

Galileo

And J. Robert Oppenheimer

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WHEN Galileo Galilei was brought before the Tribunal of the Inquisition in Rome in 1633, Pope Urban VIII was determined to break once and for all what to him was the incomprehensible arrogance of the scientific mind. Even after the culprit was found guilty, he was not treated harshly. He was never refused access to the sacraments, and he was allowed to pursue his scientific studies provided he kept away from astronomy. Yet special pains were taken that he should die under imposed penitence, and thus be refused burial in hallowed ground as still and forever *vehementer suspectus*.

The Inquisitional trial *de vehementi*—that is, a trial for vehement suspicion of disloyalty, or of heresy as they called it in those days—began with a firm assumption of guilt, or at least of bad judgment, that could not be dispelled by any facts brought in evidence. Under our law, legal proceedings are supposed to begin with an assumption of the defendant's innocence unless or until guilt is proved. Yet many marks of a trial *de vehementi* are to be found in the hearings of J. Robert Oppenheimer before the Atomic Energy Commission's Personnel Security Board in Washington in 1954.

IN BOTH TRIALS the accused could not defend himself against the fundamental accusation that was never brought up at the trial. Galileo had no advocates in court, nor was there any discussion of the Copernican theories as such. Galileo was not allowed to defend his scientific work: the only question was, Had he disobeyed the Church or not? Oppenheimer was allowed to have lawyers, but they had no clearance,

and security considerations ruled out any adequate discussion of the facts relating to Oppenheimer's controversial views—which were, after all, the basis of the whole trial.

In each case the scientist was shown a good deal of official consideration, although in the public consciousness he was clearly branded as one who was either too clever or too scared to commit himself to the major infamy but whose intentions were sinister from the start. In each case the purpose of the proceedings was to inflict social dishonor on the accused in order to deter others from certain kinds of action that the authorities feared.

'New Science Casts All in Doubt'

There are, of course, many differences between the two cases. In the history of science Galileo is by far the greater figure. Despite all the innuendoes that have been made about him since 1633, his reputation as a "second Archimedes" could not be taken away from him. His ideas were accepted with excitement by the educated public of his times. But in our day the discovery of dreadful powers, for which mankind may not yet be ready, has enveloped science in a climate of fear and even guilt—a fact that no doubt contributed to paralyze Oppenheimer in his defense.

It is permissible to speculate about what would have happened if Oppenheimer, together with Fermi, Bethe, and two or three other authorities in theoretical physics, had stated in 1942, as Heisenberg did in Germany, that the atom bomb was not feasible. No one could have really known except them. On the other hand, supposing the bomb could be made, there was also the

troublesome possibility that it might trigger the explosion of our whole planet. Theoretically, it looked all right, but what man of sound practical judgment will trust himself wholly to theory in a matter utterly without precedent, a jump in the dark?

Heisenberg was certainly a patriotic German and a very great physicist, yet, after extensive exploratory work with his colleagues, he gave up—and not even Hitler could say anything.

THERE is another important difference between the cases to be considered: the Galileo trial concludes with a solemn abjuration; the American trial does not. Rome proceeded on established orthodoxies, hence the final abjuration was in order. But our society is based on the dignity of the individual, and the defendant was permitted to give his recantations right at the beginning as a sort of spontaneous admission. This is what Oppenheimer's pitiful apology in his letter of March 4, 1954, actually amounted to.

Galileo ends up on his knees, but people forget that he started out by challenging his judges, in the name of the law, to tell him what was wrong with his book. Oppenheimer is on his knees at the start—as his legal advisers told him he must be—pouring out in public a tale of his past personal attachments and private beliefs, recounting his insignificant indiscretions, protesting that he has learned his lesson, that he can still be useful. There is, of course, the same ludicrous contrast in both cases—two men with enormous capacities to learn pretending that they had learned their lessons from judges who were by nature "im-

movable and unpersuadable," as Galileo describes them. Still, Galileo did not have to accuse himself right at the outset of being adolescent-minded, fuzzy-headed, immature, and a liar. He was able to bargain shrewdly with a few such admissions in the course of the trial. He was willing to declare himself rash, vain, ambitious, and somewhat irresponsible, but always in order to exact a concession.

In both cases the object of confession was absolution. Absolution for what crime? Lack of proper "enthusiasm" for directives—Church directives, security directives, H-bomb directives. The equivocation carefully built up is that the "lack of enthusiasm" is taken to refer to the interests of one's country or one's faith, whereas it actually refers to various opinions among ecclesiastics, various types of Pentagonic thought, past, present, and future. "Thou askest us now to believe that thou didst believe that we had maturely considered and finally decided all that is to be seen, considered, and decided in the matter of the survival of the human race. . . ." I apologize for this pastiche out of the 1633 sentence, but it does come awfully close.

IN A CENTURY as intellectually refined and respectful of forms as the seventeenth, a man knew what was expected of him: it was principally externals. He must maintain certain opinions "affirmatively"; beyond that he could think as he pleased. He must pretend to be speaking only "academically," or he could resort to the approved dodge of discussing philosophical "probabilities," but he must be sure to point out that they could not be true according to the Faith. A man knew he was writing at his own risk. If the authorities caught up with him, they would compel him to say he had never meant it. This was strictly a formal humiliation, for it was well understood by everyone who counted that he went on thinking every word he had written. A man's condemnation meant only that he had been restored to the community of the faithful, and that was the end of the affair. It was a settlement, at least, in that it came at the end. After the formalities, the



man could even be used again if need be.

We, on the other hand, have only this inane notion of "maturity" and that other one of enthusiasm to go by, crudely and furtively transferred from pep-talk usage into actual legal standards.

The Modern Heresy

The conclusions of the Gray-Morgan Board (it was really the Gray-Morgan-Evans Board, but Dr. Evans wrote a sharply dissenting opinion) are as follows: ". . . We have come to a clear conclusion, which should be reassuring to the people of this country, that he [Oppenheimer] is a loyal citizen. . . . We have, however, been unable to arrive at the conclusion that it would be clearly consistent with the security interests of the United States to reinstate Dr. Oppenheimer's clearance and, therefore, do not so recommend.

