Journey to the Centre of the Earth

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On 24 May 1863, a Sunday, my uncle, Professor Lidenbrock, came rushing back towards his little house at No. 19 Königstrasse, one of the oldest streets in the historic part of Hamburg.

Martha the maid must have thought she was running very late, for dinner had hardly begun to simmer on the kitchen range.

'H'm,' I said to myself. 'If my uncle is hungry, he'll shout out his annoyance, for he is the most impatient of men.'

'Professor Lidenbrock here already!' Martha exclaimed in amazement, half-opening the dining-room door.

'Yes, indeed. But dinner has every right not to be cooked, for it's not two o'clock yet. It's only just struck the half-hour on St Michael's.'

'Then why has Professor Lidenbrock come back?'

'Presumably he will tell us.'

'Here he is: I'm off, Master Axel. You *will* make him see reason, won't you?'

And the good Martha disappeared back into her culinary laboratory.

I remained alone. But to make the worst-tempered of professors see reason did not seem possible, given my slightly indecisive character. So I was getting ready for a prudent retreat to my little bedroom at the top of the house, when the front door groaned on its hinges. Large feet made the wooden staircase creak, and the master of the house came through the dining-room and burst into his study.

On his hurried way through, though, he had thrown his nutcracker-head cane in the corner, his broad hat brushed up the wrong way on the table, and ringing words to his nephew:

'Axel, I'm here!'

I hadn't had time to move before the professor shouted again, in a most impatient voice:

'We-ell? Are you not here yet?'

I rushed into my formidable master's study.

Otto Lidenbrock was not a bad man, I will gladly concede. But unless changes happen to him, which is highly unlikely, he will die a terrible eccentric.

He was a professor at the Johanneum, and gave a course on mineralogy, during which he normally got angry at least once or twice. Not that

he was worried whether his students were assiduous at his lectures, or whether they paid attention, or whether they were successful later: he hardly bothered with these details. He lectured 'subjectively', to use the expression from German philosophy, for himself and not for others. He was a learned egoist and a selfish scholar, a well of science whose handle groaned whenever someone wanted to draw something out of it: in a word, a miser.

In Germany there are one or two professors like this.

Unfortunately my uncle suffered from a slight pronunciation problem, if not in private, at least when speaking in public: a regrettable handicap for an orator. Thus, during his demonstrations at the Johanneum, often the professor would stop short. He would struggle with a recalcitrant word which his mouth refused to pronounce, one of those words which resist, swell up, and end up coming out in the unscientific form of a swear-word. Then he would get very angry.

Now, in mineralogy there are many learned words, half-Greek, half-Latin, and always difficult to pronounce, many unpolished terms that would scorch a poet's lips. I do not wish to criticise this science. Far from it. But when one is in the presence of rhombohedral crystallisations, retinasphalt resins, gehlenites, fangasites, lead molybdates, manganese tungstates, or zircon titanites, the most agile tongue is allowed to get tied in knots.

The townspeople knew about this pardonable disability of my uncle's, and took unfair advantage. They watched out for the difficult sections, and he got furious, and they laughed; which is not in good taste, even for Germans. And if there was always a healthy attendance at Lidenbrock's lectures, how many followed them regularly simply in order to enjoy the professor's terrible outbursts!

But despite all this, my uncle was an authentic scholar—I cannot emphasise this too much. Although he sometimes broke his samples by handling them too roughly, he combined the geologist's talent with the mineralogist's eye. With his mallet, his steel spike, his magnetic needle, his blowlamp, and his flask of nitric acid, he was highly gifted. From the fracture, appearance, resistance, melting-point, sound, smell, and taste of any given mineral, he could put it without hesitation into any one of the six hundred categories recognised by modern science.

Lidenbrock's name was accordingly very much honoured in the gymnasiums and learned societies. Sir Humphry Davy, Humboldt, and Captains Franklin and Sabine made sure they visited him on their way

through Hamburg. Messrs Becquerel, Ebelmen, Brewster, Dumas, Milne-Edwards, and Sainte-Claire Deville liked to consult him on the most stimulating questions in chemistry. That science owed him some wonderful discoveries. In 1853 there had appeared in Leipzig a *Treatise upon Transcendental Crystallography* by Professor O. Lidenbrock, printed in large-folio pages with plates—but without covering its costs.

Add to that that my uncle was the curator of the mineralogical museum of Mr Struve, the Russian ambassador, which was a valuable collection much esteemed throughout Europe.

Such was the character calling for me so impatiently. Imagine a tall, thin man, with an iron constitution and youthful blond hair that made him look a good ten years younger than his fifty. His big eyes darted incessantly around behind imposing glasses; his nose, long and thin, was like a sharpened blade; unkind people even claimed that it was magnetised, and picked up iron filings. Absolute slander: it only picked up snuff, but in rather large quantities to tell the truth.

If I add that my uncle took mathematical strides of exactly three feet, and that, while walking, he firmly clenched his fists—the sign of an impetuous temperament—then you will know him well enough not to wish to spend too much time in his company.

He lived in his little house on Königstrasse, a half-wood, half-brick construction with a crenelated gable-end. It looked out on to one of the winding canals that criss-cross in the centre of the oldest part of Hamburg, fortunately unharmed by the fire of 1842.

