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ICONCLASS. On Subject Analysis of Iconographic Representations of Works of Art

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The special classification system ICONCLASS, created by Henry van de Waal for the description of occidental art, is considered against the background of art-historical iconography. By means of a number of examples the structure and use of ICONCLASS and its importance for art-historical documentation are illustrated. (Author)

1. Introduction*

One of the most important and difficult tasks of an art historian** is the analysis of the meaning, the description and the interpretation of pictorial art. Within the realm of art-historical research, several methods have been devised for this purpose. In comparison with such methods as the analysis of style and of structure, the iconographical-iconological method (1), which concentrates on the contents depicted in pictorial art, is a fairly young branch of the science of art.

In the course of the 19th century, art-scientific iconography developed as an independent field of research. Its object was the theme of the work of art, something which could no longer be understood without special knowledge. Since the 17th century the knowledge of Biblical events and the myths of antiquity as elements of art-historical tradition has lost its place in the mind of the average spectator. Iconography set itself the task of restoring the ruptured connection.

Starting with Aby Warburg (1866-1929)[1] and the circle of scholars that gathered around him, a new line of research based on iconography was developed, which aimed at a comprehensive socio-historical interpretation of the given work of art. This took place within the context of reflections that subject and contents of a work of art are not necessarily identical. The art historian Erwin Panofsky (1892-1968), in devising his three-step model for the iconographical analysis of paintings, became the chief protagonist of this development (2).

Since then, iconography has become one of the main fields within art-historical research. This discipline was to overcome the one-sidedness of the formal contemplation of art and to incorporate new domains, achieving a greater proximity to reality. Comprehensive cultural-scientific research was now the objective. More efforts than in other fields were now devoted to the classification of contents of works of art. In this way the study of symbols, emblems and allegories, the deciphering of decoration programs and finally the publication of iconographic reference books became possible.

This development of iconographic research went hand in hand with the establishment of documentation centres. Technical progress had made for an enormous increase in the size of stocks of reproductions of works of art, which called for systematization and ordering. Thus, from 1917 onwards, an "Index of Christian Art" (3), comprising some 100,000 photographs of works of art from the period 700 to 1400 A.D., was being compiled at Princeton University.

The first publication on the creation of a systematic iconographic index for works of art from every period was initiated by the "Rijksbureau voor Kunsthistorische Documentatie" (RKD = National Bureau for Art-Historical Documentation) in The Hague, Holland. The index of its vast collection of postcard-size pictures of Dutch art was to be published around 1950. The classification system required for this purpose, the forerunner of ICONCLASS, was developed by the art historian Henry van de Waal (1910-1972), who let himself be guided by research results of the Warburg Institute (4). In 1958 the first version of the "Decimal Index of the Art of the Low Countries (DIAL)" became available in an abbreviated form (5). Ten years later the first complete edition appeared under the title "D.I.A.L.: Abridged Edition of the ICONCLASS System" (6). In this title the term ICONCLASS, coined by van de Waal's assistant Leendert D.Couprie and derived from "ICONographic CLASsification System", appeared for the first time.

In the 1970s, finally, publication of the 17-volume edition of ICONCLASS (7) was started. The publication period lasted from 1972 to 1983. The seven systematic and seven bibliographic volumes were followed two years later by the three-volume overall index. The system and the bibliography did not appear in chronological order, since, for one thing, work on the classification and on the corresponding bibliographical references was going on at the same time, while, for another thing, certain fields of van de Waal's original scheme needed to be expanded (8, 9).

With ICONCLASS, the first detailed and systematically worked-out classification of iconographical representations of works of art in printed form had, in 1985, become available.

At the end of 1990 the universities of Utrecht and Leyden (both Holland) founded the ICONCLASS Research & Development Group (IDRG), which was charged with developing a computer-readable version of the classification. Soon, namely in fall 1991, the ICONCLASS Browser was published, which may be regarded as the electronic edition of the ICONCLASS system and its index volumes (10, 11). Since then, work has been going on on an electronic version of the bibliography, which has meanwhile become available in the beta test stage. The ICONCLASS Browser and bibliography correspond, with respect to their contents, to the printed edition of 1985.

The following study is based on the printed edition of ICONCLASS. Because of recent developments, however, reference is made at some important points to the electronic version[2].

2. On the Methodology of Iconographical-Iconological Picture Analysis

The theoretical foundation of ICONCLASS is furnished by Erwin Panofsky's aforementioned three-step method, a systematical work which was started by him in 1930 (2a, 2b).

According to Panofsky, the interpretation of a work of art is carried out on three levels. On the first level the 'pre-iconographical description' takes place. Here the artistic motif, the so-called 'primary or natural subject matter', is studied: pure forms are identified as objects and their interrelationships as events, a process for which the spectator's practical experience is sufficient.

On the second level, the 'iconographical analysis' is performed, whose object is the 'secondary or conventional subject matter'. The previously identified motifs and compositions are now linked with themes or concepts. This presupposes, on the part of the spectator, the knowledge of literary sources, ancient myths and Biblical tales.

Third and last is the 'iconographical interpretation in a deeper sense' or the 'iconological interpretation'. Its object is: the true meaning of content, the essence of a work of art. To be able to interpret the pictures, anecdotes and allegories, the work of art is viewed as an object within its historical environment. This requires from the spectator detailed knowledge in the field of social history and calls upon his 'synthetic intuition'.

Panofsky's investigations gave rise to the first consistent system of an integral interpretation of works of art based on an analysis of their contents. Originally receiving but little attention outside the Warburg-Panofsky circle, It was only in the 50s that Panofsky's theory developed into a theory that has remained fundamental and an object of much discussion to this very day (1).

