BOOK REVIEWS

RUDOLF WITTKOWER, *Architectural Principles in the Age of Humanism*, London, The Warburg Institute, 1949. 144 pages, 41 pls., 10 figs. $9.40.

Dr. Wittkower's rare and admirable gift for finding a new approach to familiar problems is again demonstrated in a book which is certain to have a profound and salutary effect on the study of Renaissance architecture. As the title indicates, his concern is not so much with the history of architecture as it is with the history of architectural thought and, as such, introduces us to books more than to buildings. The books are monuments in themselves—the great theoretical writings of the fifteenth and sixteenth centuries which, though they have always been available, have discouraged the scholar by their bulk and obscurity of expression. Dr. Wittkower has managed not only to overcome the discouragement but to exact from the uncongenial pages a lively and significant commentary on the architecture of the century between Alberti and Palladio. The study of the interrelation of theory and practice is a particularly good idea at this moment, as the architectural preoccupations of the twentieth century have put us all a little out of touch with the Renaissance, and we are very much in need of new modes of making its acquaintance.

But the study of architectural principles has a purpose beyond that of providing new interpretations of monuments, for it gives us a means of understanding architecture in the light of the general culture of its period. It is on the level of ideas that the liberal arts meet on a common ground, particularly in the "Age of Humanism," and it is here that we have the chance to discuss problems in the Fine Arts alongside those in Philosophy, Science, Music, and Literature. The consideration of architecture from this point of view, in addition to the broadening of vision which it provides the architectural historian, has the advantage of making our studies intelligible and meaningful to colleagues in other fields and to an interested non-academic public at large. It is in this sense that Wittkower's book illustrates one of the fundamental virtues of the Warburg tradition, transferring to the study of architecture a historical attitude that has proven its worth in other fields of the Fine Arts.

The subject is presented in a series of four loosely-connected essays, three of which have been published in somewhat different form as articles in the *Journal of the Warburg and Courtauld Institutes*. As each successive chapter involves us in a more-or-less self-contained problem with all the intensity of an article in a scholarly publication, the book is not one to read through at a sitting. This is not merely the result of collecting several studies written over a span of years but is a treatment well adapted to the first sallies into a vast and unexplored area. There is, to be sure, a common denominator: the humanist mind; and in particular, the two minds whose writings and buildings had the widest influence in their period—Alberti and Palladio. But the composition is perhaps a little more formless than necessary and, given the unfamiliarity of the theoretical material, an introduction and conclusion setting the several chapters against the larger background of Humanist culture would have aided us in digesting some uncommonly demanding subject matter.

As may be expected, a study of architecture in the light of Humanist culture puts a strong emphasis on the antique tradition or, to be more precise, on the interpretations of this tradition in their evolution through the Renaissance. It appears here transformed and recreated to serve the theological and philosophical purposes of the fifteenth and sixteenth centuries. It comes as a huge relief that at last this problem should be seriously investigated, for the study of Renaissance architecture has suffered far too long from meaningless generalizations on this theme. Wittkower shows us that it is not sufficient to point out the existence of motifs from the Pantheon, Vitruvian methods or Pythagorean terminology; we must investigate intensively where, when, why, and how these manifestations appear, and what they mean in terms of civilization.

To the study of architecture as a facet of the history of culture Wittkower brings a sensitive appreciation for the monuments themselves. The chapters on Alberti and Palladio, quite aside from opening new historical perspectives, constitute basic reading in the field of criticism.

In the first essay, treating "The Centrally-Planned Church of the Renaissance," Wittkower revives a historical method that has been more-or-less neglected in Renaissance studies of the last fifty years: the typological approach. This method apparently fell into disrepute because its proponents failed to go beyond a primitive analysis of forms into the problems of cause and meaning which constitute the core of the present study.

The great preoccupation of the Renaissance with the central plan is only dimly reflected in the remaining monuments. A large number of central-plan churches have been destroyed; even more were changed into a longitudinal type in the process of execution and uncountable numbers for which plans and sketches remain were never begun. Those which do exist are for the most part off the beaten track, and the traveler can fruitfully spend several weeks among the major cities of Italy without seeing more than two or three. But picking up any architectural text, any volume of architectural projects of the period, one will scarcely find a church which is not a Greek cross, or circular, oval, or polygonal in plan. The apparent contradiction is easily explained: the central plan was difficult to adapt to liturgical purposes and, being a novelty, it was stubbornly resisted by conservative patrons. What has to be explained is the indomitable enthusiasm of virtually every Renaissance architect for a rather impractical and decidedly unpopular form.