"The following considerations have been controlling in leading us to our conclusion:

"1. We find that Dr. Oppenheimer's continuing conduct and associations have reflected a serious disregard for the requirements of the security system.

"2. We have found a susceptibility to influence which could have serious implications for the security interests of the country.

"3. We find his conduct in the hydrogen-bomb program sufficiently disturbing as to raise a doubt as to whether his future participation, if characterized by the same attitudes in a government program relating to the national defense, would be

clearly consistent with the best interests of security.

"4. We have regretfully concluded that Dr. Oppenheimer has been less than candid in several instances in his testimony before the board."

In other words, they admit that Oppenheimer has not disclosed security information. In fact, they themselves stated in an earlier section: "It must be said that Dr. Oppenheimer seems to have had a high degree of discretion reflecting an unusual ability to keep to himself vital secrets." It is about entirely different secrets that they are worried. Oppenheimer had not handed over a person by the name of Chevalier to the police.

Haakon Chevalier, a professor of French literature and a close friend of Oppenheimer, had relayed to him the suggestions of a Communist, George Charles Eltenton, that Americans disclose their discoveries to Russia. Oppenheimer refused sharply, and later warned Security of Eltenton's attempt, but made up a false account of the affair to spare Chevalier. This was to become the famous "lie." Oppenheimer later gave Chevalier's name to the authorities.

OPPENHEIMER was found by the AEC to have exhibited a "persistent and willful disregard for the obligations of security" to a degree that would endanger the common defense and national security. Now both J. Edgar Hoover and General Leslie R. Groves had not taken the charges so seriously when they had first considered them. Hoover's

strongest statement was that he "could not feel completely satisfied in view of J. Robert's failure to report promptly and accurately what must have seemed to him an attempt at espionage." General Groves had called Oppenheimer's protection of Chevalier a kind of "schoolboy attitude that there is something wicked about telling on a friend" and had also dismissed as unessential the entire account of Oppenheimer's early leftist associations. When Groves was asked, "Based on your total acquaintance with him and your experience with him and your knowledge of him, would you say that in your opinion he would ever consciously commit a disloyal act?" the general replied, "I would be amazed if he did." These men wanted a job done, and had confidence in Oppenheimer's ability to do it.

WHEN THE CASE went up to the AEC, Commissioner Eugene M. Zuckert raised, and then quickly dismissed, a very pertinent question:

"There have been suggestions that there may be a possible alternative short of finding Dr. Oppenheimer a security risk. One possibility suggested was that the Commission might merely allow Dr. Oppenheimer's consultant's contract to lapse when it expires on June 30, 1954, and thereafter not use his services. I have given the most serious consideration to this possibility and have concluded that it is not practical."

Why wasn't it practical? Because someone else might hire him. In fact, the Science Advisory Committee of the Office of Defense Mobilization was asking for him. The AEC decided to try to make Oppenheimer unemployable in his own field.

What this action would do to the scientific world was clearly foreseen by Dr. Evans, the dissenting board member, and by Dr. Henry D. Smyth, the dissenting AEC commissioner, who also happened to be the only men on the two boards who were professional scientists. Dr. Evans wrote: "I personally think that our failure to clear Dr. Oppenheimer will be a black mark on the escutcheon of our country. His witnesses are a considerable segment of the scientific backbone of our nation and they endorse him. I am worried about the effect an improp-

er decision may have on the scientific development in our country.

"Nuclear physics is new in our country. . . . I would very much regret any action to retard or hinder this new scientific development."

One example of the scientific community's reaction was contained in the testimony of Dr. Vannevar Bush: "I feel that this board has made a mistake and that it is a serious one. I feel that the letter of General [K.D.] Nichols which I read, this bill of particulars, is quite capable of being interpreted as placing a man on trial because he held opinions, which is quite contrary to the American system, which is a terrible thing. And as I move about I find that discussed today very energetically, that here is a man who is being pilloried because he had strong opinions, and had the temerity to express them. If this country ever gets to the point where we come that near to the Russian system, we are certainly not in any condition to attempt to lead the free world toward the benefits of democracy."

Suddenly They're Dangerous

Time and again the professional Inquisitors had dismissed as not serious, or downright fraudulent, the accusatory material that piled up in their files against Galileo. Accordingly, the scientist had rightly concluded that the traditional directives still stood, and that it was permissible to discuss, at least hypothetically, the dangerous subject of Copernican astronomy. In fact, the Pope himself had told him that he was a most valuable man, and that he should use this opportunity to go on "adorning Christendom with his eloquence." The usefulness of both scientists to society was clearly recognized. Both of them had delivered the goods: Galileo the prestige of his telescopic discoveries, Oppenheimer the atom bomb. The trouble came when the scientists went on to exert their influence, however tentatively and respectfully, on matters of high policy. Galileo's book was a discreet but transparent attempt at getting the Church to change its mind on a fundamental scientific issue. Oppenheimer, too, expressed definite views about the over-all strategy for which his individual contributions formed an important part.

Both men acted openly, with full "clearances." But when the authorities woke up to the implications of what the scientists were saying, they decided that these men were dangerous. The stable doors were closed, not quietly but with a crash, to convey the impression that there was still a horse to steal. Both, it was suddenly discovered, had made their great mistakes a decade or more before; both had ignored security injunctions.