The old house leaned a little, it is true, it pushed its stomach out at the passers-by, and it wore its roof over one ear, like the cap of a Tugendbund[10] student. The harmony of its lines could have been better, then; but, all things considered, it held up well, thanks to an old elm, vigorously embedded in the façade, which, each springtime, used to push its flowering blossoms through the latticed windows.

My uncle was not poor, not for a German professor. The house was entirely his, both building and contents. The latter consisted of his god-

daughter Gräuben, a seventeen-year-old girl from Virland, and Martha and myself. In my dual capacity as nephew and orphan, I had become the laboratory assistant for his experiments.

I will admit that I devoured geological science with great relish; I had mineralogist's blood in my veins, and never felt bored in the company of my precious pebbles.

In sum, life could be happy in this miniature house in Königstrasse, despite its owner's impatience; for, while setting about it in rather a rough manner, he did not love me any the less. But the man had never learned to wait, he was permanently in a hurry.

When, in April, he planted heads of mignonette or morning glory in the china pots in his living-room, he would go and pull their leaves each morning to make them grow faster.

With such an eccentric, the only thing to do was to obey. I accordingly hurried into his study.

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This study was a real museum. Specimens of the whole mineral order could be found here, labelled in the most perfect order, following the three great divisions into inflammable, metallic, and lithoidal minerals.

How well I knew them, these trinkets of mineralogical science; how many times, instead of wasting my time with boys of my own age, I had enjoyed dusting these graphites, these anthracites, these coals, these lignites, and these peats. The bitumens, the resins, the organic salts which had to be preserved from the least speck of dust. The metals, from iron to gold, whose relative value didn't count beside the absolute equality of scientific specimens. And all those stones, which would have been enough to rebuild the whole house in Königstrasse, even with a fine extra room, which would have suited me to a T.

But when I went into the study, I was scarcely thinking about such wonders. My uncle formed the sole focus of my thoughts. He was buried in his large armchair covered with Utrecht velvet, holding a tome in both hands and studying it with the deepest admiration.

'What a book, what a book!' he kept saying.

This exclamation reminded me that Professor Lidenbrock was a fanatical book collector in his spare time. But a volume had no value in his eyes unless it was unfindable or, at the very least, unreadable.

'Well?' he said. 'Do you not see? It's a priceless gem I discovered this morning while poking around in the shop of Hevelius the Jew.'

'Magnificent,' I replied, with forced enthusiasm.

What was the point of making such a fuss about an old quarto book whose spine and covers seemed to be made out of coarse vellum, a yellowish book from which hung a faded tassel?

The professor's exclamations of admiration didn't stop, however.

'Look,' he said, addressing both the questions and the replies to himself, 'isn't it beautiful? Yes, it's wonderful, and what a binding! Does the book open easily? Yes, it stays open at any page whatsoever. But does it close well? Yes, because the cover and leaves form a unified whole, without separating or gaping anywhere. And this spine, which does not have a single break after seven hundred years of existence. Oh, it's a binding to have made Bozérian, Closs, or Purgold proud!'

While speaking, my uncle was alternately opening and closing the old book. The only thing I could do was ask him about its contents, though they didn't interest me a single bit.

'And what's the title of this marvellous volume?' I asked with too eager an enthusiasm to be genuine.

'This work', replied my uncle, getting excited, 'is the *Heims-kringla* of Snorri Sturluson, the famous twelfth-century Icelandic author. It is the chronicle of the Norwegian princes who ruled over Iceland.'

'Really,' I exclaimed as well as I could. 'It's presumably a German translation?'

'What!' the professor replied animatedly. 'A translation! What would I be doing with your translation? Who's bothered about your translation? This is the original work, in Icelandic: that magnificent language, both simple and rich, containing the most diverse grammatical combinations as well as numerous variations in the words.'

'Like German?' I slipped in, fortuitously.

'Yes,' replied my uncle shrugging his shoulders, 'not to mention that Icelandic has three genders, like Greek, and declensions of proper nouns, like Latin.'

'Ah,' I said, my indifference a little shaken, 'and are the characters in this book handsome?'

'Characters? Who's speaking of characters, benighted Axel! You did say "characters", did you not? Oh, so you are taking this for a printed book? Ignoramus, this is a manuscript, and a runic manuscript at that.'

‘Runic?’

‘Yes. Are you now going to ask me to explain this word as well?’

‘There is certainly no need,’ I replied in the tone of a man wounded in his pride.

But my uncle continued all the more, and told me things, despite my opposition, that I wasn’t specially interested in knowing.

‘Runes’, he said, ‘were handwritten characters formerly used in Iceland and, according to the tradition, were invented by Odin himself. But look, irreverent boy, admire these forms which sprang from a god’s imagination.’

I swear that, having no other reply to give, I was going to prostrate myself, the sort of response that necessarily pleases gods and kings, because it has the advantage of never embarrassing them—when an incident happened to set the course of the conversation off on a different path.

This was the appearance of a filthy parchment, which slid out of the book and fell to earth.

My uncle rushed to pick up this knick-knack with an eagerness easy to understand. An old document locked up in an old book since time immemorial could not fail to have a signal value in his eyes.

‘But what is it?’ he exclaimed.

At the same time he carefully spread the parchment out on his desk. It was five inches long and three inches wide, with horizontal lines of mumbo-jumbo-style characters written on it.

