

Early Pictures in Ontogeny

1. Introduction

The Concrete as Sign was the title of the 12th International Congress of the Semiotic Society of Germany.³ There could scarcely be a more appropriate title for our empirical studies of picture and spoken sound quality, and the conclusions their results suggest. This applies even though the subject matter of these studies is a long way away from Modernism, the theme behind the congress as a whole, and even though our speculations suggest adding two punctuation marks: The ›Concrete‹ as Sign! This phrase is intended to suggest that the ›concrete‹ element of *some* signs – including pictures and words – is something ›concrete‹ that is produced, and its ›substance‹ still has to be explained. *This* production, we conjecture, goes beyond choosing, assembling and structuring what already exists. *This* production, we conjecture, is not about merely choosing and marking the existing material and the way it is perceived, but a further act of constitution.⁴ So it is not Modernism that demands the concrete element of the sign as sign, but this ›concrete‹ element of *some* signs itself.

The following explanations, comments and propositions are essentially restricted to pictures and described observations arising from their early genesis: it is these that suggest such speculation from their own perspective. The remarks are divided into two parts, in the form of two essays. This present essay, the first, introduces empirical studies on picture genesis, as presently being conducted in the Zurich University of the Arts; these are explained by the fundamental findings arising

3 12th International Congress of the Semiotic Society of Germany (DGS) *The Concrete as Sign* (Das Konkrete als Zeichen) in Stuttgart, October 9-12, 2008 (cf. Krüger 2008). This essay is a revised version of a lecture given at the above congress (cf. Maurer/Riboni 2008).

4 As distinct from: »There is nothing in the understanding that has not previously been in the senses [...] Before we allocate a meaning to a thing, it has appeared quite concretely, quite densely and opaquely, to our senses, and has triggered stimuli that we process more or less automatically and associate with meanings [...] Signs are [...] concrete: the concrete is [...] the condensed element that comes into being in the process of representing things and states of affairs, as the result of reductions, selection processes, omissions etc. It is produced by bringing together those elements of perception whose representation under the socio-historical and cultural circumstances, different in each case, is deemed the most appropriate to define a thing or a state of affairs. In this sense the sign is already concrete, as it is condensation (concretum or concrementum).« (cf. Krüger 2008: 11 f.; translation by the authors)

from them. The second essay, entitled *Picture Genesis and Picture Concept*, will put forward some reflections in the form of theses, relating the empirical findings on picture genesis to a general concept of the picture. In addition, a possible correspondence between picture and spoken sound quality will be indicated.

To avoid misunderstandings: the explanations relate only to two-dimensional images that have been produced, to products that are counted as ›pictures‹ in English. However, all graphic expressions will be included as pictures, regardless of whether they carry the character of depictions or not.

2. General subject matter

How do pictures appear, ›come into being‹? What qualities, structural formations and development tendencies can be observed in early graphic expressions? Are early pictures products or processes? Are early pictorial characteristics within a particular culture general or individual? Are early pictorial characteristics universal, or are they always dependent on a particular cultural context? What does early pictorial cognition and aesthetics consist of? What general aspects of early symbolic behaviour do early pictures indicate?

Our research at the Zurich University of the Arts has been devoted to this complex of questions since 1999. The background and motivation here are based on the insight that hitherto there has been a lack of reliable and empirically well-founded insights into early graphic expressions in ontogeny (cf. for this the relevant assessments by RICHTER 1987: 320, and GOLOMB 2004: 8).

In the first place, our research re-examines the earliest pictorial qualities, structural formations and development tendencies in children's drawings and paintings, often called ›scribbles‹ in everyday language. We hope to establish a basis here for arriving at general theses on questions about the earliest cognitive pictorial processes – some scholars call this ›iconic‹ cognition –, and, at the same time, theses on questions about early aesthetic behaviour.

The reason that we study only graphic expressions by children, in other words approach the emergence of pictures and early pictorial development only from an ontogenetic point of view – apart from our interest in Aesthetic Education – is that no prehistoric finds are available at present. The prehistoric pictures that have come down to us so far, with a very few exceptions that are difficult to interpret (LORBLANCHET 1999: 145-202; HENSHILWOOD et al. 2002), present a level of ability in drawing and painting that is already highly developed, also in terms of graphic and aesthetic qualities, and none of these can be defined as very early manifestations. It is this gap in historic transmission that led us, at least for the time being, to equate studying early pictures with studying early children's drawings. But this introduces the risk of a thematic misunderstanding. This equal status is established in order to make an empirical study possible at all. But the key feature here is not the ›childlike‹ element of the drawings and paintings, but the ›deepest‹ structure of the graphic element and the corresponding aesthetic element.

