

BRECHT COLLECTED PLAYS
Series Editors: *John Willett, Ralph Manheim and Tom Kahn*

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Life of Galileo
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Brecht Collected Plays: Eight*

* *in preparation*

BERTOLT BRECHT

Collected Plays: Five

Life of Galileo

translated by John Willett

Mother Courage and her Children

translated by John Willett

Edited and introduced by

John Willett and Ralph Manheim

Methuen Drama

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Introduction

LIFE OF GALILEO

In all Brecht's work there is no more substantial and significant landmark than the first version of *Galileo*, which he wrote in three weeks of November 1938, not long after the Munich agreement had opened the door of Eastern Europe to Hitler. As is well known, it inaugurated the series of major plays whose writing occupied him until his return to Germany some ten years later: from *Mother Courage* to *The Days of the Commune*, those great works of his forties on which his reputation largely rests. At the same time it marks the virtual end of his efforts to write plays and poems of instant political relevance, such as the Spanish Civil War one-acter *Señora Carrar's Rifles* or the loose sequence of anti-Nazi scenes known variously as *99%*, *The Private Life of the Master Race* and *Fear and Misery of the Third Reich*. Short satirical poems designed for the exiles' cabarets or for broadcasting (notably by the Communist-run German Freedom Radio) now give way to something at once more personal and more pessimistic. The *Lenin Cantata* set by Eisler for the twentieth anniversary of the October Revolution is followed during 1938 by 'To Those Born Later' and the great Lao-Tse poem. All along the line Brecht appears to be backing away from the kind of close political engagement which had occupied him since the crisis years of 1929, as also from the didactic and agitational forms to which this gave rise. Walter Benjamin, who visited him in his Danish cottage that June and stayed till after Munich, found him at once more isolated and more mellow than he had been four years earlier. 'It's a good thing', he notes Brecht as saying, 'when someone who has taken up an extreme position then goes into a period of reaction. That way he arrives at a half-way house.'

Though such a change might seem compatible with the new aesthetic traditionalism being preached from Moscow after the Writers' Congress of 1934 – with *Galileo* itself as part of the same historicising trend as led to Heinrich Mann's Henri IV novels and Friedrich Wolf's play *Baumarchais* – it primarily relates to something very different: to Brecht's shuddering consciousness of what he called 'the dark times'. The phrase was first used by him in a poem of 1937 and from then on it overshadows much of his writing right up to the crucial German defeats at Stalingrad and El Alamein in the autumn of 1942. For it was a desperate period, and the despair could be felt on at least three different levels. First of all there was the relentless progress of Fascism (intervention in Spain, Japanese invasion of China, the Austrian Anschluss, the annexation of the German-speaking areas of Czechoslovakia) aided by British appeasement and the fall of the French Popular Front. Overlapping these events, and in many ways closer to Brecht personally, was the great Soviet purge which by the time of Benjamin's visit had already carried away such friends of theirs as Tretakoff, Ortwal, Carola Neher and the Reichs, as well as Brecht's two Comintern contacts Béla Kun and Vilis Knorin, to as yet unclear fates. Linked with the new Russian spy mania, itself shot through with xenophobia, was the increasingly strict imposition of the Socialist Realist aesthetic whose German-language spokesmen were Alfred Kurella and Georg Lukács. With Meyerhold deprived of his allegedly 'alien' theatre in January 1938, Brecht that summer wrote a number of ripostes to Lukács which he seemingly thought wiser not to publish, even in the Moscow magazine *Das Wort* of which he was a nominal editor. 'They want to play the *apparatchik* and exercise control over the other people', he told Benjamin. 'Every one of their criticisms contains a threat.'

In the *Journals (Arbeitsjournal)* which he now began keeping, the place of *Galileo* is very clear. In October a short entry reflects on the unwillingness of any of the major powers, including Russia, to risk war for Czechoslovakia. In January 1939 another reports the arrest in Moscow of *Das Wort's*

sponsor Mikhail Koltsov – 'my last link with that place' – and concludes that the right Marxist attitude to Stalinism was that of Marx himself to German social-democracy: 'constructively critical'. Between these two pages comes the entry of 23 November, recording that this hitherto unmentioned play has taken three weeks to write. Before and after come biting comments on Lukács and the 'Realism controversy'. It must already have been in Brecht's mind ('for some while', so his collaborator Margarete Steffin wrote to Benjamin in the letter cited on p. 235); and certainly he had done a good deal of preliminary reading: of the standard German biography by Emil Wohlwill, for instance, as well as of nineteenth-century translations of the *Discorsi* and Bacon's *Novum Organum* (from which a number of key ideas were derived) and works by modern physicists such as Eddington and Jeans. But an important contributing factor was his decision, evidently taken around this time, to follow Hanns Eisler's example and apply for a quota visa to the United States, where he hoped that a work about the great physicist would make him some money. This idea crystallised just after Munich as a result of a visit by his American friend Ferdinand Reyher, a Hollywood script writer whom he had first met in Berlin at the time of *The Threepenny Opera*. Arriving in Copenhagen on 28 October, Reyher suggested that Brecht should start by writing *Galileo* as a film story which he, Reyher, could market for him. Though Brecht in the event found himself writing the play instead (see Letter 373 of 2 December), and never even embarked on the film project, he said from the outset that it was 'really intended for New York'.

This original *Galileo*, revised with some minor changes in the first few weeks of 1939, was initially called *The Earth Moves*. Its full German text was first published under its subsequent title *Leben des Galilei* by Suhrkamp in 1988. In February Reyher wrote from Hollywood to say that while he would discuss its screen possibilities with the director William Dieterle – himself an old acquaintance of Brecht's from the early 1920s – he felt some measure of adaptation was needed to fit it for the American stage. With Brecht's permission,

accordingly, he proposed not just to do a straight translation but to introduce a little more speed¹:

a sharpened drive, because our mode of thinking and our interests are gaited to a more nervous tempo, and what induces us to think in this country is not ideas, but action.

Brecht never seems to have agreed to this; nor do we know how Dieterle reacted to the film idea. Meantime, however, copies of the script were going to a number of other recipients: among them Piscator, Hanns Eisler and Fritz Lang in the United States, Brecht's publisher Wieland Herzfelde in Prague, his translator Desmond Vesey in London, the main German-language theatres in Basle and Zurich, and Pierre Abraham and Walter Benjamin in Paris. Not long before leaving Denmark that spring he began writing his *Messingkauf Dialogues* on the model of Galileo's *Discorsi* dialogues. Characteristically, he had already become dissatisfied with the play, which he saw as 'far too opportunist' and conventionally atmospheric, like the deliberately Aristotelian 'empathy drama' *Señora Carrar's Rifles*, for which he was still praised by the Party aestheticians. He even thought of remodelling the whole thing in a more didactic form, based on the example of the big unfinished *Fatzer* and *Breadshop* schemes of the late 1920s. However, there is no evidence that he did this except a rough outline for a 'version for workers'; and instead the project slumbered while he wrote the next four of the major plays. Only in Moscow was there a review of the play in *Sovietski Isskusstvo* (18 August 1939) and some suggestion of an illustrated edition for which his new friend Hans Tombrock was to make the etchings. This too never materialised, though it prompted the vivid description of Galileo's appearance which we cite on p. 193.

* * *

X The Brechts eventually moved to the United States in the summer of 1941, leaving via Moscow and Vladivostok a matter of days before the German invasion of the USSR. By then France, Poland, Yugoslavia and Greece had all fallen to

Hitler; Benjamin had committed suicide on the Franco-Spanish frontier; Margarete Steffn was left in Moscow to die of tuberculosis. Settling in California in the hope of finding work in the film industry, Brecht was soon seeing both Dieterle and Reyher, who had by now evidently completed a straight translation of the play. The idea of a film version seems not to have been resumed. That autumn he discussed the script with the physicist Hans Reichenbach, a pupil of Einstein's then teaching in Los Angeles at the University of California, who congratulated him on the accuracy of its scientific and historical aspects. Then at the end of the year he tried to interest his old friend Oskar Homolka, and for a time Homolka toyed with the idea of playing the part: something that made Brecht feel

as if I were recalling a strange sunken theatre of a bygone age on continents that had been submerged.

A similar sense of unreality, must have seized him in September 1943 when the Zurich Schauspielhaus finally gave the play its world première some two and a half years after that of *Mother Courage*. How he reacted to the news of the production — or when, indeed, he heard it — remains unclear; he never even alludes to it in his diary. Soberly interpreted by Leonard Steckel, who not only played Galileo but was also the director, it was greatly applauded despite its lack of dramatic effects: 'a Lehrstück or a play for reading', one critic called it. What was not clear, however, in a generally clear performance, was whether Galileo recanted out of cowardice or as part of a deliberate plan to complete his life's work on behalf of human reason and smuggle it out to the free world. This ambiguity (which led so experienced a critic as Bernhard Diebold to favour the second, more topically anti-Nazi interpretation) is of course built into the first version of the play, where Galileo has already been conspiring with the stove-fitter (symbol of the workers) to send his manuscript abroad in the penultimate scene even before Andrea appears. (In Zurich this was in fact the last scene, that at the frontier being, as usual, cut.) It was only in the spring of 1944 that the play seems once

more to have become a reality to Brecht. Wintering in New York, he had discussed the possibility of a production with Jed Harris, the backer of Thornton Wilder's *Our Town*, and on getting back to Santa Monica he looked at *Galileo* with a fresh eye, re-checking its moral content, so he noted in his journal,

since it had always worried me, just because i was trying to follow the historical story, without being morally concerned, a moral content emerged and i'm not happy about it. g. can no more resist stating the truth than eating an appetising dish; to him it's a matter of sensual enjoyment. and he constructs his own personality as wisely and passionately as he does his image of the world. actually he falls twice. the first time is when he suppresses or recants the truth because he is in moral danger, the second when despite the mortal danger he once again seeks out the truth and disseminates it. he is destroyed by his own productivity. and it upsets me to be told that i approve of his publicly recanting so as to be able to carry on his work in secret. that's too banal and too cheap. g., after all, destroyed not only himself as a person but also the most valuable part of his scientific work. the church (i.e. the authorities) defended the teachings of the bible purely as a way of defending itself, its authority and its power of oppression and exploitation. the sole reason why the people became interested in g.'s ideas about the planets was that they were chafing under church domination. g. threw all real progress to the wolves when he recanted. he abandoned the people, and astronomy once again became an affair for specialists, the exclusive concern of scholars, unpolitical, cut off. the church made a distinction between these celestial 'problems' and those of the earth, consolidated its rule and then cheerfully went on to acknowledge the new solutions.

It was during that March that Brecht first met Charles Laughton, who was then living within walking distance in a street called Corona del Mar above the Pacific Coast Highway.

Both men were friends of Berthold Viertel's wife Salka (best known perhaps as Greta Garbo's preferred script writer), and it seems to have been through her that they learnt to appreciate one another's company. As Laughton's biographer Charles Higham has put it, they found they had certain likes and dislikes in common:

They both shared a sympathy and concern for ordinary people, a dislike of pomp and circumstance and the attitudes and actions of the European ruling class. They both disliked elaborate artifice in the theatre, as exemplified by the spangles-and-tinsel of Max Reinhardt's stage and film productions of *A Midsummer Night's Dream* . . .

Laughton had last acted in the theatre in 1934, and since playing Rembrandt in Alexander Korda's 1936 film of that name (for which Brecht's old friend Carl Zuckmayer wrote the script) he had had a surfeit of supporting roles in second- and third-rate Hollywood films. During the spring and summer of 1944 he read the rough translation of Brecht's *Schwank in the Second World War* and greatly enjoyed it, while Brecht for his part wrote the long poem 'Garden in Progress' to commemorate, not without irony, the landslide which sent part of the Laughtons' beautifully tended garden sliding down the cliff face to the road below. By then the actor had evidently learnt enough about *Galileo*, whether through Brecht's description or from the Vesey and Reyher translations, to decide that it might well be the masterpiece to carry him back to the live stage. With Brecht's agreement he now commissioned a fresh translation by a young writer called Brainerd Duffield, who had been working with Alfred Döblin and other German exiles employed by MGM. By the end of November Duffield and his contemporary Emerson Crocker had once again translated Brecht's original script and produced a third text which both Laughton and the Brechts evidently approved. A fortnight later actor and playwright together were getting down to what the former terms 'systematic work on the translation and stage

version of the *Life of the Physicist Galileo*. Whatever the original intention, it was in effect to be a new play.

* * *

Brecht later called the work with Laughton a 'zweijähriger Spass', a two-year escapade, and undoubtedly it covers more paper than did any other of his writings, so that altogether it represents a prodigal expenditure of both men's time. But he also saw it as the classic collaboration between a great dramatist and a great actor, and the loving account which he gives in 'Building up a part' (p. 206 ff.) seems to have been filtered through a warm Californian haze rather than the wintry greys of Berlin. Inevitably there were long interruptions before a first script was ready. From February to May 1945 Laughton was off playing in the pirate film *Captain Kidd* (Brecht meantime consoling himself by trying to put the *Communist Manifesto* into Lucretian hexameters); then in June and July Brecht was in New York for a none too successful production of *The Private Life of the Master Race* in Eric Bentley's translation, directed initially by Piscator and finally by Viertel on Brecht's intervention. Generally however they worked as described by Brecht, with him reshaping the play in a mixture of German and English — his typescript drafts contain many instances of this, of which one is cited on p. 237 — and both men then trying to get the English working right. This reshaping often followed Laughton's suggestions, which went much further than the basic cutting and streamlining which were his most obvious contribution. Thus it was he who proposed the elimination of the Doppone character (see p. 239), the 'positive entry' of the iron founder in scene 2, the argument between Ludovico and Galileo in the sunspot scene and the shifting of the handing-over of the *Discorsi* so that Galileo's great speech of self-abasement should come after it and offset it. Brecht too worked to make this self-abasement seem more of a piece with Galileo's concern for his own comforts, which were now to include thinking. In this, as in the new emphasis on Galileo's sensuality, he was aided by Laughton's character, of which Eric Bentley has written that

It is unlikely that anyone again will combine as he did every appearance of intellectual brilliance with every appearance of physical self-indulgence.

If the 1938 version derived its political relevance from the need to smuggle the truth out of Nazi Germany, this new version was given an extra edge of topicality by the dropping of the first atomic bomb on 6 August 1945. Not that any significant change was needed apart from the addition of the passage about 'a universal cry of fear' in the penultimate scene. The notion of a Hippocratic oath for scientists had still to be worked in. So before leaving the US Brecht drafted the relevant passage (see p. 270), which could indeed have been in his mind from the inception of the play, the idea itself having been put forward by Lancelot Law White in *Nature* in 1938 and discussed at the time in an editorial in the *New York Times*.

On 1 December 1945 the new, 'American' text was complete enough for Laughton to read it to the Brechts, Eisler, Reichenbach, Salka Viertel and other friends. About a week later he also read it to Orson Welles, whom both he and Brecht seem already to have had in mind for some while as the right director for the production towards which they were working. Welles instantly accepted the job, and a few days after that the three men saw Laughton's agents Berg-Allenberg to discuss whether to open in the spring or the summer. This question was bound up with their choice of producer, which seems to have veered initially between Welles himself, the film impresario Mike Todd and Elisabeth Bergner's husband Paul Czinner, for whom Brecht was already working on the *Duchess of Malfi* adaptation. Czinner was not congenial to Laughton, and once the idea of a spring production was abandoned he dropped out. Welles for his part apparently disliked Brecht; nevertheless for a time the intention was that he and Todd should combine forces; then a mixture of uncertainty about dates and dislike of the kind of teamwork proposed by Laughton and Brecht made Welles drop out after the middle of 1946, leaving Todd as sole producer. After that various directors were suggested: Elia Kazan, who had a particular appeal for Brecht

because he did not claim to know all the answers; Harold Clurman, whom Brecht respected as 'an intelligent critic and interested in theoretical issues' but saw primarily as a 'Stanislavsky man' unlikely to let him have any say. He even inquired about Alfred Lunt. Meantime a great deal of detailed revision of the new Brecht-Laughton text went on, with Brecht and Reyher totally overhauling it in New York, then Laughton and Brecht again reworking it in California. Versions of the ballad-singer's song were made by Reyher and by Abe Burrows (of *Gays and Dolls* fame) while the inter-scene verses seem to have involved a whole host of collaborators including Brecht himself and his daughter Barbara; the only programme credit, however, for the 'lyrics' went to a Santa Monica poet called Albert Brush. The eventual director chosen was Joseph Losey, who had met Brecht in Moscow in 1935 and thereafter made his name with the Living Newspaper programmes of the Federal Theatre. Finally Todd too dropped out after offering (in Losey's words) to 'dress the production in Renaissance furniture from the Hollywood warehouses', an idea that was unacceptable to Brecht, Laughton and Losey alike. With this the hope of any kind of production in 1946 disappeared.

Briefly Brecht hoped that he and Losey might be able to stage a try-out at Berkeley under the auspices of Henry Schmitzler, son of the Austrian playwright, but time was too short. Instead the three partners decided to turn to a new smaller management headed by Norman Lloyd and John Houseman, who were then about to take over the Coronet Theatre on La Cienega Boulevard, Los Angeles. They agreed to put on *Galileo* as their second production, with the 'extremely decent' (said Brecht) T. Edward Hambleton as its principal backer. Though Brecht was unable to get his old collaborator Caspar Neher over from Europe as he wished, the substitute designer Robert Davison accepted his and Laughton's ideas for an unmonumental, non-naturalistic setting; Helene Weigel helped with the costumes. Eisler (who actually preferred the first version of the play) wrote the music in a fortnight; Lotte Goslar did the choreography. Rehearsals were scheduled to start at the end of May 1947, when Laughton would have

finished a film; the opening would be on 1 July. Though this had to be put off till the last day of the month everything otherwise seems — amazingly enough — to have gone according to plan. Losey not only justified Reyher's recommendation of him —

He knows casting, has the feel for it; he knows what to do with actors; he can get a crowd sense without numbers, and movement that isn't just confusion, and keep the whole of a play in mind.

— but worked so closely with Brecht that the latter ever afterwards treated the production as his own. Laughton, exceptionally nervous before the première, resisted any temptation to overact, and concentrated on bringing out the contradictory elements with which they had enriched Galileo's character; ~~the one~~ point that still resisted him, according to Brecht, being the logic of the deep self-abasement manifested in his 'Welcome to the gutter' speech near the end of the play. Not that such refinements would have been particularly appreciated by the critics, for both *Variety* and the *New York Times* complained that the production was too flat and colourless. Charlie Chaplin too — who never really knew what to make of Brecht — sat next to Eisler at the opening and dined with him afterwards; he found that the play was not theatrical enough and said it should have been mounted differently. 'When I told him', said Eisler later,

that Brecht never wants to 'mount' things, he simply couldn't understand.

To Hella Wuolijoki in Finland Losey would write after the New York production that

working with Brecht has spoilt me for any other kind of theatre . . .

And from then on he was lost to the cinema. For Brecht himself however it was certainly the most important and satisfying theatrical occasion since he first went into exile in 1933:

The stage and the production were strongly reminiscent of the Schiffbauerdamm Theatre in Berlin; likewise the intellectual part of the audience.

So he wrote to Reyher (Letter 543). Whether or not it played to such full houses as he later claimed, the whole achievement was an astonishing tribute to the actor's courage, the director's commitment and the writer's relentless perfectionism: one of the great events in Brecht's life.

* * *

In the long struggle to stage the 'American' version it might seem that Brecht hardly noticed that the Second World War was over. Thus his poem to Laughton 'concerning the work on the play *The Life of Galileo*' (*Poems 1913-1956*, p. 405):

Still your people and mine were tearing each other to pieces
when we
Pored over those tattered exercise books, looking
Up words in dictionaries, and time after time
Crossed out our texts and then
Under the crossings-out excavated
The original turns of phrase. Bit by bit —
While the housefronts crashed down in our capitals —
The façades of language gave way. Between us
We began following what characters and actions dictated:
New text.

Again and again I turned actor, demonstrating
A character's gestures and tone of voice, and you
Turned writer. Yet neither I nor you
Stepped outside his profession.

In fact however he had begun to prepare his return to Germany as early as 1944 (when the FBI reported him visiting the Czech consulate for the purpose), and in December 1945 he wrote in his journal, 'maybe I'll no longer be here, next autumn'. The *Galileo* discussions apart, this was the beginning of a curiously blank year in Brecht's biography (see *Journals*, editorial note to

5 January 1946), by the end of which he had had some kind of invitation to work in the Soviet sector of Berlin, once again at the Theater am Schiffbauerdamm. Early in 1947 he was trying to organise a common front with Piscator and Friedrich Wolf (who was already back there) with a view to rehabilitating the Berlin theatre; by March he and Weigel had got their papers to go to Switzerland. The machinations of the House Un-American Activities Committee (from May onwards) thus had less effect on his movements than is sometimes thought. Hanns Eisler was interrogated by one of their subcommittees that month and the FBI file on Brecht reopened, while Eisler's brother Gerhart was on trial during much of the *Galileo* rehearsals; finally Brecht himself appeared before the committee a day or two before leaving for Switzerland in September. But these words did probably affect the fortunes of the New York production, which Hambleton had delayed (according to Higham) in order to add the 'passion, excitement, colour' which the critics had felt to be lacking. Further cuts were made there to give us the text as we now print it (see the appendix, p. 333 ff.), the odd facetious line was worked in; the cast was entirely new. Again however the reviews were bad, Brooks Atkinson in the *New York Times* dismissing the production as 'stuffed with hokum'. 'The New York press', noted Brecht in Zurich,

seems to have missed exactly what Laughton's catholic friend missed in GALILEO: a scientist agonising under duress whom we can empathise with. Well, Galileo's bad conscience is shown in right proportion in the play, but this is not nearly enough for the bourgeoisie; having come to power it wishes to see the higher spiritual movements of those whom it compels to act against their consciences displayed larger than life so as to embellish the overall picture of their world.

The run was a very short one — six performances, suggests the 1988 edition. Higham blames the difficulty of finding another theatre to which to transfer. But Laughton's earlier biographer Kurt Singer gave a somewhat different interpretation, writing

(with an exaggeration indicative of the temper of those times) that

The trouble lay in the political affiliations of the playwright. Berthold Brecht was a dyed-in-the-wool Communist. On the point of being deported from the United States for his Communist activities, he escaped and turned up again in East Germany, where he became the Soviet's pet author, supervising the literary life of the Soviet-controlled zone and turning out odes to Stalin on the various state holidays. The musical score for the play on Galileo had been composed by Hanns Eisler, another convinced Communist who had composed many propaganda songs, including *The Communist March*. Several actors in the cast turned out to be Communists too . . .

Whether or not this put Laughton himself off the play, as Singer suggests, Brecht continued to count on the actor's collaboration in a proposed film version to be made in Italy. The producer who had initiated this scheme was Rod E. Geiger, who apparently had funds in that country as a result of his earnings on Rossellini's *Open City*. Negotiations continued while Brecht was in Switzerland, and a scheme was worked out with the approval of Laughton and his agents by which the former would come to London for a production of the play around the end of 1948, after which work on the film would follow. Brecht and Reyher would write the script, which Geiger felt must give more emphasis to the relationship between Virginia and her fiancé Ludovico. However, everything was conditional on Laughton's involvement, and he blew hot and cold, his own nervousness of Communist associations being no doubt aggravated by the warnings of his agent. So it all fell through — possibly prompting Brecht to the satirical 'Obituary for Ch.I.' which he wrote around this time (*Poems* 1913-1956, p. 418):

Speak of the weather
Be thankful he's dead

Who before he had spoken
Took back what he said.

At any rate this put paid for the moment to all further plans, since the play could hardly be staged by Brecht's own company, the Berliner Ensemble, till they had a suitable actor and a revised German text. Brecht himself in Zurich had made a start and translated about half the Laughton text; he seems to have discussed a Berlin production outside the programme of that company, with Korfner or Steckel in the title part. Then in 1953 he set his collaborators (Hauptmann, Besson, Berlau) to work translating and expanding the 'American' version so as to include certain elements of that of 1938, notably the plague scenes and the great introductory speech about the 'new time' in scene 1. He then went over the results himself, also adding German versions of the ballad, the poems and the inter-scene verses. In 1955 all this but for the verses was given its premiere in Cologne in West Germany, after which he at last — in the final year of his life — began preparing to stage the play with the Berliner Ensemble.

In ten years a lot had changed. The text had grown longer by half, the production envisaged (with Neher as designer) was more lavish, there was no actor of Laughton's calibre available. Brecht himself was to direct it, but he could only conduct rehearsals from mid-December up to the end of March 1956 when he became too ill to go on. As Galileo he cast his old Communist friend Ernst Busch, who had been in *The Mother*, *Kuhle Wampe* and the *Threepenny Opera* film before 1933, had sung Brecht-Eisler songs to the troops in Spain, been interned by the French, then handed over to the Gestapo and wounded in the bombing of Berlin. Since returning to the German stage Busch had tended to specialise in cunning or lovable rogues: Mephisto and Iago for the Deutsches Theater, Azdak and the Cook (in *Mother Courage*) for Brecht. A much less intellectual actor than Laughton, he found it even more difficult to alienate the audience's sympathies at the end of the play; and when Erich Engel took over the production after Brecht's death he was allowed to present the handing-over of

the *Discorsi* as a piece of justified foxiness which made his recantation ultimately forgivable. Brecht himself had underlined two points in connection with this production: the first, his view that the recantation was an absolute crime (see p. 205), the second, that Galileo's line in scene 9 'My object is not to establish that I was right but to find out if I am' is the most important sentence in the play. Others have stressed that the new version followed the manufacture and testing of the hydrogen bomb, so that the social responsibility of the scientist became a particularly topical theme. It is difficult however to see this play as a member of an East European audience without feeling that it is above all about scientific enquiry and the human reason. For the parallels are too clear: the Catholic Church is the Communist Party, Aristotle is Marxism-Leninism with its incontrovertible scriptures, the late 'reactionary' pope is Joseph Stalin, the Inquisition the KGB. Obviously Brecht did not write it to mean this, and if he had seen how the local context prompted this interpretation he might have been less keen for the production to go on. But as things turned out it proved to be among the most successful of all his plays in the Communist world.