Panofsky's complex method of picture analysis strikes the user as a highly abstract one for practical art-historical work. Several attempts at modification have therefore been undertaken, which can only be briefly referred to here (12, 13). The analytic steps distinguished by Panofsky can only in theory be clearly distinguished. In the art interpreter's work they form a single process applied to the given work of art.

If we transpose Panofsky's model to the indexing process, a correct description of the subject matter represented must be given first place. Here it is primarily important in what form the work of art to be described is available: as an original or a reproduction, or as a file card bearing a title entry with or without supplementary data. This step usually does not require any special knowledge from the indexer. The next step, the iconographical analysis, proceeds from the description prepared and depends on the indexer's knowledge level and the reference works available to him. With the aid of typological history, such things as personifications, symbols, allegories and emblems can be recognized and identified with relative certainty. If several, conflicting interpretations are to be found in the literature, a selection problem presents itself: Should all these or only one of them be indicated? Finally, the indexing result is added as a descriptor and/or notation to the data collection, thus being able to serve as a basis for a final iconological interpretation. It should be borne in mind here that even a great descriptive depth does not rule out losses of information.

Since the 1970s, a large number of systems have been available for the iconographical description of works of art (14, 15). These systems were usually limited to a special field and/or to specific national needs (16). They work either with a classification system (17) or a thesaurus (18, 19, 20). With ICONCLASS an instrument is now available which covers a larger art-historical field. While originally used specifically for the description of Dutch art, this classification system was in fact developed for the description of the contents of occidental art for international requirements and is meanwhile in use in several countries (21).

3. ICONCLASS

The hierarchically structured systematic volumes of ICONCLASS contain, in an arrangement according to main classes/divisions, notations and concept designations of iconographical themes, objects, actions, and persons of pictorial art. In four of the ten main classes, special indexes (of abstract concepts, Gospel verses, proper names) are provided at the end of the volumes which facilitate access to the themes and motifs of the given classes. Important additions to and corrections of the systematic volumes were published in 1988 by Couprie and Van Straten (22)[3].

The bibliographical volumes conform to the systematic ones with respect to their structure. Since the majority of reference works used summarizes iconographical materials and studies them on a more general level, the bibliography concentrates on the higher hierarchical levels. To this day this bibliography is the only collection of systematically assembled and ordered iconographical writings, even though the literature listed is outdated in some fields and incomplete at some points.

The publication was supplemented by the three-volume "General Alphabetic Index" covering the various classes and their interrelationships. An index entry starts out with a concept, sometimes combined with cross-references to synonyms, related concepts as well as hierarchically sub- and super ordinated concepts. Next, ordered according to main classes and in a sequence conforming to the overall system, class designations are listed in which the given concept occurs. Each class designation is concluded by a notation, which marks the end of the entry. In addition to the simple notations, combined ones and a notation key are included here as well. The overall index does not indicate all cross-referencing possibilities. Those indicated on the system tables are not always to be found in the index.

For art-historical iconographical research, this index constitutes a unique reference work for themes and subjects, precisely because of the "iconographical clusters", i.e. the collection of entries rounded up under a common concept. They furnish an overview of the chief motifs and subjects in occidental art in which the given motif plays a part, e.g. "bathing". Regrettably, there is no direct cross-referencing from the index entry to the literature concerned, without having to go to the systematic part. This limitation was fortunately avoided when the electronic version was introduced. In the search and browse modes, which correspond to the alphabetic index and the systematic part respectively, the user's attention is now called to bibliographic references.

3.1 Contents and Structure of the Systematic Part

The totality of the concepts is thematically subdivided, like the UDC, into nine main groups or classes, called divisions, each subdivided again into up to 9 subclasses. An additional twenty-five sub-subclasses may be formed on the third level by adding one of the letters A to Z. The letter J is not used. Through appending further digits, new hierarchical levels may be added.

The following divisions are thematically distinguished:

1 Religion and Magic classifies the realm of the supernatural which besides Christian and non-Christian religions also includes magic, occultism, and astrology.
2 Nature considers the natural phenomena of the human environment.
3 Human Being, Man in General looks at man from a biological point of view.
4 Society, Civilization Culture consists of two parts, with aspects of man's social, political, and military environment being described in the first part, and factors from economic and cultural fields in the second one.
5 Abstract Ideas and Concepts round up abstract notions and their visualized reproductions which comprise the realm of man's moral and intellectual capacities, of his emotions, moral views, and deeds.
6 History comprises the depiction of historical persons and events since Constantine the Great (306-337).
7 The Bible not only comprises theme and events from the Old and the New Testament, but also non-Biblical tales and legends (Apocrypha and typology).
8 Literature rounds up scenes and characters from occidental literature, including legends, fairytales, fables and proverbs.
9 Classical Mythology and Ancient History describe scene, events and personalities from Greek and Roman mythology.

The divisions 1 through 5 contain 'basic concepts' which suffice to determine the main aspects of the matter represented. But this, in many cases, would not carry one beyond a pre-iconographical description. Therefore, divisions 6 through 9 were added as 'special concepts' which reflect the traditional context of themes from historical, Biblical or classical sources. They map fields of specific relevance for occidental art. Without groups 6 through 9, a depiction of the 'Last Supper', for example, could only be indexed by the notation 41 C5 as 'celebration meal, feast, banquet'. Division 7, *The Bible*, on the other hand, offers 73 D2, The Episode of the Last Supper, thus providing for a specification of the notation first assigned.

3.1.1 Notation

Every concept describing an iconographical entity is assigned by ICONCLASS an alphanumerical notation and a class description. To characterize the hierarchical code numbers a special terminology was created. A notation may be composed of the elements described below.

