

SCOTT MACKAY

THE SAGES OF CASSIOPEIA

ON A CLEAR COLD NOVEMBER night in 1572, near the town of Knudstrup in Denmark, Tycho Brahe, one of the last great naked-eye astronomers, stood on the west tower of his uncle's abbey, Herritzvad, gazing up at the sky. He took his eye away from his sextant and glanced at his brother Magnus. Magnus swept the stone floor, his mongoloid eyes staring at the dying embers in the grate, his breath frosting over in the frigid air.

"Magnus," called Tycho. "I've discovered a new star. Come see for yourself. It outshines Venus."

Magnus didn't look up. His idiot brother continued to sweep the same spot of stone floor, his red hair shaggy over his flattened skull, his eyes good-natured but dull. If only he would do something useful, like build the fire, fetch some warm spiced wine, or empty the chamber pot. I have studied at Copenhagen, Leipzig Rostock, and Augsburg have given lectures by royal command to King Frederick and his court. And I ask myself, can this unfortunate dunce be my sibling?

Tycho turned back to his sextant and looked up at the newly luminous object shining brightly among the murkier stars of Cassiopeia. How far is this new star away from the earth? Is it part of the great cogwheel of planets that rolls around the earth, or is it perched somewhere between the moon and the sun? Tycho lifted his quill and made a notation. Position unchanged. How to explain this phenomenon? Was it something that might confirm his own careful notion of the universe, that the sun revolved around the earth, that the planets revolved around the sun, that together the sun and the planets rolled like a big wheel through the sky with earth as its hub?

Behind him, Magnus stopped sweeping. Tycho put his quill down and turned around.

Magnus leaned the broom against the wall and lumbered over to the fire. He lifted the iron poker and stirred the embers, showing unexpected initiative, took a few small pieces of firewood and piled them in an intricate cat's cradle. Tycho dropped his quill and took a few steps forward, forgetting about the new star. Was this his brother, the same unfortunate soul he had to feed and clothe every morning the same dullard who had never spoken an intelligible word in his life, and who didn't have the manual dexterity to fit his own cod-piece? Was this Magnus, building this well-designed and thoughtful palace of wood?

Magnus leaned forward and blew on the embers, coaxing the flames. Was it a miracle? Magnus stirred the embers again, turning them the way a baker folds currants into a pudding his fingers, for the first time ever, nimble and careful. The fire sprang up, licked the fresh wood, then cracked and popped. The light of the fire played over Magnus' freckled face, danced in his mongoloid

eyes, rippled through his carrot orange hair. Was this God's fair hand at work,  
a divine intervention turning a fool into a sage?

Tycho put his hand on his brother's shoulder. Magnus looked up at Tycho, and in  
the idiot's eyes the mist of stupidity lifted, and a brother's recognition,  
love, and devotion took their rightful place. Tycho leaned forward.

"Magnus?" he said.

Magnus got up, straightened his shoulders, stood to his full height, and  
walked,  
not lumbered, to the sextant. With unexpected delicacy he put his eye to the  
instrument. Tycho stood back, his blood running lightly through his body,  
tickling his heart with anticipation. The idiot worked his lips back and  
forth.  
Then he looked at Tycho, his eyes bright with discovery.

"Venus?" said Magnus.

His brother's first word; so fitting it should be the name of earth's sister  
planet. Tears came to Tycho's eyes. This was a miracle. Nothing like this had  
ever happened in Knudstrup before.

"No, Magnus," he said. "Not Venus. A new star in the Cassiopeia constellation.  
But you will learn, dear brother. You will learn everything I know."

Tycho sat on the hard uncomfortable chair across from Bishop Anders, feeling  
out  
of place in these holy chambers, uneasy, as if the mounted stag's head above  
the  
large and never extinguished fire watched him. Despite the bright day and  
unseasonable warmth, the shutters remained closed. The bishop wore his  
heaviest  
black robe. Tycho was here to show the old man his latest astronomical notes.  
The bishop was an important man, the king's envoy in this province of Scania,  
and if Tycho could please the king through Bishop Anders, his work would  
continue unhindered, and with royal sanction.