BOTH MEN were surprised to see how the world changed around them as they faced a procedure *de vehementi*. The late AEC Commissioner John von Neumann described that surprise:

"I would say that all of us in the war years . . . got suddenly in contact with a universe we had not known before. I mean the peculiar problem of security, the fact that people who looked all right might be conspirators and might be spies. . . . This had on anyone a shock effect, and any one of us may have behaved foolishly and inefficiently and untruthfully so this condition is something ten years later, I would not consider too serious. . . . We were all little children with respect to the situation which had developed, namely, that we suddenly were dealing with something with which one could blow up the world. Furthermore, we were involved in a triangular war. . . . None of us had been educated or conditioned to exist in this situation, and we had to make our rationalization and our code of conduct as we went along. For some people it took two months, for some two years. . . . I am quite sure that all of us by now have developed the necessary code of ethics and the necessary resistance. So if this story is true, that would just give me a piece of information on how long it took Dr. Oppenheimer to get adjusted to this Buck Rogers universe, but no more. I have no slightest doubt that he was not adjusted to it in 1944 or 1945."

In his efforts to be polite, Dr. von Neumann seems to be conceding far too much. He almost takes it for granted that the scientist is bound to be foolish and childish until he is properly trained and housebroken. Maturity is defined in terms of

survival in the political jungle. This is pure irony, but it is lost on the board. It is tragic to watch the parade of men who had been associated with atomic power from the beginning coming to testify that Oppenheimer, after all, had done some service to the state and that he was not a subversive:

¶ James Bryant Conant reiterated his opinion that "... a more loyal and sound American cannot be found in the whole United States."

¶ Charles Christian Lauritsen of the California Institute of Technology said that he had less doubt of Oppenheimer's loyalty than he did of "any other person that I know as well."

¶ Oliver E. Buckley, formerly board chairman of Bell Telephone: "I believed and believe that he was loyal to the United States. I just don't recall any event that even raised that issue in my mind."

¶ Even Dr. Edward Teller: "But I have always assumed, and I now assume, that he is loyal to the United States. I believe this, and I shall believe it until I see very conclusive proof to the opposite."

BUT just as in the Galileo affair, the insistent pleas of scientists and prelates from all over Europe were ignored by the cardinals of the board.

Dr. von Neumann's statement seems to come fairly close to the "overall commonsense judgment" that had been set by the AEC itself as a criterion for security procedures. Oppenheimer had never broken security when the Russians had no bomb; now that the Russians have the bomb, what possible justification can there be for getting rid of the man? So we have to dig up a Chevalier case which never existed in any serious sense even in 1943, we refurbish it in 1954, and make of it such a lapse in security as to endanger national safety. It's nothing short of wonderful to see what the final report of the AEC builds up out of this Chevalier business.

Galileo, too, had acted according to standing directives: he had been encouraged, and every sentence of his writing had been cleared and re-cleared. Then the news came down that he must be gotten rid of. So the Inquisitors dug up an alleged

ROME, 1633

Galileo Galilei (1564-1642) was the first to establish the link between mathematics and physics that became the foundation of modern science. The Church authorities held him in high regard as "a second Archimedes." What got him into trouble was not only his belief in the Copernican principle that the sun, not the earth, was at the center of our planetary system but his confidence that he could give the principle irrefutable proofs. Galileo himself suggested that certain passages of the Scripture, such as Joshua stopping the sun, be given allegorical interpretation. People with vested interests in the old ideas were aroused, and Galileo was secretly denounced to the Inquisition. The Church authorities felt that the issue was provoking "scandal," and in 1616 the Copernican principle was outlawed in spite of Galileo's pleas. Care was taken, however, that he should be notified in advance of the decree by Cardinal Bellarmine, chief theologian of the Church. Galileo could do nothing but submit.

Several years later, a new Pope, Urban VIII, was elected. Galileo had reason to consider him friendly. He managed to obtain from the Pope permission to write a book about the two systems, the old Ptolemaic and the new Copernican, provided that he did not commit himself definitely

to either. The book he wrote, *Dialogue on the Great World Systems*, was given the imprimatur, but when it came out the authorities suddenly realized that it was a plea for the Copernican doctrine that the Church still proclaimed false, absurd, and contrary to Scripture. Galileo was ordered to Rome in 1633 and brought before the Inquisition. He could not believe himself in danger, since his book had been cleared, but an official document was "discovered" in the Inquisition files to the effect that seventeen years earlier, Cardinal Bellarmine and the Inquisitors had not only warned him not to hold the opinion but had enjoined him personally and explicitly never to discuss the subject "in any way whatsoever."

On the strength of that he was found guilty of meddling with theology, of having secretly held the condemned doctrine, of disobeying the injunction, and of having obtained his clearance under false pretenses. Except for the last point, Galileo was compelled to admit solemnly that he was guilty as charged and that he henceforth would "abjure, curse, and detest" Copernicanism. He was then sentenced to imprisonment for an indefinite period, which was commuted by the Pope to house arrest.

injunction that seventeen years before had forbidden him even to discuss the subject. The judge needed this injunction but obviously did not like it, and his embarrassment is obvious in the way he tried to move on quickly to something else. The chairman of AEC both needed and liked what had been found for him. In fact, he improved on it.

The Peters Case

A "susceptibility to influence" is cited by the board. (The parallel is the charge against Galileo of having "corresponded with certain German mathematicians," e.g., Kepler, a Protestant, whom he had also sponsored for his old chair in Padua.) The charge is based upon the Bohm, Peters, and Lomanitz episodes. In brief, Oppenheimer had not refused his help to men who wanted to keep their jobs or were trying to get

a job abroad, although they were political suspects at home. But in one case, conscious of his delicate position, Oppenheimer spoke about Dr. Bernard Peters before the House Un-American Activities Committee in such a way as to damage gravely Peters's position at the University of Rochester. He was sternly called to task by a number of other scientists for having hurt Peters unnecessarily. Dr. Edward U. Condon wrote an outspoken rebuke that made Oppenheimer "angry." Oppenheimer then wrote a letter to the Rochester papers, trying to make up for the damage he had done to Peters. The board considers this an example of how Oppenheimer bowed to influence. But there is still worse: "Dr. Condon's letter . . . contained a severe attack on Dr. Oppenheimer. Nevertheless, he now testifies that he is prepared to support Dr. Condon in

the loyalty investigation of the latter."

