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Correction

In the last issue of the *Review* (Volume XXXIX, number three) the title of the first essay was printed incorrectly. The correct title of the essay by Joe Sachs is "Antigone: All-Resourceful / Resourceless."

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Bramante and Michelangelo at Saint Peter's

Ralph Lieberman

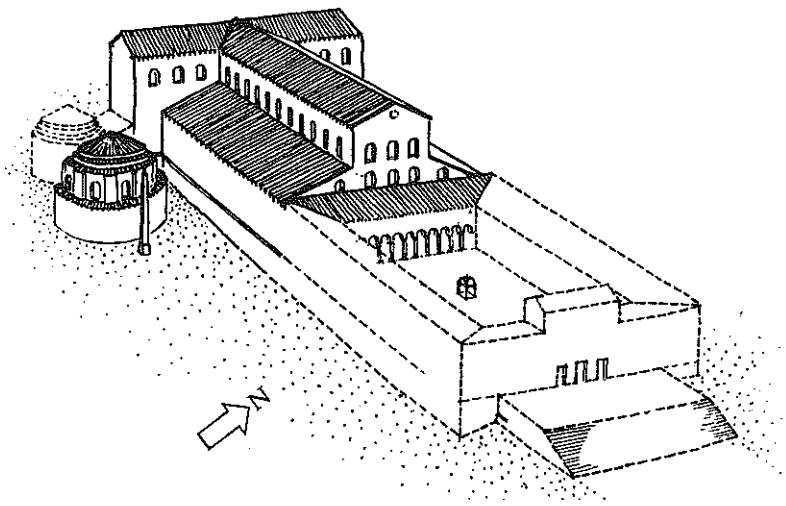
Starting in 1505, and for well over a century after, the church of Saint Peter in the Vatican was the most important architectural undertaking in Europe. Its building history is complex, but nothing compared to its diabolically convoluted design history, which more than one scholar has abandoned in despair. Without subjecting you to an exhausting presentation of the building's assorted design stages, I would like to familiarize you with the nature of the problems faced by the architects of the church, and the architectural historians who choose to study it.

Donato Bramante was the first architect of new Saint Peter's, but his church does not exist — in fact a convincing argument can be advanced that it never did. Nonetheless his first design for it was extremely important. An integral part of a pivotal moment in Western culture, the Saint Peter's project is a perfect crystallization of its time, reflecting in its form and scale, among other things, a dramatic change in the status of the Vatican, a radical break with Christian architectural tradition, a new attitude toward the Papacy, and a response to the fall of Constantinople; the design was the culmination of a half century of highly philosophical architectural theorizing, and the building translated into colossal scale arrangements that had existed previously only in tiny sketches in which Leonardo da Vinci wrestled with the most difficult problems of architectural organization. If we do not consider this complex background, however briefly, we will misunderstand the building and the accomplishments, as well as the failures, of its many architects.

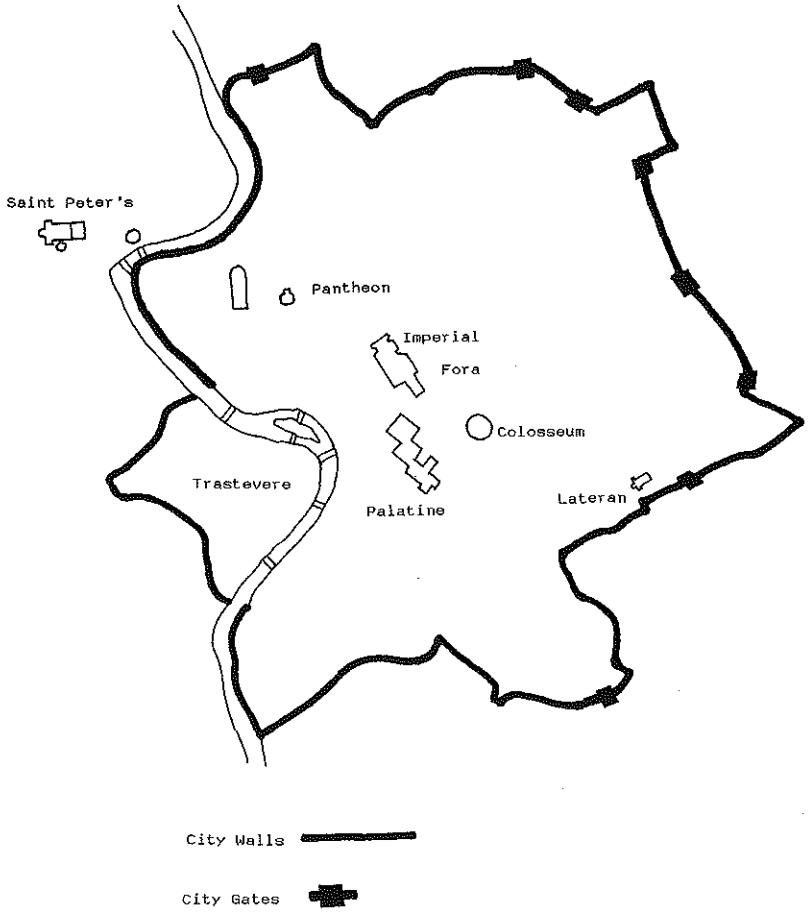
Ralph Lieberman is an art historian who lives in North Adams, Massachusetts, and now teaches at Williams College. This essay is expanded from a lecture first delivered at St. John's College, Santa Fe, in March, 1988. It will serve as a chapter in a history of architecture to be called *Twenty-Six Buildings*.

To put the Saint Peter's problem in context, it is necessary to start at the very beginning of Christian architecture.

Constantine's first donation to the Church he recognized in 313 was some imperial real estate at the Lateran. Saint John in the Lateran is the first church in Christendom and the palace next to it was the first official residence of the Pope and the headquarters of the Curia. In the course of the Middle Ages, however, the presence of the Pope notwithstanding, the Lateran slowly yielded its place as the most important Roman church to the Vatican. There were a number of reasons for this. One is that the tomb of Saint Peter was a major goal of pilgrims, and the basilica that enshrines it, built by Constantine a few years after the Lateran, was the most popular church in the West (Fig. 1). The Lateran, on the other hand, was simply the cathedral of Rome, and could boast nothing to rival the grave of Saint Peter. Another reason is that the Lateran, on the eastern edge of the city and well outside the center of the great imperial capital even in Constantine's day, was farther still from the center of the small town to which Rome shrank in the Middle Ages (Fig. 2). As the city slowly contracted westward



(Fig. 1) St. Peter's around 400 (after Krautheimer).



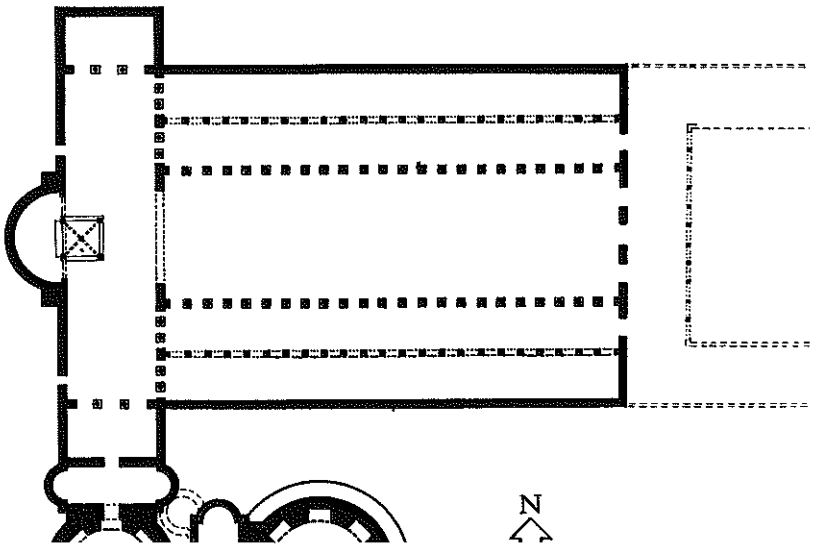
(Fig. 2) Map of Rome showing the Lateran and the Vatican.

into the bend in the Tiber near the Pantheon, just across the river from the Vatican, the Lateran was increasingly remote, Saint Peter's more and more convenient.

For much of the fourteenth century the Popes lived in Avignon, and without the Papal presence the eclipse of the Lateran was accelerated. When the Popes were firmly re-established in Rome about 1420 the Lateran was still their home, but in the late 1440s Nicholas V officially moved the Papal residence, which in effect meant all the apparatus of Church administration, to the Vatican. Saint

Peter, as the founder and first leader of the Christian community in Rome, was the first Pope, and the decision of Nicholas V reflects a strong feeling that the most appropriate headquarters for the Popes was at the Saint's church.

With the Pope and the Curia permanently established next door, Saint Peter's became the Papal palace church. By 1450 the Constantinian basilica was nearly 1100 years old; fifteenth-century surveys of the building revealed weakened masonry, subsiding foundations, and walls tilted out of plumb. Furthermore, the church had no choir — only an apse extended beyond its transept — and was therefore quite old-fashioned (Fig. 3). In the 1450s Bernardo Rossellino began a project for Nicholas V that was to strengthen the Constantinian church, and bring it up to date, by jacketing the entire building with new walls, constructing a larger transept, and adding a choir (Fig. 4). Three walls of the enlarged transept and new choir were to stand outside the old basilica, so work could be started without requiring the destruction of any part of the Constantinian church. We can see what was built of the Rossellino project in drawings by Maerten van Heemskerck that show new Saint Peter's under construction in the early 1530s

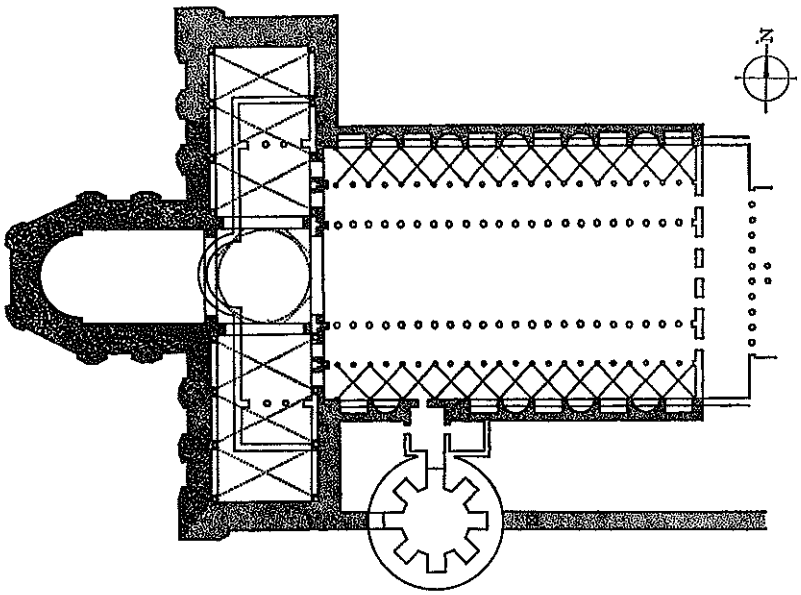


(Fig. 3) Plan of Saint Peter's (after Krautheimer).

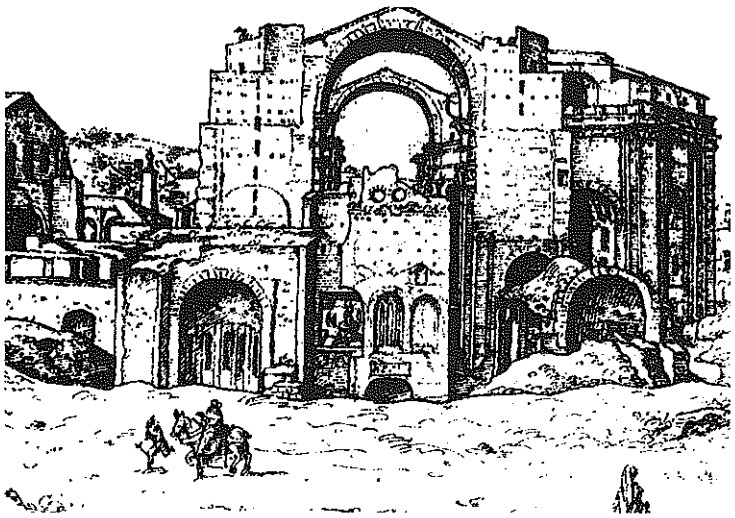
(Fig. 5). In an unanticipated way the Rossellino transept and choir were to be determining factors in the design of new Saint Peter's, for the need to make economical use of available foundations established the dimensions of parts of Bramante's plan (see Fig. 12).

Work on the Rossellino project ceased with the death of Nicholas V in 1455; it was taken up again briefly under Paul II in the late 1460s, but most of the Popes who reigned for the half century after the death of Nicholas V preferred to concentrate their major building efforts on improvements to the Vatican palace, and put off dealing with Saint Peter's because it was going to be extremely expensive, and meant tampering with the Constantinian church.

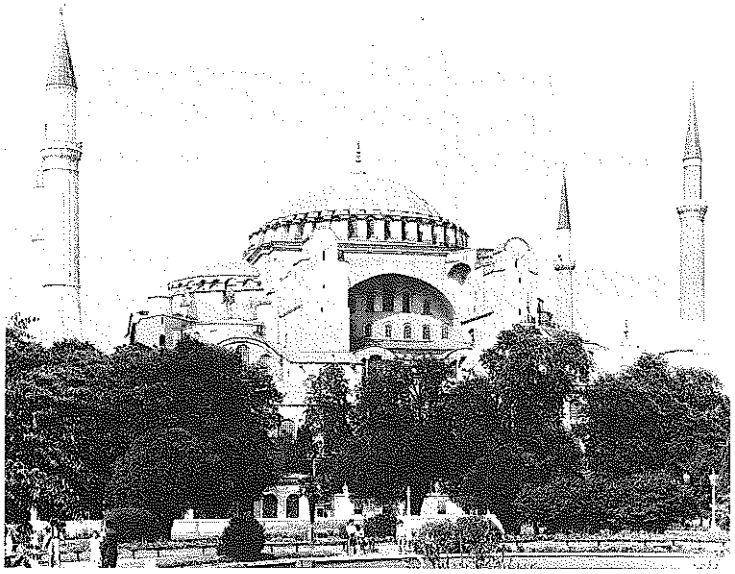
Julius II, elected in 1503, was not a man to turn from hard challenges; he thought in very grand terms and he refused to recognize financial limitations. Around 1505 he decided not to bother repairing or modernizing Old Saint Peter's, ordered the demolition of Constantine's church, and commissioned a new one. Driven by an ambitious vision of Papal Imperialism, Julius had as his determined policy the expansion of the political sway of the Papacy, by the sword if need



(Fig. 4) Rossellino project for remodeling of Saint Peter's (after Heydenreich).



(Fig. 5) Saint Peter's under construction. Drawing by Maerten van Heemskerck. Berlin-Dahlem Museum.



(Fig. 6) Istanbul. Hagia Sophia. Exterior.

be, and he saw himself, by no means inaccurately, as the equal of any European king or emperor. In his reign it was understood that in selecting for himself a Papal name unused since the mid-fourth century, one that inevitably evoked the Caesars, Julius was making a declaration of his ambitions. And he wanted the new Saint Peter's, and for that matter the entire Vatican complex, to be the unambiguous architectural expression of papal power and authority. There had been no comparable imperial church construction for nearly a millennium, not since Justinian's Hagia Sophia (Fig. 6) was built in the 530s. Behind Julius II's Saint Peter's project there may in fact be the specific influence of Hagia Sophia: not its form, but its scale. Constantinople had fallen to the Ottoman Turks in 1453, and Hagia Sophia, the largest building in the world, and surely also the most splendid (Fig. 7), was quickly converted to a Mosque and lost to Christianity forever. It would not have been out of character for Julius II to think that the honor of possessing the biggest building in the world ought to be restored to the Church, and that such a building should be in Rome, over the tomb of the Apostle charged by Christ to found the Church. That the Apostle's church was also the Pope's was a factor as well, for Julius II identified with Saint Peter's in a particularly strong way. He had in mind for himself a very elaborate tomb, commissioned from Michelangelo in 1505, that was intended to stand prominently in the building that was to be his own tomb church as much as Saint Peter's. Furthermore, it may be that with the fall of Constantinople and the end of the Roman Empire in the East, Julius felt that the mantle of Constantine, as well as that of Saint Peter, now rested on his shoulders; by totally replacing one of the two great Roman churches founded by Constantine, Julius quite strategically put himself in a small club of imperial church builders.

In many respects the razing of Old Saint Peter's was one of the most fateful steps ever taken by a Pope. It would be too much to contend that it provoked the Reformation, but the sale of indulgences to raise money for the ruinously expensive project antagonized many people, Luther chief among them, and the increasingly worldly concerns of the Imperial Church, of which new Saint Peter's was the symbol, inspired the Protestant revolt.

For the design of his new church Julius called on Donato Bramante. Born near Urbino around 1444, Bramante was originally trained as a painter, but we know little of his early career. By the late 1470s he was in the employ of the Duke of Milan, and he remained in that city working as a painter — and increasingly as an architect — until 1499, when the French attacked and occupied the city, bringing to an end the brilliant Milanese court.

Bramante is first documented in Rome in 1500, painting a fresco in the Lateran. Very soon, however, he turned his attention exclusively to buildings, and in the years from around 1501 until his death in 1514, he became the most important architect in the capital.

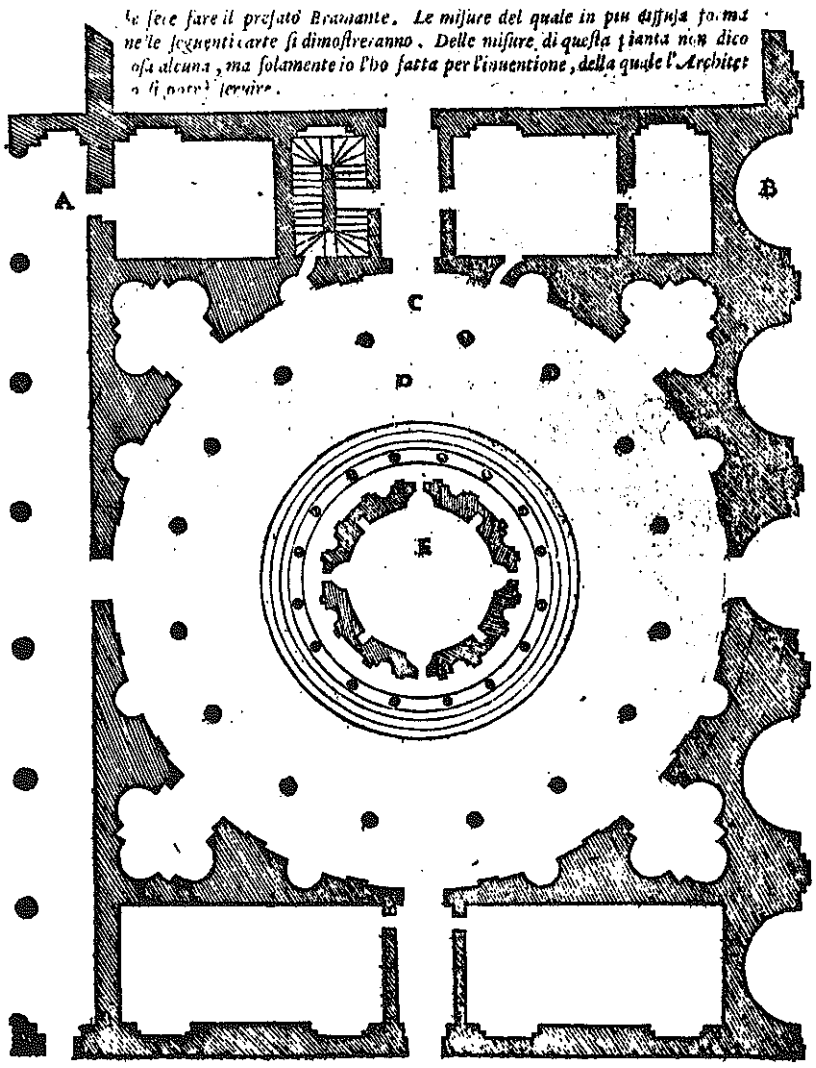
(Fig. 7) Istanbul. Hagia Sophia. Interior.

Nothing in Bramante's Milanese work prepares us for what he built in Rome. In fact, his emergence as the first great High Renaissance architect at the age of nearly sixty is one of the major surprises of the epoch. The change in Bramante's style is often cited as evidence of the power of Rome to stimulate creative artists and bring out their potential. Had he never come to Rome, Bramante would have remained a second-rate Milanese architect; in the last fifteen years of his life, which he spent in the ancient capital, he established, if he did not invent, the High Renaissance architectural style.

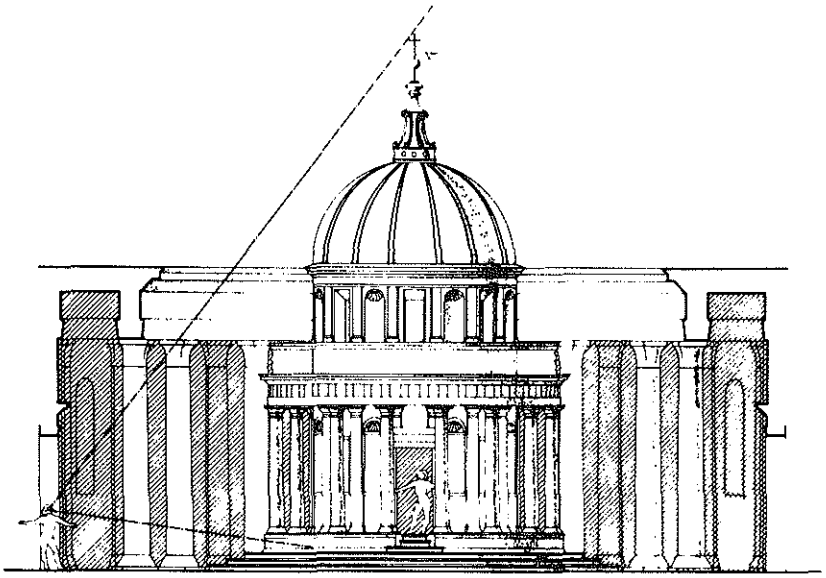
(Fig. 8) Rome. San Pietro in Montorio, *Tempietto.*

The surviving building with which Bramante gave the clearest evidence of his new style is the so-called *Tempietto* (literally "little temple") at the church of San Pietro in Montorio (Fig. 8), on the spot long thought, incorrectly, to be the place of Saint Peter's martyrdom. It is worth a careful look.