Every notation begins with a *basic notation*, which may either stand by itself or be supplemented by so-called *auxiliaries*. The basic notation consists of two parts, of which the first one consists of a maximum of two digits plus one or two capital letters, but at least of one digit:

2	*nature*
25	*the earth*
25G	*plants*
25GG	*fabulous vegetation*

Doubling of a capital letter marks an antonym and occurs most frequently in divisions 1, 2, 5, 6, 8, 9, more rarely in 3, 4, and 7. Now this part of the basic notation is quite frequently expanded by the *queue*, consisting of a minimum of one and a maximum of 8 digits:

25G5	*lower plants*
25g54	*fungi*
25G54 1	*mushsrooms*

The *basic notation* is expanded as required by an *auxiliary*. These auxiliaries were introduced so as not to blow up the classification unnecessarily by further basic notations and to keep it flexible. They not only offer the system further subdivision possibilities, but also facilitate the handling of the classes and ensure a number of hierarchical levels easy to survey. By means of capital letters placed within parentheses, indications of time, quantities, official titles, names of species (of e.g. plants or animals),

proper names, etc. may be indicated (*25G3 (OAK); 11H (Anthony Abbott)*).

Another auxiliary is the *structural digit*, comprising at least one and at most four digits. These fixed digits indicate specific fields in the lives and deaths of persons, deities and heroes depicted. Their definitions depend on whether we are dealing with saints, ancient gods, or Roman or Greek heroes. While the classes *11 H male saints* and *11 HH female saints*, for example, have been assigned the following - and other - structural digits:

(...) 1 specific aspects
(...) 2 early life
(...) 3 personal devotion,

the corresponding ones for *95A (Greek heroes)* and *95 B (Greek heroines)* read:

(...) 1 early life, prime youth
(...) 2 love affairs
(...) 3 most important deeds

Structural digits are found only in classes *11 H(H), 12 B* through *12 U, 61 B(B)* and in numerous classes in *9 Classical Mythology and Ancient History*. They are indicated at the end of the given hierarchical level or precede the given class in the classification system.

The most important supplement to the notation is the *key*, consisting of at least one and at most six digits. To distinguish it clearly from the basic notation it is preceded by a plus sign and placed, with it, within parentheses (*25 G 3 (OAK) (+22) branch of an oak*). Keys are appended numbers which indicate iconographical details, characterize partial aspects or specify them. In this manner, facets of certain classes may be realized and unusual or previously unconsidered manners of representation be included. Relationships not mapped by the system may likewise be created with the aid of the keys. Their use is therefore not restricted to particular hierarchical levels.

While all other elements of the notation can occur only once, several keys may be placed in succession, in which case a lower number always follows a higher one (*25 G 3 (OAK) (+22 +5) withered branch of an oak*). In division 9 it should be borne in mind that key and structural digit are mutually exclusive as far as their application is concerned.

Divisions *5 Abstract Ideas and Concepts* and *7 The Bible* each have a list of keys which is binding for all classes. The other divisions have been assigned special keys relating to one or more subclasses. In division *1 Religion and Magic*, keys are available only for *11 Christian Religion*, whose keys correspond to those of *7 The Bible*.

The number of keys available depends on the size of material to be classified. The largest number of keys are found in divisions *2 Nature, 3 Human Being, Man in General*, and *4 Society, Civilization, Culture*. These divisions are thematically of very broad scope. Several sublevels are therefore necessary for adequate definitions, since even less complex motifs often can only properly be described on a deep-lying level. A speaking, elder, male person seen in profile would be described by the notation *31 A 11 (+3 +81 3+93 21)*, in which the various components stand for:

31 A11	*standing figure*
(+3)	*sideview, profile*
(+81 3)	*old*
(+93 21)	*speaking*

It is to be noted here that in this manner motifs and scenes can be described in detail on the pre-iconographical level. Anatomy, behavior, movements and relationships can be represented in a very differentiated way. Through the complex order of the keys, the clear structure within the divisions remains assured - which is advantageous for indexing purposes - but for inexperienced users the proper understanding of the notations assigned may become a real puzzle.

An ICONCLASS notation may consist of up to 22 digits and letters. Only in the rarest of cases does it actually consist of all these elements. A notation composed of all elements can occur only in classes *61 B 2* and *61 BB 2*. They provide the only basic notations with queue that can be expanded by all other terms (Fig.5: Anselm Feuerbach, "Iphigenie", 1871, Stuttgart, 'Staatsgalerie'-Museum). Feuerbach's painting would first be assigned the notation *61 BB 2 (BRUNACCI, LUCIA) 11 (+2 +55)*, meaning, when resolved:

61 BB	*historical person, female*
2	*known by name*
11	*alone*
(+2)	*all kinds of 'portrait history': mythological portait, allegorical portrait, etc.*
(+55)	*full length*

This notation would be further expanded by:

95 B (IPHIGENIE) 51 Iphigenie in Tauris as priestess of Drama, longing for home

Other than the simple notations mentioned so far, ICONCLASS offers further two types of connections: additional and combined notations. In the case of an *additional notation*, an arbitrary number of notations is listed one underneath another without a special sign connecting or separating them. This means that each notation has the same relationship to the iconographical subject matter and thus also to every other notation. The iconographical analysis of a work of art may require the assignment of several notations (for instance: Carl Spitzweg, Der Briefbote im Rosenthal (The Mailman in the Valley of Roses), around 1858, Marburg, Germany, University Museum). This depends on how many motifs and scenes are to be recognized and possibly described on the pre-iconographical level. No definite sequence is prescribed for the vertical arrangement of the notations, but it makes sense to adhere to the principle of diminishing importance. Such a weighted arrangement may be helpful in a search for relevant examples. It is to be noted here, however, that not only in his selection of notations, but also in his choice of their order the indexer initiates an important interpretative step which may influence the later iconographical analysis.