The question is usually avoided or, even worse,

answered by some offhand reference to Renaissance paganism or delight in pure form. This is bound to be the case as long as a fundamental source of knowledge is left unexplored: the Renaissance writings on the subject. Wittkower considers first the earliest and richest of these sources, Alberti's *De re aedificatoria.* Here the great humanist and architect takes the revolutionary position that the basilical form, standard throughout the later Middle Ages, is unsuitable to religious building. He substitutes the central plan and, in particular, the circular, allowing as well a limited number of rectangular types. While it is clear that antique sources are at the root of these ideas (the monumental, as represented by central-plan temples, tombs, and so forth, and the theoretical, represented in the tradition of the circle and square as the most perfect geometrical forms), Alberti leaves no doubt that his intention is religious, that he feels an unassailable theological justification for the revolution. Throughout later writings, from Francesco di Giorgio to Palladio, the preference for the central plan is implicitly given a philosophical-religious foundation and explicitly derived from antique sources. The most significant manifestation of the preoccupation with certain geometrical forms is found in the infinite number of drawings and book illustrations exemplifying the Vitruvian principle that the proportions of temples should be derived from those of the human body. By far the most common theorem to be depicted was that the body of a man with arms and legs extended fits into the two most perfect geometrical figures, the circle and square. Wittkower convincingly demonstrates that this *Homo ad circulum* (*quadratum*) has a far deeper significance than is likely to be attributed to it by proponents of the Burckhardtian school. His passages from Pacioli and Zorzi indicate that the symbol was taken as a metaphor for a conception of the harmony of the human body as the microcosmic figuration of the harmony of the universe. The church founded on human proportions and hence, to the Renaissance, on the square and circle, accordingly imitates a celestial architecture. The short survey of central plan buildings from S. Maria delle Carceri on illustrates the realization of Alberti's program in a considerable variety of forms. In Bramante's design for St. Peter's, religious symbolism, ecclesiastical functionalism, geometrical theory, and antique spatial conception are integrated in a form which combines the cross with the circle and square.

The problem posed is to find the means of generalizing from a confusing diversity of evidence on the subject towards a view of the Renaissance concept in the large. We are challenged to evaluate the respective roles of antique architecture, abstract mathematics, Vitruvian theory and interpretation, theological formulations, and plain taste. Wittkower's closing section on "The Religious Symbolism of Centralized Churches" offers an interpretation which brings the varied manifestations into perspective. The Platonic tradition provides the source for the identification of mathematical forms and harmonies with the Godhead. In neoplatonic literature, the figure of the circle as a symbol for God and the universe appears frequently. The rationalized architecture of the Renaissance, seeking, in contrast to the mediaeval, a scientific foundation, linked the practical mathematics of space-control with this symbolic tradition. In a stimulating concluding paragraph, Wittkower proposes that the overthrow of the mediaeval Latin cross in favor of the central plan signifies a basic change in religious thought. He concludes: "[The] Latin cross plan was the symbolic expression of Christ Crucified. The Renaissance, as we have seen, did not lose sight of this principle. What had changed was the conception of the Godhead: Christ as the essence of perfection and harmony superseded Him who had suffered on the cross for humanity, the Pantocrator replaced the Man of Sorrows."

This demonstration of the philosophical and religious background of a particular evolution of architectural form is invaluable. It gives a third dimension to our view of the subject and we are able to come to that rare feeling that we have a means of communication with the architects of those two centuries which are perhaps even more strange to us than the preceding ages. It is to no purpose to ask whether the essay settles the problems it discusses for good and all. Not only is the stuff too complex to be ultimately resolved but to each student it will suggest different answers. It is Wittkower's aim to offer a comprehensible solution in the scope of a limited study. In following the argument, a few divergent paths of investigation suggest themselves which are offered here as a kind of supplementary footnote.