Composed of a two-story domed cylinder surrounded by a single-story colonnade, the *Tempietto* is characterized by a bold new treatment of volume. Niches with scallop-shell inserts reveal the thickness of the cylinder walls. The dome that caps the cylinder is raised on a drum in an arrangement that has no precedent in ancient round temples with colonnades. The architect appears to be thinking here of a miniature Pantheon atop a circular Roman temple, for the drum



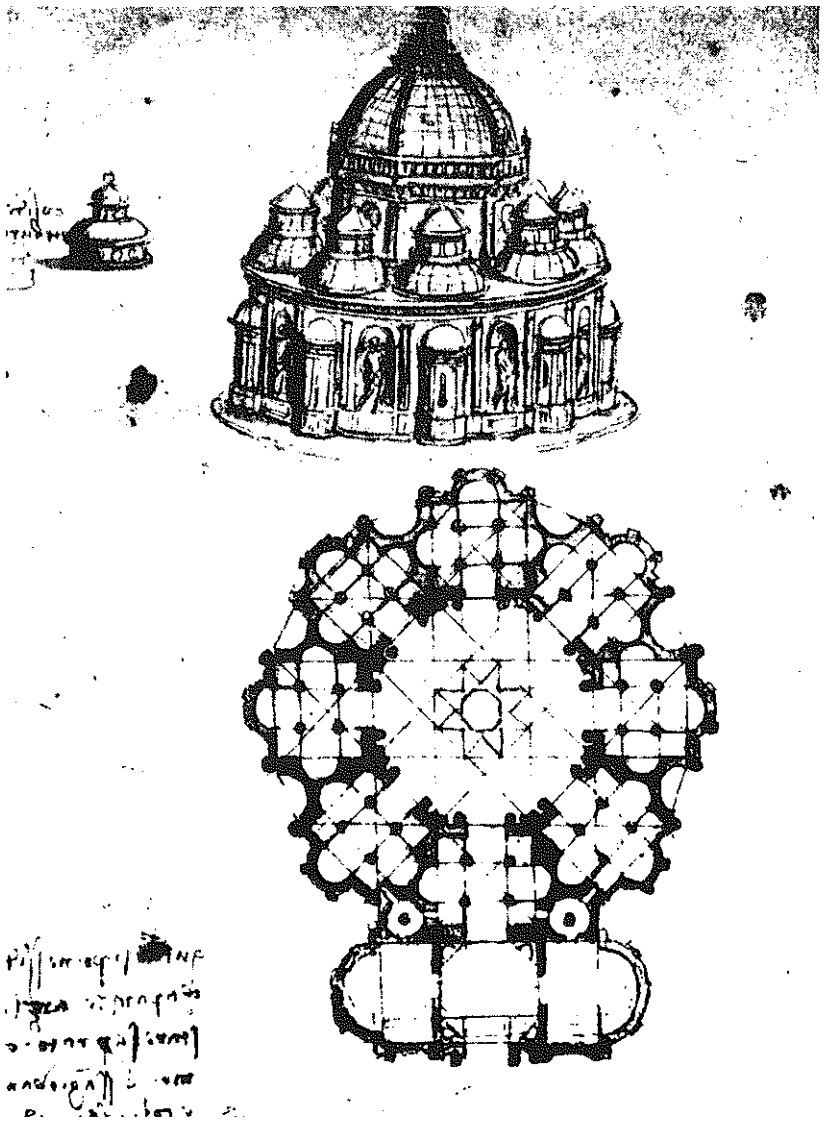
(Fig. 9) Plan of *Tempietto* from Serlio, *Cinque Libri dell'Architettura.*



(Fig. 10) The *Tempietto* in a circular courtyard (after Bruschi).

of the second story of the *Tempietto* is approximately as high as the radius of the hemispherical dome, the proportions found at the Pantheon. The powerful interpenetration of the cylinder and the colonnade gives the *Tempietto* a new and dramatic sculptural mass, its elements conceived as fully three-dimensional solids.

As it appears today the *Tempietto* does not reflect Bramante's intentions either accurately or entirely, in part because it has been changed (the dome now has a higher profile than it did originally, and the present lantern is a seventeenth-century addition that is out of keeping with the rest of the building), and in part because the little temple itself is only the hub of a project that was never completed. In 1537, nearly twenty-five years after Bramante's death, Sebastiano Serlio published a plan of the *Tempietto* (Fig. 9) that shows it surrounded by a circular courtyard in which he says Bramante intended it to stand. There was to have been a ring of columns, half again as thick as the columns in the *Tempietto* and therefore higher in the same proportion, that lay on the same radii as the columns of the temple itself; niches in the encircling wall correspond to those of the *Tempietto*. The circular courtyard may be considered the *Tempietto* turned inside out; the play of mirrored forms that enclose space on the one hand and shape a solid object on the other, would have made the completed project astonishing (Fig. 10).



(Fig. 11) Leonardo da Vinci. Drawing of churches with circular plans. Paris, Institut de France.

The courtyard that appears in Serlio's plan would not fit in the space between the *Tempietto* and the flank of San Pietro in Montorio, which makes one wonder whether it could ever have been a real project. It is impossible to determine now what Bramante's expectations were: perhaps he made a complete design although he knew from the start that only its central element could be built. On the other hand, as we shall see, it would have been in character for him to expect that someday the church would be torn down to make room for his courtyard.

While the influence of ancient Roman buildings was surely important in the development of Bramante's style after 1500, it does not explain everything, for his works in the papal city depend in important ways on ideas he brought with him from Milan, ideas that must have their origin in Leonardo da Vinci's musings on architecture. In the years that Bramante was in Milan, Leonardo was also there, engaged in a number of projects, some architectural, for the Milanese Dukes, and it is beyond doubt that the two men knew each other well. Leonardo intended to write a treatise on architecture, and for years he collected his thoughts, making notes and drawings of various building types for it. Certainly it was he who pondered the possibilities of the centrally planned church more thoroughly than anyone before him, and in scores of drawings he indulged his imagination with elegant arrangements unassociated with any actual architectural projects (Fig. 11). The nature of Leonardo's contribution to the growth of Bramante's ideas about architecture is difficult to establish with certainty, but an excellent case can be made for its having been fundamental. Before Bramante went to Milan, he seems to have cared little about architecture, and there is no evidence that he worked at it in any way. After sixteen years in the company of Leonardo, Bramante was a busy architect. When he left for Rome he was fully primed with Leonardo's profound ideas; in the *Tempietto*, and in Saint Peter's, Bramante reveals himself to have been more than just the principal beneficiary of Leonardo's thoughts: it fell to him to serve as the instrument of their realization. In Rome Bramante had a fundamental advantage over Leonardo, the one thing without which even the greatest architectural ideas are still-born: the opportunity to build.

When Julius II selected Bramante to design the new church of Saint Peter he brought into his service an architect who understood his vision. The two men were ideally suited to each other; a pontiff who was prepared to tear down the great Constantinian basilica found an architect who was not the least bit sentimental about hallowed buildings or doubtful about the wisdom of replacing them. A contemporary satirical poem has Bramante trying to convince Saint Peter to authorize the demolition of Heaven so it could be reconstructed more commodiously and in a better style. In fact Bramante's wild enthusiasm for tearing down old buildings and constructing new ones in a more lavish and up-to-date manner outran what even Julius was prepared to do at the Vatican; when the architect suggested that the bones of Saint Peter be relocated so the new church

could be positioned more favorably on the site, the Pope drew the line. Although Bramante was sometimes reckless in his hurry to replace old buildings with new ones — several of his buildings, Saint Peter's in particular, had to be strengthened considerably as work progressed, and some of them actually suffered partial collapse — his haste reveals the feverish energy and eagerness for the transformation of the Vatican that characterized the ten-year reign of Julius II, who was notorious for wanting everything done immediately. It was in this hot-house atmosphere that the High Renaissance style matured; in the same years that Bramante was at work on Saint Peter's Michelangelo began work on the tomb of Julius II, then painted the Sistine Chapel ceiling, and Raphael painted the Vatican Stanze.

Julius II and Bramante were both over sixty when they began to collaborate on the new church, and they knew that elaborate and expensive projects such as theirs had a way of being altered as time went by. Each, for his own personal reasons, therefore felt the necessity of making a bold and irrevocable start at Saint Peter's to guarantee that subsequent generations would be unable to abandon their grand plan. The start they made was surely dramatic — and if nothing else the demolition of the Constantinian basilica guaranteed that there would be a new church — but it failed in its specific aim, at least from the point of view of Bramante, for the design of the building was altered frequently while it was under construction, and what was finally finished in the 1620s bears almost no resemblance to his original project.

Bramante's Saint Peter's is enormously difficult to study in detail. This is not simply because the church does not exist. Nor is the obstacle that construction had advanced only very little before both the architect and the patron were dead and the project altered, for this would not necessarily prevent us from considering their intentions. The problem is that the architect seems never to have had an exact and definite idea of what he was going to do, or what he would be permitted to do. After building had begun Bramante frequently changed his mind (or was told to change it), modified his earlier ideas, altered the design, and offered new solutions to the Pope. Although something about the form and character of the new church was clearly implied at the beginning of its construction, much was also left vague and unspecified. As a result, students of the most ambitious of all Renaissance architectural projects must deal with a bewildering welter of ideas and conflicting interpretations of Bramante's intentions; the fact that many of them are mutually exclusive is no argument against their authenticity, for the evidence is clear that the architect tried out many ideas, and when one talks about "Bramante's design" for Saint Peter's one must be prepared to be asked "which one?" I shall deal here primarily with his first plan; even though Bramante was forced almost immediately to give it up, it is more interesting and important than any subsequent version. While many of its details are vague, it has a significant place in Renaissance architectural thought.

By the end of the fifteenth century there was a thousand-year-old tradition of church building in which longitudinal and central plans had firmly fixed places. As early as the fourth century, domed central-plan churches, which tended to be much smaller than longitudinal ones, were associated with places of martyrdom or burial. For parish churches and cathedrals, on the other hand, where the primary concern was to house a congregation, there was a clear preference for longitudinal forms.

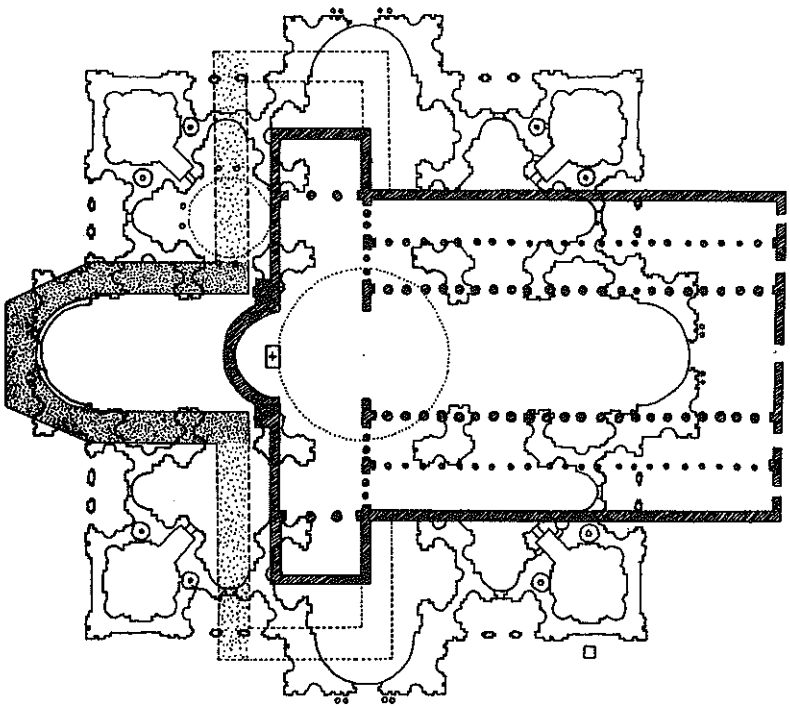
In the fifteenth century central plans became popular among architectural theorists for philosophical reasons. Alberti suggested that the circle could be used to serve as a symbol of the divine in Christian buildings, suggesting that "Nature delights principally in round Figures," as proof of which he cites the Stars (by which he means the Sun and Moon) and birds' nests, among other things. Circular plans nevertheless remained extremely rare, but a centrally planned building may also be polygonal, or have four equal short arms extending from a crossing that is usually, but not always, covered by a dome, an arrangement known as a Greek cross. While the four arms of such a church correspond roughly to a nave, transepts, and choir of a longitudinal church, their equal size, and the relatively greater importance of the crossing, give both the plan and the interior of a centralized church a very different character. In a longitudinal church the worshiper is drawn down the longer axis and the primary ceremonial approach to the altar is clearly established, with the clergy in the choir and crossing and the congregation in the nave. In a Greek-cross church, on the other hand, the worshiper is not directed in the same way; the interior is perceived equally no matter which arm is entered, and no major processional axis asserts itself.

The centralized plan was understood to be completely compatible with Christian theology, in fact to celebrate God in a more direct and obvious way than was possible in a longitudinal church. Proponents of this view rejected the notion that the altar should be as far from the church entrance as possible because God is infinitely far from us, arguing instead that it should be placed at the center, just as God is at the center of the Universe, with all things emanating from him and all things returning to him like the radii of a circle. In the late fifteenth century and the first years of the sixteenth, the central plan was so popular, and so enthusiastically regarded as the most perfect form of Christian church, that it is unthinkable that in 1505 Saint Peter's could have been designed according to any other plan. At the same time, however, there was another highly significant factor that bore on the choice of plan for new Saint Peter's: Old Saint Peter's.

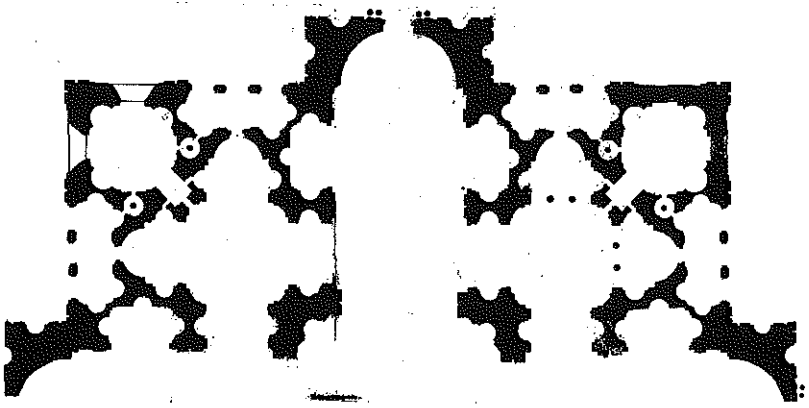
The church that Julius II tore down had been built to house a major burial site, but rather than a centralized domed structure Constantine's architects had designed a longitudinal basilica, positioned so that the Saint's tomb lay on the chord of the apse, with a transept to accommodate crowds of visitors (see Fig. 3). It was likely the Emperor's concern to enshrine the spot quickly and economically that resulted in the choice of a timber-roofed basilica, a

much simpler sort of structure than one with a dome, and one that allowed a large area to be enclosed at relatively low cost. By the time Julius II demolished Constantine's church, the longitudinal basilica, originally selected for practical considerations, had been firmly identified with Saint Peter's for over a thousand years, and the ground it covered had become sacred. Furthermore, there were hundreds of ancient graves in the church; for several centuries after it was completed Old Saint Peter's served as a covered cemetery, and by the late Middle Ages was so crowded with the bodies of Christians who wished to lie near the Apostle that further burials were permitted only in exceptional cases.

That the most important Christian tomb in Rome had been covered by a longitudinal church rather than a dome was a rather anomalous situation, and for more than a century it resulted in strong disagreement over the form the new church was to be given. Bramante's first designs for Saint Peter's called for a



(Fig. 12) Plan showing Constantinian Saint Peter's, the Rossellino choir and transept, and a centralized plan for the new church (after Metternich).



(Fig.13) Bramante. Drawing for Saint Peter's. Florence, Uffizi.

centrally planned church, and in favoring such a building he was following the Christian tradition of domed churches over tomb sites as well as contemporary ideas about religious architecture that had developed in the course of the Renaissance; but there were others — the Pope apparently among them — who, no matter how strongly drawn to a centralized church, felt that new Saint Peter's had to have a longitudinal plan because the Constantinian church did. With the dome of the new church to be centered over the Saint's tomb, even a very large centralized building could not cover all of the original nave; ground once within Constantine's church would therefore lie outside the new one (Fig. 12). Extending one arm of the new church to form a nave would, on the other hand, cover all the old ground, and Bramante was under great pressure to build a longitudinal church. He tried to resist that pressure, however, and from the time construction on the church began until his death, he continued to hope that the church would be a Greek cross.

Bramante began the construction of the new church in such a way that he never really committed himself to a longitudinal plan, first building the parts that would be included whichever form the church ultimately took. The essential feature of the new church was the huge dome over Saint Peter's tomb. The first elements to rise were the four crossing piers that carry it, and then these had to be connected by arches (see Fig. 5). This was required whether the building would be perfectly centralized, or its eastern arm extended to form the nave of a longitudinal church. The fact that at a certain point after construction began

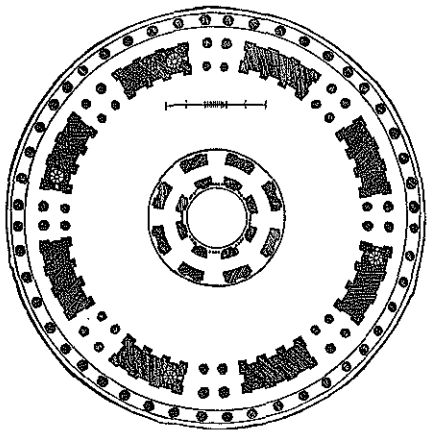
Bramante increased the size of the piers and changed the design of their elevation does not indicate anything about the plan he hoped to see at the church.

There are three pieces of direct evidence that serve us in reconstructing Bramante's first project for Saint Peter's. The first is a half-plan drawing in the Uffizi in Florence, known from its catalogue number there as Uffizi 1 (Fig. 13): the only sheet generally accepted as by Bramante's own hand.

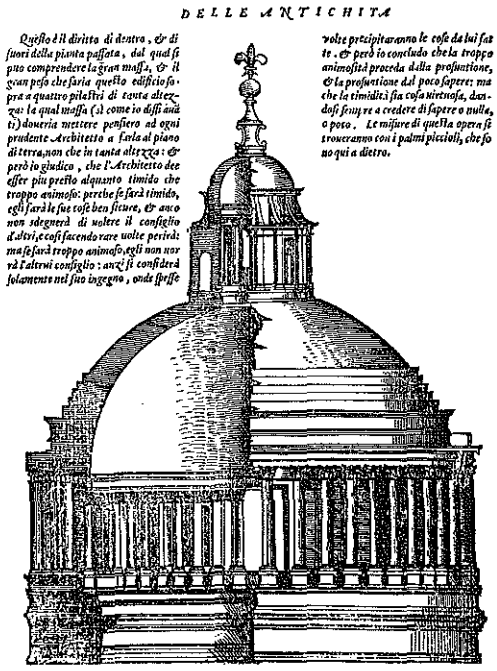
The second source of knowledge about Bramante's initial intentions — a medal by Caradosso struck to commemorate the laying of the cornerstone in April, 1506 (Fig. 14) — is the primary means we have for establishing how the exterior of the new church was to look. In the reduction of the huge building to an image only a few inches high, much was surely simplified and lost, but the medal shows a building that corresponds quite closely to Uffizi 1 in the projection of the arms of the cross beyond the square formed by the corner towers, the free-standing piers between the towers and the arms, and its general proportions.

The third major visual source is a pair of woodcuts in Serlio's treatise that shows Bramante's dome in plan and elevation (Figs. 15 & 16). Bramante is supposed to have said that at Saint Peter's he wished to place the Pantheon (Fig. 17) over the vaults of the Temple of Peace — by which he meant the coffered

(Fig. 14) Caradosso Medal.



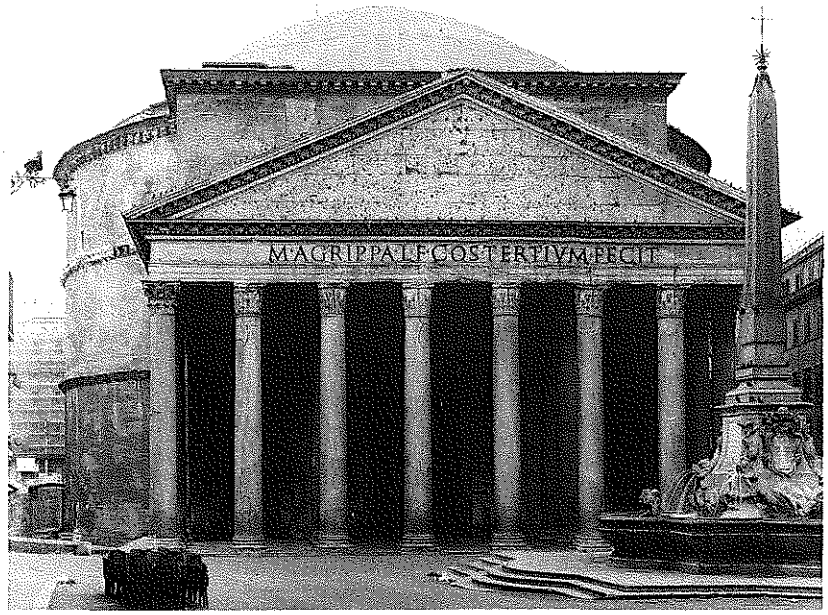
15. Plan of Bramante's dome for Saint Peter's. From Serlio, *Cinque Libri dell'Architettura.*



DELLE ANTICHITA

Questo è il diritto di dentro, & di fuori della pianta passata, dal qual si puo comprendere la gran massa, & il gran peso che saria questo edificio sopra a quattro pilastri di tanta altezza: la qual massa (al come io dissi auanti) doueria mettere pensiero ad ogni prudente Architetto a farla al piano di terra, non che in tanta altezza: & però io giudico, che l'Architetto dee esser piu presto alquanto timido che troppo animoso: perche se sarà timido, egli farà le sue cose ben sicure, & anco non sdegnerà di volere il consiglio d'altri, e così facendo rare volte perirà: ma se sarà troppo animoso, egli non vorà l'altrui consiglio: anzi si considerà solamente nel suo ingegno, onde spesse volte precipitaranno le cose da lui fatte. & però io concludo che la troppa animosità proceda della presuntione, & la presuntione dal poco sapere: ma che la timidità sia cosa virtuosa, dandosi sempre a credere di sapere o nulla, o poco. Le misure di questa opera si troueranno con i palmi piccioli, che sono qui a dietro.

16. Elevation of Bramante's dome for Saint Peter's. From Serlio, *Cinque Libri dell'Architettura.*



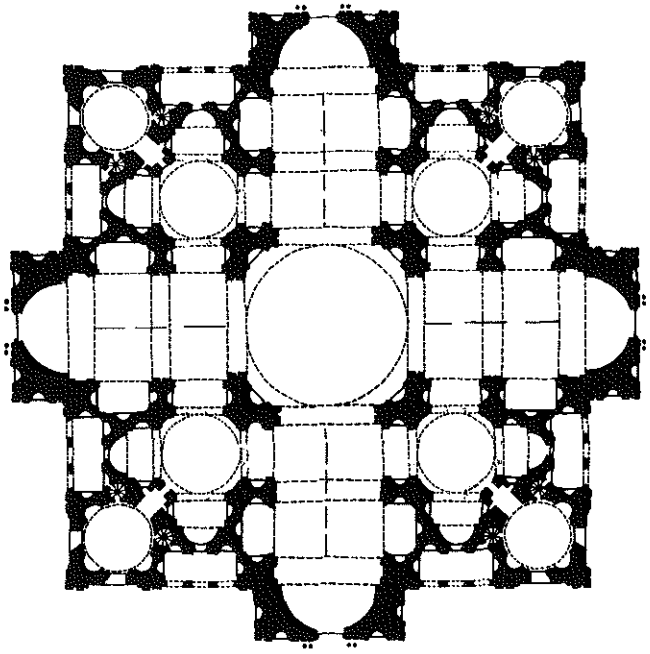
(Fig. 17) Rome. The Pantheon.

barrel vaults in the side bays of the Basilica of Maxentius (Fig. 18). The dome of Saint Peter's was to be almost exactly the diameter of the Pantheon, and therefore the biggest built in nearly fourteen centuries. From Serlio's illustration it is clear that the architect had the form of the Pantheon quite specifically in mind, for his dome is essentially the Pantheon with its rotunda ringed with columns, a lantern placed on its top, and raised high in the air on the crossing piers. To some extent the design of Saint Peter's is an enlargement of ideas we have already noted in the *Tempietto* (Fig. 8), where Bramante placed a miniature Pantheon on a circular colonnaded temple.