The following is the exact facsimile. It is important that these bizarre forms be known, because they were to lead Professor Lidenbrock and his nephew to undertake the strangest expedition the nineteenth century has ever known:

The professor examined the series of characters for a few moments. Then he said, lifting up his glasses:

‘They’re runes—the forms are absolutely identical to those in Snorri Sturluson’s manuscript. But what can it all mean?’

As runes seemed to me to be an invention by scholars to mystify the poor rest-of-the-world, I wasn’t displeased to see that my uncle didn’t understand anything. At least, that seemed to be the case from his hands, which had begun to shake terribly.

‘And yet it *is* Old Icelandic!’ he muttered through clenched teeth.

And Professor Lidenbrock surely knew what he was talking about, for he was reputed to be a genuine polyglot: not that he spoke fluently the two thousand languages and four thousand dialects employed on the surface of this globe, but he did know his fair share.

Faced with such a difficulty, he was just about to give in to all the impulsiveness of his character, and I could foresee a violent scene, when two o’clock sounded on the wall-clock over the mantelpiece.

Martha immediately opened the study door.

‘The soup is served.’

‘The devil take your soup,’ shouted my uncle. ‘And the person who made it. And those who will drink it.’

Martha fled. I followed closely behind and, without knowing quite how, found myself sitting at my usual place in the dining-room.

I waited for a few moments: the professor didn’t come. It was the first time, to my knowledge, that he was missing the ceremony of dinner. And what a dinner, moreover! Parsley soup, ham omelette with sorrel and nutmeg, loin of veal with plum sauce; with, for pudding, prawns in sugar; the whole lot being washed down with a good Moselle.

That was what an old bit of paper was going to cost my uncle. By George, in my capacity as devoted nephew, I considered it my duty to eat for both him and me; which I did, very conscientiously.

‘I’ve never known such a thing,’ said Martha. ‘Professor Lidenbrock not at table.’

‘It’s unbelievable.’

‘It portends some serious happening,’ said the old servant, shaking her head.

In my opinion, it portended nothing at all, except for a terrible scene when my uncle found his dinner already eaten.

I was just on the last prawn when a resounding voice called me from the delights of pudding. I was in the study in a single bound.

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‘It’s quite obviously runic,’ said the professor, knitting his brows. ‘But there is a secret and I am going to discover it. If not. . . ’

A violent gesture completed his thought.

‘Sit down’, he added, indicating the table with his fist, ‘and write.’

In a moment I was ready.

‘Now I’m going to dictate the letter in our alphabet corresponding to each of the Icelandic characters. We will see what that gives. But, by God, be careful not to make a mistake.’

The dictation began. I concentrated as hard as I could. Each letter was spelled out one after the other, to form the incomprehensible succession of words that follows:

mm.rnllsesreuel seecJde
sgtssmf unteief niedrke
kt,samnatrateS Saodrrn
emtnael nuaect rrilSa
Atvaar .nscrc ieaabs
ccdrmi eeutul frantu
dt,iac oseibo KediiY

When this work was finished, my uncle eagerly snatched up the sheet on which I had been writing, and examined it for a long time with great care.

'What does it mean?' he kept automatically repeating.

I swear I couldn't have told him anything. In any case he wasn't asking me and continued speaking to himself:

'This is what we call a cipher, in which the meaning is hidden in letters which have deliberately been mixed up, and which, if properly laid out, would form an intelligible sentence. When I think that there is perhaps here the explanation or indication of a great discovery!'

For my part, I thought there was absolutely nothing, but kept my opinions carefully to myself.

The professor then took the book and the parchment and compared them with each other.

'The two documents are not in the same hand. The cipher is posterior to the book for I can see an immediate and irrefutable proof: the first letter is a double *m* that would be sought in vain in Sturluson's book, for it was added to the Icelandic alphabet only in the fourteenth century. So therefore at least two hundred years elapsed between the manuscript and the document.'

That, I must admit, seemed quite logical.

'I am therefore led to think', said my uncle, 'that one of the owners of the book must have written out the mysterious characters. But who the devil was this owner? Might he not have inserted his name at some point in the manuscript?'

My uncle lifted his glasses up, took a strong magnifying glass, and carefully worked his way over the first few pages of the book. On the back of the second one, the half-title page, he discovered a sort of stain, which to the naked eye looked like an ink-blot. However, looking closer, it was possible to distinguish a few half-erased characters. My uncle realised that this was the interesting part, so he concentrated on the blemish, and with the help of his big magnifying glass he ended up distinguishing the following symbols, runic characters which he spelled out without hesitation:

‘Arne Saknussemm!’ he cried in a triumphant voice. ‘But that *is* a name to conjure with, and an Icelandic one at that: the name of a scholar of the sixteenth century, a celebrated alchemist.’

I looked at my uncle with a certain admiration.

‘Those alchemists, Avicenna, Bacon, Lull, Paracelsus, were the veritable, nay the only, scholars of their time. They made discoveries at which we can reasonably be astonished. Why might this Saknussemm not have hidden some surprising invention in the incomprehensible cryptogram? That must be the case—that *is* the case.’

The professor’s imagination caught fire at his assumption.

‘Perhaps it is,’ I dared to reply. ‘But what would be the point of a scholar hiding a marvellous discovery in such a way?’

