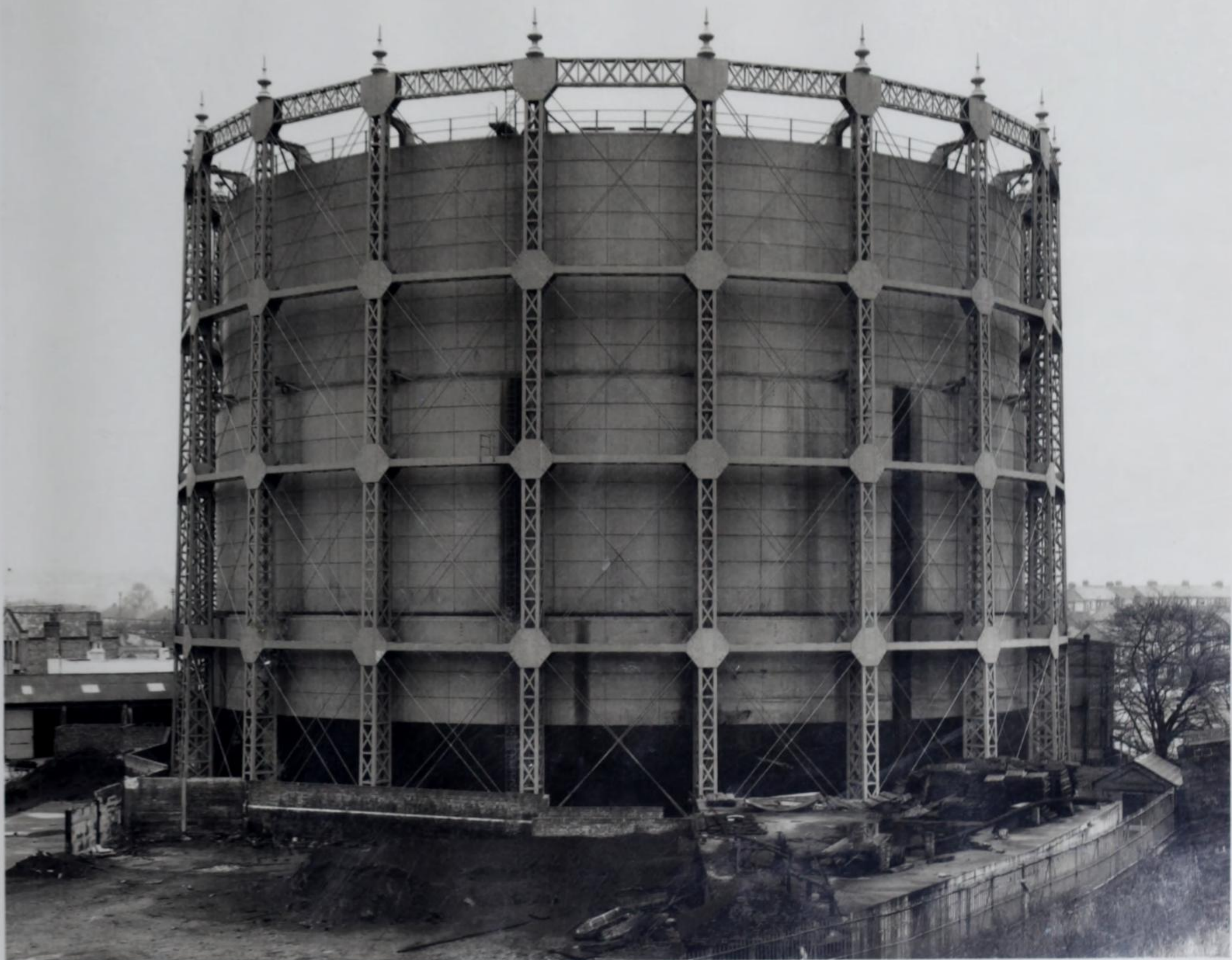


BERND & HILLA BECHER



GAS TANKS

\$ 55.00

Gas Tanks

Bernd and Hilla Becher

"[The Bechers] erect typologies of form that challenge the traditional meanings of art, architecture, and photography." – Andy Grundberg, *The New York Times*

"The Bechers' photographs possess a clarity and a formal rigor that is breathtaking." – Scott Gutterman, *ID*

The Bechers' industrial vision has become an essential part of the way we see today; their head-on, deadpan photographs of pithead gear, water towers, and blast furnaces have for more than 30 years expressed a serenely cool, rigorous approach that reduces the individual structures they photograph to variations on an ideal form. In this, their latest work, the Bechers present four principally different forms of gas holders or gas tanks in 102 photographs taken during the years 1963–1992 in Great Britain, France, Belgium, Germany, and the United States.

The subjects are photographed under overcast skies that eliminate expressive variations in lighting; the Bechers make no attempt to analyze or explain them. Captions contain only the barest of information: time and place. On the subject of gas holders, the Bechers limit their remarks to a minimal functional description, leaving the esthetic dimension of their subject to the photographs themselves: much of the fascination of these photographs lies in the fact that these unadorned metallic structures, presumably built with little concern for their visual impact, are almost invariably striking in appearance.

Bernd and Hilla Becher teach at the Düsseldorf Art Academy. They began their collaborative photographic enterprise in 1957, when they did a study of workers' houses in their native Germany. The Bechers follow in a distinguished line of German photographers that includes August Sander, Albert Renger-Patzsch, and Werner Manz, all of whom contributed in different ways to the definition of "objective" photography.





GAS TANKS



BERND & HILLA BECHER

GAS TANKS

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Bernd & Hilla Becher

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Gasholders

Gasholders (colloquially, "gas tanks") are containers for coke-oven gas, natural gas, and other gases. They provide temporary storage that allows supply and demand to be balanced in municipal gasworks and industrial plants.

Unlike water towers or grain silos, the materials being stored in which may harmlessly come into contact with the surrounding air, gasholders may not be only partially filled. This is why a gasholder must be constructed in such a way that its capacity can increase or decrease in proportion to the quantity of gas that is introduced into it. There are four basic types of gasholder, differing in construction principles as well as in external appearance.

Multiple-section gasholders

The multiple-section gasholder is the oldest type. It works on the principle that a cylindrical container with an open base and a closed top – the "bell" – can be completely submerged in a water tank that is as deep as the container. The bell can therefore rise or fall within the water tank in proportion to the quantity of gas entering or leaving it. The gasholder is carried up and down on rollers over a vertical guide frame, and is provided with an airtight seal by the water in which it floats (supported by the gas inside). With a simple bell construction, the capacity of the gasholder is limited by the depth and the diameter of the water tank, since these determine the maximum height and the maximum area of the cylinder containing the gas.

The structural trick of dividing the bell's outside wall into several connected cylindrical sections that can telescope together or apart made it possible to achieve a significant increase in the total height of the gasholder without having to correspondingly deepen the costly water tank.

When a multiple-section gasholder is filled, the buoyancy of the gas first raises the bell out of the water; it then raises the sections of the outer wall, one after another. When it is emptied, the sections sink into the water tank one after another until only the empty guide frame remains visible.

Spiral-guided gasholders

The spiral-guided gasholder is a further development of the multiple-section one. It also consists of one or more bell sections, and is rendered airtight by a water seal, but it has no external guide frame. Its sections move up and down with a screw movement on rollers along guide rails that are attached to the surface shells of the bell sections in a spiral formation. When it is empty, a spiral-guided gasholder is completely concealed, unless the water tank has a rim above the ground.

Piston-type gasholders

The external shape of the piston-type gasholder always remains the same. It consists of a round or polygonal cylinder that is firmly attached both at the base and at the top. A piston disk seals the cylinder and floats on top of the gas, rising and falling vertically to adjust the volume. To ensure that the large, movable piston maintains a gas-tight seal with the container wall, the outside rim of the piston has elastic, razor-sharp sliding steel strips, and is covered with a leather sleeve that is pressed against the container wall by latching elements. An oil reserve contained in a gutter along the piston rim – the so-called piston cup – constantly saturates the leather sleeve with oil so that it is always able to slide against the wall, at the same time maintaining the seal. Oil also constantly runs down the internal wall of the gasholder, forming a film over the entire cylinder wall. In addition to sealing it and ensuring that the piston can slide, this protects the gasholder against frost and corrosion. The oil is collected in a gutter at the base of the cylinder and pumped back to the top.

In contrast to multiple-section and spiral-guided gasholders, which are called “wet” gasholders because they use water as the sealant, piston-type gasholders using oil as the sealant are called “waterless” or “dry” gasholders. All three of these types are basically low-pressure gasholders. The gas pressure is controlled by the weight of the bell or piston, which can be increased by using extra weights.

Spherical gasholders

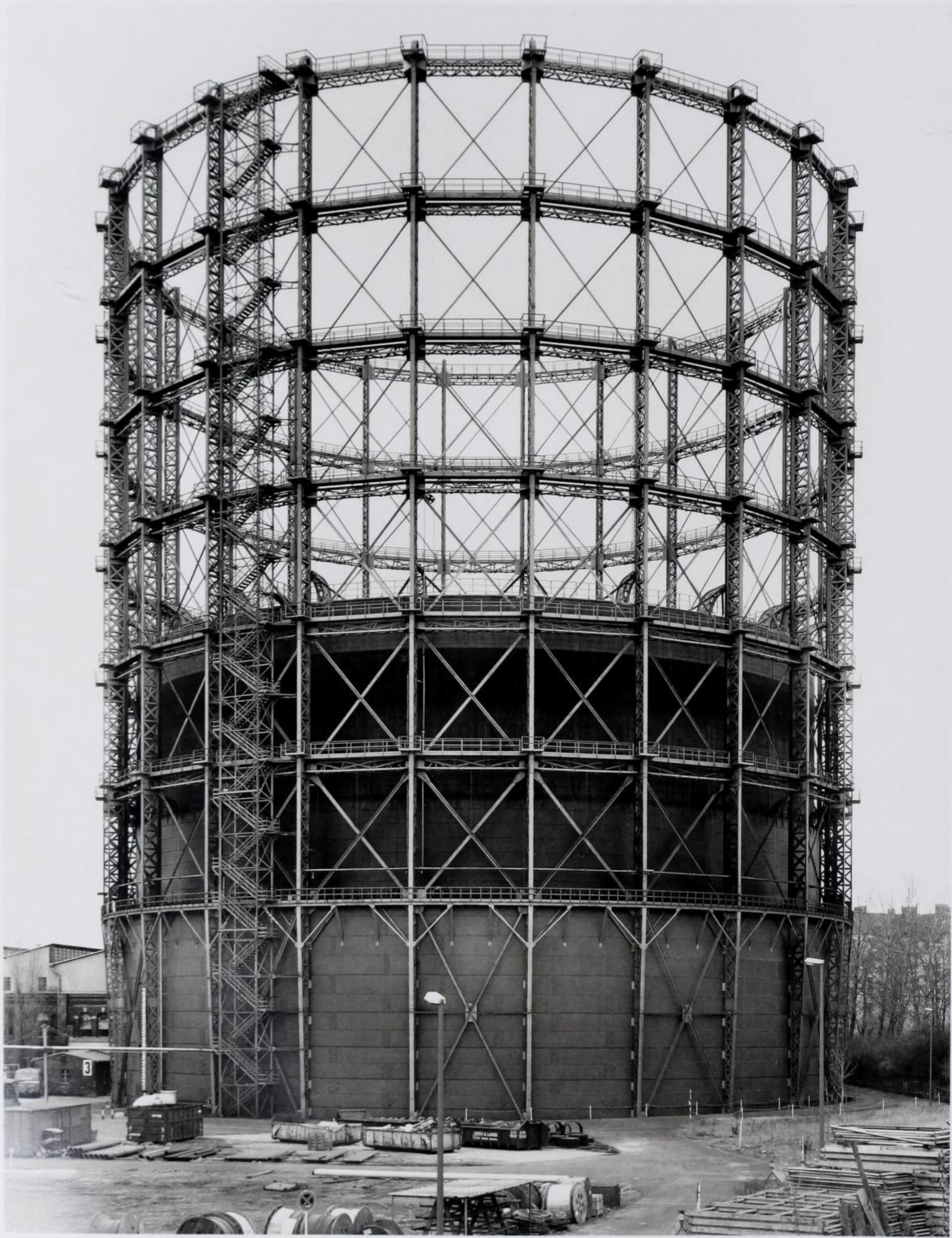
The spherical type of gasholder is the one with the largest capacity. The gas is liquefied outside of the container in refrigeration units, or pumped into the sphere by compressors, so it is reduced to a fraction of its former volume.

Since a sphere can withstand considerably higher pressures than a cylinder, it is the most appropriate construction form for such a tank. High-quality steel and extremely precise manufacturing methods are used to construct the sphere, which today is welded together from prefabricated sections. (The earliest models were riveted together.) A variety of supports have been used for these gasholders, including a flat or ring-shaped rest at the base of the sphere, V-shaped or three-point supports, and vertical columns braced with diagonal struts. The points at which the supports meet the surface of the sphere are often secured with steel elements that spread the stress. Since heat from the sun can increase the temperature and pressure of the liquefied gas, the surface of a spherical gasholder is insulated against heat and coated in reflective paint.