That "Nevertheless" seems a curious word to choose.

Here is another significant aspect of the Buck Rogers universe. If any susceptibility to influence was shown, it was when Oppenheimer stood before the Un-American Activities Committee and testified against Peters. "Will you step into my parlor, said the spider to the fly. And before I ask you a few simple questions, let me say I trust you are not susceptible to any undue influence." Mindful of his responsibility. Oppenheimer tried to conform to the laws of the political jungle. He thereby lost standing with the scientists, who felt that he was capable of selling out, and his usefulness was thus impaired. He did what he could to regain his standing among his colleagues, and at that point it was Gray and Morgan who ruled that his usefulness had been impaired.

H-Bombs and 'Enthusiasm'

Oppenheimer had been very doubtful in 1949 about committing a great deal of effort and rare materials to a crash program that seemed a wild gamble. He was not alone. Conant said, "I opposed it strongly, as strongly as anybody else . . ." I. I. Rabi and Enrico Fermi suggested an international agreement to outlaw the bomb before it existed. Hans Bethe testified: "I was hoping that it might be possible to prove that thermonuclear reactions were not feasible at all." Oppenheimer called a meeting of the General Advisory Committee of the AEC about the problem. He remarked: "There was a surprising unanimity—to me very surprising—that the U.S. ought not to take the initiative at that time in an all-out program."

What then was Oppenheimer's crime? Not sticking to his last. There is his famous letter to Conant:

"What concerns me is really not the technical problem. I am not sure the miserable thing will work, nor that it can be gotten to a target except by ox cart. It seems likely to me even further to worsen the imbalance of our present war plans. What does worry me is that this thing appears to have caught the imagination, both of the congressional and of military people, as the answer to

the problem posed by the Russian advance. It would be folly to oppose the exploration of this weapon. We have always known it had to be done; and it does have to be done, though it appears to be singularly proof against any form of experimental approach. But that we become committed to it as the way to save the country and the peace appears to me full of dangers."

Is this what the board meant by exercising "highly persuasive influence in matters in which his convictions were not necessarily a reflection of technical judgment, and also not necessarily related to the protection of the strongest offensive military interests of the country"? He goeth about like a roaring lion, seeking whom he may persuade.

Of course, others were discussing these same dangers. George Kennan admits having discussed them with both Oppenheimer and Secretary of State Acheson:

"It seemed to me there was unclarity in the councils of our Government. . . . The unclarity revolved around this question. Were we holding them [our weapons] only as a means of deterring other people . . . or were we building them into our military establishment in such a way that we would indicate that we were going to be dependent upon them in any future war, and would have to use them, regardless of whether they were used against us first? . . . If . . . you were going to regard them as an integral part of forward American military planning and something on which we would be dependent in a future war, then you came up with a different answer. . . ."

THESE were the views of an expert on foreign policy who found himself inevitably invading the province of the military. In the same way, scientists found themselves thinking about both foreign policy and military strategy. They all did. Of this, we have Rabi's confirmation: "The question was, should it be a crash program, and a technical question: What possibilities lay in that? What would be the cost . . . in terms of the strength of the United States because of the weakening of the effort on which something which we had in hand, namely, the fission weapons, and the uncompleted designs of dif-

ferent varieties, to have a really flexible weapon, the question of the interchangeability of parts, all sorts of things which could be used in different military circumstances. Then there was the question of the military value of this weapon . . . this weapon as promised which didn't exist and which we didn't know how to make, what sort of military weapon was it anyway? What sort of target was it good for? And what would be the general political effect? . . . we felt—and I am talking chiefly about myself—that this was not just a weapon. . . . We felt it was really essential and we discussed a great deal what you were buying if you got this thing."

'I Have Here in My Hand'

On April 12, 1633, when Galileo was being interrogated for the first time, he described an audience with Cardinal Bellarmine seventeen years before. The Inquisitor suddenly asked: "Was any other injunction made to you on this subject, in the presence of those Fathers, by them or anyone else, and what?"

Galileo is stunned. He has just presented a document given to him by the late Cardinal Bellarmine stating specifically that there had been no such injunction. Yet the Inquisitor is looking at another document in front of him, and this, after all, is the Inquisition. Galileo tries to retell the story carefully. "It may be that a command was issued to me that I should not hold or defend the opinion in question, but I do not remember it, for it is several years ago."

According to the Inquisitor, the injunction was "that you must neither hold, defend, nor teach that opinion in any way whatsoever."

It has been proved that the "injunction" had been forged into the record by the authorities at a later date. But Galileo is helpless. He stutters: "I do not remember it . . . but it may be that it was."

At this point, he has all but made the concession the Inquisitor wanted to drag out of him. A few days later, Galileo re-established the facts carefully in his written defense, but when the Inquisition summarized it for the judges, it did so in one sentence: "He admits the injunction, but . . . says he has no memory of

the clauses 'discussing' and 'in any way whatsoever.'" With effortless efficiency the strongest parts of Galileo's defense have been swept aside.

'Less Than Candid'

There would seem to be some foundation for the charge that Oppenheimer was "less than candid," and here, it seems to me, we are coming to the core of the analogy between the two cases. The technical capacity of both Galileo and Oppenheimer was profoundly misunderstood by the authorities. In the 1940's just as in the 1620's, the scientist was thought of as a sort of glorified mechanic. The grumblings at Los Alamos were no louder than those heard at Bellosguardo near Florence three centuries ago.

Galileo was encouraged by the Pope himself to write a book about the two opposing planetary systems, the Ptolemaic and the Copernican, in order to show that all arguments had been maturely considered and that the two doctrines stood in need of a higher decision, which was the Pope's. That decision had already been written and given to Galileo to be printed at the end of his discussion as the solution and "medicine of the end."