‘Why? Why? How should I know? Galileo—did he not act in this way for Saturn? In any case, we shall soon see. I shall have the secret of this document, and will neither eat nor sleep until I have discovered it.’

‘Uh-oh,’ I thought.

‘Nor will you, Axel!’

‘My God,’ I thought to myself. ‘What luck I ate for two!’

‘First of all, we must find out the language of this cipher: it cannot be difficult.’

At his words, I looked up quickly. My uncle continued his soliloquy:

‘Nothing could be easier. There are 132 letters in the document, of which seventy-nine are consonants and fifty-three vowels. Now the southern languages conform approximately to this ratio, while the northern tongues are infinitely richer in consonants: it is therefore a language of the south.’

These conclusions were highly convincing.

‘But what language is it?’

It was there that I expected to find a scholar, but discovered instead a deep analyst.

‘This Saknussemm’, he said, ‘was an educated man. Now, when he was not writing in his mother tongue, he must naturally have chosen the language customarily used amongst educated people of the sixteenth

century—I refer to Latin. If I am proved wrong, I can try Spanish, French, Italian, Greek, or Hebrew. But the scholars of the sixteenth century generally wrote in Latin. I have therefore the right to say, a priori, that this *is* Latin.'

I almost jumped off my chair. My memories as a Latinist protested at the claim that this baroque series of words could belong to the sweet language of Virgil.

'Yes, Latin,' repeated my uncle, 'but Latin scrambled up.'

'What a relief,' I thought. 'If you can unscramble it again, you're a genius, Uncle.'

'Let's have a proper look at it,' he said, again picking up the sheet on which I had written. 'This is a series of 132 letters, presented in apparent disorder. There are words where the consonants are encountered on their own, like the first one, "mm.rnlls"; others in contrast where the vowels are abundant, for example the fifth word, "unteief", or the second-but-last one, "oseibo". Now the arrangement is clearly not deliberate. It is given *mathematically* by the unknown formula governing the succession of the letters. It seems certain to me that the original sentence must have been written normally, then jumbled up following a rule we have yet to discover. The person who got access to the key of the cipher would be able to read it fluently: but what is this key? Axel, do you have the key?'

To his question I replied nothing, and for a good reason. I was gazing at a charming portrait on the wall: one of Gräuben. My uncle's ward was then in Altona, staying with one of her relatives. Her absence made me very sad, because, I can admit it now, the pretty little Virland girl and the professor's nephew loved each other with all Germanic patience and calm. We had got engaged without my uncle knowing—he was too much of a geologist to understand such feelings. Gräuben was a charming girl, blonde with blue eyes, of a slightly serious character; but she did not love me any the less for that. For my part, I adored her—if, that is, the word exists in the Teutonic language. As a result of all this, the picture of my little Virland girl immediately switched me from the world of reality to that of daydreams, that of memories.

I was watching the faithful companion of my work and pleasure. Each day she helped me organise my uncle's precious stones, and labelled them with me. Miss Gräuben was a very fine mineralogist. She would have borne comparison with more than one scholar, for she loved getting to the bottom of the driest scientific questions. How many charming hours we had spent studying together; and how often I had been jealous of the fate of the unfeeling stones that she had manipulated with her graceful hands!

Then, when the time for recreation had come, the two of us would go out. We used to walk through the bushy paths of the Alster and head

together for the old tar-covered mill which looked so fine at the far end of the lake. On the way we would chat while holding hands. I would tell her things and she would laugh heartily at them. In this way we would arrive on the banks of the Elbe; then, having said goodnight to the swans gliding around amongst the great white water lilies, we would come back by steam ferry to the quayside.

I was just at this point in my daydream when my uncle, hitting the table with his fist, brought me violently back to reality.

'Let's see,' he said. 'In order to mix up the letters of a sentence, it seems to me that the first idea to come into one's mind ought to be to write the words vertically instead of horizontally.'

'Clever . . . ' I thought.

'We must see what it produces. Axel, write any sentence at all on this scrap of paper; but, instead of writing the letters one after the other, put them in vertical columns made up of groups of fives or sixes.'

I understood what was required and immediately wrote from top to bottom:

I y y l u
l o l e b
o u i G e
v , t r n
e m t ä .

'Good,' said the professor without reading it. 'Now write these words in a horizontal line.'

I did so and obtained the following sentence:

Iyylu loleb ouiGe v,trn emtä.

'Perfect,' said my uncle, tearing the paper out of my hands. 'This is beginning to look like the old document: the vowels and the consonants are both grouped together in the same confusion. There are even capitals in the middle of the words, and commas as well, just as in Saknussemm's parchment.'

I couldn't help thinking that these remarks were highly ingenious.

'Now,' said my uncle again, addressing me directly, 'in order to read the sentence that you have just written and which I do not know, all I have to do is take the first letter of each successive word, then the second letter, then the third, and so on.'

And my uncle, to his great amazement and even more to mine, read out:

I love you, my little Gräuben.

'H'm,' said the professor. Yes, without being aware of it, awkwardly in love, I had written out this compromising sentence.

'Oh, so you're in love with Gräuben, are you?' said my uncle in an authentic guardian's tone.

'Yes. . . No. . . ' I spluttered.

'So you do love Gräuben,' he said mechanically. 'Well, let's apply my procedure to the document in question.'

My uncle had returned to his engrossing ideas and had already forgotten my risky words: I say 'risky' because the scholar's mind could never understand the matters of the heart. But fortunately, the vital question of the document took precedence.

