The nocturnal sky shows glistening nebulae among the splendid miracle of stars—either old extinct systems scattered throughout the universe, cosmic dust taking shape around a nucleus, or a condition in between destruction and regeneration.

They are a suitable analogy for similar events on the horizon of an history. They signify a world of art passing into the formless, while suggesting at the same time a new formation in the making.

These phenomena of artistic decline and the mysterious phoenixlike birth of new artistic life arising from the process of its destruction are all the more significant for us, because we are probably in the midst of a similar crisis—as far as we who are living through it (and therefore lacking a clear overview) are able to surmise and judge.

At the least, this view has many adherents, and in truth there is no lack of supporting evidence. The only thing that remains uncertain is whether these signs indicate a general decline arising from more profound social causes, or whether they suggest conditions that are otherwise healthy but that have temporarily caused confusion in those fields and human faculties concerned with discerning and representing beauty. Perhaps sooner or later they will lead to happier things in this sphere as well and work to the general good and honor of humanity.

The first hypothesis is bleak and unproductive because it denies artists who subscribe to it any support for their efforts. If the world of art were collapsing. Atlas himself would be too weak to hold it up; those who find pleasure in building do not warn to restrict themselves to tearing down something rotten.

The second hypothesis, by contrast, is practical and productive—whether it is right or wrong.

As long as whoever embraces it guards against the presumption of seeing himself as the founder and savior of a future art, he will view his work more modestly as something in the process of becoming, or rather, as the becoming of art in general, and set for himself the following task: to explore within individual cases the regularity and order that become apparent in artistic phenomena during the creative process of becoming and to deduce from that the general principles, the fundamentals of an empirical theory of art.

Such an approach will provide no handbook for artistic practice, for it will
not show how to create a particular art-form but rather how it comes into being. The work of art will be seen as a result of all the factors involved in its creation. Technique will therefore be a very important issue to consider, but only insofar as it affects the principle of art's creation. Nor will this approach merely produce a history of art. In passing through the field of history, it will not apprehend and explain the works of art of different periods and countries as facts but rather it will expand upon them, as it were, by identifying in each the necessarily different values of a function composed of many variables. It will do this primarily with the intention of revealing the inner law governing the world of the art-form. Just as it governs the world of nature. For nature in its infinite abundance is nevertheless very sparing with its motifs; it constantly repeats its basic forms, modifying them a thousand times according to the formative stage reached by living beings and the various conditions of their existence. It shortens some elements and lengthens others, develops some elements fully, then merely alludes to them elsewhere. Nature has its own evolutionary history, within which old motifs are discernible in every new form. In just the same way, art is based on a few standard forms and types that derive from the most ancient traditions; they reappear constantly yet offer infinite variety, and like nature's types they have their own history. Nothing is arbitrary; everything is conditioned by circumstances and relations.

An empirical theory of art (theory of style) is neither pure aesthetics nor an abstract theory of beauty. The latter considers form as such; it sees beauty as the combination of individual forms to achieve an overall effect that pleases and satisfies our artistic sense.

All the aesthetic properties of formal beauty—harmony, eurythmy, proportion, symmetry, and so on—are therefore of a collective nature.

Style theory, however, sees beauty as a unity, as a product or a result, not as a sum or a series. It looks for the constituent parts of form that are not form itself but rather the idea, the force, the material, and the means—in other words, the basic preconditions of form.

This route through the world of art presents enormous difficulties. At best it will produce results full of gaps, empty rubrics, and errors. But the ordering and comparative method necessary for this effort to group related objects, and to reduce what is derived to its simplest essence, at least helps provide an overall view of a vast field that is still mostly fallow and waiting to be cultivated by others. For this reason alone it will not be totally in vain.

Our task also includes what [Carl Friedrich] von Rumohr appropriately called the "Housekeeping of the Arts," although he originally meant by this only the ordering and at the same time subordinate role played by architecture in the creation of works of high art: sculpture and painting. Architecture, in its relation to the fine arts as well as in its own right, will be a major theme of our considerations. Yet these higher realms of art represent only one of the outer limits of the field to be investigated. In this field we also encounter those simpler works to which the artistic instinct was first applied: adornment, weapons, weaving, pottery, household utensils—in a word, the industrial arts.
or what are also called technical arts. Our task will embrace these, will indeed treat them primarily: first, because the aesthetic necessity with which we are dealing is most lucid and comprehensible in these oldest and simplest inventions of the artistic instinct; second, because a certain codex of practical aesthetics was established and formulated here prior to the invention of monumental art, which (as will be shown) adopted from them a preexisting formal language in addition to being directly influenced by them in other respects; and third and most importantly, because those arts defined by critics as minor are most severely affected by our present system of education and by the tendencies of this century, and because nothing is more urgent for the intended improvement of artistic taste in general (and with it art) than to resist these forces, particularly in the field of the technical arts. For there can be no doubt that art—adrift within the maelstrom of conditions—has lost its rudder, its course, and, most seriously, its motive power. We will have ample opportunity to return to these issues in the course of this book, and enough has been said about the book’s general tendencies—its plan is outlined in the introduction. Therefore, let me conclude this preface with some observations related to what has just been said.

In times when people adopt the perspective of artistic culture (a perspective our philosophers consider antiquated), a genuine public education is idealistic. At present it is precisely the opposite: realistic. The pure sciences have come to dominate education. Schools no longer systematically educate human beings as such but are solely concerned with producing specialists. This system in particular affects the working class and those people who devote themselves to the arts, and it starts at the earliest stages of schooling. It effectively kills the very faculty that is actively responsible for the perception and, equally, the creation of art. I mean the sense and the purely human impulse of being creative as an end to itself and the gift—so indispensable to the artist as well as to people receptive to art—of direct intuitive thinking.

Fortunately, the secondary schools and their affiliates, the technical schools, have not existed for very long and have yet to come to terms with their own tenets. Hence the results of purely realistic education are emerging in a way that promises another revision of the educational system soon. For example, pupils entering technical schools from secondary schools have to devote a large part of their already overly prescriptive course time to the basic sciences, which are taught without regard for their relevance to the students’ specialization.

But because these students think and feel “practically” as a result of what has been systematically instilled in them from their earliest years, they seek that rapport of science and their specialty from their first introduction to its elements. If they fail to find it, they lose interest in the course, and neither pressure nor fear of examinations can put it back. In a sense, they are justified in wanting it, since the educational system does not allow the pursuit of knowledge for its own sake and thus excludes many disciplines (especially those most suited to shaping and enriching the mind) because they supposedly have no practical application.
When formerly the arts blossomed, when every artisan was in his own way an artist or at least strove to be one, when the mind investigated every conceivable aspect and approach at least as vigorously as today, schooling (initially religious) had nothing to do with practice. When it did, it started with practice and not with theory. The creative impulse was stimulated and exercised earlier than was the student's receptivity to extraneous exact knowledge. He thereby discovered himself those things he had to know in order to continue being creative. He thus acquired a thirst for knowledge that led him to scientific studies that may often have been unsystematic but immediately compensated for this by assuming the character of research and active, independent creativity.

Knowledge and scientific explanations gathered in this way are self-acquired property, immediately yielding high interest and profit. They are not assets conferred then systematically deposited in the brain of the immature student with uncertain prospects for later yield. The school of life, attended by the majority of those who achieved fame with inventions or in the arts, was of the former sort. And generally the public education of earlier days was very similar, even if it was somewhat inadequate in other ways. Although the formlessness of such conditions does not commend itself to direct emulation, it is still the present author's humble opinion that public technical schools, if they are to accomplish even part of what is expected of them, should follow this principle as much as possible—because it is a principle of nature. So let us first have humanistic preparatory schools that aim only at cultivating the man in man and developing his mental and physical abilities—that is, precisely the antithesis of our present secondary and industrial schools. This should hold for the preparatory schools of all classes of society, however much they might differ, as necessarily they must, in the range and nature of their humanistic education. Such teaching is not devoted exclusively to the ancient languages and classical literature but is merely characterized by this tendency.