In the *combined notation*, an arbitrary number of individual notations is linked up with one another. Concepts for which no code numbers are provided by the system can be represented by a combination of classes:

46 B 35 4: *signboard*
41 D 22 1 (TOP HAT) *head-gear (with NAME of kind)*

The combination of two concepts into a new one is expressed by a colon. This colon stands for "connected with", but says nothing as to what kind of connection exists between the individual components. The first notation pertains directly to the iconographical subject matter, while all subsequent ones pertain directly to the first notation and only indirectly, through it, to the iconographical subject matter. Their main task thus is to explain and specify the first notation. In the horizontal arrangement employed to this end it is recommended to characterize the main subject by the first component. Thus, by a combination of notations different representations of certain themes may be expressed by suitable combinations. In this way even complex motifs and themes and their interrelationships can be represented.

A particular part in notation formation is played by the digit 0, which can perform three different functions:

a. If the allegorical nature of a representation cannot be indexed by a simple, an additive or a combined notation, the notation suggesting itself most readily is expanded by the digit 0. In this manner it is theoretically possible to assign to any concept a symbolic meaning (*31 A 22 21 heart* as distinguished from *31 A 22 21 0 heart-symbolism*). If the assignment of a symbolic component occurs on the third level, then, in order to avoid confusions between the two symbols 0 and O, the abbreviation (All.) for allegory is introduced: (*25 (All.) 'Macchina del mondo'; 'Mondo' (Ripa)*).

b. If a represented subject matter is not assigned any notation and if it can neither be represented by an additive, nor by a combined notation, the key (+0) is appended. Here the key expresses the fact that we are dealing here with a representational variant of a theme. This possibility exists only for divisions 1, 7, and 9. For example, the Biblical event "Rest on the flight to Egypt" (*73 B 65*) is rarely represented with a nursing Mary. If, however, this scene is integrated into the representation this can be characterized by (*+0*) as a variant of the usual motif and be described by the assignment of a second notation:

73 B 65 (+0) rest on the flight to Egypt (variant);
42 A 31 *nursing, suckling*

c. Classification of abstract works of art by means of ICONCLASS was not originally intended. When the corrections were published, however, the digit 0 was introduced as indication of an abstract representation. It now occurs also as a basic notation. Information on the contents represented in an abstract work of art, as following e.g. from the title of the object, are subsequently listed as an additive notation or notations. It may be followed by statements on dominating colors and shapes, as in Vasily Kandinsky, "In blue", 1925, Düsseldorf, Art Collection North Rhine-Westphaliia:

0 *abstract representation*
22 C 4 (BLUE) colors, pigments and paints (with NAME)
49 D 33 *triangle (in relation to planimetry, geometry)*
49 D 36 *circle (in relation to planimetry, geometry)*
49 D 34 2 *regular quadrilateral*
49 D 32 2 *curved line (in relation to planimetry, geometry)*

3.1.2 Structural properties

The classes of ICONCLASS are ordered in a monohierarchical system which through its manifold cross-references shows polyhierarchical traits. A monohierarchical system by itself would be too rigid to be able to map all possible motives and themes. The decisive factor is in what relational environment a given concept is placed. As an example let us take the dog, which is not to be found - as one would expect - under *25 F 2 mammals*, but is rather assigned to the divisions

3 *Human Being, Man in General*
34 *man and animal*
34 B *domestic animals kept in and outside the house*
34B11 dog

and *4 Society, Civilization, Culture:*

46 *social and economic life, transport and communication*
46 E *posts, telegraph a. telephone; means of communication*
46E31 dog (as messenger)

In addition a dog may assume various functions (*43 C 11 hunting-dog*), be linked as an attribute to numerous saints, or occur in Biblical (*73 F 25 21 4 Simon Magnus and the dog in discussion*) and mythological scenes (*94 I 52 Ulysseus is recognized by his dog Argus*).

Cross-references were necessary to institute reciprocal relationships within the system and avoid double entries. Supplementary to the alphabetic index, the systematic volumes point particularly to concepts which have a visual or narrative relationship to one another and have not been realized as references in the index.

31 A 22 45 hand
hand made into a fist 31 A 25 51 3
manicure 31 A 52 1

The basic structure of ICONCLASS contains both generic and partitive relationships. A generic relationship is expressed by:

25 G5 *lower plants*
25 G 51 *herbs*
25 G 52 *mosses*

A partitive relationship exists between:

31 A 22 4 *arms*
31 A 22 41 *upper arm*
31 A 22 42 *elbow*

While these examples reflect a true hierarchy, the classification also maps apparent hierarchies in which the relationships between the classes are of an associative nature:

31 A 22 45 hand
31 A 22 45 1 hand-print

The various types of hierarchies may lie close to one another. The classes in the example just mentioned are followed by:

31 A 22 46 fingers
31 A 22 46 1 thumb

Besides the hierarchical relationships between concepts, the complementary relationship also occurs. While the generic and partitive relationships pertain to aspects of the material world, the complementary relationship pertains to concepts relating to properties (*57 A 72 tolerance; 57 AA 72 intolerance*).

The classificatory chains and rows vary widely, depending on the material to be classified. While divisions 1 through 5 and 7 show a differentiated system of chains and rows, divisions 6, 8 and 9 are generally not broken down in such detail. Division structures alone vary widely and irregularly. In division *1 Religion and Magic* the row of the 2nd hierarchical level has only 5 subdivisions (classes 10 through 14), whereas in class 11, 21 of 25 possible letters (*11 A* to *11 V*) are used for class formation. The chain for *11 F The Virgin Mary* looks as follows:

11 F	*the Virgin Mary*
11 F 4	*Madonna: i.e. Mary with the Christ-child, without others*
11 F 42	*Madonna: Mary sitting or enthroned, the Christ-child in her lap*
11 F 42 1	*Mary sitting or enthroned, the Christ-child in front of her*
11 F 42 12	*Christ-child sitting*

Within the entire classification, up to 10 hierarchical levels are distinguished (*31 A 22 36 21 1 uterus with foetus*).