Just before performing his critical experiment, Professor Lidenbrock's eyes were throwing sparks out through his glasses. His hands trembled as he picked the old parchment up again. He was profoundly excited. Finally he coughed loudly, and in a solemn voice, calling out successively the first letter of each word, then the second, he dictated the following series to me:

mmessunkaSenrA.icefdoK.segnittamurtn
ecertserrette,rotaivsadua,ednecsedsadne
lacartniiiluJsiratracSarbmutabiledmek
meretarcsilucoYsleffenSnl

When he had finished I will admit that I was excited. These letters, called out one after another, had not produced any meaning in my mind. I was therefore waiting for the professor to produce pompously from his mouth a sentence of Latin majesty.

But who could have foreseen it? A violent blow from his fist shook the table. The ink spurted; the pen jumped from my hands.

'That's not it!' shouted my uncle. 'It makes no sense.'

Then, crossing the study like a cannon-ball and going downstairs like an avalanche, he threw himself into Königstrasse and shot off at a rate of knots.

4

'Has he gone out?' shouted Martha, running up at the slam of the front door, which had just shaken the house to its very foundations.

'Yes, completely gone!'

'But what about his dinner?'

'He's not having any!'

'And his supper?'

'No supper either!'

Clasping her hands: 'Pardon?'

'Yes, Martha, he's given up food, and so has the entire household. Uncle Lidenbrock has put us all on a strict diet until he's deciphered a piece of old mumbo-jumbo that is totally undecipherable!'

'Goodness, we'll all die of starvation!'

I didn't dare admit that with such an uncompromising individual as my uncle, this fate seemed nigh on certain.

The old servant went back into the kitchen, looking very worried and muttering.

Alone again, I thought of going to tell Gräuben everything. But how could I get out of the house? The professor might come back at any moment. What if he summonsed me? Or if he wanted to start work again on

that word-puzzle which even old Oedipus couldn't have solved? And if I wasn't there when he called for me, what might happen then?

It was safest to stay put. As it happened, a mineralogist from Besançon had just sent us a collection of siliceous geodes that needed sorting out. I set to work. I classified these hollow stones with their little crystals moving inside, I prepared labels, I arranged them in the presentation cases.

But this activity didn't require all my concentration. The problem of the old document wouldn't stop disturbing me in a most peculiar fashion. My head was swirling and I felt vaguely anxious. I had the feeling that something terrible was about to happen.

An hour later, my geodes were stacked in neat little rows. I fell into the massive Utrecht armchair, my arms lolling over the sides and my head leaning back. I lit my pipe, the one with the long curved stem and the bowl carved into a casually reclining water-nymph; and then had great fun watching it burn, slowly converting my nymphette into an unalloyed negress. From time to time I listened out for steps hammering up the stairs. But none came. Where could my uncle be at this moment? I imagined him running around under the splendid trees on the Altona road, waving his arms, firing at the walls with his walking-stick, flattening the grass at a stroke, beheading the thistles, disturbing the lonely storks from their sleep.

Would he come back triumphant or discouraged? Who would win, him or the secret? I was wondering about such matters, and without thinking picked up the sheet of paper on which I had written the incomprehensible sequence of letters. I repeated to myself:

'What can it possibly mean?'

I tried to group the letters into words. I couldn't! Whether you put them into twos, threes, fives, or sixes, nothing came out that made sense. The fourteenth, fifteenth, and sixteenth letters did produce the English word *ice*. The eighty-fourth, eighty-fifth, and eighty-sixth ones gave *sir*. In the middle of the document, in the third line, I spotted the Latin words *rota, mutabile, ira, nec*, and *atra*.

'It's amazing! These last few words seem to confirm my uncle's view about the language of the document! In the fourth line I can even see *luco*, which means "sacred wood". It's true that the third line also includes *tabiled*, which sounds completely Hebrew to me, and the last one, *mer, arc*, and *mère*, pure and unadulterated French.'

It was enough to drive you out of your mind. Four different languages in the same preposterous sentence! What possible connection could there be between *ice, sir, anger, cruel, sacred wood, changeable, mother, bow*, and *sea*? Only the first and last were easily linked: in a document written in Iceland, it was hardly surprising that there should be a 'sea of ice'. But putting the rest of the puzzle back together was another matter entirely.

I was struggling with an insoluble problem; my brain started overheating, my eyes blinking at the sheet. The 132 letters seemed to dance around me, like those silver drops which float above your head when there is a sudden rush of blood to it.

I was having a sort of hallucination; I was suffocating; I needed some fresh air. Absent-mindedly I fanned myself using the piece of paper, with the back and the front passing alternately before my eyes.

Imagine my surprise when I thought I caught sight of perfectly intelligible words during a quick turn of the sheet, just as the other side came into view: Latin words like *craterem* and *terrestre*!

Suddenly my mind sparked; through the fleeting glimpses I had caught sight of the truth; I had discovered how the code worked. To understand the document, you didn't even need to read it through the paper. Far from it. In its original form, exactly as it had been spelled out to me, it could easily be decoded. The professor's ingenious attempts were all finally paying off. He had been right about the way the letters were arranged and right about the language the document was written in. A mere 'nothing' had stopped him reading the Latin sentence from beginning to end, and this self-same 'nothing' had just fallen into my lap by pure chance. You can imagine how excited I felt. My eyes went out of focus and I couldn't see anything. I had spread the piece of paper out on the table. All I had to do now to possess the secret was to glance at it.