I

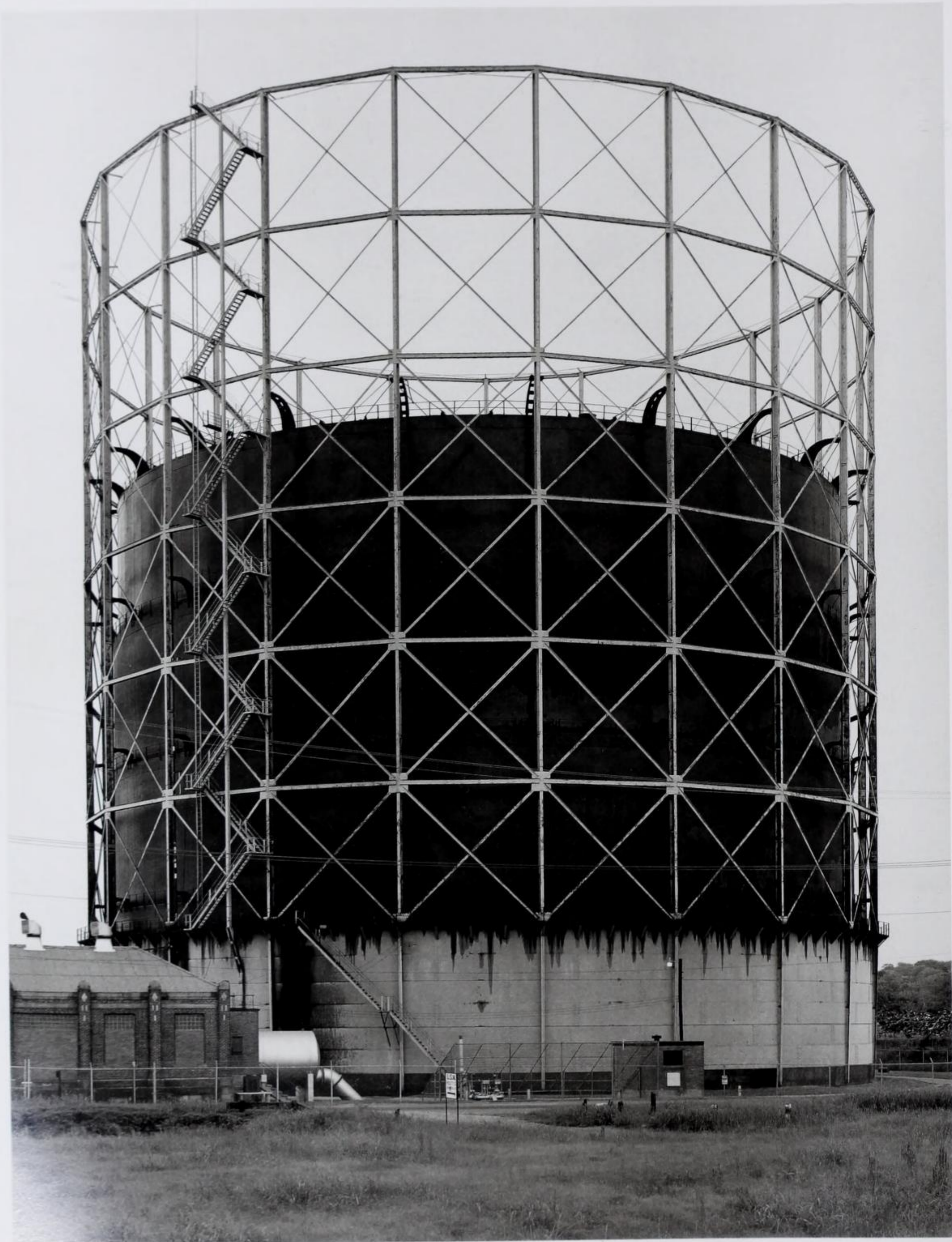
Teleskop-Gasbehälter
Multiple-section gasholders
Gazomètre télescopique