The bishop pushed the sheets aside, his brow knitting. He got up, ambled over  
to  
the fire, and stirred the embers with the poker. The fire danced from the  
ashes,  
casting unruly shadows on the rafters. So prudent to please the court, and  
more  
importantly, the Church, even after the Reformation, especially because he was  
a  
Lutheran in Catholic territory. But what, exactly, pleased Bishop Anders?  
Bishop  
Anders preached frugality and sacrifice from the pulpit, yet lived like a  
prince  
and allowed the brothers of the order to eat red meat every day. How was one  
to  
reconcile the stag's head mounted on the wall with the figure of Christ on the  
Crucifix next to the window? Truly a puzzling man, an unpredictable and  
unpleasant man, a man who had always envied the house of Brahe. The bishop  
turned from the fire.

"Circles and numbers and endless observations," said Bishop Anders. "A truly

meticulous account of Our Lord's universe." He walked to the table and shuffled through the sheets. "But this here," he said, pointing, "where you mention Kopernik of Cracow. Why must you do that? Everyone knows he was damned as a heretical fool. His work is no better than the scrawl of a madman."

"Your Holiness, I mention Kopernik because of the discrepancies he discovered in Ptolemy's system. Certainly he was misguided to claim the sun resides at the center of the universe, but perhaps you haven't fully understood my final calculations," said Tycho. "You'll see that I've explained Kopernik's inconsistencies while keeping earth in its true and proper place."

"I don't care about your calculations, Lord Brahe," said the bishop. "I care about your soul. And I sometimes fear the way of science leads directly to the Devil. Is it not better to behold and worship God's miracles? Everything you need to know is written here." The bishop tapped the thick Bible on the table. "Let us not question God's wisdom in putting the earth in the center of the universe. Let us not question this new star in the sky, for there was once a star over Bethlehem with the same benign radiance. Let us not question how your brother has gained reason or how the widow Huitfeldt's Peder has been touched with intelligence. These are miracles, Lord Brahe, and to pursue them with scientific study shows ill judgment and a temperament hardly attuned to the truer course of prayer."

The Brahe brothers walked through the village of Knudstrup, Tycho on his mare, Magnus leading the horse by a rope. As they neared the canal, the village bullies emerged from behind the embankment and pelted Magnus with mud and cow dung, laughing, shrieking with cruel glee.

"Be gone with you, wretched curs," cried Tycho, drawing his sword.

Much to Tycho's surprise, Magnus darted away from the horse. The boys stood there with terror in their eyes. Magnus grabbed two of the biggest, dragged them kicking and screaming to the embankment wall, and, using his ox-like strength, pitched them into the canal. The others scattered like wheat chaff in the wind while the two wet culprits sputtered for breath and pulled themselves up onto the muddy bank. Magnus turned to Tycho.

"A chilly immersion for these we'er-do-well knaves," he said, laughing.

"For all the cripples they've stoned and all the idiots they've scoffed."

"Dear brother, are you truly Magnus?"

"Of Herritzvad Abbey, the simple sibling of the great Tycho. My beloved Tyge, who knows the secret clockwork of the stars."

"Yes, but not as simple as before. The Holy Father has blessed me, Magnus. I've found a new star, and I've found a new brother."

They walked past the village common, where the grass had turned brown and the hoar-frost bearded the brambles in the far thicket. Magnus strode along beside the horse, a new man, refashioned into the brother Tycho had never had, his eyes quick, full of purpose, his face rosy in the morning cold. Off to see the widow

Huitfeldt, because she, too, had been blessed by this miracle. Tycho had to see it for himself, had to know that the widow Huitfeldt's idiot son Peder had been touched by the same hand of reason. Tycho had to see it because if the light of intelligence had finally come to Peder Huitfeldt, then Tycho could embrace, without secret doubt, the miraculous transformation of his brother.

"Then it is not Venus, Tyge?" asked Magnus.

And yet was this intelligence, to pick up the strain of a conversation days old, with no proper reference, to dive right in and expect the listener to follow?

"No, Magnus, not Venus. Venus roams across the sky and this new star is fixed. What we see each night in the constellation of Cassiopeia is not only a new star, but a new kind of star."