So the first priority is humanistic preparatory schools. The second should be workshops in which skills are taught. And finally the third is ample opportunity for the student to satisfy his thirst for knowledge, stimulated by non-compulsory creative work. There should be public lectures like those in Paris given by outstanding experts in all fields, offered to all specialists without exception and in particular to students of the various artistic ateliers of the Ecole des beaux-arts.

France owes its greater fame and prosperity more to this extremely liberal method of instruction than to those celebrated specialty schools that pedagogues in other nations are so keen to imitate—just when the French are starting to think of reorganizing them. They have achieved fame and undisputed preeminence in most branches of the industrial arts and their fine art is second to none, whereas their lead is being contested in chemistry, engineering, and mechanics—by England and America, where there are no polytechnic schools.

Such fields depend on a very comprehensive and exact knowledge and still require special facilities, but it should be pointed out that a curriculum that
appears suitable for them should not be taken as a model for all branches and fields of technology, much less for the arts, including architecture and the applied arts.

This is confirmed by the above-mentioned conflicts within the French educational system, which has been considered and imitated only one-sidedly in the reorganization of the schools in Germany and other countries. Certainly the old art academies in these countries have been allowed to continue alongside the so-called polytechnic schools, and next to them many so-called trade schools, Sunday schools, and art schools have been set up to teach craftsmen and artisans. Yet this arrangement has proven far more detrimental than beneficial to art, which cannot flourish under systematic classroom instruction and the fracturing of its domain without a motive power acting from below.

To avoid repetition on these and closely related issues, the author refers readers to his brochure Wissenschaft, Industrie und Kunst: Vorschlage zu Anregung nationalen Kunstgefühles (Brunswick: Vieweg, 1852).

These conditions would seem less grave, were it not for the unfortunate fact that a certain higher necessity comes into play, in which they, in company with contemporaneous observations in other fields, have their roots.

Pure science, for instance, impinges upon present conditions in other ways far more effectual than those previously indicated: as the guiding force, or rather as the spiritus familiaris [attending spirit] of the speculative century. With its discoveries and inventions, science enriches everyday life and expands the sphere of influence of a business world bent on profit. Such inventions used to be daughters of necessity but now they help to create need artificially in order to increase sales and acceptance. Products scarcely introduced are removed from the market as obsolete before they can be developed technically, let alone artistically. Something new, but not necessarily better, always takes their place.  

The present has neither the time nor the leisure to grow accustomed to the benefits that are being almost forced upon it, but both are absolutely necessary for the artistic mastery of these gifts. Consumption and invention have been handed over to practitioners and industrial capitalists to mediate as they please, but without a millennium of popular custom to cultivate a suitable style. It requires far greater artistic sensitivity than is commonly found among our industrialists to hit upon (without the benefit of time) the right art-form for all the new things pressing themselves upon our attention. Such a form would be one in which free human work appears as a necessity of nature and becomes the generally understood and perceived formal expression of an idea.

Capitalism certainly makes every effort to have the fine arts serve its ends, just as it borrows all its technical means from science. It has brought about the division of labor (a practice understandably necessary for coping with the vast scale of an enterprise) but in a way that is highly detrimental to the hoped-for success. For example, it separates the so-called ornamental from the formal and technical aspects of art in a purely mechanical way, immediately
Semper

betraying its lack of feeling for and misunderstanding of the true relationship between the various means chc artist uses to produce his work.

Many gifted artists are permanently employed by English and French industry in a double servitude. On the one hand, they serve the employer, who sees them not as equals but rather as troublesome advisers on taste and as embellishers of form; he rarely pays them well. On the other hand, they serve the fashion of the day, which is the only thing that ensures the sales upon which the purpose and very existence of the industrial plant — indeed everything — ultimately depends.

Thus artists take absolutely no initiative in industrial production; they are just one more category of specialists employed by manufacturers — in the same way that clay manufacture requires special kneaders or the furnace needs a head stoker with his staff. The only difference is that manufacturers are aware of the inadequacy of their own technical knowledge and allow kneaders and stokers a relatively free hand, whereas every jackass thinks he understands something about art. The instructions given by artists are unhesitatingly criticized, altered, and distorted when they do not suit a manufacturer's taste, or if a foreman expresses misgivings about their technical feasibility, doubtful profitability, outlay costs, or anything else.

To this must be added the low status of these industrial artists: first with respect to the academic hierarchy of art that snubs them; second with respect to the firm that claims the honors of success for itself alone, and out of jealousy seldom or never credits the artist who really created the work or at least put intellectual effort into it, and third with respect to the public, which shares the prejudices of the academy and holds the so-called decorative arts in low esteem.

People involved in high art — painters, architects, and sculptors of repute — have from time to time been called upon to work in craft industries, for instance, when [Josiah] Wedgwood's famous faience was partly modeled on [John] Flaxman's models and drawings. The porcelain factory at Sevres also employs artists of stature, who to some extent keep themselves aloof from fashion and a concern with sales. Yet even this influence from the heights of academic art generally lacks a practical foundation, as skilled and highly talented designers and model-makers are not metalworkers, potters, carpet weavers, and goldsmiths — as was often the case before the academies separated the arts. For this reason, products made under the guidance of these men often contribute little to enhance the industrial arts because the results come nowhere near the intention. Violence is done to the materials in order to even partially fulfill the artistic intention, and thus the products do not comply with the artists' ambitious demands.

Architecture finds itself in a similar predicament, as speculation and the machine have taken it over in the same way that they have subdued the technical arts. The architect is often little more than an inconsequential adviser in matters of taste and can expect neither esteem nor profit from his commissions.

The indirect influence of science helps shape our modern artistic conditions in the ways indicated, but it also concerns itself with art as its actual
object more now than it once did. The amount of material assembled by science and research in the ever growing number of writings and illustrated works on art, and everything related to it, is already more than we can manage. It is difficult to find one's way through such abundance while maintaining a sense of direction.

In order to facilitate this, we have divided the wealth of material into categories, around each of which has evolved a self-contained discipline.

There is an overwhelming mass of books on aesthetics and the history of art, not to mention the many books in related fields; the number of books on specific subjects in the arts, especially architecture, is enormous. We Germans are tireless producers of studies of domestic, rural, and church construction, manuals on timber, brick, ashlar, and so on. The English and the French, on the other hand, have treated more successfully the actual technology of the arts.

These works contain an indispensable wealth of knowledge and experience, yet the principle of splitting the material into a number of sciences or disciplines that our artists are expected to master separates more than it connects or compares. It only adds to the bewildering state of modern art, or rather, this variety is one of the symptoms of that higher necessity imposed upon us and our artistic efforts.

Applying what has been said to architecture, we can see these myriad directions converging in three main schools, which correspond to the three ways in which science is applied to art, namely,

a. the materialists, under the influence of natural science and mathematics;
b. the historians, under the influence of art history and antiquarian studies;
c. the schematists, purists, and so on, under the influence of speculative philosophy.

The Materialists

Probably the most powerful influence on our present artistic attitude has come from those textbooks that show how to utilize materials for architectural and structural purposes.

Such textbooks are consistent with the broader practical tendency of our time and are supported and sustained by the major building enterprises, especially railways. They can be criticized in general for fettering the idea to the material too much by accepting the false premise that the world of architectural forms arises solely from structural and material conditions and that these alone supply the means for further development. The material is in fact subservient to the idea and is by no means the only factor controlling the idea's physical manifestation in the phenomenal world. Although form—the idea made visible—should not be in conflict with the material out of which it is made, it is not absolutely necessary for the material as such to be a factor in artistic appearance. The first part of the present work will further elaborate upon this important point and demonstrate the historical origins and development of materialist principles in architecture.
Those who favor the so-called naturalistic styles of ornament must also be counted materialists. They often disregard the basic stylistic and structural principles of adornment.

The Historidsts
The historical school, which is disintegrating into various embattled factions, eagerly takes as its models certain works of art from times long past or from other nations and imitates them with the greatest possible critical and stylistic accuracy. They try to make the demands of the present fit this mold, instead of (as would seem more natural) allowing solutions to develop freely from the premises of the present, taking into consideration traditional forms that have developed over the course of millennia and stood the test of time as irrefutably true expressions and types of certain spatial and structural concepts.