* * *

In our view *Galileo* is Brecht's greatest play, and it is worth tracing its long and involved history in order to understand why. Not just one, but three crucial moments of our recent history helped to give it its multiple relevance to our time: Hitler's triumphs in 1938, the dropping of the first nuclear bomb in 1945, the death of Stalin in 1953. Each found Brecht writing or rewriting his play. And on each occasion the conditions of work were different: thus it was first written in his measured, stylish yet utterly down-to-earth German, then re-thought in English for Anglo-Saxon tongues and ears, then put back into German so as to combine the strengths of both. At none of these three stages was its form in any way mannered or gimmicky: sprawl as it might, particularly in the two German versions, it was outwardly a straightforward chronicle of seventeenth-century intellectual history, striking surpris-

ingly closely to the known facts. This was not 'opportunistic' as Brecht at one moment termed it, even if it did represent a reaction against the conventionally realistic small-scale forms which he had used in 1937. Undoubtedly however his new approach made for accessibility, and as a result almost any competent and unpretentious production of the play will grab the audience's attention and get the meaning across.

What is that meaning? In fact there are several that can be read into the play, nor is this surprising when you think that Brecht's active concern with it covered nearly twenty years. So the problem for the modern director is to sift out those that matter from those that don't. First of all, this is not only a hymn to reason, but one that centres specifically on the need to be sceptical, to doubt. The theme is one that recurs more briefly in others of Brecht's writings of the later 1930s – for instance the poems 'The Doubter' and 'In Praise of Doubt' and the 'On Doubt' section of the as yet untranslated *Me-Ti* – and it very clearly conflicts with the kind of 'positive' thinking called for by both Nazis and the more rigid-minded of the Communists, which must not be critical ('negative') but optimistic. This notion of Brecht's that doubt and even self-doubt can be highly productive – that 'disbelief can move mountains', as he later put it in the *Short Organum* – is deeply engrained in the play; and although it ties in with his doctrine of 'alienation' or the need to take nothing for granted it also surely represents a reaction against the orthodox Socialist Realist view. How far it can be attributed to the historical Galileo is another matter. As Eric Bentley and, more recently, Paul Feierabend have pointed out, Galileo's reliance on the evidence of his senses was largely limited to the observations which he made with the telescope; elsewhere he was more speculative and less rational than Brecht suggests. What is true however is the conflict between authority and free scientific enquiry, both on the institutional level and within Galileo's own character (for he was indeed a believing Catholic). If anything, the former's position is presented too reasonably, both Barberini and the Inquisitor having in fact behaved much worse than Brecht let them do. Brecht all along was writing about attitudes which he could

understand and even sympathise with; it is a play that contains very little element of caricature. This does not turn his Galileo into the self-portrait it is sometimes alleged to be, particularly by those who wish to present Brecht as a 'survivor' — as if surviving was not a very reputable thing for him to have done. Nor does it bear out Isaac Deutscher's interpretation of the first version as an apologia for those who, like Brecht himself, supported Stalin whilst disliking many aspects of his regime. Not that such autobiographical considerations — which can of course be clamped on to almost any play — are much help to the director, who has first and foremost to take the work at its face value. What matters here is the overlaying of the original message, about the need at all costs to establish and communicate the truth in defiance of authority, by Brecht's growing recognition of the losses that this may involve: for instance, the creation of such a cleft between the intellectual and the average man that the former eventually comes to overlook the social consequences of his research. The intertwining of these two contradictory morals has presented problems to actor and director alike, and of course it devalues the original happy ending. None the less it represents a considerable enrichment both of the Galileo figure and of the story; while taking away nothing from the vividness with which the scientific attitude is depicted, it cuts down the improbabilities and brings the whole thing closer to the uneasy compromises of real life. The problem in production, then, is how to compress the play into a length appropriate to its audience without losing essential elements of so carefully thought-out a mixture. As a reading text it has a balance which needs also to be achieved under the very different conditions of the stage.

By turning it back, finally, into something of a meditation on the notion of a 'new time', Brecht re-emphasised another general theme of particular significance to himself. Between 1929 and 1933 (and even, less pardonably, for two or three years afterwards) the German Communists thought that the Revolution was round the corner, and men like Brecht were stimulated much as he describes in the Foreword on p. 189. At the end of the 1930s, however, when he wrote the poem 'To

Those Born Later' (*Poems 1913-1956*, pp. 318-320), their goal

Lay far in the distance
It was clearly visible, though I myself
Was hardly likely to reach it.

'Terrible is the disappointment', says the Foreword, when the new time fails to arrive and the old times prove stronger than anyone thought. For what had actually arrived was the 'dark times' of the first line of 'To Those Born Later', and with this the whole concept of 'old' and 'new' got confused. So the Old strode in disguised as the New', says the prose poem 'Parade of the Old New' which he wrote at the time of the first version as one of five 'Visions' foreshadowing the coming war. The temptation was to look nostalgically backwards, as the end of the Foreword suggests:

Is that why I occupy myself with that epoch of the flowering
of the arts and sciences three hundred years ago? I hope not.

And in this hope he was determined to hold on to his old belief in the New, writing for instance to Karin Michaelis in March 1942, when the war was still going Hitler's way, that

the time we live in is an excellent time for fighters. Was there
ever a time when Reason had such a chance?

What is significant in the final version is not just that it reinstates and even extends Galileo's opening 'aria' of 1938 on the new age — that Elizabethan-Jacobean age which always fascinated Brecht, not least because of Germany's failure to benefit from it. The really crucial remark, rather, comes in the final summing up of the same idea, which differs subtly from one version to another. 'Reason', says Galileo in the first version, 'is not coming to an end but beginning.

And I still believe that this is a new age. It may look like a
blood-stained old harriidan, but if so that must be the way
new ages look.'

xxvi Introduction

In the American version, which omits the reference to Reason, Andrea asks Galileo outright if he doesn't now think that this 'new age' was an illusion, and is again given the same answer. In the third version, far more tellingly, he gets the almost indifferent response 'Doch' — 'On the contrary', almost implying 'despite all?' — followed by a quick change of subject. And it is this one word, with all its overtones from the history of Brecht's own time — at once so new and so dark — that wryly wraps up the whole optimistic tragedy, pinning the beginning and the end together with a single jab.

MOTHER COURAGE AND HER CHILDREN

That Hitler meant war was clear to Brecht by the beginning of 1937. During the previous November the German and Italian fascist regimes had banded together to form the 'Rome-Berlin axis'; Franco, whose rebellious armies were on the outskirts of Madrid, was recognised by them as the legitimate ruler of Spain; an anti-Comintern alliance was forged between Japan, then on the point of invading China, and the Germans. Hitler, who had already got away with the re-militarisation of the Rhineland in defiance of the Versailles Treaty, henceforward had no reason to moderate his aggressive aims. As Brecht put in one of the 'German War Primer' series of 'Svendborg Poems' which he wrote on Finen Island less than fifty miles across the Baltic from Germany:

ON THE CALENDAR THE DAY IS NOT YET SHOWN

Every month, every day

Lies open still. One of these days

Is going to be marked with a cross.

For him it was the start of 'the dark times': a phrase that from now on permeates his poetry. Austria fell in March 1938, the German-speaking areas of Czechoslovakia that September, Prague and the remainder of Czechoslovakia in March 1939, Memel in Lithuania the same month, Madrid and the Spanish Republic with it. Then Hitler offered Denmark a non-aggression pact.

In April 1939, with Fascist Italy in its turn starting to invade Albania, Brecht took advantage of a lecture invitation to move to Sweden, where he was lent a sculptress's house on the island of Lidingö outside Stockholm. From now on he and his

Chronology

- 1898 10 February: Eugen Berthold Friedrich Brecht born in Augsburg.
- 1917 Autumn: Bolshevik revolution in Russia. Brecht to Munich university.
- 1918 Work on his first play, *Baal*. In Augsburg Brecht is called up as medical orderly till end of year. Elected to Soldiers' Council as Independent Socialist (USPD) following Armistice.
- 1919 Brecht writing second play, *Drums in the Night*. In January Spartacist Rising in Berlin. Rosa Luxemburg murdered. April–May: Bavarian Soviet. Summer: Weimar Republic constituted. Birth of Brecht's illegitimate son Frank Banholzer.
- 1920 May: death of Brecht's mother in Augsburg.
- 1921 Brecht leaves university without a degree. Reads Rimbaud.
- 1922 A turning point in the arts. End of utopian Expressionism; new concern with technology. Brecht's first visit to Berlin, seeing theatres, actors, publishers and cabaret. He writes 'Of Poor BB' on the return journey. Autumn: becomes a dramaturg in Munich. Premiere of *Drums in the Night*, a prize-winning national success. Marries Marianne Zoff, an opera singer.
- 1923 Galloping German inflation stabilised by November currency reform. In Munich Hitler's new National Socialist party stages unsuccessful 'beer-cellar putsch'.
- 1924 'Neue Sachlichkeit' exhibition at Mannheim gives its name to the new sobriety in the arts. Brecht to Berlin as assistant in Max Reinhardt's Deutsches Theater.
- 1925 Field-Marshal von Hindenburg becomes President. Elisabeth Hauptmann starts working with Brecht. Two seminal films: Chaplin's *The Gold Rush* and Eisenstein's *The Battleship Potemkin*. Brecht writes birthday tribute to Bernard Shaw.
- 1926 Premiere of *Man equals Man* in Darmstadt. Now a freelance; starts reading Marx. His first book of poems, the *Devotions*, includes the 'Legend of the Dead Soldier'.
- 1927 After reviewing the poems and a broadcast of *Man equals Man*, Kurt Weill approaches Brecht for a libretto. Result is the text of *Mahagonny*, whose 'Songspiel' version is performed in a boxing-ring at Hindemith's Baden-Baden music festival in July. In Berlin he helps adapt *The Good Soldier Schweik* for Piscator's high-tech theatre.
- 1928 August 31: premiere of *The Threepenny Opera* by Brecht and Weill, based on Gay's *The Beggar's Opera*.
- 1929 Start of Stalin's policy of 'socialism in one country'. Divorced from Marianne, Brecht now marries the actress Helene Weigel. May 1: Berlin police break up banned KPD demonstration, witnessed by Brecht. Summer: Brecht writes two didactic music-theatre pieces with Weill and Hindemith, and neglects *The Threepenny Opera*'s successor *Happy End*, which is a flop. From now on he strands by the KPD. Autumn: Wall Street crash initiates world economic crisis. Cuts in German arts budgets combine with renewed nationalism to create cultural backlash.
- 1930 Nazi election successes; end of parliamentary government. Unemployed 3 million in first quarter, about 5 million at end of the year. March: premiere of the full-scale *Mahagonny* opera in Leipzig Opera House.
- 1931 German crisis intensifies. Aggressive KPD arts policy: agitprop theatre, marching songs, political phonomontage. In Moscow the Comintern forms international associations of revolutionary artists, writers, musicians and theatre people.
- 1932 Premiere of Brecht's agitational play *The Mother* (after Gorky) with Eisler's music. *Kuhle Wampe*, his militant film with Eisler, is held up by the censors. He meets Sergei Treiakov at the film's premiere in Moscow. Summer: the Nationalist Von Papen is made Chancellor. He denounces

'cultural bolshevism', and deposes the SPD-led Prussian administration.

- 1933 January 30: Hitler becomes Chancellor with Papen as his deputy. The Prussian Academy is purged; Goering becomes Prussian premier. A month later the Reichstag is burnt down, the KPD outlawed. The Brechts instantly leave via Prague; at first homeless. Eisler is in Vienna, Weill in Paris, where he agrees to compose a ballet with song texts by Brecht: *The Seven Deadly Sins*, premiered there in June. In Germany Nazi students burn books; all parties and trade unions banned; first measures against the Jews. Summer: Brecht in Paris works on anti-Nazi publications. With the advance on his *Threepenny Novel*, he buys a house on Fynsland, Denmark, overlooking the Svendborg Sound, where the family will spend the next six years. Margarete Steffin, a young Berlin Communist, goes with them. Autumn: he meets the Danish Communist actress Ruth Berlau, a doctor's wife.

- 1934 Spring: suppression of Socialist rising in Austria. Eisler stays with Brecht to work on *Round Heads and Pointed Heads* songs. Summer: Brecht misses the first Congress of Soviet Writers, chaired by Zhdanov along the twin lines of Socialist Realism and Revolutionary Romanticism. October: in London with Eisler.

- 1935 Italy invades Ethiopia. Hitler enacts the Nuremberg Laws against the Jews. March-May: Brecht to Moscow for international theatre conference. Meets Kun and Knorin of Comintern Executive. Eisler becomes president of the International Music Bureau. At the 7th Comintern Congress Dimitrov calls for all antifascist parties to unite in Popular Fronts against Hitler and Mussolini. Autumn: Brecht with Eisler to New York for Theatre Union production of *The Mother*.

- 1936 Soviet purges lead to arrests of many Germans in USSR, most of them Communists; among them Carola Neher and Ernst Ottwalt, friends of the Brechts. International cultural associations closed down. Official campaign against 'Formalism' in the arts. Mikhail Koltsov, the Soviet jour-

nalist, founds *Das Wort* as a literary magazine for the German emigration, with Brecht as one of the editors. Popular Front government in Spain resisted by Franco and other generals, with the support of the Catholic hierarchy. The Spanish Civil War becomes a great international cause.

- 1937 Summer: in Munich, opening of Hitler's House of German Art. Formally, the officially approved art is closely akin to Russian 'Socialist Realism'. In Russia Tretyakov is arrested as a Japanese spy, interned in Siberia and later shot. October: Brecht's Spanish war play *Señora Carrar's Rifles*, with Weigel in the title part, is performed in Paris, and taken up by antifascist and amateur groups in many countries.

- 1938 January: in Moscow Meyerhold's avant-garde theatre is abolished. March: Hitler takes over Austria without resistance. It becomes part of Germany. May 21: premiere of scenes from Brecht's *Fear and Misery of the Third Reich* in a Paris hall. Autumn: Munich Agreement, by which Britain, France and Italy force Czechoslovakia to accept Hitler's demands. In Denmark Brecht writes the first version of *Galileo*. In Moscow Koltsov disappears into arrest after returning from Spain.

- 1939 March: Hitler takes over Prague and the rest of the Czech territories. Madrid surrenders to Franco; end of the Civil War. Eisler has emigrated to New York. April: the Brechts leave Denmark for Stockholm. Steffin follows. May: Brecht's *Svendborg Poems* published. His father dies in Germany. Denmark accepts Hitler's offer of a Non-Aggression Pact. August 23: Ribbentrop and Molotov agree Nazi-Soviet Pact. September 1: Hitler attacks Poland and unleashes Second World War. Stalin occupies Eastern Poland, completing its defeat in less than three weeks. All quiet in the West. Autumn: Brecht writes *Mother Courage* and the radio play *Lucretius* in little over a month. November: Stalin attacks Finland.

- 1940 Spring: Hitler invades Norway and Denmark. In May his armies enter France through the Low Countries, taking

- Paris in mid-June. The Brechts hurriedly leave for Finland, taking Steffn with them. They aim to travel on to the US, where Brecht has been offered a teaching job in New York at the New School. July: the Finnish writer Hella Wuolijoki invites them to her country estate, which becomes the setting for *Punitla*, the comedy she and Brecht write there.
- 1941 April: première of *Mother Courage* in Zurich. May: he gets US visas for the family and a tourist visa for Steffn. On 15th they leave with Berlau for Moscow to take the Trans-Siberian railway. In Vladivostok they catch a Swedish ship for Los Angeles, leaving just nine days before Hitler, in alliance with Finland, invades Russia. June: Steffn dies of tuberculosis in a Moscow sanatorium, where they have had to leave her. July: once in Los Angeles, the Brechts decide to stay there in the hope of film work. December: Japanese attack on Pearl Harbor brings the US into the war. The Brechts become 'enemy aliens'.
- 1942 Spring: Eisler arrives from New York. He and Brecht work on Fritz Lang's film *Hangmen Also Die*. Brecht and Feuchtwanger write *The Visions of Simone Machard*; sell rights to MGM. Ruth Berlau takes a job in New York. August: the Brechts rent a pleasant house and garden in Santa Monica. Autumn: Germans defeated at Stalingrad and El Alamein. Turning point of World War 2.
- 1943 Spring: Brecht goes to New York for three months – first visit since 1935 – where he stays with Berlau till May and plans a wartime *Schweik* play with Kurt Weill. In Zurich the Schauspielhaus gives world premières of *The Good Person of Sechwan* and *Galileo*. November: his first son Frank is killed on the Russian front.
- 1944 British and Americans land in Normandy (June); Germans driven out of France by end of the year. Heavy bombing of Berlin, Hamburg and other German cities. Brecht works on *The Caucasian Chalk Circle*, and with H.R. Hays on *The Duchess of Malft*. His son by Ruth Berlau, born prematurely in Los Angeles, lives only a few days. Start of collaboration with Charles Laughon on English version of *Galileo*.
- 1945 Spring: Russians enter Vienna and Berlin. German surrender; suicide of Hitler; Allied military occupation of Germany and Austria, each divided into four Zones. Roosevelt dies; succeeded by Truman; Churchill loses elections to Atrlee. June: *Private Life of the Master Race* (wartime adaptation of *Fear and Misery* scenes) staged in New York. August: US drops atomic bombs on Hiroshima and Nagasaki. Japan surrenders. Brecht and Laughon start discussing production of *Galileo*.
- 1946 Ruth Berlau taken to hospital after a violent breakdown in New York. Work with Auden on *Duchess of Malft*, which is finally staged there in mid-October – not well received. The Brechts have decided to return to Germany. Summer: A.A. Zhdanov reaffirms Stalinist art policies: Formalism bad. Socialist Realism good. Eisler's brother Gerhart summoned to appear before the House Un-American Activities Committee. November: the Republicans win a majority in the House. Cold War impending.
- 1947 FBI file on Brecht reopened in May. Rehearsals begin for Los Angeles production of *Galileo*, with Laughon in the title part and music by Eisler; opens July 31. Brecht's HUAC hearing October 30; a day later he leaves the US for Zurich.
- 1948 In Zurich renewed collaboration with Caspar Neher. Production of *Antigone* in Chur, with Weigel. Berlau arrives from US. Summer: *Punitla* world première at Zurich Schauspielhaus. Brecht completes his chief theoretical work, the *Short Organum*. Travel plans hampered because he is not allowed to enter US Zone (which includes Augsburg and Munich). Russians block all land access to Berlin. October: the Brechts to Berlin via Prague, to establish contacts and prepare production of *Mother Courage*.
- 1949 January: success of *Mother Courage* leads to establishment of the Berliner Ensemble. Collapse of Berlin blockade in May followed by establishment of West and East German states. Eisler, Dessau and Elisabeth Hauptmann arrive from US and join the Ensemble.

1 Chronology

- 1950 Brecht gets Austrian nationality in connection with plan to involve him in Salzburg Festival. Long drawn-out scheme for *Mother Courage* film. Spring: he and Neher direct Lenz's *The Tutor* with the Ensemble. Autumn: he directs *Mother Courage* in Munich; at the end of the year *The Mother* with Weigel, Ernst Busch and the Ensemble.
- 1951 Selection of *A Hundred Poems* is published in East Berlin. Brecht bears off Stalinist campaign to stop production of Dessau's opera version of *Lucullus*.
- 1952 Summer: at Buckow, east of Berlin, Brecht starts planning a production of *Coriolanus* and discusses Eisler's project for a *Faust* opera.
- 1953 Spring: Stalin dies, aged 73. A 'Stanslavsky conference' in the East German Academy, to promote Socialist Realism in the theatre, is followed by meetings to discredit Eisler's libretto for the *Faust* opera. June: quickly suppressed rising against the East German government in Berlin and elsewhere. Brecht at Buckow notes that 'the whole of existence has been alienated' for him by this. Khrushchev becomes Stalin's successor.
- 1954 January: Brecht becomes an adviser to the new East German Ministry of Culture. March: the Ensemble at last gets its own theatre on the Schiffbauerdamm. July: its production of *Mother Courage* staged in Paris. December: Brecht awarded a Stalin Peace Prize by the USSR.
- 1955 August: shooting at last begins on *Mother Courage* film, but is broken off after ten days and the project abandoned. Brecht in poor health.
- 1956 Khrushchev denounces Stalin's dictatorial methods and abuses of power to the Twentieth Party Congress in Moscow. A copy of his speech reaches Brecht. May: Brecht in the Charité hospital to shake off influenza. August 14: he dies in the Charité of a heart infarct.
- 1957 *The Resistible Rise of Arturo Ui*, *The Visions of Simone Machard* and *Schweyk in the Second World War* produced for the first time in Stuttgart, Frankfurt and Warsaw respectively.

of the COHEN

Life of Galileo
Play

Collaborator: M. STEFFIN

Translator: JOHN WILLETT

Characters

GALILEO GALILEI
ANDREA SARTI
MRS SARTI, *Galileo's housekeeper, Andrea's mother*
LUDOVICO MARSILI, *a rich young man*
THE PROCURATOR OF PADUA UNIVERSITY, *Mr Pruli*
SAGREDO, *Galileo's friend*
VIRGINIA, *Galileo's daughter*
FEDERZONI, *a lens-grinder, Galileo's assistant*
THE DOGE
SENATORS
COSIMO DE MEDICI, *Grand Duke of Florence*
THE COURT CHAMBERLAIN
THE THEOLOGIAN
THE PHILOSOPHER
THE MATHEMATICIAN
THE OLDER COURT LADY
THE YOUNGER COURT LADY
GRAND-DUCAL FOOTMAN
TWO NUNS
TWO SOLDIERS
THE OLD WOMAN
A FAT PRELATE
TWO SCHOLARS
TWO MONKS
TWO ASTRONOMERS
VERY THIN MONK
VERY OLD CARDINAL
BERNARDINI, *Christopher Clavius, astronomer*
TWO MONKS

THE CARDINAL INQUISITOR
 CARDINAL BARBERINI, *subsequently Pope Urban VIII*
 CARDINAL BELLARMIN
 TWO CLERICAL SECRETARIES
 TWO YOUNG LADIES
 FILIPPO MUCIUS, *a scholar*
 MR GAFFONE, *Rector of the University of Pisa*
 THE BALLAD-SINGER
 HIS WIFE
 VANNI, *an ironfounder*
 AN OFFICIAL
 A HIGH OFFICIAL
 AN INDIVIDUAL
 A MONK
 A PEASANT
 A FRONTIER GUARD
 A CLERK
 Men, women, children

I
 Galileo Galilei, a teacher of mathematics at Padua,
 sets out to prove Copernicus's new cosmogony

In the year sixteen hundred and nine
 Science's light began to shine.
 At Padua city in a modest house
 Galileo Galilei set out to prove
 The sun is still, the earth is on the move.

207

Galileo's rather wretched study in Padua. It is morning. A boy, Andrea, the housekeeper's son, brings in a glass of milk and a roll.

GALILEO *washing down to the waist, puffing and cheerful:* Put that milk on the table, and don't you shut any of those books.

ANDREA: Mother says we must pay the milkman. Or he'll start making a circle round our house, Mr Galilei.

GALILEO: Describing a circle, you mean, Andrea.

ANDREA: Whichever you like. If we don't pay the bill he'll start describing a circle round us, Mr Galilei.

GALILEO: Whereas when Mr Cambione the bailiff comes straight for us what sort of distance between two points is he going to pick?

ANDREA *grinning:* The shortest.

GALILEO: Right. I've got something for you. Look behind the star charts.

Andrea rummages behind the star charts and brings out a big wooden model of the Ptolemaic system.

ANDREA: What is it?
 GALILEO: That's an armillary sphere. It's a contraption to

show how the planets move around the earth, according to our forefathers.

ANDREA: How?

GALILEO: Let's examine it. Start at the beginning. Description?

ANDREA: In the middle there's a small stone.

GALILEO: That's the earth.

ANDREA: Round it there are rings, one inside another.

GALILEO: How many?

ANDREA: Eight.

GALILEO: That's the crystal spheres.

ANDREA: Stuck to the rings are little balls.

GALILEO: The stars.

ANDREA: Then there are bands with words painted on them.

GALILEO: What sort of words?

ANDREA: Names of stars.

GALILEO: Such as . . .

ANDREA: The lowest ball is the moon, it says. Above that's the sun.

GALILEO: Now start the sun moving.

ANDREA moves the rings: That's great. But we're so shut in.

GALILEO drying himself: Yes, I felt that first time I saw one of those. We're not the only ones to feel it. *He tosses the towel to Andrea, for him to dry his back with.* Walls and spheres and immobility! For two thousand years people have believed that the sun and all the stars of heaven rotate around mankind. Pope, cardinals, princes, professors, captains, merchants, fishwives and schoolkids thought they were sitting motionless inside this crystal sphere. But now we are breaking out of it, Andrea, at full speed. Because the old days are over and this is a new time. For the last hundred years mankind has seemed to be expecting something.

Our cities are cramped, and so are men's minds. Superstition and the plague. But now the word is 'that's how things are, but they won't stay like that'. Because everything is in motion, my friend.