1 Berlin-Schöneberg, D 1992



2 Alsdorf/Aachen, D 1965



3 Birmingham, Alabama, USA 1983



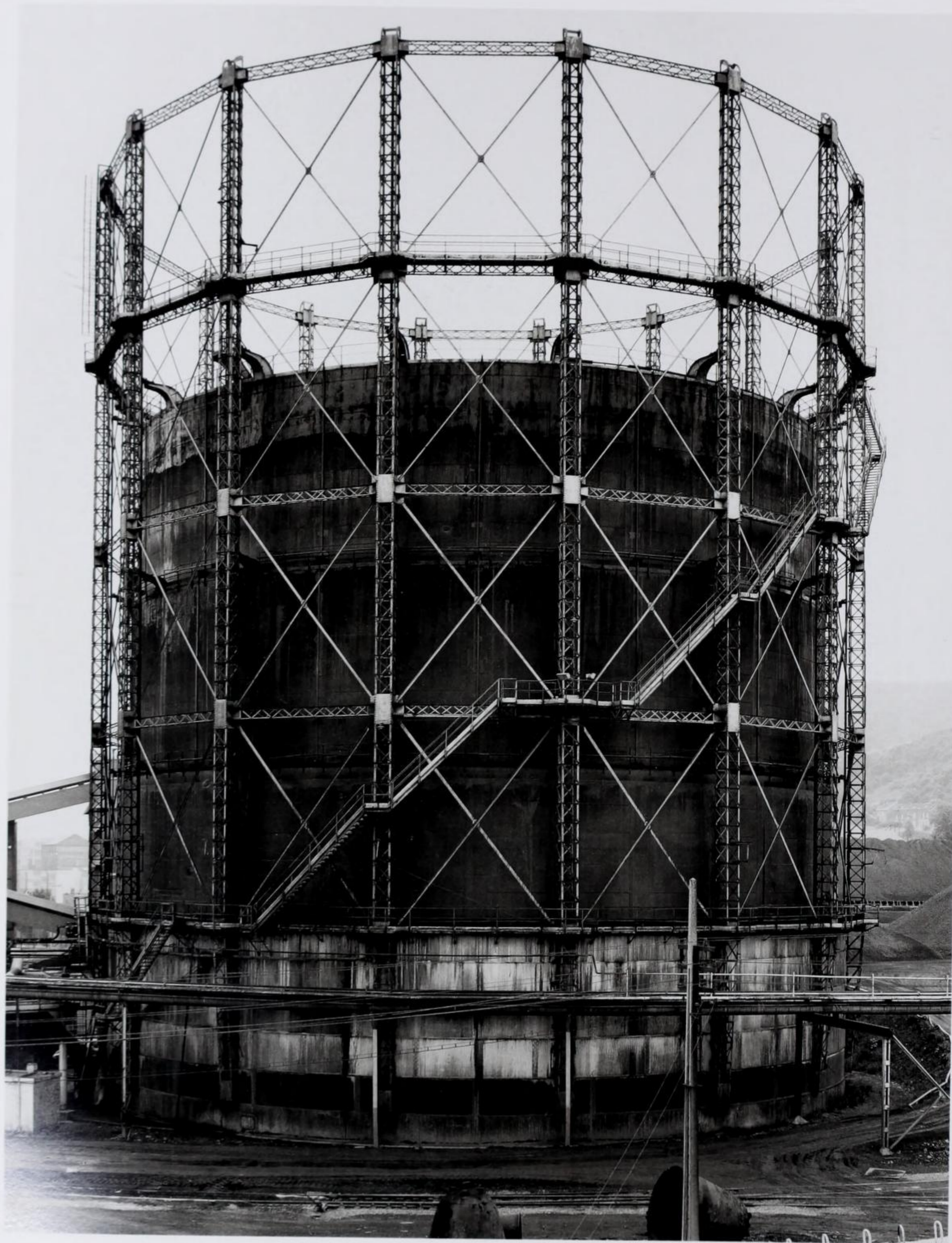
4 Jersey City, New Jersey, USA 1981



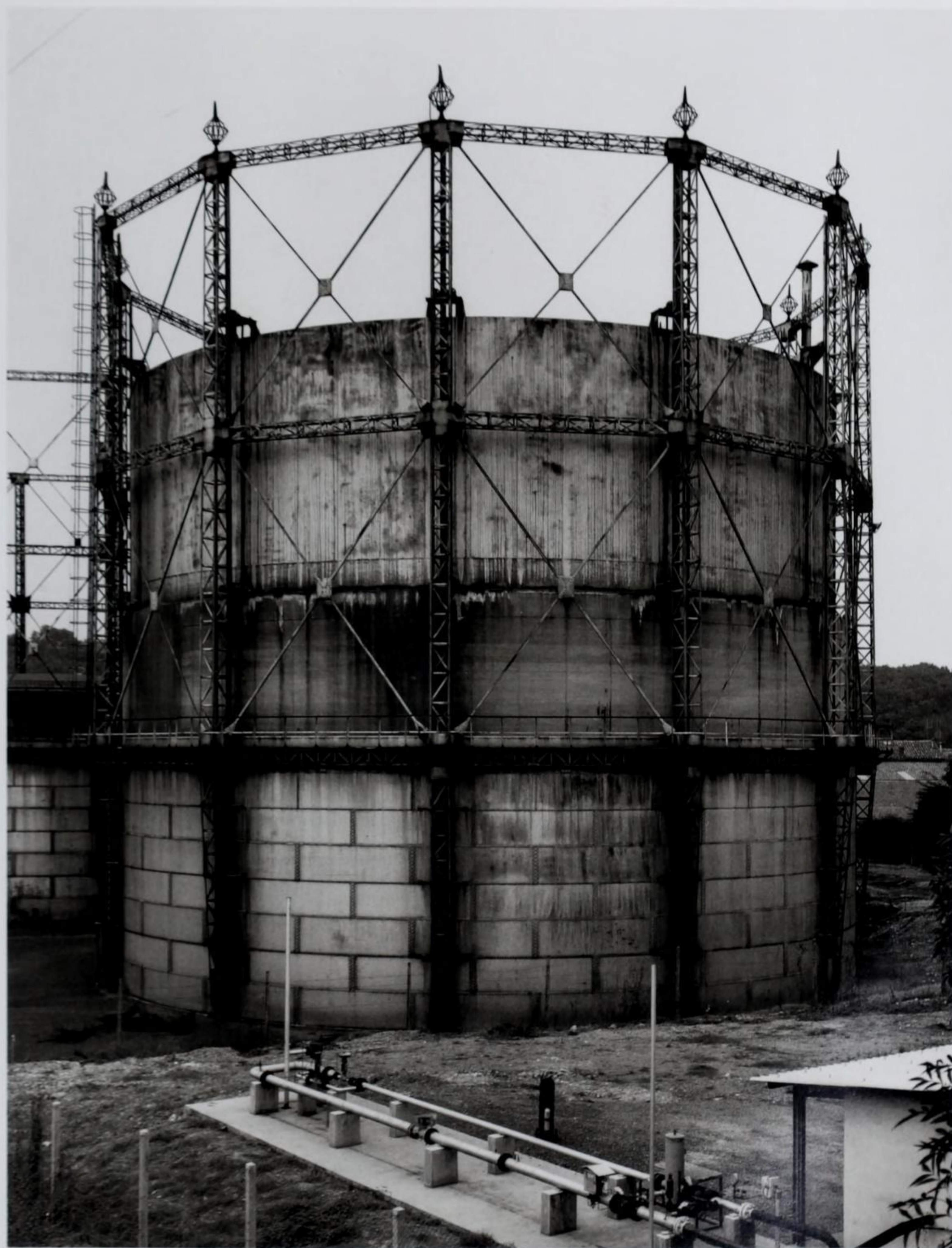
5 Leuven, B 1980



6 Gelsenkirchen, D 1973



7 Liège-Ougrée, B 1980



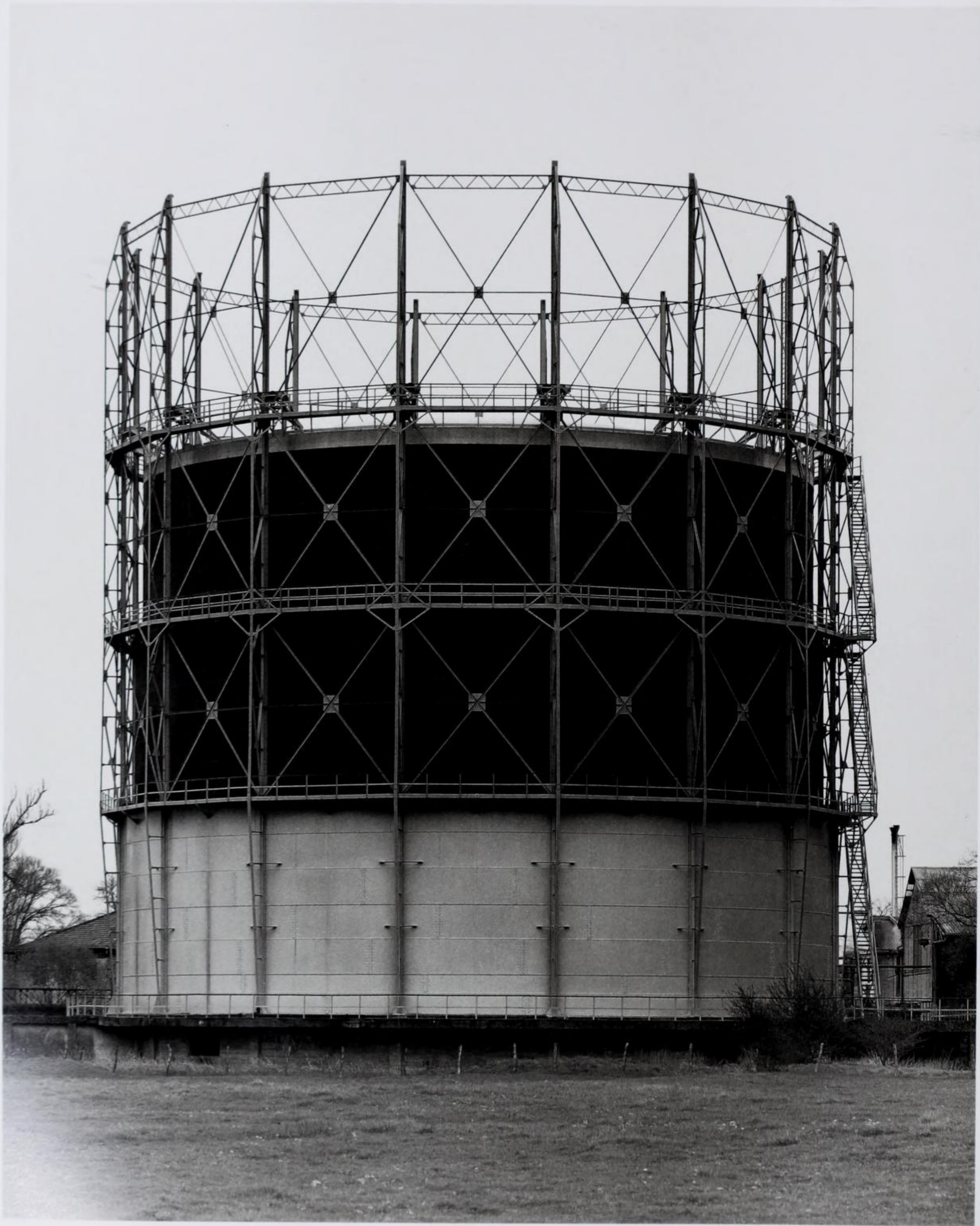
8 Carmaux, Tarn, F 1981



9 Singen am Hohentwiel, D 1978



10 Dillingen, Saarland, D 1978



11 Pont à Mousson, F 1969



12 Porth, South Wales, GB 1973



13 Bad Kreuznach, D 1980