The purposeful theoretical orientation of the study tends to throw into the background the problem of the direct influence of ancient monuments, which is considered only in passing. The author is quite aware of the vast number of ancient central-plan buildings which survived through the Renaissance and were studied with extraordinary thoroughness, but I think that he allows too little significance to the fact that a great number which are now known or thought to be tombs, nymphaea, baths, or actually mediaeval structures, were then thought to be temples. In fact, he has gravely underestimated the number of central-plan remains surviving today which actually were temples, limiting them to three (p. 4 n. 6). It has occurred to me as a likely possibility that the predecessors of Palladio believed that by far the majority of Roman temples were centrally planned. Surely Brunelleschi came to the conception of S. Maria degli Angeli more through visits to Rome than from philosophical or mathematical principles still inchoate in his lifetime. Even Palladio, in the face of Vitruvius, begins the discussion of forms in his fourth book on antiquity with the words, "I tempii si fanno ritondi; quadrangulari; di sei, otto e più cantoni, i quali tutti finiscano nella capacità di un cerchio," following with a justification of the revival of the pagan form, "per servare il *Decoro,*" a Vitruvian term suggesting, among other things, tradition. In short, it is necessary to avoid the implication that the philosophical preference for the central plan caused the Renaissance to deny or distort the evidence of antiquity, for there is ample reason to believe that the ruins them-

selves offered weighty authority for the revival on purely formal grounds. Possibly the elaborate theological justification of the form had in part the purpose of lending an odor of sanctity to the conscious revival of the pagan type. The emphasis on this element of revival in no sense detracts from the central argument.

In making certain references to mediaeval architecture, the author suggests a path of investigation which undoubtedly has some bearing on the problem: the mediaeval central-plan tradition. I find it striking, for example, that ten of the twelve fifteenth century churches of this type cited on p. 18 are dedicated to, or connected with, the Virgin—a symbolism with roots in Early Christian architecture. The fact that the central-plan churches become rare only after the beginning of the Romanesque period may be of significance in tracking down the roots of Renaissance symbolism. A key to the mediaeval tradition perhaps may be found in the pictorial arts which bridge the late mediaeval gap.

Finally, there is the philosophical problem itself. The interpretation of the theoretical position in terms of Neoplatonism is convincing but leaves us with the rather uneasy feeling that we must put together quite different personalities in the same school. Francesco di Giorgio, for example, is militantly Aristotelian in expression and an Aristotelian method of logic is detectable in Lombard theorists in general. Of course, in dealing with the fifteenth century, it is very difficult to draw strict lines between one philosophic tradition and another but something may come of investigating divergences in method after having observed the similarities. It occurs to me that the ubiquitous *homo ad circulum*, a symbol for the Vitruvian system of proportions, suggests the approach to the universal through the particular, rather than the converse. This position is illustrated in Francesco di Giorgio's Prologue to Book III: "Benchè naturalmente ogni scienza sia dagli uomini desiderata, come testifica Aristotile nella sua Metafisica, nientedimeno, oltre alle altre, si pascono nella natural filisofia e metafisica nella quale natural filisofia per le cose sensibili e manifeste si elevano alla cognizione delle intelligibili occulte. . . ." Later, in contrast with Palladio's comparison of the temple to the universe, he refers to the temple as "tutto un corpo artifiziale assimiliato in molte cose allomo." The result may be very much the same but, as the method is different, the diversities may prove to have significance.

The chapter entitled "Alberti's Approach to Antiquity in Architecture" concerns itself principally with the evolution of Alberti's style in its relation to ancient architecture. In spite of the fact that Alberti is anything but an obscure personality, this is the first critical treatment of his buildings in twenty-five years. Scholars have probably been scared away by the confounding scarcity of documents on Alberti's activity. The gentleman-architect neither executed his own projects nor received payment for his designs and, in consequence, about half his work remains to be placed in time; some of it may yet be unidentified. For this reason, this is likely to prove the most controversial chapter in the book, as the reconstruction of Alberti's stylistic development is bound to be built on certain subjective assumptions.