In a certain sense the historicists and the materialists are opposites, although both schools depreciate the present and tradition.

The many directions in which the historical school moves—so characteristic of our time—have their starting point in the countless books that record the discoveries and artistic studies of every country of antiquity, of medieval times, and of the modern world. Its practitioners think that a historically accurate conception and reproduction of the model guarantee success, and it must be said that their achievements, considered as critical and rational imitations, make a good impression in comparison with earlier attempts of this kind.

An exceptionally learned and thoroughly critical method, a highly diligent and prudent classification, an utterly scrupulous examination of all research sources (libraries, archives, monuments, and art collections) to document the names of artists, dates of creation, stylistic criteria, structure, iconography, liturgy, or any other information—all undertaken with little real artistic feeling or imagination and therefore hardly stimulating the creative instinct—these are characteristics of the most recent art historical and archaeological literature, and they are reflected in the artistic achievements of the historical school.

The neo-Gothic offshoot, now the dominant trend, first appeared only some fifty years ago and was initially encouraged in Germany by [Johann Wolfgang von] Goethe and the Romantic poets. Their first attempts were garden pavilions and small country churches that turned out poorly enough. But there are also more extensive projects dating from this time, such as the two Gothic spires placed on top of the (Romanesque) towers of the cathedral in Zurich. The movement did not really come alive, however, until an interest and widespread support for preserving old Gothic monuments arose. The restoration of buildings undertaken as a result of this romantic-antiquarian movement provided training for a number of supervisors and craftsmen who have since had the occasion to apply their virtuosity in this style to new buildings.

History reveals the neo-Gothic movement to be restorational in origin and nature. It has a large number of technical and lay followers—the vast majority of the former are the above-mentioned experts, for whom the compendiaria artis [technical shortcut] created by the Gothic style is a desirable vade
mecum. The movement also finds numerous supporters among materialists and industrialists because of the structural principle pursued by this style with extreme logic, and because of the ease with which its formal components can be mechanically produced for the market. This is especially true in England, where the style has remained in use, although in a most schematic way.

But there are also highly talented artists who subscribe to this school, and almost all of them were converted to it after having acquired their artistic education and proven their talent in quite different styles. This is especially true in France, where such artists have adopted an early Gothic style still capable of further development, whereas in Germany and England they pursue a style that is already ossified.

The more prominent men of the neo-Gothic style are closely connected with a very active political and religious party, the same party that introduced the depraved Jesuit style (using that age's love of ostentation as a lever for their propaganda purposes) against which they are now campaigning. This party is most active in France, probably because of the artistic influence Paris has always had on other countries, although the uncertainty and instability of this fulcrum in Paris seems disquieting. Zealots of this tendentious artists' party treat northwestern and northern Europe as a pagan country to be conquered anew for Christianity, and they propose the same means of proselytizing used once before in France to achieve the same goal (see [August] Reichensperger's Fingerzeige [aufdem Gebiete der kirchlichen Kunst]).

The correctness of the views of those who deny it a future, however well buildings in this style might be conceived and their plans duly considered, is best guaranteed by this movement's characteristically deliberate and studied manner and by the principle of servitude expressed clearly and decisively in the program drawn up by priests and archaeologists.

For quite opposite reasons the so-called classical school still holds out prospects for new activity. Archaeology can scrutinize the past as keenly and shrewdly as it likes, but ultimately it is left to the divining sense of artists to reconstruct something whole from the mutilated remains of antiquity. This places the archaeological approach at a distinct disadvantage and deprives it of its initiative. These uncritical methods and the need to invent where the information for a servile restoration is lacking are partly responsible for the fact that all revivals of antique art immediately achieve something new and are never so completely bad as neo-Gothic buildings dating from the beginning of the century. Even the dainty small renaissance of the period of Louis XVI and the latest Hellenistic movement whose coryphaeus is [Karl Friedrich] Schinkel were creative from the start; what was achieved remains the proud possession of its time. Yet for very different and more deeply rooted reasons, antique traditions will always exert their newly invigorating force on us; they will outlast all the strange and singular things that the richness of time has called forth. As for art history, it will truly lead art only when it moves beyond its current, critically divisive and archaeological viewpoint to one of comparison and synthesis.
The Purists, Schematists, and Futurists

Philosophy wants to define the concept of beauty and delimit its subconcepts precisely. Second, it takes up more and more space analyzing beauty according to its attributes. If, third, it could turn these results into an effective theory of art, it would have accomplished the aesthetic part of its task. It would have replaced the confusion and fragmentation presently so dominant in art with a unity of purpose and harmonious fulfillment. But philosophy applied to art is like mathematics applied to natural science; mathematics can certainly calculate differentials of very complex functions but it rarely succeeds at integration, especially in physical cases where forces interact in complex ways according to laws that still need to be defined. But at least mathematics attempts such integration; indeed, it sees it as its most important task. Modern aesthetics, on the other hand, simply rejects very similar tasks and problems of art-physics (if I may use this rather daring expression as an analogy for what takes place between the effects of nature and art) and declares this point of view to be, fortunately, a thing of the past (Adolf Zeising, A[esthetische] ~orschungen, introduction, 2). By contrast, aestheticians like [Gotthold Ephraim] Lessing and Rumohr, who (each in his own sphere) really knew something about the practical side of art, considered it the basis from which the artist should learn.

The philosopher of art is simply concerned with solving his problem, which has nothing in common with that of the artist, "who takes the phenomenal world as the purpose and aim of his activity; whereas the aesthetician believes ideas are the beginning and the end, the germ and seed of everything that exists, the fertile force to which all creation, including beauty, owes its existence... ." 7

For the aesthetician, the appreciation of art is an intellectual exercise or a philosophical delight, consisting of tracing beauty back from the phenomenal world to the idea, dissecting and isolating its conceptual kernels. 8

Thus from this perspective art also appears isolated and relegated to a field especially marked out for it. The opposite was true in antiquity, where philosophy held sway over this field as well. Philosophy was seen as an artist herself and a guide to the other arts. But in growing old, she turned to analysis and devised dead categories instead of living analogies.

In just the same way, Gothic architecture was the lapidary transformation of the scholastic philosophy of the twelfth and thirteenth centuries.

Similarly, studies of the anatomy of art are of no use to the arts, whose success depends on reawakening in people the capacity for the undivided direct perception of art and the pleasure therein.

Nevertheless, speculative aesthetics has significantly influenced our current artistic conditions: first through the mediation of so-called connoisseurs and lovers of art, who with the help of aesthetics have acquired a schematic and puritanical art regimen founded in pure caprice, one that has produced a dreary impoverishment of art-form wherever it manages to intrude. This is seen in the work of a certain school of architecture in southern Germany that unites the materialist and constructional tendency with aesthetic puritanism. Despite its praiseworthy results in the area of utilitarian buildings, the inadequacy of
its means is apparent as soon as it tries to deal with truly monumental an. The modern mania for principle has deprived it of these means. They are to a large extent erroneously described as inventions of decadent periods, absolutely inimical to taste, or as anticonstructionat. And judged by this false accusation, they have been condemned. These means, in fact, include some of the oldest traditions of architecture, which are fully consistent with the logic of building and with artistic creation in general and which have symbolic values older than history—values that cannot possibly be expressed by something new. This book will provide ample opportunity to demonstrate this.

Another effect of speculative philosophy in the arts can be seen in the iconography of art concerned with trends and the future, the hunt for new ideas, the boastful displays of thoughts, profundity, richness of meaning, and so on.

Such moralistic appeals to nonartistic interests (to which the ecstasy of art and the often ludicrous mania of connoisseurs and archaeologists for interpretation respond with equal dignity) are typical either of barbarism or of decline. Art at its most sublime hates exegesis; it therefore intentionally shuns it. It veils it behind the most general, purely human motives and deliberately chooses the simplest, most familiar themes. It considers these, like the material from which it creates (be it clay or stone), solely as a means to an end that is sufficient in itself.