14 Geislingen a. d. Steige, D 1978



15 Bochum-Hordel, D 1973



16 Singen am Hohentwiel, D 1978



17 Offenburg, Baden, D 1978



18 Dinslaken, D 1978



19 Völklingen, Saarland, D 1979



20 *Lens, Pas-de-Calais, F 1970*



21 Chicago, Illinois, USA 1977





23 Gelsenkirchen, D 1977

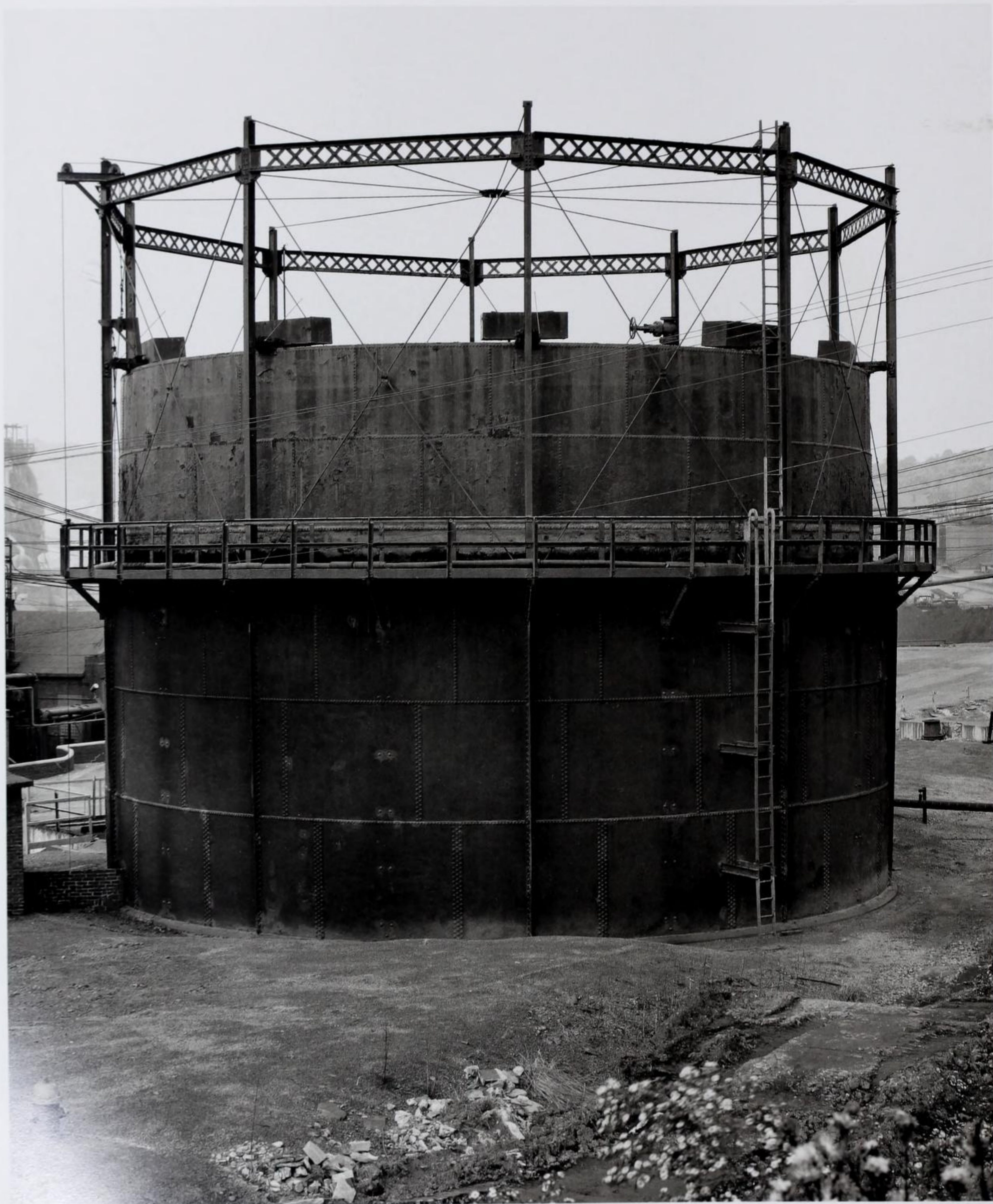


24 Gelsenkirchen, D 1977



25 Achern, Baden, D 1978





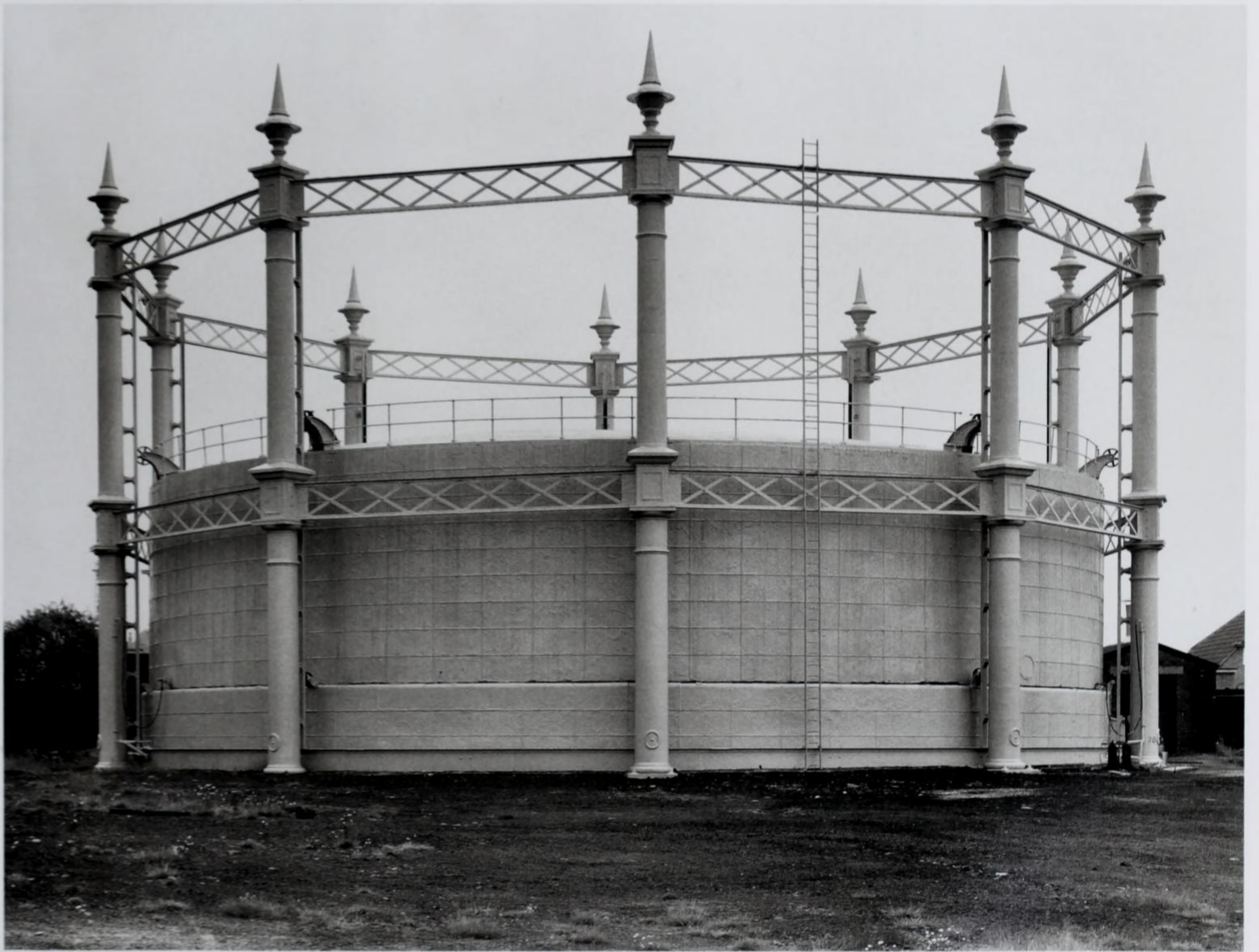
27 Johnstown, Pennsylvania, USA 1980

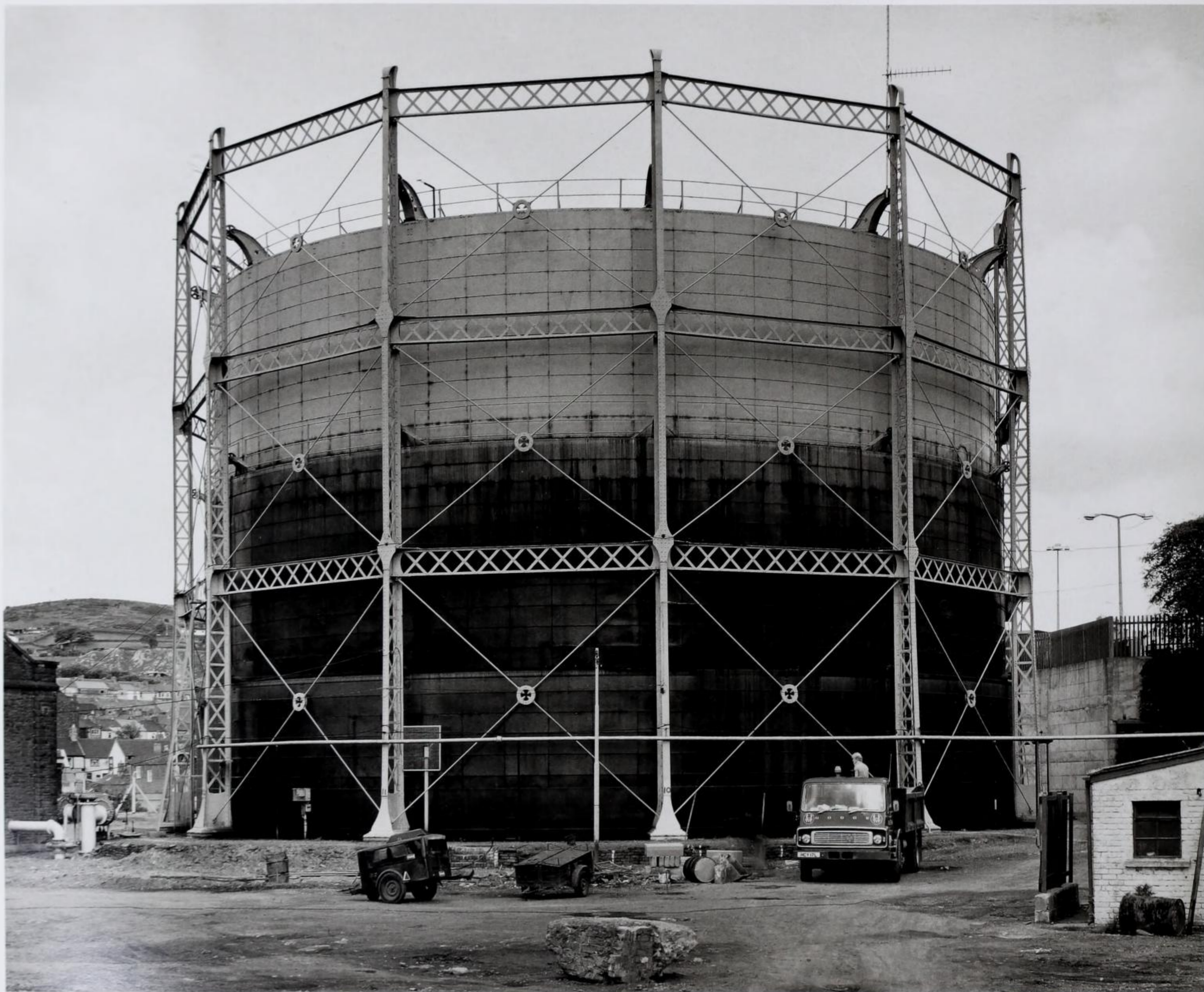


28 Duisburg-Rheinhausen, D 1966