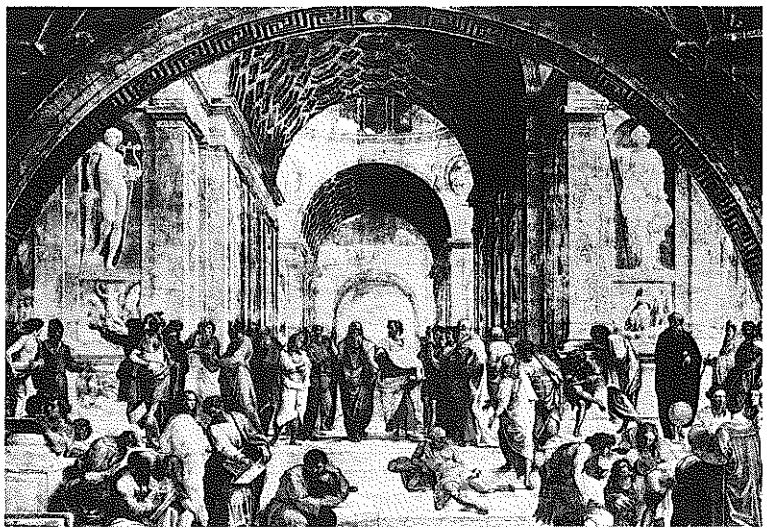
That Bramante and Julius II would feel themselves in competition with the Pantheon is understandable, for the awesome Hadrianic temple was the greatest ancient building to survive the Middle Ages, and a Pope of imperial ambitions who used architecture to express the power of the Church would inevitably think of trying to surpass it. If Julius had in mind a building that would also outdo Hagia Sophia, it would have been in keeping with his personality to think of killing two birds with one dome.

When Bramante's autograph drawing is doubled (Fig. 19), the result is a plan based on a Greek cross contained, except for the apsidal ends of each arm, within a square. In the four corners, formed by the central cross and the circumscribed square, are partial Greek crosses of a design quite similar to the central one,

(Fig. 18) Rome. The Basilica of Maxentius.



(Fig. 19) Central plan based on doubling of Uffizi 1 (see Fig. 13).



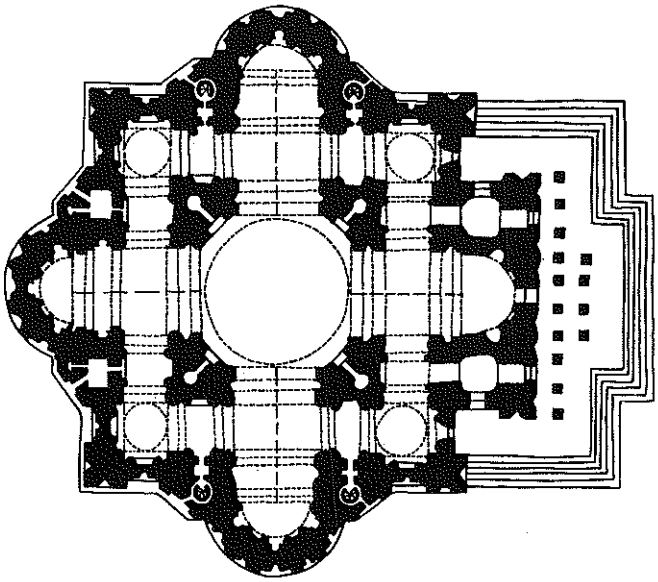
(Fig. 20) Raphael. *School of Athens*. Rome. Vatican Stanze.

square bases for bell towers, and niches open on the exterior of the church. The plan is very elegant, and the way in which the smaller crosses are placed in the angles between the arms of the central one is extremely well worked out. While there were a few Greek-cross churches built in the last decades of the fifteenth century, none ever looked even remotely like this plan. Bramante's inspiration must have been Leonardo, who frequently sketched central-plan churches with superbly interlocking architectural forms (Fig. 11).

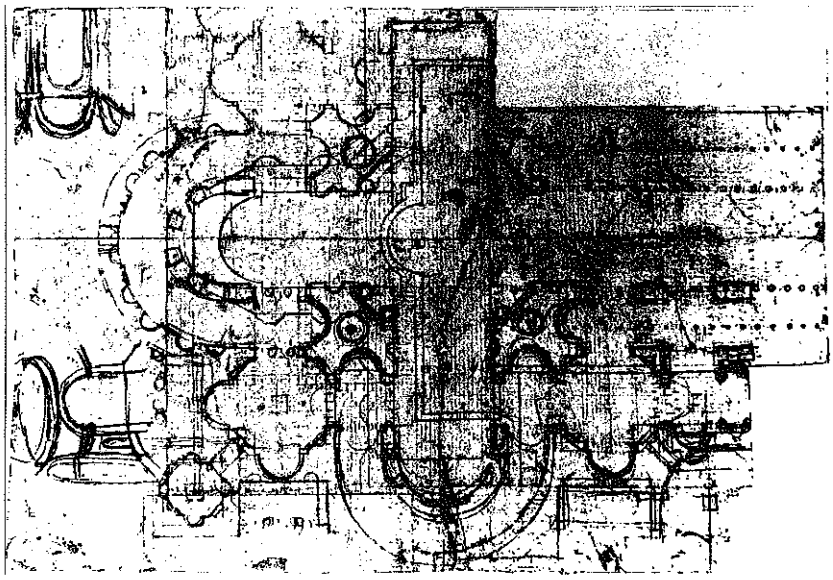
A visitor to the church in the Uffizi 1 plan would have been in a space composed of roughly identical units that grow in size toward the center, with the main cross more than twice the size of the four partial ones. A similar sort of arrangement is to be found in the design of the *Tempietto*, where the careful scaling of the columns of the temple itself and those of the circular colonnade of the courtyard established compelling resonances between identical forms of changing size. At the *Tempietto* it was carried out on a minute scale, at the Vatican in heroic proportions. In one the forms expand toward the center, in the other they expand toward the edges — but both are based on the same idea.

We do not have much direct evidence to suggest how Bramante intended to articulate the interior of Saint Peter's, but there are echoes of his ideas in Raphael's *School of Athens* (Fig. 20), painted in late 1509 or 1510, when Bramante was hard at work on the church. The architect appears on the right side of the fresco as Euclid, holding compasses and leaning over a slate (Fig. 21). Raphael was a friend, and perhaps a kinsman, of Bramante, and would succeed him as architect of Saint Peter's,

(Fig. 21) Raphael. *School of Athens*, detail. Rome. Vatican Stanze.



(Fig. 22) Michelangelo. Plan for Saint Peter's.



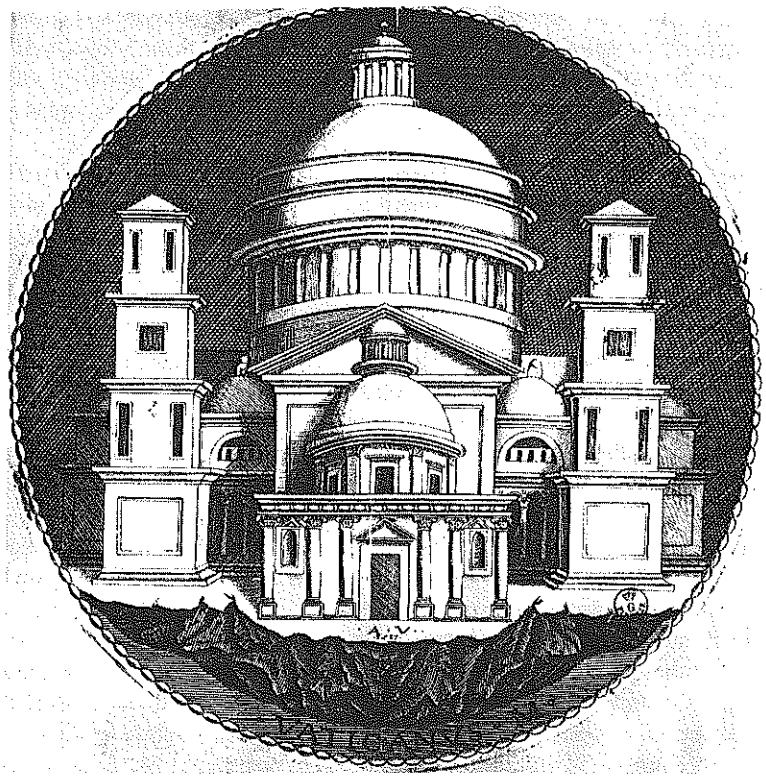
(Fig. 23) Bramante. Drawing for Saint Peter's. Florence, Uffizi.

so he was surely well-informed about Bramante's ideas. Vasari goes so far as to say that Bramante himself designed the background architecture in the *School of Athens*, but even if he did not, there is little doubt that the deep space covered by a coffered barrel vault with a large dome over the crossing reflects Bramante's thoughts about the church interior.

The most startling thing about Uffizi 1 is that no large church could ever have been built according to it. While it has a lacy openness that is very appealing in a design on paper, with virtually every bit of solid masonry hollowed out by niches and thinned to an extreme degree, it is the plan of an impossible building. The four central piers were intended to support a dome as large as the Pantheon, but they could never have done any such thing. Even Serlio, the first and most enthusiastic publicist of Bramante's ideas, had to allow that the design of the crossing piers and dome was not a very great one, saying that it would have been better to build it on the ground than on piers connected with arches. Nothing suggests the weakness of Bramante's church so clearly as a comparison of Uffizi 1 with Michelangelo's plan (Fig. 22); the proportion of solid to space makes the point better than words can. Yet Bramante's plan is much more interesting that Michelangelo's. If architecture is an art of the possible, then Bramante's design is absurd; but if architecture is understood also as an abstract discipline of which the fruits must not necessarily be physically possible to be great, then the Uffizi 1 plan is one of the authentic masterpieces of Renaissance thought. In the superbly coherent interlocking of its principal forms, in the careful shaping of its supporting units to the spaces they create, in the clear hierarchy of its interior voids, in the tense balance between the main cross and the slightly smaller square that nearly contains it, and in the penetration of the exterior by niches between the apses and the corner towers, Bramante's plan is a triumph of the imagination.

The most influential element in Bramante's plan was the design of the four main crossing piers. Their shape was very carefully studied by Bramante. A drawing in Florence (Fig. 23) shows that he worked on them on a survey of the Constantinian basilica and the Rossellino choir. Bramante's piers are remarkably effective in achieving the transition from the crossing to the dome, and they were recognized as a major contribution by all the architects who subsequently worked on the church. Although it was necessary to strengthen them, their basic form was consistently retained. Even Michelangelo, who radically altered virtually everything that was left of Bramante's design in the late 1540s, did not modify their plan appreciably.

For a reconstruction of how Bramante intended the exterior of the church to look we do not have nearly as much to go on as we would like. While Uffizi 1 is fascinating for its organization and sense of developing spaces, what we can determine of the elevation atop it is another matter. Perhaps the architect's reputation suffers because the Caradosso medal (Fig. 14) is an inadequate means to convey to us his ideas for the outside of the church, but even allowing for the



(Fig. 24) Agostino Veneziano. Engraving after Caradosso Medal.

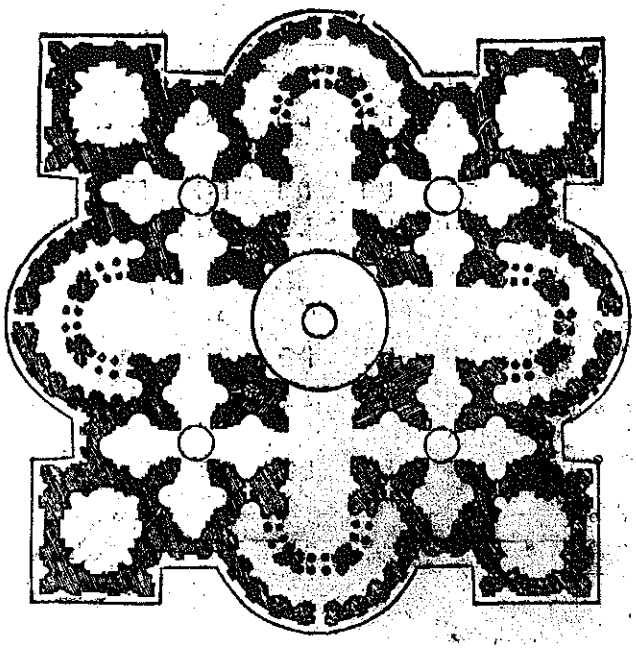
impossibility of showing Bramante's scheme in a very small relief, the medal presents a building one would not particularly wish to see full size. While the idea of the Pantheon raised high in the air is very interesting and was eventually to prove effective, Bramante's organization of the forms that were to have held it up is not compelling. From the medal, or engravings made after it (Fig. 24), it is clear that for the exterior of the building his imagination had failed him, and he could only think in terms of stacking elements one on top of another. This is most apparent in the ends of the arms, particularly where the half dome over the apse is fitted under a pediment, its lantern breaking into the triangle above. The medal shows one of the arms seen straight on, and in this view the array of domes and half-domes of three different sizes is out of control, especially where the domes over the subsidiary crosses seem squashed between the corner towers and the main arm.

The odd dichotomy between Uffizi 1 and Bramante's elevation reveals that while he could draw superb designs and marshal spaces in a powerful way, he was not equally capable of arranging the solids that create them. The tightly interconnected and related interior spaces do not translate well into exterior volumes, and had it been built according to Bramante's intentions, Saint Peter's would have been a rather unsuccessful building from the outside. It is my somewhat heretical view that Uffizi 1 is brilliant because Bramante had Leonardo's ideas to go on, while for the elevation of the building he was on his own. This is to assume that Leonardo, who never got to build any of his circular designs and therefore never had to work out the elevations over his sketched plans, could have solved the problems to which Bramante was unequal. I am persuaded that such an assumption is warranted: Leonardo could accomplish virtually anything he set his mind to.

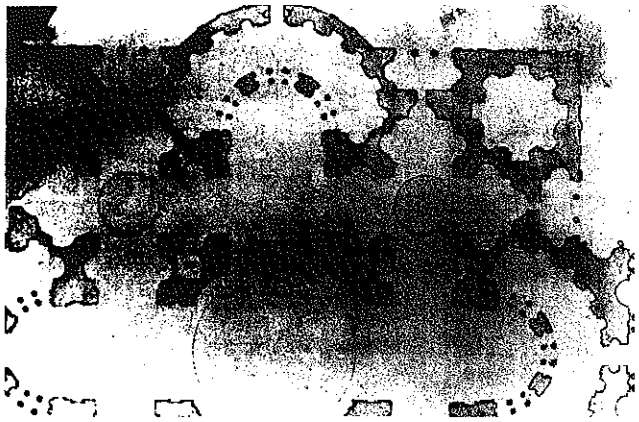
Nothing reveals the problems of studying Saint Peter's as clearly as the fact that a plan preserved by Serlio, who attributed it to Raphael (Fig. 25), is very close to a drawing attributed to Bramante's circle (Fig. 26) that appears to show his second design for the church. This design, still in some respects close to Leonardo, is not nearly so striking as Uffizi 1, and the addition of colonnaded ambulatories around the ends of the arms is the first step in what was to be a steady process of obscuring the great coherence of the original idea.

When Bramante died in 1514 the construction of Saint Peter's had still not progressed to the point where a final decision about the plan had to be made, and disagreement over a centralized as opposed to a longitudinal church continued. But that was not the only problem. Because Bramante's design was structurally inadequate, and had to be strengthened by thickening many of its elements, the proportions of the building began to go awry, and the architects involved with the church realized that its interior was not going to be very effective. Several of them struggled bravely to organize the huge building, but there was nobody gifted enough to accomplish it; some of the ideas that were suggested are the clearest imaginable evidence of a severe crisis of inspiration, if not of brains.

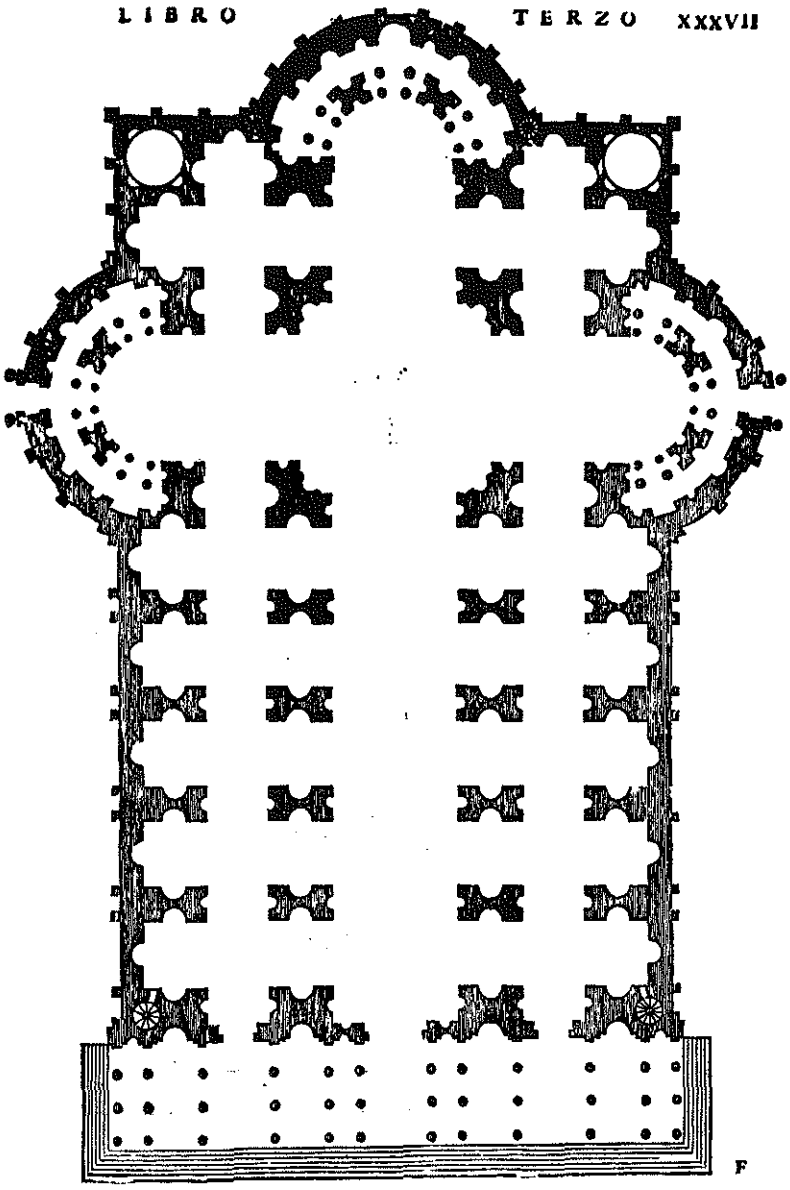
Bramante was succeeded as chief architect of Saint Peter's by Raphael, but other architects also submitted designs for the church. Raphael, probably under pressure, accepted what it seems Bramante never would, and planned a Latin-cross church. The design that is preserved by Serlio shows that Raphael simply added a long nave to one arm of Bramante's second design (Fig. 27), to which he may have contributed. At the same time Giuliano da Sangallo suggested more radical changes by offering a plan that preserves the Rossellino choir and retains the transepts from Bramante's design and adding a nave (Fig. 28). Giuliano's nephew, Antonio da Sangallo the Younger, contemplated extending the church by the addition of a long nave with a line of domes, at the same time returning to something closer to Uffizi 1 for the transept arms and choir (Fig. 29).



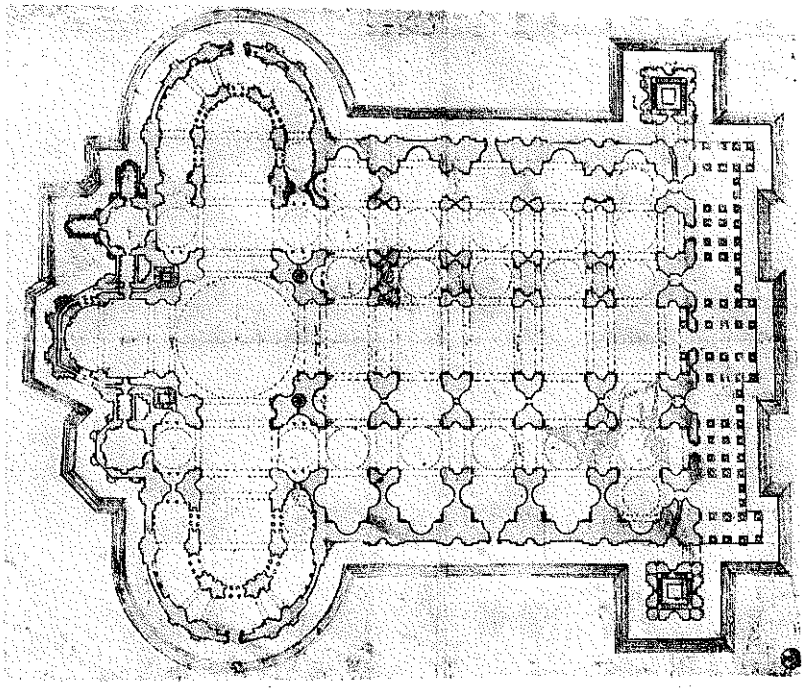
(Fig. 25) Design for Saint Peter's. From Serlio, *Cinque Libri dell'Architettura.*



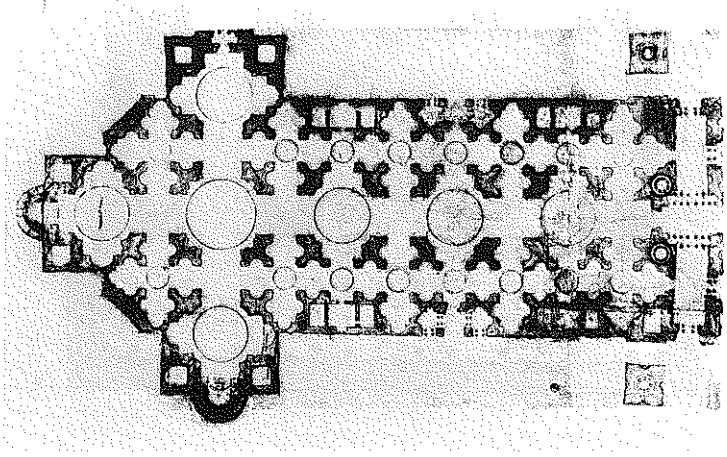
(Fig. 26) Circle of Bramante. Plan for Saint Peter's. Collection of Mr. & Mrs. Paul Mellon.