3. Structuring the studies

Our studies of picture genesis are broken down into four fields:

- reassessing the only large-scale historic picture archive relating to this subject matter to be published so far
- developing a methodological and empirical reference for so-called ›Western‹ culture
- developing basic insights into the early graphic process
- studies comparing early graphic expressions in different cultures.

At the same time, we are preparing a didactic basis for teaching in colleges and universities and for Art Education practice.

The reassessment of the historical archive and the development of an empirical reference for Europe have now been concluded. The relevant results have been or are being published (see below for details). We are concluding the study on the early graphic process at the time of writing, and it should be published in 2009. We have been collecting data in South India and Indonesia over the last four years for a cultural comparison, completing this work in spring 2008. These pictures are about to be studied and compared with pictures by European children.

The following sections will present the basic elements of these four studies.

4. Re-publishing of the historical archive

The only extensive archive hitherto available on the question of picture development in ontogeny, covering the entire early pictorial field, systematically arranged, and published, is that of Rhoda Kellogg (1967/2007). This reproduced and published archive presents a selection of about 8,000 pictures of the *Rhoda Kellogg Child Art Collection of the Golden Gate Kindergarten Association*, which for its part includes over half a million original drawings and paintings by children of pre-school age, mainly from California, USA (time scale 1948-1966; for details cf. KELLOGG 1967/2007). The selection mentioned was reproduced on microfiches, with the intention of illustrating and recording the picture genesis characteristics Kellogg deemed to be fundamental (for the relevant theory see KELLOGG 1970).

Kellogg's account was much criticized. Despite this, English publications in particular often refer to her description and interpretation of early qualities and structures in pictures, and there are no alternative descriptions supported in their turn by extensive, broadly-based and systematically arranged catalogues of characteristics, and that could then be critically examined using an accessible picture archive.

On the basis of our own empirical work, we too are critical of Kellogg's approach as such, both in terms of method (systematics of the characteristics examined, allotting characteristics to pictures, statistical evaluation), and in terms of the attempt to take early picture genesis back to

general perception structures (cf. KELLOGG/KNOLL/KUGLER 1965, and KELLOGG 1970). Nevertheless, this author's accounts deserve close attention, and the value of her publications in the current discussion of early picture genesis remains undisputed. So that the archive she presented can be handed down, and to make it easier to examine her interpretations using her own basic material, we have digitalized the microfiches, isolated the individual pictures and reissued them together under the headings provided by Kellogg in the form of a new digital edition (KELLOGG 1967/2007).

5. Empirical reference for Europe

As there are so far no robust empirical bases, we have carried out a broadly based study of our own for the European area. This study started by building up an archive of original drawings and paintings by over 450 children or from individual collections (pre-school age) from Switzerland (the majority), Germany and France. This first body of about 143,000 pictures was then subjected to a regulated selection from which a second, reduced body emerged, consisting of about 25,000 pictures by 182 single children or from individual collections of different children. The originals for this second body were reproduced digitally, along with the information relevant to them.

The pictures from the digital archive formed the basis of longitudinal and cross-sectional studies. Within these studies, on the basis of a catalogue of attributes, single pictures were related to picture qualities, and the result of the allocation was evaluated statistically. As a final step, a general early development structure for graphic elements was compiled, which can claim to stand as a reference for so-called »Western« culture (MAURER/RIBONI 2007).

6. The early graphic process

Descriptions of »completed« pictures usually identify only those general pictorial qualities that are either independent of the individual graphic process or independent of specific behaviours or verbal utterances. Additional studies of the graphic process are needed for this reason.

We carried out such studies using parallel video recordings of children drawing, one recording the child as it painted or drew, the other the picture as it emerged. These recordings were then subjected to a study of fundamental processual events. The relevant results will be published in 2009, together with a selection of the films.

7. Cultural comparisons – the universality or conventionality of early picture genesis

Every discussion of early picture development raises the question of its dependence on or independence from the concrete cultural context, within which pictures came or come into being. For

this reason, in 2004 we started in India, then subsequently in Indonesia in 2005, to organize regular drawing and painting activities for children at the pre-school age (mainly 2-6 years old), initiated, accompanied and documented by adults. The three communities in India were indigenous population groups in the south (Mysore and Kodagu districts, state of Karnataka) that have virtually no picture practice in their everyday lives, and in which very young children neither draw on paper nor paint. The two communities in Indonesia are rural population groups in Bali (Munduk and Tabanan regions) with a developed cultural context and identity that is very different from our own.