Within the abstractional rows, the monodimensional structure was at many points expanded into a polydimensional one:

41 A	housing
41 A 1	civic architecture
41 A 11	palace
41 A 12	castle
41 A 2	interior of the house
41 A 21	vestibule, hall
41 A 22	communal rooms
41 A 3	parts of house or building
41 A 31	facade
41 A 32	door

To classify the available wealth of material as clearly as possible it was necessary to develop certain mechanisms. These include the use of alphabetic sequences for the names of Biblical, historical and mythological figures (e.g. *11 H(H) Saints, 61 B(B) historical persons, 81 A(A) through 81 G(G) literary characters, 95 A Greek heroes, 95 B Greek heroines*). The names of the characters follow in the basic notation in parentheses. Plant and animal species are handled in the same way (*25 F32 (NIGHTINGALE); 25 G 3 (OAK)*). The advantage of such a stucturing is, for one thing, as already mentioned, that the classification is not needlessly blown up, and for another thing, that the classificatory row can be expanded at will. Cross-references within the classification tables to previously mentioned system points constitute a further possibility to keep matters clear *(25 GG fantastic plants, fabulous vegetation, use queue of 25 G)*.

3.2 Summary of the System

The requirements generally imposed on a notational system (23) such as flexibility, hospitality, transparence of structure, possibility of formation of classification tables of varying depth, ease of remembering as well as suitability for computerization are met by ICONCLASS in the most important points.

The addition and removal of system points can generally be handled by ICONCLASS. The hierarchical structure of the notation ensures different classification depths. Subsequent cancellation of classes within a row presents no problems, whereas within a chain it may lead to difficulties, since the subordinated classes then must be assigned differently. So far, such a reduction of classes has never occurred. In future, too, it will be rather improbable; instead, the progressive study of motifs and themes makes further differentiation and expansion of classes likely.

From the point of view of hospitality there are two alternatives to the formation of new classes: the chain alternative and the row alternative. Subdivision within the rows of concepts will vary with the hierarchical level. Because of the decimal nature of the classification, the level of the main classes (divisions) cannot be expanded. All other hierarchical levels are filled up to different degrees. While e.g. Division *4 Society, Civilization, Culture* is exhausted on the second level, differentiation on the same level in division *7 The Bible* extends only up to 73. The possibilities of concept chain expansion through the addition of further hierarchical levels is ensured by the polydecimal structure. Independent of a certain hierarchical level, "notation jumps" (*26 meteorological phenomena — 29 surrealia*) are found at various points, even across hierarchical levels (*13 C magic signs and objects — 13 C24 labyrinth, maze*). Problems arise if no gap has been provided at a point where an insertion is necessary.

In notation formation, the desire for brevity is opposed to the requirement of structural transparency of the description result. The ICONCLASS notation reflects hierarchical levels and may therefore be quite long. This is a setback in comparison with sequential notations. The user experiences it as an advantage, however: if he finds nothing on a certain hierarchical level, it is a simple thing to go on searching on the next higher level. The hierarchical notation facilitates a systematic overview and promo-

tes the possibility of forming classification tables of varying depth. Such tables precede the systematic volumes of ICONCLASS down to the 5th hierarchical level. Bibliography and index contain tables down to the 3rd level.

The system tables themselves are lucidly organized and structured. On these tables, the box for the class designation sometimes contains formulae advising or instructing the user to add notations or notation elements to the code number found: "for differentiation apply system" instructs him to illustrate the notation by a further one; "if necessary apply queue of" advises him, if necessary, to apply the queue of certain other notations.

The ICONCLASS notation does not meet the requirement of ease of remembering[4]. Since its codes consist of mixed notations (letters and digits) one might assume these to be more readily remembered than those of uniform structure. The codenumbers of ICONCLASS may be quite long, however. Furthermore, in ignorance of the context, the symbols and digits used cannot be associatively linked up with the same subject matter. Because of the complexity of the system, constant consultation of the index will therefore remain necessary. For easier readability it was proposed in the introduction to the first systematic volume published (vol.2/3) to insert a blank space after every second digit and every letter or pair of letters.

In his foreword to DIAL (1968) van de Waal mentioned the possibility of computerizing ICONCLASS; as has now been done for several years in numerous projects (24, 25). Divergences are noticeable with respect to the available software (26). Varying with the software employed, effects became visible in the format for the representation of the notations: special symbols (:, &.,$,/) were introduced, empty spaces had to be done away with, as they were misinterpreted, occupied too much memory space or negatively affected the sorting process. The assignment of hierarchical notations clearly indicating super- and subordination was found to be advantageous. Also, the notations of this nature can be formally arranged and combined. The inclusion of error control routines should - in view of the natural-language designation of classes - also comprise a terminological check. Problems might arise, however, from the gaps within the hierarchical levels and from the keys.

4. Use and Application of ICONCLASS

4.1 ICONCLASS and the iconographical-iconological method

The examples mentioned in chapter 3 have shown that ICONCLASS enables to define statements both, for pre-iconographical description and iconographical analysis. In developing the structure of the classification, no use was made of the layers of meaning of a work of art as an ordering criterion. Therefore, neither the elements of the first, nor those of the second interpretational level are bound to a specific hierarchical level. This means that an interpretational element of the first level may be found on a high as well as on a low hierarchical level:

31 A *the (nude) human figure*
31 A 22 36 21 1 *uterus with foetus*

The same is true of the second interpretational level:

11 F *the Virgin Mary*
71 E 12 54 1 *the gathering of Manna*

Therefore no rules can be laid down for pre-iconographical description and iconographical analysis with respect to the systematic structure.

The work process of a picture analysis with ICONCLASS will be illustrated in the following. It starts out with looking carefully at the work of art and determining the objects depicted: in the foreground we note three women gathered at a fountain. The first one, sitting, is assisted by the two others while bathing. The scene is being observed by a figure leaning down from a window of the palace further back.