I like to think that it began with the ships. As far as men could remember they had always hugged the coast, then

suddenly they abandoned the coast line and ventured out across the seas. On our old continent a rumour sprang up: there might be new ones. And since our ships began sailing to them the laughing continents have got the message: the great ocean they feared, is a little puddle. And a vast desire has sprung up to know the reasons for everything: why a stone falls when you let it go and why it rises when you toss it up. Each day something fresh is discovered. Men of a hundred, even, are getting the young people to bawl the latest example into their ear. There have been a lot of discoveries, but there is still plenty to be found out. So future generations should have enough to do.

As a young man in Siena I watched a group of building workers argue for five minutes, then abandon a thousand-year-old method of shifting granite blocks in favour of a new and more efficient arrangement of the ropes. Then and there I knew, the old days are over and this is a new time. Soon humanity is going to understand its abode, the heavenly body on which it dwells. What is written in the old books is no longer good enough. For where faith has been enthroned for a thousand years doubt now sits. Everyone says: right, that's what it says in the books, but let's have a look for ourselves. The most solemn truths are being familiarly nudged; what was never doubted before is doubted now.

This has created a draught which is blowing up the gold-embroidered skirts of the prelates and princes, revealing the fat and skinny legs underneath, legs like our own. The heavens, it turns out, are empty. Cheerful laughter is our response. But the waters of the earth drive the new spinning machines, while in the shipyards, the ropewalks and saillofts five hundred hands are moving together in a new system.

It is my prophecy that our own lifetime will see astronomy being discussed in the marketplaces. Even the fishwives' sons will hasten off to school. For these novelty-seeking people in our cities will be delighted with a new astronomy that sets the earth moving too. The old idea was always that the stars were fixed to a crystal vault to stop them falling down.

Today we have found the courage to let them soar through space without support; and they are travelling at full speed just like our ships, at full speed and without support.

And the earth is rolling cheerfully around the sun, and the fishwives, merchants, princes, cardinals and even the Pope are rolling with it.

The universe has lost its centre overnight, and woken up to find it has countless centres. So that each one can now be seen as the centre, or none at all. Suddenly there is a lot of room.

Our ships sail far overseas, our planets move far out into space, in chess too the rooks have begun sweeping far across the board.

What does the poet say? O early morning of beginnings . . .

ANDREA:

O early morning of beginnings

O breath of wind that

Cometh from new shores!

And you'd better drink up your milk, because people are sure to start arriving soon.

GALILEO: Have you understood what I told you yesterday?

ANDREA: What? All about Copper Knickers and turning?

GALILEO: Yes.

ANDREA: No. What'd you want me to understand that for? It's very difficult, and I'm not even eleven till October.

GALILEO: I particularly want you to understand it. Getting people to understand it is the reason why I go on working and buying expensive books instead of paying the milkman.

ANDREA: But I can see with my own eyes that the sun goes down in a different place from where it rises. So how can it stay still? Of course it can't.

GALILEO: You can see, indeed! What can you see? Nothing at all. You just gawp. Gawping isn't seeing. *He puts the iron washstand in the middle of the room.* Right: this is the sun. Sit down. *Andrea sits on one of the chairs.* Galileo stands behind him. Where's the sun, right or left of you?

ANDREA: Left.

GALILEO: And how does it get to be on your right?

ANDREA: By you carrying it to my right, of course.

GALILEO: Isn't there any other way? *He picks him up along with the chair and makes an about-turn.* Now where's the sun?

ANDREA: On my right.

GALILEO: Did it move?

ANDREA: Not really.

GALILEO: So what did move?

ANDREA: Me.

GALILEO *bellows*: Wrong! You idiot! The chair!

ANDREA: But me with it!

GALILEO: Of course. The chair's the earth. You're sitting on it.

MRS SARTI *has entered in order to make the bed. She has been watching*: Just what are you up to with my boy, Mr Galilei?

GALILEO: Teaching him to see, Mrs Sarti.

MRS SARTI: What, by lugging him round the room?

ANDREA: Lay off, mother. You don't understand.

MRS SARTI: Oh, don't I? And you do: is that it? There's a young gentleman wants some lessons. Very well dressed, got a letter of introduction too. *Hands it over.* You'll have Andrea believing two and two makes five any minute now, Mr Galilei. As if he didn't already muddle up everything you tell him. Only last night he was arguing that the earth goes round the sun. He's got it into his head that some gentleman called Copper Knickers worked that one out.

ANDREA: Didn't Copper Knickers work it out, Mr Galilei? You tell her.

MRS SARTI: You surely can't tell him such stories? Making him trot it all out at school so the priests come and see me because he keeps on coming out with blasphemies. You should be ashamed of yourself, Mr Galilei.

GALILEO *eating his breakfast*: In consequence of our researches, Mrs Sarti, and as a result of intensive arguments, Andrea and I have made discoveries which we can no longer hold back from the world. A new time has begun, a time it's a pleasure to live in.

MRS SARTI: Well. Let's hope your new time will allow us to

pay the milkman, Mr Galilei. *Indicating the letter of introduction.* Just do me a favour and don't send this man away. I'm thinking of the milk bill.

GALILEO laughing: Let me at least finish my milk! To *Andrea:* So you did understand something yesterday?

ANDREA: I only told her to wake her up a bit. But it isn't true. All you did with me and that chair was turn it sideways, not like this. *He makes a looping motion with his arm.* Or I'd have fallen off, and that's a fact. Why didn't you turn the chair over? Because it would have proved I'd fall off if you turned it that way. So there.

GALILEO: Look, I proved to you . . .

ANDREA: But last night I realised that if the earth turned that way I'd be hanging head downwards every night, and that's a fact.

GALILEO takes an apple from the table: Right, now this is the earth.

ANDREA: Don't keep on taking that sort of example, Mr Galilei. They always work.

GALILEO putting back the apple: Very well.

ANDREA: Examples always work if you're clever. Only I can't lug my mother round in a chair like you did me. So you see it's a rotten example really. And suppose your apple is the earth like you say? Nothing follows.

GALILEO laughing: You just don't want to know.

ANDREA: Pick it up again. Why don't I hang head downwards at night, then?

GALILEO: Right: here's the earth and here's you standing on it. *He takes a splinter from a piece of firewood and sticks it into the apple.* Now the earth's turning round.

ANDREA: And now I'm hanging head downwards.

GALILEO: What d'you mean? Look at it carefully. Where's your head?

ANDREA pointing: There. Underneath.

GALILEO: Really? *He turns it back.* Isn't it in precisely the same position? Aren't your feet still underneath? You don't stand like this when I turn it, do you? *He takes out the splinter and puts it in upside down.*

ANDREA: No. Then why don't I notice it's turning?

GALILEO: Because you're turning with it. You and the air above you and everything else on this ball.

ANDREA: Then why does it look as if the sun's moving?

GALILEO turns the apple and the splinter round again: Right: you're seeing the earth below you; that doesn't change, it's always underneath you and so far as you're concerned it doesn't move. But then look what's above you. At present the lamp's over your head, but once I've turned the apple what's over it now; what's above?

ANDREA turns his head similarly: The stove.

GALILEO: And where's the lamp?

ANDREA: Underneath.

GALILEO: Ha.

ANDREA: That's great: that'll give her something to think about. *Enter Ludovico Marsili, a rich young man.*

GALILEO: This place is getting like a pigeon loft.

LUDOVICO: Good morning, sir. My name is Ludovico Marsili. **GALILEO reading his letter of introduction:** So you've been in Holland?

LUDOVICO: Where they were all speaking about you, Mr Galilei.

GALILEO: Your family owns estates in the Campagna?

LUDOVICO: Mother wanted me to have a look-see, find out what's cooking in the world and all that.

GALILEO: And in Holland they told you that in Italy, for instance, I was cooking?

LUDOVICO: And since Mother also wanted me to have a look-see in the sciences . . .

GALILEO: Private tuition: ten scudi a month.

LUDOVICO: Very well, sir.

GALILEO: What are your main interests?

LUDOVICO: Horses.

GALILEO: Ha.

LUDOVICO: I've not got the brains for science, Mr Galilei.

GALILEO: Ha. In that case we'll make it fifteen scudi a month.

LUDOVICO: Very well, Mr Galilei.

GALILEO: I'll have to take you first thing in the morning. That'll be your loss, Andrea. You'll have to drop out of course. You don't pay, see?

ANDREA: I'm off. Can I have the apple?

GALILEO: Yes.

Exit Andrea.

LUDOVICO: You'll have to be patient with me. You see, everything in the sciences goes against a fellow's good sound commonsense. I mean, look at that queer tube thing they're selling in Amsterdam. I gave it a good looking-over. A green leather casing and a couple of lenses, one this way — *he indicates a concave lens* — and the other that way — *he indicates a convex lens*. One of them's supposed to magnify and the other reduces. Anyone in his right mind would expect them to cancel out. They don't. The thing makes everything appear five times the size. That's science for you.

GALILEO: What appears five times the size?

LUDOVICO: Church spires, pigeons, anything that's a long way off.

GALILEO: Did you yourself see church spires magnified in this way?

LUDOVICO: Yes, sir.

GALILEO: And this tube has two lenses? *He makes a sketch on a piece of paper.* Did it look like that? *Ludovico nods.* How old's this invention?

LUDOVICO: Not more than a couple of days, I'd say, when I left Holland; at least that's how long it had been on the market.

GALILEO *almost friendly*: And why does it have to be physics? Why not horsebreeding?

Enter Mrs Sarti unobserved by Galileo.

LUDOVICO: Mother thinks you can't do without a bit of science. Nobody can drink a glass of wine without science these days, you know.

GALILEO: Why didn't you pick a dead language or theology? That's easier. *Sees Mrs Sarti.* Right, come along on Tuesday morning. *Ludovico leaves.*

GALILEO: Don't give me that look. I accepted him.

MRS SARTI: Because I caught your eye in time. The procurator of the university is out there.

GALILEO: Show him in, he matters. There may be 500 scudi in this. I wouldn't have to bother with pupils.

Mrs Sarti shows in the procurator. Galileo has finished dressing, meanwhile jotting down figures on a piece of paper.

GALILEO: Good morning. Lend us half a scudo. *The procurator digs a coin out of his purse and Galileo gives it to Sarti.* Sarti, tell Andrea to go to the spectacle-maker's and get two lenses: there's the prescription.

Exit Mrs Sarti with the paper.

PROCURATOR: I have come in connection with your application for a rise in salary to 1000 scudi. I regret that I cannot recommend it to the university. As you know, courses in mathematics do not attract new students. Mathematics, so to speak, is an unproductive art. Not that our Republic doesn't esteem it most highly. It may not be so essential as philosophy or so useful as theology, but it nonetheless offers infinite pleasures to its adepts.

GALILEO *busy with his papers*: My dear fellow, I can't manage on 500 scudi.

PROCURATOR: But, Mr Galliei, your week consists of two two-hour lectures. Given your outstanding reputation you can certainly get plenty of pupils who can afford private lessons. Haven't you got private pupils?

GALILEO: Too many, sir. I teach and I teach, and when am I supposed to learn? God help us, I'm not half as sharp as those gentlemen in the philosophy department. I'm stupid. I understand absolutely nothing. So I'm compelled to fill the gaps in my knowledge. And when am I supposed to do that? When am I to get on with my research? Sir, my branch of knowledge is still avid to know. The greatest problems still find us with nothing but hypotheses to go on. Yet we keep asking ourselves for proofs. How am I to provide them if I can only maintain my home by having to take any thickhead who can afford the money and din it into him that parallel lines meet at infinity?

PROCURATOR: Don't forget that even if the Republic pays less well than certain princes it does guarantee freedom of research. In Padua we even admit Protestants to our lectures. And give them doctors' degrees too. In Mr Cremonini's case we not only failed to hand him over to the Inquisition when he was proved, proved, Mr Galilei — to have made irreligious remarks, but actually granted him a rise in salary. As far as Holland Venice is known as the republic where the Inquisition has no say. That should mean something to you, being an astronomer, that's to say operating in a field where for some time now the doctrines of the church have hardly been treated with proper respect.

GALILEO: You people handed Mr Giordano Bruno over to Rome. Because he was propagating the ideas of Copernicus.

PROCURATOR: Not because he was propagating the ideas of Mr Copernicus, which anyway are wrong, but because he was not a Venetian citizen and had no regular position here. So you needn't drag in the man they burned. Incidentally, however free we are, I wouldn't go around openly citing a name like his, which is subject to the express anathema of the church: not even here, not even here.

GALILEO: Your protection of freedom of thought is pretty good business, isn't it? By showing how everywhere else the Inquisition prevails and burns people, you get good teachers cheap for this place. You make up for your attitude to the Inquisition by paying lower salaries than anyone.

PROCURATOR: That's most unfair. What use would it be to you to have limitless spare time for research if any ignorant monk in the Inquisition could just put a ban on your thoughts? Every rose has its thorn, Mr Galilei, and every ruler has his monks.

GALILEO: So what's the good of free research without free time to research in? What happens to its results? Perhaps you'd kindly show this paper about falling bodies to the gentlemen at the Signoria — *he indicates a bundle of manuscript* — and ask them if it isn't worth a few extra scudi.

PROCURATOR: It's worth infinitely more than that, Mr Galilei.

GALILEO: Sir, not infinitely more, a mere 500 scudi more.

PROCURATOR: What is worth scudi is what brings scudi in. If you want money you'll have to produce something else. When you're selling knowledge you can't ask more than the buyer is likely to make from it. Philosophy, for instance, as taught by Mr Colombe in Florence, nets the prince at least 10,000 scudi a year. I know your laws on falling bodies have made a stir. They've applauded you in Prague and Paris. But the people who applaud don't pay Padua University what you cost it. You made an unfortunate choice of subject, Mr Galilei.

GALILEO: I see. Freedom of trade, freedom of research. Free trading in research, is that it?

PROCURATOR: Really, Mr Galilei, what a way of looking at it! Allow me to tell you that I don't quite understand your flippant remarks. Our Republic's thriving, foreign trade hardly strikes me as a matter to be sneered at. And speaking from many years of experience as procurator of this university I would be even more disinclined to speak of scientific research in what I would term with respect, so frivolous a manner. *While Galileo glances longingly at his work table:* Consider the conditions that surround us. The slavery under whose whips the sciences in certain places are groaning. Whips cut from old leather bindings. Nobody there needs to know how a stone falls, merely what Aristotle wrote about it. Eyes are only for reading with. Why investigate falling bodies, when it's laws governing grovelling bodies that count? Contrast the infinite joy with which our Republic welcomes your ideas, however daring they may be. Here you have a chance to research, to work. Nobody supervises you, nobody suppresses you. Our merchants know the value of better linen in their struggle with their competitors in Florence; they listen interestedly to your cry for better physics, and physics in turn owes much to their cry for better looms. Our most prominent citizens take an interest in your researches, call on you, get you to demonstrate your findings: men whose time is precious. Don't underrate trade, Mr Galilei. Nobody here would stand for the slightest inter-

ence with your work or let outsiders make difficulties for you. This is a place where you can work, Mr Galilei, you have to admit it.

GALILEO *in despair*: Yes.

PROCURATOR: As for the material aspects: why can't you give us another nice piece of work like those famous proportional compasses of yours, the ones that allow complete mathematical dances to trace lines, reckon compound interest on capital, reproduce a land survey on varying scales and determine the weight of cannon balls?

GALILEO: Kids' stuff.

PROCURATOR: Here's something that fascinated and astonished our top people and brought in good money, and you call it kids' stuff. I'm told even General Stefano Gritti can work out square roots with your instrument.

GALILEO: A real miracle. — All the same, Priuli, you've given me something to think about. Priuli, I think I might be able to let you have something of the kind you want. *He picks up the paper with the sketch.*

PROCURATOR: Could you? That would be the answer. *Gets up*: Mr Galilei, we realise that you are a great man. A great but dissatisfied man, if I may say so.

GALILEO: Yes, I am dissatisfied, and that's what you'd be paying me for if you had any brains. Because I'm dissatisfied with myself. But instead of doing that you force me to be dissatisfied with you. I admit I enjoy doing my stuff for you gentlemen of Venice in your famous arsenal and in the shipyards and cannon foundries. But you never give me the time to follow up the hunches which come to me there and which are important for my branch of science. That way you muzzle the threshing ox. I am 46 years old and have achieved nothing that satisfies me.

PROCURATOR: I mustn't interrupt you any longer.

GALILEO: Thank you.

Exit the Procurator.

Galileo is left alone for a moment or two and begins to work.
Then Andrea hurries in.

GALILEO *working*: Why didn't you eat the apple?

ANDREA: I need it to convince her that it turns.

GALILEO: Listen to me, Andrea: don't talk to other people about our ideas.

ANDREA: Why not?

GALILEO: The big shots won't allow it.

ANDREA: But it's the truth.

GALILEO: But they're forbidding it. — And there's something more. We physicists may think we have the answer, but that doesn't mean we can prove it. Even the ideas of a great man like Copernicus still need proving. They are only hypotheses. Give me those lenses.

ANDREA: Your half scudo wasn't enough. I had to leave my coat. As security.

GALILEO: How will you manage without a coat this winter? *Pause. Galileo arranges the lenses on the sheet with the sketch on it.*

ANDREA: What's a hypothesis?

GALILEO: It's when you assume that something's likely, but haven't any facts. Look at Felicia down there outside the basket-maker's shop breastfeeding her child: it remains a hypothesis that she's giving it milk and not getting milk from it, till one actually goes and sees and proves it. Faced with the stars we are like dull-eyed worms that can hardly see at all. Those old constructions people have believed in for the last thousand years are hopelessly rickety: vast buildings most of whose wood is in the buttresses propping them up. Lots of laws that explain very little, whereas our new hypothesis has very few laws that explain a lot.

ANDREA: But you proved it all to me.

GALILEO: No, only that that's how it could be. I'm not saying it isn't a beautiful hypothesis; what's more there's nothing against it.

ANDREA: I'd like to be a physicist too, Mr Galilei.

GALILEO: That's understandable, given the million and one questions in our field still waiting to be cleared up. *He has gone to the window and looked through the lenses. Mildly interested*: Have a look through that, Andrea.

ANDREA: Holy Mary, it's all quite close. The bells in the

campanile very close indeed. I can even read the copper letters: GRACIA DEI.

X GALILEO: That'll get us 500 scudi.

2

Galileo presents the Venetian Republic with a new invention

No one's virtue is complete:

Great Galileo liked to eat.

You will not resent, we hope

The truth about his telescope.

The great arsenal of Venice, alongside the harbour.

Senators, headed by the Doge. To one side, Galileo's friend Sagredo and the fifteen-year-old Virginia Galilei with a velvet cushion on which rests a two-foot-long telescope in a crimson leather case. On a dais, Galileo. Behind him the telescope's stand, supervised by Federzoni the lens-grinder.

GALILEO: Your Excellency; august Signoria! In my capacity as mathematics teacher at your university in Padua and director of your great arsenal here in Venice I have always seen it as my job not merely to fulfil my exalted task as a teacher but also to provide useful inventions that would be of exceptional advantage to the Venetian Republic. Today it is with deep joy and all due deference that I find myself able to demonstrate and hand over to you a completely new instrument, namely my spyglass or telescope, fabricated in your world-famous Great Arsenal on the loftiest Christian and scientific principles, the product of seventeen years of patient research by your humble servant. *Galileo leaves the dais and stands alongside Sagredo. Applause. Galileo bows.*

GALILEO *softly to Sagredo*: Waste of time.

SAGREDO *softly*: You'll be able to pay the butcher, old boy.

GALILEO: Yes, they'll make money on this. *He bows again.*

X PROCURATOR *steps on to the dais*: Your Excellency, august Signoria!

Once again a glorious page in the great book of the arts is inscribed in a Venetian hand. *Pollie applause.* Today a world-famous scholar is offering you, and you alone, a highly marketable tube, for you to manufacture and sell as and how you wish. *Louder applause.* What is more, has it struck you that in wartime this instrument will allow us to distinguish the number and types of the enemy's ships at least two hours before he does ours, with the result that we shall know how strong he is and be able to choose whether to pursue, join battle or run away? *Very loud applause.* And now, your Excellency, august Signoria, Mr Galileo invites you to accept this instrument which he has invented, this testimonial to his intuition, at the hand of his enchanting daughter.

Music. Virginia steps forward, bows and hands the telescope to the Procurator, who passes it to Federzoni. Federzoni puts it on the stand and focusses it. Doge and Senators mount the dais and look through the tube.

GALILEO *softly*: I'm not sure how long I'll be able to stick this circus. These people think they're getting a lucrative play-thing, but it's a lot more than that. Last night I turned it on the moon.

SAGREDO: What did you see?

GALILEO: The moon doesn't generate its own light.

SAGREDO: What?

SENATORS: I can make out the fortifications of Santa Rosita, Mr Galilei. — They're having their dinner on that boat. Fried fish. Makes me feel peckish.

GALILEO: I'm telling you astronomy has stagnated for the last thousand years because they had no telescope.

SENATOR: Mr Galilei!

SAGREDO: They want you.

SENATOR: That contraption lets you see too much. I'll have to tell my women they can't take baths on the roof any longer.

GALILEO: Know what the Milky Way consists of?

SAGREDO: No.

GALILEO: I do.

SENATOR: One should be able to ask 10 scudi for a thing like that, Mr Galilei. *Galileo bows.*

VIRGINIA *leading Ludovico up to her father*: Ludovico wants to congratulate you, Father.

LUDOVICO *embarrassed*: I congratulate you, sir.

GALILEO: I've improved it.

LUDOVICO: Yes, sir. I see you've made the casing red. In Holland it was green.

GALILEO *turning to Sagredo*: I've even begun to wonder if I couldn't use it to prove a certain theory.

SAGREDO: Watch your step.

PROCURATOR: Your 500 scudi are in the bag, Galileo.

GALILEO *disregarding him*: Of course I'm sceptical about jumping to conclusions.

The Doge, a fat unassuming man, has come up to Galileo and is trying to address him with a kind of dignified awkwardness.

PROCURATOR: Mr Galilei, His Excellency the Doge.

The Doge shakes Galileo's hand.

GALILEO: Of course, the 500! Are you satisfied, your Excellency?

DOGE: I'm afraid our republic always has to have some pretext before the city fathers can do anything for our scholars.

PROCURATOR: But what other incentive can there be, Mr Galilei?

DOGE *smiling*: We need that pretext.

The Doge and the Procurator lead Galileo towards the Senators, who gather round him. Virginia and Ludovico slowly go away.

VIRGINIA: Did I do all right?

LUDOVICO: Seemed all right to me.

VIRGINIA: What's the matter?

LUDOVICO: Nothing, really. I suppose a green casing would have been just as good.

VIRGINIA: It strikes me they're all very pleased with Father.

LUDOVICO: And it strikes me I'm starting to learn a thing or two about science.

3

10 January 1610. Using the telescope, Galileo discovers celestial phenomena that confirm the Copernican system. Warned by his friend of the possible consequences of his research, Galileo proclaims his belief in human reason

January ten, sixteen ten:

Galileo Galilei abolishes heaven.

Galileo's study in Padua. Night. Galileo and Sagredo at the telescope, wrapped in heavy overcoats.

SAGREDO *looking through the telescope, half to himself*: The crescent's edge is quite irregular, jagged and rough. In the dark area, close to the luminous edge, there are bright spots. They come up one after the other. The light starts from the spots and flows outwards over bigger and bigger surfaces, where it merges into the larger luminous part.

GALILEO: What's your explanation of these bright spots?

SAGREDO: It's not possible.

GALILEO: It is. They're mountains.

SAGREDO: On a star?

GALILEO: Huge mountains. Whose peaks are gilded by the rising sun while the surrounding slopes are still covered by night. What you're seeing is the light spreading down into the valleys from the topmost peaks.

SAGREDO: But this goes against two thousand years of astronomy.

GALILEO: It does. What you are seeing has been seen by no mortal except myself. You are the second.

SAGREDO: But the moon can't be an earth complete with mountains and valleys, any more than the earth can be a star.

GALILEO: The moon can be an earth complete with mountains and valleys, and the earth can be a star. An ordinary celestial body, one of thousands. Take another look. Does the dark part of the moon look completely dark to you?

SAGREDO: No. Now that I look at it, I can see a feeble ashy-grey light all over it.

GALILEO: What sort of light might that be?

SAGREDO: ?

GALILEO: It comes from the earth.

SAGREDO: You're talking through your hat. How can the earth give off light, with all its mountains and forests and waters; it's a cold body.

GALILEO: The same way the moon gives off light. Both of them are lit by the sun, and so they give off light. What the moon is to us, we are to the moon. It sees us sometimes as a crescent, sometimes as a half-moon, sometimes full and sometimes not at all.

SAGREDO: In other words, there's no difference between the moon and earth.

GALILEO: Apparently not.

SAGREDO: Ten years ago in Rome they burnt a man at the stake for that. His name was Giordano Bruno, and that is what he said.

GALILEO: Exactly. And that's what we can see. Keep your eye glued to the telescope, Sagredo, my friend. What you're seeing is the fact that there is no difference between heaven and earth. Today is 10 January 1610. Today mankind can write in its diary: Got rid of Heaven.

SAGREDO: That's frightful.

GALILEO: There is another thing I discovered. Perhaps it's more appalling still.

MRS SARTI *quietly*: Mr Procurator.

The Procurator rushes in.

PROCURATOR: I'm sorry to come so late. Do you mind if I speak to you alone?

GALILEO: Mr Sagredo can listen to anything I can, Mr Priuli. PROCURATOR: But you may not exactly be pleased if the gentleman hears what has happened. Unhappily it is something quite unbelievable.

GALILEO: Mr Sagredo is quite used to encountering the unbelievable when I am around, let me tell you.

PROCURATOR: No doubt, no doubt. *Pointing at the telescope*: Yes, that's the famous contraption. You might just as well throw it away. It's useless, utterly useless.

SAGREDO *who has been walking around impatiently*: Why's that?

