THREE CONCRETE FOUNTAINS IN THE GARDEN

DREI SPRINGBRUNNEN AUS BETON IM GARTEN

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SUMMARY

The manufacture of three completely different fountains in a private garden is described. The concrete used had to be frost-resistant and suitable for manual processing. It is shown that this could be achieved with simple means.

Concrete has been used quite often in public space, also as art monuments. These are mostly rather large, either in natural grey or in striking colors. They can be found in many cities and have been described in publications [1-4].

ZUSAMMENFASSUNG

Die Herstellung von drei unterschiedlichen Springbrunnen in einem Privatgarten wird beschrieben. Der verwendete Beton musste frostbeständig sein und händisch verarbeitbar. Es wird gezeigt, dass dies auf einfache Weise möglich ist.

Beton wird vielfach im öffentlichen Raum verwendet, auch in der Form von künstlerisch gestalteten Plastiken. Diese sind meist ziemlich groß, entweder in ursprünglichem Grau gehalten oder in auffallenden Farben. Man findet sie in vielen Städten, auch wurde darüber veröffentlicht [1-4].

1. MOTIVATION AND MANUFACTURE OF THE FOUNTAINS

1.1 Fountain No. 1

It was a spontaneous idea during a meeting of the board of directors of a research project: a fountain is still missing in the garden. Immediately the memory of a hotel in Tokyo awoke. There, during breakfast, one looked at a natural stone wall where water gushed down and landed in a basin. Something similar could happen in a fountain which does not occupy much space. Thus, a fountain was designed to fit into the narrow alleyway to the neighbor.

The fountain is made of precast concrete elements, three of which are placed vertically one on top of the other. Each element has the shape of a flat prism with dimensions 40 x 40 x 10 cm^3. Since the front should not be flat and smooth, a conoid was formed with the bulge at the bottom edge. On the one hand, the shape of the conoid provides a support for the prefabricated element above it, on the other hand, it creates a shoulder over which the flowing water gushes. This results in a very dynamic appearance, especially in the evening grazing light. Fig. 1 shows the fountain.

The formwork consisted of a large particle board on which four 10 cm high slats were placed, clamped together with screw clamps. A negative of the conoid made of PUR foam and a PE film were placed in the formwork. The concrete colored with Terrament had a maximum particle size of 8 mm and a water/cement ratio of 0.45, making it frost-resistant. It should survive many winters without damage. It was poured by hand and only compacted by tapping. In this way, two identical elements were made. The third element was identical as the outer dimensions are concerned, but had a slit-shaped indentation on the top and a circular opening on the back for a water hose to pass through. This created a small reservoir from which the water flows evenly at the front of the fountain.

Fig. 1: View of fountain No. 1

With respect to the foundation, a prism 20 x 20 x 40 cm^3 was placed on a row of two 20 cm cubes. The foundation and cubes were placed in a zinc tub measuring 50 x 40 x 22 cm^3. There is a circulating pump in the tub, which is connected to the opening in the top concrete element with a hose. An electric cable leads from the tub to a socket in the nearby garage. When the pump is removed from the pool, the fountain becomes winterized. It has been in the garden for over 20 years now.

1.2 Fountain No. 2

The shape of the fountain is a 20 cm thick column with a fluted (grooved) surface (Fig. 2). The column stands in a round zinc tub with a diameter of 40 cm and a height of 25 cm. Four holes were drilled into the bottom of the tub through which four aramid rods were inserted, reaching into the 40 cm deep foundation. The vertical reinforcement of the column consists of four aramid rods with an overlap of 25 cm. The corrugation of the surface was achieved by inserting oiled corrugated cardboard into the formwork tube.


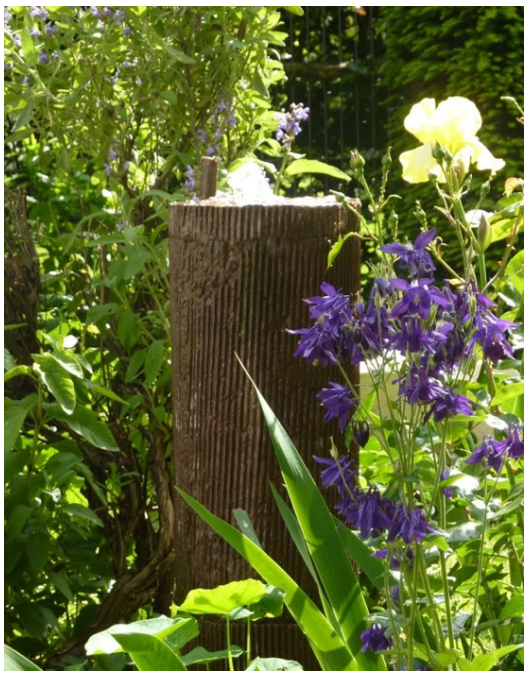

Fig. 2: View of fountain No. 2

A water hose was attached to the center of the formwork, which will later direct the water from the pump to the upper edge of the column. The end is a water basin with a sloping surface, a kind of cone, so to speak, which reaches down into the end of the hose with the tip pointing downwards. The water pressure creates a fountain about 10 cm high and a basin that attracts numerous birds, especially blue tits, to bathe. Among the birds there are brave ones, which dive into the water without hesitation and splash their feathers with fluttering feathers, and shy ones, which only land on the edge of the pool on the second or third try.

1.3 Fountain No. 3

The fountain consists of a hollow cylinder with a diameter of 32 cm and a height of 50 cm, standing on a concrete foundation about 15 cm thick. Initially it was planned to only apply concrete in this form by hand with a wall thickness of 5 cm, but this did not work or took too long, since each layer had to harden before another layer could be added. Therefore, a suitable plastic container was used as permanent formwork, which was plastered with cement mortar inside and out. The result is a round water container with a diameter of about 35 cm and a height of 50 cm.

Fig. 3: Fountain No. 3

A circulating pump was placed in the container, which pushes the water up in a vertical pipe to the fountain. The tube was clamped to the container wall with wire in the form of three spokes and thus fixed.

The concrete is left natural with the proven frost-resistant composition. An electric cable was led out over the edge of the pool to a weatherproof socket. The whole ensemble is now overgrown with ivy. The pushed-up water falls into the water pool and creates a soothing sound, similar to a small mountain stream.

2. EXPERIENCE VALUE

The fountains give the garden an acoustic component. Each fountain makes a characteristic sound. Over the first fountain, the water is flowing quietly over the concrete elements. Only on the edges of the prefabricated elements air is sucked into the water stream percolating down. It gives continuously a low noise. The second fountain can be distinguished from the others by a fountain falling back into the water tank. The third one is similar to the first one. If it is very quiet in the garden, e. g. in the evening, after the birds have calmed down, the fountains create a pleasant soundscape.

3. CONCLUSION

With simple means it is possible to create attractive sculptures made of concrete or mortar, for example fountains.

Three completely different shaped fountains were made. The common feature is the changeability from summer to winter climate.

The water in the fountain is circulated, so no water connection is necessary.

In the late autumn, the water is removed from the containers for fear of freezing. Damage happened not in 20 years time.

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