Wittkower treats exclusively the four church façades in a discussion which emerges from an expert analysis of Alberti's theory of the column and pier. The problem posed by the writings is Alberti's indecision about how to reconcile the column with a wall architecture, and how to resolve what he felt to be the inconsistency between the column and the arch. Wittkower sets out to demonstrate the resolution of this problem in the course of the twenty years of building experience which follow the writing of the treatise and to indicate how the evolution toward S. Andrea in Mantua illustrates a gradual change in Alberti's approach to antiquity. The first façade, S. Francesco in Rimini, employs antique elements in conjunction with mediaeval in a quasi-romantic way, and the column as ornament is applied after the fashion of the triumphal arch. At S. Maria Novella the further use of applied columns, here more classical in detail, appears in a more rationalized setting. In the analysis of S. Sebastiano and S. Andrea in Mantua we see the column abandoned for the pilaster, signifying the full realization of the requirements of a wall architecture. For the former, the classical temple front is adapted to suit the requirements of the façade and later altered to a freer fantasy based on the same theme; a change prefiguring the imaginative and subjective dealing with antiquity at S. Andrea.

Now this account has a disturbing quality, for we are bound to ask why just the problem of the column and pilaster should have been chosen as the key to Alberti's approach to ancient architecture? If instead we isolate the plans of Alberti's churches, the evolution with respect to antiquity superficially seems to take almost the opposite direction: from the great (unexecuted) central-plan choir projected for S. Francesco (a problem strangely omitted from the previous chapter; cf. the de Pasti medal, pl. 15a) to the Greek cross of S. Sebastiano and, finally, the Latin cross of S. Andrea. Or, granting the validity of the column-wall investigation, why the limitation to church façades? Certainly the adoption of the pilaster order for the Palazzo Ruccellai has a historical role of inestimable importance; and here there is the intriguing problem of the court arcade: whether it is Alberti's and, if so, why, against his principles, he combined the arch and column? Moreover, the palace poses a chronological problem which must be considered along with the still unsolved dating of Sta. Maria Novella, and perhaps answered with damaging effect to the development proposed.

This particular view of Alberti's development tends, in fact, to prejudice the conclusions that emerge from a stimulating and revealing analysis of the several façades. I am especially attracted by the exposition of the geometrical harmony in Sta. Maria Novella, although I cannot accept the conclusion (p. 41) that "it is the rigid application of this conception of harmony which marks the unmediaeval character of this pseudo-proto-Renaissance façade, and which makes it the first great Renaissance exponent of classical *eurhythmia*."

The geometric theory here made explicit seems to me to be the rationalized offspring of the Gothic elevation *ad quadratum*, which establishes interrelated modular squares within an embracing square. As it lacks the module which connects plan to elevation (Vitruvius uses the lower diameter of the column), the façade is to this extent unclassical. Even a certain Gothic genealogy for the design itself might be suggested by the rear façade of the Florence Badia and the façade of the cathedral of Todi.

The alterations to S. Sebastiano in Mantua which began soon after Alberti's death and culminated in a hideous modernization twenty-five years ago turn the author's attention primarily to the problem of reconstruction. His solution (pp. 42f.; fig. 7) proposes for a preliminary stage in the design a six-pilaster order and a monumental flight of stairs across the façade. For alternate possibilities one might refer to the sixteenth century restoration of the Tor de' Schiavi published by Egger (*Architektur-Zeichnungen der Albertina*, I, Vienna, 1903, fig. 18), in which the temple-front and wall-façade are to some degree merged and where a precedent may be found for an arched entrance into the crypt on the ground level. The stairs are disposed, oddly enough, in the same manner as they are in the recent remodeling, which cannot be said on this account to gain authority. In this connection I would like to cite another document on S. Sebastiano which remains unpublished: a plan remarkably similar to that of Labacco (cf. note, p. 45), with only three doors on the façade of the main portico. It appears on fol. 140 of a sketchbook in the Siena Biblioteca Communale by Oreste Vannocci Biringucci, who, in 1583-1585, was architect to the court of Mantua. While the evidence of the Labacco drawing alone gives full credence to Wittkower's theory that it was copied from an unexecuted project of Alberti, the strong probability that the second drawing was executed in situ supports the conclusion that the two outermost doors were not part of Alberti's program. This would certainly have some bearing on the employment of four rather than six pilasters on the façade, and perhaps on the interpretation of the passage on which Wittkower bases the theory of an early and later design by Alberti. The succinct analysis of S. Andrea demonstrates the combination of temple front with triumphal arch in the majestic portico; an elaboration of the idea of S. Sebastiano. These porticos are fascinating inventions in themselves. One wonders why the concept was put aside in practice, to emerge again only in the more classicised secular buildings of Palladio.