Den Himmel schuf ich aus Erd'
Und Engel aus Weiberentfaltung,
Der Scoff gewinnt erst semen Werth
Durch kimsterische Gestakung!
[The sky I created from the earth,
An angel from a woman's incarnation,
A material only gains its worth
Through artistic creation!]
—Hemrich Heine, Neue Gedichte

In this book, the author takes for granted some basic aesthetic concepts. Since he interprets some of these concepts in a particular way, he owes his reader, as an addendum to this preface, a short explanation of his terms.

On a more exalted plane, what we mean by terms like "sense of beauty," "delight in beauty," "enjoyment of art," and "artistic instinct" is analogous to those instincts, pleasures, and gratifications that govern the way in which we maintain our telluric existence. Strictly speaking, these can be traced back to the momentary removal, numbing, or forgetting of pain. Just as pangs of hunger make the purely physical individual want to try to alleviate them purely for the sake of survival, just as frost and discomfort force him to seek shelter, just as these and other needs lead him to various inventions, to work hard to secure continued existence and prosperity for himself and his species, so we are instilled with mental sufferings that govern the existence and ennoblement of the human intellect and the human spirit in general.
Surrounded by a world full of wonder and forces whose laws we may
divine, may wish to understand but will never decipher, that touch us only in
a few fragmentary harmonies and suspend our souls in a continuous state of
unresolved tension, we conjure up in play the perfection that is lacking. We
make for ourselves a tiny world in which the cosmic law is evident within the
strictest limits, yet complete in itself and perfect in this respect. In such play
we satisfy our cosmogonic instinct.

The imagination creates these images by presenting, expanding, and adapt-
ing individual natural scenes to our mood, so that we believe ourselves cap-
able of discerning the harmony of the whole in a single event and thus for an
instant have the illusion of having escaped reality. This enjoyment of nature is
not very different from the enjoyment of art, just as the beauty of nature
(because it is born in our receptiveness and even in our active imagination) is
assigned to the general beauty of art as a lower category.

Yet this artistic enjoyment of natural beauty is by no means the most naive
or the earliest manifestation of the artistic instinct. The former is in fact unde-
veloped in simple, primitive human beings, who already delight in nature's
creative law as it gleams through the real world in the rhythmical sequence
of space and time movements, in wreaths, a string of pearls, scrolls, round
dances, the rhythmic tones attending them, the beat of the oar, and so on.
These are the beginnings out of which music and architecture grew, the two
highest purely cosmic (nonimitative) arts, whose legislative support no other
art can do without.

But to these general phenomena of nature—with their sublime terror,
bewildering charms, and unknown inherent order—there are more active ele-
ments that grip our soul and make it receptive to the illusions of art.

A never-ending struggle—a frightful law of the stronger according to
which one eats another only to be eaten in turn—pervades nature, but it mani-
fests its full cruelty and harshness in the animal world, which is closest to us.
It forms the content of our earthly existence and that of history. This never-
ending process of extermination by the living has no end and no design. The
soul, vacillating between hate and pity, numbs itself with the following discon-
solate sentence: The individual is created only as nourishment for the whole.

Moreover, we encounter the accidental, the nonsensical, and the absurd
at every step along our earthly path, and each flies contemptuously in the face
of the law we thought we had discerned. Then there is the deep, unfathomable,
stormy world of our own soul: choruses of passions at war with themselves
and with fate, accident, custom, law. Imagination opposes reality, and folly
contradicts itself and the universe. There is nothing but discord from which the
arts snatch us away momentarily by sealing off these battles and conflicts and
placing them in a tight framework, in the end using them as elements of atone-
ment. These sentiments gave rise to the lyrical-subjective and dramatic arts.

The magic that affects the soul through art in its most varied forms and
manifestations—enabling art to captivate the soul completely—is called
beauty. This is not so much an attribute of the work as an effect, in which the
most diverse elements are simultaneously active within and without the object we call beautiful.

These determinants, when they do not emanate from the beautiful object itself, must still be reflected in it, must still condition its particular formation [Gestaltung].

Moreover, these determinants must also derive from and be consistent with the laws of nature. Although art is concerned only with form and appearance and not with the essence of things, its forms must follow what the natural phenomenon teaches, even if only by complying with the general law that prevails in every realm of nature—sometimes undeveloped, sometimes in a more mature form.

This analogy between the general law of formation in nature and art appears most clearly in what speculative aesthetics calls the formal elements of pure beauty.

A phenomenon can manifest itself as such only by isolating itself from the general as an individual.

This separation from the general is absolute only in the first stages of formation. More developed plant and animal forms are distinctive because they reflect, so to speak, two determinants of form: first, their relation to the general in which they are rooted and based; and, second, their relation to the particular, which sets them up as objective or subjective opposites.

As the principle of individualization is symbolized clearly and distinctly by the arrangement of the parts of every phenomenon that claims to be complete, there are three determinants of form that can be active in the generation of form. In lower forms they may act together or one determinant may lie dormant. In cases where all three are active, these determinants of form correspond to the three spatial dimensions of height, width, and depth.

With respect to the three determinants of form, the multiplicity of form must be arranged threefold into a unity; the following three necessary conditions of formal beauty then emerge:

1. symmetry,
2. proportionality,
3. direction.

It is just as impossible to add a fourth homogeneous property to these attributes of beauty as it is to imagine a fourth spatial dimension. This will become more apparent in what follows-

Principle of Formation for Completely Self-Contained Forms Indifferent to the External World

These forms relate directly and only to themselves, therefore their elements are arranged around a kernel or central point representing the unity. The parts may revolve around this kernel or radiate from it in regular figures or surround it in a composite, radial-peripheral arrangement, corresponding to the complexity of the formation. We meet the most perfect such forms in the mineral world: sometimes as planimetric designs, like polygons, stars, composite
forms (often richly inventive: for example, snowflakes); sometimes as solids, such as polyhedra ranging from regular hexahedra to spheres. The law of molecular attraction—ruling undisturbed, alone and all-embracing, and likewise indifferent to the outside, or rather rejecting all external influences—is most perfectly expressed in these crystal forms in their strict regularity and all-embracing enclosure. This regularity becomes absolute, all-embracing uniformity in the circle (a polygon of infinite sides) and in the sphere (a polyhedron of infinite flat surfaces). Therefore these forms have been valued since time immemorial as symbols of the absolute and of perfection.

Complete in themselves — symmetry, proportion, and direction are one and the same. They are omnidirectional, therefore nondirectional. The law of proportion applies to them only when parts of the whole are
considered separately, and most clearly in radial forms such as snowflakes. Here the radials and their branchings demonstrate proportional development; they suggest a striving toward separation and an isolation from the small universe of the snowflake. There is, so to speak, a polarization of two forces: the positive force of independent development, as shown in A, and at the center of the figures the negative force of dependence on the whole.

This arrangement of atoms along the radials is in accordance with the two effects just mentioned and is a result of both forces: the counteracting energy centers are mirrored and at the same time reconciled in the proportional articulation of the radials. To the observer, each radial appears to have an independent formal existence only if

1. it is considered not as part of a whole but completely separated (isolated);
2. it is in a vertical position with respect to the plane of the horizon or to a line that represents the horizon.

In the same way, the symmetrical principle is already present in latent form in that remarkable miniature world of snowflakes, flowers, and so on. Here symmetry evolves from peripheral regularity, from eurythmy, and from molecules strung in an orderly way around the center of crystallization. It is similar to how we traced proportion back to the radial regularity of the formation.

If we break off a piece from such a regular wreath and consider it in isolation, we are comfortable with its appearance only on the condition that the parts are equal in number and position or that there is a balance of unequal parts to the right and left of the line ab, at right angles to a horizontal line representing the plane of the earth’s horizon. If there is a complete identity of elements right and left of the vertical line ab, this is called strong symmetry; if there is only a balance of masses, it is called weak symmetry [Ebenmaf5].

The symmetrical arrangement of atoms takes place along the horizontal line cd. The last is, as it were, the invisible balancing pole that gives the form stability. It can be called the symmetrical axis, in contrast to the line ah, which can be called the proportional axis, because the proportional arrangement of parts takes place along this line.
Eurythmy; Frames
Eurythmy is closed symmetry and stands in no direct relation to the observer but only to a center around which the elements of the regular form are arranged and strung peripherally.