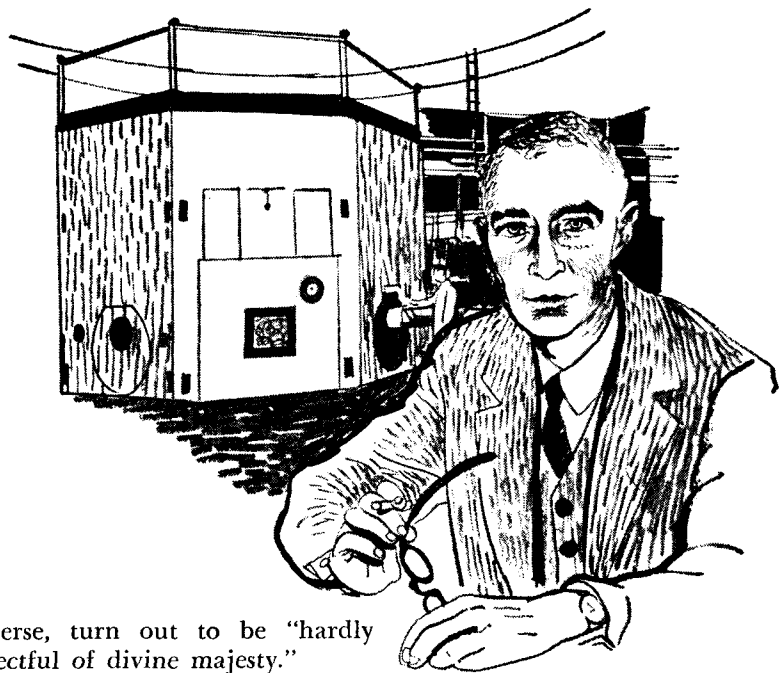
A remark of George Kennan's about the Oppenheimer case seems to strike to the heart of the Galileo case too: "You might just as well have asked Leonardo da Vinci to distort an anatomical drawing as that you should ask Robert Oppenheimer to . . . speak dishonestly." Galileo, an experienced courtier and man of the world, knew perfectly well that he could write rings around the authorities and cheat them with the greatest of ease, leaving the last laugh to his fellow scientists. But he didn't choose that course; because he rashly thought that his ecclesiastical superiors were also rational beings, he wanted them to think along with him, trusting to their good sense. His main concern, as he revealed covertly in the Preface, was to extricate them from the impasse their incompetence had gotten them into. To do that he had to break the rules. He had to show that his cosmological discoveries demanded a philosophical revision, even a theological one, and that conventional theories, seen in the light of a larger

universe, turn out to be "hardly respectful of divine majesty."

At the end of his searching discussion, he dutifully tacked on the Pope's preordained conclusion; it wasn't his fault if it looked silly there. But making the Pope look foolish was a dangerous thing to do.

The indictment of the Preliminary Commission was quite clear about Galileo's failings. He had exposed the official school texts to ridicule (Point 5); he had not treated his own opinion with proper disbelief, but instead had indicated some belief in it (Points 3 and 4); he had not followed the papal directive with proper enthusiasm (Point 2).

In all this, Galileo was certainly being "less than candid." He had been intellectually honest, at his own risk. He had also been scrupulously legal, having his text twice revised and approved before publication. But he knew all along, ever since he had submitted the project, that he wasn't really doing what the Pope intended. Of course he hadn't lied about Cardinal Bellarmine's injunction. But in obediently endorsing an untruth by professing his orthodox belief in the immobility of the earth, he had surely been less than candid with the authorities. And some of his answers to the court were certainly evasive. Toward the end of the first session he said that he had really tried to show the weaknesses of the Copernican system. But by that time he was thoroughly scared, and his signature under the protocol was made with a trembling



hand. In contrast, evasiveness was not typical of Oppenheimer's testimony; he even exaggerated his own failings.

THE AUTHORITIES sentenced Galileo both for disregard of basic security policy ("thou has dared discuss . . .") and for lack of candor ("nor does the license artfully and cunningly extorted avail thee"). The actual charges had to be trumped up, but the conflict underlying them was valid. It had come to a showdown about "who is going to do the thinking around here," and some lack of candor was inevitable on both sides. Loyalty was re-established at the price of humiliation. We end up exactly where the Gray-Morgan Board leaves Oppenheimer. In each case, the scientist had certainly acted imprudently according to accepted standards, but could be brought to trial only on charges of retroactive guilt.

There are some points at which the Roman authorities would seem to have been more considerate of the defendant than the Americans were. In his abjuration, Galileo was made to promise miserably, under oath and *sub poenis*, that "should I know any heretic or person suspected of heresy, I will denounce him to this Holy Office." Although there were obviously many suspects among Galileo's acquaintances, it was not held against him subsequently that he

did not turn them in. It became known that he was actually corresponding with heretics and even sending them his book to translate—it was as if Oppenheimer had entered into a secret correspondence with the Moscow Academy. But the Inquisitors decided that such conduct was only human and let it go at that.

The Sacred Order of SAC

Undeniably there was a lack of candor in Oppenheimer's answers at the hearing—not about his life but about matters of high policy. And this is because there were certain aspects of his predicament that simply could not be discussed frankly. Neither side wanted to go too far.

Light is shed on this aspect of the case by the interesting deposition of General Roscoe Charles Wilson of the Air Force, who engagingly admits that he is himself a “big bomb” man, and had consequently been very worried. He gives three reasons for his concern. One is “the fact that Dr. Oppenheimer was interested in what I call the internationalizing of atomic energy, this at a time when the United States had a monopoly . . .” The fact is that Oppenheimer was interested in that “internationalizing of atomic energy” quite officially as a scientific adviser to Bernard Baruch, who had been appointed to the U.N. Atomic Energy Commission by the President to try and find a way of establishing international control. The general is told this, but it does not seem to register in his mind. He is asked by the defense attorney whether “perhaps it might be better to internationalize it while there was a chance to do so”—that is, before the Russians got it. The general's answer is remarkable: “I had never heard that argument.”