PROCURATOR: Are you aware that this invention of yours which you said was the fruit of seventeen years of research can be bought on any street corner in Italy for a few scudi? Made in Holland, what's more. There is a Dutch merchant-man unloading 500 telescopes down at the harbour at this very moment.

GALILEO: Really?

PROCURATOR: I find your equanimity hard to understand, sir.

SAGREDO: What are you worrying about? Thanks to this instrument, let me tell you, Mr Galilei has just made some revolutionary discoveries about the universe.

GALILEO *laughing*: Have a look, Priuli.

PROCURATOR: And let me tell you it's quite enough for me to have made my particular discovery, after getting this unspeakable man's salary doubled, what's more. It's a pure stroke of luck that the gentlemen of the Signoria, in their confidence that they had secured the republic a monopoly of this instrument, didn't look through it and instantly see an ordinary streetseller at the nearest corner, magnified to the power of seven and hawking an identical tube for twice nothing. *Galileo laughs resoundingly*.

SAGREDO: My dear Mr Priuli. I may not be competent to judge this instrument's value for commerce but its value for philosophy is so boundless that . . .

PROCURATOR: For philosophy indeed. What's a mathematician like Mr Galilei got to do with philosophy? Mr Galilei, you did once invent a very decent water pump for the city

and your irrigation system works well. The weavers too report favourably on your machine. So how was I to expect something like this?

GALILEO: Not so fast, Priuli. Sea passages are still long, hazardous and expensive. We need a clock in the sky we can rely on. A guide for navigation, right? Well, I have reason to believe that the telescope will allow us to make clear sightings of certain stars that execute extremely regular movements. New star charts might save our shipping several million scudi, Priuli.

PROCURATOR: Don't bother. I've listened too long already. In return for my help you've made me the laughing-stock of the city. I'll go down to history as the procurator who fell for a worthless telescope. It's all very well for you to laugh. You've got your 500 scudi. But I'm an honourable man, and I tell you this world turns my stomach.

He leaves, slamming the door.

GALILEO: He's really quite likeable when he's angry. Did you hear that? A world where one can't do business turns his stomach.

SAGREDO: Did you know about these Dutch instruments?

GALILEO: Of course, by hearsay. But the one I made these skinflints in the Signoria was twice as good. How am I supposed to work with the balliffs in the house? And Virginia will soon have to have a dowry: she's not bright. Then I like buying books about other things besides physics, and I like a decent meal. Good meals are when I get most of my ideas. A degraded age! They were paying me less than the carter who drives their wine barrels. Four cords of firewood for two courses on mathematics. Now I've managed to squeeze 500 scudi out of them, but I've still got debts, including some dating from twenty years back. Give me five years off to research, and I'd have proved it all. I'm going to show you another thing.

SAGREDO *is reluctant to go to the telescope*: I feel something not all that remote from fear, Galileo.

GALILEO: I'm about to show you one of the shining milk-white clouds in the Milky Way. Tell me what it's made up of.

SAGREDO: They're stars, an infinite number.

GALILEO: In Orion alone there are 500 fixed stars. Those are the countless other worlds, the remote stars the man they burned talked about. He never saw them, he just expected them to be there.

SAGREDO: But even supposing our earth is a star, that's still a long way from Copernicus's view that it goes round the sun. There's not a star in the sky that has another star going round it. But the moon does go round the earth.

GALILEO: Sagredo, I wonder. I've been wondering since yesterday. Here we have Jupiter. *He focusses on it*. Round it we have four smaller neighbouring stars that are invisible except through the tube. I saw them on Monday but without bothering to note their position. Yesterday I looked again. I could swear the position of all four had changed. I noted them down. They've changed again. What's this? I saw four.

Agitated: Have a look.

SAGREDO: I can see three.

GALILEO: Where's the fourth? There are the tables. We must work out what movements they might have performed. *Excited, they sit down to work. The stage darkens, but Jupiter and its accompanying stars can be seen on the cyclorama. As it grows light once more they are still sitting there in their winter coats.*

GALILEO: That's the proof. The fourth one can only have gone behind Jupiter, where it can't be seen. So here you've a star with another one going round it.

SAGREDO: What about the crystal sphere Jupiter is attached to?

GALILEO: Yes, where has it got to? How can Jupiter be attached if other stars circle round it? It's not some kind of prop in the sky, some base in the universe. It's another sun.

SAGREDO: Calm down. You're thinking too quickly.

GALILEO: What'd you mean, quickly? Wake up, man! You're seeing something nobody has ever seen before. They were right.

SAGREDO: Who, Copernicus and his lot?

GALILEO: And the other fellow. The whole world was against them, and they were right. Andrea must see this! *In great excitement he hurries to the door and shouts:* Mrs Sartri! Mrs Sartri!

SAGREDO *turns the telescope away:* Stop bellowing like an idiot.

GALILEO: Stop standing there like a stuffed dummy when the truth has been found.

SAGREDO: I'm not standing like a stuffed dummy; I'm trembling with fear that it may be the truth.

GALILEO: Uh?

SAGREDO: Have you completely lost your head? Don't you realise what you'll be getting into if what you see there is true? And if you go round telling all and sundry that the earth is a planet and not the centre of the universe?

GALILEO: Right, and that the entire universe full of stars isn't turning around our tiny little earth, anyone could guess.

SAGREDO: In other words that it's just a lot of stars. Then where's God.

GALILEO: What d'you mean?

SAGREDO: God! Where is God?

GALILEO *angrily:* Not there anyway. Any more than he'd be here on earth, suppose there were creatures out there wanting to come and look for him.

SAGREDO: So where is God?

GALILEO: I'm not a theologian. I'm a mathematician.

SAGREDO: First and foremost you're a human being. And I'm asking: where is God in your cosmography?

GALILEO: Within ourselves or nowhere.

SAGREDO *shouting:* Like the man they burned said?

GALILEO: Like the man they burned said.

SAGREDO: That's what they burned him for. Less than ten years back.

GALILEO: Because he couldn't prove it. Because it was just a hypothesis. Mrs Sartri!

SAGREDO: Galileo, ever since I've known you you've known how to cover yourself. For seventeen years here in Padua and three more in Pisa you have been patiently teaching the

Ptolemaic system proclaimed by the Church and confirmed by the writings the Church is based on. Like Copernicus you thought it was wrong but you taught it just the same.

GALILEO: Because I couldn't prove anything.

SAGREDO *incredulously:* And do you imagine that makes any difference!

GALILEO: A tremendous difference. Look, Sagredo, I believe in Humanity, which means to say I believe in human reason. If it weren't for that belief each morning I wouldn't have the power to get out of bed.

SAGREDO: Then let me tell you something. I don't. Forty years spent among human beings has again and again brought it home to me that they are not open to reason. Show them a comet with a red tail, scare them out of their wits, and they'll rush out of their houses and break their legs. But try making one rational statement to them, and back it up with seven proofs, and they'll just laugh at you.

GALILEO: That's quite untrue, and it's a slander. I don't see how you can love science if that's what you believe. Nobody who isn't dead can fail to be convinced by proof.

SAGREDO: How can you imagine their pathetic shrewdness has anything to do with reason?

GALILEO: I'm not talking about their shrewdness. I know they call a donkey a horse when they want to sell it and a horse a donkey when they want to buy. That's the kind of shrewdness you mean. But the horny-handed old woman who gives her mule an extra bundle of hay on the eve of a journey, the sea captain who allows for storms and doldrums when laying in stores, the child who puts on his cap once they have convinced him that it may rain: these are the people I pin my hopes to, because they all accept proof. Yes, I believe in reason's gentle tyranny over people. Sooner or later they have to give in to it. Nobody can go on indefinitely watching me — *he drops a pebble on the ground* — drop a pebble, then say it doesn't fall. No human being is capable of that. The lure of a proof is too great. Nearly everyone succumbs to it; sooner or later we all do. Thinking is one of the chief pleasures of the human race.

MRS SARTI enters: Do you want something, Mr Galilei?

GALILEO *who is back at his telescope making notes; in a very friendly voice*: Yes, I want Andrea.

MRS SARTI: Andrea? He's asleep in bed.

GALILEO: Can't you wake him up?

MRS SARTI: Why d'you want him?

GALILEO: I want to show him something he'll appreciate. He's to see something nobody but us two has seen since the earth was made.

MRS SARTI: Something more through your tube?

GALILEO: Something through my tube, Mrs Sarti.

MRS SARTI: And I'm to wake him up in the middle of the night for that? Are you out of your mind? He's got to have his sleep. I wouldn't think of waking him.

GALILEO: Definitely not?

MRS SARTI: Definitely not.

GALILEO: In that case, Mrs Sarti, perhaps you can help me. You see, a question has arisen where we can't agree, probably because both of us have read too many books. It's a question about the heavens, something to do with the stars. This is it: are we to take it that the greater goes round the smaller, or does the smaller go round the greater?

MRS SARTI *cautiously*: I never know where I am with you. Mr Galilei. Is that a serious question, or are you pulling my leg again?

GALILEO: A serious question.

MRS SARTI: Then I'll give you a quick answer. Do I serve your dinner or do you serve mine?

GALILEO: You serve mine. Yesterday it was burnt.

MRS SARTI: And why was it burnt? Because I had to fetch you your shoes in the middle of my cooking. Didn't I fetch you your shoes?

GALILEO: I suppose so.

MRS SARTI: You see, you're the one who has studied and is able to pay.

Mrs Sarti, amused, goes off.

GALILEO: Don't tell me people like that can't grasp the truth. They grab at it.

The bell has begun sounding for early morning mass. Enter Virginia in a cloak, carrying a shielded light.

VIRGINIA: Good morning, Father.

GALILEO: Why are you up at this hour?

VIRGINIA: Mrs Sarti and I are going to early mass. Ludovico's coming too. What sort of night was it, Father?

GALILEO: Clear.

VIRGINIA: Can I have a look?

GALILEO: What for? *Virginia does not know what to say.* It's not a toy.

VIRGINIA: No, Father.

GALILEO: Anyhow the tube is a flop, so everybody will soon be telling you. You can get it for 3 scudi all over the place and the Dutch invented it ages ago.

VIRGINIA: Hasn't it helped you see anything fresh in the sky?

GALILEO: Nothing in your line. Just a few dim little spots to the left of a large planet; I'll have to do something to draw attention to them. *Talking past his daughter to Sagredo*: I might christen them 'the Medicen Stars' after the Grand-Duke of Florence. *Again to Virginia*: You'll be interested to hear, Virginia, that we'll probably be moving to Florence. I've written to them to ask if the Grand Duke can use me as his court mathematician.

VIRGINIA *radiant*: At Court?

SAGREDO: Galileo!

GALILEO: My dear fellow, I'll need time off. I need proofs. And I want the fleshpots. And here's a job where I won't have to take private pupils and din the Ptolemaic system into them, but shall have the time, time, time, time, time — to work out my proofs; because what I've got so far isn't enough. It's nothing, just wretched odds and ends. I can't take on the whole world with that. There's not a single shred of proof to show that any heavenly body whatever goes round the sun. But I am going to produce the proofs, proofs for everyone, from Mrs Sarti right up to the Pope. The only thing that worries me is whether the court will have me.

VIRGINIA: Of course they'll have you, Father, with your new stars and all that.

GALILEO: Run along to your mass.

Exit Virginia.

GALILEO: I'm not used to writing to important people. *He hands Sagredo a letter.* Do you think this is well expressed?

SAGREDO *reads out the end of the letter:* 'My most ardent desire is to be closer to you, the rising sun that will illuminate this age.' The grand duke of Florence is aged nine.

GALILEO: That's it. I see; you think my letter is too submissive. I'm wondering if it is submissive enough — not too formal, lacking in authentic servility. A reticent letter would be all right for someone whose distinction it is to have proved Aristotle correct, but not for me. A man like me can only get a halfway decent job by crawling on his belly. And you know what I think of people whose brains aren't capable of filling their stomachs.

Mrs Sarti and Virginia pass the men on their way to mass.

SAGREDO: Don't go to Florence, Galileo.

GALILEO: Why not?

SAGREDO: Because it's run by monks.

GALILEO: The Florentine Court includes eminent scholars.

SAGREDO: Flunkys.

GALILEO: I'll take them by the scruff of the neck and I'll drag them to the telescope. Even monks are human beings, Sagredo. Even they are subject to the seduction of proof. Copernicus, don't forget, wanted them to believe his figures; but I only want them to believe their eyes. If the truth is too feeble to stick up for itself then it must go over to the attack. I'm going to take them by the scruff of the neck and force them to look through this telescope.

SAGREDO: Galileo, I see you embarking on a frightful road. It is a disastrous night when mankind sees the truth. And a delusive hour when it believes in human reason. What kind of person is said to go into things with his eyes open? One who is going to his doom. How could the people in power give free rein to somebody who knows the truth, even if it concerns the remotest stars? Do you imagine the Pope will hear the truth when you tell him he's wrong, and not just hear that he's wrong? Do you imagine he will merely not

his diary: January 10th 1610 — got rid of heaven? How can you propose to leave the Republic with the truth in your pocket, risking the traps set by monks and princes and brandishing your tube. You may be a sceptic in science, but you're childishly credulous as soon as anything seems likely to help you to pursue it. You don't believe in Aristotle, but you do believe in the Grand Duke of Florence. Just now, when I was watching you at the telescope and you were watching those new stars, it seemed to me I was watching you stand on blazing faggots; and when you said you believed in proof I smelt burnt flesh. I am fond of science, my friend, but I am fonder of you. Don't go to Florence, Galileo.

GALILEO: If they'll have me I shall go.

On a curtain appears the last page of his letter.

In giving the noble name of the house of Medici to the new stars which I have discovered I realise that whereas the old gods and heroes were immortalised by being raised to the realm of the stars in this case the noble name of Medici will ensure that these stars are remembered for ever. For my own part I commend myself to you as one of your loyalest and most humble servants who considers it the height of privilege to have been born as your subject.

There is nothing for which I long more ardently than to be closer to you, the rising sun which will illuminate this epoch.

Galileo Galilei.

4

Galileo has exchanged the Venetian Republic for the Court of Florence. His discoveries with the telescope are not believed by the court scholars

The old says: What I've always done I'll always do.
The new says: If you're useless you must go.

Galileo's house in Florence. Mrs Sarti is preparing Galileo's study for the reception of guests. Her son Andrea is sitting tidying the star charts.

MRS SARTI: There has been nothing but bowing and scraping ever since we arrived safe and sound in this marvellous Florence. The whole city files past the tube, with me mopping the floor after them. If there was anything to all these discoveries the clergy would be the first to know. I spent four years in service with Monsignor Filippo without ever managing to get all his library dusted. Leather bound books up to the ceiling — and no slim volumes of poetry either. And that good Monsignor had a whole cluster of sores on his bottom from sitting and poring over all that learning; d'you imagine a man like that doesn't know the answers? And today's grand visit will be such a disaster that I'll never be able to meet the milkman's eye tomorrow. I knew what I was about when I advised him to give the gentlemen a good supper first, a proper joint of lamb, before they inspect his tube. But no: *she imitates Galileo*: 'I've got something else for them.'

There is knocking downstairs.

MRS SARTI looks through the spyhole in the window: My goodness, the Grand Duke's arrived. And Galileo is still at the University.

She hurries down the stairs and admits the Grand Duke of Tuscany, Cosimo de Medici, together with his chamberlain and two court ladies.

COSIMO: I want to see that tube.

CHAMBERLAIN: Perhaps your Highness will possess himself until Mr Galilei and the other university gentlemen have arrived. *To Mrs Sarti*: Mr Galilei was going to ask our astronomers to test his newly discovered so-called Mediccan stars.

COSIMO: They don't believe in the tube, not for one moment.

So where is it?

MRS SARTI: Upstairs in the study.

The boy nods, points up the staircase and runs up it at a nod from Mrs Sarti.

CHAMBERLAIN *a very old man*: Your Highness! *To Mrs Sarti*: Have we got to go up there? I wouldn't have come at all if his tutor had not been indisposed.

MRS SARTI: The young gentleman will be all right. My own boy is up there.

COSIMO *entering above*: Good evening!

The two boys bow ceremoniously to each other. Pause. Then

Andrea turns back to his work.

ANDREA *very like his master*: This place is getting like a pigeon loft.

COSIMO: Plenty of visitors?

ANDREA: Stump around here staring, and don't know the first thing.

COSIMO: I get it. That the . . . ? *Pointing to the telescope.*

ANDREA: Yes, that's it. Hands off, though.

COSIMO: And what's that? *He points to the wooden model of the Ptolemaic system.*

ANDREA: That's Ptolemy's thing.

COSIMO: Showing how the sun goes round, is that it?

ANDREA: So they say.

COSIMO *sitting down on a chair, takes the model on his lap*: My tutor's got a cold. I got off early. It's all right here.

ANDREA shambles around restlessly and irresolutely shooting doubtful looks at the unknown boy, then finds that he cannot hold out any longer, and brings out a second model from behind the maps, one representing the Copernican system: But really it's like this.

COSIMO: What's like this?

ANDREA *pointing at Cosimo's model*: That's how people think it is and — *pointing at his own* — this is how it is really. The earth turns round the sun, get it?

COSIMO: D'you really mean that?

ANDREA: Sure, it's been proved.

COSIMO: Indeed? I'd like to know why I'm never allowed to see the old man now. Yesterday he came to supper again.

ANDREA: They don't believe it, do they?

COSIMO: Of course they do.

ANDREA *suddenly pointing at the model on Cosimo's lap*: Give it back: you can't even understand that one.

COSIMO: Why should you have two?

ANDREA: Just you hand it over. It's not a toy for kids.

COSIMO: No reason why I shouldn't give it to you, but you need to learn some manners, you know.

ANDREA: You're an idiot, and to hell with manners, just give it over or you'll start something.

COSIMO: Hands off, I tell you.

They start brawling and are soon tangled up on the floor.

ANDREA: I'll teach you to handle a model properly! Say 'pax'.

COSIMO: It's broken. You're twisting my hand.

ANDREA: We'll see who's right. Say it turns or I'll bash you.

COSIMO: Shan't. Stop it, Ginger. I'll teach you manners.

ANDREA: Ginger: who are you calling Ginger?

They go on brawling in silence. Enter Galileo and a group of university professors downstairs. Federzoni follows.

CHAMBERLAIN: Gentlemen, his highness's tutor Mr Suri has a slight indisposition and was therefore unable to accompany his highness.

THEOLOGIAN: I hope it's nothing serious.

CHAMBERLAIN: Not in the least.

GALILEO *disappointed*: Isn't his highness here?

CHAMBERLAIN: His highness is upstairs. I would ask you gentlemen not to prolong matters. The court is so very eager to know what our distinguished university thinks about Mr Galilei's remarkable instrument and these amazing new stars.

They go upstairs.

The boys are now lying quiet, having heard the noise downstairs.

COSIMO: Here they are. Let me get up.

They stand up quickly.

THE GENTLEMEN *on their way upstairs*: No, there's nothing whatever to worry about. — Those cases in the old city: our faculty of medicine says there's no question of it being plague. Any miasmas would freeze at this temperature. — The worst possible thing in such a situation is to panic. — It's just the usual incidence of colds for this time of year. — Every suspicion has been eliminated. — Nothing whatever to worry about.

Greetings upstairs.

GALILEO: Your highness, I am glad to be able to introduce the gentlemen of your university to these new discoveries in your presence.

Cosimo bows formally in all directions, including Andrea's.

THEOLOGIAN *noticing the broken Ptolemaic model on the floor*: Something seems to have got broken here.

Cosimo quickly stoops down and politely hands Andrea the model. Meantime Galileo unobtrusively shifts the model to one side.

GALILEO *at the telescope*: As your highness no doubt realises, we astronomers have been running into great difficulties in our calculations for some while. We have been using a very ancient system which is apparently consistent with our philosophy but not, alas, with the facts. Under this ancient, Ptolemaic system the motions of the stars are presumed to be extremely complex. The planet Venus, for instance, is supposed to have an orbit like this. *On a board he draws the epicyclical orbit of Venus according to the Ptolemaic hypothesis*. But even if we accept the awkwardness of such motions we are still unable to predict the position of the stars accurately. We do not find them where in principle they ought to be. What is more, some stars perform motions which the Ptolemaic system just cannot explain. Such motions, it seems to me, are performed by certain small stars

which I have recently discovered around the planet Jupiter. Would you gentlemen care to start by observing these satellites of Jupiter, the Medicean stars?

ANDREA *indicating the stool by the telescope*: Kindly sit here.

PHILOSOPHER: Thank you, my boy. I fear things are not quite so simple. Mr Galilei, before turning to your famous tube, I wonder if we might have the pleasure of a disputation? Its subject to be: Can such planets exist?

MATHEMATICIAN: A formal dispute.

GALILEO: I was thinking you could just look through the telescope and convince yourselves?

ANDREA: This way, please.

On the floor
Andrea's
proceeds
MATHEMATICIAN: Of course, of course. I take it you are familiar with the opinion of the ancients that there can be no stars which turn round centres ~~other~~ than the earth, nor any which lack support in the sky?

GALILEO: I am.

Edwards writes
in the
margin
PHILOSOPHER: Moreover, quite apart from the very possibility of such stars, which our mathematicians — *he turns towards the mathematician* — would appear to doubt, I would like in all humility to pose the philosophical question: are such stars necessary? Aristotelis divini universum . . .

GALILEO: Shouldn't we go on using the vernacular? My colleague Mr Federzoni doesn't understand Latin.

PHILOSOPHER: Does it matter if he understands us or not?

GALILEO: Yes.
PHILOSOPHER: I am so sorry. I thought he was your lens-grinder.

ANDREA: Mr Federzoni is a lens-grinder and a scholar.

PHILOSOPHER: Thank you, my boy. Well, if Mr Federzoni insists . . .

GALILEO: Insist.

PHILOSOPHER: The argument will be less brilliant, but it's your house. The universe of the divine Aristotle, with the mystical music of its spheres and its crystal vaults, the orbits of its heavenly bodies, the slanting angle of the sun's course, the secrets of the moon tables, the starry richness catalogued in the southern hemisphere and the transparent structure of

the celestial globe add up to an edifice of such exquisite proportions that we should think twice before disrupting its harmony.

GALILEO: How about your highness now taking a look at his impossible and unnecessary stars through this telescope?

MATHEMATICIAN: One might be tempted to answer that, if your tube shows something which cannot be there, it cannot be an entirely reliable tube, wouldn't you say?

GALILEO: What'd you mean by that?

MATHEMATICIAN: It would be rather more appropriate, Mr Galilei, if you were to name your reasons for assuming that there could be free-floating stars moving about in the highest sphere of the unalterable heavens.

PHILOSOPHER: Your reasons, Mr Galilei, your reasons.

GALILEO: My reasons! When a single glance at the stars themselves and my own notes makes the phenomenon evident? Sir, your disputation is becoming absurd.

MATHEMATICIAN: If one could be sure of not over-exciting you one might say that what is in your tube and what is in the skies is not necessarily the same thing.

PHILOSOPHER: That couldn't be more courteously put.

FEDERZONI: They think we painted the Medicean stars on the lens.

GALILEO: Are you saying I'm a fraud?

PHILOSOPHER: How could we? In his highness's presence too.

MATHEMATICIAN: Your instrument — I don't know whether to call it your brainchild or your adopted brainchild — is most ingeniously made, no doubt of that.

PHILOSOPHER: And we are utterly convinced, Mr Galilei, that neither you nor anyone else would bestow the illustrious name of our ruling family on stars whose existence was not above all doubt. *All bow deeply to the grand duke.*

COSIMO *turns to the ladies of the court*: Is something the matter with my stars?

THE OLDER COURT LADY: There is nothing the matter with your highness's stars. It's just that the gentlemen are wondering if they are really and truly there.
Pause.

THE YOUNGER COURT LADY: I'm told you can actually see the wheels on the Plough.

FEDERZONI: Yes, and all kinds of things on the Bull.

GALILEO: Well, are you gentlemen going to look through it or not?

PHILOSOPHER: Of course, of course.

MATHEMATICIAN: Of course.

Pause. Suddenly, Andrea turns and walks stiffly out across the whole length of the room. His mother stops him.

MRS SARTI: What's the matter with you?

ANDREA: They're stupid. *He tears himself away and runs off.*

PHILOSOPHER: A lamentable boy.

CHAMBERLAIN: Your highness: gentlemen: may I remind you that the stare ball is due to start in three quarters of an hour.

MATHEMATICIAN: Let's not beat about the bush. Sooner or later Mr Galilei will have to reconcile himself to the facts.

Those Jupiter satellites of his would penetrate the crystal spheres. It is as simple as that.

FEDERZONI: You'll be surprised: the crystal spheres don't exist.

PHILOSOPHER: Any textbook will tell you that they do, my good man.

FEDERZONI: Right, then let's have new textbooks.

PHILOSOPHER: Your highness, my distinguished colleague and I are supported by none less than the divine Aristotle himself.

GALILEO *almost obsequiously*: Gentlemen, to believe in the authority of Aristotle is one thing, tangible facts are another. You are saying that according to Aristotle there are crystal spheres up there, so certain motions just cannot take place because the stars would penetrate them. But suppose those motions could be established? Mightn't that suggest to you that those crystal spheres don't exist? Gentlemen, in all humility I ask you to go by the evidence of your eyes.

MATHEMATICIAN: My dear Galileo, I may strike you as very old-fashioned, but I'm in the habit of reading Aristotle now and again, and there, I can assure you, I trust the evidence of my eyes.

GALILEO: I am used to seeing the gentlemen of the various faculties shutting their eyes to every fact and pretending that nothing has happened. I produce my observations and everyone laughs: I offer my telescope so they can see for themselves, and everyone quotes Aristotle.

FEDERZONI: The fellow had no telescope.

MATHEMATICIAN: That's just it.