At last I managed to calm down. I forced myself to walk round the room twice to settle my nerves; then came back and immersed myself again in the huge armchair.

I drew a large supply of air into my lungs, and shouted: 'Read on!'

I bent over the table. I placed my finger on each successive letter and, without stopping, without slowing down at all, read the whole message out loud.

What amazement, what terror entered my soul! At first it was like being hit by a blow you didn't expect. What, had the things I had just discovered really happened? A man had been daring enough to penetrate. . .

'No!' I cried indignantly. 'No! I'm not going to tell my uncle. It would be terrible if he got to know about such a journey. He'd just want to have a go himself. Nothing would stop a geologist of such determination. He would leave anyway, against all obstacles, whatever the cost. And he'd take me with him, and we wouldn't come back. Never. Not nohow!'

I was in an awful state, one difficult to describe.

'No, no, no! It won't happen like that!' I said firmly. 'And since I am able to prevent any such idea crossing the mind of the dictator who governs my life, I *will* do so. By turning this document in every direction, he might accidentally discover the code. I'm going to destroy it.'

The fire hadn't quite gone out. I picked up the sheet of paper, together with Saknussemm's parchment. My trembling hand was just about to

throw the whole lot on to the coals and thus destroy the dangerous secret—when the study door opened. My uncle came in.

5

I had barely time to put the wretched document back on the desk.

Professor Lidenbrock seemed preoccupied. His obsessive idea wasn't giving him a moment's rest. He had obviously pondered the question during his walk, considered it, called on every resource of his imagination. And he had plainly come back to try out some new combination.

Sure enough, he sat down in his armchair and, pen in hand, began to write out formulae that looked like algebraic calculations.

I watched his frantic hand: not a single movement was lost on me. Was some surprising new result suddenly going to spring forth? I was afraid it would, irrationally, since the correct combination, the only one, had already been discovered —and so any other line of exploration was doomed to failure.

For three long hours, my uncle worked without a word, without looking up—rubbing out, starting again, crossing out, setting to for the umpteenth time.

I knew full well that if he managed to put the letters into every single order possible, then the right sentence would come out. But I also knew that a mere twenty letters can form two quintillion, four hundred and thirty-two quadrillion, nine hundred and two trillion, eight billion, one hundred and seventy-six million, six hundred and forty thousand combinations. In fact there were

132 letters in the sentence; and these 132 letters produced a total number of sentences that had at least 133 digits, one that is virtually impossible to enumerate and goes completely beyond the bounds of imagination.

I therefore felt reassured about the heroic way of solving the problem.

But time passed; night came; the street noises died down; my uncle, still bent over his work, didn't see anything, didn't notice Martha half-opening the door. He heard nothing, not even the voice of the faithful servant:

'Will Sir be having supper tonight?'

Martha had to go away again without a response. As for myself, after fighting it for some time, an irresistible drowsiness came over me, and I fell asleep on the end of the sofa, while my Uncle Lidenbrock continued his adding up, his taking away, and his crossing out.

When I woke again the following morning, the inexorable worker was still at it. His eyes were red, his face pale, his hair tousled by a feverish hand, and his cheekbones glowed purple. All were signs of a terrible struggle with the impossible, showing what tiredness of mind and what exertions of the brain must have filled the long hours.

I was genuinely sorry for him. In spite of the reproaches I probably had the right to make, I felt considerable pity. The poor man was so possessed by his idea that he had quite forgotten to be angry. His whole energy was concentrated on a single point, and since it could not escape through its normal outlet, it was to be feared that it might simply explode at any moment.

With a single act I could undo the iron hoop wrapped tight round his brain—with just one word. I did nothing.

But I had a kind heart. Why did I not speak out in such circumstances? For my uncle's own sake.

'No, no,' I repeated, 'no. I'm not going to say anything. He would only want to go there, I know him, nothing would stop him. He has a volcanic imagination and he would risk his life to do what no geologist has ever done before. I will not say anything; I will keep this secret given to me by chance. To let it out would be tantamount to killing Professor Lidenbrock. Let him guess if he can. I don't want to feel responsible one day for having sent him to his death!'

Once my mind was made up, I crossed my arms and waited. But I hadn't reckoned with something that happened a few hours later.

When Martha tried to go out to the market, she found the door locked. The big key was not in the keyhole. Who had taken it out? Obviously my uncle, when he had come back from his hasty excursion the day before.

Was it on purpose? Or was it through absent-mindedness? Did he want us to feel real hunger pains? That seemed to be going a bit far. Why should Martha and I suffer because of a situation that had nothing whatsoever to do with us? But apparently this *was* the case, and I recalled a frightening precedent. A few years before, when my uncle had been working on his grand mineral classification, he had remained forty-eight hours without eating, and his whole household had had to follow his scientific diet. As a result, I acquired stomach cramps that were not much fun for a boy of a fairly ravenous nature.

It now seemed that breakfast was going to go the same way as supper the day before. Nevertheless I resolved to be heroic and not to give in to the demands of hunger. Martha took it very seriously: she was inconsolable, the poor woman. As for myself, being unable to leave the house upset me more, with good reason, as I am sure you will understand.