"But why doesn't this star move like Venus, Mars, or Jupiter? Why must it be shackled to the sky like a prisoner, and not free to roam like its brothers and sisters?"

"Magnus, I believe this new star must make its home in the celestial globe, beyond the endless round of the sun, the moon, and the planets, and that it is affixed to this globe like all the other stars."

"Brother Tyge, perhaps this new star is not a star at all; perhaps it floats just beyond the ether and watches us. Perhaps this silver smudge in the heavens may be the Holy Creator's eye."

Tycho smiled. The light of intelligence may have touched his brother Magnus, but in many ways he was still a child, naive and precocious, eager to jump to swift conclusions in order to avoid careful study and observation. Yet even the most far-fetched speculations couldn't be dismissed at this early stage; if the Holy Maker's hand could so change his brother, why couldn't His eye hover just above the ether? Had there ever been an object like this before? The solar eclipse of 1560, which so inspired his interest in astronomy, now seemed commonplace. The conjunction of Saturn and Jupiter in 1563, which had determined the nature of his life's work, was of no significance when compared to this strangest and most brilliant of celestial objects. Only rigorous measurement would insure an explanation.

"Brother Magnus, your devotion is strong and deep, but let us not allow our religious fervor to overrule a more reasonable approach. We shall wait and see. The star shall make itself known."

"But Tyge, believe me when I tell you, this is not a star. It is an eye. And it watches us, even when we sleep in our beds."

"We shall see, Magnus, we shall see."

They passed the tanner's, the cart-wright's, and the silk weaver's, and soon came to the widow Huitfeldt's thatched roof cottage at the edge of the village.

Peder stood outside with a large staff in his hand, gazing at the sun, and the moment Tycho saw him, he knew it was true, that the imbecile's torpor had been lifted by the same divine hand that had so graced his brother, and that Peder now observed the world with keen quick eyes. As Peder heard their horse approach, he turned from the sunrise, and when he saw Tycho, sank to one knee and doffed his hat, in homage to the astronomer's noble rank.

"Rise, Peder," called Tycho. "I see with my own eyes the change God has wrought in you. The bishop tells me you have been blessed with the full use of your faculties, and that you have been conducting experiments on the movements of the sun."

Peder and Magnus acknowledged each other with a silent nod, as if they belonged to a guild of freemasons, or some such other secret society; joined by this common miracle, they were brothers in their new-found intelligence. How strange to see the folds of Cathay lidding their eyes, yet the mist of the fool wiped clear.

"I have measured here with my staff the angle at which the sun's light falls upon the earth," said Peder, talking not to Tycho but to Magnus. "See here with these strokes in the ground the way the angle widens from yonder plane tree as the sun daily retreats south. Witness the leaves of yonder tree; they lie on the grass, yellow and brown, and as brittle as egg shell. The nights are long the days short, and the wind blows cold from the northwest. I sense a change of season."

"Your observations are correct, Peder. Winter is only weeks away," explained Tycho.

"But can the seasons be so short?" asked Peder, again addressing Magnus. "What of the wheat in the field? Will it have time to ripen? Surely we shall starve."

They were like children, discovering the world for the first time, visitors from the realm of idiocy, observing the earth without reference, unable to connect the pieces in any meaningful way, drawing false conclusions from reasonable conjecture.

"Have no fear, Peder," said Tycho. "Perhaps in less fortunate kingdoms the subjects may starve. But here in Denmark we've always made sufficient provision for winter."

"Perhaps it is the tilt," said Magnus.

"Aye, Magnus," said Peder. "I suspect this orb spins a-kilter on its axis."

"Aye, Peder," said Magnus, "but what of Ptolemy?"

"Now, see here," said Tycho, interrupting. "You haven't read the thirteen books of Ptolemy's Almagest, have you, so please desist." Talking of astronomy, his voice took on an imperious tone. "The earth doesn't spin. The earth sits motionless in the center of the universe. It does not tilt. Claudius Ptolemy was at least right about that."