The general was worried that Oppenheimer had never backed certain ideas of the Air Force like nuclear-powered planes. “I don't challenge his technical judgment, but at the same time he felt less strongly opposed to the nuclear-powered ships.”

Finally, General Wilson was worried because Oppenheimer approached thermonuclear weapons with “more conservatism than the Air Force would have liked. . . .

Once again it was a matter of judgment. I would like to say that the fact that . . . he is such a brilliant man, the fact that he has such a command of the English language, has such national prestige, and such powers of persuasion, only made me nervous, because I felt if this was so it would not be to the interest of the United States, in my judgment. It was for that reason that I went to the Director of Intelligence to say that I felt unhappy.”

Here is how the Florentine Ambassador set down Cardinal Barberini's explanation of why Galileo made him nervous: “He reminded me that Galileo wrote exquisitely, and had a marvelous capacity for persuading people of whatever he wanted to, and there was a danger that through his influence some fantastic opinion might take hold among these Florentine wits which are too subtle and curious.”

LIKE THE CARDINAL, General Wilson is suspicious of the defendant's “marvelous capacity for persuading people.” But what really troubled both of them were the ideas behind the eloquence. Oppenheimer had definite views on military strategy. The scientist surmised that our grand system of international alliances would not be worth the paper it was drafted on if we left our allies to face the Russians with popguns. Thus, he threw all his influence behind the development of tactical weapons that could be delivered by artillery. Generals Bradley and Collins supported him, and Gordon Dean, then chairman of AEC, also supported the policy, but naturally the Strategic Air Command was not entirely pleased by his efforts to ruin its monopoly over the A- and H-bombs, just at a time when it was having a running fight with the Navy over it. Nor was the Air Force delighted by Oppenheimer's insistence on the priority of essential defensive measures. His simile about the “champion with the glass jaw” served to turn the conflict into an open feud.

The informer Lorini had said, in a denunciation accompanying a forged document, that the Galileists were good Christians, but “a little overwise and conceited in their opinions.”

This background of the Oppen-

heimer case is widely known in Washington, but all one finds in the trial record are the unguarded remarks of David T. Griggs, an Air Force consultant, who complained passionately about the evil influence of the “Z.O.R.C. outfit” (Zacharias, Oppenheimer, Rabi, Charles Lauritsen) in frustrating Air Force desires. Dr. Gray, the chairman, evinced no curiosity, but let us—even at this late date—sketch in the details for him. The “glacial movement,” as it is called, got much of its impetus from the Air Force, and then suddenly, out of the blue, William Liscum Borden emerged from his civilian meditations at Westinghouse to denounce Oppenheimer as probably the key figure of Soviet espionage. Commissioner Smyth refers in his dissenting opinion to “enthusiastic amateur help from powerful personal enemies.” As a matter of fact, the job seems to have been done with a great deal of professional skill.

It is difficult to know just what was going on. But it is all very reminiscent of the way the Jesuits of the Counter Reformation identified their order with the body of the Church and set about destroying Galileo, who had threatened their monopoly on education and intellectual strategy. Galileo had been warned by a friend quite early in the game: “It would be a business of which you would never see the end if you picked a quarrel with those Fathers, for they are so strong that they could take on the whole world, and if they are wrong, they would never concede it . . . the more so as they are no friends of the new opinions.” Many years later Father Grienberger, the leading Jesuit astronomer, was to remark sadly: “If Galileo had only known how to retain the favor of the Jesuits, he would have stood in renown before the world, he would have been spared all his misfortunes and he could have written what he pleased about everything, even about the motion of the Earth.”

Jesuits were fully determined to encourage progress in the arts and sciences, but only in strictly isolated compartments which the Order would establish under its own philosophical supervision. Let the mathematician develop mathematics, but

let him not try to mix mathematics with physics, which is a division of philosophy—and so on. All efforts were bent toward keeping social forces under the firm control of a consistent philosophical motivation. The trouble is, it didn't work. The whole structure was put under severe strain by the Galileo case.

Two Kinds of Security

The issue of security was hardly more than a political smoke screen in the Oppenheimer case. There are no scientific secrets about the atom bomb, only industrial secrets. In any event, leaking of information was not even among the charges against Oppenheimer. The more important issue of security in the Oppenheimer case was described by John J. McCloy, chairman of the board of the Chase Manhattan Bank, former Assistant Secretary of War and High Commissioner to Germany: "... You can't be too conventional about it or you run into a security problem the other way. We are only secure if we have the best brains and the best reach of mind in this field. If the impression is prevalent that scientists have to work under such great restrictions, and perhaps under such great suspicion, we may lose the next step in this field. . . . I would accept a great deal of political immaturity, let me put it that way, in return for this rather esoteric, this rather indefinite, theoretical thinking that I believe we are going to be dependent on for the next generation."

Oppenheimer, like Galileo, had performed his assigned task faithfully. In order to reach its unfavorable verdict the board was obliged to depend upon the curiously incoherent imputation of influencing and being influenced, plus "lack of enthusiasm" and the Chevalier episode. This was considered enough for the purpose.

WE COME now to the final stages of the case: verdicts. For Galileo there was only one formal sentence, but as in the Oppenheimer case, the decision was reached in two stages. The preliminary stage in Galileo's case was the sensible attempt of the Commissary General of the Inquisition to settle the affair with an administrative reprimand: this official

WASHINGTON, 1954

Early in 1943 J. Robert Oppenheimer was appointed director of the atomic laboratory that produced the atom bomb. General Leslie R. Groves said in 1954 that at the time he appointed Oppenheimer to the project he was "aware that there were suspicions about him . . ." but that he considered him "absolutely essential" to the project and asked for his immediate clearance. In 1947, Oppenheimer became chairman of the General Advisory Committee to the Atomic Energy Commission; he was adviser to Bernard Baruch on the United Nations Atomic Energy Commission; and he was frequently consulted by the administration.