My uncle was still working; his mind was lost in a world of combinations; he lived far from the Earth and truly beyond worldly needs.

At about twelve o'clock, though, hunger began to cause me serious problems. Martha, very innocently, had devoured the supplies in the larder the day before, and so there was nothing left in the whole house. I held on, however. I considered it a matter of honour.

Two o'clock chimed. The situation was becoming ridiculous, intolerable even. My eyes began to look very big. I started to tell myself that I was exaggerating the importance of the document; that in any case my uncle wouldn't believe what it said; that he would regard it as a mere practical joke; that if the worst came to the worst he could be restrained against

his will if he wanted to attempt the expedition; and that he might easily find the code himself, in which case all my efforts at abstinence would have been in vain.

These all seemed excellent reasons to me, although I would have indignantly rejected them the day before. I even con-sidered it a terrible mistake to have waited so long; and I made up my mind to reveal all.

I was therefore looking for a way into the subject, one that wasn't too sudden, when, without warning, the professor stood up, put his hat on, and got ready to go out.

What, leave the house, and shut us in again? Never!

'Uncle?'

He didn't appear to have heard.

'*Uncle Lidenbrock!*' I repeated, raising my voice.

'Huh?' he said, like someone abruptly woken up.

'What about the key?'

'What key? The door?'

'No,' I cried. 'The key to the document!'

The professor scrutinised me over his glasses; he must have noticed something unusual in my face, for he firmly grabbed me by the arm while still carefully inspecting me, although unable to utter a word. All the same, never was a question asked more clearly.

I moved my head up and down.

He shook his, with a sort of pity, as if dealing with a lunatic.

I made a more positive sign.

His eyes shone brighter; his hand became threatening.

Given the situation, this silent conversation would have absorbed the most indifferent spectator. I had in fact really reached the point of not daring to say anything, such was my fear of my uncle suffocating me when he first began to joyfully embrace me. But he became so insistent that I just had to speak.

'Yes, the code. . . Purely by chance. . . '

'What are you saying?' he cried with an intensity that cannot be described.

'Look,' I said, giving him the paper with my writing on. 'Read.'

'But it doesn't make sense!' he replied, screwing it up.

'No sense, when you begin at the beginning, but. . . '

I hadn't finished before the professor produced a shout, more than a shout, an actual roar! A revelation had just occurred in his brain. His face was transmogrified.

'Oh, clever old Saknussemm!' he bellowed. 'So you wrote your message backwards?'

And throwing himself on the sheet of paper, his eyes un-focused, his voice trembling, he spelled the whole document out, working his way from the last letter back to the first.

This was what he read:

In Snefells Yoculis craterem kem delibat umbra Scartaris Julii intra calendas descende, audas viator, et terrestre centrum attinges. Kod feci. Arne Saknussemm.

Which, when translated from the dog-Latin, reads as follows:

Go down into the crater of Snaefells Yocul which the shadow of Scartaris caresses before the calends of July, O audacious traveller, and you will reach the centre of the Earth. I did it. Arne Saknussemm.

As he read, my uncle jumped as if drawing current from a Leyden jar. His courage, his joy, his certainty, knew no bounds. He walked up and down; he held his head in both hands; he moved the chairs around; he piled the books up; unbelievably, he juggled with his precious geodes; he threw a punch here, a blow there. At last his nerves calmed down and, like a man exhausted after discharging too much fluid, he flopped back in his armchair.

'So what time is it?' he asked after a few moments' silence.

'Three o'clock.'

'H'm, dinner has gone down quickly. I'm dying of hunger. To table. And then after that. . . '

'After?'

'You can pack my trunk.'

'?'

'And yours too!' concluded the merciless professor, striding into the dining-room.

6

These last words sent a shiver through my whole body. I kept my self-control though. I even resolved to put on a brave face. Only scientific arguments could stop Professor Lidenbrock now. And there was no lack of arguments, and good ones, against such a journey being possible. Go to the centre of the Earth? What madness! But I kept my reasoning for a more suitable moment, and instead gave my full attention to the meal.

There would be little point in reproducing here my uncle's curses when he saw the cleared-away table. Things were duly explained to him, and Martha freed again. Running to the market, she managed so well that an hour later my hunger was satisfied, and I could begin to be aware of the situation once more.

During the meal, my uncle had been almost cheerful: there escaped from him some of those scholars' jokes that never become really dangerous. After the last course, he beckoned me into his study.

I obeyed. He sat at one side of his desk, with me at another.

'Axel,' he said in a voice that was almost kindly, 'you are a highly gifted boy; you were of great assistance to me when I was worn out by my efforts and about to give up looking for the combination. Where would I

have ended up? No one can guess. I will never forget that, my boy, and you will have your fair share of the fame we are going to achieve.'

'Now's my chance!' I thought. 'He's in a good mood: the moment to discuss the aforementioned fame.'

'. . . Above all,' my uncle continued, 'total secrecy must be maintained, do you hear? In the scientific world, there is no shortage of people jealous of me, and many of them would dearly love to tackle this journey. But they will have no inkling of it until we get back.'

'Do you really believe there'd be so many takers?'

'Most definitely! Who would think twice about gaining such celebrity? If people knew of the document, a whole army of geologists would rush to follow in Arne Saknussemm's footsteps!'