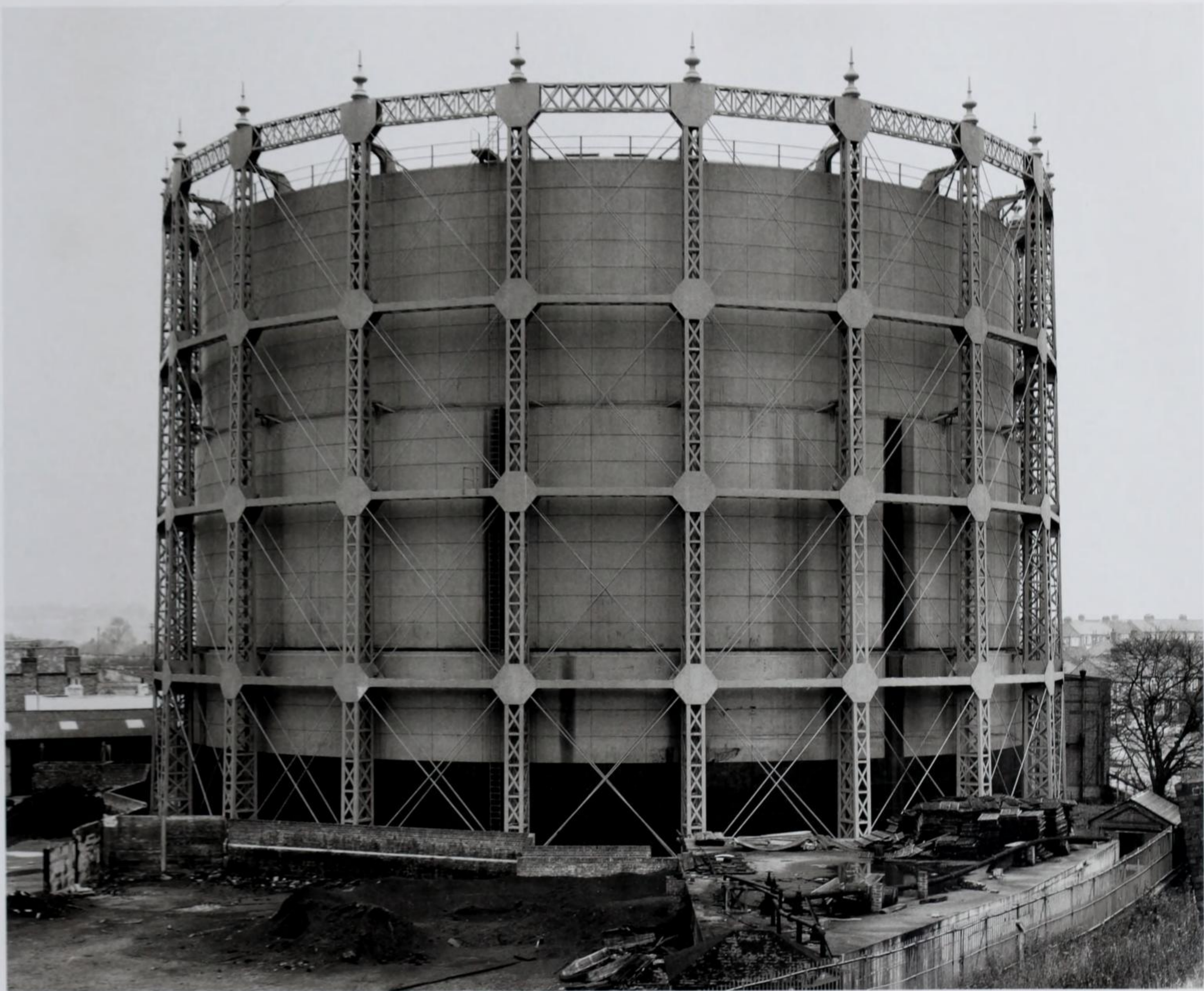


29 Crosshills/Leeds, GB 1966



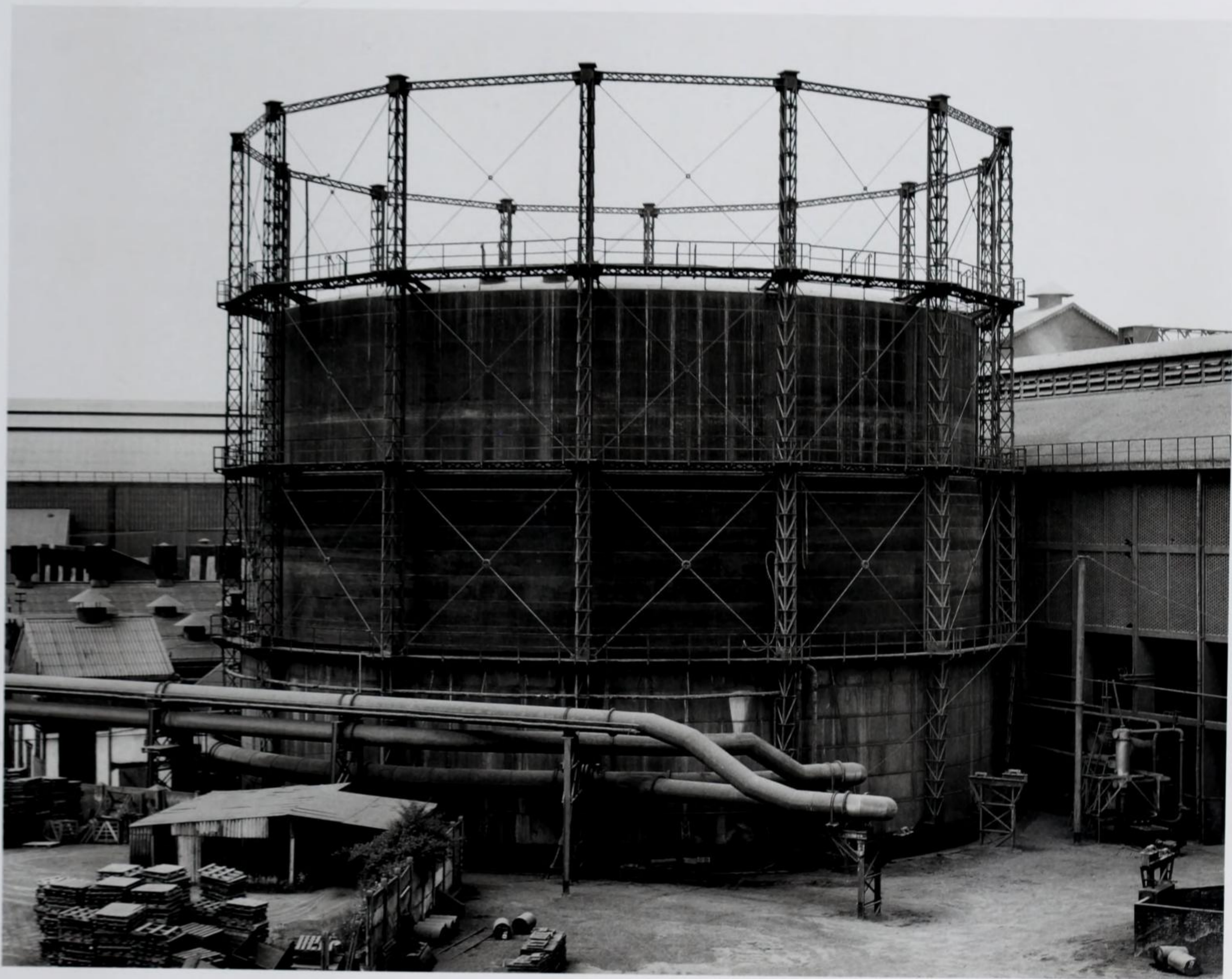


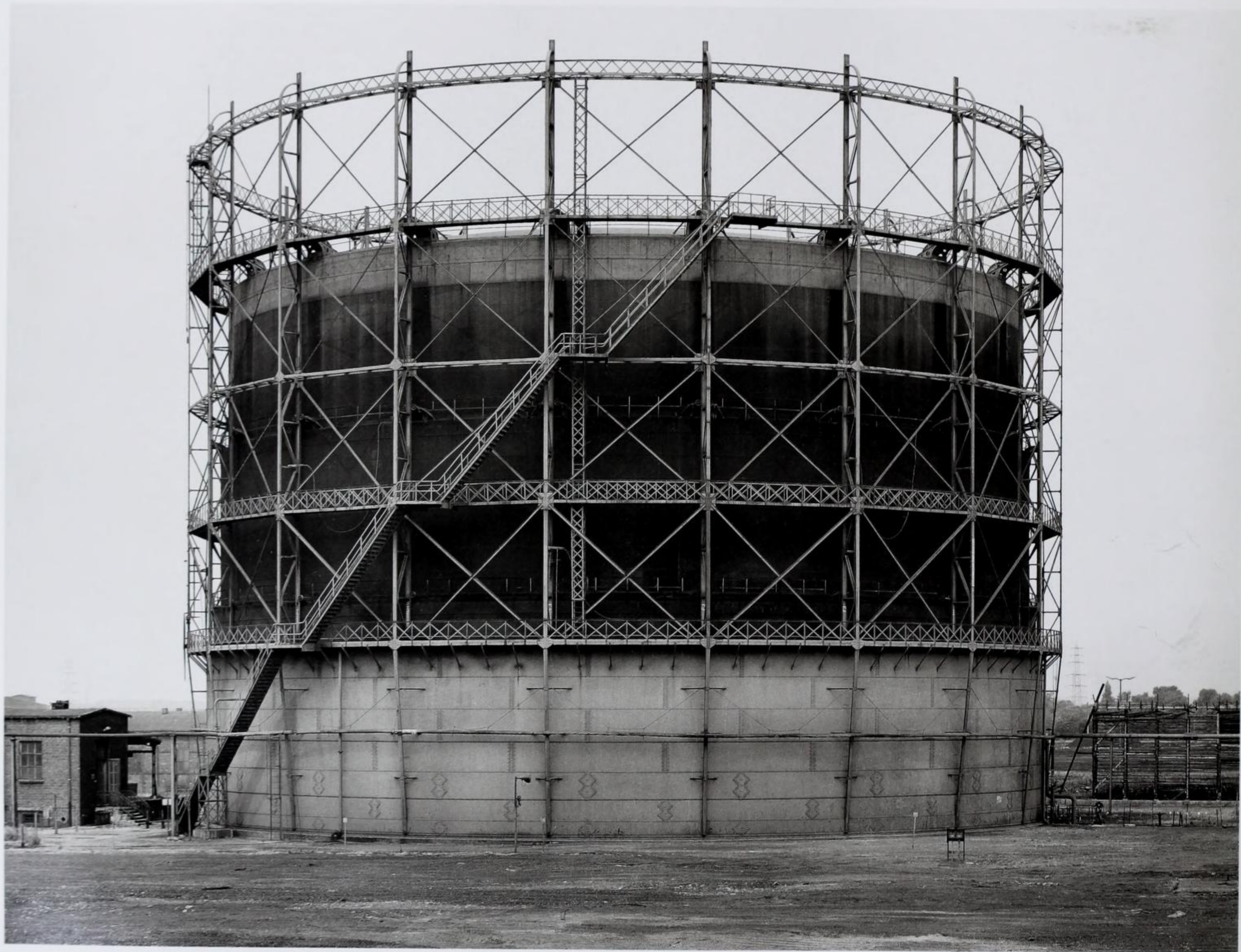
31 Ystrad Rhondda, South Wales, GB 1973





33 Pompey, Lorraine, F 1974

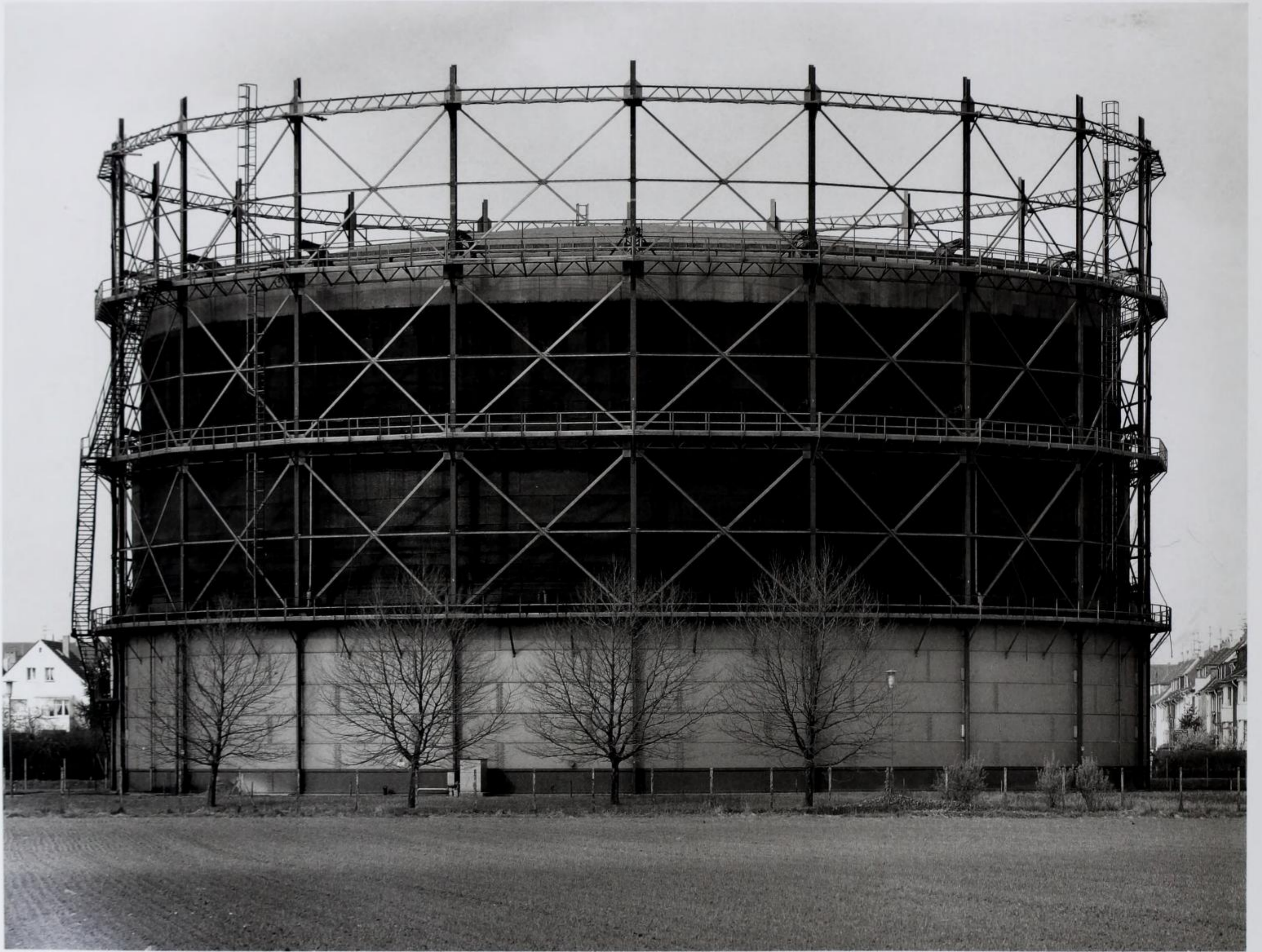


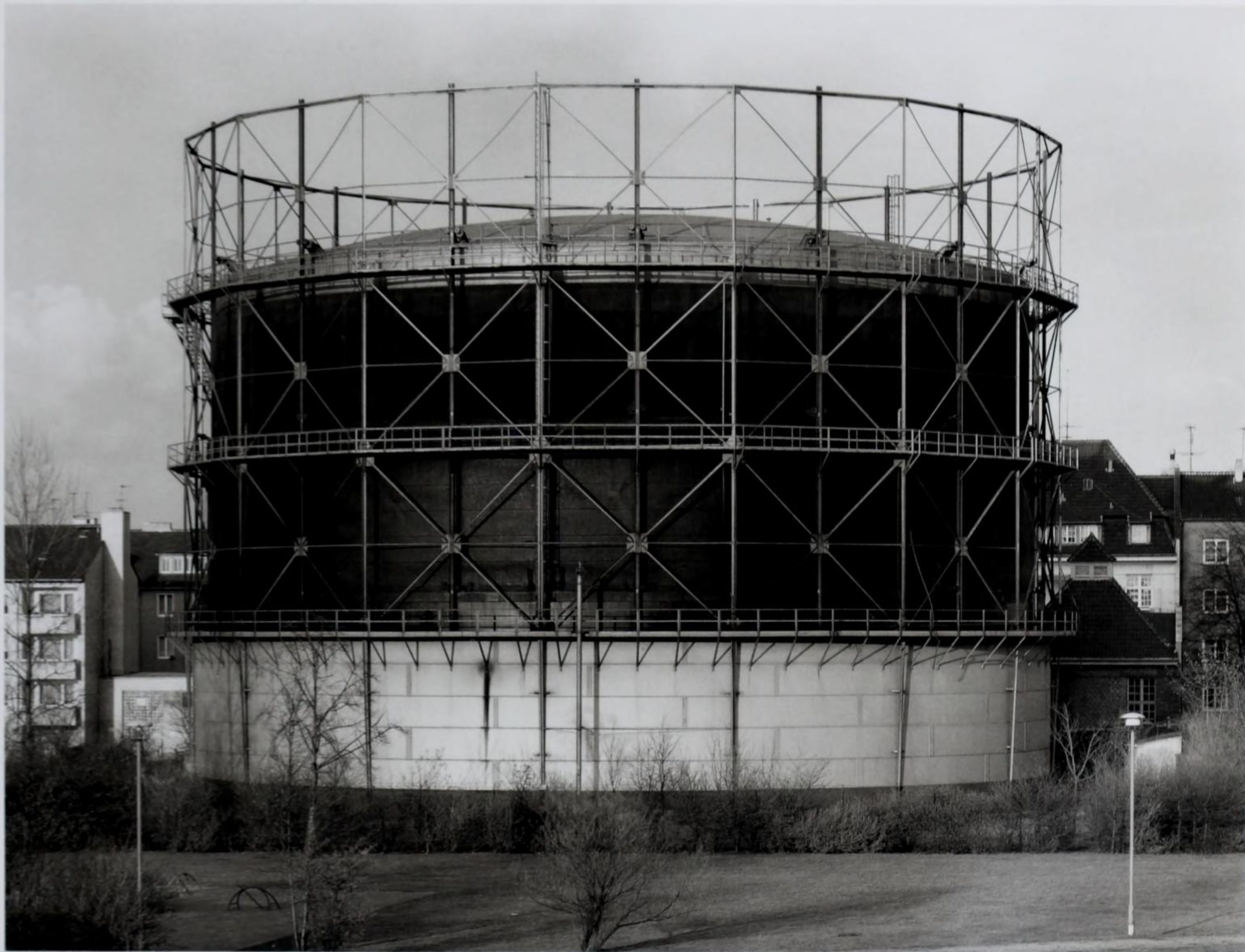






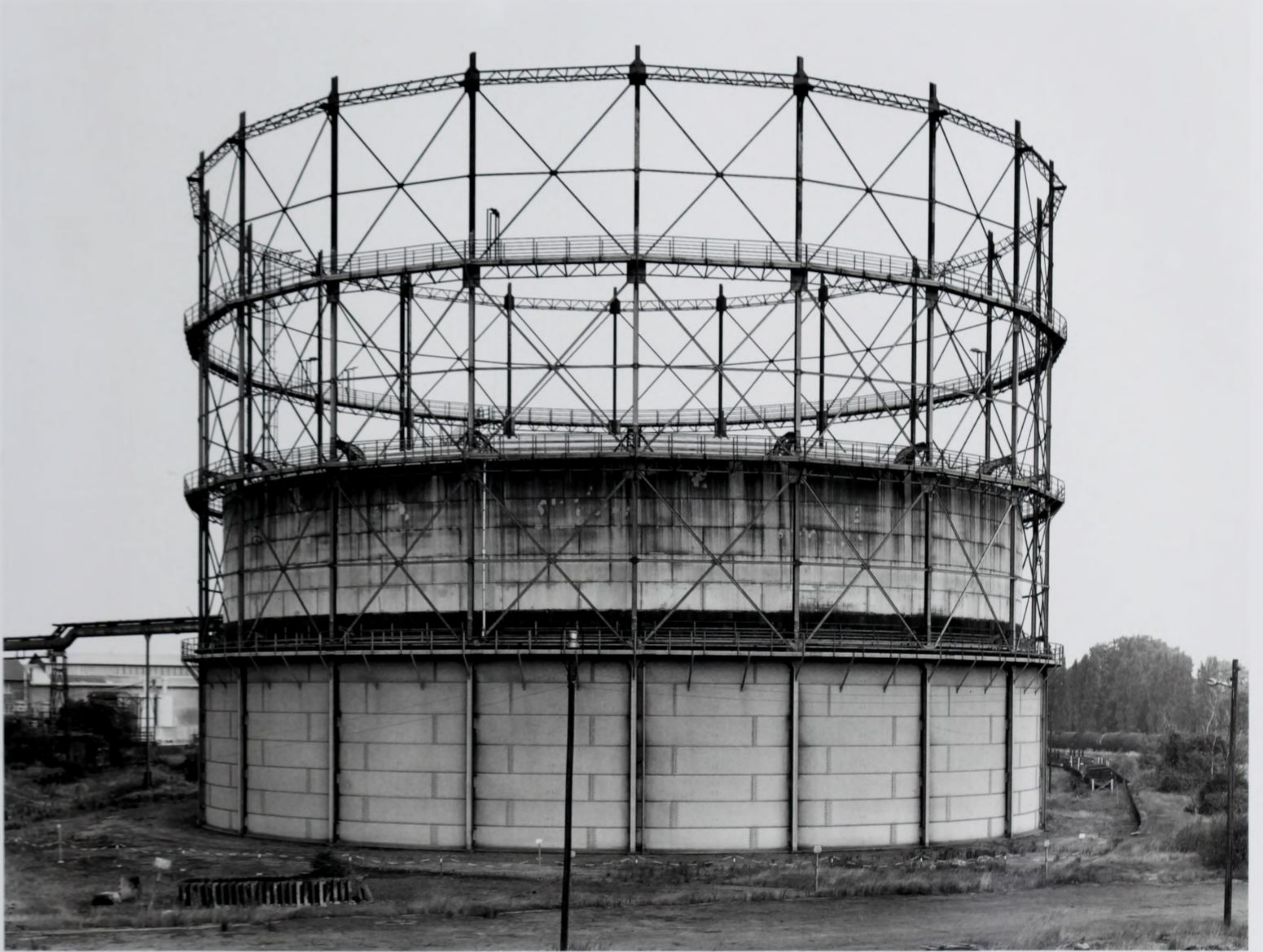








41 Düsseldorf-Bilk, D 1963



II

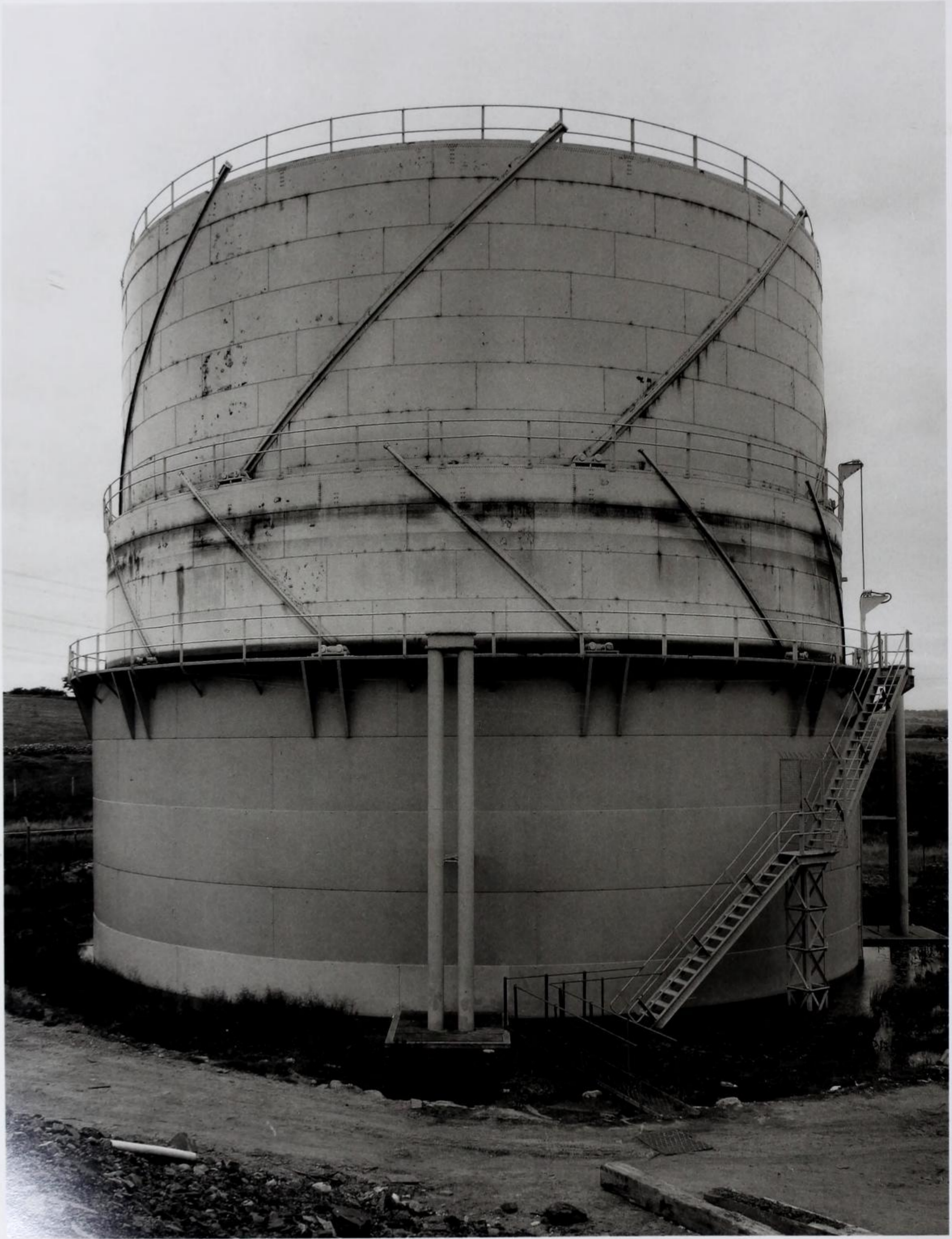
Schrauben-Gasbehälter
Spiral-guided gasholders
Gazomètre hélicoïdal