Now one or more keywords are taken from the description. This step may be compared with the pre-iconographical description. The example at hand would furnish e.g. "bathing", "servant" or "maidservant" and "palace". Next, these keywords are looked up in the General Alphabetical Index and the pertinent entries are examined. Under "bathing" one finds, among other things, a reference to:

a. 71 P 41 2 Susanna bathing, usually in or near a fountain and sometimes accompanied by 2 female servants
b. 71 H 71 David, from the roof (or balcony) of his palace, sees Bathsheba bathing.

The search under "maidservant" produces, besides a mention of *71 P 41 2* (see above), also *71 H 71 2 Bathsheba attended by servants.*

Under "palace", *71 H 71* (see above) is likewise mentioned. In the course of his search in the index the searcher is offered several motifs, from which the two themes may be filtered out. Without the observer of the scene in the picture the choice would be difficult and could not readily be made. With him, however, the painting can be identified as one of "Bathsheba bathing". In this way the user is given access to the second layer of meaning of the painting, the iconographical description.

Consultation of the systematic part leads in the case at hand to iconogoraphical literature on the theme (circle with enclosed cross). It may also be useful to have recourse to more general literature, indicated on the next higher hierarchical level (here: *71 H 7 David and Bathsheba*) in the bibliography. If the researcher is also looking for examples of comparable pictures on the subject, he can consult the ICONCLASS indexes available (if any) (27, 28) or art collections which use ICONCLASS for classifying their stocks.

In this way the researcher can quite rapidly obtain basic material for his further work and thus find support in his iconographical interpretation. The information obtained through ICONCLASS furnishes him with the basis for subsequent iconological evaluation.

This example shows that ICONCLASS can be used for

understanding a given work of art on the first level: here, "bathing" furnished a reference to "Bathsheba". This approach can therefore enable even laymen in the field of art history to understand depicted motifs and themes.

4.2 User's Point of View

ICONCLASS offers the user a comprehensive vocabulary for describing iconographical subject matters. Furthermore, with the aid of the notations, representations may be neutrally described without immediate classification only later given their place in iconographical systems.

The lack of a handbook, however, makes it unnecessarily difficult for both the indexer and the user to start using the classification. Indexers are therefore assumed to need a break-in period of six months (26). The necessary instructions for his work must be compiled from various parts of the classification. They include the "General Introduction" (Vol.2/3), which should be supplemented by the introductory chapters to the various volumes. Further aids are the partial surveys at the start of each systematic volume as well as the overall index. It goes without saying that in this manner the indexer and the user will only with great difficulty become familiar with the structure of the classification. The importance of a comprehensive handbook will be illustrated in the following by means of a few examples.

In the doubling of letters for indicating antonyms, the pairs of opposites concerned may be differently defined. As there are no fixed rules for their formation, it would be useful if the various existing possibilities were pointed out to the user. For he cannot proceed from the assumption that in the case of persons doubling of letters indicates the classical pair of opposites (male/female). While male student (*49 B 44*) and female student (*49 BB 44*) are distinguished by doubling of letters, the complement to *48 B 1 artist at work*, hence *48 BB 1*, does not - as one would expect - stand for "female artist at work" but for "artist at work in the open air". A further variant is shown by male singer (*48 C 75 51 1*) and female singer (*48 C 75 51 2*). In division 4, in the case of indications of status, role or profession, distinctions between male and female persons are only very rarely made.

Work with the classification is furthermore complicated by various inconsistencies that have come about as a result of changes and further developments in the course of the twelve year period of publication.

a. The provisional introduction to the system, the General Introduction (Vol. 2/3), to which attention is called in connection with the application of ICONCLASS, is partly outdated and here and there quite confusing, e.g. with respect to the keys, whose meanings as described in Vol.2/3 of 1974 had changed by the time the classification system, vols.1 and 7 appeared in 1981.

b. The latinized form of saints' names announced in Vol.2/3 was later changed into an English form in Vol.1.

c. The printed edition of ICONCLASS is still only available in a first edition, so that all corrections and additions (22) are only to be found only in the index so far, because they were introduced after the appearance of the relevant system volumes. These corrections and additions include the notations *61 BB 1* and *61 BB 2* for the indexing of women's portraits. More than 50% of the additions pertain to allegorical pictures taken from Cesare Ripa's book "Iconologia" (Padua 1603) (*44 C 30 'Politica'; 25 A 1420 'Oriente'*). The next largest category consists of newly introduced concepts (*25 K 16 1 oasis; 41 E 2 trompe l'oeuil*).

The additions, which affect all classes, are most voluminous in the main class *6 History*. The systematic volume 6 is limited to classes *61 A* and *61 B* exclusively. The introduction of classes *61 C* through *61 K* in the 1988 addition meant an expansion of this division by more than 400%. Likewise newly admitted to the classification were proper names of plants and animals, localities, societies and historical events. Rivers were originally to be found in class *25 H landscapes*. The indexing of the Rhine river therefore reads formerly *25 H 21 3*. In the supplement, reference is now made instead to *61 D (...) geographical names of countries, regions, mountains, river, etc.* Such a shift leads to a break in the indexation results to be expected, unless the data already collected are subjected to a correction. For the user this means, in turn, that without knowledge of these changes he can expect only an incomplete retrieval result. In order to avoid major discrepancies, a commission headed by Professor Leendert D. Couprie at Leyden University has now taken charge of the upkeep of the classification system. It accepts proposals on additions and changes and will then decide on their incorporation. New admissions are to remain few in number, since even now major deviations in notation assignment can already be observed (26).