PHILOSOPHER *grandly*: If Aristotle is going to be dragged in the mud — that's to say an authority recognized not only by every classical scientist but also by the chief fathers of the church — then any prolonging of this discussion is in my view a waste of time. I have no use for discussions which are not objective. Basta.

GALILEO: Truth is born of the times, not of authority. Our ignorance is limitless: let us lop one cubic millimetre off it. Why try to be clever now that we at last have a chance of being just a little less stupid? I have had the unimaginable luck to get my hands on a new instrument that lets us observe one tiny corner of the universe a little, but not all that much, more exactly. Make use of it.

PHILOSOPHER: Your highness, ladies and gentlemen, I just wonder where all this is leading?

GALILEO: I should say our duty as scientists is not to ask where truth is leading.

PHILOSOPHER *agitatedly*: Mr Galilei, truth might lead us anywhere!

GALILEO: Your highness. At night nowadays telescopes are being pointed at the sky all over Italy. Jupiter's moons may not bring down the price of milk. But they have never been seen before, and yet all the same they exist. From this the man in the street concludes that a lot else might exist if only he opened his eyes. It is your duty to confirm this. What has made Italy prick up its ears is not the movements of a few distant stars but the news that hitherto unquestioned dogmas have begun to totter — and we all know that there are too many of those. Gentlemen, don't let us fight for questionable truths.

FEDERZONI: You people are teachers: you should be stimulating the questions.

PHILOSOPHER: I would rather your man didn't tell us how to conduct a scholarly disputation.

GALILEO: Your highness! My work in the Great Arsenal in Venice brought me into daily contact with draughtsmen, builders and instrument mechanics. Such people showed me a lot of new approaches. They don't read much, but rely on the evidence of their five senses, without all that much fear as to where such evidence is going to lead them . . .

PHILOSOPHER: Oh!

GALILEO: Very much like our mariners who a hundred years ago abandoned our coasts without knowing what other coasts they would encounter, if any. It looks as if the only way today to find that supreme curiosity which was the real glory of classical Greece is to go down to the docks.

PHILOSOPHER: After what we've heard so far I'm not surprised that Mr Galilei finds admirers at the docks.

CHAMBERLAIN: Your highness, I am dismayed to note that this exceptionally instructive conversation has become a trifle prolonged. His highness must have some repose before the court ball.

At a sign, the grand duke bows to Galileo. The court quickly gets ready to leave.

MRS SARTI blocks the grand duke's way and offers him a plate of biscuits: A biscuit, your highness? The older court lady leads the grand duke out.

GALILEO hurrying after them: But all you gentlemen need do is look through the telescope!

CHAMBERLAIN: His highness will not fail to submit your ideas to our greatest living astronomer: Father Christopher Clavius, chief astronomer at the papal college in Rome.

5 Undeterred even by the plague, Galileo carries on with his researches

(a)

Early morning. Galileo at the telescope, bent over his notes. Enter Virginia with a travelling bag.

GALILEO: Virginia! Has something happened?

VIRGINIA: The convent's shut; they sent us straight home. Arcetri has had five cases of plague.

GALILEO calls: Sarti!

VIRGINIA: Market Street was barricaded off last night. Two people have died in the old town, they say, and there are three more dying in hospital.

GALILEO: As usual they hushed it all up till it was too late.

MRS SARTI entering: What are you doing here?

VIRGINIA: The plague.

MRS SARTI: God alive! I'll pack. Sits down.

GALILEO: Pack nothing. Take Virginia and Andrea. I'll get my notes.

He hurries to his table and hurriedly gathers up papers. Mrs Sarti puts Andrea's coat on him as he runs up, then collects some food and bed linen. Enter a grand-ducal footman.

FOOTMAN: In view of the spread of the disease his highness has left the city for Bologna. However, he insisted that Mr Galilei too should be offered a chance to get to safety. The carriage will be outside your door in two minutes.

MRS SARTI to Virginia and Andrea: Go outside at once. Here, take this.

ANDREA: What for? If you don't tell my why I shan't go.

MRS SARTI: It's the plague, my boy.

VIRGINIA: We'll wait for Father.

MRS SARTI: Mr Galilei, are you ready?

GALILEO *wrapping the telescope in the tablecloth*: Put Virginia and Andrea in the carriage. I won't be a moment.

VIRGINIA: No, we're not going without you. Once you start packing up your books you'll never finish.

MRS SARTI: The coach is there.

GALILEO: Have some sense, Virginia, if you don't take your seats the coachman will drive off. Plague is no joking matter.

VIRGINIA *protesting, as Mrs Sarti and Andrea escort her out*: Help him with his books, or he won't come.

MRS SARTI *from the main door*: Mr Galilei, the coachman says he can't wait.

GALILEO: Mrs Sarti, I don't think I should go. It's all such a mess, you see: three months' worth of notes which I might as well throw away if I can't spend another night or two on them. Anyway this plague is all over the place.

MRS SARTI: Mr Galilei! You must come now! You're crazy.

GALILEO: You'll have to go off with Virginia and Andrea. I'll follow.

MRS SARTI: Another hour, and nobody will be able to get away. You must come. *Listens*. He's driving off. I'll have to stop him.

Exit.

Galileo walks up and down. Mrs Sarti re-enters, very pale, without her bundle.

GALILEO: What are you still here for? You'll miss the children's carriage.

MRS SARTI: They've gone. Virginia had to be held in. The children will get looked after in Bologna. But who's going to see you get your meals?

GALILEO: You're crazy. Staying in this city in order to cook! *Picking up his notes*: Don't think I'm a complete fool, Mrs Sarti. I can't abandon these observations. I have powerful enemies and I must collect proofs for certain hypotheses.

MRS SARTI: You don't have to justify yourself. But it's not exactly sensible.

(b)

Outside Galileo's house in Florence. Galileo steps out and looks down the street. Two nuns pass by.

GALILEO *addresses them*: Could you tell me, sisters, where I can buy some milk? The milk woman didn't come this morning, and ~~my~~ housekeeper has left.

ONE NUN: The only shops open are in the lower town.

THE OTHER NUN: Did you come from here? *Galileo nods*. This is the street!

The two nuns cross themselves, mumble a Hail Mary and hurry away. A man goes by.

GALILEO *addresses him*: Aren't you the baker that delivers our bread to us? *The man nods*. Have you seen my housekeeper? She must have left last night. She hasn't been around all day. *The man shakes his head. A window is opened across the way and a woman looks out.*

WOMAN *yelling*: Hurry! They've got the plague opposite! *The man runs off horrified.*

GALILEO: Have you heard anything about my housekeeper?

WOMAN: Your housekeeper collapsed in the street up there. She must have realised. That's why she went. So inconsiderate!

She slams the window shut.

Children come down the street. They see Galileo and run away screaming. Galileo turns round; two soldiers hurry up, encased in armour.

SOLDIERS: Get right back indoors!

They push Galileo back into his house with their long pikes.

They bolt the door behind him.

GALILEO *at the window*: Can you tell me what happened to the woman?

SOLDIERS: They throw them on the heap.

WOMAN *reappears at the window*: That whole street back there is infected. Why can't you close it off?

The soldiers rope the street off.

WOMAN: But that way nobody can get into our house. This part doesn't have to be closed off. This part's all right. Stop

it! Stop! Can't you listen? My husband's still in town, he won't be able to get through to us. You animals! *She can be heard inside weeping and screaming. The soldiers leave. At another window an old woman appears.*

GALILEO: That must be a fire back there.

THE OLD WOMAN: They've stopped putting them out where there's any risk of infection. All they can think about is the plague.

GALILEO: Just like them. It's their whole system of government. Chopping us off like the diseased branch of some barren figtree.

THE OLD WOMAN: That's not fair. It's just that they're powerless.

GALILEO: Are you the only one in your house?

THE OLD WOMAN: Yes. My son sent me a note. Thank God he got a message last night to say somebody back there had died, so he didn't come home. There were eleven cases in our district during the night.

GALILEO: I blame myself for not making my housekeeper leave in time. I had some urgent work, but she had no call to stay.

THE OLD WOMAN: We can't leave either. Who's to take us in? No need for you to blame yourself. I saw her. She left early this morning, around seven o'clock. She must have been ill; when she saw me coming out to fetch in the bread she deliberately kept away from me. She didn't want them to close off your house. But they're bound to find out.

A rattling sound is heard.

GALILEO: What's that?

THE OLD WOMAN: They're trying to make noises to drive away the clouds with the plague seeds in them.

Galileo roars with laughter.

THE OLD WOMAN: Fancy being able to laugh now.

A man comes down the street and finds it roped off.

GALILEO: Hey, you! This street's closed off and I've nothing to eat. Hey! Hey!

The man has quickly hurried away.

THE OLD WOMAN: They may bring something. If not I can

leave a jug of milk outside your door tonight, if you're not scared.

GALILEO: Hey! Hey! Can't anybody hear us?
All of a sudden Andrea is standing by the rope. He looks desperate.

GALILEO: Andrea! How did you get here?

ANDREA: I was here first thing. I knocked but you didn't open your door. They told me you . . .

GALILEO: Didn't you go off in the carriage?

ANDREA: Yes. But I managed to jump out. Virginia went on. Can't I come in?

THE OLD WOMAN: No, you can't. You'll have to go to the Ursulines. Your mother may be there.

ANDREA: I've been. But they wouldn't let me see her. She's too ill.

GALILEO: Did you walk the whole way back? It's three days since you left, you know.

ANDREA: It took all that time. Don't be cross with me. They arrested me once.

GALILEO *helplessly*: Don't cry. You know, I've found out lots of things since you went. Shall I tell you? *Andrea nods between his sobs.* Listen carefully or you won't understand. You remember me showing you the planet Venus? Don't bother about that noise, it's nothing. Can you remember? You know what I saw? It's like the moon! I've seen it as a half circle and I've seen it as a sickle. What'd you say to that? I can demonstrate the whole thing to you with a lamp and a small ball. That proves it's yet another planet with no light of its own. And it turns round the sun in a simple circle; isn't that marvellous?

ANDREA *sobbing*: Yes, and that's a fact.

GALILEO *quietly*: I never asked her to stay.

Andrea says nothing.

GALILEO: But of course if I hadn't stayed myself it wouldn't have happened.

ANDREA: They'll have to believe you now, won't they?

GALILEO: I've got all the proofs I need now. Once this is over, I tell you, I shall go to Rome and show them.

Down the street come two masked men with long poles and buckets. They use these to pass bread through the window to Galileo and the old woman.

THE OLD WOMAN: And there's a woman across there with three children. Leave something for her too.

GALILEO: But I've got nothing to drink. There's no water left in the house. *The two shrug their shoulders.* Will you be coming back tomorrow?

ONE MAN *in a muffled voice, since he has a rag over his mouth:* Who knows what'll happen tomorrow?

GALILEO: If you do come, could you bring me a small book I need for my work?

THE MAN *gives a stifled laugh:* As if a book could make any difference. You'll be lucky if you get bread.

GALILEO: But this boy is my pupil, and he'll be there and can give it you for me. It's the chart giving the periodicity of Mercury, Andrea: I've mislaid it. Can you get me one from the school.

The men have gone on.

ANDREA: Of course. I'll get it, Mr Galilei. *Exit. Galileo likewise goes in. The old woman comes out of the house opposite and puts a jug outside Galileo's door.*

6

1616. The Vatican research institute, the Collegium Romanum, confirms Galileo's findings

Things take indeed a wondrous turn

When learned men do stoop to learn.

Clavius, we are pleased to say

Upheld Galileo Galilei.

Hall of the Collegium Romanum in Rome. It is night-time. High ecclesiastics, monks and scholars in groups. On his own,

to one side, Galileo. The atmosphere is extremely hilarious. Before the beginning of the scene a great wave of laughter is heard.

A FAT PRELATE *claps his belly with laughing:* Stupidity! Stupidity! I'd like to hear a proposition that people won't believe.

A SCHOLAR: For instance: that you have an incurable aversion to meals, Monsignor.

A FAT PRELATE: They'd believe it; they'd believe it. Things have to make sense to be disbelieved. That Satan exists: that's something they doubt. But that the earth spins round like a marble in the gutter; that's believed all right. O sancta simplicitas!

A MONK *play-acting:* I'm getting giddy. The earth's spinning round too fast. Permit me to hold on to you, professor. *He pretends to lurch and clutches one of the scholars.*

THE SCHOLAR *following suit:* Yes, the old girl has been on the bottle again.

He clutches another.

THE MONK: Stop, stop! We're skidding off. Stop, I said!

A SECOND SCHOLAR: Venus is all askew. I can only see one half of her backside. Help!

A group of laughing monks forms, acting as if they were doing their best not to be swept off a ship's deck in a storm.

A SECOND MONK: As long as we aren't flung on to the moon! It's said to have terribly sharp peaks, my brethren.

THE FIRST SCHOLAR: Dig your heels in and resist.

THE FIRST MONK: And don't look down. I'm losing my balance.

THE FAT PRELATE *intentionally loudly, aiming at Galileo:* Oh, that's impossible. Nobody is unbalanced in the Collegium Romanum.

Much laughter. Two of the Collegium astronomers enter from a door. There is a silence.

A MONK: Are you still going over it? That's scandalous.

THE FIRST ASTRONOMER *angrily:* Not us.

THE SECOND ASTRONOMER: What's this meant to lead to? I

don't understand Clavius's attitude . . . One can't treat everything as gospel that has been put forward in the past fifty years. In 1572 a new star appeared in the eighth and highest sphere, the sphere of the fixed stars, which seemed larger and more brilliant than all the stars round it, and within eighteen months it had gone out and been annihilated. Does that mean we must question the eternity and immutability of the heavens?

PHILOSOPHER: Give them half a chance and they'll smash up the whole starry sky.

THE FIRST ASTRONOMER: Yes, what are we coming to? Five years later Tycho Brahe in Denmark established the course of a comet. It started above the moon and broke through one crystal sphere after another, the solid supports on which all the moving of the heavenly bodies depend. If encountered no obstacles, there was no deflection of its light. Does that mean we must doubt the existence of the spheres?

THE PHILOSOPHER: It's out of the question. As Italy's and the Church's greatest astronomer, how can Christopher Clavius stoop to examine such a proposition?

THE FAT PRELATE: Outrageous.

THE FIRST ASTRONOMER: He is examining it, though. He's sitting in there staring through that diabolical tube.

THE SECOND ASTRONOMER: Principis obsta! It all started when we began reckoning so many things — the length of the solar year, the dates of solar and lunar eclipses, the position of the heavenly bodies — according to the tables established by Copernicus, who was a heretic.

A MONK: Which is better, I ask you: to have an eclipse of the moon happen three days later than the calendar says, or never to have eternal salvation at all?

A VERY THIN MONK comes forward with an open Bible, fanatically thrusting his finger at a certain passage: What do the Scriptures say? "Sun, stand thou still on Gibeon and thou, moon, in the valley of Ajalon." How can the sun stand still if it never moves at all as suggested by this heretic? Are the Scriptures lying?

THE FIRST ASTRONOMER: No, and that's why we walked out.

THE SECOND ASTRONOMER: There are phenomena that present difficulties for us astronomers, but does mankind have to understand everything? Both go out.

THE VERY THIN MONK: They degrade humanity's dwelling place to a wandering star. Men, animals, plants and the kingdoms of the earth get packed on a cart and driven in a circle round an empty sky. Heaven and earth are no longer distinct, according to them. Heaven because it is made of earth, and earth because it is just one more heavenly body. There is no more difference between top and bottom, between eternal and ephemeral. That we are short-lived we know. Now they tell us that heaven is short-lived too. There are sun, moon and stars, and we live on the earth, it used to be said, and so the Book has it; but now these people are saying the earth is another star. Wait till they say man and animal are not distinct either, man himself is an animal, there's nothing but animals!

THE FIRST SCHOLAR to Galileo: Mr Galilei, you've let something fall.

GALILEO who had meanwhile taken his stone from his pocket, played with it and finally allowed it to drop on the floor, bending to pick it up: Rise, monsignor; I let it rise.

THE FAT PRELATE turning round: An arrogant fellow.

Enter a very old cardinal supported by a monk. They respectfully make way for him.

THE VERY OLD CARDINAL: Are they still in there? Can't they settle such a trivial matter more quickly? Clavius must surely know his astronomy. I am told that this Mr Galilei moves mankind away from the centre of the universe and dumps it somewhere on the edge. Clearly this makes him an enemy of the human race. We must treat him as such. Mankind is the crown of creation, as every child knows, God's highest and dearest creature. How could He take something so miraculous, the fruit of so much effort, and lodge it on a remote, minor, constantly elusive star? Would he send His Son to such a place? How can there be people so perverse as to pin their faith to these slaves of the multiplication table! Which of God's creatures would stand for anything like that?

THE FAT PRELATE *murmurs*: The gentleman is present.

THE VERY OLD CARDINAL to Galileo: It's you, is it? You know, my eyesight is not what it was, but I can still see one thing: that you bear a remarkable likeness to what's-his-name, you know, the man we burned.

THE MONK: Your Eminence should avoid excitement. The doctor . . .

THE VERY OLD CARDINAL *shakes him off*. To Galileo: You want to debase the earth even though you live on it and derive everything from it. You are fouling your own nest. But I for one am not going to stand for that. *He pushes the monk away and begins proudly striding to and fro*. I am not just any old creature on any insignificant star briefly circling in no particular place. I am walking with a firm step, on a fixed earth, it is motionless, it is the centre of the universe, I am at the centre and the eye of the Creator falls upon me and me alone. Round about me, attached to eight crystal spheres, revolve the fixed stars and the mighty sun which has been created to light my surroundings. And myself too, that God may see me. In this way everything comes visibly and incontrovertibly to depend on me, mankind, God's great effort, the creature on whom it all centres, made in God's own image, indestructible and . . . *He collapses*.

THE MONK: Your Eminence has overstrained himself.

At this moment the door at the back opens and the great Clavius enters at the head of his astronomers. Swiftly and in silence he crosses the hall without looking to one side or the other and addresses a monk as he is on the way out.

CLAVIUS: He's right. *He leaves, followed by the astronomers. The door at the back remains open. Deadly silence. The very old cardinal recovers consciousness.*

THE VERY OLD CARDINAL: What's that? Have they reached a conclusion?

Nobody dares tell him.

THE MONK: Your Eminence must be taken home. *The old man is assisted out. All leave the hall, worried. A little monk from Clavius's committee of experts pauses beside Galileo.*

THE LITTLE MONK *confidentially*: Mr Galilei, before he left

Father Clavius said: Now it's up to the theologians to see how they can straighten out the movements of the heavens once more. You've won. Exit.

GALILEO *tries to hold him back*: It has won. Not me: reason has won.

The little monk has already left. Galileo too starts to go. In the doorway he encounters a tall cleric, the Cardinal Inquisitor, who is accompanied by an astronomer. Galileo bows. Before going out he whispers a question to the guard at the door.

GUARD *whispers back*: His Eminence the Cardinal Inquisitor. *The astronomer leads the Cardinal Inquisitor up to the telescope.*

7

But the Inquisition puts Copernicus's teachings on the Index (March 5th, 1616)

When Galileo was in Rome

A cardinal asked him to his home.

He wined and dined him as his guest

And only made one small request.

Cardinal Bellarmini's house in Rome. A ball is in progress. In the vestibule, where two clerical secretaries are playing chess and making notes about the guests, Galileo is received with applause by a small group of masked ladies and gentlemen. He arrives accompanied by his daughter Virginia and her fiancé Ludovico Marsili.

VIRGINIA: I'm not dancing with anybody else, Ludovico.

LUDOVICO: Your shoulder-strap's undone.

GALILEO:

Fret not, daughter, if perchance
 You attract a wanton glance.
 The eyes that catch a trembling lace
 Will guess the heartbeat's quickened pace.
 Lovely woman still may be
 Careless with felicity.

VIRGINIA: Feel my heart.

GALILEO *puts his hand on her heart*: It's thumping.

VIRGINIA: I'd like to look beautiful.

GALILEO: You'd better, or they'll go back to wondering whether it turns or not.

LUDOVICO: Of course it doesn't turn. *Galileo laughs*. Rome is talking only of you. But after tonight, sir, they will be talking about your daughter.GALILEO: It's supposed to be easy to look beautiful in the Roman spring. Even I shall start looking like an overweight Adonis. *To the secretaries*: I am to wait here for his Eminence the Cardinal. *To the couple*: Go off and enjoy yourselves. *Before they leave for the ball offstage Virginia again comes running back*.VIRGINIA: Father, the hairdresser in the Via del Trionfo took me first, and he made four other ladies wait. He knew your name right away. *Exit*.GALILEO *to the secretaries as they play chess*: How can you go on playing old-style chess? Cramped, cramped. Nowadays the play is to let the chief pieces roam across the whole board. The rooks like this — *he demonstrates* — and the bishops like that and the Queen like this and that. That way you have enough space and can plan ahead.FIRST SECRETARY: It wouldn't go with our small salaries, you know. We can only do moves like this. *He makes a small move*.GALILEO: You've got it wrong, my friend, quite wrong. If you live grandly enough you can afford to sweep the board. One has to move with the times, gentlemen. Not just hugging the coasts; sooner or later one has to venture out. *The very old cardinal from the previous scene crosses the stage, led by his*

monk. He notices Galileo, walks past him, turns round hesitantly and greets him. Galileo sits down. From the ballroom boys' voices are heard singing Lorenzo di Medici's famous poem on transience,

I who have seen the summer's roses die
 And all their petals pale and shrivelled lie
 Upon the chilly ground, I know the truth:
 How evanescent is the flower of youth.

GALILEO: Rome — A large party?

THE FIRST SECRETARY: The first carnival since the plague years. All Italy's great families are represented here tonight. The Orsinis, the Villanis, the Nuccolis, the Soldanieris, the Canes, the Lecchis, the d'Estes, the Colombinis . . .

SECOND SECRETARY *interrupting*: Their Eminences Cardinals Bellarmin and Barberini.

Enter Cardinal Bellarmin and Cardinal Barberini. They are holding sticks with the masks of a lamb and a dove over their faces.

BARBERINI *pointing at Galileo*: 'The sun also ariseth, and the sun goeth down, and hasteth to his place where he arose.' So says Solomon, and what does Galileo say?GALILEO: When I was so high — *he indicates with his hand* — your Eminence, I stood on a ship and called out 'The shore is moving away.' Today I realise that the shore was standing still and the ship moving away.

BARBERINI: Ingenious, ingenious — what our eyes see, Bellarmin, in other words the rotation of the starry heavens, is not necessarily true — witness the ship and the shore. But what is true — i.e. the rotation of the earth — cannot be perceived. Ingenious. But his moons of Jupiter are a tough nut for our astronomers to crack. Unfortunately I once studied some astronomy, Bellarmin. It sticks to you like the itch.

BELLARMIN: We must move with the times, Barberini. If new star charts based on a new hypothesis help our mariners to navigate, then they should make use of them. We only disapprove of such doctrines as run counter to the Scriptures. *He waves toward the ballroom in greeting.*

GALILEO: The Scriptures . . . 'He that withholdeth corn, the people shall curse him.' Proverbs of Solomon.

BARBERINI: 'A prudent man concealeth knowledge.' Proverbs of Solomon.

GALILEO: 'Where no oxen are the crib is clean: but much increase is by the strength of the ox.'

BARBERINI: 'He that ruleth his spirit is better than he that taketh a city.'

GALILEO: 'But a broken spirit drieth the bones.' *Pause.* 'Doth not wisdom cry?'

BARBERINI: 'Can one go upon hot coals, and his feet not be burned?' — Welcome to Rome, Galileo my friend. You know its origins? Two little boys, so runs the legend, were given milk and shelter by a she-wolf. Since that time all her children have had to pay for their milk. The she-wolf makes up for it by providing every kind of pleasure, earthly and heavenly, ranging from conversations with my friend Bellarmine to three or four ladies of international repute; let me point them out to you . . .

He takes Galileo upstage to show him the ballroom. Galileo follows reluctantly.

BARBERINI: No? He would rather have a serious discussion. Right. Are you sure, Galileo my friend, that you astronomers aren't merely out to make astronomy simpler for yourselves? *He leads him forward once more.* You think in circles and ellipses and constant velocities, simple motions such as are adapted to your brains. Suppose it had pleased God to make his stars more like this? *With his finger he traces an extremely complicated course at an uneven speed.* What would that do to your calculations?

GALILEO: Your Eminence, if God had constructed the world like that — *he imitates Barberini's course* — then he would have gone on to construct our brains like that, so that they would regard such motions as the simplest. I believe in men's reason.

BARBERINI: I think men's reason is not up to the job. Silence. He's too polite to go on and say he thinks mine is not up to the job.

Laughs and walks back to the balustrade.

BELLARMIN: Men's reason, my friend, does not take us very far. All around us we see nothing but crookedness, crime and weakness. Where is truth?

GALILEO *angrily*: I believe in men's reason.

BARBERINI *to the secretaries*: You needn't take this down; it's a scientific discussion among friends.

BELLARMIN: Think for an instant how much thought and effort it cost the Fathers of the Church and their countless successors to put some sense into this appalling world of ours. Think of the brutality of the landowners in the Campagna who have their half-naked peasants flogged to work, and of the stupidity of those poor people who kiss their feet in return.

GALILEO: Horrifying. As I was driving here I saw . . .

BELLARMIN: We have shifted the responsibility for such occurrences as we cannot understand — life is made up of them — to a higher Being, and argued that all of them contribute to the fulfillment of certain intentions, that the whole thing is taking place according to a great plan. Admittedly this hasn't satisfied everybody, but now you come along and accuse this higher Being of not being quite clear how the stars move, whereas you yourself are. Is that sensible?

GALILEO *starts to make a statement*: I am a faithful son of the Church . . .