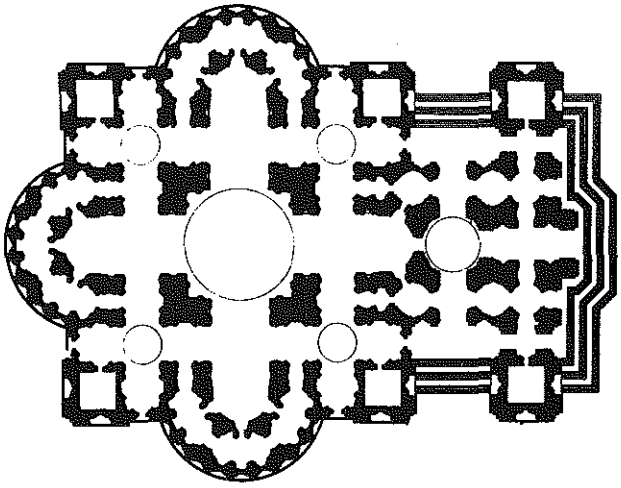
(Fig. 27) Raphael. Plan for Saint Peter's. From Serlio, *Cinque Libri dell'Architettura.*



(FIg. 28) Giuliano da Sangallo. Plan for Saint Peter's.
Florence, Uffizi.



(Fig. 29) Antonio da Sangallo the Younger. Plan for Saint Peter's.
Florence, Uffizi.



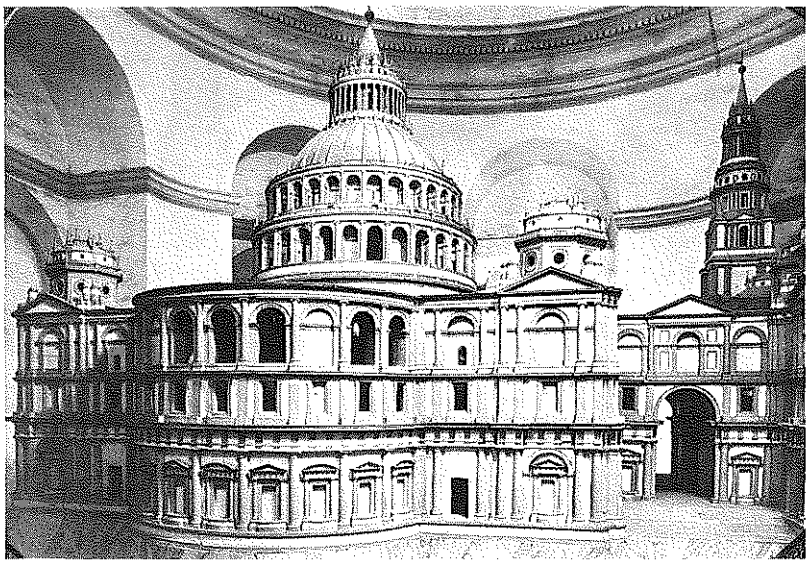
(Fig. 30) Antonio da Sangallo. Plan of Saint Peter's. Engraving.

(Fig. 31) Antonio da Sangallo. Facade elevation of Saint Peter's. Engraving.

When Raphael died in 1520 Antonio da Sangallo the Younger became chief architect. After a period of uncertainty, he arrived at a longitudinal design that was for nearly two decades the official one. Of this we know rather a lot, for plans and elevations of it were engraved and published (Figs. 30 & 31), and a huge and very detailed model of it was constructed (Fig. 32), no doubt in an attempt to bind future generations unalterably to the design.

Sangallo's plan shows Bramante's original piers much thickened, and ambulatories around the transepts and choir that are a variation on Bramante's second plan. Sangallo tried to preserve the feeling of a centralized church at the same time he extended one arm to form a nave, for the mass and scale of the building is greatest in the area where Bramante's first project would have stood, but the arrangement is not very compelling. The nave is narrower than the crossing, and the nave dome therefore smaller than the crossing dome. Perhaps Sangallo was thinking of Bramante's sequence of similar shapes that grow larger toward the crossing, but this plan is not particularly exciting.

A glance at Sangallo's model makes it clear that the difficulty of treating a large exterior was not a problem for Bramante only. Sangallo too was unable to exercise control over large exterior forms, which he tended to trivialize by



(Fig. 32) Model of Antonio da Sangallo's design for Saint Peter's. Vatican Museum.

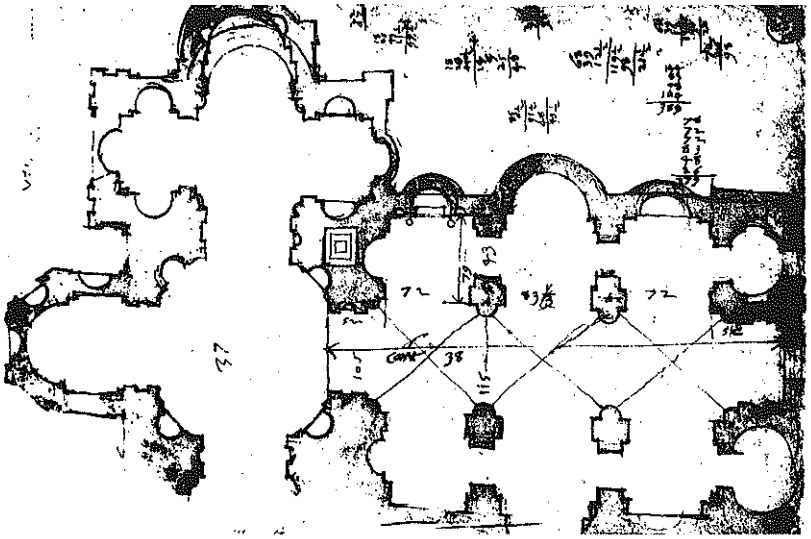
covering them with story upon story of columns. As we were with the Bramante design, here too we should be grateful that the church was never completed according to the Sangallo scheme.

Sangallo's assistant at Saint Peter's, Baldassare Peruzzi, seems to have been unhappy with the official design, and constantly studied the various problems connected with the building. He probably considered more possibilities than any other architect involved with the church. Although he seems to have hoped to re-establish the Greek cross, Peruzzi also considered longitudinal groin-vaulted plans similar to Roman baths (Fig. 33), or vaulted and lined with colonnades like some Roman basilicas (Fig. 34), or combinations of vaults and domes (Fig. 35). There is no clearer indication of the difficult situation in which architects of the 1520s, '30s, and early '40s found themselves than the Peruzzi drawings; the official Sangallo plan was very unsatisfying, but nobody knew what to do about it.

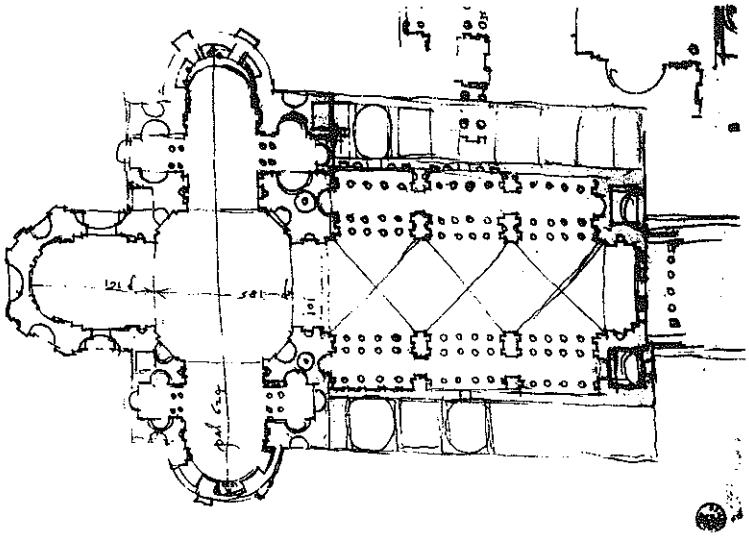
In an attempt to establish his design for all time, Sangallo spent a lot of time and money on the model, but work on the church itself did not progress very far, and as most of the work since the start of construction had been done around the crossing, there was still nothing to constitute an irrevocable commitment to a longitudinal plan.

At the death of Antonio da Sangallo in 1546, Michelangelo received the appointment as chief architect of Saint Peter's, and with him the church finally acquired an architect with a vision monumental enough to cope with it. Neither Bramante nor those who worked on the church in the thirty years following his death had a clear idea how to combine huge scale and the classical orders; Michelangelo did. As a sculptor he was the only person capable of achieving the gigantic form of *David*, and as a fresco painter the only one whose visionary figures could grow to fit the dimensions of the Sistine Chapel. In his dramatic simplifications of Saint Peter's and the enlargement of its elements to suit its size, Michelangelo reveals the same ease with heroic proportions he had already demonstrated in two other media.

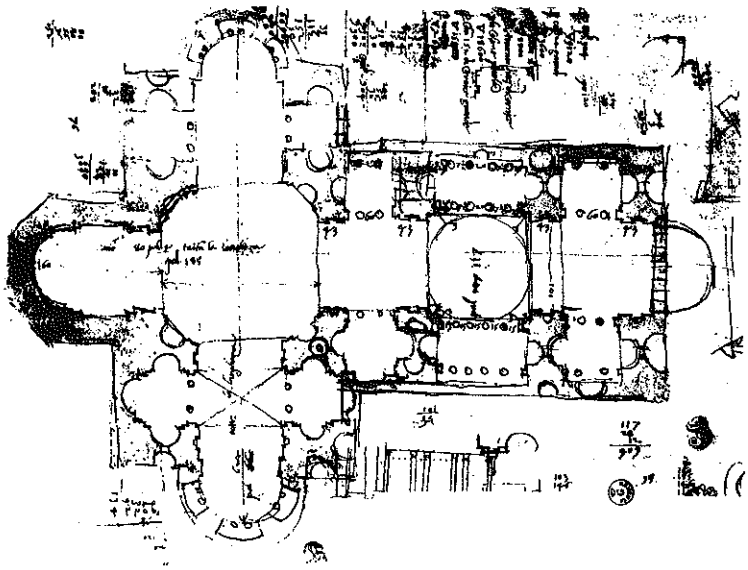
When he arrived at Saint Peter's Michelangelo was seventy-one, and without question the most authoritative artist alive. He did not like the Sangallo design at all — he dismissed the complex interiors as places in which cut-purses would lurk and nuns be raped. Furthermore, he loathed Bramante, and was still nursing a grudge against him in the early 1550s, nearly forty years after his hated rival's death, when he told his biographer Ascanio Condivi that it was Bramante who had thwarted his plan for the tomb of Julius II, and who had gotten the Pope to force the painting of the Sistine Chapel on him. Confounding the expectation that he would seek to obliterate every trace of Bramante at Saint Peter's, Michelangelo insisted that the idea of a central plan had been a noble one, and managed, by the authority of his views, to get a succession of Popes to agree to reinstating it. Furthermore, he was granted a privilege extended to none of his



(Fig. 33) Baldassare Peruzzi. Drawing for Saint Peter's.
Florence, Uffizi.



(Fig. 34) Baldassare Peruzzi. Drawing for Saint Peter's.
Florence, Uffizi.

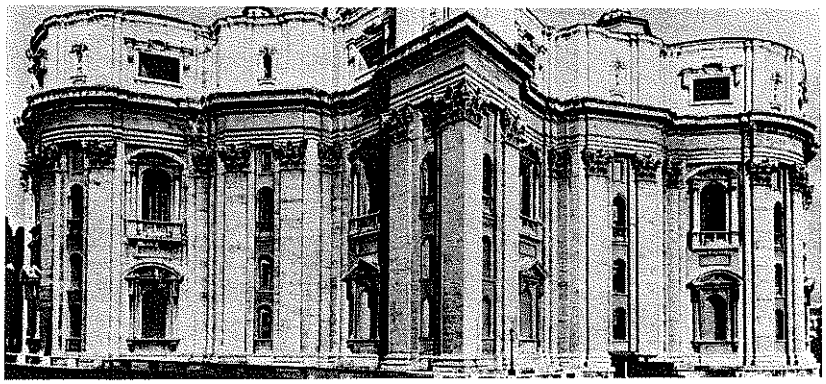


(Fig. 35) Baldassare Peruzzi. Drawing for Saint Peter's. Florence, Uffizi.

predecessors: permission to tear down some of what had already been constructed. He had no patience at all with the fussy design into which Sangallo had weakened Bramante's ideas, and removed the outer walls of the ambulatories around the ends of three of the arms. With a single stroke of the brush he filled in the rings of their ineffectual interior piers (Fig. 22), fusing them into exterior walls and imposing clarity on the arms of the cross.

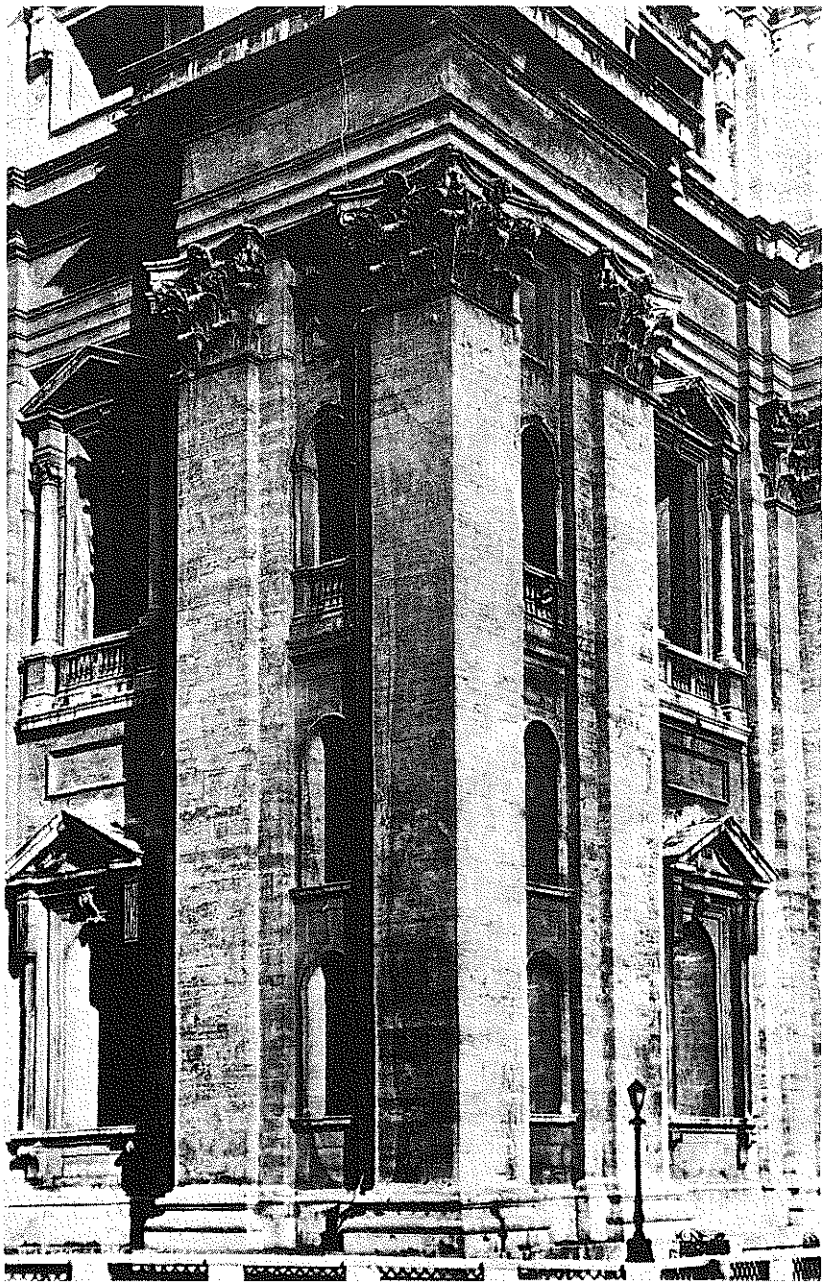
Michelangelo made his greatest contribution to Saint Peter's on the exterior, where he supplied the monumentality of vision necessary to make mere size effective (Fig. 36); Sangallo's tiers of columns were replaced by a single gigantic order, and the mass of the building revealed by carefully controlled layering of nearly sculptural forms (Fig. 37).

The history of Saint Peter's before Michelangelo demonstrates that it is one thing to revive the classical orders and decide to build the world's largest church, quite another to fuse those two aspirations in a coherent and effective way. It took more than forty years for the Popes to find an architect who instinctively knew the appropriate way to use a revived classical language on a colossal building. Michelangelo's predecessors at the church, even the most gifted of them, could merely build big; he solved the problem of Saint Peter's because he could think big.



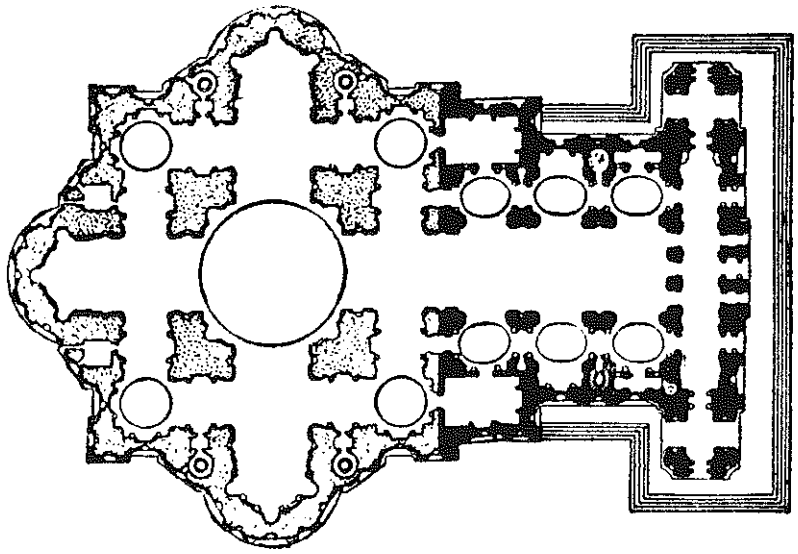
(Fig. 36) Rome. Saint Peter's. Exterior.

Despite his preferences, and the fact that it was he who saved Saint Peter's from almost certain disaster, not even Michelangelo could establish the central plan irrevocably; the determination to see all the ground of Constantine's church covered would eventually prove too strong. Perhaps if Michelangelo had lived to be 150 he might have seen the church completed beyond the practical possibility of alteration, but he died too young, in 1564, a few weeks short of eighty-nine, leaving the attic, the dome, and the facade of the church unfinished. In the decades that followed, Michelangelo's design for the attic was changed by Pirro Ligorio (see Fig. 36) and the shape of the dome by Giacomo della Porta. The commitment to a central plan held for a while, but resistance to it grew steadily, and because of this very little work was done on Michelangelo's facade: no sense putting up something that would have to be torn down in the event that the final decision favored a longitudinal church. After nearly a hundred years, then, the plan of the church was still being debated.



(Fig. 37) Rome. Saint Peter's. Exterior.

The matter was finally resolved in the second decade of the seventeenth century when Carlo Maderno extended the east arm into a barrel-vaulted nave with three aisle bays (Fig. 38), but not to the glory of anyone. As it now stands Saint Peter's is not on the whole a great church, for it shows too clearly the debates and uncertainty that marked its long building history. But parts of it are surely great; the two geniuses who presided there — one in person, the other in spirit — left their marks. Michelangelo's is much easier to find, but buried deep in the heart of the crossing is still to be discerned a distant echo of Leonardo's extraordinary visions.



(Fig. 38) Plan of Saint Peter's.

Of Lice and Men: Aristotle's Biological Treatises

Linda Wiener

As a student studying to be a biologist and an entomologist, my only contact with the biological writings of Aristotle were brief and generally disparaging comments made at the beginnings of my textbooks or at the beginnings of lecture courses by my professors. They presented Aristotle as a rigid thinker who was generally wrong and who singlehandedly prevented progress in biology for over a thousand years with the weight of his authority. I was teaching the freshman laboratory as a new faculty member at St. John's College in Santa Fe when I first came into contact with some actual writings of Aristotle. I was very impressed by the few passages from *Parts of Animals* that we read there. This stimulated me to embark on a further study of Aristotle's biological treatises. After more than a year of this study, I find that I am not in agreement with my biology textbooks and professors, but am more inclined to agree with the following statement by Charles Darwin. This comes from a letter that Darwin wrote to William Ogle upon reading Ogle's then new translation of Aristotle's *Parts of Animals*. Darwin wrote: "From quotations I had seen, I had a high notion of Aristotle's merits, but I had not the most remote notion what a wonderful man he was. Linnaeus and Cuvier have been my two gods, though in very different ways, but they were mere schoolboys to Old Aristotle."

I suggest that these very different opinions of Aristotle's biological writings stem from the fact that Darwin had actually read some of them, and my

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This lecture was delivered at the Santa Fe campus in February, 1987.

biology teachers were working with received opinions. I find it difficult to believe that a practicing biologist would be unimpressed with the scope and quality of Aristotle's achievements as a biologist. What I would like to do in this paper is give the reader an introduction to the contents of Aristotle's biological treatises, as well as an appreciation of their significance, both from a modern perspective and from the perspective of his own time, and comment on how knowledge of the biological writings can help us understand the rest of his philosophy.

Why should I believe that the biological writings are so significant? Fully one third of the surviving works of Aristotle are biological. These include three major treatises: *History of Animals*, *Parts of Animals*, and *Generation of Animals*. In addition, there are some minor biological treatises: *Progression of Animals*, *Motion of Animals*, and a collection of short works called the *Parva Natura*. Also, both *De Anima* and the *Physics* contain much biological material. There are references, by Aristotle himself, and other classical authors, to a number of additional treatises which have since been lost. These include works on plants, nutrition, and diseases of animals, and a large illustrated atlas of animal anatomy.

I am going to concentrate on the three major treatises here. The contents of these works overlap quite a bit, but in general, in *History of Animals* Aristotle sets out the facts about animals, their parts, their food, and their ways of life. In *Parts of Animals*, which is more correctly called the *Causes of the Parts of Animals*, Aristotle attempts to account for why the parts of animals are as we observe them to be. This is largely a physiological work. *Generation of Animals* is just what it sounds like, a work on animal reproduction.

On first reading these treatises, I was struck by the diversity of the material they contained. These works are filled with an enormous number of facts about all kinds of animals, some of which are correct and some not. They contain some extremely impressive analyses of biological problems, such as his masterful argument for epigenesis in book II of *Generation of Animals*. They also contain some sloppy and ill-considered arguments, e.g., he reasons that flies have two wings because they are smaller than other insects and do not need four wings to fly (*PA* 682b10).[1] The facts blatantly do not support this assertion. There are also a large number of passages that are so corrupt that it is difficult, if not impossible, to recover Aristotle's meaning. In fact, the material in these treatises is so rich and so varied that it is hard to comprehend and analyze them in any neat way.

People who wish to discredit Aristotle as a biologist can flip through these treatises and come up with some truly horrendous errors. One of the worst is the statement, repeated several times, that human males cannot reproduce until the age of twenty-one. I can't imagine why he would make this claim. However, there are also facts for which Aristotle was ridiculed for two thousand years before it was discovered that he was actually correct. An example is his description of a kind of catfish which he calls a glanis. In this species the males incubate

and guard the eggs. This animal was thought to be pure fiction until Louis Agassiz rediscovered the species in 1857 and named it *Parasilurus aristotelis*.

One cannot really judge a biologist by counting up how many facts he got right and how many wrong. It is much more useful to look at what Aristotle saw as his task, what sort of assumptions he made, and what it was that he actually did.