43 Ebbw Vale, South Wales, GB 1973



44 *Chepstow, South Wales, GB 1968*



45 Hirwaun, South Wales, GB 1973



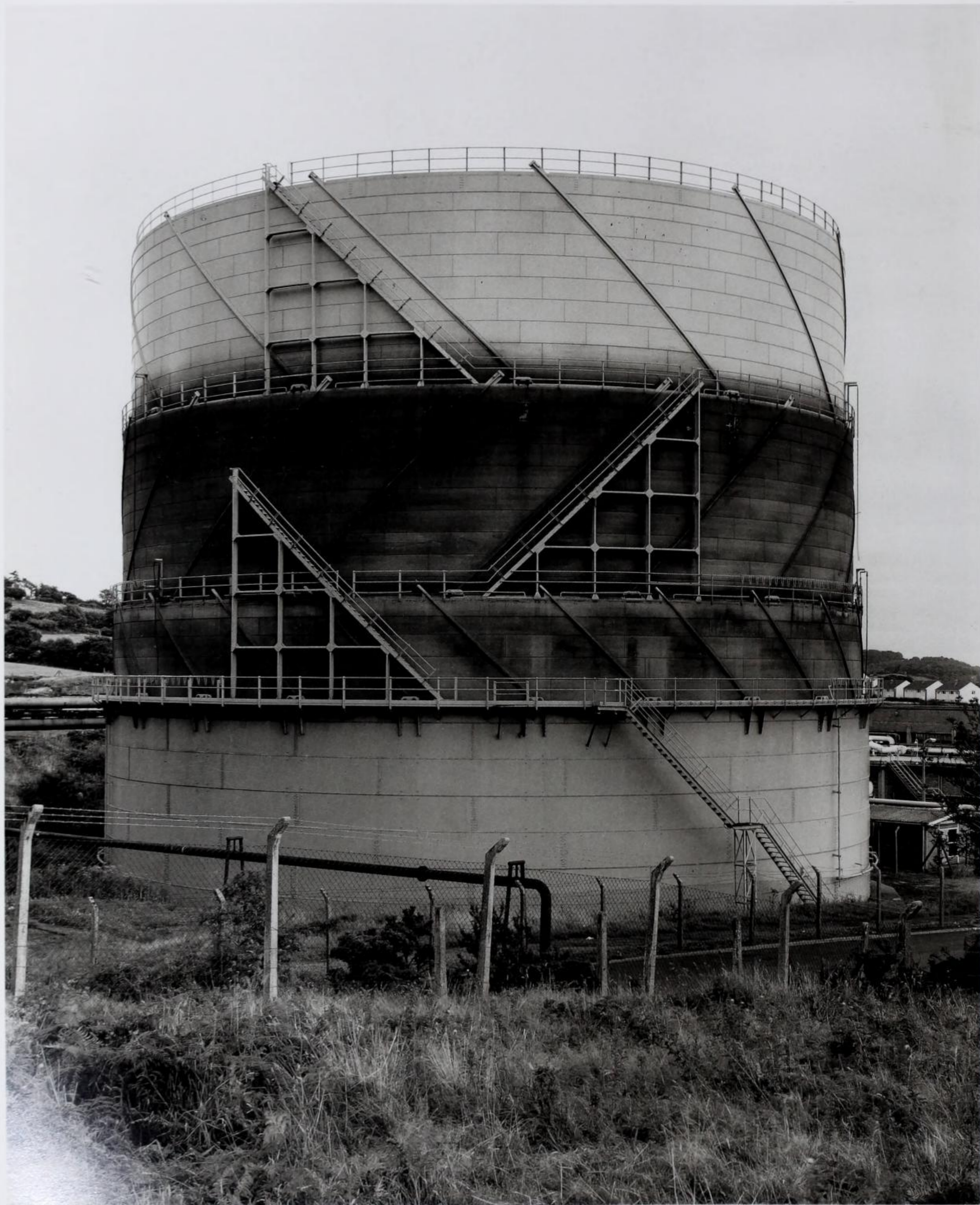
46 Tredgar, South Wales, GB 1973



47 Ruhrtal/Essen, D 1972



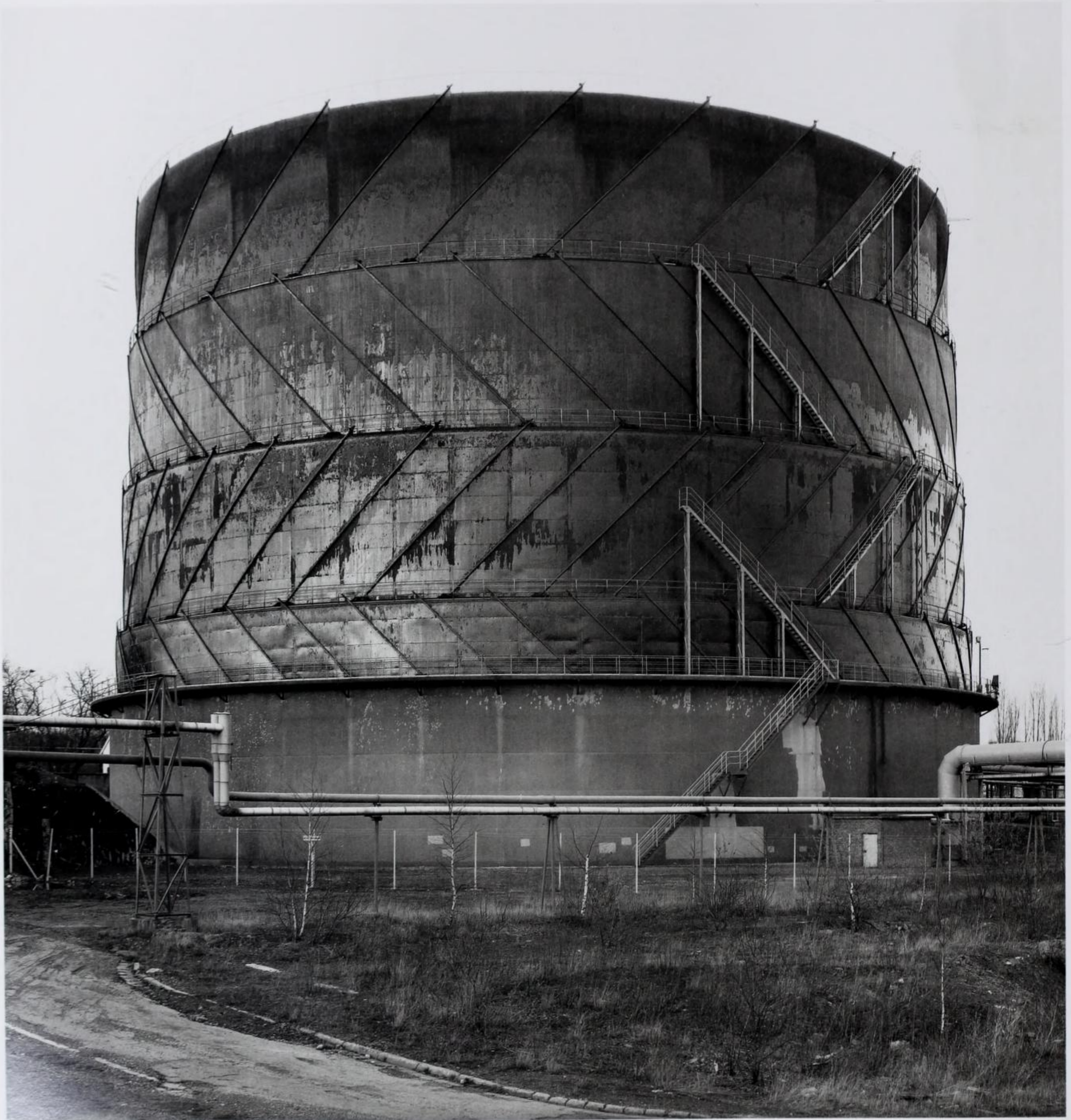
48 Pontlottin, South Wales, GB 1973



49 Tonyrefail, South Wales, GB 1973



50 Barnsley/Sheffield, GB 1966



51 Neunkirchen, Saarland, D 1978



52 Pontlottin, South Wales, GB 1973

III

Scheiben-Gasbehälter
Piston-type gasholders
Gazomètre sec

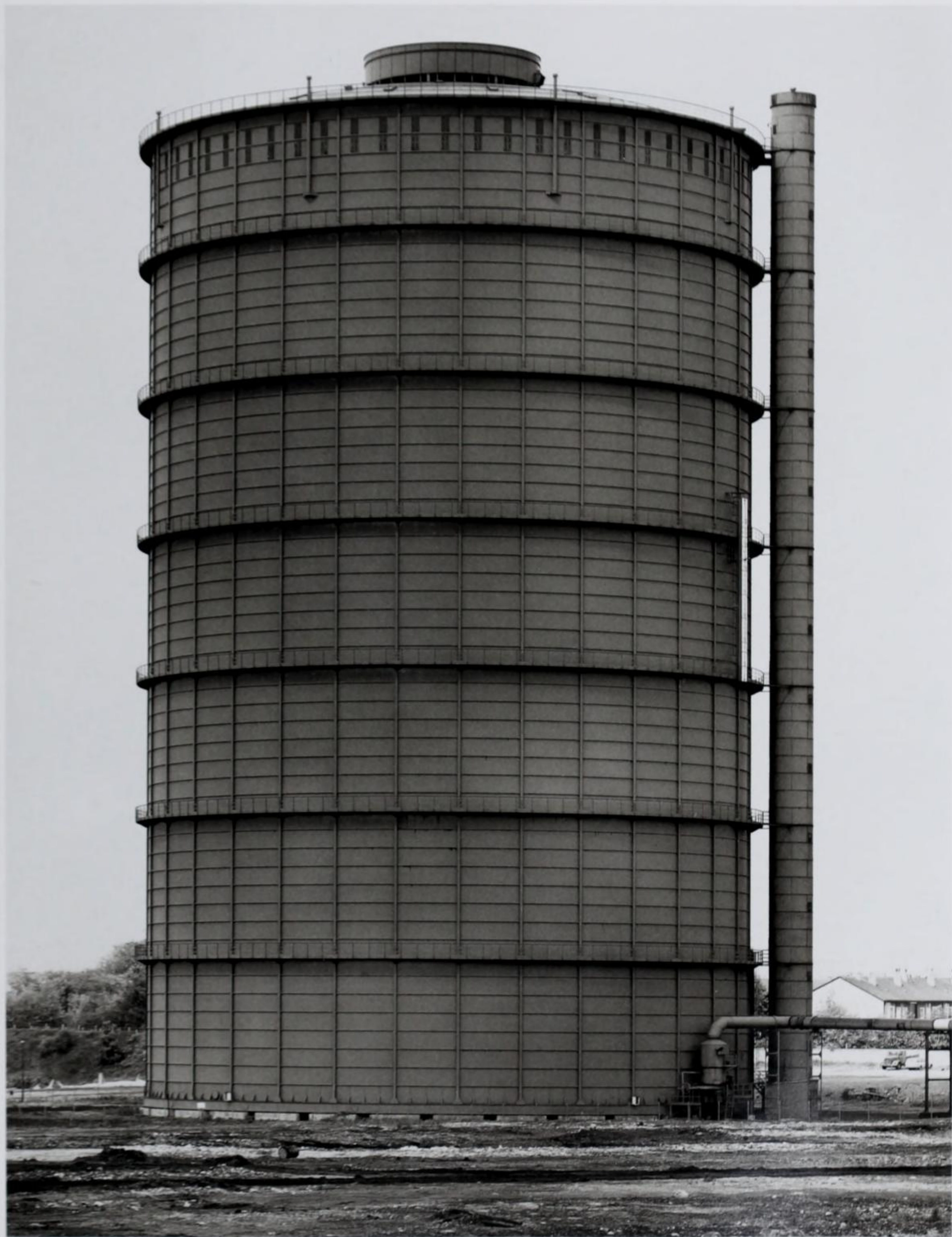


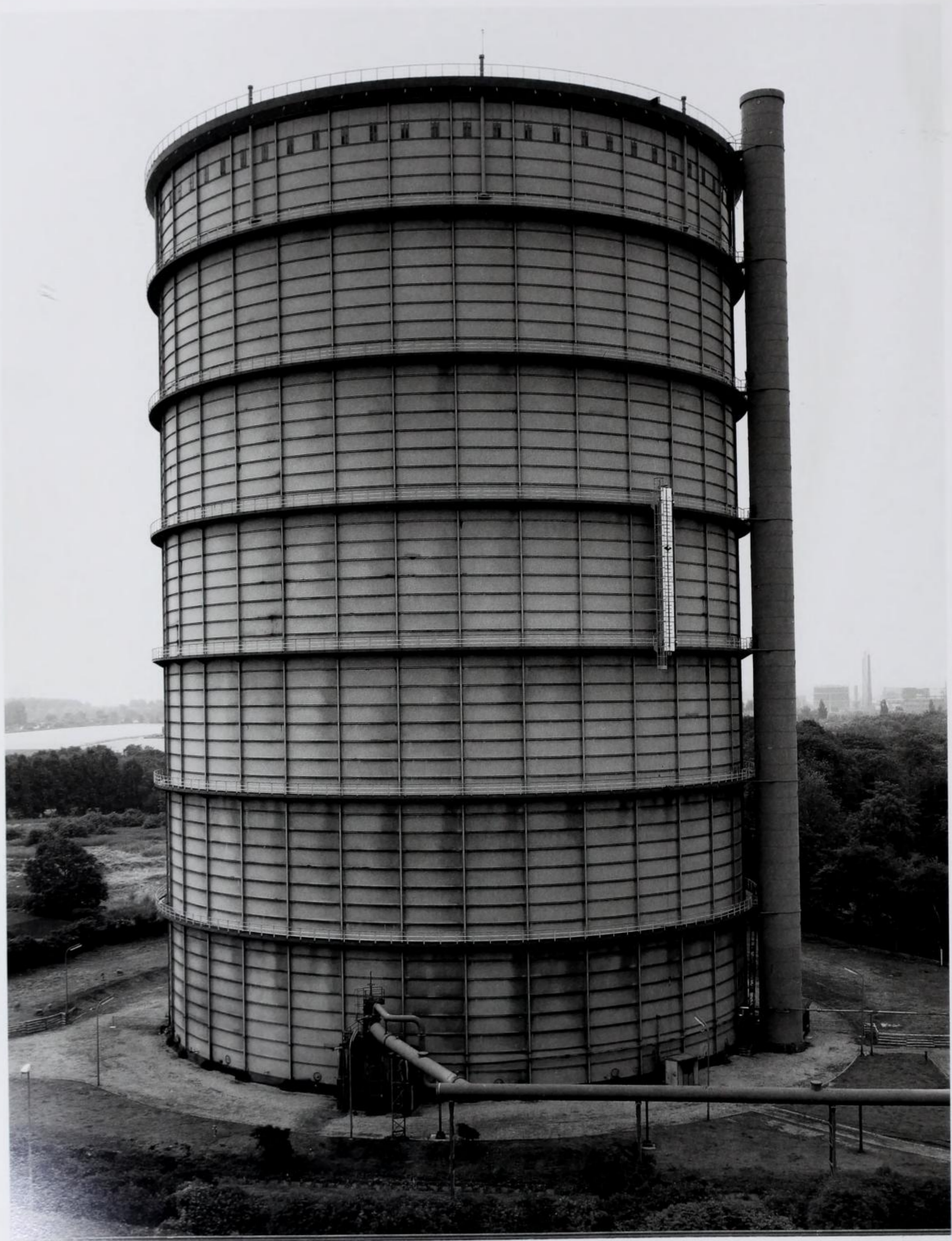