The aforedescribed situation imposes unreasonable demands on users in their practical use of the system. The difficulties shown can, however, in part be avoided today by using the aforementioned electronic edition of ICONCLASS. The user's handling of the complex classification system is thus facilitated. Since the publication of the ICONCLASS Browser, a User's Guide has been available which, besides providing a guide for the use of the computer version, also offers a general introduction to ICONCLASS: In addition the ICONCLASS Research & Development Group is preparing a book on the classification in which, besides van de Waal's theoretical reflections, important aspects of the conversion of ICONCLASS to the computer version and general questions on a systematic iconography will be discussed.

With a view to a necessary updating of ICONCLASS it deserves mention that the conversion to the computer version will facilitate such updating both for the system and for the bibliography. An expansion of the systematic part by 500 concepts is scheduled for summer 1993. Partly for financial reasons, no expansion of the bibliography is foreseen in the immediate future.

4.3 Application of ICONCLASS to New Themes and Forms of Art

In the development of ICONCLASS a large number of works of art were originally excluded, namely, abstract works of art, sculptures and other plastic art as well as works of non-European art. The following brief remarks are the author's reflections on the present form of the classification of abstract art and her suggestions on the description of works of art not taken into account so far.

The classification of abstract works of art was already briefly referred to. The existing procedure strikes me as most unsatisfactory, since in the analysis of abstract art factors play a part which cannot be determined by an iconographical investigation, but rather necessitate a structural and stylistic analysis. The notations assigned to the pictures come largely from classes *49 D 3 planimetry, geometry* and *22 C 4 colors, pigments, paints.* An enumeration and identification of geometric forms does nit say anything yet about their meaning. Important information can at best be obtained from the title (Paul Klee, Exotischer Klang (Exotic sound), Düsseldorf Art Collection *(22 D sound).* For a very large number of abstract works of art, however, neither the theme represented nor the title can be indexed (e.g. Victor de Vasarely, Mindoro II, 1954-58, Paris, Musée National d'Art Moderne). The current classification method can therefore at most serve as a temporary solution until a suitable classification for abstract art will have been developed. This cannot be an iconographical one, however.

Inclusion of sculptures and other plastic art is generally possible and is in fact already occasionally being realized by the Bildarchiv Foto Marburg. Rodin's "Iron Age" could be indexed as follows:

91 E 24 1 *personification of the iron age; 'Età del ferro' (Ripa)*
31 A 14 (+51) *human figure of idol proportions, for ex. academic nude*
31 A 25 31 *hand bent towards the head*

A classification of abstract objects presents similar problems as were discussed in connection with abstract paintings.

On the basis of ICONCLASS, which was conceived for themes of occidental art, one or more variants might be developed for art from other cultural circles. For building up a similar classification, divisions 7 through 9 might possibly be replaced, but 2, 3, and 4 retained. A few works of art might be indexed already now with ICONCLASS. The painting 'Fuji in the evening glow' by the Japanese painter Hokusai might e.g. be classified by *25 H 11 mountains* and *24 A 2 sunset.*

4.4 Perspectives for Iconographical Research

For iconographical research the present situation is still highly unsatisfactory: when one addresses iconographical questions to an art collection one will generally receive no answer or a highly incomplete one. In inventorying, iconographical data are only in the rarest of cases taken into account. Going through a given art collection in search of the theme looked for would therefore take a great deal of time.

The possibilities opening up with ICONCLASS have been hinted at repeatedly:

- With ICONCLASS, iconographical access to art collections can be obtained and the available material can be ordered iconographically; at the same time the preparation of iconographical catalogues becomes possible.

- Iconographical research thus becomes more effective; for the more material has been described, the greater will be the retrieval result for research. This might help solve iconographical problems and open up a path to new discoveries.

- In addition, computers and the electronic edition of the classification make it possible to formulate questions which so far, partly because of the quantity of data and the conventional nature of the retrieval method, have been avoided.

- An important factor is the saving of time: the time spent so far in looking for iconographical basic material is now available for subsequent work steps. Iconographical interpretations might now be improved.

- Thanks to the ICONCLASS notations ("iconographic esperanto") (29), language problems can now be eliminated and no longer obstruct the path to "multilingual research" (25). The notations are language independent. So far, explanations of the code numbers are available only in English, but might be translated into any other language without changing the actual vocabulary (the notations).

- Since ICONCLASS contains no syntax of its own, it can be used for each and every scholarly project.

With ICONCLASS, the art historian has an instrument at his or her disposal which offers a chance for describing the vast international stores of art, and for exchanging and supplementing the relevant data. The use of the classification in numerous countries shows steps in such a direction (24, 27, 28, 30, 31). Developments of the past few years show an increase in the use of ICONCLASS: Although the system has demonstrated its suitability for handling large amounts of pictorial material, the possibilities shown are still too little known in art-historical research, even though individual art historians point out that ICONCLASS is one of the "most important achievements of the 'iconographical stage' in the scientific development of art history" (32).

Notes

* *We regret very much that for reasons of space none of the richly supplied figures could be added. Anybody interested in these figures (as well as also in the German original) may ask for a loan copy of the manuscript. (The Editor)*

** While the Gennan language uses the word 'Art Science' (Kunstwissenschaft), the English language does not have the tenn 'art science' and 'art scientific' but uses 'scholarly study of art' and 'art historical'.

1 Founder of the "Kulturwissenschaftliche Bibliothek" (Cultural Sciences Library), originally in Hamburg, known since 1921 as the Warburg Institute, the first art-historical research institute in Germany. After the Nazis came to power in Germany it was moved to London.
2 For a detailed review, cf. the contribution by Hans Brandhorst.
3 The journal "Visual Resources", appearing since 1980, publishes among other things all important questions and innovations in connection with ICONCLASS.
4 The Marburger Bildarchiv (Marburg Picture Archive) avoids this problem by indicating notations together with their corresponding class designations.