Perhaps the most important thing he did was to collect an enormous number of facts about animals. Most of these facts did not come from his own observations; he got them by consulting the experts. The experts in this case were hunters, fishermen, trappers, bee-keepers, horse trainers, chicken farmers, and anyone else whose livelihood depended on an intimate knowledge of the ways of animals. Aristotle recorded what he was told, sometimes commenting on or checking the accuracy of the facts himself, but often simply recording them. Aristotle even includes observations on the friendships and hostilities between different species of animals from what appears to be a soothsayer's catalogue of animal behavior in the ninth chapter of *History of Animals* (608b27 ff.). He does not discount the testimony of persons who have practical experience with animals, even when the information appears questionable. Better to record such information and later prove it wrong than fail to obtain it at all. Aristotle is not completely gullible. In the case of Ctesius, a traveler to the Indies who returned with many fabulous tales about animals, Aristotle records what he says but notes that Ctesius is "no very trustworthy authority" (*HA* 608a8).

A second source of facts comes from Aristotle's own observations. It is not always possible to be certain which observations are Aristotle's own; however, one can often be reasonably certain from the context of the remarks. Aristotle's observations are characterized by being detailed and precise. Some of these observations are of animals in their natural habitats, but most of his own work is in the area of dissections. He seems to have dissected at least eighty-five or ninety different species of animals. Many of them were invertebrates, organisms that were largely unknown in his time. His dissections are also noteworthy for their precision and detail. I find his embryological work to be especially remarkable. Consider the following account of ovoviviparous reproduction in the smooth shark:

> The so-called smooth shark has its eggs in between the wombs like the dog-fish; these eggs shift into each of the two horns of the womb and descend, and the young develop with the navel-string attached to the womb, so that as the egg-substance gets used up, the embryo is sustained to all appearance just as in the case of quadrupeds. The navel-string is long and adheres to the under part of the womb (each navel-string being attached as it were by a sucker), and also to the center of the embryo in the place where the liver is situated. If the embryo be cut open, even though it has the egg-substance no longer, the food inside is egg-like in appearance. Each embryo, as in the case of quadru-

> peds, is provided with a chorion and separate membranes. When young the embryo has its head upwards, but downwards when it gets strong and is completed in form. (*HA* 565b2-13)

The observation that young sharks are born alive is marvelous in itself; the further observations that these creatures first develop from an egg in the womb, and then attach to the womb itself, and further develop like the young of mammals is truly extraordinary. I am often amazed at what he could see without a microscope, although he frequently complains, especially in the case of insects, that the parts are just too small to be accurately observed.

Aristotle was far more than just an observer. He had a set of a priori principles which helped to direct his observations and questions about animals. Perhaps the one mentioned most frequently is "Nature never does anything without a purpose." If this is so, it is always correct to ask the question "why" about anything that is observed. Aristotle's questions range from the seemingly trivial (what is this part for?) to the most important philosophical questions (how is animal motion related to the motions of the heavenly bodies?).

A second principle that is frequently mentioned in the treatises is "Nature does the best she can under the circumstances." Nature has to work with matter, which can be notoriously intractable. One might theorize that an animal that had to protect itself from predators should have sharp horns and teeth, large claws, great strength, speed, and intelligence. However, when we look at animals, this is not what we see. What we see, and what Aristotle also saw, was that animals generally have only one major means of defense. Nature has only a certain amount of matter to work with in each animal and must distribute it as best she can. In Aristotle's words, "Nature takes from one thing to give to another." Thus, he notes, we find that bulls have large horns, but only have teeth in one jaw. The matter that would ordinarily have gone into making the second set of teeth goes into the horns instead (*PA* 664a2).

One might think that each organ should have only one function if it is to perform that function with maximum efficiency. However, when we look at animals we see that very often one organ serves two or even more functions. For example, the human tongue must be used for both tasting and speaking (*PA* 650a1). Again we see Nature making certain compromises.

A third major principle in these treatises is that "one cannot make general statements without first doing an exhaustive investigation of the facts." It is this principle that Aristotle uses most to bring his predecessors to task. His predecessors in natural philosophy include Empedocles, Anaxagoras, Democritus and other atomists, and Plato's writings in the *Timaeus*.

None of these philosophers did anything like an exhaustive investigation of the facts, although some did make certain observations. In fact, Aristotle did not

always follow this principle himself, though he recognized its importance and achieved much through its use.

Some statements of other philosophers were rather easy to disprove with simple observations. For instance, Plato says in the *Timaeus* (70c7) that we take in food through the esophagus and water through the windpipe. Aristotle points out that this could not be so because simple inspection of the parts involved shows that there is no passageway from the lungs to the stomach and that fluid clearly comes from the stomach in the case of vomiting, and therefore both water and food are taken in through the esophagus, which does afford a passageway to the bladder (*PA* 664b8-19). Plato also states in the *Timaeus* (71d) that the gall-bladder is present for the purpose of sensation and to irritate the area around the liver and make it congeal. Aristotle points out that this could not be true because deer don't even have gall-bladders and some mice have them and some don't, and in the case of sheep it depends upon where you look. Sheep in Euboea don't have gall-bladders and sheep in Naxos have such large ones that "foreigners who sacrifice there think it a sign from heaven rather than a natural phenomenon" (*PA* 676b30 ff.). Aristotle stresses that it is necessary to investigate many individuals and even many individuals from different populations before one can make general statements about animals.

Let us look at several examples of Aristotle at work on biological problems.

Near the beginning of *History of Animals* Aristotle states that "to begin with we must take into consideration the parts of man." He gives two reasons for this. The first is practical. "Just as all countries reckon other currencies in relation to their own, because it is most familiar, so we should judge other animals in relation to ourselves" (*HA* 491a19). The second is that "man is most according to nature of all the animals" because in him "upper and lower have the same meaning as when they are applied to the universe as a whole" (*HA* 494a26). He then gives an exhaustive inventory of the external anatomy of man. Next he turns to giving an inventory of the internal anatomy of man. Here he runs into some problems and we see that he is capable of rather easily glossing over a difficult issue. He states that the internal parts of man are to a very great extent unknown (because human dissections were not permissible) and so we must know the internal anatomy of man by reference to other animals that are like us (*HA* 494b21-24). Not surprisingly he makes many errors in this section. Some of his statements are true of dogs but not of humans. Interestingly, a few statements are true of the human fetus but not of the adult, suggesting that Aristotle must have dissected an aborted fetus.

Next he sets out to do just what he stated, compare other animals to humans. This is not a very difficult task when dealing with other mammals, nor is it especially difficult when dealing with other vertebrates, such as birds and fish. All these animals have backbones, hearts, livers, mouths, etc. It is relatively easy to recognize the different parts and name their functions. However, one runs into

real difficulties when dealing with the invertebrate animals. At first glance, a head louse, clam, or sponge does not seem at all like a human. It is this difficulty that led Aristotle to develop one of the most important concepts in biology — the distinction between homology and analogy.

Homology is what Aristotle refers to as the "difference of the more and the less" (*PA* 644b15). It is a similarity of structure, but a difference in bodily qualities. The hair on a dog is homologous with the hair on a zebra; the fingernails of a human are homologous with the claws of a dog. Analogy is a similarity of function with no similarity of structure. The skeleton of a human and the shell of a clam are analogous. The skeleton of a human serves to support the body, to protect the internal organs, and to provide a place for muscle attachment. The shell of a clam serves all these functions as well, but does not look anything like a human skeleton, and is on the outside rather than the inside of the animal.

Aristotle can be rather bold with his analogies. For instance, he says that the earth is for plants what the stomach is for humans. He explains that the roots of plants take up nutrients and distribute them to the rest of the plant. The earth contains nutrients in a form that plants can utilize. Humans must first process their food into a usable form. The food we eat is first digested in the stomach, and then our blood vessels, which are like the roots of plants, can take up these usable nutrients from the stomach and distribute them to the rest of the body (*PA* 650a20-34).

No biologist today would say that man is the standard to which all other animals should be compared. However, this belief served Aristotle well, even if it occasionally also led him astray. In fact, Aristotle's views about man's relationship with the rest of the animal world enabled him to make certain observations that were not repeated until this century simply because of the way modern scientists and philosophers regarded man. Far from denying that other animals used tools or language, Aristotle noticed, e.g., that nightingales have something like a language (*HA* 536b18) and that woodpeckers sometimes use tools to split nuts (*HA* 614b14). He seemed to take delight in finding these man-like qualities among the lower creatures.

Aristotle believed that all nature was akin because all living things have souls. Plants have only nutritive soul, they can grow and reproduce. Animals have sensitive soul in addition to nutritive soul. They have at least the sense of touch, and may have one or more of the remaining four senses. Humans are distinguished by also having rational souls. He was convinced that organisms like scallops and jellyfish had sensation, and therefore were animals. He was led by this conviction to look for certain features in them. For instance, he was sure that jellyfish, like humans, must have a way of taking in food and getting rid of wastes, a reproductive system, and a heart and circulatory system, or something analogous to these. He looked for and often found these systems in invertebrate animals even though they appear very different from the analogous systems in

the human body. Occasionally he "found" things we now know are not actually present, such as a dorsal nerve chord in insects (they actually have a ventral nerve chord which he missed).

Aristotle had some favorite animals which he returns to again and again. These are the cephalopods (octopus, squid, cuttlefish, and paper nautilus), the cartilaginous fishes (sharks, skates, and rays), and the bees. Why was he particularly fascinated with these creatures? I believe it is because all these animals share certain features with humans which they do not share with other, more typical members of their groups. Octopuses have brains, clams do not. Sharks bear their young alive, most fish lay eggs. Bees not only build the complex architectural structures we call hives, they also have a beautifully organized political system in which there is never any dispute over who rules and who works. In fact, Aristotle says that the bees have something divine about them (*GA* 761a8), a statement he otherwise makes only in the case of man.

A second, and at first glance rather puzzling, example of Aristotle's work on a biological problem is his conviction that the heart is the seat of sensation and intelligence. Most of Aristotle's contemporaries, including Plato, held that the brain had this function. But Aristotle had his reasons.

In his observations of the chick embryo he noticed that the first organ seen was the heart, already beating on the third day (*PA* 666a20). The heart could be seen pumping blood to the rest of the body. In this way the heart certainly seems primary; the brain does not develop until much later. He further noticed that it is only the parts of animals that are supplied with blood that have sensation (*HA* 489a26). Fingernails lack both blood and sensation, and so does the brain (*PA* 652b1-6). The thought of the blood flowing from all the sense organs into the "common sense" in the heart, which he speaks of in *De Anima* (III, ii), must have been very strong to him. It was difficult for Aristotle to believe that the bloodless and sensation-free brain could really be the seat of reason and sensation.

He did not see the brain as a useless organ. In fact, he connected it intimately with the heart and believed it functioned as a cooling organ for the rest of the body (*PA* 652b16 ff.). If something went wrong with the brain, it would affect the heart and cause a malfunction.

He had other reasons as well. He had dissected many invertebrate animals and noticed that they generally had something analogous to a heart and blood, but lacked a brain (*PA* 652b26). He noted that certain invertebrates, particularly bees and spiders, certainly had intelligence, but he claimed they did not have brains. They do have hearts. He noted that when animals were sacrificed they often had lesions or tumors in the brain and other organs, but not in the heart. However, when an animal died naturally and was dissected it was often found to have something wrong with its heart. Thus, any damage to the heart seemed fatal, thought this was not true of the brain (*PA* 667a34 f.).

For all these reasons Aristotle held that the heart was the seat of sensation and intellect. I do not believe that he convinced his contemporaries, but neither could they reply to his objections.

The last example is a problem Aristotle struggled long and hard with: the reproduction of bees. The bees have been a serious problem for biological theorists from Aristotle's time through the present, and they are certainly very odd animals.

To give some idea of what Aristotle was up against, I will relate some facts we now know about bees. There are three castes in a bee colony. The queens are female and do all the reproduction for the hive. The workers are all sterile females and do all the work; they gather nectar and pollen, build the hive, take care of the queen and the young, and guard the hive. The third caste are the drones, which are reproductive males. They are produced only at the end of the season, and their only function is to mate, after which they die.

New queens are also produced only at the end of the season. The new queens and drones go on a nuptial flight. Mating takes place high in the air and is not something that can be observed. Each queen mates only once in her entire lifetime and can store and use the sperm from that one mating for the rest of her life, which may last eight or ten years.

In humans, half the chromosomes come from the mother and half from the father. Among these chromosomes are two that are called sex chromosomes. An "X" is always received from the mother and either an "X" or a "Y" from the father. If the newly fertilized egg is "XX," it will develop into a girl, if "XY" it will develop into a boy. This is how sex is determined in all mammals. It works differently in bees. When a queen wants to produce a female, she lets some sperm through when an egg is in the reproductive tract. The fertilized egg will be "XX," a female. However, when she wants to produce a male, she doesn't let any sperm through and lays an unfertilized egg. It is "XNothing" and develops into a male.

Aristotle didn't know all this, but he consulted the beekeepers. Some of them told him that bees didn't reproduce at all. They said that the reason bees visit flowers so frequently was that they were collecting their young and taking them back to the nest (*HA* 553a19). Aristotle did not believe this. Some of the beekeepers told him pretty much what I have just related, that the queens and the workers are female, the drones male, and that the queens did all the reproduction. Aristotle didn't believe this either (*GA* 759b5).

Given his views of a woman's virtues and role in society, he was not very much inclined to conclude that these beautifully organized societies that he admired so much were ruled by females. Also, in his observations of animals he noticed that it was the males which had weapons for defense, and if the females had them at all, they were considerably smaller than the males' (*GA* 759b6). In the bees, the queens and the workers have stings and the males are defenseless,

leading him to believe that the queens, which he calls either kings or leaders, were male.

Aristotle reasoned further. Nobody had ever seen bees mate. Maybe the leaders are neither male nor female, but hermaphroditic. He knew of some fish that were apparently hermaphrodites (*GA* 759b26-32), so why not bees as well? This theory presented two problems. If the leaders are hermaphrodite, then what function did the drones have? If nature never does anything without a purpose, what was the purpose for the drones? Also, hermaphrodite fish produce other hermaphrodite fish just like them. Like produces like. This did not seem to be what happened in the case of the bees. It seemed that the leaders were producing both new leaders and workers, like producing unlike.

After many pages of struggling with this issue, Aristotle concludes that the leaders are neither male nor female, that they produce both new leaders and workers, and that workers produce the drones. This is reasonable, because in the absence of the queen workers will sometimes lay unfertilized eggs, which develop into drones (*HA* 553a30).

After reaching this conclusion, Aristotle makes the following statement:

> This then appears to be the state of affairs with regard to the generation of bees, so far as theory can take us, supplemented by what are thought to be the facts about their behavior. But the facts have not been sufficiently ascertained; and if at any future time they are ascertained, then credence must be given to the direct evidence of the senses more than to theories – and to theories too provided that the results which they show agree with what is observed. (*GA* 760b28 ff.)

This is a very strong statement. It epitomizes the Aristotelian spirit of biological investigation. However, what modern biologists have received of Aristotle's work is not the pages of struggle which went before his conclusion nor the strong statements of doubt which often come after, but the conclusion itself. And, as we all know, Aristotle was wrong about the reproduction of bees. Hence his undeservedly low reputation amongst today's biologists.

I don't wish to praise his work to such an extent that I ignore its deficiencies. Certainly many of his theories have been proven wrong, e.g., spontaneous generation. Some seem hopelessly naive and deserve the obscurity into which they have fallen, e.g., his explanation that the heart is on the right because the right is better than the left. Many of his facts have been corrected, although he knew this would happen as more observations were made. However, there is still something to be gained from reading Aristotle's biological works today. Many of his suggestions and theories are incisively reasoned and have stood the test of time. Others, having long lain in obscurity, seem very fresh and promising today.

It is here, in the biological writings, that we can really see Aristotle at work. He does not seem uncomfortable with his lack of knowledge and understanding.

In fact, he seems to delight in the wealth of contradictory information, the many unknowns, and the loose ends. He sometimes suggests four or five possible solutions to a difficulty and then leaves the problem for future investigators to solve. We see him working on a problem from many angles: dissecting and observing animals, collecting writings from the past, consulting experts, and then reasoning through the whole question. He is comfortable and confident with this work.

From a modern perspective, Aristotle seems justified in his confidence. Almost every major principle of biology which can be discovered using one's hands, eyes, and mind is found in the biological treatises, sometimes in a very sophisticated form. These include principles of animal organization, development, evolution, and ecology.

Aristotle was not an evolutionist. Some of his predecessors, particularly Empedocles, did espouse theories that sound somewhat like modern mechanistic evolutionary thought. However, Empedocles' theory was based more on a poetic vision than on biological observation.

Aristotle has often been brought to task for changing others' opinions to fit his system. Here are some lines from Empedocles often construed as supporting a theory of organic evolution:

> There budded many a head without a neck, and arms were roaming shoulderless and bare, and eyes that wanted foreheads drifted by. (Fragment 57)[2]

> In isolation wandered every limb, hither and thither seeking union meet. (Fragment 58)

> But now as God with God was mingled more, these members fell together where they met, and many a birth besides was then begot in a long line of ever varied life. (Fragment 59)

Here is Aristotle's restatement of Empedocles' ideas in a discussion of explanation in the natural sciences:

> Hence, why should not even bodily parts like teeth have developed in the necessary course of nature – sharp front teeth suited for the tearing of food and flat back teeth suited for the crushing of food? May they not have been produced, not to some end, but by coincidence? And may it not be so with all bodily parts supposedly having some inherent end or purpose? Those organic structures, then, which came into the world as if they had been produced to some end, survived because they had been automatically organized in a fitting way; all others, like the man-faced offspring of oxen in the theory of Empedocles, have perished and continue to perish. (*Phys.* 198b28-30)

This statement sounds more modern and certainly has a more definite meaning than Empedocles' poetry. Aristotle has rephrased it in such a way that he can discuss something definite. He goes on to criticize Empedocles on the grounds that eyes, shoulders, etc., must be part of a whole integrated organism, and cannot live separately.

However, it is in Aristotle's treatise that we find the observations and principles necessary to support modern evolutionary theory. These include the very important distinction between homology and analogy discussed earlier. He also made some outstanding observations of embryo development in which he noticed that embryos can first be recognized only as animals, later still as members of particular species, and lastly as unique individuals of those species (*GA* 736a35). These observations are identical with those that support the modern principle that ontogeny recapitulates phylogeny.

Aristotle was the first to recognize many significant ecological principles. He wrote about animal territoriality and accounted for why and how various animals establish and defend territories (e.g., *HA* 613a8 ff.). He made observations about the distribution and abundance of animals in different environments (e.g., *HA* 543b24, 605b28), and noted their various reproductive strategies. For instance, he remarked that some animals, especially fish, lay literally millions of eggs, which are mostly destroyed or infertile (*GA* 755a33). This strategy is compared to that of sharks, in which a few large young are produced after incubation in a womb (*HA* 571a). The two reproductive strategies are referred to today as r and K selection.

He also spoke of the dangers of overpopulation. He mentioned the destructiveness of overfishing and of dredging for shellfish (*HA* 603a). All these principles are familiar to ecologists and environmentalists today.

Despite the errors, uncertainties, and unknowns, Aristotle was able to discern important patterns in the natural world. His achievement as a biologist is genuinely impressive from a modern perspective. It was no less impressive in his own time.

He differed from his predecessors in several important ways. He was intensely involved with the study of many individual organisms at a time when sweeping statements about species and biological principles were the rule. He was interested in the individual animal because it is only in an individual organism that one can see all of the forces of nature working together. When final, formal, efficient, and material causes converge just the way they should, the result is an individual louse, or goldfish, or human. The individual is the only thing that actually exists. Species and other groups lack material cause, and are only abstractions (*PA* 641a19 ff.).

A second important distinction between Aristotle and the other natural philosophers was that Aristotle used the knowledge of the common people to great advantage. It is not an exaggeration to claim that his achievement rests, to

a very great extent, on the enormous amounts of information that the common people were able to give him.

He also had a great deal of faith in the common sense of people in general. For instance, when he speaks of animal classification, he clearly prefers the groupings that the mass of people use to those devised by theorists (*PA* 643b15). Most people divided animals into the major groups which we refer to today as mammals, birds, fish, reptiles, etc. The theorists of Aristotle's time devised dichotomous classification schemes which, for example, first divided animals into tame and wild, then into land and water, etc.

Aristotle pointed out that such schemes would only obscure real patterns in nature because some birds are land animals, some are water animals, and some are both. Also, domestic animals are often found in the wild (*PA* I,ii). It is true that the folk classifications made certain errors, classifying bats as birds and whales as fish, but these errors were easily corrected by Aristotle. The overall scheme of the common man's classification was sound.

The third feature that distinguishes Aristotle is that he got physically involved with his subject, performing dissections and field observations. The importance of this should not be underestimated. Anyone who has ever attempted to dissect a frog or cat in biology class knows that there is an art to it. One must train one's hands and eyes. It requires practice and dedication to become proficient, and all evidence suggests that Aristotle was a master of this craft. He got to know his subject with an intimacy which his contemporaries and predecessors never experienced.

How is it that Aristotle was able to approach the study of biology in this new way? It is known that he came from medical families on both sides and that his father was court physician at Macedon. Certainly he had some medical training and his writings show a familiarity with the medical literature and techniques of his time. A physician must have many of the skills we see Aristotle employing in his studies of animals. He may have theories about the course of a disease or causes of illness, but he knows that each patient is unique and must be treated as an individual. "For the physician does not cure 'man' except in an incidental way, but Callias or Socrates or some other called by some such individual name, who happens to be a man" (*Met.* 981a17). Clever theories alone do not cure patients. A physician must look, listen, touch, and think when treating a patient.

Add this practical medical background to twenty years at Plato's academy and we can see how a man with Aristotle's intellectual breadth and depth was able to address questions of natural philosophy fruitfully and at many different levels.

At the most basic level he describes parts of animals and asks what they are used for. He also deals with questions which are a step more abstract, e.g., the grouping and classification of animals. However, his biological studies also led him to the highest and most difficult philosophical questions, such as the nature

of the soul and the causes of animal and heavenly motions. Aristotle was able to make biology into a respectable study in its own right as well as establish it as an important philosophical discipline.

We can see Aristotle employing the methods that were so successful for him in biology in other disciplines as well. In the *Politics* we see him reviewing various utopian theories (Bk. II), but finally saying that what is needed is to see how things actually are. He collected 158 constitutions of states as well as the oral laws and customs of numerous tribes. He used these as the source of facts, as the actual individual things, which he could study and analyze along with theories (Bk. III).

Again, in the *Ethics* we see him going to the beliefs of the people as the starting point of his investigation of proper human behavior (e.g., *EN* 1098b23). He quotes common aphorisms and uses these as the basis from which to reason about ethics. Once again he was able to tap and use to advantage a source of information and inspiration which was largely ignored by philosophers.

His accustomed empirical approach gets him into trouble when he tries to account for such physical phenomena as bodies falling through various media and the movement of objects that have been thrown or shot. If one were to do as Aristotle suggests in the *Physics* and throw a rock into the air ten thousand times, the same thing will happen every time. No new information will be learnt about the laws of falling objects. The method of investigation that has proven fruitful for these sorts of phenomena is to throw the rock into the air once or twice, time it, perhaps take a strobe photograph, and then go inside and write an equation that describes the rock's movements. These phenomena do not offer the kind of complexity or abundance of information common in biological problems. They require a rather different art, that of mathematization, which Galileo and others discovered many years later.