53 Recklinghausen, D 1974





55 Duisburg, D 1974

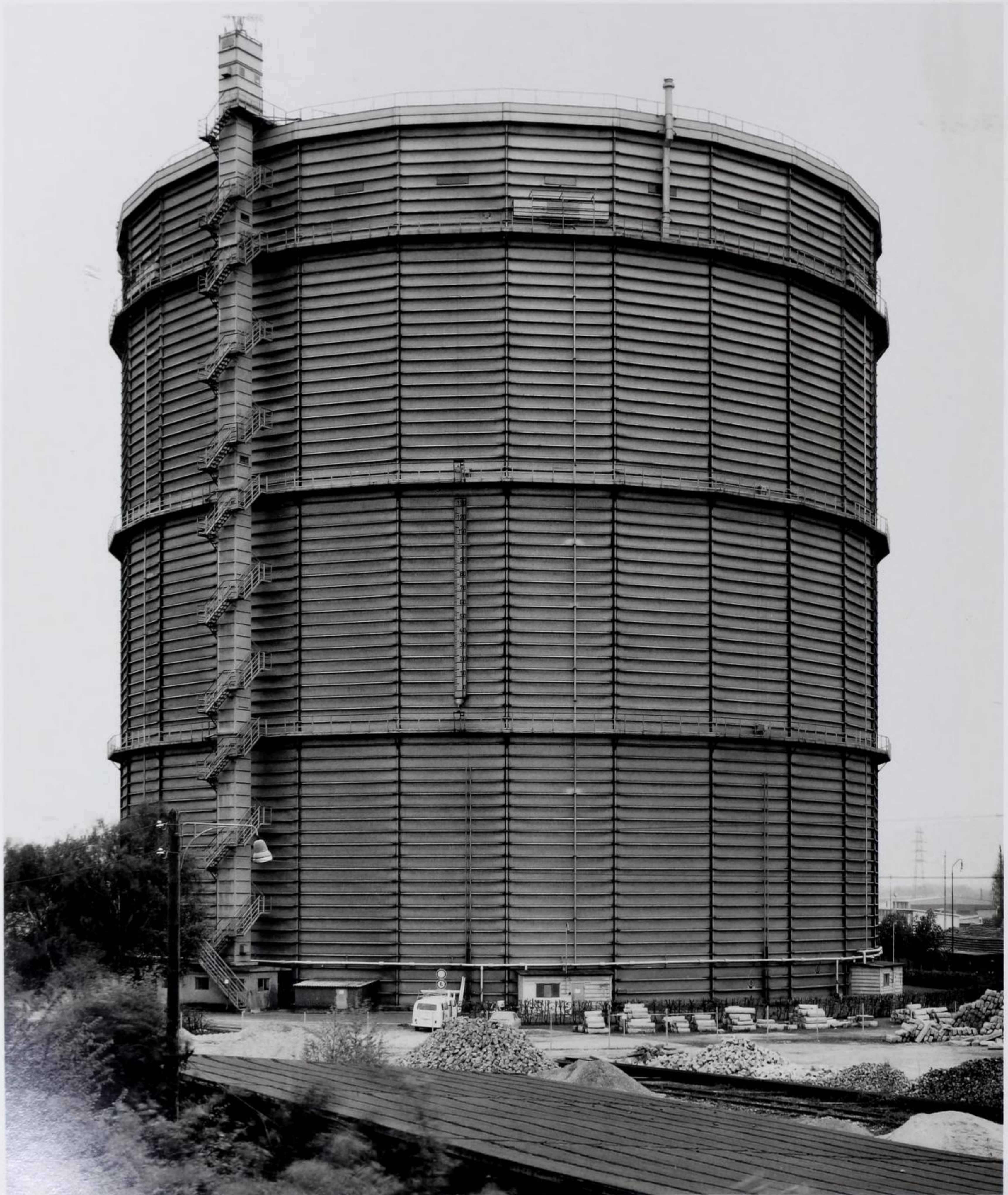




57 Dortmund-Eving, D 1987



58 Bochum-Werne, D 1978



59 Karlsruhe, D 1976



60 Oberhausen-Osterfeld, D 1972



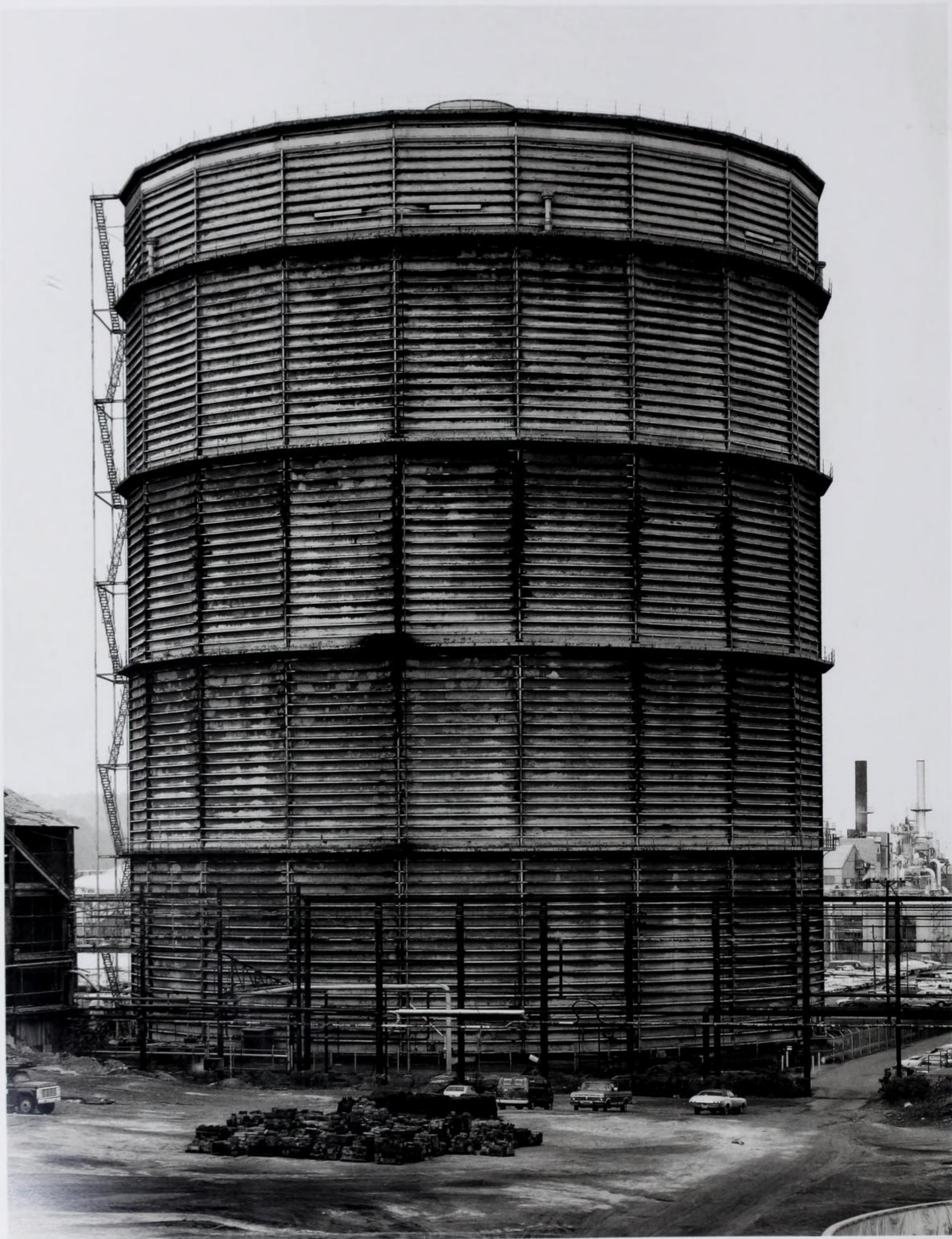
61 Neunkirchen, Saarland, D 1979



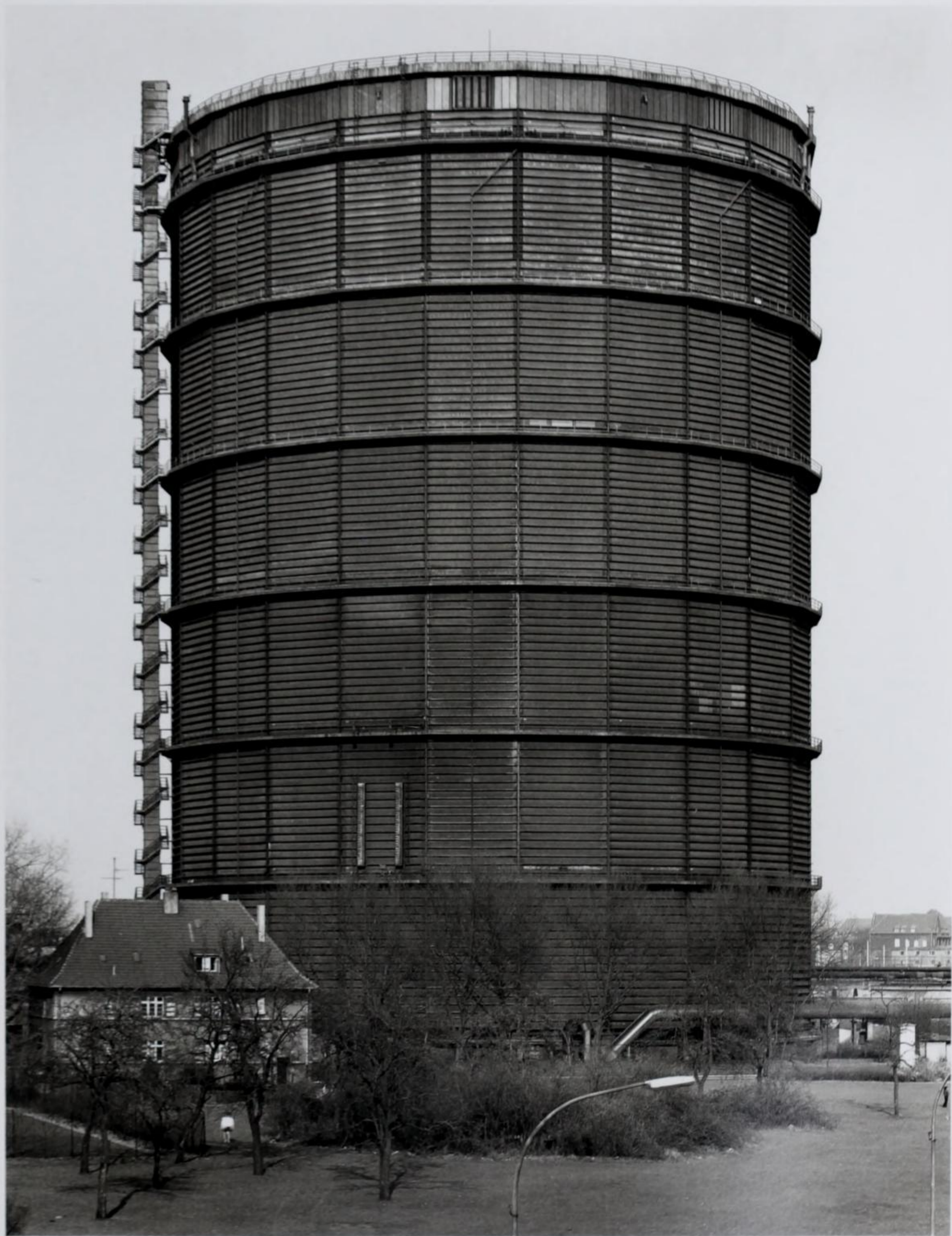
62 Dortmund-Huckarde, D 1993







65 Neville Island, Pennsylvania, USA 1980



66 Duisburg-Bruckhausen, D 1973



67 Neunkirchen, Saarland, D 1975



68 Recklinghausen, D 1978



69 Wanne-Eickel, D 1965

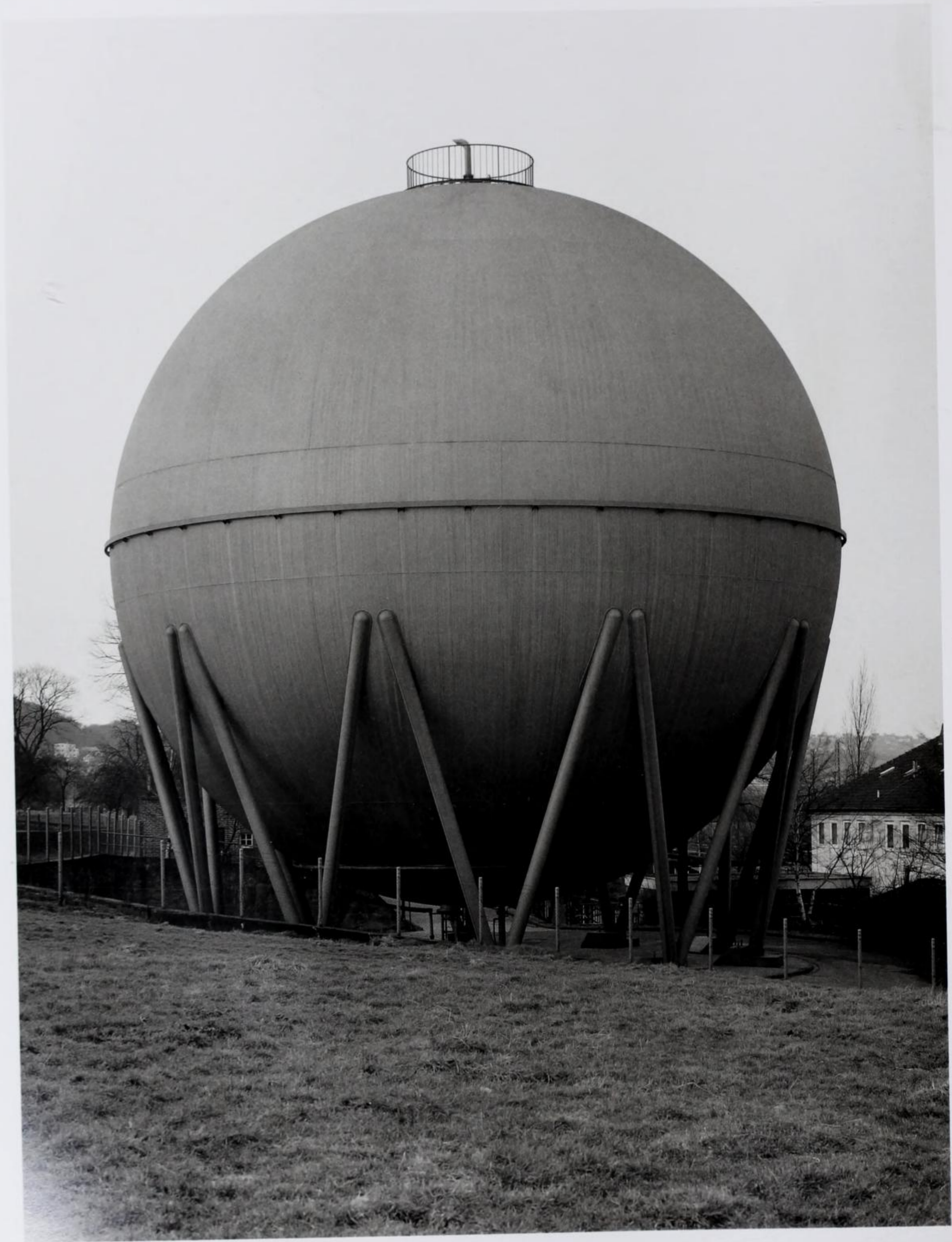


70 Essen-Altenessen, D 1976



IV