BARBERINI: He's a terrible man. He cheerfully sets out to convict God of the most elementary errors in astronomy. I suppose God hadn't got far enough in his studies before he wrote the Bible; is that it? *My dear fellow . . .*

BELLARMIN: Wouldn't you also think it possible that the Creator had a better idea of what he was making than those he has created?

GALILEO: But surely, gentlemen, mankind may not only get the motions of the stars wrong but the Bible too?

BELLARMIN: But isn't interpreting the Bible the business of Holy Church and her theologians, wouldn't you say?

Galileo is silent.

BELLARMIN: You have no answer to that, have you? *He makes a sign to the secretaries:* Mr Galilei, tonight the Holy Office decided that the doctrine of Copernicus, according to which the sun is motionless and at the centre of the cosmos, while the earth moves and is not at the centre of the cosmos, is foolish, absurd, heretical and contrary to our faith. I have been charged to warn you that you must abandon this view.

GALILEO: What does this mean?
From the ballroom boys can be heard singing a further verse of the madrigal.

I said: This lovely springtime cannot last
So pluck your roses before May is past.

Barberini gestures Galileo not to speak till the song is finished. They listen.

GALILEO: And the facts? I understand that the Collegium Romanum had approved my observations.

BELLARMIN: And expressed their complete satisfaction, in terms very flattering to you.

GALILEO: But the moons of Jupiter, the phases of Venus . . .

BELLARMIN: The Holy Congregation took its decision without going into such details.

GALILEO: In other words, all further scientific research . . .

BELLARMIN: Is explicitly guaranteed, Mr Galilei. In line with the Church's view that it is impossible for us to know, but legitimate for us to explore. *He again greets a guest in the ballroom.* You are also at liberty to treat the doctrine in question mathematically, in the form of a hypothesis.

Science is the rightful and much-loved daughter of the Church, Mr Galilei. None of us seriously believes that you want to shake men's faith in the Church.

GALILEO *angrily:* What destroys faith is invoking it.

BARBERINI: Really? *He slaps him on the shoulder with a roar of laughter. Then he gives him a keen look and says in a not unfriendly manner:* Don't tip the baby out with the bath-water, Galileo my friend. We shan't. We need you more than you need us.

BELLARMIN: I cannot wait to introduce Italy's greatest mathematician to the Commissioner of the Holy Office, who has the highest possible esteem for you.

BARBERINI *taking Galileo's other arm:* At which he turns himself back into a lamb. You too, my dear fellow, ought really to have come disguised as a good orthodox thinker. It's my own mask that permits me certain freedoms today. Dressed like this I might be heard to murmur: If God didn't exist we should have to invent him. Right, let's put on our masks once more. Poor old Galileo hasn't got one. *They put Galileo between them and escort him into the ballroom.*

FIRST SECRETARY: Did you get that last sentence?
SECOND SECRETARY: Just doing it. *They write rapidly.* Have you got that bit where he said he believes in men's reason?

Enter the Cardinal Inquisitor.

THE INQUISITOR: Did the conversation take place?
FIRST SECRETARY *mechanically:* To start with Mr Galilei arrived with his daughter. She has become engaged today to Mr . . . *The Inquisitor gestures him not to go on.* Mr Galilei then told us about the new way of playing chess in which, contrary to all the rules, the pieces are moved right across the board.

THE INQUISITOR *with a similar gesture:* The transcript. A secretary hands him the transcript and the cardinal sits down and skims through it. Two young ladies in masks cross the stage; they curtsy to the cardinal.

ONE YOUNG LADY: Who's that?
THE OTHER: The Cardinal Inquisitor.

They giggle and go off. Enter Virginia, looking around for something.

THE INQUISITOR *from his corner:* Well, my daughter?

VIRGINIA *gives a slight start, not having seen him:* Oh, your Eminence . . .

Without looking up, the Inquisitor holds out his right hand to her. She approaches and kisses his ring.

THE INQUISITOR: A splendid night. Permit me to congratulate you on your engagement. Your future husband comes from a distinguished family. Are you staying long in Rome?

VIRGINIA: Not this time, your Eminence. A wedding takes so much preparing.

THE INQUISITOR: Ah, then you'll be returning to Florence like your father. I am glad of that. I expect that your father needs you. Mathematics is not the warmest of companions in the home, is it? Having a creature of flesh and blood around makes all the difference. It's easy to get lost in the world of the stars, with its immense distances, if one is a great man.

VIRGINIA *breathlessly*: You are very kind, your Eminence. I really understand practically nothing about such things.

THE INQUISITOR: Indeed? *He laughs.* In the fisherman's house no one eats fish, eh? It will tickle your father to hear that almost all your knowledge about the world of the stars comes ultimately from me, my child. *Leafing through the transcript*: It says here that our innovators, whose acknowledged leader is your father — a great man, one of the greatest — consider our present ideas about the significance of the dear old earth to be a little exaggerated. Well, from Ptolemy's time — and he was a wise man of antiquity — up to the present day we used to reckon that the whole of creation — in other words the entire crystal ball at whose centre the earth lies — measured about twenty thousand diameters of the earth across. Nice and roomy, but not large enough for innovators. Apparently they feel that it is unimaginably far-flung and that the earth's distance from the sun — quite a respectable distance, we always found it — is so minute compared with its distance from the fixed stars on the outermost sphere that our calculations can simply ignore it. So who can say that the innovators themselves aren't living on a very grand scale?

Virginia laughs. So does the Inquisitor.

THE INQUISITOR: True enough, there are a few gentlemen of the Holy Office who have started objecting, as it were, to such a view of the world, compared with which our picture so far has been a little miniature such as one might hang round the neck of certain young ladies. What worries them is that a prelate or even a cardinal might get lost in such vast distances and the Almighty might lose sight of the Pope

himself. Yes, it's very amusing, but I am glad to know that you will remain close to your great father whom we all esteem so highly, my dear child. By the way, do I know your Father Confessor . . . ?

VIRGINIA: Father Christophorus of Saint Ursula.

THE INQUISITOR: Ah yes, I am glad that you will be going with your father. He will need you; perhaps you cannot imagine this, but the time will come. You are still so young and so very much flesh and blood, and greatness is occasionally a difficult burden for those on whom God has bestowed it; it can be. No mortal is so great that he cannot be contained in a prayer. But I am keeping you, my dear child, and I'll be making your fiancé jealous and maybe your father too by telling you something about the stars which is possibly out of date. Run off and dance; only mind you remember me to Father Christophorus.

Virginia makes a deep bow and goes.

8

A CONVERSATION

Galileo, feeling grim,

A young monk came to visit him.

The monk was born of common folk.

It was of science that they spoke.

In the Florentine Ambassador's palace in Rome Galileo is listening to the little monk who whispered the papal astronomer's remark to him after the meeting of the Collegium Romanum.

GALILEO: Go on, go on. The habit you're wearing gives you the right to say whatever you want.

THE LITTLE MONK: I studied mathematics, Mr Galilei.

GALILEO: That might come in handy if it led you to admit that two and two sometimes makes four.

THE LITTLE MONK: Mr Galilei, I have been unable to sleep for three days. I couldn't see how to reconcile the decree I had read with the moons of Jupiter which I had observed. Today I decided to say an early mass and come to you.

GALILEO: In order to tell me Jupiter has no moons?

THE LITTLE MONK: No. I have managed to see the wisdom of the decree. It has drawn my attention to the potential dangers for humanity in wholly unrestricted research, and I have decided to give astronomy up. But I also wanted to explain to you the motives which can make even an astronomer renounce pursuing that doctrine any further.

GALILEO: I can assure you that such motives are familiar to me.

THE LITTLE MONK: I understand your bitterness. You have in mind certain exceptional powers of enforcement at the Church's disposal.

GALILEO: Just call them instruments of torture.

THE LITTLE MONK: But I am referring to other motives. Let me speak about myself. My parents were peasants in the Campagna, and I grew up there. They are simple people. They know all about olive trees, but not much else. As I study the phases of Venus I can visualise my parents sitting round the fire with my sister, eating their curded cheese. I see the beams above them, blackened by hundreds of years of smoke, and I see every detail of their old worn hands and the little spoons they are holding. They are badly off, but even their misfortunes imply a certain order. There are so many cycles, ranging from washing the floor, through the seasons of the olive crop to the paying of taxes. There is a regularity about the disasters that befall them. My father's back does not get bent all at once, but more and more each spring he spends in the olive groves; just as the successive childbirths that have made my mother increasingly sexless have followed well-defined intervals. They draw the strength they need to carry their baskets sweating up the stony tracks, to

bear children and even to eat, from the feeling of stability and necessity that comes of looking at the soil, at the annual greening of the trees and at the little church, and of listening to the Bible passages read there every Sunday. They have been assured that God's eye is always on them—probably, even anxiously — that the whole drama of the world is constructed around them so that they, the performers, may prove themselves in their greater or lesser roles. What would my people say if I told them that they happen to be on a small knob of stone twisting endlessly through the void round a second-rate star, just one among myriads? What would be the value or necessity then of so much patience, such understanding of their own poverty? What would be the use of Holy Scripture, which has explained and justified it all — the sweat, the patience, the hunger, the submissiveness — and now turns out to be full of errors? No: I can see their eyes wavering, I can see them letting their spoons drop, I can see how betrayed and deceived they will feel. So nobody's eye is on us, they'll say. Have we got to look after ourselves, old, uneducated and worn-out as we are? The only part anybody has devised for us is this wretched, earthly one, to be played out on a tiny star wholly dependent on others, with nothing revolving round it. Our poverty has no meaning: hunger is no trial of strength, it's merely not having eaten: effort is no virtue, it's just bending and carrying. Can you see now why I read into the Holy Congregation's decree a noble motherly compassion, a vast goodness of soul?

GALILEO: Goodness of soul! Aren't you really saying that there's nothing for them, the wine has all been drunk, their lips are parched, so they had better kiss the cassock? Why is there nothing for them? Why does order in this country mean the orderliness of a bare cupboard, and necessity nothing but the need to work oneself to death? When there are teeming vineyards and cornfields on every side? Your Campagna peasants are paying for the wars which the representative of gentle Jesus is waging in Germany and Spain. Why does he make the earth the centre of the universe? So that the See of St Peter can be the centre of the

earth! That's what it is all about. You're right, it's not about the planets, it's about the peasants of the Campagna. And don't talk to me about the beauty given to phenomena by the patina of age! You know how the Margaritiera oyster produces its pearl? By a morally dangerous disease which involves taking some unassimilable foreign body, like a grain of sand, and wrapping it in a slimy ball. The process all but kills it. To hell with the pearl, give me the healthy oyster. Virtues are not an offshoot of poverty, my dear fellow. If your people were happy and prosperous they could develop the virtues of happiness and prosperity. At present the virtues of exhaustion derive from exhausted fields, and I reject them. Sir, my new pumps will perform more miracles in that direction than all your ridiculous superhuman slaving. — 'Be fruitful and multiply', since your fields are not fruitful and you are being decimated by wars. Am I supposed to tell your people lies?

THE LITTLE MONK *much agitated*: We have the highest of all motives for keeping our mouths shut — the peace of mind of the less fortunate.

GALILEO: Would you like me to show you a Cellini clock that Cardinal Bellarmini's coachman brought round this morning? My dear fellow, authority is rewarding me for not disturbing the peace of mind of people like your parents, by offering me the wine they press in the sweat of their countenance which we all know to have been made in God's image. If I were to agree to keep my mouth shut my motives would be thoroughly low ones: an easy life, freedom from persecution, and so on.

THE LITTLE MONK: Mr Galilei, I am a priest.

GALILEO: You're also a physicist. And you can see that Venus has phases. Here, look out there! *He points at the window.* Can you see the little Priapus on the fountain next the laurel bush? The god of gardens, birds and thieves, rich in two thousand years of bucolic indecency. Even he was less of a liar. All right, let's drop it. I too am a son of the Church. But do you know the eighth Satire of Horace? I've been rereading it again lately, it acts as a kind of counterweight. *He picks up*

a small book. He makes his Priapus speak — a little statue which was then in the Esquiline gardens. Starting:

Stump of a figtree, useless kind of wood
Was I once; then the carpenter, not sure
Whether to make a Priapus or a stool
Opted for the god . . .

Can you imagine Horace being told not to mention stools and agreeing to put a table in the poem instead? Sir, it offends my sense of beauty if my cosmogony has a Venus without phases. We cannot invent mechanisms to pump water up from rivers if we are not to be allowed to study the greatest of all mechanisms right under our nose, that of the heavenly bodies. The sum of the angles in a triangle cannot be varied to suit the Vatican's convenience. I can't calculate the courses of flying bodies in such a way as also to explain witches taking trips on broomsticks.

THE LITTLE MONK: But don't you think that the truth will get through without us, so long as it's true?

GALILEO: No, no, no. The only truth that gets through will be what we force through: the victory of reason will be the victory of people who are prepared to reason, nothing else. Your picture of the Campagna peasants makes them look like the moss on their own huts. How can anyone imagine that the sum of the angles in a triangle conflicts with *their* needs? But unless they get moving and learn how to think, they will find even the finest irrigation systems won't help them. Oh, to hell with it: I see your people's divine patience, but where is their divine anger?

THE LITTLE MONK: They are tired.

GALILEO *tosses him a bundle of manuscripts*: Are you a physicist, my son? Here you have the reasons why the ocean moves, ebbing and flowing. But you're not supposed to read it, d'you hear? Oh, you've already started. You are a physicist, then? *The little monk is absorbed in the papers.*

GALILEO: An apple from the tree of knowledge! He's wolfing it

down. He is damned for ever, but he has got to wolf it down, the poor glutton. I sometimes think I'll have myself shut up in a dungeon ten fathoms below ground in complete darkness if only it will help me to find out what light is. And the worst thing is that what I know I have to tell people, like a lover, like a drunkard, like a traitor. It is an absolute vice and leads to disaster. How long can I go on shouting it into the void, that's the question.

THE LITTLE MONK *indicating a passage in the papers*: I don't understand this sentence.

GALILEO: I'll explain it to you, I'll explain it to you.

9

After keeping silent for eight years, Galileo is encouraged by the accession of a new pope, himself a scientist, to resume his researches into the forbidden area: the sunspots

Eight long years with tongue in cheek
Of what he knew he did not speak.

Then temptation grew too great
And Galileo challenged fate.

Galileo's home in Florence. Galileo's pupils — Federzoni, the little monk and Andrea Sarti, a young man now — have gathered to see an experiment demonstrated. Galileo himself is standing reading a book. Virginia and Mrs Sarti are sewing her trousseau.

VIRGINIA: Sewing one's trousseau is fun. That one's for entertaining at the long table; Ludovico likes entertaining. It's got to be neat, though; his mother can spot every loose

thread. She doesn't like Father's books. Nor does Father Christophorus.

MRS SARTI: He hasn't written a book for years.

VIRGINIA: I think he realises he was wrong. A very high church person in Rome told me a lot about astronomy. The distances are too great.

ANDREA *writing the day's programme on the board*: 'Thursday p.m. Floating bodies' — as before, ice, bucket of water, balance, iron needle, Aristotle.

He fetches these things.

The others are reading books.

Enter Filippo Mucius, a scholar in middle age. He appears somewhat distraught.

MUCIUS: Could you tell Mr Galilei that he has got to see me?

He is condemning me unheard.

MRS SARTI: But he won't receive you.

MUCIUS: God will recompense you if you will only ask. I must speak to him.

VIRGINIA *goes to the stairs*: Father!

GALILEO: What is it?

VIRGINIA: Mr Mucius.

GALILEO *looking up sharply, goes to the head of the stairs, followed by his pupils*: What do you want?

MUCIUS: Mr Galilei, may I be allowed to explain those passages from my book which seem to contain a condemnation of Copernicus's theories about the rotation of the earth? I have . . .

GALILEO: What do you want to explain? You are fully in line with the Holy Congregation's decree of 1616. You cannot be faulted. You did of course study mathematics here, but that's no reason why we should need to hear you say that two and two makes four. You are quite within your rights in saying that this stone — *he takes a little stone from his pocket and throws it down to the hall* — has just flown up to the ceiling.

MUCIUS: Mr Galilei, there are worse things than the plague.

GALILEO: Listen to me: someone who doesn't know the truth is just thick-headed. But someone who does know it and calls it a lie is a crook. Get out of my house.

MUCIUS *tonelessly*: You're quite right.

He goes out.

Galileo goes back into his work room.

FEDERZONI: I am afraid so. He's not a great man and no one would take him seriously for one moment if he hadn't been your pupil. Now of course people are saying 'he's heard everything Galileo had to teach and he's forced to admit that it's all nonsense'.

MRS SARTI: I'm sorry for the poor gentleman.

VIRGINIA: Father was too good to him.

MRS SARTI: I really wanted to talk to you about your marriage, Virginia. You're such a child still, and got no mother, and your father keeps putting those little bits of ice on water. Anyhow I wouldn't ask him anything to do with your marriage if I were you. He'd keep on for days saying the most dreadful things, preferably at meals and when the young people are there, because he hasn't got half a scudo's worth of shame in his make-up, and never had. But I'm not talking about that kind of thing, just about how the future will turn out. Not that I'm in a position to know anything myself. I'm not educated. But nobody goes blindly into a serious affair like this. I really think you ought to go to a proper astronomer at the university and get him to cast your horoscope so you know what you're in for. Why are you laughing?

VIRGINIA: Because I've been.

MRS SARTI *very inquisitive*: What did he say?

VIRGINIA: For three months I'll have to be careful, because the sun will be in Aries, but then I shall get a particularly favourable ascendant and the clouds will part. So long as I keep my eye on Jupiter I can travel as much as I like, because I'm an Aries.

MRS SARTI: And Ludovico?

VIRGINIA: He's a Leo. *After a little pause*: That's supposed to be sensual. *Pause*.

VIRGINIA: I know whose step that is. It's Mr Gaffone, the Rector.

Enter Mr Gaffone, Rector of the University.

GAFFONE: I'm just bringing a book which I think might interest your father. For heaven's sake please don't disturb him. I can't help it; I always feel that every moment stolen from that great man is a moment stolen from Italy. I'll lay it neatly and daintily in your hands and slip away, on tiptoe. *He goes. Virginia gives the book to Federzoni.*

GALILEO: What's it about?

FEDERZONI: I don't know. *Spelling out*: 'De maculis in sole'.

ANDREA: About sunspots. Yet another.

Federzoni irritably passes it on to him.

ANDREA: Listen to the dedication. 'To the greatest living authority on physics, Galileo Galilei.'

Galileo is once more deep in his book.

ANDREA: I've read the treatise on sunspots which Fabricius has written in Holland. He thinks they are clusters of stars passing between the earth and the sun.

THE LITTLE MONK: Doubtful, don't you think, Mr Galilei?

Galileo does not answer.

ANDREA: In Paris and in Prague they think they are vapours from the sun.

FEDERZONI: Hm.

ANDREA: Federzoni doubts it.

FEDERZONI: Leave me out of it, would you? I said 'Hm', that's all. I'm your lens-grinder, I grind lenses and you make observations of the sky through them and what you see isn't spots but 'maculis'. How am I to doubt anything? How often do I have to tell you I can't read the books, they're in Latin? *In his anger he gesticulates with the scales. One of the pans falls to the floor. Galileo goes over and picks it up without saying anything.*

THE LITTLE MONK: There's happiness in doubting: I wonder why.

ANDREA: Every sunny day for the past two weeks I've gone up to the attic, under the roof. The narrow chinks between the shingles let just a thin ray of light through. If you take a sheet of paper you can catch the sun's image upside down. I saw a spot as big as a fly, as smudged as a cloud. It was moving. Why aren't we investigating those spots, Mr Galilei?

GALILEO: Because we're working on floating bodies.

ANDREA: Mother's got great baskets full of letters. The whole of Europe wants to know what you think, you've such a reputation now, you can't just say nothing.

GALILEO: Rome allowed me to get a reputation because I said nothing.

FEDERZONI: But you can't afford to go on saying nothing now.

GALILEO: Nor can I afford to be roasted over a wood fire like a ham.

ANDREA: Does that mean you think the sunspots are part of this business?

Galileo does not answer.

ANDREA: All right, let's stick to our bits of ice, they can't hurt you.

GALILEO: Correct. — Our proposition, Andrea?

ANDREA: As for floating, we assume that it depends not on a body's form but on whether it is lighter or heavier than water.

GALILEO: What does Aristotle say?

THE LITTLE MONK: 'Discus latus platicque . . .'

GALILEO: For God's sake translate it.

THE LITTLE MONK: 'A broad flat piece of ice will float on water whereas an iron needle will sink.'

GALILEO: Why does the ice not sink, in Aristotle's view?

THE LITTLE MONK: Because it is broad and flat and therefore cannot divide the water.

GALILEO: Right. *He takes a piece of ice and places it in the bucket.* Now I am pressing the ice hard against the bottom of the bucket. I release the pressure of my hands. What happens?

THE LITTLE MONK: It shoots up to the top again.

GALILEO: Correct. Apparently it can divide the water all right as it rises. Fulganzio!

THE LITTLE MONK: But why can it float in the first place? It's heavier than water, because it is concentrated water.

GALILEO: Suppose it were thinned-down water?

ANDREA: It has to be lighter than water, or it wouldn't float.

GALILEO: Aha.

ANDREA: Any more than an iron needle can float. Everything lighter than water floats and everything heavier sinks. QED.

GALILEO: Andrea, you must learn to think cautiously. Hand me the needle. A sheet of paper. Is iron heavier than water?

ANDREA: Yes.

Galileo lays the needle on a piece of paper and launches it on the water. A pause.

GALILEO: What happens?

FEDERZONI: The needle's floating. Holy Aristotle, they never checked up on him!

They laugh.

GALILEO: One of the main reasons why the sciences are so poor is that they imagine they are so rich. It isn't their job to throw open the door to infinite wisdom but to put a limit to infinite error. Make your notes.

VIRGINIA: What is it?

MRS SARTI: Whenever they laugh it gives me a turn. What are they laughing about, I ask myself.

VIRGINIA: Father says theologians have their bells to ring: physicists have their laughter.

MRS SARTI: Anyway I'm glad he isn't looking through his tube so often these days. That was even worse.

VIRGINIA: All he's doing now is put bits of ice in water: that can't do much harm.

MRS SARTI: I don't know.

Enter Ludovico Marsili in travelling clothes, followed by a servant carrying items of luggage. Virginia runs up and throws her arms round him.

VIRGINIA: Why didn't you write and say you were coming?

LUDOVICO: I happened to be in the area, inspecting our vineyards at Buccioli, and couldn't resist the chance.

GALILEO *as though short-sighted*: Who is it?

VIRGINIA: Ludovico.

THE LITTLE MONK: Can't you see him?

GALILEO: Ah yes, Ludovico. *Goes towards him.* How are the horses?

LUDOVICO: Doing fine, sir.

GALILEO: Sarti, we're celebrating. Get us a jug of that Sicilian wine, the old sort.

Exit Mrs Sarti with Andrea.

LUDOVICO *to Virginia*: You look pale. Country life will suit you. My mother is expecting you in September.

VIRGINIA: Wait a moment, I'll show you my wedding dress.

Rings out.

GALILEO: Sit down.

LUDOVICO: I'm told there are over a thousand students going to your lectures at the university, sir. What are you working at just now?

GALILEO: Routine stuff. Did you come through Rome?

LUDOVICO: Yes. — Before I forget: my mother congratulates you on your remarkable tact in connection with those sunspot orgies the Dutch have been going in for lately.

GALILEO *dryly*: Very kind of her.

Mrs Sarti and Andrea bring wine and glasses. Everyone gathers round the table.

LUDOVICO: I can tell you what all the gossip will be about in Rome this February. Christopher Clavius said he's afraid the whole earth-round-the-sun act will start up again because of these sunspots.

ANDREA: No chance.

GALILEO: Any other news from the Holy City, aside from hopes of fresh lapses on my part?

LUDOVICO: I suppose you know that His Holiness is dying?

THE LITTLE MONK: Oh.

GALILEO: Who do they think will succeed him?

LUDOVICO: The favourite is Barberini.

GALILEO: Barberini.

ANDREA: Mr Galilei knows Barberini.

THE LITTLE MONK: Cardinal Barberini is a mathematician.

FEDERZONI: A mathematician at the Holy See!

Pause.

GALILEO: Well: so now they need people like Barberini who have read a bit of mathematics! Things are beginning to move. Federzoni, we may yet see the day when we no longer have to look over our shoulder like criminals every time we

say two and two equals four. *To Ludovico*: I like this wine, Ludovico. What do you think of it?

LUDOVICO: It's good.

GALILEO: I know the vineyard. The hillside is steep and stony, the grapes almost blue. I love this wine.

LUDOVICO: Yes, sir.

GALILEO: It has got little shadows in it. And it is almost sweet but just stops short of it. — Andrea, clear all that stuff away, the ice, needle and bucket. — I value the consolations of the flesh. I've no use for those chicken-hearts who see them as weaknesses. Pleasure takes some achieving, I'd say.

THE LITTLE MONK: What have you in mind?

FEDERZONI: We're starting up the earth-round-the-sun act again.

ANDREA *burns*:

It's fixed, the Scriptures say. And so Orthodox science proves.

The Holy Father grabs its ears, to show

It's firmly held. And yet it moves.

Andrea, Federzoni and the little monk hurry to the work table and clear it.

ANDREA: We might find that the sun goes round too. How

would that suit you, Marsili?

LUDOVICO: What's the excitement about?

MRS SARTI: You're not going to start up that devilish business again, surely, Mr Galilei?

GALILEO: Now I know why your mother sent you to me. Barberini in the ascendant! Knowledge will become a passion and research an ecstasy. Clavius is right, those sunspots interest me. Do you like my wine, Ludovico?

LUDOVICO: I told you I did, sir.

GALILEO: You really like it?

LUDOVICO *stiffly*: I like it.