One can't throw a chicken into the air and then go inside and write an equation for it. In fact, to this day it is worthwhile for biologists to watch chickens. In contrast to the movement of rocks through the air, there is still much to learn by simply watching the movements of birds. There is almost always something more to learn from dissecting ten more squid or spending ten more hours watching a flock of geese. It seems that biological and physical phenomena require rather different means of investigation.

It is certainly true that Aristotle was interested in answering the most sublime sort of philosophical questions through his biological studies. However, he spent the bulk of his time asking the most basic questions about animal anatomy and behavior. There are not many people who would dissect dozens of squid simply to answer these sorts of questions. There is a wonderfulness about the animals themselves that repeatedly brings one back to them. They are worthy of study in their own right and for their own sakes.

Aristotle recognized this quality in animals. He wanted to convince his students of the worthiness of studying the natural world. It is not often that we see Aristotle waxing eloquent in his treatises. Thus, this passage from *Parts of Animals* I,v is particularly remarkable. I will end by letting Aristotle entice all of you into the study of biology with some of the same words that he used with his own students some 2300 years ago. He tells a story about some visitors who wished to meet Heraclitus:

> . . . and when they entered and saw him in the kitchen, warming himself at the stove, they hesitated; but Heraclitus said "Come in; don't be afraid; there are gods even here." In like manner, we ought not to hesitate nor to be abashed, but boldly to enter upon our researches concerning animals of every sort and kind, knowing that in not one of them is Nature or Beauty lacking.

* * * * *

Notes

1. The following abbreviations are used: *PA*, *Parts of Animals*; *HA*, *History of Animals*; *GA*, *Generation of Animals*; *EN*, *Nichomachean Ethics*; *Phys.*, *Physics*; *Met.*, *Metaphysics*. Translations from *PA* and *GA* are from the Loeb editions (Harvard University Press); those from *HA* are from the Oxford edition (Clarendon Press).
2. Translations from Lombardo, S., 1982. *Parmenides and Empedocles: the Fragments in Verse* (San Francisco: Grey Fox Press).

The God Who Is and the God Who Speaks

Thomas J. Slakey

O my soul, seek not immortal life, but exhaust the realm of the possible.
— Pindar, *Third Pythian*

For whose sake is it that the proof is sought? Faith does not need it; aye, it must even regard the proof as its enemy.
— Kierkegaard, *Concluding Unscientific Postscript*

Introduction

Discussions of the existence of God meet with resistance from, so to speak, both the left and the right. On the "left" are those from Pindar through Hume and Kant and beyond, who tell us to confine our reason to those matters within our reach, namely practical affairs and empirical science. On the "right" are those Christians, and many other devout believers, who tell us that arguments for God's existence can only undermine proper reverence toward God, that the appropriate response to God is not argument but worship.

Nevertheless there are within the Bible itself suggestions of a kind of inference from the physical universe to the existence of God, as in Psalm 19:1, "The heavens are telling the glory of God; and the firmament proclaims his handiwork."[1] St. Paul expands this notion. He says that the Gentiles should have known better than to worship idols.

> For what can be known about God is plain to them, because God has shown it to them. Ever since the creation of the world his invisible nature, namely, his eternal power and deity, has been clearly perceived in the things that have been made. So they are without excuse. (Romans 1: 19-20)

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The crucial claim here is that invisible things, *ta aorata* (translated "his invisible nature") can be *seen* in things made, *if* those things are properly *understood*, that is, so to speak, seen with the mind's eye, *nooumena kathoratai*. (RSV translates this phrase merely as "clearly perceived.") St. Paul is asserting that the Gentiles should have been able to *infer* the existence of an invisible God from the visible things around them.

On the other hand, the Psalmist and St. Paul, and I would say *all* other writers in the Bible, take for granted not only that God exists but also that He is a person who acts, and who sometimes acts in our world. Nowhere in the Bible is the existence of God questioned. Even Job, who suffers terribly at the hand of God, never questions whether God *exists*. Rather Job questions only whether God is just:

> It is all one; therefore I say, he destroys both the blameless and the wicked. When disaster brings sudden death, he mocks at the calamity of the innocent. The earth is given into the hand of the wicked; he covers the faces of its judges – if it is not he, who then is it? (Job 9: 22-24)

Even the fool who says in his heart, "There is no God" (Psalm 14:1), is really only questioning whether God will punish those who do abominable deeds, as becomes clear from the context.

Thus even though in the Bible itself there are suggestions of inferences to the existence of God, those inferences are made by those who do not need convincing that God exists, unlike the contemporary context of this lecture, where the existence of God is widely questioned and is usually held to be a matter of something called "faith." In the Bible "faith" does *not* mean belief in the existence of God, but means trust in God's promises. Thus Abraham is the model of faith because he believed God's promise of a son in his old age, a son who would be the father of a mighty race (Genesis 15: 5-6). Throughout the centuries of oppression and exile, "faith" meant trust that eventually God's promises would be fulfilled.

A similar difficulty besets those Christian writers, such as Thomas Aquinas, who have constructed philosophical arguments for the existence of God. Though Thomas is often careful to distinguish matters of faith from matters of reason, and though he holds that the existence of God can be rationally demonstrated without reliance on revelation, nevertheless throughout the *Summa Theologiae*, on almost every page, he mixes references to both pagan and Christian authors. Thus when he argues not only that the existence of God can be known through reason, but also that God is a person, that He is just and merciful, that He created the universe and provides for it, that He knows each of us as an individual, and so on, it is extremely difficult to separate the sources of his arguments, and to

know to what extent he could have reached such conclusions had he not grown up with a constant experience of the Scriptures and of daily prayers.

We do, however, have some clues. We have the results, in Plato, Aristotle, and Plotinus, of a long tradition of philosophical speculation which strove to reach the divine. Although this speculation itself began in the midst of a powerful tradition of very personal gods, gods with human faces, gods to whom one prayed and who answered prayers, sometimes by themselves descending from Mount Olympus to a battlefield where they deflected spears, healed wounds, and even fought directly, nevertheless Plato, Aristotle, and Plotinus largely left behind such apparently primitive and merely poetic notions. Thus Plato's "Good" is strictly impersonal (see especially *Republic* VI, 504-11), and in his account of a fashioner of the world, that "Craftsman" is described as at best having a certain likelihood (*Timaeus*, 29). Aristotle's First Mover is an object of love and veneration, but itself knows nothing of us and does not act in our world; its only object of thought is itself (*Metaphysics*, XII, 9, 1074b 33-34). Plotinus's One has some relation to our world but only through a series of intermediaries (see, for example *Enneads* V, para. 6).

This lecture consists of four parts. I first consider attempts to speak about God as Transcendent Being, the God who is. I next consider attempts to speak about God as Himself speaking to us, the God who speaks. Thirdly, I consider to what extent these two different attempts are compatible. Finally I briefly consider prayer, the action by which we speak to God.

Part I. God as Transcendent Being

Instead of beginning with any of Thomas Aquinas's well known "five ways" of demonstrating the existence of God, I want to start out from his discussion of "The Names of God," that is, from the way in which we human beings speak about God.[2] Following Aristotle, Thomas holds that all our knowledge, and the language we use to express it, derives from sensation and therefore from our experience of physical things in the world around us. How can any language so derived be applied to God?

Thomas distinguishes words that are applied to God "metaphorically," as in "God is my rock" or "God is a lion," from words that are applied to God "properly," such as "good" and "living" (Q.13, a.3). Although our understanding of "good" derives from, for example, good human beings, and our understanding of "living" from, for example, plants and animals, Thomas claims that the perfections signified by these words are not limited to bodily things, whereas "rock" and "lion" specifically mean something bodily. Therefore when "rock" and "lion" are applied to God, it can only be in some metaphorical sense. A word

like "rock" is not only learned from bodily things, but it points precisely to the bodily aspect of what it names. Hence when it is applied to God the meaning can only be by a kind of implied comparison, as to suggest that God's protection is firm and unchanging. "The Lord is my rock, and my fortress, and my deliverer" (Psalm 18:2). On the other hand, a word like "good," even though it is learned from its application to, for example, good food, good tools, and good men, has a meaning that can be separated from those bodily things and applied "properly" to God, that is, as if it belongs to God and is not merely applied to Him by comparison with some bodily thing.

Thomas goes even further. He makes the bold claim that words like "good" not only properly apply to God but apply to Him "more properly than to creatures themselves, and are said of Him primarily" (Q.13, a.3). How can this be? The best explanation comes from Plato, from the ladder of love in the *Symposium* (210-12), even though Thomas did not have this passage available to him and knew Plato's writings chiefly as they came to him through St. Augustine, pseudo-Dionysius, and others. Socrates says that we can ascend from the love of a single beautiful body to the love of beautiful bodies generally, then to the beauty of souls, then to the beauty of those customs and laws which bind men together in cities, and then to the beauty found by study and speculation. Finally, those who ascend the ladder in the right way will be struck with wonder as they see

> ...the final object of all those previous toils. First of all it is ever existent and neither comes to be nor perishes, neither waxes nor wanes; next, it is not beautiful in part and in part ugly, nor is it such at such a time and other at another, nor in one respect beautiful and in another ugly, nor so affected by position as to seem beautiful to some and ugly to others. Nor again will our initiate find the beautiful presented to him in the guise of a face or of hands or any other portion of the body, nor as a particular description or piece of knowledge, nor as existing somewhere in another substance, such as an animal or the earth or sky or any other things, but existing ever in singularity of form independent by itself, while all the multitude of beautiful things partake of it in such wise that, though all of them are coming to be and perishing, it grows neither greater nor less, and is affected by nothing. (210-11)[3]

Even though our experience of beauty begins from particular physical things, and even though the word "beautiful" is learned from those things — beautiful flowers, beautiful houses, beautiful women, beautiful days — the word itself leads us beyond them to a beauty that is in no way deficient and in no way changes. The word itself suggests that the beautiful things we see "partake" in such a beauty, that is, that their beauty is not truly their own but something shared from some higher source, which Socrates calls "beauty itself" (*auto to kalon*, 211d) or "the divine beauty" (*to theion kalon*, 211e).

In the *Phaedo* (74a-75c) Socrates argues the even stronger thesis that words like "equal," "just," and "good" not only lead us beyond sensible things around us, but could not have been derived from those things, and in the *Theaetetus* (185-86) he argues a similar strong thesis with regard to "being." But for Thomas, and for my present purpose, the weaker thesis is sufficient, that words like "good" point beyond our world to something higher and that they are applied more properly to it than to anything we can perceive with our senses.

This thesis is in turn the root of Thomas's doctrine of "analogy," a doctrine based on Aristotle's *Metaphysics*, Book IV, Chapter 2, even to the use of Aristotle's example of "healthy." A certain diet might be called "healthy" and a urine sample might be called "healthy," each by relation to "healthy" as applied to a living animal, the diet as the cause of health and the urine as the sign of health. Any such "analogous" use of a word always points to some one primary meaning. Similarly a word like "wise," as applied to creatures, points beyond creatures toward God, "in whom all the perfections of things preexist excellently" (Q.13, a.5).

The most important such concept will be the concept of being itself. God exists in the fullest possible sense. He never came into existence, He never changes, and He will never go out of existence. It is simply His nature or His "essence" to exist (Q.3, a.4). We, on the other hand, are born, we are constantly changing physically, emotionally, and mentally, and finally we die. We exist only in some lesser sense.

Elsewhere in the *Summa*, Thomas discusses the widespread custom among religious peoples of making offerings or "sacrifices" to God or gods:

> Natural reason tells man that he is subject to something higher, because of the deficiency which he feels in himself, so that he needs to be helped and directed by something higher. And whatever that is, it is what among all men is called God.[4]

Thomas is here describing what I would call the fundamental religious sensibility, the sense most men have had in most times and places that man "is subject to something higher." It is the sense most profoundly resisted by Nietzsche, Sartre, and others. On the other hand it finds a new contemporary expression in the sense of obligation toward preserving other species of animals and plants, whenever that obligation is understood not merely as serving human purposes, but as respect or "reverence" for species that have evolved over millions of years. It found expression among the Romans in the concept of *pietas*, which extended from duty to family, through duty to country, to duty toward the gods. The hard question is whether the religious sensibility is reliable, especially if it points beyond the physical world toward a Being which transcends that world. The hard

question is whether one can move from our sense of God and our language about God to the conclusion that God exists.

Thomas makes this very move in the fourth of his "five ways." Let me quote the argument in full:[5]

> The fourth way is taken from the gradations which are found in things. For there is found in things something more and less good, and true, and noble, and similarly with other qualities of this sort. But *more* and *less* are said of different things according as they differently approach some maximum, as more heat more closely approaches maximum heat. There exists therefore something which is truest, and best, and noblest, and consequently maximum being, since maximum truths are maximum beings as Book II of the *Metaphysics* says [Chapter 1, 993b 28-31]. But what is said to be maximum in any genus is the cause of all things in that genus, as fire, which is maximum heat, is the cause of all heat, as is said in the same book [loc. cit., ll. 24-25]. Therefore there exists something which for all beings is the cause of being, and of goodness, and of any perfection whatever. And this we call God. (Q.2, a.3)

This passage is fraught with difficulties. To start with, there is the confusing example of heat. The point of the example is not to suggest that any kind of quantitative variation points to a maximum, but to find a case where differences of degree do point to some outside source of the quality mentioned. Consider stones in the shade and in the sun. The stone in the sun is hotter than the stone in the shade. The gradations of heat in the stones suggest that the heat derives not from the stones themselves, but from something else, such as the sun. The sun is "maximum heat" in the sense that it is a *source* of heat, a cause of heat, in things like stones.

Can this example be applied to the kind of qualities Thomas here has in mind, namely "the good, the true, the noble," and other qualities of this sort? To focus on the example of "good": Is the goodness of things such that it suggests an outside source, a maximum goodness? Consider first things good as means to an end, such as good tools. Clearly their goodness derives from the ends they serve. Consider next things good as ends in themselves, such as good human beings. Is their goodness their own? Is it partial, temporary, and constantly changing? Does it point to a "maximum goodness" that could be the source of goodness in other things, a goodness that is complete, permanent, and unchanging?

We are back in the *Symposium* and the *Phaedo*. We start from experience of things in the world around us and from language and thought that develop in relation to those things. We experience "goodness" as embodied in physical things. But the experience itself, and the language and thought that express it, drive us beyond physical things to something that transcends the kind of realities we directly experience.

It is far beyond the scope of this paper to defend such reasoning against practically the whole of modern philosophy. Kant states the essential point of difficulty succinctly in the *Critique of Pure Reason*, with regard to the principle of causality:

> This principle is applicable only in the sensible world; outside that world it has no meaning whatsoever.... The principle of causality has no meaning and no criterion for its application save only in the sensible world.[6]

We can, however, briefly examine Kant's objection in relation to an argument combining the first and second of Thomas's five ways, an argument derived from the extended argument in Aristotle's *Physics* VIII. Basing himself on the obvious phenomenon of "motion" or change in the physical world, Thomas asserts that since nothing simply changes of itself, whenever anything does change, we look for a source or cause of change. Moreover, there could not be an infinite series of such causes or the result would never occur.[7] Therefore there must be a first cause of change. It does not cause *itself* to change, since this would contradict the whole thrust of the argument. Rather it is *unchanging*, an "unmoved mover" (Q.2, a.3).

Kant does not challenge the principle of causality as applied to the physical world. He grants that whenever something changes within the physical world, we do in fact look for a cause of change. The principle of causality is in fact a principle of investigation within the physical world. Kant's objection is to extending that principle toward something beyond the physical world. When we do so, we argue for the existence of something whose nature is totally different from anything we observe or even "can" observe, something that produces changes without itself changing. Kant claims that the principle of causality so extended is not merely unreliable but "has no meaning whatsoever."

But Kant's objection cuts two ways. While restricting the principle of causality to the physical world, and therefore to the strictly "scientific" investigation that it expresses, Kant leaves a question that physical science cannot answer, namely the question about the origin of the physical universe as a whole. Whatever scientific cosmology tells us must start from a certain given state of matter or energy. Is it unreasonable to suggest, though not in a strictly "scientific" way, that something must have given rise to that state in this first place, and that it must be of a nature totally different from the matter and energy that "science" can measure?

Let me turn also briefly to Thomas's fifth way, which is taken from the presence of purposeful order in natural things:

> For we see that some things which lack cognition, namely natural bodies, act toward an end; which is apparent from the fact that they always or frequently act in the same way so that that which is best may follow; whence it is plain

> that they reach their ends not by chance but intentionally. But those things which lack cognition do not go toward an end unless directed by something which knows and understands, as the arrow is directed by the archer. Therefore there is some intelligent being by whom all natural things are ordered toward their ends; and this we call God. (Q.2, a.3)

This argument was widely regarded as conclusive through the eighteenth and early nineteenth century, and has since been equally widely regarded as refuted by Darwin. The crucial point in the argument is, however, not simply the appearance of orderly structures in natural organisms, but the fact that orderly structures are repeated "always or frequently" in the same way. In his discussion of chance in *Physics* II 5-6, Aristotle makes it a defining property of chance that there is an appearance of order, as when a tripod tumbles down stairs and lands on its feet in an appropriate place, *as if* it was placed there on purpose (197b 17). Hence it is not the appearance of order that argues against chance, but the regular recurrence of order.

Aristotle himself entertains the Darwinian hypothesis:

> ...if a man's crop is spoiled on the threshing floor, the rain did not fall for the sake of this – in order that the crop might be spoiled – but that result just followed. Why then should it not be the same with the parts in nature, e.g. that our teeth should come up *of necessity* – the front teeth sharp, fitted for tearing, the molars broad and useful for grinding down the food – since they did not arise for this end, but it was merely a coincident result; and so with all the other parts in which we suppose that there is purpose? Whenever then all the parts came about just what they would have been if they had come to be for an end, such things survived, being organized spontaneously in a fitting way; whereas those which grew otherwise perished and continue to perish...[8]

Aristotle here argues that the Darwinian hypothesis is insufficient because, for example, the teeth "either invariably or normally come about in a given way" (198b 35). Aristotle could perhaps accept Darwin's analogy between natural selection and the controlled breeding of animals, but he would still argue that some explanation is needed for the nearly uniform succession of characteristics from generation to generation. This is the fact that Darwin takes for granted both with respect to natural selection and to controlled breeding.

On the other hand, Thomas's argument is subject to a different objection — one of two that he himself raises against the general conclusion of the whole set of five ways, the conclusion that God exists — namely that if there is a God, and if He produces order in things, *and if He is also good*, how can there be so much evil? Thomas's reply to this objection is drawn from Augustine: God would not allow evil "unless He were so omnipotent and good that He can make good even out of evil" (Q.2, a.3, objection 1 and reply). It seems to me that on this particular

point the evidence can only be moot. Much that is good and beautiful in the world might suggest that there is a benevolent deity ordering the universe, but then one has to confront that conclusion with evil and suffering.

Moreover, Aristotle himself does not argue from order in nature to the existence of an intelligent being outside of and ordering nature. He assigns the order in natural things to nature itself (*physis*), as a principle working *within* things (192b 22). And this suggests the second objection that Thomas himself raises against the conclusion of his five ways:

> ...What can be completed through fewer principles does not occur through many. But it seems that everything which appears in the world can be completed through other principles, supposing that God does not exist... (Q.2, a.3, obj. 2)

Thomas replies only that "everything in nature reduces also to God, as to its first cause" (Q.3, a.3, reply to obj. 2).

On this general conclusion also, the evidence seems to me to be moot. I certainly cannot claim to have *proved* the existence of God. Yet I have argued that much in our experience drives us toward something beyond physical things. We like to scoff at medieval man, who was so arrogant as to place himself at the exact center of a rather small universe. Is it any less arrogant for us to think that we are the highest form of life in an infinite universe? Or that if there are other intelligent beings, they have brains and bodies something like our own? Is it unreasonable to suppose that there might exist a Being utterly different from ourselves and from any physical thing, eternal and unchanging? Is it unreasonable to think of that Being as the "cause" of the universe we know, however much we have to strain the word "cause"?

Part II. God as Speaking to Us

In Part I we followed Socrates' progress from seeing beautiful things to a vision of beauty itself. Moreover it should be noted that the metaphor of the Platonic *eidos*, which comes from a verb meaning "to see," is visual, a "form," whether seen with the eye of the body or the eye of the mind. Though spoken oracles play a prominent role in Greek religion, Plato's own progress toward God is primarily through sight.

Throughout the Bible, on the other hand, God is *heard*:

> Now the Lord said to Abraham, "go from your country and your kindred and your father's house to the land that I will show you. And I will make of you a great nation..." (Genesis 12: 1-2)

Though God's power is often visible, and though visions occasionally reveal something of God, as in Isaiah 6: 1-3, and Revelation 4: 1-11, it is primarily through a voice that God is known, whether that voice is heard directly, as by Abraham, or indirectly, through a prophet.

The voice speaks in a human language, but Abraham never questions whether the voice he hears is the voice of God. Even when the voice commands the murder of Isaac, the child of the promise, through whom Abraham was to be the father of the Lord's chosen people, Abraham proceeds without hesitation to the execution of the divine command, at least so far as the extremely spare account in Genesis tells us (22: 1-4). Most often the later prophets also simply state, "Thus says the Lord." How Abraham and the prophets know that it is the Lord who spoke to them, we are not told. They simply *know*. It is perhaps impossible for one who does not share such an experience to enter into it. The certainty possessed by Abraham and by the prophets can only remain mysterious. And even though it has become almost fashionable for contemporary Christians to hear the voice of the Lord, their certainty must also remain mysterious.

On the other hand, when Moses hears the voice from the burning bush, he is given a *sign* of divine presence, since the bush, though it is burning, is not consumed (Exodus 3: 2-3). When the Lord orders Moses to speak to the children of Israel in His name, Moses *asks* for a sign, and the Lord gives him three: the rod that can turn into a serpent and then back into a rod, the hand that can turn leprous and then be healed, and the Nile water turning into blood (Exodus 4: 1-9). And though the Pharaoh's magicians themselves perform such wonders, greater wonders follow which they cannot match, so that finally even they say, "This is the finger of God" (Exodus 8:19).

Similarly, in the time of Elijah, when worship of the Baals was overwhelming the worship of the true God, God sends a sign of fire (I Kings 18: 20-40). And in the gospels, Jesus is shown to be the messenger of God by the signs that he works. When Jesus brings to life the son of the widow of Nain, men exclaim, "A great prophet has risen among us!" and "God has visited his people!" (Luke 7:16). When the Pharisees accuse Jesus of blasphemy for presuming to forgive sins, Jesus says, "But that you may know that the Son of man has authority on earth to forgive sins"; he then said to the paralytic, "Rise, take up your bed and go home" (Matthew 9:16). Elsewhere Jesus says, "These very works which I am doing, bear me witness that the Father has sent me" (John 5:36), and finally he even says, "Even though you do not believe me, believe the works" (John 10:38).

A long line of rationalist critics has attacked such miracle stories in the Bible, such stories of "signs" and "works," first by challenging their credibility and second by challenging their importance to the central religious message of the Bible. The first challenge is beyond the scope of this paper, but let me speak to the second. Consider the relevance of miracle stories to the belief in a personal God. By a "personal" God I mean a God who *acts*, following the root sense of

the word *persona* as deriving from the mask worn by a stage actor. How are we to conceive of a personal God if not in somewhat human terms? — a God who speaks, a God who chooses, a God who *does* things, in short, a God who acts. Furthermore, why would we say that *God* is acting if it were not for events called "miraculous," that is, "wonderful," "remarkable," events so extraordinary that they seem to exceed the possibilities of "natural" causes and effects? Such events suggest the direct intervention of a God who *chooses* in a particular instance to act in an unusual way. I do not assert that the belief in a personal God could arise *only* in the context of such stories, but it is at least clear that such stories have had a prominent part throughout the world in traditions about personal gods or God.