Kugel-Gasbehälter
Spherical gasholders
Hortonsphère



71 Köln, D 1970





73 Gladbeck, D 1970

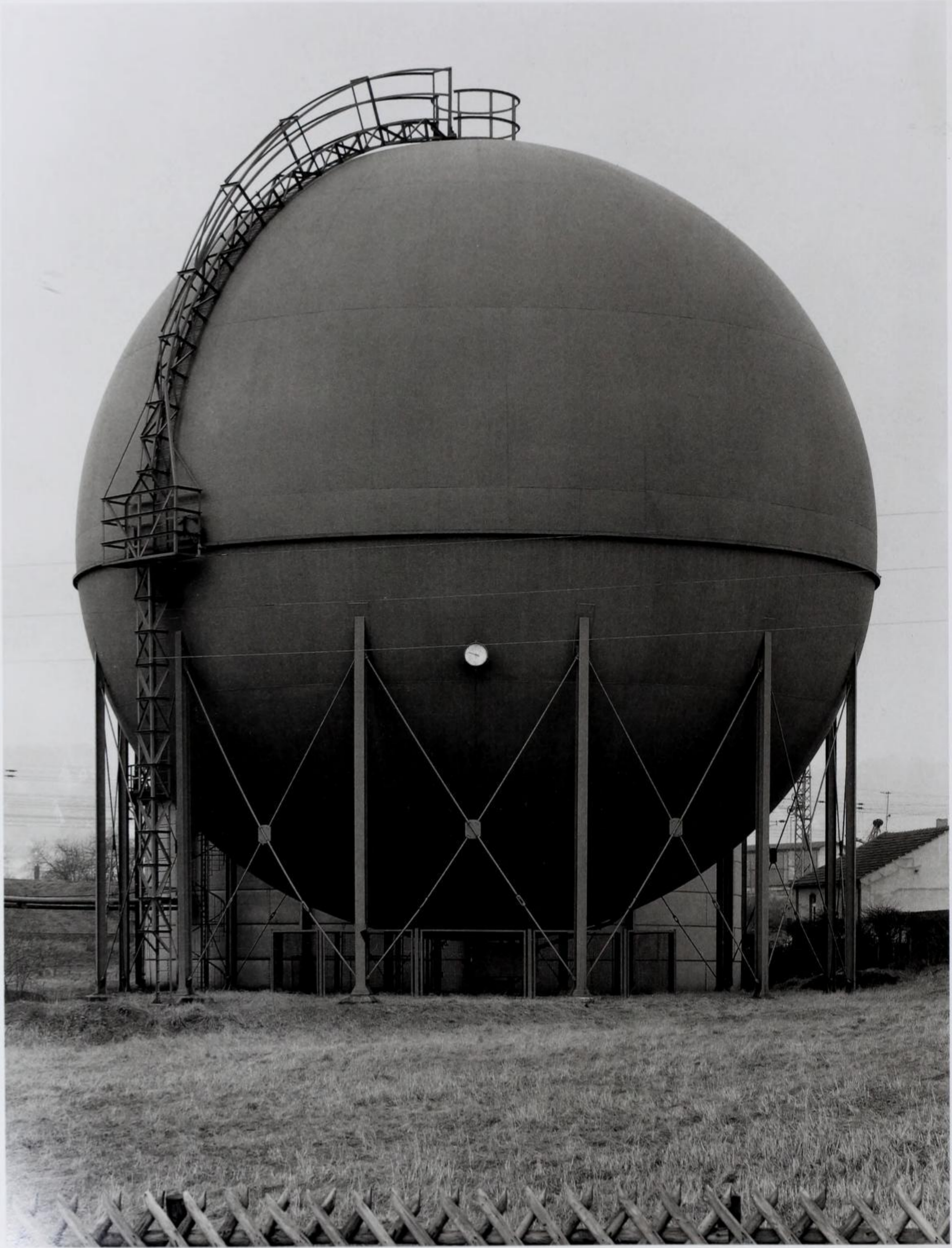




75 Siegen, D 1993



76 Gelsenkirchen, D 1967



77 Schwelm/Wuppertal, D 1966



78 Wuppertal, D 1963



79 Gevelsberg, D 1967



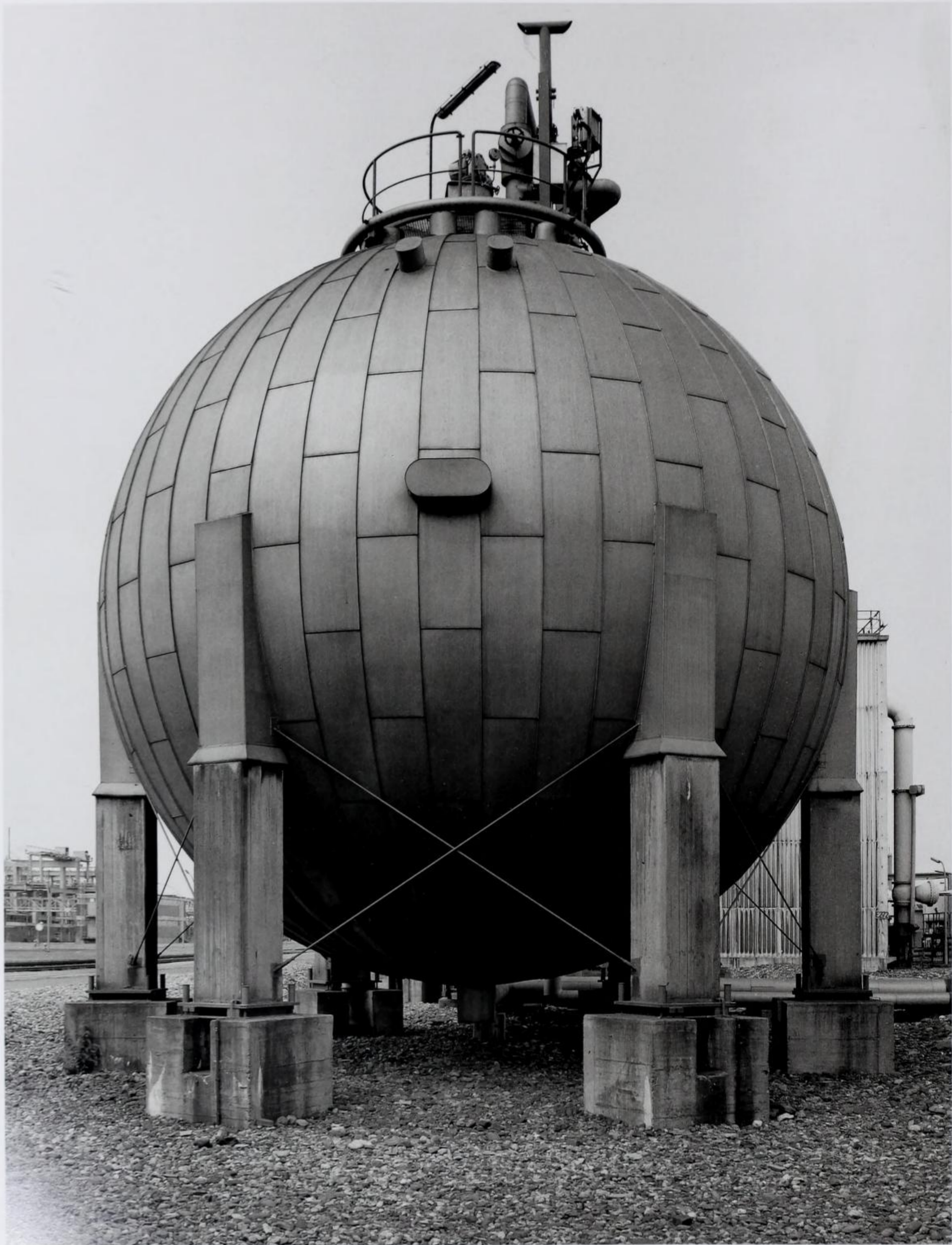


81 Leverkusen, D 1969



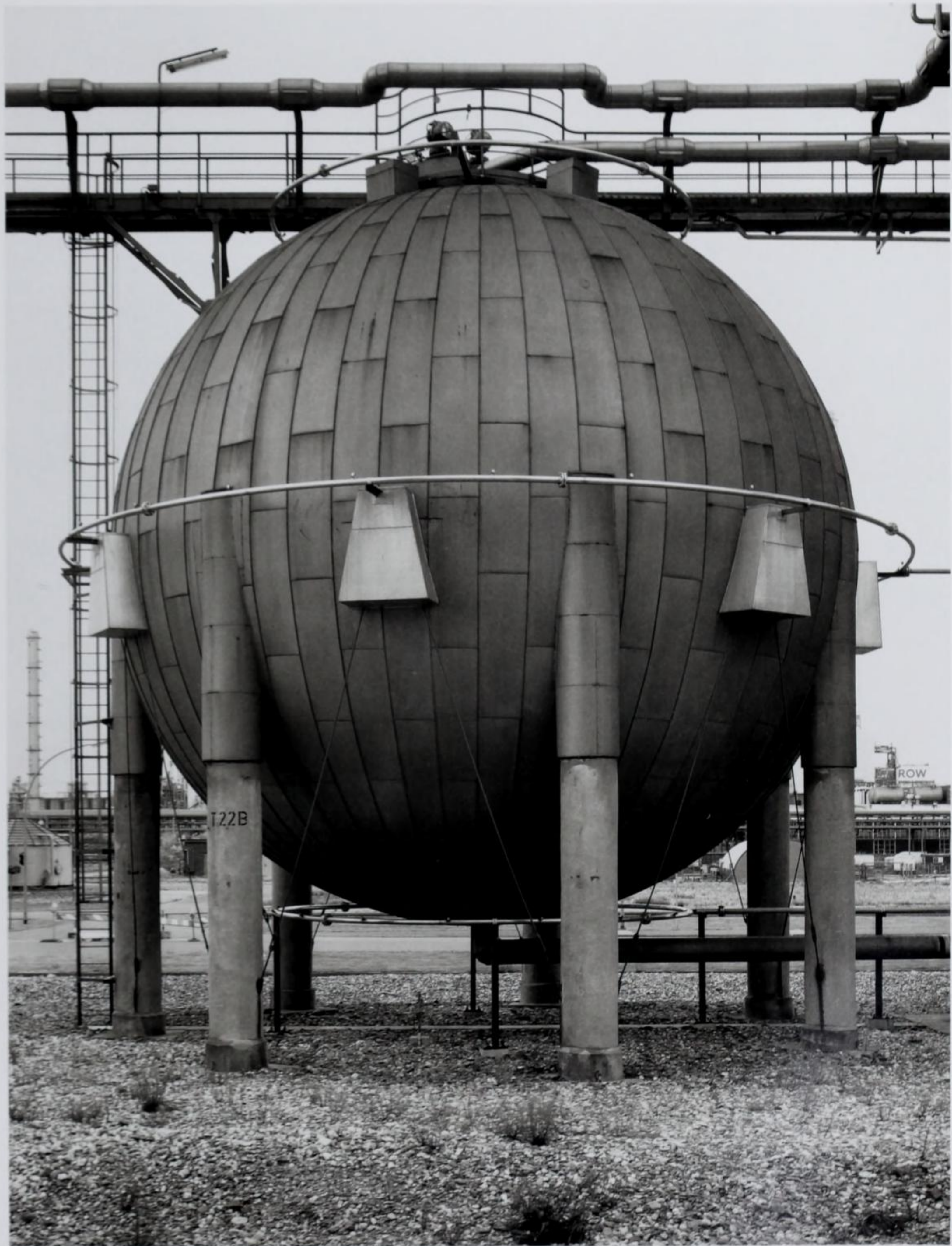














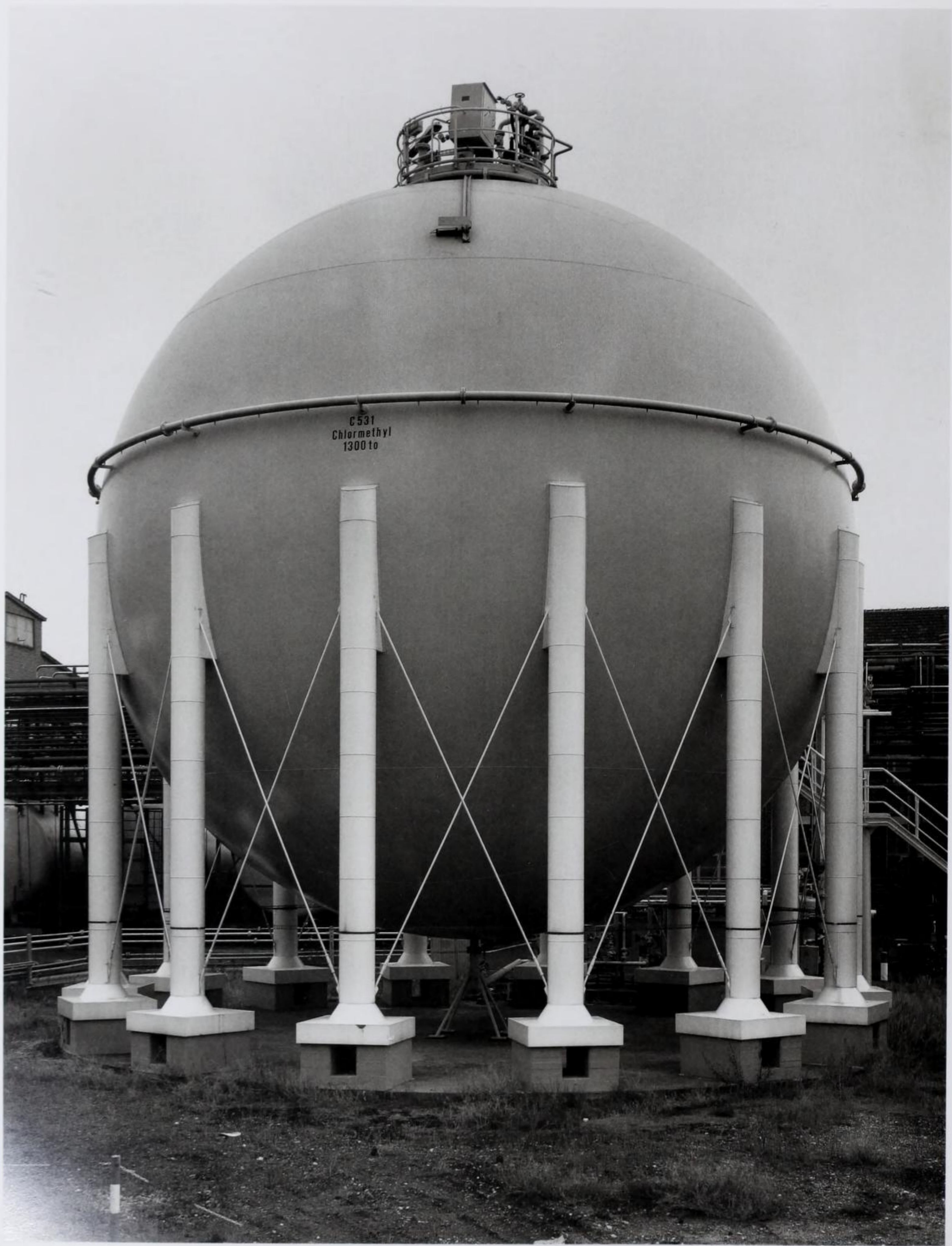










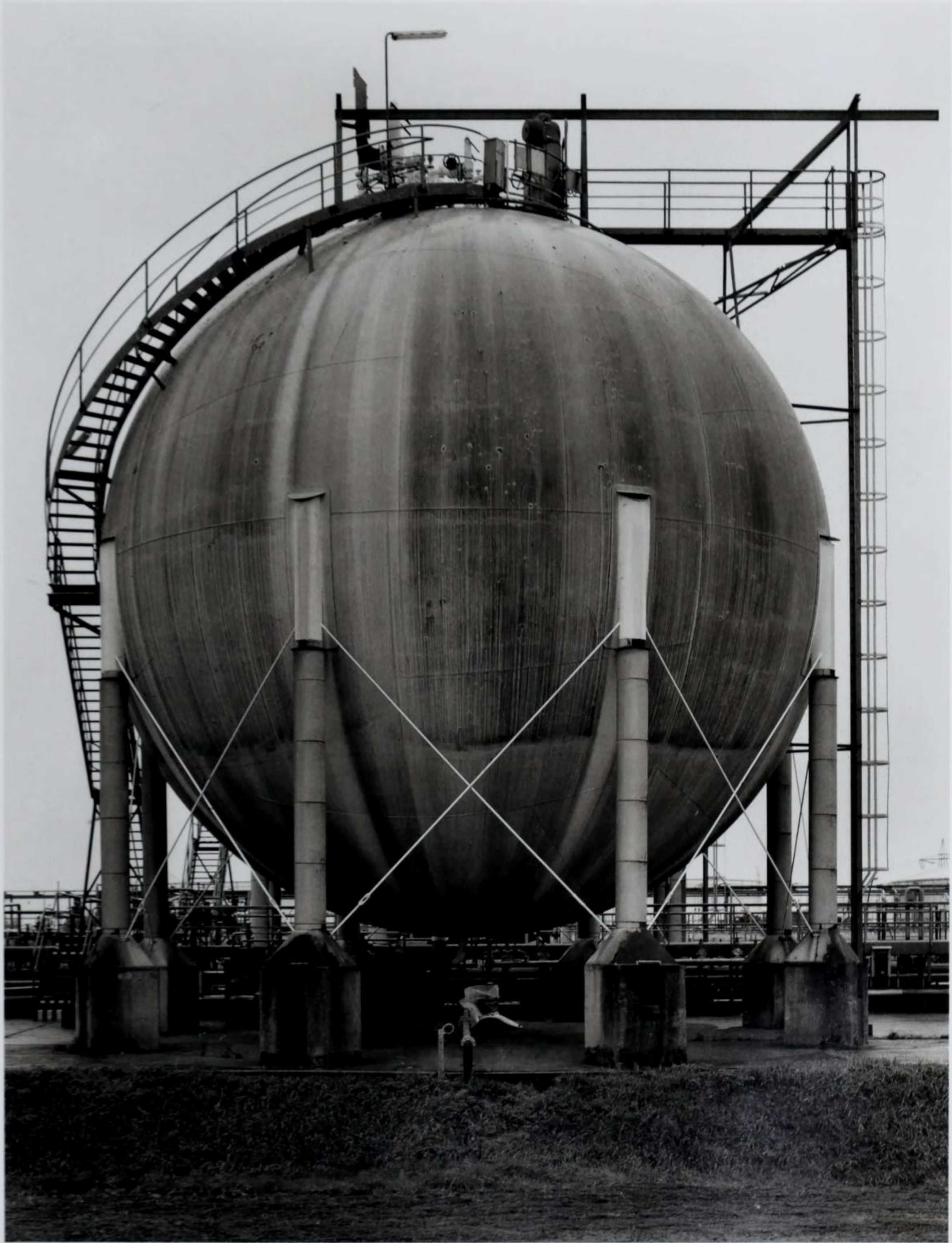


95 Frankfurt-Höchst, D 1992



96 Frankfurt-Höchst, D 1992















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