References

(1) Kaemmerling, E. (Ed.): Bildende Kunst als Zeichensystem. Bd.1: Ikonographie und Ikonologie. Köln 1979.
(2a) Panofsky, E.: Studies in Iconology. Humanistic Themes in the Art of the Renaissance. New York 1939. p.3-17
(2b) Panofsky, E.: Meaning in the Visual Arts. Garden City, N.Y. 1955. p.26-41. (German translation: Ikonographie und Ikonologie (1955). In: E.Panofsky: Sinn und Deutung in der Bildenden Kunst. Köln 1975. p.36-67
(3) Woodruff, H.: The Index of the Christian Art. Preface by Ch.R.Morey. Princeton 1942. Ann Arbor, MI 1981. Started by C.R.Morey. Princeton 1970 ff.
(4) Beilmann, M., Waal, H.v.d. In: Altmeistermoderner Kunstgeschichte. Ed.by H.Dilly. Berlin 1990. p.205-219
(5) Erffa, H.M.v.: Die systematische Ordnung des "Ikonographischen Index der niederländischen Malerei". In: Kunstchronik 13(1960)p.243-247
(6) Richter Sherman, C.: ICONCLASS: A historical perspective. In: Visual Resources, 4(1987)No.3, p.237-246
(7) Waal, H.v.d.:Iconclass: An Iconographic Classification System. 17 vols. Comp. and ed. by L.D.Couprie with E.Tholen, G.Vellekoop. Amsterdam 1973 ff.
(8) Couprie, L.D.: Iconclass. A device for the iconographical analysis of art objects. In: Museum 30(1978)p.194-198
(9) Couprie, L.D.: Iconclass: an iconographic classification system. In: Art Library J. 8(1983)No.3, p.32-49
(10) Pountain, D.: Browsing Art the Windows Ways. In:BYTE, April 1992.
(11) Brandhorst, H., Huisstede, P.v.: ICONCLASS: Recent developments. In: Visual Resources 8(1992)No.3, p.367-382
(12) Straten, R.v.: Panofsky and ICONCLASS. In: Artibus et Historiae 7(1986)No.13, p.165-181
(13) Shatford, S.: Analyzing the subject of a picture - A theoretical approach. In: Catal. & Classif. Quart. 6(1986)No.3, p.39-62
(14) Coman, F.: L'histoire de l'art et l'informatique documentaire. 2 vols. Paris 1988.
(15) Markey, K.: Access to iconographical research collections. In: Libr.Trends 37(1988)No.2, p.154-174
(16) Index of Jewish Art: Iconographical Index of Hebrew Illuminated Manuscripts. Ed.by R.Narkiss & G.Sed-Rajna. Jerusalem 1976.
(17) Walle,R.v.d.: Les archives photographiques de l'Institut, un inventaire du patrimoine artistique belge. In: Bull.Inst.du Photograph. Artistique 12(1970)p.98-111
(18) Castoguay, D.: Approche sujeten iconographie Canadienne à l'aide d'un lexique de termes controlées. In: Computerized Inventory Standards for Works of Art. Proc., Collection of Papers. Ed.by R.Vézina. Montreal 1981. p.269-280
(19) Subject Term Guide. National Museum of American Art. Washington 1983.
(20) Garnier, F.: Thesaurus Iconographique. Systèmedescriptif des représentations. Paris 1984.
(21) Editorial: ICONCLASS projects. In: Visual Resources 7(1990)No.1, p.VII-XIII
(22) Couprie, L.D., Straten, R.v.: Corrections of the ICONCLASS System. In: Visual Resources 5(1988)No.2,p.123-134
(23) DIN 32 705: Klassifikationssysteme: Erstellung und Weiterentwicklung von Klassifiationssystemen. Ed.by Normenausschuß Klassifikation (NAK) im DIN. Deutsches Institut für Normung e.V., Berlin/Köln 1987.
(24) Sunderland,J., Gordon, C.: The Witt Computer Index. In: Visual Resources 4(1987)No.2, p.141-151
(25) Heusinger, L.: Marburger Informations-Dokumentations- und Administrations-System (MIDAS). Handbuch. Ed.by Bildarchiv Foto Marburg. Deutsches Dokumentationszentrum für Kunstgeschichte. Philipps-Universität Marburg. München u.a. 1989.
(26) Gordon, C.: Report on ICONCLASS Workshop. Nov.2-4, 1987. In: Visual Resources 5(1988)No.3,p.197-258
(27) Roberts, H.E.: Iconographic Index to Old Testament subjects represented in photographs and slides of paintings in the Visual Collections, Fine Arts Library. Harvard University. New York 1987.
(28) Straten, R.v. (Ed.): ICONCLASS Indexes. Italian Prints. 4 vols. Doomspijk 1987-1990.
(29) Marchitelli-Focardi, A.-L.: The iconography of "God the Father" in the Act of Blessing and the use of ICONCLASS. In: Visual Resources 8(1991)p.143-154
(30) Straten, R.v.; Indexing Italian prints with ICONCLASS. In: Visual Resources 7(1991)No.1, p.1-21
(31) Brandhorst, H., Huisstede, P.v.: Report on ICONCLASS Workshop. In: Visual Resources 8(1991)No.1, p.5-66
(32) Bialostocki, J.: Skizze einer Geschichte der beabsichtigten und der interpretierenden Ikonographie. In: Bildende Kunst als Zeichensystem. Ikonographie und Ikonologie. Bd.1. Ed.by E.Kaemmerling. Köln 1979. p.15-63

Continued from page 19

(9) Barash, M.: Giotto and the Language of Gesture. Cambridge: Cambridge University Press 1987. p.79
(10) Haney, K. E.: The Winchester Psalter, an Iconographic Study. Leicester: Leicester University Press 1986. p.78.
(11) Gaskell, I.: History of Images. In: Burke, P. (Ed.): New Perspectives on Historical Writing. Cambridge: Polity Press 1991. p.169

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