To establish a rapport with the eurythmic figure, the observer has to imagine himself at the center of relations. Verticality and horizontality are therefore not basic demands of the eurythmic figure; its nature is enclosure. It expresses the absolute concept of encirclement symbolically and therefore alludes to the encircled as the actual object, as the center of the eurythmic order.

Door and window frames, for example, are eurythmic enclosures of this kind, very similar to picture frames, except that the framed content is the person who enters or looks out. These examples of frames show clearly the difference and separation between those parts that belong to the frames as such, and in which the eurythmic law appears active, and those other parts of the frame that are sometimes active symmetrically, sometimes proportionally, whereby the frame and its content first appear as an object to the outside viewer. The latter includes pediments, consoles, and similar accessories.

The frame is one of the most basic forms used in art: no enclosed image without a frame, no scale without it. Eurythmy comes into play only when the frame is used: a regular concentric articulation and order of formal elements that form an enclosed figure around the framed object.

Modifications to the Eurythmic Order
The articulation of eurythmic figures results from certain laws of repetition with cadence and caesuras, with elevations and depressions from which, when interlinked, the closed figure emerges. Musical figures (melodies) and visual ones are subject to the same laws, except that the ear is able to follow and resolve far more complex arrangements than the eye, which has to absorb everything at once. Therefore, within the admittedly infinite variation of eurythmic series, scarcely more than three modifications to the articulation of visual figures can take place. Undoubtedly the Greeks devised the canon for eurythmy as ingeniously as they did for music and poetry. We sense it in the powerful concurrence of Doric columns, in the cadence of the entablature, in the continual recurrence of the same decorative members—all of which stimulate and soothe us but do not tire us. This canon was largely forgotten by the Roman period when Vitruvius confused eurythmy with proportion and, anyway, confused all the formal-aesthetic concepts that he probably picked up by misinterpreting some Greek author. The relevant passages by this writer (bk. 1, chap. 2), far from elucidating the Greek principles of beauty, only spread confusion.

Eurythmy consists of stringing together uniform segments of space to form an enclosure.

The first way in which this can be done is at even intervals, so that each element is identical to the others. Such simple series include dentils, fluting, wreaths, the simplest bead moldings (without reels), and several others.
The series becomes alternating when we separate the elements with intermediate elements. This is the case, for example, when the simple carved wreath, in the manner of the leaf-and-dart decoration, changes into a series of two leaves alternating with one another, or when reels are inserted between beads. The egg-and-dart molding with its so-called arrowheads is another very familiar example of an alternating series. The same principle of alternation is evident in the wreaths of metopes and triglyphs. Contrasts in form and design, as well as color, are necessary to articulate the alternating series. The principle of alternation is the recurrence of unlike parts in eurythmic cadence.

In addition to the simple and alternating series, there is a third, which is the richest. It involves interrupting a simple or alternating series with periodic caesuras.

This again was known to the Greeks, although they deliberately used it sparingly and only on accessories.

Examples: pearl strings with two or more reels (an easily understood alternation of unlike parts), lion heads and masks that punctuate garland decorations in the cymatia of Greek entablatures, Renaissance balustrades, and especially aspects of barbarian styles as found in Hindu, Arabian, and Gothic architecture. This intercalation is conducive to the romantic mood and has a more painterly-musical effect, while simple and alternating eurythmy corresponds to plastic beauty.

Because intercalation is more painterly than plastic in its effects, it is especially recommended in polychrome representation and as surface decorations for carpets, ceramic work, inlaid metal, woodwork, and so on.

More elaborate eurythmic members are appropriate only if a rich confusion or confused richness should appear, such as in curtains, embroidery, fabrics, shawls, and generally in cases where a strict architectural eurythmy would look too dry and stiff.

The beginning of the chapter on textiles will provide details on these and related points. See also the woodcuts in this section and the colored plates in volume 1, which show instances of all the modifications to the eurythmic series.

Symmetry

Eurythmy is closely related not to symmetry but to proportion, because symmetry in a strict sense is only a piece, a fragment of a eurythmic whole that turns upon itself. If one imagines a cut through the earth, the section would be a circular disk, with the objects on the earth's surface arranged on the outer edge in radial formation directed toward the globe's center. A piece of the earth's meridian, which the architecturally disposed mind sees as eurythmically arranged, is a symmetrical series. It pleases only because we recognize its relation to the general, which lends static support to the individual phenomenon. Unlike regular crystal forms that completely isolate themselves from the universe and are true microcosms, symmetrical forms are not sufficiently consistent in themselves for their form to express the possibility of their existence.
Semper

beyond the world. Thus they do not have the kind of lower-order perfection that regular enclosed figures have, yet these are the forms in which organic nature is clothed, thereby complying with a higher principle of working together as a unit. Those gracefully rigid snow crystals that were so instructive for the rhythmic law and its relation to proportion are no longer sufficient for understanding the principle of symmetry. The latter’s true meaning and great diversity appear in combination with proportion for the first time in plant forms.

In this respect it is remarkable that both the beginning and the end of a plant’s life are represented by self-contained microcosms: globelike plant cells, flowers, fruit. But a plant has a macrocosmic relation in its growth; accordingly, a life evolves simultaneously that operates in conflict with this macrocosmic relation as a principle of formation, that is to say, as the principle of proportionality.

The application of the law of symmetry to plants is best dealt with separately.

The plant, considered as an individual and as a whole, grows vertically from its seed along the earth’s radius. Maintaining this direction depends on the distribution of the mass of branches, leaves, flowers, and fruit around the stem or, where there is no stem, around a vertical line that defines the center of gravity to achieve overall balance. This order is therefore eurythmic, and its principle derives from the planimetric property of the ground plane, which resembles a starlike crystal formation. Only in its vertical projection, that is, on the retina of the observer’s eye, is the image of the plant symmetrical. The vertical arrangement of the parts of the formation (the placement of branches on a tree) is independent of the law of balance to the extent that equilibrium is not affected by whether a ring of branches, balancing each other relative to the stem, grows from the stem at a high or low point, over or under equally balanced systems.

It follows that in all plants, and in all natural and artistic forms that obey the same regular order, there is no symmetry in the form of vertical extension.

The plant as a whole is actually symmetrical only to the eye; in reality it is eurythmic. Actual symmetry appears in the individual parts of the plant according to an inherent order that is very instructive, even if its details are not easily resolved.

A branch may grow out of the stem at right angles without bending toward the horizon. It may branch out and its twigs terminate in leaves divided like ferns, whose parts again consist of small leaves. Each part of the tree, when taken individually, demonstrates a subordination to the whole in the symmetrical arrangement of its lesser parts.

The stem, taken as a whole, is to the branch what the earth is to the stem: namely, its closest macrocosmic relation, evident in the uniform distribution of branchings and in the massing of leaves on the branch with regard to the stem. At the same time, the branch directly relates to the center of the earth, with which it should comply in the arrangement and distribution of its subor-
dinate members. Horizontal branchings, because they fulfill this dual condition, are no longer distributed eurythmically around the branch (as was the case with the main stem, which simply related to the center of the earth), but symmetrically, with a horizontal symmetrical axis intersecting the branch at right angles. For twigs, leaves, and leaf parts, each considered as an entity, the same dynamic law always applies. Thus the determinants of symmetrical form are twofold: specifically, the relation to the point from which the individual part grows, and the general relation to the earth by virtue of the attraction of masses and gravity. Each of these parts has only one symmetrical axis, always horizontal and directed at right angles to the part from which it grows. For instance, the symmetry of a leaf, when projected as a line on a sectional plane, intersects the stalk at right angles and runs parallel with the main stem (which is vertical). In the same way, the arrangement of leaves frequently differs according to the type of the plant, but it is always symmetrical around the twig, and again according to the law of horizontal and linear equilibrium. It follows from this that a twig and its leaves must form a plane, like the leaf.

Trees that branch out horizontally, like cedars, acacias, and beeches, exhibit this symmetrical arrangement. But the natural law becomes more complex when the plant shows a different radiation principle—for instance, when the branches of poplars and cypresses grow out of the stem at acute angles.