On the other hand, even in the story of Elijah, after the episode of the miraculous fire in I Kings 18, there is the remarkable passage in I Kings 19, where Elijah seeks God on Mount Horeb. At first there was a mighty wind,

> ...but the Lord was not in the wind; and after the wind an earthquake, but the Lord was not in the earthquake; and after the earthquake a fire, but the Lord was not in the fire; and after the fire a still small voice. (I Kings 19: 11-13)

It is in that still, small voice that the Lord speaks to Elijah. Also when Jesus is *asked* for a sign, he refuses to give it, saying, "An evil and adulterous generation seeks for a sign" (Matthew 12:39).

Finally, it must be said that miraculous signs are relatively rare, even in the history described in the Bible. From Abraham through the life of Jesus, that history extends over a period of perhaps 1800 years. Only at very infrequent intervals are miraculous events reported. More often God is described as acting through natural causes, such as disease, and through human instruments, especially through foreign rulers and their armies. This is the way in which God first destroys the kingdoms of Israel and Judah, and then restores the exiles. For example, in Isaiah 41 the reference is to Cyrus, King of Persia, who conquered Babylon and allowed the Jews in Babylon to return to Jerusalem:

> Who stirred up one from the east whom victory meets at every step? He gives up nations before him, so that he tramples kings under foot.... Who has performed and done this, calling the generations from the beginning? I, the Lord, the first, and with the last; I am he. (Isaiah 41: 2-4)

As Isaiah understands it, God has arranged for Cyrus to conquer Babylon and thereby set free His own chosen people. Thus for most people most of the time, not only in our own world but in the world of the Bible, God's hand is not apparent. Men must *believe* that God is acting even when He is hidden. However terrible the sufferings of the chosen people at the hands of Egyptians, Philistines, Assyrians, and Babylonians, the children of Israel must believe that God is active,

perhaps punishing them for their own sins. They must believe that the promises of special protection and a unique destiny made to Abraham, Isaac, and Jacob will somehow be fulfilled.

Part III. God as Both Transcendent and Speaking

Isaiah's view of history has further implications, staggering implications, and Isaiah himself does not hesitate to draw them. The God who hears the prayers of the children of Israel and who frees them from exile is not simply a local god, powerful in the region of Jerusalem. He is a God who uses distant nations and peoples as His instruments. He is in fact the Lord of the whole earth and even of the heavens, because he brought them into being.

> Why do you say, O Jacob, and speak, O Israel, "My way is hid from the Lord, and my right is disregarded by my God?" Have you not known? Have you not heard? The Lord is the everlasting God, the Creator of the ends of the earth. He does not faint or grow weary, his understanding is unsearchable. (40: 27-28)

> For thus says the Lord, who created the heavens...who formed the earth and made it..."I am the Lord, and there is no other." (45:18)

Thus we get that double aspect of the Bible which makes for both its difficulty and its power. On the one hand, God is, if it is not blasphemous to say so, in some way like the gods of Homer. He speaks to men in a human voice, He knows individual men by name, He hears their prayers and acts to help them. On the other hand, God does not have parents, like Homer's gods. He does not reside on Mount Olympus. Instead, when Solomon builds the first magnificent temple, he says in prayer,

> But will God indeed dwell on the earth? Behold, heaven and the highest heaven cannot contain thee; how much less this house which I have built. (I Kings 8:27)

And there are many other passages that emphasize how mysterious God is. His act of making is simply by a spoken word:

> And God said, "Let there be light"; and there was light. (Genesis 1:13)

His knowledge is beyond our comprehension:

> Even before a word is on my tongue, lo, O Lord, thou knowest it altogether. Thou dost beset me behind and before, and layest thy hand upon me. Such knowledge is too wonderful for me; it is high, I cannot attain it. (Psalm 139: 4-6)

God is unchanging:

> Before the mountains were brought forth, or ever thou hast formed the earth and the world, from everlasting to everlasting thou art God. (Psalm 90:2)

Fidelity to the Bible demands fidelity to the God who both speaks to Abraham and exists from everlasting to everlasting. The conflict is not between the God of the philosophers and the God of the Bible. Our difficulties in speaking about God do not arise just from philosophical speculation but arise within the Bible itself. The God of the Bible is a person who acts, but in a way different from any action we know. God acts without Himself changing:

> Every good endowment and every perfect gift is from above, coming down from the Father of lights with whom there is no variation or shadow due to change. (James 1:17)

Finally God exists in a way different from anything we know. When Moses asks God to reveal His name, God answers in words variously interpreted as "I am Who I am," "I am what I am," or "I will be what I will be" (Exodus 3:14). Thomas takes these words as saying that God's nature is to exist. All other things have a partial and borrowed existence. God alone simply *is* (see Q.3, a.4; Q.13, a.11). Any other conclusion would imply change in God and would violate the conclusion of the five ways, that God is the source of all change but is Himself unchanging. For Thomas the Bible and the philosophers here come together.

We saw in Part I that Thomas argued that words like "good" could be properly applied to God, and even more properly to God than to things around us. Thomas acknowledges, however, that the *modum significandi*, the "way of signifying," of such words is different when applied to God (Q.13, articles 3 and 6). Thomas is referring, I think, to the same point as in his claim that existence belongs to God by nature. Any qualities we ascribe to God, such as goodness, must also be His by nature. To be God is to be good. Moreover, it is even misleading to think of "qualities" ascribed to God. Like existence, goodness *is* God's nature. God is utterly one and utterly undivided (Q.3, articles 3, 6, and 7). Our language, however, is developed from things that are divided, things whose qualities are not identical with their natures. A human being may or may not be good, and if he is good, goodness is not identical with his nature. Therefore the "way of signifying" of "good" is different when applied to human beings and when applied to God.

Thus our language is constantly straining. Thomas says that we attempt to speak about God by using two very different kinds of words: abstract words, to signify His undivided nature, and concrete words to signify what Thomas calls "His subsistence" (Q.13, a.1, reply to obj.2). Thus we use abstract words in saying that God is Goodness and Wisdom and Truth, and we use concrete words like the Tetragrammaton, a proper name, and words like "The Lord" and "He," to signify that God is, "if it is permissible to speak in this way, an individual" (Q.13, a.11, reply to obj.1) Thomas recognizes strain on both sides, both when speaking about God as goodness and when speaking about God as an individual.

The strain also shows when Thomas attempts to ascribe intellect and will to God. The divine intellect never learns anything, or *comes to know* anything. God simply knows. Like any qualities we ascribe to God, His act of understanding must be considered as simply what He is, eternally and unchangeably (Q.14, a.4). Similarly God's act of choice must be understood as simply what He is, eternally and unchangeably (Q.19, a.1). All the actions of God described in the Bible must be understood as identical with His nature even though manifested to us in time as distinct events.

How can an unchanging God hear and answer prayers? In attempting to answer this question, Thomas refers to God's actions in the natural world. Just as God's action as primary cause does not remove the whole order of secondary causes that function as instruments in God's hands, so God can use even our prayers as contributing to the effects that follow (Q.23, a.8).

How then can our prayers, or indeed any of our actions, be freely performed by ourselves? Here again Thomas relies on the conception of primary and secondary causes, and on a distinction among secondary causes. God effects some things through causes that act without thinking, like falling rocks and rain, and some things through causes that think, deliberate, and decide. God's action as primary cause does not change the nature of those secondary deliberating and deciding causes. To say that men deliberate and decide is to say that they are free (see Q.22, a.4).

But still, even if we are "free" in the sense that we deliberate and decide, are we "free" in the sense that we could have acted differently than we do? If all our actions go back ultimately to God as first cause, is it not God who ultimately decides? And if so, why has not God made me better than I am, and made me act better than I do? In considering these questions, St. Paul, who stressed at the beginning of Romans that man can approach God through reason, later in the same letter stresses the limits of reason. Paul discusses God's choice of Jacob over Esau, of Jews over Gentiles, and finally of some for the grace of Christian belief. Paul says that God

> ...has mercy upon whomever he wills, and he hardens the heart of whomever he wills. (Romans 9:18)

The question immediately arises for Paul:

> Why does he still find fault? For who can resist his will? (Romans 9:19)

Paul's reply is as follows:

> But who are you, a man, to answer back to God? Will what is molded says to its molder, "Why have you made me thus?" Has the potter no right over the clay, to make out of the same lump one vessel for beauty and another for menial use? What if God, desiring to show his wrath and to make known his power, has endured with much patience the vessels of wrath made for destruction, in order to make known the riches of his glory for the vessels of mercy, which he has prepared beforehand for glory, even us whom he has called, not from the Jews only, but from the Gentiles... (Romans 9: 20-24)

In dealing with man's relation to God Paul is driven to consider man as a lump of clay in the hands of God, the potter. The metaphor is not Paul's own. It is suggested by Genesis 2:7, where God makes man from the dust of the earth, and it is used by both Isaiah and Jeremiah as an image of God's relation to his chosen people (Isaiah 29:16; 45:9; Jeremiah 18: 1-11). But as Paul goes on, he breaks off in mid-sentence. He does not even finish stating his question, let alone answer it. He gets led away into his favorite theme, that God's salvation extends to Gentiles as well as Jews. The question as to why God chooses some Jews and not others, or some Gentiles and not others, is not even stated in a grammatically complete sentence.

Unsatisfactory as Paul's reply is, I believe that no Christian writer has improved upon it. Dante says that even the blessed in Heaven who see God face to face will not understand why God has chosen one particular man for a certain grace and not another (*Paradiso*, Canto XXI, 52-102). This is the unfathomable mystery that lies at the heart of man's relation to God. I do not wish to explain away this mystery. I wish only to say that the mystery arises not from philosophical speculation alone, but from the Bible itself. The God who speaks to Abraham is also the unchanging creator of all things.

Part IV. Prayer: We speak to God

I have stressed throughout the difficulty we have in speaking about God, and even the apparent contradictions toward which we are led. If this were mathematics, the contradictions would force us to reject the hypothesis from which the contradictions arose, but the language of mathematics is more adequate to its subject matter than the language of theology. Even the language of physics is not fully adequate to its subject matter, for example, to the phenomena of light. The

difficulties of reconciling wave and particle hypotheses of light are well known, and yet we neither ignore the phenomena nor reject altogether the language of wave and particle.[9] If in physics, should we not in theology strive to be true to our experience, and frankly acknowledge the difficulties to which it gives rise, without expecting that the strains on our language will ever entirely disappear. Such strains need not be destructive of religious belief, provided they help us realize the infinite distance between our speech and the reality it attempts to reach. Isaiah says, "Truly, thou art a God who hidest thyself, O God of Israel" (45:15), and Thomas prefaces his long discussion of the existence and nature of God, a discussion that includes the five ways of demonstrating the existence of God, with the statement that we can not say how or what God is, *quomodo sit*, but only how or what He is *not*, *quomodo non sit* (Introduction to Q.2).

Kierkegaard stresses two dangers for Christianity, which can perhaps be considered as dangers for religious belief generally. One is conventional Christianity, being a Christian simply by birth or upbringing because one lives in a "Christian country" like Denmark, and never making Christianity one's own.[10] The other danger is characterized as "superstition" and "fanaticism." By these words Kierkegaard means thinking that one can reach "objective truth" about Christianity, that one can know the truth about Christianity in the way that one knows simple and obvious facts.[11] This implies superstition, because it lowers God to something within our grasp. And it implies fanaticism, because the fanatic will think that everyone should believe in precisely the way he does and will be intolerant of those who do not. The protection against both dangers is the correct understanding of "faith." If we realize that our belief in God is a "leap" beyond our ordinary knowledge, we will realize also that the habits of our family and nation are not enough to sustain our belief, that our belief demands strenuous, constant, and lifelong effort. Our sense of the mystery of God will also protect us against making God less than He is, and against hostility or contempt toward those who cannot make the leap of faith.

> I contemplate the order of nature in the hope of finding God, and I see omnipotence and wisdom; but I also see much else that disturbs my mind and excites anxiety. The sum of all this is an objective uncertainty.... If I wish to preserve myself in faith I must constantly be intent upon holding fast the objective uncertainty, so as to remain out upon the deep, over seventy thousand fathoms of water, still preserving my faith. (*Postscript*, p. 183)

I do not know whether anyone in our time and place can return from Kierkegaard's conception of faith, where even the existence of God is a matter of faith, to the Biblical conception of faith, which applied only to God's action, to His fulfillment of promises, to His response to prayer. But then as now those who pray cannot be convinced that their sense of speaking to God is merely an illusion. I do not here refer to prayers offered on public ceremonial occasions, prayers couched as ad-

dressed to God but often really exhortations addressed to ourselves. I speak of prayers that are genuinely spoken to God.

In the European languages that distinguish between familiar and formal address, God is addressed with the familiar form, as in French with *tu* instead of *vous*. That is, Frenchmen address God in prayer with the word used toward close friends, not with the word used toward superiors. The same was true in English when "thou" and "you" reflected a similar distinction, and when English religious usage was first established. Unfortunately, by a curious reversal, the use of "thou" now seems to many English speakers appropriately formal in English prayers, and the use of "you" excessively familiar, so that the direct and immediate sense of intimate friendship with God is now less explicit in our language. But though the beginning of wisdom is fear of the Lord (Proverbs 1:7), and though much can be said of the majesty of God and the mystery of God, and of the believer as "out upon the deep, over seventy thousand fathoms of water," one can still pray with the Psalmist:

> One thing have I asked of the Lord, that will I seek after; that I may dwell in the house of the Lord all the days of my life, to behold the beauty of the Lord, and to inquire in his temple. (Psalm 27:4)

As Augustine expressed it,

> Thou hast made us for Thyself, O Lord, and our hearts are ever restless until they rest in Thee. (*Confessions*, I, 1)

That rest begins in prayer.

* * * * *

Notes

1. All quotations from the Bible, unless otherwise noted, are from the Revised Standard Version.
2. *Summa Theologiae*, I, Q.13, Marietti edition (Rome, 1950). All translations are my own.
3. *The Symposium*, translated by W. R. M. Lamb, Loeb edition (London, 1953).
4. *Summa Theologiae*, Second Part of the Second Part, Q.85, a.1.
5. For an extended and excellent discussion of the "fourth way," see R. Garrigou-Lagrange, O. P., *God, His Existence and His Nature* (St. Louis and London, 1934), Vol. I, pp. 302-45.
6. Page B637 in the Norman Kemp Smith translation (London, 1953).
7. It should perhaps be noted that the infinite regress Thomas and Aristotle "reject" is *not* an infinite regress in time. Neither Aristotle nor Thomas saw anything impossible in an infinite series of father and sons extending backwards in time. Aristotle in fact held that the world had existed through infinite time and Thomas held that there was nothing impossible in such a supposition, even though we believe from revelation that the world has existed only for a limited time. The infinite regress both reject is an infinite regress of causes where each cause depends on the one before it, as for example if a stone is moved by a stick, the stick by the hand, the hand by a muscle in the arm, the muscle from energy from food, etc. If such a series does not reach a beginning, the final result will never occur. (See Q.46, a.2, especially reply to objection 7.)
8. *Physics* II, 8, 198b 22-32, Hardie and Gaye translation in the Oxford edition, as selected in *The Basic Works of Aristotle* (New York, 1941). Darwin himself quotes this passage as having "shadowed forth" the principle of natural selection (*The Origin of Species and the Descent of Man)* [Modern Library, New York, no date, p.3]).
9. See Ernest Nagel, *The Structure of Science* (New York, 1961), pp. 293-305.
10. Kierkegaard's *Concluding Unscientific Postscript*, translated by David F. Swenson and completed by Walter Lowrie (Princeton, 1968), p.19, pp. 29-50.
11. See the *Postscript*, pp. 32, 35, 325.

A Meditation on the Present Plight of Philosophy and the Pursuit of Truth

Monica C. Hornyansky

This is what I think should properly be called an occasional paper, because it was occasioned by two recent experiences — one the invitation to be part of a symposium of ex-students of a university department of philosophy, and the other my reading of Richard Rorty's recent book, *Contingency, Irony, and Solidarity*. As ex-students we had been asked to contribute a meditation on the future of philosophy at the turn of the millennium: We should consider where we were, if anywhere, in our own philosophical thinking, and at the same time consider where philosophy itself might be heading at the turn of the millennium. And Rorty's book had just forced me, as a teacher in a Great Books program, to rethink the claim, which such a course implicitly makes, that some books, including philosophical works, have a lasting validity and authority, for although Rorty acknowledges the social usefulness of literature, he concedes enough to the deconstructionist temper of the time to throw doubt on the possibility of valid public criticism. Both occasions, then, imply some kind of crisis in thinking — is philosophy in trouble at the end of this century, and if so, why? And do any books have the kind of lasting relevance that makes them worth reading for what they intend to say, rather than as a kind of Rorschach test or trainer of individual subjectivity?

These questions, I think, require a theoretically founded response, and as a Sartre scholar I shall couch mine in terms of Sartre's theory of value, the most recent and perhaps the last consciously comprehensive such theory. So what I shall do first is give a brief picture of the way in which, some fifty years ago now, Sartre both understood and responded to these questions, and then I shall consider whether Rorty's response is an overreaction which risks throwing the baby

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(mainly the philosophical, but also the critical, pursuit of truth) out with the bathwater (metaphysics).

My preliminary response to the first question — Is philosophy in some kind of crisis? — is that I think perhaps it is, but only because philosophy is always in trouble, as a special case of what Sartre called "the desire to be God." In his book Rorty argues that philosophy has been haunted by a *Drang nach Metaphysik*, and in particular by a hopeless quest for a founded ethics which would solve the tension between private autonomy and the requirements of citizenship. I shall come back to Rorty later; what I want to say now is that if we take what he says at face value, we would have to admit that while his diagnosis is plausible, his solution — which amounts to substituting literature and idiosyncratic commentary for philosophical analysis or description — would mean the end of philosophy as it has been classically understood.

First of all, then, Sartre's use of the phrase "the desire to be God" easily accommodates philosophy as merely a special case of that desire, which he thought was a universal human condition, the result of the fact that consciousness and the world we are conscious of are both run through and through with contingency. Our reaction to the fact that contingency prevails in every aspect of our day-to-day experience leads to misgivings about the past, nervousness about the future, and anxiety in the present, to overstate the case but make it in short order. The constant questions, What do I think? What shall I do? What should I think? What should I do?, are the questions that have no necessary answers for us, leaving us with an ineradicable desire for some sense of a necessary structure for existence — the forms of culture we arrive at are manifestations of this primary need to endow our actions with necessity, and our understanding with certainty.

Sartre summed up this ontological predicament in the phrase "the desire to be God" because it is our religious imagining of what God is like that expresses most clearly the values we would like to have ourselves as a nature, or to find embedded in the world. They are the values that would, if we had them, put our constant questioning of ourselves to rest, and give us a quiet conscience, because they would be inarguably necessary. Isn't this what God is like after all? He creates everything, knows everything, and does what he wills knowing that it is good. This is our idea of what it would be like to have a self-sufficient and self-satisfied consciousness, and this, Sartre thought, is the source of all the conventional, religious, societal, personal, aesthetic, and philosophical values through which we attempt to symbolize that consciousness.

So now, back to philosophy — we can see that the values the philosophical enterprise has promulgated in the Western tradition are *par excellence* manifestations of the desire to be God. As an escape from contingency, philosophy has been drawn from the beginning by the lust for metaphysical necessity, rational

certainty, or final definitions of the good. If you think "lust" too strong a word, remember the siren song that Odysseus heard — "no life on earth can be hid from our dreaming"[1]; philosophy has always dreamed of precise, necessary, and complete truth, as the fulfillment of its values.

We have tried to achieve this with endemically inadequate means. Logic, observation, imagination fail to reach the ideals of rational certainty, consistency, and wholeness which would satisfy our epistemological longing.

But perhaps, one might think, all those attempts to find foundational truths and deductive consequences of foundational truths are in the past, and the twentieth century has been exempt from all that. Thanks to Kant on Reason and the *Ding an sich*, Kierkegaard on Hegel, and Nietzsche on any number of things, the skeptical antithesis has been thoroughly aired.

Of course this is true, but the fact is that it is still aired from the point of view of philosophers, whose besetting problem is the desire to be God in his epistemological aspect. So Kant still insisted on the *a priori*, Kierkegaard on the exigencies of the Eternal, even Nietzsche on the overman and an eternal recurrence of the same. And still in our century desperate measures have been taken. In spite of what Nietzsche from time to time said about language, there has been on the one hand the idea that language is a system of logical relations or a body yielding empirical reliability, and on the other hand, in Heidegger's thought, the claim that man, as the shepherd of Being, enfolds Being in speech — in itself a wonderful metaphor, but is it true?

Well, while the ideal of rational certainty, whether produced by idealist construction or empirical observation, was still the form in which philosophers' desire for divine justification was accepted and practiced, there was no crisis. And while language served as the empirical body or the locus of wisdom, the evil day for philosophy was staved off. But now at the end of the century we do seem thoroughly to have absorbed — after all, Rorty includes it in his title — what Sartre thought of as his great discovery in the 1930s, the pervasive contingency of everything in our experience. What Sartre feared then — Simone de Beauvoir describes him nervously scanning a book of Lévinas, muttering that his thunder on contingency had been stolen — has become belatedly true: Almost everyone thinks everything is contingent and has forgotten or never noticed Sartre on the subject. Now contingency is all about us, we are in the age of the paradigm shift and the deconstruction of metaphysical thinking. Read Kuhn, read Derrida, read, in particular, Richard Rorty's new book, to which I now return, as apparent evidence that philosophy is getting over the desire to be God, epistemologically defined.

Rorty proposes that the word he would like to use for the hitherto foundational thinkers, i.e., philosophers, is "theorists," because philosophy has given up or should give up the attempt to think metaphysically, or to arrive at what he calls a "final vocabulary" for the description of basic concepts such as the good and

the self, what I have been describing as the peculiarly philosophical form of the desire to be God.