On December 23, 1953, in a letter from Kenneth D. Nichols, the general manager of the AEC, Oppenheimer was notified that his clearance had been suspended. At the same time, U.S. military establishments all around the world were so notified. Oppenheimer, on January 29, 1954, requested a hearing from the Personnel Security Board, which opened on April 12, and on March 4, 1954, replied by letter to Nichols's charges.

On April 13, the Nichols and Oppenheimer letters were printed in full in the *New York Times*. The special board appointed to hear his case was composed of Dr. Gordon Gray, Dr. Ward V. Evans, and Thomas A. Morgan. Oppenheimer chose as chief counsel Lloyd Garrison; Roger Robb was designated counsel for the AEC. The charges, which had been drawn up in

the December 23 letter from Nichols, numbered twenty-four, twenty-two of which were old ones based on Oppenheimer's past leftist and Communist associations. The twenty-third charge stated that Oppenheimer had not reported on an attempt in 1943 by Haakon Chevalier, a friend of his, to gain atomic information; the twenty-fourth charge was that by opposing the H-bomb, he had slowed down its development. After extensive interrogations, the board, on May 27, 1954, found that "he [Oppenheimer] is a loyal citizen," but went on to say, Dr. Evans dissenting, "We have, however, been unable to arrive at the conclusion that it would be clearly consistent with the security interests of the United States to reinstate Dr. Oppenheimer's clearance and, therefore, do not so recommend."

On June 15, 1954, the AEC gave the transcript of the hearings to the press for release the next day, and on June 29 the majority decision of the AEC was delivered by Admiral Lewis L. Strauss, with Dr. Henry D. Smyth dissenting. Thomas E. Murray concurred with the majority decision and declared further that he considered Oppenheimer disloyal. Admiral Strauss announced that "concern for the defense and security of the United States" required the AEC to deny Oppenheimer further access to restricted data and so bring his service to his government to an end.

seems to have been unhappy in his awareness that the case hung on a forgery, but he was overruled at the last minute by the Pope. In each case, then, we have a distinct final decision by the top authority.

But Urban VIII seems to have played a very different role from that of Admiral Strauss. There was a faction of "hanging judges" on the board of cardinals, and the influence of the Pope may have been, for all we know, in the direction of a compromise. In the modern case, the AEC chairman himself appears as the hanging judge.

Mr. Borden had written in his original denunciation of Oppenheimer: "More probably than not, he has since [1942] been functioning as an espionage agent, and . . . has

since acted under a Soviet directive in influencing United States military, atomic energy, intelligence, and diplomatic policy." After a long subterranean voyage, the idea that Oppenheimer was somehow the servant of Communism reappears as fresh as a drop of dew in the final sentence of the AEC's majority decision:

"They [Dr. Oppenheimer's early Communist associations] . . . take on importance in the context of his persistent and continuing association with Communists, including his admitted meetings with Haakon Chevalier in Paris as recently as last December—the same individual who had been intermediary for the Soviet Consulate in 1943."

Reading this solemn judicial prose, one would think the admiral

and his colleagues are referring to something mentioned somewhere in the record. But there is nothing there about "persistent and continuing associations with Communists" except the "early" associations. Once again, with effortless efficiency, the case for the defense has been swept away.

There never was a Chevalier case in any relevant sense, even in 1943. Refurbished and built up into a marvelous monster in 1954, it still remains nothing. Chevalier was and has remained a political nitwit.

The AEC's judgment is obviously meant to convey in carefully equivocal language that Oppenheimer is, more probably than not, tied up with Russia, but that it might be difficult to prove. So the best thing is to brand him publicly and leave him to his ivory tower, the Institute for Advanced Study in Princeton.

The calculated restraint has paid handsome dividends. It has prevented rioting among the hired hands, i.e., the scientists, which would have been inevitable if the charge of treason had been made explicit. It has established the idea of Oppenheimer's "guilt" in the public imagination, while avoiding the inconvenience and difficulty of a legitimate trial.

IN THE Roman trial, the judge-extensor who wrote the sentence needed a clause invalidating the certificate Cardinal Bellarmine gave to Galileo, but he knew it was a judicial howler and cleverly tucked it away in an inconspicuous context. The Florentine Inquisitor who read the sentence to the assembled literati had strict orders from the Holy Office not to let the text out of his hands, and in fact no authentic copy of it was unearthed until a century later. The chairman of the AEC, pleased with what he had produced, released his utterance to the press.

Why has the admiral tied this millstone around his neck? If we were to read that Dr. Watson had turned on Sherlock Holmes and torn him to pieces with his bare hands, we would all realize that Holmes had said "Elementary, my dear Watson," just once too often. In this case, the fateful word may have been spoken the time the admiral went before a Congressional com-

mittee to prevent medical isotopes from being shipped to Europe on the familiar ground of military security; Oppenheimer's devastating analysis of the argument may have been the last straw for Strauss. Or there may have been a number of such occasions. Vengeance, as they say in Corsica, is a dish that is best eaten cold.

'Overall Commonsense Judgment'

Here again, the authorities of three centuries ago seem to have been considerably more perceptive than the modern ones. Then as now, the basic issue was personal. The Pope had been made to look like a fool in matters of philosophy. The admiral had been made to look like a fool in matters of national security. Urban VIII, however, was not a petty man, and he gave signs of embarrassment both during and after the trial. His bent for authority and for a spectacular showdown has



obliterated for posterity the merits of a man who otherwise showed himself intelligent, open-minded, and far from ungenerous. He was, as Sacheverell Sitwell calls him, the last Latin poet. Also, he recognized the strength of Galileo's intellect, even if he could not grasp his ideas.