Here the symmetry of the branches with their twigs and leaves again approximates the planimetric eurythmy of the main stem, yet without being present in a pure form. The attempt to produce an equilibrium of mass and symmetry under such complex interrelated circumstances spurs nature, with its inexhaustible forms, to the infinite variety that the plant world offers; here we intuit rather than see the law of symmetry working with proportionality, more or less spiraling its way through it. This is partially responsible for the romantic charm that plants have for us.

Although the animal kingdom is infinitely freer and richer in its creations than the botanical world, its formal properties are also more apparent and more distinct in their elements.

The kind of symmetry considered so far is planimetric; with animals it is
found only in polyps, radial animals, and so on. The symmetry of higher animal forms is never planimetric, as with plants, but linear. In highly developed animals, sections taken through any of the three main axes of spatial extension, or projected onto them, are never completely regular. The linear symmetrical axis of vertebrates and humans is a horizontal line that meets the directional axis (which will be discussed below) at right angles. Yet animal forms are not subject to the laws of symmetry, either from below upward or from front to rear—the former for the same reason as plants, the latter for a very similar one.

It would be possible to pursue the law of symmetry even into outer space, in relation to the different levels of macrocosmic dependence of celestial bodies on one another—but this would take us too far from the point.

Proportionality and Direction (Unity of Movement)
The principle of proportion can be observed first in radiating enclosed crystals, where the individual radii at times appear articulated. This articulation seems to follow a definite law that is expressed differently according to the nature of the crystallized fluid and circumstances.

As was noted, we can observe such forms in some of the snow crystals illustrated on page 84.

But the law of proportionality emerges as far more developed in organic forms.

We must assume that a definite force is at work in the development of vegetal and animal organisms, which to some extent operates independently of the general forces of nature (attraction and repulsion of masses, etc.), on the one hand, and of the will power of living organisms, on the other. This force comes into conflict with both, however, and the life of organic forms depends entirely on the felicitous resolution of these conflicts.

In this struggle of the organic vital force against matter, on the one hand, and will power, on the other, nature produces her most glorious creations. This can be seen in the beautiful elastic curve of a palm, whose majestic crown of leaves reaches vigorously upward while bending to the general law of gravity overall and in its individual parts (the leaves of the crown).

This struggle is even more vigorous in organisms gifted with volition, for example, in Artemis or Apollo as depicted in antique art. Here freedom of will and movement are in balance with the requirements of mass and of life—the greatest diversity brought into unity that the earthly mind can possibly conceive.

The vital force (or if one prefers, the physical force of growth), though it works in all directions, tends to follow one main direction, which in plants is generally directed vertically against the force of gravity. In most animals it is defined by the dorsal vertebrae, which are in most cases arranged horizontally, and thus it coincides with the direction of the will. With humans it is again vertical; it does not coincide with the direction of the will but forms a right angle to it. Therefore in organic formation two or three forces are active,
depending on the evolutionary stage of the organism. In line with mechanics, we might postulate special force centers for them.

The most generally active among these is the effect of mass, which is sometimes most evident as gravity, at other times as vis inertiae [inertial force]. Normally working against these are two other forces: organic vital force and will power.

Plants are rooted in the earth and have no will power, only a vital force whose center may be imagined at the zenith of an infinite projection of the vertical line that forms the living axis of the plant. It combines with gravity, which we project into the center of the earth, and operates along the same vertical line but in the opposite direction.

This conflict (which still exists even after the equilibrium of mass has been achieved) in part conditions the proportions of plants,\textsuperscript{12} which are independent of the laws of equilibrium because, as already noted, equilibrium is not affected by whether a complex of masses that balance each other branches off the stem at a high or low point, over or under other, equally balanced systems of branches.

It static equilibrium has no direct influence on the proportional formation of plants, stability remains an important determinant. Conoid form best accords with this principle of stability, which emerges from and is modified by the inner principle of plant growth, as well as by other very complex causes still largely uninvestigated. In fact, this tendency to conoid (flamelike) termination is always evident throughout the infinite variations that nature displays in the plant kingdom.

The law of proportion in the animal world is even more difficult to comprehend and more complex. Here proportion is twofold: every animal has it, first, from below upward and, second, from front to back.

As with plants, proportion in the first sense must again express the resolution of a conflict between gravity and the opposing tendency of organic life toward upright formation.

Proportion from front to back indicates a similar conflict and also consists of the resolution of two opposites. This conflict takes place between movement, as a manifestation of free will, and resistance of mass, and as a manifestation of vis inertiae and the resistance of the media.

According to the law of inertia, those heavier masses and parts of the form most affected by gravity (and therefore in conflict with the vertical force of growth) also oppose the direction of the will, depending on whether the will seeks to start or stop a system’s movement. In addition, there is a second manifestation of material resistance that occurs—resistance of the medium, be it air, water, earth, wood, or any medium suitable for animals capable of moving on their own. These material effects always take place along the axis of movement but in the opposite direction of the movement itself. And the animal form that under specific conditions (independent of this question) best weakens and moderates the two opposing tellurian forces is the one that is best directed.

In this regard symmetrical equilibrium relates to proportion in the direction
of movement\textsuperscript{13} (fitness of direction), analogous to the way in which symmetry (dependent on gravity) relates to vertical proportion, as in plants. For inertia and medium resistance must be balanced around the axis of movement, so that no involuntary deviation from the uniformity of direction occurs as a result of unbalanced distribution of masses with regard to the axis of movement (which is normally assumed as horizontal). The arrangement of parts along the direction of movement, however, would not be affected at all by this principle, for the reasons stated above. Stability is superseded here by another basic condition of formal fitness—namely, mobility, or capacity for movement, together with speed of movement.\textsuperscript{14}

With many lower animal forms, such as worms, the life axis coincides completely with the axis of spontaneity. Like plants, they have only two attributes of form: symmetry, which in section appears as planimetric symmetry (feurhythmy), and unity of movement. They almost always lack vertical proportion entirely or nearly so.

Higher animals, such as quadrupeds and birds, form a very complex intermediate class between this scheme and human beings, in which all three axes of formation—the axes of symmetry, proportion, and direction—are clearly distinct from and at right angles to one another, following the coordinates of spatial extension.

Art, like nature, displays a similar variety of combinations but cannot exceed nature's bounds by an inch; its principles of formal configuration must be in strict accordance with the laws of nature.

On the Principle of Authority in the Origin of Natural and Artistic Forms

Authority is a term Vitruvius uses in several places (perhaps referring to a Greek author since lost whose terminology he translated into Latin as best he could) to express something for which there is no equivalent word in the German language. It means the emphasis given to certain formal components of a phenomenon that stand out from the rest, thus becoming what one might call the chorus leaders within their realm, the visible representatives of a unifying principle. The remaining elements of the plurality, unified in formal beauty, relate to the authorities as resonant, modulating, and accompanying tones do to the keynote. According to the theory developed above, there are three formal authorities, namely,

1. eurythmic symmetric authority,
2. proportional authority,
3. directional authority.

A fourth authority of a higher order can be added, that of content. It consists of the dominance of one of the three modifications of beauty in their combination.

Eurythmic Authority

As I have shown, eurhythmy is either stereometric or planimetric symmetry. Stereometric regular forms include the sphere and all regular polyhedra down
to the tetrahedron; universally symmetrical without symmetrical authority. Such authority occurs only in the ellipsoid and the oval, the hexahedron or dual tetrahedron linked at the base, in the prism, the pyramid, and so on, in the form of regular inequality of particular dimensions.

Snow crystals, flowers, plants, and trees generally show planimetric symmetry (eurythmy in the true sense). With these natural forms the effect of the law of authority is evident in the concentration of parts as close as possible to the center of the regular figure, around which they rotate, radiate, or partly rotate and partly radiate. Contrasts of color between the pans closest to the center and other parts emphasize this effect.

The Memorial
Early humans, even with their dim artistic sense, already understood the isolated unit (in contrast to the eurythmic series that surrounds it) as a symbol of authority and of wholeness, which they applied in the right places with admirable instinct.

The crudest effort to adorn oneself arises in part from this darkly divined principle of authority. The adorned is a memorial to adornment. Frequently the ideas of holding and holding together attach themselves to such a memorial, materially and at the same time symbolically, as with an agrafe.