The two simpletons gazed at each other. Neither of you understands me, thought Tycho. As much as he loved his brother, as much as his brother shared his same profound interest in astronomy, he couldn't expect Magnus to immediately comprehend the complex workings of the universe in the few months since the appearance of the new star.

IN LATE MAY, Tycho and Magnus, ever in the pursuit of scientific curiosity, traveled to the asylum at Skokloster. The carriage bounced over the road, hitting pot-holes and ruts carved out by the spring rain. Four mounted squires

in chain-mail, armed with battle swords for the protection of Tycho and his brother, shared coarse jests and oaths as they rode their chargers on either side of the carriage. Tycho found it insufferable. Yet this noise, this bone-shaking ride didn't distract his brother -- a great tome lay open upon his lap, the revered Ptolemy's Almagest. As they crossed the bridge over the River Skern, and the drab stone walls and towers of Skokloster came into view, Magnus turned the last page and put the heavy book aside. He looked up at Tycho, lifted his knuckle to his mouth, and nibbled, as if he were preoccupied with a great worry.

"You are right, Tyge, his system is faulted. Why does he worship the perfect circle as if it were a deity? He wears the Aristotelian cosmology like a shackle, clings to it like a wet-nurse, feeds upon its milk of false assumptions, and postulates the most unlikely machinery of epicycle, deferent, and equant. The universe must be far simpler than this."

"And how do you propose the planets move, Magnus? In perfect squares?"

"You tease me, brother. But you must see this weakness: if my thumb is long, I will make a bigger glove; if my planet strays, I will make a larger epicycle, or perhaps shrink my deferent; if the wayward path continues, I will happily explain all with my equant. I have forty wheels, and I can fit my forty wheels to anything I see. No, Tyge, I fear Ptolemy was less interested in a single ultimate truth than in reconciling the suspect Aristotelian cosmology with the things he saw."

"Your raw intelligence needs to be tempered by wisdom and experience, Magnus," said Tycho. "You must understand that compromise, especially when it comes to scientific enquiry, is always the most reasonable approach. No doubt the intricacies of Ptolemy's system at times seem labored. Kopernik of Cracow, on the other hand, has nothing but heretical speculation and only twenty-seven of the most inexact observations. The answer lies somewhere in between. I am at present drafting my own system, a compromise between old and new, the best and most reasonable course."

"As you say, brother. But let us watch the way the eye in the sky watches," he said, gesturing out the carriage window at the new star, which now burned even

during the daylight hours. "Then we shall know the truth."

"Magnus, it's not an eye. Why do you insist on that?"

"Tyge, it's an eye, and it watches us."

Such are the notions of fools. But he had a tender heart for his brother, and gladly tolerated the occasional nonsense that came out of his mouth.

The carriage came to a stop in front of the asylum. The doorkeeper let them through. And Tycho saw that all the rumors were true, that wit, sense, and logic

had come to these inmates of Skokloster, that the benign radiance of Cassiopeia's star had set them free of their delusions and nightmares.

Skokloster's turnkey no longer bothered with leg-irons or any of the other customary restraints used to safeguard the public from the unpredictable antics

of madmen. The inmates wandered freely, conversed in small groups, their words scholarly and gentle, as if this weren't the madmen's pen but the quadrangle at

the university in Rostock. Some sat at tables, quills scribbling, making notes,

puzzling through calculations, recording observations, while a group of others gazed at the new star as if, like Magnus, they understood its exact nature. A few others, huddled in their rags atop the archway leading to the stable, dropped object after object -- first a rooster's head, then an apple core, then

a rusted cannon ball -- into the small alley below, recording on a slate tablet

the speed and manner with which each one fell.

So it was true of Skokloster as well. And everywhere in Denmark it was the same.

Fools and madmen waking up for the first time in their lives. All displayed the

same observational zeal and scientific curiosity, just like Magnus. But if you were to ask any of them about the new star, they all had the same answer. That it watched earth. That it wasn't a star but an eye.