He was the bewildered victim of a scientific revolution that was beyond his comprehension. As a result, the Catholic Church remained obdurate in her negative position for two centuries, while modern science was establishing itself around her, and inevitably against her. It was only in 1822 that the Vatican made up its mind to take the name of

Galileo off the Index. And since the Roman authorities could never bring themselves to revise the trial itself, a campaign of innuendoes and absurdities has had to go on to this day. This administrative obduracy does less than justice to the role played in the affair by an important part of the Church. In 1633 there were monks, prelates, and even cardinals who fought sacrificially for Galileo's point of view and defended his good name against all denunciations. And modern Catholic historians have done outstanding work in pointing out trial irregularities.

IN BOTH cases the authorities' mistaken zeal served to weaken the institutions they were trying to defend. Father Castelli had warned the Inquisitors before the Galileo trial—and got himself banished for his pains—that "if this holy and supreme tribunal did not proceed in the manner that is due, it would work damage to the reputation and reverence owed to it, and that, if they prosecuted a man who had written so modestly, reverently, and reservedly, it would mean that others would henceforth write brutally and resolutely."

A similar "overall commonsense judgment" was expressed by Dr. Rabi: "... the suspension of the clearance of Dr. Oppenheimer was a very unfortunate thing and should not have been done. In other words, there he was; he is a consultant, and if you don't want to consult the guy, you don't consult him, period. Why [do] you have to then proceed to suspend clearance and go through all this sort of thing? He is only there when called, and that is all there was to it. So it didn't seem to me the sort of thing that called for this kind of proceeding at all against a man who had accomplished what Dr. Oppenheimer has accomplished. There is a real positive record, the way I expressed it to a friend of mine. We have an A-bomb and a whole series of it, ***[the asterisks indicate a "security" deletion] and what more do you want, mermaids? This is just a tremendous achievement. If the end of that road is this kind of hearing, which can't help but be humiliating, I thought it was a pretty bad show. I still think so."

Turkey: Menderes Gambles on Time

CLAIRE STERLING

TURKEY'S ARMY is the biggest in NATO, the best on the shores of the Mediterranean, and by far the strongest in the Middle East—and the Turks are not afraid to use it. But their economy is falling to pieces, they have just emerged from a national election still bitterly divided, and now the Soviet satellization of Syria has added 490 miles to the already long frontier they must be prepared to defend against the Russians. Can we count on them to defend it?

Western observers here think we can. No other nation, they say, has a clearer view of Soviet imperialism or a firmer will to resist it, and no amount of domestic trouble would be likely to affect that. Nevertheless, the fact remains that the Turks are getting deeper into an economic and political muddle every day, while the Soviet threat to their security is growing.

The economic problem is an old one. Although in late November the Turkish government did take steps to fix prices and to increase domestic supplies throughout the country, its general policy since 1954 had tended to let inflation run its course. For most of that time, the Turks have been without, or nearly without, butter, cheese, meat, and coffee; foreign merchandise—clothing and household goods, cosmetics, paper, ink—has disappeared from the shops; factories have been closing down or running only a day or two a week for want of raw materials and spare parts; and the general shortage of imported supplies has been so acute that forty per cent of Istanbul's taxis are immobilized for lack of new tires.

The circle has been classically vicious. With the government spend-

ing too much too fast for public development, prices have steadily risen. Accordingly, the value of the Turkish lira has steadily declined. The more it has declined, the less disposed peasants have been to sell on the domestic market, preferring to smuggle their produce into Syria for payment in gold and sew the gold into their mattresses. The less they've sold domestically, the worse the shortages; the higher the prices, the lower the lira, which, though still at an official rate of 2.80 to the dollar, is now around thirteen or fourteen on the black market.

At the same time, the deterioration of Turkish currency has made foreign trade more and more difficult. The country has thus been forced into excessive foreign borrowing—its debt has run up to \$1.2 billion, four times the value of annual exports. The more Turkey has borrowed, the less able it has been to pay, so that its sources of credit are nearly exhausted. With its credit all but gone, Turkey has been unable to import even the most elementary materials needed to keep the economy going. Indeed, it might have stopped going entirely by now but for the \$135 million worth of U.S. handouts this year.

IN SPITE of all this, Menderes has been going ahead stubbornly—by borrowing still more from Turkish banks and printing still more currency—with the development program he began when he took office in 1950. "Progress," one of his aides remarked recently, "must not be sacrificed to stability." But Menderes is no longer making the progress he made during his first four years in office, when he almost doubled industrial production. Though the gov-

ernment is going on with its development projects, many of them are stalled because of the critical lack of supply, while others are suffering from pork-barreling. One notable case is a new sugar factory at Erzurum, which operated only seven days this year because it is generally too cold there to grow sugar beets, and the only means of transporting them in is a single-track railroad that must transport everything else as well. Erzurum is the home town of a very influential deputy. Another example is the remote southern port of Mersin, now being greatly enlarged, though nobody can imagine why. Mersin, too, is the home town of a very influential deputy.

Because there are a good number of influential deputies in Turkey, the government's development program has come to be regarded in some circles as a kind of parliamentary welfare fund, and several cabinet ministers have been known to dip personally into this fund. Two years ago four of them were forced to resign for allegedly doing so but were later cleared of such charges by a parliamentary investigatory committee. Three are now back in the cabinet, but the government's once high reputation for honesty and courage has gradually veered toward one for dishonesty and corruption.

A Film Run Backwards

These developments made it inevitable that the public that had once acclaimed Menderes would turn against him. Just as inevitably in a country so new to democracy, Menderes took to suppressing his opponents with a rigor that has grown in proportion to the opposition.

Turkey's experience with the democratic process has been limited to the eleven years since Ismet İnönü, who inherited the mantle of Kemal Atatürk, voluntarily bestowed a free-election system on his country. The system wasn't entirely free—a fact that İnönü now has cause to regret, since he could be in power again today if it were. But it was free enough to get his Republican Party thrown out by a landslide vote in 1950.

In the freshness of their triumph over the Republicans, the Menderes forces behaved impeccably. By 1954, (Continued on page 22)