The memorial was used very early as a monument, to designate a consecrated place. Originally it was a mound. Memorials of this kind, usually burial places of fallen warriors and leaders, are the oldest monuments to be found almost anywhere on the earth. The architecture of the memorial appears already well developed in the tombs of Gyges and of the Tantalids near Sipylos in Phrygia and in similar works in Greece, Italy, and Sardinia; it is more developed in the terraced pyramids of Central America and Assyria; petrified in the Egyptian pyramids; refined in the tombs of Mausolus, Augustus, and Hadrian. The memorial is also used in games as a sign and goal with suitable allusions.

An interesting phenomenon is the combination of two elements—the multiple series and the unified memorial—into a monumental overall effect by surrounding the unified element with rhythmically arranged circles of stone, a tangible illustration of pluralities merging into a unity. Such a combination presents the memorial as a unified idea opposing plurality, which becomes a unity itself through the peripheral rhythmic sequence, and at the same time contributes powerfully to strengthening the authority of the memorial. Examples of stone circles with menhirs at their centers are found at Carnac, Avebury, Stonehenge, and many other places.

Symmetrical Authority
Linear symmetry is prominent in leaves and branches considered in themselves, in animals and humans, and in most works of art, especially in monuments. Governed by the law of equilibrium, it consists of a distribution of elements of the whole in a horizontal arrangement around a vertical axis, at
right angles to the direction of movement. *This axis is the seat of linear symmetrical authority.* It is emphasized by mass, by relief, by elevation, by the richness of ornamental decoration, by color contrasts, or by all of these together, so that the remaining elements of symmetry that accompany the emphasized part simply resonate in unison. It represents, so to speak, the gravitational center of the earth around which these parts rotate. By careful choice of symmetrical authority, art is often successful in disregarding the strict symmetry of all parts, as its enforcement is in many cases incompatible with demands of purposefulness and character.

**Proportional Authority**

This authority never appears independently, never on its own, but either in combination with macrocosmic authority or jointly with it and directional authority.

In combination with macrocosmic authority, it appears as a characteristic of radially arranged phenomena that have either grown directly from the womb of the earth at its base or have branched out from the main stem.

These radially arranged phenomena show the polarizing activity of two counteracting forces along one and the same vertical (or more generally radial) axis of configuration. Both activities or forces are in conflict, and this conflict should be reflected in the phenomena in such a way that the resulting dynamic equilibrium becomes evident at the same time (see above).

As a reflection and representative of macrocosmic activity, the *base* of the proportional system is first brought to bear in such phenomena.

As a reflection and representative of individualistic growth (in plants, for example), the *dominant part* of the system emerges in that same proportional phenomenon, specifically at the top at first. Mediating between the base and dominant part is a neutral and supporting intermediate part that shares the attributes of both of the above-named authorities equally and resolves their opposites.

The *base* corresponds to the telluric (generally macrocosmic) unified element that it reflects, either through inert mass, simple articulation, and dark colors or through columnlike multiplicity, load-bearing capacity, and virtual resilience.

The *dominant part* corresponds to the opposite, microcosmic, unified element that it represents by its rich articulation, adornment, concentration of all the characteristics of its individuality, splendid and bright colors. In mass and especially in height it is the smaller of the two and always has the character of something borne and crowning—a head.

The *intermediate part* has the dual character of *supporting* and *being supported*. In its bearing and color it is a mixture, or rather a double reflection and resolution of the formal particularities and colors of the base and dominant part. It forms, *virtually at least, the proportional mean between the two extremes*, so that the base is to the mediating part what the latter is to the dominant part.
Naturally only deviations from the strict principle endow proportion with character, which has as many solutions as nature itself.37

Things become more complex where the proportional axis is not rooted but moves freely within a medium along its own directional axis, a condition that in the foregoing was noted as the second possible combination. This is the case with most animals that move horizontally on the earth, in water, and in the air. The fish is the simplest example of this combination. The goal the swimming fish pursues, whether it is a prey or any other desired object, is a point of attraction that exerts a force quite analogous to that which the center of the earth exerts on the tree or on any other vertically directed form. But gravity opposes a tree's growth, whereas with the fish the direction of will and direction of life (of the spinal column) are not opposites: both strive uniformly forward. Therefore, no conflict of forces takes place in this instance, and the law of tripartite division no longer applies (see above). The authority here is a dual one: the head of the fish represents both the microcosmic principle of unity for individual existence and its movement.

Thus far the proportion of the fish is indeterminately two-part: a head with a tailpiece that becomes indeterminately spool-like toward the rear.

There are, however, other determinants of form that give the incomplete phenomenon the character of self-containment and unity: the general law of the inertia of masses and of the resistance of the medium in which movement takes place. The fish's shape must yield to and reflect these macrocosmic influences. This is achieved by means of imaginary sectional planes that pass through the axis of direction at right angles and increase in size from front to back according to a law that cannot be elaborated here, continuing to increase up to a point on the directional axis where they reach their maximum size. According to another law, the sectional planes decrease in size beyond this point. Unlike the head, the greatest diameter of the fish is a reflection of these macrocosmic influences.

But gravity also influences the proportional formation of the fish; its sectional plane, wherever it passes through the longitudinal axis at right angles, is symmetrical in width. In height, however, it conforms to the principle of upright formation and is proportioned like a spindle or a flame. Macrocosmic influences, we may conclude, operate less distinctly than they do in cases of upright formation.38

Directional Authority
Like proportional authority, directional authority is never active on its own but only in combination with the macrocosmic and symmetrical authority, or with that authority and the proportional authority as well.

The latter case was discussed in the previous section; the former is most evident in human beings.

just as the head of the fish clearly and distinctly mirrors the convergence of two principal axes (the living axis and the directional axis), so the human head expresses intelligibly the normal position of these two axes at right
angles to each other. It is the high symbol of absolute free will, equally independent of self-preservation and material constraints.

**Content Authority**

The three above-named authorities, as representatives of the three unifying principles of the lower order, form again three groups of a higher order that should act together in a higher unity. This is the *unity of purpose or unity of content*, which, depending on the level of perfection that nature and art allow, is manifested as *regularity, type, character, and* — at its highest power — *expression*.

To bring about this unity of a higher power, the principle of *subordination* (of authority) is again active in the same way it is active in the lower regions of creation.

Thus it happens that in art, as in nature — now through crystalline *regularity*, now through the dominance of *symmetry*, now through exceptional proportional development, and finally through special emphasis given to direction — the idea becomes manifested in a clear and distinct way.

Thus we find again in certain architectural works the eurythmic isolation of crystals and other perfectly regular forms of nature.

Examples include grave mounds (tumuli), Egyptian pyramids, and similar monuments; they are developed uniformly on every side without true proportional or directional organization. For just this reason they are very expressive as perfect microcosms existing only for themselves, as symbols of a universe that knows nothing outside itself, as memorials to world-renowned and world-conquering leaders.

*Symmetry* prevails in some works of architecture that belong to the class of memorials, although they have a front and rear. In other cases, the *proportional authority* dominates, for example, with high domes or still more emphatically with towers whose symmetry and direction are overmatched by the proportionality of the ascending forms. They are therefore significant symbols of heavenward striving. In a similar way, a *directional organization* is the leading principle in many works of the technical arts and architecture. One example is a ship, which because of this capacity for movement can be developed to a particularly high artistic level — a fact fully realized in antiquity, the Middle Ages, and the Renaissance. The same is true of winged battle chariots.

Even in monumental architecture the directional principle now and then prevails over the other requirements of beautiful, closed form. Examples include Egyptian processional temples and the — similar to it in this regard — Roman Catholic basilicas of the thirteenth century.

Yet in the Greek temple, in its most perfect splendor and great freedom, unity of purpose stands out much as it does in humans — in its purest harmony! Athena’s crowning pediment embodies, like the visage of this goddess, the dominance of proportion, the quintessence of symmetry, and the reflection of the approaching sacrificial procession.
Notes

1. An expression that, through its pleonasm, indicates the folly of modern artistic conditions so vividly that I am retaining it. It asserts that there is a broad gulf, unknown to the Greeks, between the so-called minor arts and the so-called high arts.