The chapter on "Principles of Palladio's Architecture" faces a problem entirely different from the previous one; while there has been too little investigation of Alberti, there has been too much of Palladio. One would think that nothing remained to be said on a subject which has had a ponderous bibliography over the centuries but how gratifying it is to be disabused as these few pages lead us brilliantly into unfamiliar dimensions. The republication of this work comes on the trail of three recent studies (Pée on the palaces, 1941; dalla Pozza's collection of biographical essays, 1943; and Pane's critical survey, 1948) which, in spite of their considerable proportions and high seriousness, lack the stature of this epilogue. The difference is essentially this: that while these books concern themselves almost exclusively with buildings and documents, which we know well enough, Wittkower introduces us to the architect himself, who has remained buried under deposits of praise. Architecture is of course still the main theme of the study but the unnecessary rehearsal of the characteristics of each building gives way to the establishment of comprehensive precepts which underlie their style.

The study of Palladio's modes of thought and cultural environment in the first section is in itself proof of the validity of Wittkower's approach, for once we penetrate into Palladio's schooling—the circle of Trissino and Barbaro—we realize that his architecture requires this background to give it life. If Palladio had been less of the universal man, the story of his education, researches, and publications would perhaps only have distracted us from the significance of his architecture but as he himself consciously evolved his style as a function of his classical learning, we should by ignoring this discredit both ourselves and him. Palladio's early development under the tutelage of Trissino and the importance of this for the development of his style and theory has been frequently discussed but nowhere so well understood. Less familiar is the relationship with Barbaro, which among other things, brings to hand the Barbaro edition of Vitruvius as a secondary source. In reading this brief sub-chapter, one is constantly impressed by the facility with which a succinct and ingratiating portrayal emerges from a profound and extensive scholarship.

In considering the villas, the author analyzes principally the geometrical preoccupations which give consistency to the various solutions employed throughout Palladio's career. He demonstrates the abstract schemes which underlie the composition of the plans and elevations of these buildings in which the predilection for symmetry is for the first time in Renaissance architecture developed into a principle. Particularly revealing is the discussion of the adoption of the temple front as the basic element for the villa façade.

Oddly enough, the typical Palladian villa, for all its concern with antique principles, is quite unrelated to its antique prototypes. Palladio's geometrical vision carries him much farther from the classical villa than the architects of the early sixteenth century. In contrast, his palaces and public buildings studied in the next section are conceived in a more archaeological spirit than their forerunners of the previous generation. Analysis of plans and façades reveals the balance of two generating forces: the antique house and civic building, and the influence of the Roman palace of the High Renaissance. I am particularly struck by the insight into mannerist method in the passage on Palazzo Valmarana and by the theory on the design of the Loggia del Capitano.

The final section follows the development of Palladio's highly individual solution for the church façade: the intersecting temple fronts. The problem of the church façade had worried Italian architects ever since the late Middle Ages. They were almost psychotic on the subject of Gothic façades, which rarely got executed at all, and one suspects that even in Palladio's time the Roman solution in the tradition of Sto. Spirito in Sassia was accepted as the least of evils. Wittkower traces the intersecting temple fronts suggested by Vitruvius through the Bramante school to Palladio (was he conscious of this background?), and demonstrates in an excellent analysis the sources and genesis of the final solution at Il Redentore in Venice.

If there is any reservation about the study as a whole it is that one fails to sense a logic of construction. The method of treatment of villas and palaces leads one to expect an investigation of church plans, which is absent. The study of the geometry of the villas avoids the problem of their architectural setting, particularly those loggie and wings which lend spatial dimension and movement to the main body. The villa section, moreover, does not consider the question of the relation to, or departure from, antiquity in the genesis of the plans. One feels that too much care has been given to the task of limiting the scope of this piece to the proportions of an article.