We finished collecting data in spring 2008, and consequently have at our disposal a picture archive of approx. 35,000 originals by a total of 150 Asian children. At the time of writing, a selection of about 25,000 pictures is being reproduced digitally, along with the relevant information, in an independent evaluation project. These pictures will subsequently be examined to establish their fundamental characteristics, and the results produced will be compared with those for European children.

But the visual examination of the originals that has already taken place makes it possible for us to make a few fundamental statements at the present time. These should therefore be included in the general discussion of early picture genesis.

8. General findings

The following general and basic findings on the question of early pictures in ontogeny can be formulated against the background of these studies.

Firstly – the formal precedes depiction.

Merely formal or so-called ›abstract‹ graphic phenomena, seen in terms of time (in relation to the age of the picture production), appear before relations to non-graphic elements in the sense of analogies (depictions of real or fictitious figures, objects, scenes and events).

Secondly – the formal as such is autonomous.

Analogies do not replace formal or so-called ›abstract‹ phenomena. The latter develops either independently or appears jointly with analogous phenomena.

Thirdly – early graphic development is highly inter-individual.

An inter-individual structure of picture characteristics and their development can be described within a particular cultural sphere. However, such inter-individual development relates in the first place to general and superordinated graphic qualities and applies to the individual picture qualities

in a restricted sense only. (So an appropriate distinction is fundamental to the discussion of picture genesis.)

Fourthly – early graphic development is highly universal.

A large proportion of inter-individual structure also emerges as universal in comparative cultural studies, in the sense that today, in the case of extraordinarily marked cultural differences, almost identical picture qualities and pictorial developments can be made out. This universal aspect applies to both the graphic element itself and to its relationship with the non-graphic in the form of analogies.

Fifthly – there are justifiable doubts about pronouncing the formal to be a trace.

Existing attempts to derive the entire development of formal graphic phenomena essentially either from the senso-motoric apparatus and its differentiation or from the general structures of visual perception, so that they can be said to be inter-individual or even universal in character, do not in our opinion stand up to critical and at the same time empirical examination. Indeed we feel there is room for fundamental doubt about whether an attempted explanation can ever succeed on this basis. These doubts arise above all from the lack of parallels of graphic expression and its systematics to general structures of the mobility apparatus or visual perception.

Sixthly – early analogies do often not emerge from any convention.

The above-mentioned observation about quasi-identical early analogy formation in different cultures criticizes, even on its own account, the assumption that early depictions of figures, objects, scenes and events are mediated in their essence by the rules of a particular culture. The following two observations should also be considered: firstly, very young children are able to copy and imitate to only a very limited extent, and most adults are not able to assess this ability. This sets fundamental limits to any attempt at mediation. Secondly, many early depictions are not recognized by adults. But it becomes evident that they still are depictions in cases in which children make a point about it.

Even if a particular cultural context is able to shape part of any early analogy, another part, and a significant one, is not subject to this influence.

Seventhly – early graphic expressions are fundamentally intentional.

Even the first clear oppositions of graphic movements and their effects on paper are evidence of a corresponding intention. Efforts to make a distinction, and thus to continue to produce new graphic and new qualities to be understood in two dimensions then represent the actual motor for development. But the intention identified here is frequently not previously present, but develops

only in the course of the graphic process itself, both in terms of the formal and in terms of its relations to non-graphic elements.

Eightly – early graphic expressions are part of communication between two or more people to only a limited extent.

Early graphic expressions are rarely answered by expressions of the same kind, and some of their significant qualities elude adult understanding, as has already been pointed out, and also that of other children. This applies both to the graphic element itself and to its relations to non-graphic elements. So neither the one nor the other necessarily represent a concrete act of communication between two or more people in all its aspects.

Supplement – expressions such as ›illustration‹, ›realistic depiction‹, ›object-analogous‹, ›figurative‹ must be addressed thoughtfully in terms of their use in studies of early graphic phenomena, and the relative importance of observations relevant to them reassessed.

The observed relations of the early graphic element to non-graphic elements cannot be summed up under the term ›object-analogous‹, even if fictions and codifications are included. Observable relations apply to a very wide range of aspects, such as verbal definitions or impressions of the graphic element itself, emotional expressions, indices, analogies without measure of the quality of their referentiality in the narrower sense and without restriction to links with what can be perceived or imagined visually (including so-called »action representations«, cf. MATTHEWS 1999), similarities as special analogies with a measure of the quality of their referentiality, relations that are difficult to describe verbally of the so-called ›abstract‹ to perceptions, highly personal associations, feelings, experiences, often going well beyond recognizable codifications in their graphic presentation and representation, and so on. The discussion of picture genesis must take this wide range of observable references into account, along with the result conceptual demands, and at the same time establish clarity about the limits of verbal formulations.