A year later, in June of 1574, the new star no longer shone so brightly. Tycho and Magnus sat at a groaning board up in the abbey's west tower enjoying a midnight repast of wild thrush stuffed with sage and bread crumbs, figs with salami, and warm beer sweetened with honey. Magnus, no longer dressed in coarse

woolens but in the stylish finery befitting a young lord, studied Tycho's latest

notes. You will learn, brother Magnus. You will learn everything I know-- and so

it had come to pass. Magnus collected the sheets, straightened them, put them on

the table, and looked up at Tycho.

"Tyge . . ." he said. He faltered. "Tyge, you are my brother and I love you. I'm glad we've spent these eighteen months together. You have taught me much." Magnus pushed his plate away, as if he were no longer hungry, as if what he were

trying to tell Tycho caused him a great deal of distress. "Your observational genius I will never doubt. You understand the worth of measurement such as no scientist ever has. But science is more than just measurement, Tyge. You

should

not so quickly dismiss Kopernik's idea. The Polish monk is right. The earth roams. Why shouldn't it roam? Why must it cling to the center of the universe the way you cling to the old Aristotelian cosmology?"

Tycho felt the blood spreading through his face. "The earth doesn't move," he said. "The earth is like the hub of the miller's wheel, silent, still, and majestic."

"But what about the way Mars has behaved over the last few weeks?"

Tycho looked at his brother, his eyes growing wide. "Yes, a most interesting back-tracking. And you can see here in the final pages of this draft just how I've accounted for these rogue movements of the red planet."

"You've built a castle of Ptolemaic mathematics to explain something a child should understand. Let old Sol act as a maypole. Let Earth roam like its Jovian brothers and sisters."

"A child's explanation can never map the complexities of the universe, Magnus. This hurried work of Kopernik's is pretty, and has a geometric appeal, but unfortunately is insupportable, even with my current observations."

"But what of Mars? Not even your accommodating system can account for this curious retrograde we see nightly. Come. Let us look again. The air is mild. It is a fine night for the play of planets."

They left the table and climbed the few steps to the turret. The air smelled of lilac, an owl hooted somewhere off in the wood, and the starry heavens arched above them in a moonless night. Two sextants, one clamped in the position of Casseopeia's new star, one unclamped and ready to follow the movements of the planets, stood against the parapet.

"Tyge, you have done all the work," said Magnus. "You have made hundreds upon hundreds of your own personal observations with the finest instruments yet available. I love you, Tyge. I will never forget the time I've spent with you. And when I go I will always remember you."

"Brother, you utter the words of a fool. What is this leave-taking you speak of? We will be together. Always. I know we will."

"Tyge, listen to me. The eye in the sky grows dim and I haven't much time. Must the world remember the noble Brahe of Knudstrup as the man who could see only with his eyes and not with his mind? Your system has many ponderous incongruities. The geometric center of your universe is badly placed. Your planets swirl and strut like a band of drunkards, careen and spin like acrobats, all to support the dim notion that the earth is at the center of the universe. I love you, Tyge, you have been the best of brothers, so please . . . please, listen to me."

"Are you again losing your reason, brother Magnus?"

Magnus put his eye to the second sextant. He turned to Tycho and rested his



hand  
on his brother's shoulder.

"Remember your brother as you see him now," said Magnus. "Remember what I tell you. The sun resides in the center of the universe. Earth revolves around the sun, along with the planets, moves not in a circular orbit but in an ellipse, rotates once a day, and provides the geometric center for only the moon's orbit.

All the idiots of Casseopeia agree on this. Please. Take another look at the red planet and you will see that I speak the truth. It is with a brother's love I wish for you a more proper understanding. Aristotle is dead. Ptolemy is dead. But if you just take another look at Mars, Tycho Brahe will live forever."

"Why do you stand like that, Magnus, with your shoulders showing the stoop of the simpleton? And why has your face gone so pale?"

"Please, Tyge, one more look at ancient Ares, and you will see his movements can only be explained by the Polish monk's configurations."

They gazed at each other. Tycho had never seen Magnus so desperate. He looked like a man about to face the gibbet. What could he do but humor his beloved brother?