One of the directions in which expansion seems indicated is toward the study of Palladio's relationship with his more immediate past. Wittkower convincingly illustrates the influence of Bramante and his circle in the early development of the palace façades, and properly subdues Dalla Pozza's overestimation of the function of Serlio. Michelangelo and Giulio are mentioned in passing. But the period of 1520-1555 deserves considerably more emphasis. Giulio seems to me to be of tremendous importance. Palladio must have studied his Roman palaces, which turn Bramante's bold rustication to a sophisticated pattern laid thinly onto the wall; the Palazzo del Te with Palladian suggestion on every hand (and particularly in the plan, which is so suggestive of Palazzo Thiene); the *Casa* in Mantua. Antonio Sangallo the younger plays his role in monumentalizing the palace entranceway and courtyard and possibly as a forerunner of the early symmetrical villa plans (particularly in the unpublished drawing of a villa for the Cardinal Sta. Croce, Uffizi, *Arch.* 828-829). But his career once under way, the development of Palladio's mannerism shows the support and often the influence of Vignola, Ammanati, Ligorio, and Alessi (for example, the plan projected for the Ca' del Diavolo brings the hemicycle motif into the court in a fashion which must have been suggested by the Villa Giulio).

To put it briefly, the trouble with this chapter is that it is not a book; which, being the converse of the traditional situation in Palladio literature, signalizes the distinguished quality of Wittkower's contribution.

The closing chapter on "The Problem of Harmonic Proportion in Architecture" has a special importance. It is the first general study of the Renaissance theory of architectural proportion; it brings to life what has in fact become a lost science, and it is sound, objective, and convincing. The strict historical objectivity elevates the investigation far above the familiar studies on proportion which exert such a powerful fascination on the mystical mind. The considerable task of introducing the layman (and here almost all of us are laymen) to a complex and completely unfamiliar field is achieved with directness and simplicity and it is the material itself rather than the author that makes severe demands on our concentration.

Those who have read among the theorists of the Renaissance will be familiar with the intimate relationships that existed between musical and artistic theory. The general vocabulary of studies on proportion is borrowed from the musicians, and wherever numerical mathematics are discussed we are confronted with the strange terms of mediaeval harmonics. Observing this phenomenon in the age of specialization, we tend to content ourselves with the conclusion that the relationship was metaphorical or at most constituted a learned effort to be encyclopedic. What Wittkower reveals is that the reasoning which caused the Renaissance to regard architecture as spatial music was not merely figurative but analytic. Proportions in architecture emerged from a theory of harmony identical with the musical and inseparable from it. The justification for the adoption of musical harmonic technique—and it is here that we gain a profound insight into the humanist mind—lay in the fact that it was seen to be prefigured in the cosmic harmony of the universe, which is inherent in nature and may be discovered by experiment. This in fact is the application to the theory of numbers of the same philosophical position demonstrated for geometrical theory in the chapter on central-plan churches. Its roots are in the Pythagorean and Platonic tradition which, while it survived only as a faint echo in Gothic architectural theory, was kept alive in musical and mathematical writings throughout the Middle Ages. To give even the roughest outline of this discussion is not within the scope of a review. Let it suffice to say that it must be read by anyone interested in the theory of architecture and that it illuminates not only Renaissance but mediaeval and post-Palladian architectural thought.

What I find the most exciting portion of the study is the investigation of what the author terms "Palladio's 'fugal' system of Proportion." Based principally on the measurements which accompany the engravings of the *Quattro libri*, it reveals how the Palladian structure is conceived so that the dimensions of the several parts relate to one another and to the whole in such a way that the buildings may be translated into a complex of "tones" producing a consistent mathematical harmony. In addition, it is demonstrated that the architectural method is so sensitive to the development of musical theory that Palladio's divergences from fifteenth century harmony are based on the admission in the first half of the sixteenth century of additional consonances to the Pythagorean law—just the expansion of possibilities which made way for the music of Palestrina.

It is gratifying to be provided at the end of this study with an account of the fate of harmonic proportion in the centuries following Palladio, for on being introduced to a science which had passed unnoticed out of our culture, our curiosity is aroused as to how and why it became a mystery. It is a rare historical irony that Palladio remained the high-priest of architectural proportion in northern classical architecture long after his method had been forgotten.