Let me quote part of Rorty's discussion of the new kind of philosophizing that he recommends in *Contingency, Irony, and Solidarity*:

> Hegel's criticism of his predecessors was not that their propositions were false but that their languages were obsolete. By inventing this sort of criticism, the younger Hegel broke away from the Plato-Kant sequence and began a tradition of ironist philosophy which is continued in Nietzsche, Heidegger, and Derrida. These are the philosophers who define their achievement by their relation to their predecessors rather than by their relation to the truth.[2]

Would Hegel have thanked Rorty for this recommendation, I wonder? After all, he said that philosophy wasn't philosophy if it was content to remain in the contingent. However, let's concede for the moment that Hegel started this movement towards the substitution of, as it were, reference to the words of others for reference to a putative truth. Rorty emphasizes his view of this when he substitutes for Hegel's notion of "dialectic" his own, as follows:

> I have defined "dialectic as the attempt to play off vocabularies against one another, rather than merely to infer propositions from one another and thus as the partial substitution of redescription for inference.[3]

Furthermore, Rorty does not think of his definition of dialectic as being particularly foreign to Hegel's practice, for he adds:

> ... Hegel's so-called dialectical method is not an argumentative procedure or a way of unifying subject and object, but simply a literary skill – skill at producing surprising gestalt switches by making smooth rapid transitions from one terminology to another.[4]

It is this manipulation of vocabularies that Rorty now recommends as a prime philosophical method, especially as he is mostly concerned with the unbridgeable gap as he sees it between the ethics of the person and questions of public justice. Rorty divides philosophers according to which of these is their major topic; paradigmatically Nietzsche is interested in the individual, Dewey in the social. He suggests that the former are in particular the practitioners of an ironist philosophy on the following understanding of the difference between metaphysical theorizing and ironism:

> For the ironist theorist, the history of belief in, and love of, an ahistorical wisdom is the story of successive attempts to find a final vocabulary which is no mere idiosyncratic historical product but the last word, the one to which

> inquiry and history have converged, the one which renders further inquiry and history superfluous.[5]

On the other hand, he says:

> The goal of ironist theory is to understand the metaphysical urge, the urge to theorize, so well that one becomes entirely free of it....The generic trait of ironists is that they do not hope to have their doubts about their final vocabularies settled by something larger than themselves.[6]

But these general requirements of ironist theory seem to have resulted, in Rorty's account of Derrida, in what he himself calls "private fantasy." He praises the later Derrida for increasing the bounds of "possibility," for having created a new kind of philosophical thinking, especially in his book *Envois*. And this is what Rorty says about that book:

> The later Derrida privatizes his philosophical thinking, and thereby breaks down the tension between ironism and theorizing.... Falling back on private fantasy is the only solution to the self-referential problem which such theorizing encounters, the problem of how to distance one's predecessors without doing exactly what one has repudiated them for doing.[7]

So perhaps it is the case that late twentieth-century writers are proving Sartre wrong — for if what Rorty says about Derrida is true, and he approves it, then he certainly advocates giving up, and has himself given up, the desire for rational certainty about necessity as an intellectual form of the desire to be God. That is, the anti-principles, as it were, of paradigm shift and intertextuality are to be pressed to show that because there is no way in which we can preserve a reference to reality (for all the usual reasons) we should give up on truth itself as a regulative ideal.

So now I come to my principal objections to Rorty's position, and will describe both how Sartre recognized the problem and how he went about solving it. My objection to Rorty's view of what he calls "ironist" philosophy — that is, a philosophy fully conscious of its own tentativeness, and the so-called intertextuality that he praises in Derrida — is that although it does not claim to have abandoned the ideal of truth to reality as the touchstone of philosophy as opposed to art or to *mythos*, it is close enough to doing so to intensify the present difficulties of philosophy to the point of crisis.

It is here, as is rather usual with philosophy, that a quite sensible *aperçu* is being elevated into a principle, just because at least one of those desiderata — certainty, consistency, completeness — is still exerting its siren call. Ironically enough, the idea that contingency is the order of reality apparently obliges the ironist to such diffidence of his ability to say anything true about reality that he

must retreat into "private fantasy," an idiosyncratic exposé of his relation to the philosopher against whom he measures himself. Here then we have perhaps nothing more than another example of the tendency of philosophers to inflate a partial truth and fly off with it into a larger sublunacy.

Let me oppose to those who are happy in, even advocate, taking refuge in private worlds, George Steiner, lecturing in Cambridge several years ago, on what he called *Real Presences*.[8] In the literary context he criticizes deconstructionist method as illegitimately claiming to be the equivalent of the texts which occasion it. But he insists that there is a difference — not the shot silk of Derrida's *différance*, but an ontological difference — between an original work of art and any criticism of it or any loosely related associative ramble through the critic's or the author's psyche, however well-stocked. He is particularly incensed at a teacher's judgment, which he quotes, that to read Derrida on Rousseau was more interesting than to read Rousseau himself. What Steiner insists is that the text is substance, and commentary on it accident; to maintain otherwise is, he says, "a perversion not only of the calling of the teacher, but of common sense where common sense is a lucid, concentrated expression of moral imagining."[9] So here Steiner is insisting on an ontological difference — an instance, perhaps, of what Rorty would call "a final term" — between a work of literature and a work of criticism.

What I want to consider now is the question, What would be the equivalent distinction one would make in philosophy, whether we call it theorizing or whatever we call it? The equivalent distinction would be, I think, that philosophy aims at saying something true about reality, leaving aside whether it is a truth of coherence or of correspondence; the distinction would still be between *logos* as a rational account and *mythos*, or the goal that Rorty thinks is satisfactory, that is, the defining of one's thought not against a putative truth, but against the thought of one's predecessors. Taking Steiner's cue, one who wished to make the distinction between philosophy and Rorty's ironism would insist — and here I return to Sartre — on the difference Sartre notes between God's creation and our own, that it is there whether we will or no (or as Sartre argues the point at the beginning of *Being and Nothingness*, the being of appearances is indeed being, it is not itself appearance). This implies a strong denial of the pervasiveness of what postmodernists call *simulacra* — the ubiquity of likenesses, imitations of imitations, in all cultural manifestation, there being no original bedrock of "presence"; we are never, according to this vision of the world, in the presence of being rather than of symbol, sign, or word.

Now I would like to return to Sartre's descriptions of God, especially those in his *Cahiers pour une Morale*, to see whether there is any way of bridging the gap between philosophizing in the old sense, and theorizing in the Rortyan sense, since Rorty is undoubtedly right to insist that the old metaphysical longing must be abandoned — I am not defending it. The question for me is only, must we then just retreat into private worlds more like *belles lettres* than like philosophy

(or literature, which claims, as Thucydides claimed for his History, to be "a possession for ever")?

Sartre believes that God the creator is just as much of a metaphysical illusion as God the all-knowing, but that that illusion — one of our most strongly imagined myths — does have importance for us. Indeed Sartre recommends a threefold reflection on God's creativity in order that we may discover what it means for our understanding of ourselves and human existence. Such a reflection would, he thinks, first, reveal creation "under the activities of appropriation and identification"[10] — that is, it would show that we ourselves ought to appropriate and identify with our own creativity; second, it would clarify the distinctions between the metaphysical myth of the Creation and creativity as an ontological structure of our own; and third, it would lead us to use the myth as a guiding thread to interpreting the meaning of that structure: What do we imply about ourselves in inventing the myth of God the Creator?

What Sartre immediately points out as he pursues this reflection is that the first thing we have to acknowledge is that we are not the inventors of the contingent world into which we erupt as consciousnesses, and so ours is always a dependent creation, accidental upon the substantiality of the natural world into which we are born. So although our secondary task of creation is not one about which we have a choice — the human world exacts our shaping just because of its inherent contingency — nevertheless we have to take account of the inalterable aspects of the natural world just because we are not its creators. Isn't there here, then, in substituting God's creativity for his knowledge, a value for philosophers? And isn't it something they have been in the process of integrating into their epistemological theory for a couple of centuries, ever since Kant made his fruitful use of the imagination as the condition, through the schema, both of knowledge and of art?

This matter of the adoption of the idea of imagination into the philosophical armamentarium is worth a detour, as an example of how we might interpret our own creativity as underlying the myth of Creation. It was one of Sartre's avowed methods to take a word that was not particularly precisely defined and use it as an instrument of thought in the sense that its metaphorical properties could be exploited to throw imaginative light on something hitherto obscure — this is how he used the word "nothingness" to throw light on the consequences of consciousness. So in a way he himself was an exemplum of what Rorty recommends, that a theorist express his originality in the invention of a vocabulary to say what is new in his thought. But the common-sense aspect of this is that the less he invents the better, if the resultant thought is to be understood and incorporated into the thought of an age, rather than degenerate into a recondite vocabulary that risks never gaining public currency. A very few neologisms arrived at methodically can wrench the mind into a new way of thinking and with a minimum of disruption of the normal vocabulary. Here lay part of Sartre's genius. And Kant

did something like it with the word "imagination" itself, when he expanded its creative function in a philosophical context in the *Critique of Judgment*. Rorty acknowledges this in his book, and points out how Coleridge took off from Kant's theorizing, thus showing, incidentally, that here philosophy fecundated literature, rather than the other way round.

Taking Sartre as the theorist of contingency, then, I want now to see how many of Rorty's desiderata for a late twentieth-century practice of ironist theorizing have already been supplied by Sartre, and very nearly in the spirit of irony which Rorty recommends but with an important difference. This is a particularly interesting exercise because Rorty himself calls Sartre a metaphysician, and therefore dismisses him *a priori* from the roster of ironists. Rorty says:

> A metaphysician like Sartre may describe the ironist's pursuit of perfection as a "futile passion," but an ironist like Proust or Nietzsche will think that this phrase begs the crucial question. The topic of futility would arise only if one were trying to surmount time, chance, and self-redescription by discovering something more powerful than any of these. For Proust and Nietzsche, however, there is nothing more powerful or important than self-redescription.[11]

Now my intention in pointing out what I believe are misapprehensions in this little excerpt is not to accuse Rorty, but to make clear that Sartre was already there as a theorist of time, chance, and self-redescription, and yet managed to combine these facets of his philosophy with a desire to come to grips with the real as the reference point of his thinking. He was not content with truth as — to use Rorty's intriguing phrase — "a fuzzy but inspirational *focus imaginarius*."[12] First, Sartre described the individual as "a futile passion" for exactly the same reasons as Rorty ascribes to himself — in Sartre's terms, because the desire to be God is a futile aim for an inescapably contingent being. The whole idea of describing the ontological origin of human values as "the desire to be God" is to highlight this as the temptation to metaphysics which, if accepted unreflectively, is an invitation to futility. And he offered an alternative, just as Rorty does, of self-redescription, which would do full justice, however, to the unique individuality of persons as a reality of experience. It was not that Sartre was hoping to find something more powerful than self-redescription, nor did he claim to be doing more than giving the fullest description of human existence that he could. He managed this specifically philosophical aim — of giving a general description that accounted fully for the unique individuality of persons — by contrasting the ontological given of human existence, the fact that we are conscious bodies, with the situational individuality of each person. In *Being and Nothingness* he devoted long passages to the description of consciousness as a product of temporality, chance, and self-redescription, and he described in some detail a hermeneutic he called *compréhension*, which amounts to the self-redescription

of a reflective ironist. In particular, the space he devoted to the idea of "the situation" covers the contingent emergence of consciousness from the contingency of non-conscious being, i.e., the natural world. He pointed out as well that the concept of God as *causa sui* was incoherent, since all it showed was that if God existed he too would be contingent. I don't know what more would fulfill Rorty's requirements for an ironist theorist.

But this all shows also, I believe, how Sartre differs from the ironist in not giving up on the main philosophical job — that is, of producing an account of reality which aims to be true in a philosophical sense, i.e., one that is reasoned, evidential, and general. But Sartre would not happily have accepted the term ironist for his advocacy of increasingly conscious self-redescription. Sartre distrusted irony because it leads to a reductive attitude towards reality that emerges typically in a withdrawal of commitment, and I believe that this would apply no less in the philosophical commitment to truth as an ultimate aim of thought, than it would in any other sphere of what Steiner calls "moral imagining," and specifically, for Sartre, in a morally committed literature. I would say I sense this withdrawal of commitment in Rorty's description of truth as a "fuzzy but inspirational *focus imaginarius*," although his position on the relation between public solidarity and private existence leads him to a liberalism much like Sartre's. Where Sartre bases his ethics on the idea of the preservation of freedom, as an ontological condition that applies to all persons, Rorty bases his on the public fact of pain as the criterion of harm. And Sartre would identify the metaphysician Rorty wants to leave behind as the man in bad faith because he believes that his own prejudices are founded either in the past or in heaven, while the man of good faith is always conscious that he is the origin of his values, and therefore fully capable of the ironist stance Rorty advocates. But according to Sartre, the problem is that the ironist tends to be paralyzed by his double vision and to rest idle rather than commit himself in directions that may turn out to be mistaken. He risks being a theoretical Hamlet, whose theorizing is without practical effect either on himself or his world. Sartre as a moralist holds that action in the world requires of the ironist that he consciously and fearfully unify his double vision from time to time, that while irony is the inevitable point of view of the fully reflective individual, it is something that he must be able to put aside if he is to take his place as co-creator in his contingent world, in whatever sphere he acts. And what he creates is not a pretext for intertextual commentary, but his own existence as both individual and citizen, and whether he is a philosopher or a writer, or whatever he is. So it is here that my reservations as a result of reading Rorty's book crystallize. Rorty distinguishes between the skeptically ironist activity of the philosopher as essentially local, even private, and thinking about questions of public justice, which he thinks are influenced more readily by literature because it can arouse and widen our sensitivity to the suffering of others. The implication that sympathy is the basis of moral concern

and that imagination is the form of consciousness through which it is activated I do not quarrel with. But that philosophical imagination is to abandon its goal of general, evidential truth as the ideal challenge to philosophical imagination is the sticking point of my disagreement. To those for whom the complexities and difficulties of human existence cry out both for explanation and for action, pondering the interplay among individuality, creativity, and the world as given is still as much a task for the evidence-gathering, generalizing, theory-making mind of the philosopher as for the particularizing, situation-making mind of the story-teller; and recognizing the end of metaphysics does not entail the decay of philosophy, any more than of criticism, into relations among texts and private fantasy rather than relations among beings and to the real, however inadequately and tentatively defined.

* * * * *

Notes

1. Homer, *Odyssey*, trans. Robert Fitzgerald (New York: Doubleday Anchor Books, 1963), p. 215.
2. Rorty, *Contingency, Irony, and Solidarity*, (Cambridge University Press, 1989), pp. 78-79.
3. *Ibid.*, p.78.
4. *Ibid.*
5. *Ibid.*
6. *Ibid.*
7. *Ibid.*, p. 125.
8. George Steiner, *Real Presences*, The Leslie Stephen Memorial Lecture, 1985 (Cambridge University Press, 1986).
9. Steiner, *Real Presences*, p. 16.
10. J. P. Sartre, *Cahiers pour une Morale* (Paris: Gallimard, 1983), pp. 530-31.
11. Rorty, *Contingency, Irony, and Solidarity*, p. 99.
12. *Ibid.*, p. 195.

Toucan Dreams

James Fox

The Zoo at the Sault had a pygmy elephant, Archibald, named in memory of a local high-school basketball player. Although at only five foot two he was not as big as a buffalo, Archibald was the brightest resident. He could count to five and he knew a couple of simple card tricks that he learned when he traveled with a magic act.

"All right, Archie, what do I have in my hand?" the clown would ask. "Is it an ace or a deuce?"

The elephant would shake his head and take a card out of the clown's sleeve. Always it was the ace.

On gloomy Saturday afternoons I spent many moments watching Archibald eating hay and dusting himself. I loved his rough, hairy sweet smell, but there was more to him than aroma and card tricks. Archibald took an interest. When I talked to him about my loneliness and fears, he looked back at me with baleful eyes and sometimes shook his head. I felt understood.

That's one of the reasons why I loved our local zoo. It's gone now, but I still think about it. The zoo was converted into a mental institution in 1977, and I have no desire to ever return: caged people are not nearly as interesting as caged animals.

It was hardly a zoo at all, I suppose, but our town was proud of our skimpy herd of mangy buffalo, our curious caribous, our single lame kangaroo. The buffalo and the caribou no longer graze in front of the scraggly white birch trees at the front of the zoo, nor are there visitors who pass them by in favor of the more exotic animals inside.

Pierre, the six-foot alligator, swam in a small moat most of the time. Sometimes he lay on the cedar wood bank dreaming. He must have been dreaming — otherwise, why would he have been so still for so long with his eyes half open?

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Someone once started the rumor that "Lucky Pierre" was no longer a living exhibit because he had been stuffed. However, one day Pierre slowly dragged his tail over the sand bar and ascended a log. I stood amazed. He pointed his snout at a small moth that floated above his nose. The alligator opened his jaws and waited for the moth to settle. The insect fluttered just out of snapping range and then flew up to the glass ceiling. Pierre waited patiently for his prey to return. When I left the reptile house, Pierre's jaws were still open and they probably stayed open for hours.

The special exhibit of three exotic birds included Maurice the full-grown toucan, a scruffy myna bird named Harry, and Mr. Lee, the ostrich. Mr. Lee was less intimidating than Maurice.

"Hisssss," I hissed at Mr. Lee. "Whisssssst! Look out, look out! Your house is on fire... Run, run!" And he ran. The next time I saw him, I apologized to Mr. Lee, and he ran away.

Maurice, the yellow-black-backed toucan greeted visitors at the entrance of our little zoo with his terrible whistle — "Hello, Ha-a-a-a-a-r-ry!"

It was impossible to have a real conversation with him, but I tried. "Welcome to the zoo at the Sault!" I said, mimicking his birdie voice. Maurice cocked his head and looked at me sidewise and shifted a little on his perch.

"Wanna talk dirty?" I asked falsetto. Maurice seemed to nod, but even then I knew that in corrupting him I would also be corrupting myself.

In May the wild geese return to the northland to settle for a brief time in their old nests on the tundra, but the second smallest zoo in the world is no longer at Sault Ste. Marie. I wish visitors could still encounter my dear friend Archibald who, although only a pygmy pachyderm, sees us as we truly are. They would also discover Pierre in his watery den waiting forever for feeding time — a pound of ground chuck or just a foolish carp, what does it really matter?

They would see only part of Mr. Lee, whose head is buried in a gopher hole. And if they were lucky they would meet Maurice, still shifting back and forth on his stick, making those ridiculous steamboat whistles. But who truly understands the secret of a toucan's heart?

I sometimes wondered what happened after all the people went home and the zoo was closed for the night. Other children dreamed about ax murderers in the house or imagined the creaking tread of ghosts coming up the stairs or planned how they would win at cats-eye marbles the next day. But I was not normal. I spent most of my free time at the zoo.

I used to fall asleep dreaming about night life at the zoo in Sault Ste. Marie: Somebody had to say good night to the animals. Somebody had to feed all three snakes. Somebody had to water the small African elephant and pet him gently on his trunk. Somebody had to comfort Mr. Lee, the nervous ostrich. Did the animals really fall quietly to sleep?

There were old stories to tell, grievances to vent. Only old Pierre the alligator fell asleep when they turned the lights out, but he was usually dreaming about his next carp or about the good old days in Belize.

What did the animals think about when they were alone in their cages? I imagined myself being invisible and staying inside the zoo after they have locked the doors and gone home. Just me and my friends. I am standing next to Mr. Lee when suddenly he looks up into the sky and I follow his gaze. Canadian geese heading south in the long V formation. Honk-honk-honk. I can just make out their forms against the darkening sky. I have never before watched geese with an ostrich by my side. Mr. Lee is fascinated. He makes a small gurgling noise in his throat.

Does he want to fly with them down across the gulf of Mexico and then skirt the isthmus of Peru and finally to bear north-north-east all day and night until at last they arrive in Egypt where Mr. Lee sees for the first time the tombs of the fallen pharaohs? . . . Of course, maybe he was just curious about an unfamiliar noise in the sky.

Pierre remains stationary in his moat, neither nocturnal nor diurnal. I have come to believe that he is just an unambitious alligator. But what if I were invited to read his mind?... *Something terrible is coming out of a cave, a komodo dragon breathing fire and green smoke. Pierre holds his position. The dragon comes up to Pierre and hideous gas pours through his nostrils. There is a hiss and his forked tongue flickers a challenge at the peaceful reptile. The alligator suddenly springs forward and the battle begins...*

The dream fades and Pierre stirs his tail in the brackish water full of carp parts.

What about Maurice the toucan? What are his nights like when the zoo is dark and the wild life begins? During the day he was a shy clown, tilting his head and rolling his eyes, and making that loud, almost terrifying whistle. But he is more of a deep-feeling bird than that brainless myna bird would ever be. Like Pierre I think he remembers life in the savage, joyous tropical rain forests and never really made a spiritual connection with the town of Sault Ste. Marie. At night in the almost empty bird house, I believe his shrill ear-splitting whistle is transformed into a mournful serenade about missed opportunities and painful memories of his young birdhood.

It is my belief that when my soul returns to a new life in a different form, I will be given a place in the exotic bird house. I will share my space with some newly acquired hummingbirds. On cloudy nights I will look up through the skylights and my caged heart will soar with the geese returning south again to their winter home. I can hear them calling: "Come away — come away with me."

And I will.

*

St. John's Crossword Number One

by CASSANDRA

Introduction

This is a British-style cryptic crossword. Examples are published in the U.S.A. in *Atlantic, Harper's,* and *Games Magazine.* Every clue contains two elements in random order: a literal definition and a cryptic indication based on word-play. Some typical word-play types are the anagram, component parts, sound-alike, word within word, hidden word, and word reversal, or a combination of these.

Examples of the cryptic part of the clue:

Tries a lot, gets mixed up (anagram = ARISTOTLE)
Thus, boxes (component parts = SO-CRATES)
Sound of artifical digit (sound-alike = PLATO, i.e. PLAY TOE)
College official swallows bug (word within word = DANTEAN, i.e. ANT in DEAN)
Lurks within some novice (hidden word = MENO)
Backward (reversal = DRAW)

Thus, full clues based on some of the above might read:

Philosopher tries a lot, gets mixed up (9)
Pull backward (4)
College official swallows bug belonging to poet (7)

NOTE: The answer to 5 down is an unusual proper noun.

Senders of the first three correct solutions opened at random (on a date six weeks after the mailing of this issue) will receive book tokens worth $35 at the St. John's College Bookstore. Address solutions (photocopies accepted) to Crossword Number One, *St. John's Review*, St. John's College, P.O. Box 2800, Annapolis, MD 21404.

Across

1. Sicilian eccentric reads about sound of bell (10)

6. Put money on a Spartan Number Two? (4)

9. A measure against internal progress (7)

10. Push Attila into the street (5)

11. Crest of free gravity and energy (5)

12. Offshoot of Niobe's first offspring (5)

14. Relationship between small mammal and Gadfly victim (5)

16. Age of empty electron shell (3)

17. One foredoomed to die wretchedly in Great Book (7)

19. Deduce number of Book of the Dead (7)

22. Shakespeare's work encountered setback with vermin (7)

26. Tough problem: leading the French, or sitting back in the bath? (7)

27. Hydrogen-like residue (3)

28. I complain about famous mother-in-law (5)

29. Second addition to weekly magazine: back issues (5)

32. Note about a 55-gun salute (5)

34. Take Virgil's things and start again (5)

35. Rave about two forms of ego-clothing (7)

36. In ancient house, third son (4)

37. Man embittered by dog-filth gone astray (10)

Down

1. A mother is primal parent (4)

2. Cold Lucretian greetings in shadow realms (5)

3. Nine bad rhetoricians beginning to get spiritual (5)

4. Crops up when ancient uncles take bit of work to heart (7)

5. Belonging to constellation that is about opposite the zenith, in the ascendant (7)

7. Big circle, a torque with a twist (7)

8. Ptolemy displays anomaly of star and moon with some hesitation (10)

10. Part of letter burns up (5)

13. Fix one's appearance, very soft around the edge (5)

15. How one might use tin cups in *Hamlet*? (10)

18. High points for country digesting opening of *Persuasion* ... (3)

20. And not some other Austen novel's start (3)

21. Clean-up time for spout (5)

23. Criminal's usual practice: beginning when nightlight goes out (7)

24. Be headless chauvinist (5)

25. Still life: fee not high, they say (7)

26. More trouble under the head of Euclidean demonstration (7)

30. War story: flanks take initial damage (5)

31. Part of 22 ac. seen, heard (5)

33. Star with tritium core can have stupefying effect (4)