He put his eye to the sextant and discovered that since last night's observation, Mars had moved in retrograde several degrees of an arc. Tycho adjusted the sextant and clamped it. The warrior planet shone like a red ember in the midnight sky, brightly and more persistently than ever. Tycho began to see that this newly observed luminosity had to have a reason, that this brightness worked hand in hand with the backward tracking, smoothly and simply, not with the swirl and strut of a drunkard, but with the even-kiltered grace of a ship on settled waters. This rogue movement couldn't be explained with the tangled mathematics of Ptolemy, but maybe, after all, with the child-like precepts of the Polish monk. How simple it now seemed. How beautiful and exalted. At last he saw it, not only with his eyes, but with his mind. The holy clockwork of the heavens as it really was, not as a castle of far-fetched calculations.

But then he heard a broom behind him, and in that same instant, the light of the new star finally went out. He turned around and saw his brother sweeping the same bit of stone floor over and over again, the spark of reason gone from his mongoloid eyes. Gone, all gone in an instant, his beloved brother, again banished to his tormented life of nightmares and delusions, his body again twisted out of shape. "Magnus?" said Tycho, taking a few steps forward. "Magnus, where have you gone? Please, dear Magnus, come hither. Do not leave me."

But Magnus stood there and swept, gazing at the dull dark spot where the star of Casseopeia so recently shone. Then calmly, deliberately, he urinated in his silk hosiery.

The bishop's palace loomed dark against the moonlight, its towers jagged and imposing, the crenellations of its battlements like teeth. Here, on this stony

and barren approach near the sea, the wind never stopped and nothing but a few patches of yellow grass clung to the sparse top-soil. Tycho, as always, looked up at the sky. Magnus led his horse toward the palace gates. His brother should have stayed at Herritzvad Abbey. Storm clouds moved in from the north and he and Magnus would get drenched coming home. But there was nothing the simpleton liked better than to lead the horse by the rope, and a little rain would never harm him.

Magnus stopped the horse outside the gate. Tycho dismounted, knowing full well why the bishop had sent for him in the middle of the night: his revised system, amended to include many of the principles Magnus had clarified, had met with displeasure at the court.

He pounded at the door with the large iron knocker. One of the brothers of the order, wearing a black skull-cap, let them in. Magnus led the horse to a pile of hay just inside the palace walls and stood in the dark, obedient and silent, ill-at-ease, while the horse ate. Tycho followed the brother into the large hall, where the finest tapestries from Persia hung on the walls and smoky torches cast fitful shadows over the rough floor. He followed the brother down the passage to the bishop's chambers. The brother gave him one last look, as if he were an object of curiosity and pity, then pushed the heavy oak door open.

The bishop stood in front of the fire with his back to Tycho, his black robe darker than the surrounding gloom. Something fluttered up in the rafters. Outside, the wind, gaining strength, moaned over the rocks and through the turrets, and a few large drops fell against the shutters.

"I have prayed for you, Lord Brahe," said the bishop, keeping his back to the astronomer, his voice grave. "I have asked the Divine Creator to forgive you your trespass and blasphemy, and to bless you with His holy guidance. I have asked Him to lead you to a better understanding of His true design." The bishop turned around. He advanced to the table and lifted a sheaf of papers. "I cannot permit this," he said. "You haven't evaluated the evidence as a true scientist should. Would a true scientist allow the sun to reside at the center of the universe? I fear you must undertake a serious revision, Lord Brahe, if you are to align your work with the principles of the Holy Maker."

With his method and observations called into doubt by the bishop's unswerving views, Tycho at last understood the breadth and darkness of the gulf that stood between them; but he must try and bridge that chasm, to make the bishop understand that there was indeed a place for empirical measurement in science.

"Your Holiness," he said, as calmly as he could, "I believe you'll see by my latest calculations, especially those describing the motions of the warrior planet, that the discrepancies so shrewdly detailed in Kopernik's *De revolutionibus* can only be explained by --"

"We are not here to discuss your explanations and calculations, Lord Brahe," said the bishop, raising his hand. "Kopernik made a better canon than he did a scientist, and his heretical notions are of no value or relevance. We are now concerned with your soul."