So the following applies to early picture genesis: graphic expressions are of primarily formal or so-called ›abstract‹ nature in the first place; in the course of their development they relate in part to elements other than graphic ones, especially in the nature of analogies; they are both highly inter-individual and highly universal; they are unmediated to a substantial extent, and do not then correspond with any code, nor often with any direct communication between different people; but they are still learned, and there are justifiable doubts about the attempt to establish a means of deriving them from mobility apparatus or the general perception structure.

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Appendix – Illustrations

Picture series 1: examples of very early graphic expression in the second year of life.

Picture series 2: examples of formal pictures in the third year.

Picture series 3: examples of formal pictures in the fourth year.

Picture series 4: examples of formal pictures in the fifth and sixth year.

Picture series 5: examples of analogy formation in the third year

Picture series 6: examples of analogy formation in the fourth year.

Picture series 7: examples of an ›analogous picture scheme‹ in the fourth and fifth year.

Picture series 8: two quasi-equal pictures by two different children from Europe, illustrating the inter-individual character of early pictures.

Picture series 9: pairs of quasi-equal drawings by children from Europe and children from South India, illustrating the universal character of early pictures.

Picture series 10: sample picture illustrating the problems posed by the excluding designations ›abstract‹ or ›representational‹ or ›figurative‹.

Illustrations from Maurer and Riboni 2007, volume 2 (see menu item *picture series*)

Literature

- GOLOMB, CLAIRE: *The Child's Creation of a Pictorial World*. London [Psychology Press
Taylor&Francis Group] 2004; (formerly published by the University of California Press,
Berkeley and Los Angeles, 1992)
- HENSHILWOOD CHRISTOPHER S.; D'ERRICO FRANCESCO; YATES, ROYDEN; JACOBS ZENOBIA; TRIBOLO CHANTAL;
DULLER GEOFF A.T.; MERCIER NORBERT; SEALY JUDITH C.; VALLADAS HELENE; WATTS IAN; WINTLE ANN G.:
Emergence of Modern Human Behaviour: Middle Stone Age Engravings from South Africa. In:
Science, Vol. 295, 2002, p. 1278-1280
- KELLOGG, RHODA; KNOLL, MAX; KUGLER, JOHANN: Form-similarity between Phosphenes of Adults and
pre-School Children's Scribbles. In: *Nature*, Vol. 208, 1965, p. 1129-1130
- KELLOGG, RHODA: *Rhoda Kellogg Child Art Collection*. Washington DC. [Microcard Editions] 1967.
Inc.. Digital Re-Edition by MAURER, DIETER/RIBONI, CLAUDIA (2007) on [www.early-pictures.ch/
kellogg/](http://www.early-pictures.ch/kellogg/)
- KELLOGG, RHODA: *Analyzing Children's Art*. Palo Alto [Mayfield Publishing Company] 1970
- KRÜGER, REINHARD (Ed.): *Das Konkrete als Zeichen. Internationaler Kongress der deutschen
Gesellschaft für Semiotik*. Stuttgart 2008
- LORBLANCHET, MICHEL: *La naissance de l'art*. Paris [Errance] 1999
- MAURER, DIETER; RIBONI, CLAUDIA: *Wie Bilder »entstehen«*. Digital Version, 2007 on [www.
early-pictures.ch/eu/](http://www.early-pictures.ch/eu/). [Printed Version in Publication, Pestalozzianum, Zurich]. Band 1:
Zeichnungen und Malereien kleiner Kinder aus Europa – Bildmerkmale, Strukturbildungen
und Entwicklungstendenzen, Band 2: Zeichnungen und Malereien kleiner Kinder aus Europa –
Bildarchiv und Materialien.
- MAURER, DIETER; RIBONI, CLAUDIA: Frühe Bilder in der Ontogenese (Kongressbeitrag 1). Bildgenese
und Bildbegriff (Kongressbeitrag 2) (2008). In: KRÜGER, REINHARD (Hrsg.): *Das Konkrete als
Zeichen. Internationaler Kongress der deutschen Gesellschaft für Semiotik*. Stuttgart 2008,
S. 174 (Zusammenfassungen)
- MATTHEWS, JOHN: *The Art of Childhood and Adolescence*. London [Falmer Press] 1999
- RICHTER, HANS-GÜNTHER: *Die Kinderzeichnung*. Düsseldorf [Schwann] 1987