remain merciful’ are probably derived from Goethe’s *Faust*. At the end of this tragedy doctor Marianus, the “mother’s son”, speaks to the *mater gloriosa*: ‘Maid, Mother, Queen, Goddess. Remain merciful!’ The *Piano Lesson* thus stands in a tradition of elevating the feminine, leading to rejuvenation of the masculine. That is why the character of the relationship between the lady and the master shifts throughout the Piano Lesson. First she seems to obey him blindly. But at the end the Chinese lady turns out to be the supreme mother goddess, while the master presumably has been transformed into her youthful companion.

But then a curious thing happens. Pauli does not seem to accept the ring i. He quickly returns to normal time and normal everyday space. He again wears the coat and hat of a professor of the Federal Institute of Technology. The transformation from lead to gold has not affected him. The fantasy stops right at the moment when a deeper connection with the unconscious might be established.

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