The bishop dropped the sheaf of paper on the table, his skin stretched like parchment over his bony face as he held the astronomer's gaze. Out in the passage, Tycho heard doleful plainsong emanate from the palace chapel, the brothers joining in a lugubrious chant, praising their Almighty God with a dark and unvarying melody.

"Your Holiness, all my hundreds of observations support Kopernik's heliocentric theory."

"Do not talk to me of heliocentricity," said the bishop. "Let us concern ourselves with your salvation, Lord Brahe. Let us concern ourselves with your Uncle Steen's estate here in Knudstrup and how by royal order, Herritzvad Abbey could be confiscated, just as it was once so easily confiscated from the Benedictine monks. Let us concern ourselves with your mother Beate and her position as Mistress of the Robes to Queen Sophia, and how she could be so easily dismissed if her son were to persist in this blasphemy."

The bishop turned away from Tycho, walked over to the fire, and stirred the embers until the flames leapt up the flue, the wood cracking and popping like the breaking of bones. The confiscation of Herritzvad Abbey from the Benedictine monks still rankled the old bishop, even though it had happened many years ago.

Tycho felt like stalking the bishop against the back of his head with the flat of his sword, but he kept his weapon sheathed, and stiffened his resolve.

"I will not be coerced," he said, his voice quiet but firm.

Bishop Anders turned from the fire, his eyes as grim as death. "Lord Brahe, this is not coercion, this is guidance," he said, approaching the table. "We can't have you gain-saying the age-old doctrines of the Church." He lifted the hot poker toward Tycho's face and held it a few inches from the astronomer's right eye. "I won't have the power and prestige of my diocese undercut by a mischievous Lutheran who thinks he understands the heavens better than I do."

"And you have the king's blessing in this?"

"I have the king's blessing in everything," he said, lowering the poker. "Heliocentricity! And the earth to roam like a common vagabond? These are the notions of a madman." The bishop leaned forward, pinning him with his rheumy blue eyes. "And do you know what we do with madmen, Lord Brahe? We put them in leg-irons and lock them in the darkest cell at Skokloster where they never see the stars again."

TYCHO FOUND his brother Magnus standing in the rain next to his horse in exactly the same spot, as if he were unaware of the downpour. Tycho trudged across the yard, numbed by the injustice, struggling to think of a way out; but if he insisted on telling the truth, such as Magnus had revealed it, he would never see the stars again. The bishop was unpredictable and unpleasant; he was also diabolical. If Tycho told the truth he would bring ruin to his uncle and mother.

And he couldn't do that, even if as a result his work suffered.

Magnus looked sodden and miserable; but, oh, how Tycho loved him. He took off

his cape and swung it around the simpleton's shoulders.

"You ride, Magnus," he said. "I'll lead."

He slapped the saddle and gestured. Magnus' eyes lit up. He liked riding the horse even more than he enjoyed leading it.

They set off from the bishop's palace into the midnight storm. Tycho looked up at the sky; no moon, no stars, no planets, a typical view from the darkest cell at Skokloster asylum. He glanced over his shoulder at Magnus. Coerced. Yet as he looked at his brother, he now had the glimmering of an idea, the half-formed notion of a way out. His step lightened as he marveled at the simplicity of his idea, so simple even a fool could think of it.

He didn't have to tell the truth. All he had to do was show the truth. He would make thousands upon thousands of observations, design and manufacture the finest and most accurate astronomical instruments, find a place far away from the court, far away from this diocese, an island, perhaps, where the ether was clear and the stars beautiful and wondrous, and continue his work undisturbed. So many observations that those who could see with their eyes as well as their minds would come to one inescapable conclusion. He didn't have to tell them. His observations would speak for themselves. His observations wouldn't lie, the way Bishop Anders lied. He would watch and watch, and his brother's season of intelligence would not be wasted, nor the sages of Cassiopeia forgotten. Those who saw with their eyes as well as their minds would understand that Brahe of Knudstrup knew the truth, the heretical, immutable, exalted truth: that the earth roamed with its sister and brother planets like a vagabond and that the sun resided at the center of the universe in all its shining glory.

He turned to Magnus, a smile coming to his face. "I am an eye, brother Magnus," he said. "And I watch." He looked up at the stormy sky. "I watch."