Now as this discussion concerns theory, it may seem to have only a vague connection with the buildings themselves, especially as the measurements of a great number of Renaissance plans and elevations may diverge in varying degrees from abstract harmonic principles. But I think we may consider that the adoption of the Pythagorean-Platonic system was fundamental to the very technique of Renaissance architecture, for it appears that it was through this system that the fifteenth century learned the mathematical tools required for a new style of construction. The Gothic architects had relied almost exclusively on a debased Euclidian geometry for their mathematical calculations. The adoption of a fractional system of numbers, multiplication and division, in the fifteenth century was evidently accelerated largely by the demands of harmony; particularly the necessity for finding the mean proportionals (described on pp. 96f.). For Alberti, fractional mathematics was a new and still laborious study. He discusses it only in connection with harmony and the proportionals (*De re aedificatoria*, IX, 6): "Hanc arithmeticam mediocritatem perdifficile est ubi vis adinvenisse numeris, sed lineis eadem bellissime explicatur. . . . Tertia mediocritas quae musica dicitur paulo est quam arithmetica laboriosior; numeris tamen bellissime diffinitur." The harmonic vocabulary and method was inextricably tied up with the whole study of numerical mathematics in architecture, a situation reflected in the field of music itself, where it had long since been extended beyond the theoretical study of harmonics into the technique of notation. That the influence of rationalized proportion on technique was accompanied by an even more direct influence on style need hardly be pointed out. In short, Wittkower's clarification of a fundamental precept of Renaissance architecture at once provides a new tool of scholarship and opens new fields of investigation and, whichever way we turn in our studies, it is likely to enrich our perceptions.

Of the book as a whole there is little to be said that does not pertain to its parts. The four sections are linked by the reappearance of individuals, theories, and philosophies. But what makes a unity more than anything else is the author's method, which is the search for general principles beneath the surface of the architecture itself. Wittkower is not the first to make this attempt in the Renaissance field but it can safely be said that he is the first to succeed.

Such a concentration on the intellectual component in artistic creativity may meet with the criticism that aesthetic quality is thus denied its primary place in the history of art. To which it may be answered that the intellectual and the abstract have no more and no less significance for the art historian than they had for the architect of the past. The contribution of this book to Renaissance studies is its demonstration with learning and perception of what this significance is and was.

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JAN-ALBERT GORIS and JULIUS S. HELD, *Rubens in America*, New York, Pantheon Books, Inc., 1947. 59 pages, 120 plates.

Peter Paul Rubens has never been much liked or coveted by the American public. Consequently in the older collections of the United States we find very few of his works. Their absence cannot simply be attributed to the effect of Ruskinian primitivism or classicistic prejudice because during the same period the paintings of Rembrandt were collected very successfully and in great numbers. Rubens had no "soul," had apparently no deep feeling in which one could indulge; on the other hand, he is not a teller of stories by which one might be diverted. The splendor of his colors, the richness of invention, the grandiose fugue of his compositions, the impetuosity of his devotion, even his sensuousness, in short all that is meant by the general term "Baroque," could not easily be digested and appreciated by a society of puritan upbringing; such a society had no conception of the flamboyant architecture of the seventeenth century Jesuit churches or the heavy decoration of the palaces and patrician houses which formed the incomparable frame of the phantasies in color and movement of Peter Paul Rubens. Of course in eighteenth and nineteenth century America, painters and critics did exist who admired Rubens' color technique, as it had always been admired, and considered him a great artist (some examples of this point of view are to be found in the introduction to *Rubens in America*). But the general public and even many true art enthusiasts retained a certain apathy toward Rubens and his work. Even in our day, the public passing through the Viennese exhibition in the American museums looked upon the most famous and remarkable paintings by Rubens displayed there with a certain respect, but without much interest, and probably would have exchanged the whole group of Rubens with pleasure for just one of the Viennese Peter Breughels which could not be sent across the sea.

But the indifference to the art of Rubens cannot be blamed entirely on the American public, for a great part of it is also the fault of Rubens and the works rightly or wrongly presented under his name. The enormous differences in quality among these works do not encourage a just or enthusiastic appreciation of the merits of Rubens. We know of the well-organized and very busy industry practiced by the studio under his direction. In consequence, as is well known, many big "machines" are exhibited as being by Rubens that show the participation of the master's hand only in varying