GALILEO: Would you go so far as to accept a man's wine or his daughter without asking him to give up his profession? What has my astronomy got to do with my daughter? The phases of Venus can't alter my daughter's backside.

MRS SARRI: Don't be so vulgar. I am going to fetch Virginia. LUDOVICO *holding her back*: Marriages in families like ours are not based on purely sexual considerations.

GALILEO: Did they stop you from marrying my daughter for eight years because I had a term of probation to serve?

LUDOVICO: My wife will also have to take her place in our pew in the village church.

GALILEO: You think your peasants will go by the saintliness of their mistress in deciding whether to pay rent or not?

LUDOVICO: In a sense, yes.

GALILEO: Andrea, Fulganzio, get out the brass reflector and the screen! We will project the sun's image on it so as to protect our eyes; that's your method, Andrea.

Andrea and the little monk fetch reflector and screen.

LUDOVICO: You did sign a declaration in Rome, you know, sir, saying you would have nothing more to do with this earth-round-the-sun business.

GALILEO: Oh that. In those days we had a reactionary pope.

MRS SARRI: Had! And His Holiness not even dead yet!

GALILEO: Almost. Put a grid of squares on the screen. We will do this methodically. And then we'll be able to answer their letters, won't we, Andrea?

MRS SARRI: 'Almost' indeed. The man'll weigh his pieces of ice fifty times over, but as soon as it's something that suits his book he believes it blindly.

The screen is set up.

LUDOVICO: If His Holiness does die, Mr Galilei, irrespective who the next pope is and how intense his devotion to the sciences, he will also have to take into account the devotion felt for him by the most respected families in the land.

THE LITTLE MONK: God made the physical world, Ludovico; God made the human brain; God will permit physics.

MRS SARRI: Galileo, I am going to say something to you. I have watched my son slipping into sin with all those 'experiments' and 'theories' and 'observations' and there was nothing I could do about it. You set yourself up against the authorities and they have already warned you once. The highest cardinals spoke to you like a sick horse. That worked for a

time, but then two months ago, just after the Feast of the Immaculate Conception, I caught you secretly starting your 'observations' again. In the attic. I didn't say much but I knew what to do. I ran and lit a candle to St Joseph. It's more than I can cope with. When I get you on your own you show vestiges of sense and tell me you know you've got to behave or else it'll be dangerous; but two days of experiments and you're just as bad as before. If I choose to forfeit eternal bliss by sticking with a heretic that's my business, but you have no right to trample all over your daughter's happiness with your great feet.

GALILEO *gruffly*: Bring the telescope.

LUDOVICO: Giuseppe, take our luggage back to the coach.

The servant goes out.

MRS SARRI: She'll never get over this. You can tell her yourself.

Hurries off, still carrying the jug.

LUDOVICO: I see you have made your preparations. Mr Galilei, my mother and I spend three quarters of each year on our estate in the Campagna, and we can assure you that our peasants are not disturbed by your papers on Jupiter and its moons. They are kept too busy in the fields. But they could be upset if they heard that frivolous attacks on the church's sacred doctrines were in future to go unpunished. Don't forget that the poor things are little better than animals and get everything muddled up. They truly are like beasts, you can hardly imagine it. If rumour says a pear has been seen on an apple tree they will drop their work and hurry off to gossip about it.

GALILEO: *Interested*: Really?

LUDOVICO: Beasts. If they come up to the house to make some minor complaint or other, my mother is forced to have a dog whipped before their eyes, as the only way to recall them to discipline and order and a proper respect. You, Mr Galilei, may see rich cornfields from your coach as you pass, you eat our olives and our cheese, without a thought, and you have no idea how much trouble it takes to produce them, how much supervision.

GALILEO: Young man, I do not eat my olives without a

thought. *Roughly*: You're holding me up. *Calls through the door*: Got the screen?

ANDREA: Yes. Are you coming?

GALILEO: You whip other things than dogs for the sake of discipline, don't you, Marsili?

LUDOVICO: Mr Galilei. You have a marvellous brain. Pity.

THE LITTLE MONK *amazed*: He's threatening you.

GALILEO: Yes, I might stir up his peasants to think new thoughts. And his servants and his stewards.

FEDERZONI: How? None of them can read Latin.

GALILEO: I might write in the language of the people, for the many, rather than in Latin for the few. Our new thoughts call for people who work with their hands. Who else cares about knowing the causes of things? People who only see bread on their table don't want to know how it got baked; that lot would sooner thank God than thank the baker. But the people who make the bread will understand that nothing moves unless it has been made to move. Your sister pressing olives, Fulganzio, won't be astounded but will probably laugh when she hears that the sun isn't a golden coat of arms but a motor: that the earth moves because the sun sets it moving.

LUDOVICO: You will always be the slave of your passions. Make my excuses to Virginia; I think it will be better if I don't see her.

GALILEO: Her dowry will remain available to you, at any time.

LUDOVICO: Good day. *He goes*.

ANDREA: And our kindest regards to all the Marsilis.

FEDERZONI: Who command the earth to stand still so their castles shan't tumble down.

ANDREA: And the Cenzis and the Villanis!

FEDERZONI: The Cervillis!

ANDREA: The Lecchis!

FEDERZONI: The Pileonis!

ANDREA: Who are prepared to kiss the pope's toe only if he uses it to kick the people with!

THE LITTLE MONK *likewise at the instruments*: The new pope is going to be an enlightened man.

GALILEO: So let us embark on the examination of those spots on the sun in which we are interested, at our own risk and without banking too much on the protection of a new pope.

ANDREA *interrupting*: But fully convinced that we shall dispel Mr Fabricius's star shadows along with the sun vapours of Paris and Prague, and establish the rotation of the sun.

GALILEO: Somewhat convinced that we shall establish the rotation of the sun. My object is not to establish that I was right but to find out if I am. Abandon hope, I say, all ye who enter on observation. They may be vapours, they may be spots, but before we assume that they are spots — which is what would suit us best — we should assume that they are fried fish. In fact we shall question everything all over again. And we shall go forward not in seven-league boots but at a snail's pace. And what we discover today we shall wipe off the slate tomorrow and only write it up again once we have again discovered it. And whatever we wish to find we shall regard, once found, with particular mistrust. So we shall approach the observation of the sun with an irrevocable determination to establish that the earth does *not* move. Only when we have failed, have been utterly and hopelessly beaten and are licking our wounds in the profoundest depression, shall we start asking if we weren't right after all, and the earth does go round. *With a twinkle*: But once every other hypothesis has crumbled in our hands then there will be no mercy for those who failed to research, and who go on talking all the same. Take the cloth off the telescope and point it at the sun!

He adjusts the brass reflector.

THE LITTLE MONK: I knew you had begun working on this. I knew when you failed to recognise Mr Marsili.

In silence they begin their observations. As the sun's flaming image appears on the screen Virginia comes running in in her wedding dress.

VIRGINIA: You sent him away, Father.

She faints. Andrea and the little monk hurry to her side.

GALILEO: I've got to know.

10

During the next decade Galileo's doctrine spreads among the common people. Ballad-singers and pamphleteers everywhere take up the new ideas. In the carnival of 1632 many Italian cities choose ^{astronomy} astronomy as the theme of their guilds' carnival processions.

A half-starved couple of fairground people with a baby and a five-year-old girl enter a market-place where a partly masked crowd is awaiting the carnival procession. The two of them are carrying bundles, a drum and other utensils.

THE BALLAD-SINGER *drumming*: Honoured inhabitants, ladies and gentlemen! To introduce the great carnival procession of the guilds we are going to perform the latest song from Florence which is now being sung all over north Italy and has been imported by us at vast expense. It is called: Ye horrible doctrine and opinions of Messer Galileo Galilei, physicist to the court, or A Foretaste of ye Future. *He sings*:

When the Almighty made the universe
 He made the earth and then he made the sun.
 Then round the earth he bade the sun to turn -
 That's in the Bible, Genesis, Chapter One.
 And from that time all creatures here below
 Were in obedient circles meant to go.

So the circles were all woven:
 Around the greater went the smaller
 Around the pace-setter the crawler
 On earth as it is in heaven.
 Around the pope the cardinals
 Around the cardinals the bishops
 Around the bishops the secretaries
 Around the secretaries the aldermen

Around the aldermen the craftsmen
 Around the craftsmen the servants
 Around the servants the dogs, the chickens and the
 beggars.

That, good people, is the Great Order of things, ordo
 ordinum as the theologians call it, regula aeternis, the rule of
 rules; but what, dear people, happened?
Sings:

Up stood the learned Galilei
 (Chucked away the Bible, whipped out his telescope, took a
 quick look at the universe.)

And told the sun 'Stop there.
 From now the whole creatio dei
 Will turn as I think fair:
 The boss starts turning from today
 His servants stand and stare.'

Now that's no joke, my friends, it is no matter small.
 Each day our servants' insolence increases
 But one thing's true, pleasures are few. I ask you all:
 Who wouldn't like to say and do just as he pleases?

Honourable inhabitants, such doctrines are utterly impos-
 sible.

He sings:
 The sef stays sitting on his arse.
 This turning's turned his head.
 The altar boy won't serve the mass
 The apprentice lies in bed.

No, no, my friends, the Bible is no matter small
 Once let them off the lead indeed all loyalty ceases
 For one thing's true, pleasures are few. I ask you all:
 Who wouldn't like to say and do just as he pleases?

Good people all, kindly take a glance at the future as
 foretold by the learned Doctor Galileo Galilei:

*Corruption
 11
 Carnival
 2000/2001*



Two housewives standing buying fish
 Don't like the fish they're shown
 The fishwife takes a hunk of bread
 And eats them up alone.
 The mason clears the building site
 And hauls the builders' stone.
 And when the house is finished quite
 He keeps it as his own.

Can such things be, my friends? It is no matter small
 For independent spirit spreads like foul diseases.
 But one thing's true, pleasures are few. I ask you all:
 Who wouldn't like to say and do just as he pleases?

The tenant gives his landlord hell
 Not caring in the least.
 His wife now feeds her children well
 On the milk she fed the priest.

No, no, my friends, the Bible is no matter small
 Once let them off the lead indeed all loyalty ceases.
 But one thing's true, pleasures are few. I ask you all:
 Who wouldn't like to say and do just as he pleases?

THE SINGER'S WIFE:
 I lately went a bit too far
 And told my husband I'd see
 If I could get some other fixed star
 To do what he does for me.

BALLAD-SINGER:
 No, no, no, no, no, no! Stop, Galileo, stop.
 Once take a mad dog's muzzle off it spreads diseases
 People must keep their place, some down and some on
 top.
 (Although it's nice for once to do just as one pleases.)

BOTH:
 Good people who have trouble here below
 In serving cruel lords and gentle Jesus
 Who bid you turn the other cheek just so
 They're better placed to strike the second blow:

Obedience isn't going to cure your woe
 So each of you wake up, and do just as he pleases!

THE BALLAD-SINGER: Honoured inhabitants, you will now
 see Galileo Galilei's amazing discovery: the earth circling
 round the sun!
*He belabours the drum violently. The woman and child step
 forward. The woman holds a crude image of the sun while
 the child, with a pumpkin over its head to represent the
 earth, circles round her. The singer points elatedly at the
 child as if it were performing a dangerous leap as it takes
 jerky steps to single beats on the drum. Then comes the
 drumming from the rear.*

A DEEP VOICE calls: The procession!
*Enter two men in rags pulling a little cart. On an absurd
 throne sits the 'Grand Duke of Florence', a figure with a
 cardboard crown dressed in sacking and looking through a
 telescope. Above his throne a sign saying 'Looking for
 trouble'. Then four masked men march in carrying a big
 tarpaulin. They stop and toss a puppet representing a
 cardinal into the air. A dwarf has taken up position to one
 side with a sign saying 'The new age'. In the crowd a beggar
 gets up on his crutches and dances, stamping the ground till
 he crashes to earth. Enter an over-lifesize puppet, Galileo
 Galilei, bowing to the audience. Before it goes a boy carrying
 a gigantic Bible, open, with crossed-out pages.*
 THE BALLAD-SINGER: Galileo Galilei, the Bible-buster!
Huge laughter among the crowd.

I I

1633: The Inquisition summons the world-famous scientist to Rome

The depths are hot, the heights are chill
The streets are loud, the court is still.

Antechamber and staircase in the Medici palace in Florence. Galileo and his daughter are waiting to be admitted by the Grand Duke.

VIRGINIA: This is taking a long time.

GALILEO: Yes.

VIRGINIA: There's that fellow again who followed us here.

She points out an individual who walks past without looking at them.

GALILEO *whose eyes have suffered*: I don't know him.

VIRGINIA: I've seen him several times in the past few days, though. He gives me the creeps.

GALILEO: Rubbish. We're in Florence, not among Corsican bandits.

VIRGINIA: Here's Rector Gaffone.

GALILEO: He makes me want to run. That idiot will involve me in another of his interminable talks.

Down the stairs comes Mr Gaffone, rector of the university. He is visibly alarmed on seeing Galileo and walks stiffly past them barely nodding, his head awkwardly averted.

GALILEO: What's got into the man? My eyes are bad again. Did he even greet us?

VIRGINIA: Barely. What's in your book? Could it be thought heretical maybe?

GALILEO: You're wasting too much time in church. You'll spoil what's left of your complexion with all this early rising and scurrying off to mass. You're praying for me, is that it? VIRGINIA: Here's Mr Vanni the ironfounder you designed the furnace for. Don't forget to thank him for those quails.

A man has come down the stairs.

VANNI: Were those good quails I sent you, Mr Galilei?

GALILEO: The quails were first-rate, Messer Vanni, many thanks again.

VANNI: Your name was mentioned upstairs. They're blaming you for those pamphlets against the Bible that have been selling all over the place lately.

GALILEO: I know nothing about pamphlets. The Bible and Homer are my preferred reading.

VANNI: Even if that weren't so I'd like to take this chance to say that we manufacturers are behind you. I'm not the sort of fellow that knows much about the stars, but to me you're the man who's battling for freedom to teach what's new. Take that mechanical cultivator from Germany you were describing to me. In the past year alone five books on agriculture have been published in London. We'd be glad enough to have a book on the Dutch canals. The same sort of people as are trying to block you are stopping the Bologna doctors from dissecting bodies for medical research.

GALILEO: Your voice can be heard, Vanni.

VANNI: I should hope so. Do you realise that they've now got money markets in Amsterdam and London? Commercial schools too. Regularly printed papers with news in them. In this place we haven't even the freedom to make money. They're against ironfoundries because they imagine putting too many workers in one place leads to immorality. I sink or swim with people like you, Mr Galilei. If anybody ever tries launching anything against you, please remember you've friends in every branch of business. You've got the north Italian cities behind you, sir.

GALILEO: As far as I know nobody's thinking of launching anything against me.

VANNI: No?

GALILEO: No.

VANNI: I think you'd be better off in Venice. Fewer clerics. You could take up the cudgels from there. I've a travelling coach and horses, Mr Galilei.

GALILEO: I don't see myself as a refugee. I like my comforts.

VANNI: Surely. But from what I heard upstairs I'd say there was a hurry. It's my impression they'd be glad to know you weren't in Florence just now.

GALILEO: Nonsense. The Grand Duke is my pupil, and what's more the pope himself would never stand for any kind of attempt to trap me.

VANNI: I'm not sure you're good at distinguishing your friends from your enemies, Mr Galilei.

GALILEO: I can distinguish power from impotence. *He goes off brusquely.*

VANNI: Right. I wish you luck. *Exit.*

GALILEO *returning to Virginia*: Every local Tom, Dick and Harry with an axe to grind wants me to be his spokesman, particularly in places where it's not exactly helpful to me. I've written a book about the mechanics of the universe, that's all. What people make of it or don't make of it isn't my business.

VIRGINIA *loudly*: If they only knew how you condemned all those incidents at last carnival-time!

GALILEO: Yes. Give a bear honey and if the brute's hungry you risk losing your arm.

VIRGINIA *quietly*: Did the Grand Duke actually send for you today?

GALILEO: No, but I had myself announced. He wants to have the book, he has paid for it. Ask that official and tell him we don't like being kept waiting.

VIRGINIA: *followed by the same individual, goes and addresses an official*: Mr Mincio, has his Highness been told my father wishes to speak with him?

THE OFFICIAL: How am I to know?

VIRGINIA: I don't call that an answer.

THE OFFICIAL: Don't you?

VIRGINIA: You're supposed to be polite.

The official half turns his back on her and yawns as he looks at the individual.

VIRGINIA *returning*: He says the Grand Duke is still occupied.

GALILEO: I heard you say something about 'polite'. What was it?

VIRGINIA: I was thanking him for his polite answer, that's all.

Can't you just leave the book here? You could use the time.

GALILEO: I'm beginning to wonder how much my time is worth. Perhaps I'll accept Sagredo's invitation to spend a few weeks in Padua after all. My health's not what it was.

VIRGINIA: You couldn't live without your books.

GALILEO: We could take a crate or two of that Sicilian wine in the coach with us.

VIRGINIA: You've always said it doesn't travel. And the court owes you three months' salary. They'll never forward it.

GALILEO: That's true.

The Cardinal Inquisitor comes down the stairs.

VIRGINIA: The Cardinal Inquisitor.

As he walks past he makes a deep bow to Galileo.

VIRGINIA: What's the Cardinal Inquisitor doing in Florence, Father?

GALILEO: I don't know. He behaved quite respectfully. I knew what I was doing when I came to Florence and kept quiet for all those years. They've paid me such tributes that now they're forced to accept me as I am.

THE OFFICIAL *calls out*: His Highness the Grand Duke!

Cosimo de Medici comes down the staircase. Galileo goes to meet him. Cosimo stops somewhat embarrassedly.

GALILEO: I wanted to bring my Dialogues on Two World Systems to you . . .

COSIMO: Ah, yes. How are your eyes?

GALILEO: Not too good, your Highness. If your Highness permits, I have the book . . .

COSIMO: The state of your eyes worries me. It worries me, truly. It shows me that you've been a little too eager to use that admirable tube of yours, haven't you?

He walks on without accepting the book.

GALILEO: He didn't take the book, did he?

VIRGINIA: Father, I'm scared.

GALILEO *firmly, in a low voice*: Control your feelings. We're not going home after this, we're going to Volpi the glazier's. I've fixed with him to have a cart full of empty barrels

X standing permanently in the yard of the wine house next door, ready to take me out of the city.

VIRGINIA: So you knew . . .

GALILEO: Don't look round.

They start to go.

X A HIGH OFFICIAL comes down the stairs: Mr Galilei, I have been charged to tell you that the court of Florence is no longer in a position to oppose the Holy Inquisition's wish to interrogate you in Rome. The coach of the Holy Inquisition awaits you, Mr Galilei.

12

The Pope

X *Room in the Vatican. Pope Urban VIII (formerly Cardinal Barberini) has received the Cardinal Inquisitor. In the course of the audience he is robed. Outside is heard the shuffling of many feet.*

THE POPE very loudly: No! No! No!

THE INQUISITOR: So it is your Holiness's intention to go before this gathering of doctors from every faculty, representatives of every order and the entire clergy, all with their naive faith in the word of God as set down in the Scriptures, who are now assembling here to have that trust confirmed by your Holiness, and tell them that those Scriptures can no longer be regarded as true?

THE POPE: I am not going to have the multiplication table broken. No!

THE INQUISITOR: Ah, it's the multiplication table, not the spirit of insubordination and doubt: that's what these people will tell you. But it isn't the multiplication table. No, a terrible restlessness has descended on the world. It is the restlessness of their own brain which these people have

transferred to the unmoving earth. They shout 'But look at the figures'. But where do their figures come from? Everybody knows they originate in doubt. These people doubt everything. Are we to base human society on doubt and no longer on faith? 'You are my lord, but I doubt if that's a good thing.' 'This is your house and your wife, but I doubt if they shouldn't be mine.' Against that we have your Holiness's love of art, to which we owe our fine collections, being subjected to such disgraceful interpretations as we see scrawled on the walls of Roman houses: 'The Barberinis take what the Barbarians left'. And abroad? Your Holiness's Spanish policy has been misinterpreted by short-sighted critics, its antagonising of the Emperor regretted. For the last fifteen years Germany has been running with blood, and men have quoted the Bible as they hacked each other to pieces. And at this moment, just when Christianity is being shrivelled into little enclaves by plague, war and the Reformation, a rumour is going through Europe that you have made a secret pact with protestant Sweden in order to weaken the Catholic emperor. So what do these wretched mathematicians do but go and point their tubes at the sky and inform the whole world that your Holiness is hopelessly at sea in the one area nobody has yet denied you? There's every reason to be surprised at this sudden interest in an obscure subject like astronomy. Who really cares how these spheres rotate? But thanks to the example of this wretched Florentine all Italy, down to the last stable boy, is now gossiping about the phases of Venus, nor can they fall at the same time to think about a lot of other irksome things that schools and others hold to be incontrovertible. Given the weakness of their flesh and their liability to excesses of all kinds, what would the effect be if they were to believe in nothing but their own reason, which this maniac has set up as the sole tribunal? They would start by wondering if the sun stood still over Gibeon, then extend their filthy scepticism to the offertory box. Ever since they began voyaging across the seas — and I've nothing against that — they have placed their faith in a brass ball they call a compass, not in

God. This fellow Galileo was writing about machines even when he was young. With machines they hope to work miracles. What sort? God anyhow is no longer necessary to them, but what kind of miracle is it to be? The abolition of top and bottom, for one. They're not needed any longer. Aristotle, whom they otherwise regard as a dead dog, has said — and they quote this — that once the shuttle weaves by itself and the plectrum plays the zither of its own accord, then masters would need no apprentice and lords no servants. And they think they are already there. This evil man knows what he is up to when he writes his astronomical works not in Latin but in the idiom of fishwives and wool merchants.

THE POPE: That's very bad taste; I shall tell him.

THE INQUISITOR: He agitates some of them and bribes others. The north Italian ports are insisting more and more that they must have Mr Galilei's star charts for their ships. We'll have to give in to them, material interests are at stake.

THE POPE: But those star charts are based on his heretical theories. They presuppose certain motions on the part of the heavenly bodies which are impossible if you reject his doctrine. You can't condemn the doctrine and accept the charts.

THE INQUISITOR: Why not? It's the only way.

THE POPE: This shuffling is getting on my nerves. I cannot help listening to it.

THE INQUISITOR: It may speak to you more persuasively than I can, your Holiness. Are all these people to leave here with doubt in their hearts?

THE POPE: After all the man is the greatest physicist of our time, the light of Italy, and not just any old crank. He has friends. There is Versailles. There's the Viennese Court. They'll call Holy Church a cesspool of decomposing prejudices. Hands off him!

THE INQUISITOR: Practically speaking one wouldn't have to push it very far with him. He is a man of the flesh. He would give in immediately.

THE POPE: He enjoys himself in more ways than any man I

have ever met. His thinking springs from sensuality. Give him an old wine or a new idea, and he cannot say no. But I won't have any condemnation of the physical facts, no war cries of 'Up the Church' 'Up Reason'. Let him write his book on condition that he finished it by saying that the last word lay with faith, not science. He met that condition.

THE INQUISITOR: But how? His book shows a stupid man, representing the view of Aristotle of course, arguing with a clever one who of course represents Mr Galilei's own; and which do you think, your Holiness, delivers the final remark?

THE POPE: What did you say? Well, which of them expresses our view?

THE INQUISITOR: Not the clever one.

THE POPE: Yes, that is an impertinence. All this stamping in the corridors is really unbearable. Is the whole world coming here?

THE INQUISITOR: Not the whole of it but its best part.

Pause. *The Pope is now in his full robes.*

THE POPE: At the very most he can be shown the instruments.

THE INQUISITOR: That will be enough, your Holiness. Instruments are Mr Galilei's speciality.

I 3

Before the Inquisition, on June 22nd 1633, Galileo recants his doctrine of the motion of the earth

June twenty-second, sixteen thirty-three

A momentous day for you and me.

Of all the days that ~~was~~ the one

An age of reason ~~could~~ have begun.

In the Florentine ambassador's palace in Rome. Galileo's pupils are waiting for news. Federzoni and the little monk are

playing new-style chess with its sweeping moves. In one corner Virginia kneels saying the Ave Maria.

THE LITTLE MONK: The Pope wouldn't receive him. No more discussions about science.

FEDERZONI: That was his last hope. It's true what he told him years back in Rome when he was still Cardinal Barberini: We need you. Now they've got him.

ANDREA: They'll kill him. The Discorsi will never get finished.

FEDERZONI *gives him a covert look*: You think so?

ANDREA: Because he'll never recant.

Pause.

THE LITTLE MONK: You keep getting quite irrelevant thoughts when you can't sleep. Last night for instance I kept on thinking, he ought never to have left the Venetian Republic.

ANDREA: He couldn't write his book there.

FEDERZONI: And in Florence he couldn't publish it.

Pause.

THE LITTLE MONK: I also wondered if they'd let him keep his little stone he always carries in his pocket. His proving stone.

FEDERZONI: You don't wear pockets where they'll be taking him.

ANDREA *shouting*: They daren't do that! And even if they do he'll not recant. 'Someone who doesn't know the truth is just thick-headed. But someone who does know it and calls it a lie is a crook.'

FEDERZONI: I don't believe it either and I wouldn't want to go on living if he did it. But they do have the power.

ANDREA: Power can't achieve everything.

FEDERZONI: Perhaps not.

THE LITTLE MONK *softly*: This is his twenty-fourth day in prison. Yesterday was the chief hearing. And today they're sitting on it. *Aloud, as Andrea is listening*: That time I came to see him here two days after the decree we sat over there and he showed me the little Priapus by the sundial in the garden — you can see it from here — and he compared his own work with a poem by Horace which cannot be altered either. He talked about his sense of beauty, saying that was what

forced him to look for the truth. And he quoted the motto 'Hicne et acerate, et prope et procul, usque dum vivam et ultra'. And he was referring to truth.