2. [Carl Friedrich von Rumohr's expression to describe the independent mental activity that makes possible the full conception and apprehension of beauty and creation in art without the mediation of the critical intellect.

3. Bavaria has an ordinance (I do not know whether it is enforced), passed by the artistically learned King Ludwig, according to which no engineer or architect may enter state service without having passed the gymnasium examination.

4. Did it take long for the masters of the great period toward the end of the Middle Ages to learn to use linseed oil to bind paints, to replace older processes they found too restrictive? Did it take long for the West to rediscover the secret of applying enamel to faience, which the Persians and Saracens probably had long known from antiquity? Not exactly exemplars of Western knowledge and science, [Jan] van Eyck, Luca della Robbia, and [Bernard] Palissy did know how to apply their own discoveries artistically.

By comparison, how few modern painters are masters of the means and refinements in paint offered so profusely by chemistry. We see (completely ignoring actual artistic matters) the deformation, whitening, and cracking of paintings after only a few years, whereas those pictures by Italian and Flemish old masters are immortal in these purely technical respects. Even though they may have darkened and become thickly covered with the sediment of the centuries, they nevertheless maintain their condition and indeed may even have improved with age.

5. The use of architectural competitions, which is catching on everywhere, greatly encourages this unfortunate separation of architecture as an art from working practice and it is (at least in its present arrangement) one of the leading causes of architecture's decline.

6. The danger in continuing with Renaissance architecture, which along with the painting and sculpture of the cinquecento is unsurpassed, is that it—unlike Gothic—is incomplete and allows further refinement, and in fact can be practiced only by a truly artistic hand. Yet when done hastily, as we nowadays demand, it degenerates into the most trivial vulgarity of form. The so-called Gothic style, by contrast, insists on uniformity in richness, which makes the difference between the noble and vulgar less striking. Even the kind of taste that can perceive these differences is still fairly un receptive to them because of the novelty of taking up this style again.


8. Words of a poet and connoisseur:

Speculative aesthetics, which is widely practiced, is almost as harmful for the artist and builder as it is for the viewer of art. This aesthetics lacks a concrete understanding of beauty. It may have generated much artistic rhetoric but little artistic sensitivity. It has not found the source of formal beauty; as a rule it has to be content with distilling only the abstract spirit of the idea from the full grape.

Since art has been placed under this speculative control, the sense for creating a beautiful space has not revived, nor have the nerves become more receptive to the vis superba formae {sublime power of beauty}. Direct intuitive thinking is by no
means encouraged by this aesthetics. Speculative aesthetics finds its support in the inability of so many people to find pure enjoyment in beauty as such. It feeds this inability by translating what is intended for the eye or the ear, in transforming art into nonart, forms into concepts, the pleasure of beauty into God-knows-what kind of pleasure, and artistic jest and humor into pedantic seriousness. But if form, color, and quantity have to be reduced to categories before they can be correctly perceived, if the sensual as such can no longer make sense, if the bodily, as in this aesthetic, has to be disembodied in order to reveal its wealth — doesn't art lose its reason for independent existence?

Much could also be said about art journals, which more or less echo speculative and aesthetic handbooks. They also overemphasize material interests. The what dominates the how, opinion, the appearance.

Thus speculative aesthetics in many respects recalls natural philosophy. Exact science will succeed natural philosophy in the same way that empirical aesthetics will succeed speculative aesthetics.

9. Art has the same goal as religion: namely, relief from imperfect existence, the forgetting of earthly woes and struggles with an eye to perfection. But the two are opposites in that faith, through the mystery of miracles, immerses itself in the inexplicable, in formlessness, whereas art gives form to the formless and lets the miracle in a work of art seem natural, indeed necessary. In the same way, the instinct of knowledge and the urge for truth are a third form of the same striving for perfection. But here the goal is unattainable; the realm of the unknown stands in contrast with the circle of what has been explored in that it yields no formal support and quantitative standard — both of which are partially granted to the work of art in its external aspect. Thus science will always remain imperfect and incomplete in terms of form. Knowledge does not satisfy, only the striving for it does. Yet the highest in art, as long as it becrays inadequate skill and an unfulfilled wish, must be inferior to the most limited work of art— when the latter is consistent with the fully attained goal of striving for perfection that lies at the heart of every work of art. Both religion and philosophy leave their sphere, indeed surrender their true nature, when they accept the art-form. Such a unity of the three manifestations of spiritual striving, however, offers the most favorable conditions for artistic creation, which was the case with the Greeks.

10. Christian architecture very early abandoned the simple column rhythm of antique buildings in favor of the intercalation of alternating columns and piers, certainly as much for aesthetic as for structural and liturgical reasons.

11. This law is especially evident in the plants of the primeval world and their surviving descendants: ferns, horsetails, palms, and so on. Later plant types more often show a balance of masses instead of symmetry.

12. Only partially, because the plant's organs and their mutual relations are first conditioned by their purpose, as tools of nourishment and reproduction.

13. This proportion in the direction of movement or will is different in principle from a proportion in the direction of vertical formation, for which reason it forms a special category of formal beauty. But clearly there is a far closer relation between both than between each of them and symmetry.
Here an example from the heavenly dynamic might be permitted, in which the author believes he recognizes the close link between proportional formation and motion formation, as well as the relationship and the difference of the forms resulting from both of them. It is generally accepted that a comet's tail is an atmosphere that is created by the partial evaporation or burning of the heavenly body when it is close to the sun. This tail is thus affected in shape and direction by two conflicting forces, very similar to or even the same as those mentioned in the text.

If the star were suddenly to stand still when close to the sun—that is, if its movement around the sun ceased—the burning caused by the sun would produce a flame like that of a burning candle. The lighter, heated, and glowing exhalations would penetrate the noncombustible medium that surrounds the core and fills the universe, in the shape of a flame. The direction of this emanation, both luminous and illuminated, would be a straight line running from the sun through the star. But the movement of the comet is added as a form-determining element, through which the axis and shape of the tail undergo a change. It takes the form of a curved, widening bundle of light, with the lower part nearest the core turned away from the sun radially, a form that can be constructed graphically. This direction is probably also modified by the resistance of the ether in which the comet floats, in explanation, let me insert the graphic representation of the path of the comet of 1680, from [Isaac] Newton's third book of the Principia philosophic naturalis mathematica according to which its tail, at various observed points in its orbit, corresponds exactly with the hypothesis in form and direction.

Before coming close to the sun at point i the tail is short and bent in a very weak concave curve against the axis of the orbit, because the curvature of the part of the orbit that the comet had previously described was only slight and the emanations of vapor proceeded very slowly. The part of the column between i and k emanated from the core when it was passing through the section of orbit between k and ;; while the upper part of the tail consists of vapors that had previously been emitted by the star beyond k. But at the other side of the perihelion at m the vapor column is very long and the preceding section of orbit is sharply curved. Therefore the vapor column (whose upper regions consist of parts that the comet emitted in the direction of the rays of the sun when it found itself on parts of the orbit through which it had traveled long before) is strongly curved, and indeed at the point dictated by the construction, with the convex side against the axis of the orbit. If one divides the tail md into four sections, then the lowest belongs to those points on the orbit between m and a; the second section radiates from the comet between a and b'; the third emanates from the region between...
$b'$ and $c'$; the fourth, coming from the region closest beyond $c'$, is identical with the central section of the tail during the comet's period at $u'$, and so on.

14. On this complex theme, which cannot be expounded here, see my publication Über die [bleiernen] Schleudergeschosse der Alten (Frankfurt am Main: Suchsland, 1858).

15. See the author's essay "Über [die formelle Gesetzmässigkeit] des Schmuckes," published by Meyer & Zeller in Zurich in 1856, both as a brochure and in the Monatschrift des wissenschaftlichen Vereins in Zürich, no. 3.

16. Both tombs and performance memorials. The surrounding stone circles are the prototypes for circuses, stadia, amphitheaters, and other arenas.

17. See the essay on adornment cited above [note 15].

18. See the section on aquatic animals in the essay cited above: Über die [bleiernen] Schleudergeschosse der Alten.