ANDREA *to the little monk*: Have you told him the way he stood in the Collegium Romanum when they were resting his tube? Tell him! *The little monk shakes his head*. He behaved just as usual. He had his hands on his hams, thrust out his tummy and said 'I would like a bit of reason, please, gentlemen.'

Laughing, he imitates Galileo.

Pause.

ANDREA *referring to Virginia*: She is praying that he'll recant.

FEDERZONI: Leave her alone. She's been all confused ever since they spoke to her. They brought her father confessor down from Florence.

The individual from the Grand-Ducal palace in Florence enters.

INDIVIDUAL: Mr Galilei will be here shortly. He may need a bed.

FEDERZONI: Have they released him?

INDIVIDUAL: It is expected that Mr Galilei will recant around five o'clock at a full sitting of the Inquisition. The great bell of St Mark's will be rung and the text of his recantation will be proclaimed in public.

ANDREA: I don't believe it.

INDIVIDUAL: In view of the crowds in the streets Mr Galilei will be brought to the garden gate here at the back of the palace.

Exit.

ANDREA *suddenly in a loud voice*: The moon is an earth and has no light of its own. Likewise Venus has no light of its own and is like the earth and travels round the sun. And four moons revolve round the planet Jupiter which is on a level with the fixed stars and is unattached to any crystal sphere. And the sun is the centre of the cosmos and motionless, and the earth is not the centre and not motionless. And he is the one who showed us this.

THE LITTLE MONK: And no force will help them to make what has been seen unseen.

Silence.

FEDERZONI looks at the sundial in the garden. Five o'clock.

Virginia prays louder.

ANDREA: I can't wait any more. They're beheading the truth.

He puts his hands over his ears, as does the little monk. But the bell is not rung. After a pause filled only by Virginia's

~~first~~ murmured prayers, Federzoni shakes his head negatively.

The others let their hands drop.

FEDERZONI hoarsely: Nothing. It's three minutes past the hour.

ANDREA: He's holding out.

THE LITTLE MONK: He's not recanting.

FEDERZONI: No. Oh, how marvellous for us!

They embrace. They are ecstatically happy.

ANDREA: So force won't do the trick. There are some things it can't do. So stupidity has been defeated, it's not invulnerable. So man is not afraid of death.

FEDERZONI: This truly is the start of the age of knowledge. This is the hour of its birth. Imagine if he had recanted.

THE LITTLE MONK: I didn't say, but I was worried silly. O ye of little faith!

ANDREA: But I knew.

FEDERZONI: Like nightfall in the morning, it would have been.

ANDREA: As if the mountain had said 'I'm a lake'.

THE LITTLE MONK kneels down weeping: Lord, I thank thee.

ANDREA: But today everything is altered. Man, so tormented, is lifting his head and saying 'I can live'. Such a lot is won when even a single man gets to his feet and says No. At this moment the bell of Saint Mark's begins to toll. All stand rigid.

VIRGINIA gets up: The bell of Saint Mark's. He is not damned!

From the street outside we hear the crier reading Galileo's recantation:

CRIER'S VOICE: 'I, Galileo Galilei, teacher of mathematics and physics in Florence, abjure what I have taught, namely that

the sun is the centre of the cosmos and motionless and the earth is not the centre and not motionless. I foreswear, detest and curse, with sincere heart and unfeigned faith, all these errors and heresies as also any error and any further opinion repugnant to Holy Church.'

It grows dark.

When the light returns the bell is still tolling, but then stops.

Virginia has left. Galileo's pupils are still there.

FEDERZONI: You know, he never paid you for your work. You could never publish your own stuff or buy yourself new breeches. You stood for it because it was 'working for the sake of science'.

ANDREA loudly: Unhappy the land that has no heroes!

Galileo has entered, so completely changed by his trial as to be almost unrecognisable. He has heard Andrea's remark.

For a few moments he stands at the gate waiting to be greeted. When he is not, and his pupils back away from him, he goes slowly and, on account of his bad eyes, uncertainly forward till he finds a stool and sits down.

ANDREA: I can't look at him. Get him away.

FEDERZONI: Calm down.

ANDREA yells at Galileo: Wine-pump! Snail-eater! Did you save your precious skin? Sits down: I feel ill.

GALILEO quietly: Give him a glass of water.

The little monk fetches Andrea a glass of water from outside. The others do nothing about Galileo, who sits on his stool and listens. Outside the crier's voice can again be heard in the distance.

ANDREA: I think I can walk with a bit of help.

They escort him to the door. At this juncture Galileo starts to speak.

GALILEO: No. Unhappy the land where heroes are needed.

A reading before the curtain:

Is it not obvious that a horse falling from a height of three or four ells will break its legs, whereas a dog would not suffer any damage, nor would a cat from a height of eight or nine ells, nor a cricket from a tower nor an ant even if it were to fall from the moon? And just as smaller animals

are comparatively stronger than larger ones, so small plants too stand up better: an oak tree two hundred ells high cannot sustain its branches in the same proportion as a small oak tree, nor can nature let a horse grow as large as twenty horses or produce a giant ten times the size of man unless it changes all the proportions of the limbs and especially of the bones, which would have to be strengthened far beyond the size demanded by mere proportion. — The common assumption that large and small machines are equally durable is apparently erroneous.

Galileo. Discorsi.

14

1633—1642. Galileo Galilei lives in a house in the country near Florence, a prisoner of the Inquisition till he dies. The 'Discorsi'

A large room with table, leather chair and globe. Galileo, old now and half blind, is carefully experimenting with a bent wooden rail and a small ball of wood. In the antechamber sits a monk on guard. There is a knock at the door. The monk opens it and a peasant comes in carrying two plucked geese. Virginia emerges from the kitchen. She is now about forty years old.

THE PEASANT: They told me to deliver these.

VIRGINIA: Who? I didn't order any geese.

THE PEASANT: They told me to say it was someone passing through. Virginia looks at the geese in amazement. The monk takes them from her and examines them dubiously. Then he gives them back to her, satisfied, and she carries them by their necks to Galileo in the large room.

VIRGINIA: Somebody passing through has sent us a present.

GALILEO: What is it?

VIRGINIA: Can't you see?

GALILEO: No. *He walks over.* Geese. Any name on them?

VIRGINIA: No.

GALILEO *takes one of the geese from her.* Heavy. I could eat some of that.

VIRGINIA: Don't tell me you're hungry again; you've just had your supper. And what's wrong with your eyes this time? You should have been able to see them from where you are.

GALILEO: You're in the shadow.

VIRGINIA: I'm not in the shadow. *She takes the geese out.*

GALILEO: Put thyme with them, and apples.

VIRGINIA *to the monk*: We'll have to get the eye doctor in. Father couldn't see the geese from his table.

THE MONK: Not till I've cleared it with Monsignor Carpula. Has he been writing again?

VIRGINIA: No. He dictated his book to me, as you know. You've had pages 131 and 132, and those were the last.

THE MONK: He's an old fox.

VIRGINIA: He's doing nothing contrary to instructions. His repentance is genuine. I'll keep an eye on him. Tell them in the kitchen they're to fry the liver with an apple and an onion. *She goes back into the large room.* And now let's consider our eyes and leave that ball alone and dictate just a bit more of our weekly letter to the archbishop.

GALILEO: I'm not well enough. Read me some Horace.

VIRGINIA: Only last week Monsignor Carpula was telling me — and we owe him so much, you know; another lot of vegetables only the other day — that the archbishop keeps asking him what you think of those questions and quotations he sends you.

She has sat down to take dictation.

GALILEO: Where had I got to?

VIRGINIA: Section four: with respect to Holy Church's policy concerning the unrest in the Arsenal in Venice I agree with the attitude adopted by Cardinal Spoletti towards the disaffected rope-makers . . .

GALILEO: Yes. *He dictates:* I agree with the attitude adopted

by Cardinal Spoletti towards the disaffected rope-makers, namely that it is better to hand out soup to them in the name of Christian brotherly love than to pay them more for their hawsers and bell ropes. Especially as it seems wiser to encourage their faith rather than their acquisitiveness. The apostle Paul says 'Charity never faileth'. — How's that?

VIRGINIA: That's wonderful, Father.

GALILEO: You don't think a suspicion of irony might be read into it?

VIRGINIA: No, the archbishop will be delighted. He is so practical.

GALILEO: I trust your judgement. What's next?

VIRGINIA: A most beautiful saying: 'When I am weak then I am strong'.

GALILEO: No comment.

VIRGINIA: Why not?

GALILEO: What's next?

VIRGINIA: 'And to know the love of Christ, which passeth knowledge'. Saint Paul's Epistle to the Ephesians, iii, 19.

GALILEO: I am particularly grateful to your Eminence for the splendid quotation from the Epistle to the Ephesians. Stimulated by it I looked in our incomparable *Imitation* and found the following. *He quotes by heart*: 'He to whom speaketh the eternal word is free from much questioning.' May I take this opportunity to refer to my own affairs? I am still blamed for once having written an astronomical work in the language of the market-place. It was not my intention thereby to propose or approve the writing of books on infinitely more important matters, such as theology, in the jargon of pasta merchants. The argument for holding services in Latin — that it is a universal language and allows every nationality to hear holy mass in exactly the same way — seems to me a shade unfortunate in that our ever-present cynics might say this prevents any nationality from understanding the text. That sacred matters should be made cheaply understandable is something I can gladly do without. The church's Latin, which protects its eternal verities from the curiosity of the ignorant, inspires confidence when spoken by the priestly

sons of the lower classes in the accents of the appropriate local dialect. No, strike that out.

VIRGINIA: All of it?

GALILEO: Everything after pasta merchants.

There is a knock at the door. Virginia goes into the ante-chamber. The monk opens. It is Andrea Sarti. He is now a man in his middle years.

ANDREA: Good evening. I am leaving Italy to do research in Holland and they asked me to look him up on the way through so I can say how he is.

VIRGINIA: I don't know that he'll want to see you. You never came.

ANDREA: Ask him. *Galileo has recognised his voice. He sits motionless. Virginia goes in to him.*

GALILEO: Is that Andrea?

VIRGINIA: Yes. Shall I send him away?

GALILEO *after a moment*: Show him in.

Virginia brings Andrea in.

VIRGINIA *to the monk*: He's harmless. Used to be his pupil. So now he's his enemy.

GALILEO: Leave us, Virginia.

VIRGINIA: I want to hear what he's got to say. *She sits down.*

ANDREA *coolly*: How are you?

GALILEO: Come closer. What are you doing now? Tell us about your work. I'm told you're on hydraulics.

ANDREA: Fabricius in Amsterdam has commissioned me to inquire about your health.

Pause.

GALILEO: My health is good. They pay me every attention.

ANDREA: I am glad I can report that your health is good.

GALILEO: Fabricius will be glad to hear it. And you can tell him that I live in corresponding comfort. The depth of my repentance has earned me enough credit with my superiors to be permitted to conduct scientific studies on a modest scale under clerical supervision.

ANDREA: That's right. We too heard that the church is more than pleased with you. Your utter capitulation has been effective. We understand the authorities are happy to note

that not a single paper expounding new theories has been published in Italy since you toed the line.

GALILEO *listening*: Unhappily there are still countries not under the wing of the church. I'm afraid the condemned doctrines are being pursued there.

ANDREA: There too your recantation caused a setback most gratifying to the church.

GALILEO: Really? *Pause*. Nothing from Descartes? No news from Paris.

ANDREA: On the contrary. When he heard about your recantation he shoved his treatise on the nature of light away in a drawer.

Long pause.

GALILEO: I feel concern for certain scientific friends whom I led into error. Did they learn anything from my recantation?

ANDREA: The only way I can do research is by going to Holland. They won't permit the ox anything that Jove won't permit himself.

GALILEO: I see.

ANDREA: Federzoni is back to grinding lenses in some shop in Milan.

GALILEO *laughs*: He doesn't know Latin.

ANDREA: Fulganzio, our little monk, has given up science and gone back to the bosom of the church.

GALILEO: Yes. *Pause*.

GALILEO: My superiors hope to achieve a spiritual cure in my case too. I am progressing better than anyone expected.

ANDREA: Indeed.

VIRGINIA: The Lord be praised.

GALILEO *roughly*: See to the geese, Virginia.

Virginia goes out angrily. The monk speaks to her as she passes.

THE MONK: I don't like that man.

VIRGINIA: He's harmless. You heard them. *Walking away*: There's some fresh goats-milk cheese arrived.

The monk follows her out.

ANDREA: I have to travel all night if I'm to cross the frontier early tomorrow. May I go?

GALILEO: I don't know why you came, Sarti. Was it to unsettle me? I've been living prudently and thinking prudently since coming here. Even so I get relapses.

ANDREA: I have no wish to arouse you, Mr Galilei.

GALILEO: Barberini called it the itch. He wasn't entirely free of it himself. I've been writing again.

ANDREA: Indeed.

GALILEO: I finished the 'Discorsi'.

ANDREA: What? The 'Discourses Concerning Two New Sciences: Mechanics and Local Motion'? Here?

GALILEO: Oh, they let me have pens and paper. My masters aren't stupid. They realise that deeply engrained vices can't be snapped off just like that. They shield me from any undesirable consequences by locking the pages away as I write them.

ANDREA: O God!

GALILEO: Did you say something?

ANDREA: They're making you plough water. They allow you pens and paper to keep you quiet. How can you possibly write when you know that's the purpose?

GALILEO: Oh, I'm a creature of habit.

ANDREA: The 'Discorsi' in the hands of the monks! With Amsterdam and London and Prague all slaving for it!

GALILEO: I can hear Fabricius grumbling away, insisting on his pound of flesh, meanwhile sitting safe and sound himself in Amsterdam.

ANDREA: Two new branches of science as good as lost!

GALILEO: It will no doubt relieve him and one or two others to hear that I've been risking the last pathetic remnants of my own comfort by making a transcript, more or less behind my back, by squeezing the very last ounce of light out of each reasonably clear night for the past six months.

ANDREA: You've got a transcript?

GALILEO: So far my vanity has stopped me destroying it.

ANDREA: Where is it?

GALILEO: 'If thine eye offend thee, pluck it out'. Whoever wrote that knew more about comfort than me. I suppose it's

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the height of folly to part with it. However, as I haven't managed to keep clear of scientific work you people might as well have it. The transcript is inside that globe. Should you think of taking it to Holland you would of course have to bear the entire responsibility. In that case you would have bought it from someone who had access to the original in the Holy Office.

Andrea has gone to the globe. He takes out the transcript.

ANDREA: The 'Discorsi'! *He leafs through the manuscript.*

Reads: 'It is my purpose to establish an entirely new science in regard to a very old problem, namely, motion. By means of experiments I have discovered some of its properties, which are worth knowing.'

GALILEO: I had to do something with my time.

ANDREA: This will found a new physics.

GALILEO: Stuff it under your coat.

ANDREA: And we thought you had deserted! No voice against you was louder than mine!

GALILEO: Very proper. I taught you science and I denied the truth.

ANDREA: This alters everything. Everything.

GALILEO: Really?

ANDREA: You were hiding the truth. From the enemy. Even in matters of ethics you were centuries ahead of us.

GALILEO: Elaborate that, will you, Andrea?

ANDREA: Like the man in the street we said 'He'll die, but he'll never recant.' You came back: 'I've recanted, but I'm going to live.' — 'Your hands are stained', we said. You're saying: 'Better stained than empty'.

GALILEO: Better stained than empty. Sounds realistic. Sounds like me. New science, new ethics.

ANDREA: I of all people should have known. I was eleven when you sold another man's telescope to the Venetian Senate. And I saw you put that instrument to immortal use. Your friends shook their heads when you bowed to that boy in Florence: science gained an audience. Even then you used to laugh at heroes. 'People who suffer are boring,' you said. 'Misfortune comes from miscalculation'. And 'When there

are obstacles the shortest line between two points may be a crooked one.'

GALILEO: I remember.

ANDREA: So in '33 when you chose to recant a popular point in your doctrine I ought to have known that you were simply backing out of a hopeless political wrangle in order to get on with the real business of science.

GALILEO: Which is . . .

ANDREA: Studying the properties of motion, mother of those machines which alone are going to make the earth so good to live on that heaven can be cleared away.

GALILEO: Aha.

ANDREA: You gained the leisure to write a scientific work which could be written by nobody else. If you had ended up at the stake in a halo of flames the other side would have won.

GALILEO: They did win. And there is no scientific work that can only be written by one particular man.

ANDREA: Why did you recant, then?

GALILEO: I recanted because I was afraid of physical pain.

ANDREA: No!

GALILEO: They showed me the instruments.

ANDREA: So it wasn't planned?

GALILEO: It was not.

Pause.

ANDREA *loudly*: Science makes only one demand: contribution to science.

GALILEO: And I met it. Welcome to the gutter, brother in science and cousin in betrayal! Do you eat fish? I have fish. What stinks is not my fish but me. I sell out, you are a buyer.

O irresistible glimpse of the book, the sacred commodity! The mouth waters and curses drown. The great whore of Babylon, the murderous beast, the scarlet woman, opens her thighs and everything is altered. Blessed be our horse-trading, whitewashing, death-fearing community!

ANDREA: Fearing death is human. Human weaknesses don't matter to science.

GALILEO: Don't they? — My dear Sarti, even as I now am I

think I can still give you a tip or two as to what matters to that science you have dedicated yourself to.

A short pause.

GALILEO professorially, folding his hands over his stomach:

In my spare time, of which I have plenty, I have gone over my case and considered how it is going to be judged by that world of science of which I no longer count myself a member. Even a wool merchant has not only to buy cheap and sell dear but also to ensure that the wool trade continues unimpeded. The pursuit of science seems to me to demand particular courage in this respect. It deals in knowledge procured through doubt. Creating knowledge for all about all, it aims to turn all of us into doubters. Now the bulk of the population is kept by its princes, landlords and priests in a pearly haze of superstition and old saws which cloak what these people are up to. The poverty of the many is as old as the hills, and from pulpit and lecture platform we hear that it is as hard as the hills to get rid of. Our new art of doubting delighted the mass audience. They tore the telescope out of our hands and trained it on their tormentors, the princes, landlords and priests. These selfish and domineering men, having greedily exploited the fruits of science, found the cold eye of science had been turned on a primaeval but contrived poverty that could clearly be swept away if they were swept away themselves. They showered us with threats and bribes, irresistible to feeble souls. But can we deny ourselves to the crowd and still remain scientists? The movements of the heavenly bodies have become more comprehensible, but the peoples are as far as ever from calculating the moves of their rulers. The battle for a measurable heaven has been won thanks to doubt; but thanks to credulity the Rome housewife's battle for milk will be lost time and time again. Science, Sarti, is involved in both these battles. A human race which shambles around in a pearly haze of superstition and old saws, too ignorant to develop its own powers, will never be able to develop those powers of nature which you people are revealing to it. To what end are you working? Presumably for the principle that science's sole aim must be to

lighten the burden of human existence. If the scientists, brought to heel by self-interested rulers, limit themselves to piling up knowledge for knowledge's sake, then science can be crippled and your new machines will lead to nothing but new impositions. You may in due course discover all that there is to discover, and your progress will nonetheless be nothing but a progress away from mankind. The gap between you and it may one day become so wide that your cry of triumph at some new achievement will be echoed by a universal cry of horror. — As a scientist I had a unique opportunity. In my day astronomy emerged into the marketplace. Given this unique situation, if one man had put up a fight it might have had tremendous repercussions. Had I stood firm the scientists could have developed something like the doctors' Hippocratic oath, a vow to use their knowledge exclusively for mankind's benefit. ~~As things are~~, the best that can be hoped for is a race of inventive dwarfs who can be hired for any purpose. What's more, Sarti, I have come to the conclusion that I was never in any real danger. For a few years I was as strong as the authorities. And I handed my knowledge to those in power for them to use, fail to use, misuse — whatever best suited their objectives.

Virginia has entered with a dish and come to a standstill.

GALILEO: I betrayed my profession. A man who does what I did cannot be tolerated in the ranks of science.

VIRGINIA: You are accepted in the ranks of the faithful.

She moves on and puts the dish on the table.

GALILEO: Correct. — Now I must eat.

Andrea holds out his hand. Galileo sees the hand but does not take it.

GALILEO: You're a teacher yourself now. Can you afford to take a hand like mine? *He goes to the table.* Somebody passing through sent me some geese. I still enjoy eating.

ANDREA: So you no longer believe a new age has started?

GALILEO: On the contrary — Look out for yourself when you pass through Germany, with the truth under your coat.

ANDREA unable to tear himself away: About your opinion of the author we were talking about. I don't know how to

answer. But I cannot think your devastating analysis will be the last word.

GALILEO: Thank you very much, sir. *He begins eating.*

VIRGINIA escorting *Andrea out*: We don't like visitors from the past. They excite him.

Andrea leaves. Virginia comes back.

GALILEO: Got any idea who might have sent the gesees?

VIRGINIA: Not Andrea.

GALILEO: Perhaps not. What's the night like?

VIRGINIA *at the window*: Clear.

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Galileo's book, the 'Discorsi', crosses the Italian frontier

The great book o'er the border went
And, good folk, that was the end.

But we hope you'll keep in mind
He and I were left behind.

May you now guard science's light

Kindle it and use it right

Lest it be a flame to fall

Downward to consume us all.

Yes, us all.

Little Italian frontier town in the early morning. Children are playing by the barrier. Andrea, standing beside a coachman, is waiting to have his papers checked by the frontier guards. He is sitting on a small box reading Galileo's manuscript. On the other side of the barrier stands the coach.

THE CHILDREN sing:

Mary, Mary sat her down

Had a little old pink gown

Gown was shabby and bespattered.
But when chilly winter came
Gown went round her just the same.
Bespattered don't mean tattered.

THE FRONTIER GUARD: Why are you leaving Italy?

ANDREA: I'm a scholar.

THE FRONTIER GUARD to his clerk: Put under 'reason for leaving': scholar.

I must examine your luggage.

He does so.

THE FIRST BOY to *Andrea*: Better not sit there. *He points to the hut outside which Andrea is sitting.* There's a witch lives inside.

THE SECOND BOY: Old Marina's no witch.

THE FIRST BOY: Want me to twist your wrist?

THE THIRD BOY: Course she's one. She flies through the air at night.

THE FIRST BOY: And why won't anyone in the town let her have a jug of milk even, if she's not a witch?

THE SECOND BOY: Who says she flies through the air? It can't be done. *To Andrea*: Can it?

THE FIRST BOY referring to the second: That's Giuseppe. He doesn't know a thing because he doesn't go to school because his trousers need patching.

THE FRONTIER GUARD: What's that book you've got?

ANDREA without looking up: It's by Aristotle, the great philosopher.

THE FRONTIER GUARD suspiciously: Who's he when he's at home?

ANDREA: He's been dead for years.

The boys mock Andrea's reading by walking round as if they were meanwhile reading books.

THE FRONTIER GUARD to the clerk: Have a look if there's anything about religion in it.

THE CLERK turning the pages: I can't see nothing.

THE FRONTIER GUARD: All this searching's a bit of a waste of time anyway. Nobody who wanted to hide something would

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X put it under our noses like that. To Andrea: You're to sign that we've examined it all.

Andrea gets up reluctantly and accompanies the frontier guard into the house, still reading.

THE THIRD BOY to the clerk, pointing at the box: There's that too, see?

THE CLERK: Wasn't it there before?

THE THIRD BOY: The devil put it there. It's a box.

THE SECOND BOY: No, it belongs to that foreigner.

THE THIRD BOY: I wouldn't touch it. She put the evil eye on old Passi's horses. I looked through the hole in the roof made by the blizzard and heard them coughing.

X THE CLERK who was almost at the box, hesitates and turns back: Devil's tricks, what? Well, we can't check everything. We'd never get done.

Andrea comes back with a jug of milk. He sits down on the box once more and goes on reading.

THE FRONTIER GUARD following him with papers: Shut the boxes. Is that everything?

THE CLERK: Yes.

THE SECOND BOY to Andrea: So you're a scholar. Tell us, can people fly through the air?

ANDREA: Wait a moment.

THE FRONTIER GUARD: You can go through. The coachman has taken the luggage. Andrea picks up the box and is about to go.

THE FRONTIER GUARD: Halt! What's in that box?

ANDREA taking up his book again: Books.

THE FIRST BOY: It's the witch's.

THE FRONTIER GUARD: Nonsense. How could she bewitch a box?

THE THIRD BOY: She could if the devil helped.
THE FRONTIER GUARD laughs: That wouldn't work here.
To the clerk: Open it.
The box is opened.
THE FRONTIER GUARD unenthusiastically: How many are there?
ANDREA: Thirty-four.

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THE FRONTIER GUARD to the clerk: How long will they take to go through?

THE CLERK who has begun superficially rummaging through the box: Nothing but printed stuff. It'll mean you miss your breakfast, and when am I going to get over to Passi's stables to collect the road tax due on the sale of his house if I'm to go through this lot?

THE FRONTIER GUARD: Right, we need that money. He kicks at the books: After all, what can there be in those?

To the coachman: Off with you!

Andrea crosses the frontier with the coachman carrying the box. Once across, he puts Galileo's manuscript in his travelling bag.

THE THIRD BOY points at the jug which Andrea has left behind: Look!

THE FIRST BOY: The box has gone too! Didn't I tell you it was the devil?

ANDREA turning round: No, it was me. You should learn to use your eyes. The milk's paid for, the jug too. The old woman can keep it. Oh, and I didn't answer your question, Giuseppe. People can't fly through the air on a stick. It'd have to have a machine on it, to say the least. But there's no machine like that so far. Maybe there never will be, as a human being's too heavy. But of course one never knows. There are a lot of things we don't know yet, Giuseppe. We're really just at the beginning.

CLARE BENT