'That's where I'm not totally convinced, Uncle, for nothing proves that the manuscript is genuine.'

'What! And the book we discovered it in?'

'All right, I accept that this Saknussemm wrote the message, but does it necessarily follow that he actually carried out the journey? Couldn't the old parchment just be a practical joke?'

I half-regretted this last idea, admittedly a bit daring. The professor's thick eyebrows frowned, and I was afraid that the rest of the conversation might not go as I wished. But fortunately it didn't turn out like that. A sort of smile played over my stern questioner's lips, as he replied:

'That is what we are going to find out.'

'H'm!' I said, a little annoyed. 'Allow me first to exhaust all possible objections concerning the document.'

'Speak, my boy, give yourself full rein. I grant you every freedom to express your opinion. You are no longer my nephew, but my colleague. Pray proceed.'

'Well, I will first ask you what Yocul, Snaefells, and Scartaris mean, since I have never even heard of them.'

'That's easy. As it happens, I received a map not very long ago from my friend August Peterman of Leipzig. It couldn't have arrived at a better time. Take down the third atlas on the second section in the big bookcase, series Z, shelf 4.'

I got up and, thanks to the precise instructions, quickly found the required atlas. My uncle opened it:

'This is Anderson's, one of the best maps of Iceland, and it may easily provide us with solutions to all your problems.'

I leant over the map.

'See this island of volcanoes', said the professor, 'and notice that they all bear the name "jökull". This means "glacier" in Icelandic and, at that northerly latitude, most of the eruptions reach the light of day through the layers of ice. Hence this name "jökull" applied to all the fire-producing peaks of the island.'

'Fine. But what about Snaefells?'

I hoped there would be no answer to this question. I was wrong.

'Follow me along the western coast of Iceland. Do you see Reykjavik, the capital? Yes. Good. Work your way up along the countless fjords of these shorelines eaten by the sea, and stop a little before the line of 65° N. What do you see?'

'A peninsula rather like a bare bone, with an enormous kneecap at the end.'

'Not an inappropriate comparison, my dear boy. Now, do you see anything on the kneecap?'

'Yes, a mountain that looks as if it's sprouted in the middle of the sea.'

'Good. That's Snaefells.'

'Snaefells?'

'The one and only. A five-thousand-foot-high mountain, one of the most remarkable on the island—and definitely the most famous in the whole world, if its crater leads to the centre of the globe.'

'But it's quite impossible!' I said, shrugging my shoulders in protest at such a conjecture.

'Impossible?' said Professor Lidenbrock severely. 'And why should that be?'

'Because this crater is obviously blocked up with lava and scorching rocks, and so. . . '

'And supposing it is an extinct crater?'

'Extinct?'

'Yes. There are now only about three hundred volcanoes in activity on the surface of the Earth—but the number of extinct ones is much greater. Snaefells falls into this latter category, and in historical times has only had a single eruption, the 1219 one. Since then its rumblings have gradually died down, and it is no longer considered an active volcano.'

I had no reply at all for these categorical statements, so fell back on the other mysteries hidden in the document.

'But what does the word "Scartaris" mean, and what have the calends of July got to do with anything?'

My uncle concentrated for a few seconds. My hope came back for a moment, but only for a moment, for soon he replied to me as follows:

'What you call a mystery is crystal clear for me. It proves with what care and ingenuity Saknussemm wished to indicate his discovery. Snaefells is composed of several craters; it was therefore necessary to pinpoint which is the one that leads to the centre of the globe. What did our scholarly Icelander do? Our Icelandic scholar observed that as the calends of July approached, that is towards the end of June, one of the mountain peaks, called Scartaris, cast its shadow as far as the opening of the relevant crater, and he noted this fact in his document. Could he have found a more precise indication, and—once we are on the summit of Snaefells—can there be a moment's hesitation as to the path to follow?'

Decidedly my uncle had an answer for everything. I saw full well that he was unassailable on the words of the ancient parchment. So I stopped pressing him on that subject and, since the most important thing was to

convince him, turned to the scientific objections, in my view much more serious.

'All right, I am forced to accept that Saknussemm's message is clear and can leave no doubt in one's mind. I even grant that the document looks perfectly authentic. So this scholar went to the bottom of Snaefells; he saw the shadow of Scartaris lingering on the edge of the crater just before the calends of July; he probably even heard the people of his time recounting legends that this crater led to the centre of the Earth. But as to whether he went down there himself, whether he carried out the journey and came back, whether he even undertook it: no, a hundred times no!'

'And the reason?' asked my uncle in a singularly mocking tone.

'Because all the scientific theories demonstrate that such an undertaking is impossible!'

'All the theories say that?' replied the professor, putting on a good-natured appearance. 'Oh the nasty theories. They're going to get terribly in our way, the poor theories!'

I could see that he was making fun of me, but continued regardless:

'Yes, it is well known that the temperature increases by approximately one degree centigrade for every seventy feet you go below the surface of the globe. Now, assuming that this ratio remains constant, and given that the radius of the Earth is about four thousand miles, the temperature at the centre will be well over 200,000°. The substances at the Earth's core exist therefore as white-hot gases, for even metals like gold or platinum, even the hardest rocks, cannot resist such a temperature. My question whether it is possible to travel in such an environment is consequently a reasonable one!'

'So, Axel, it is the heat that bothers you?'

'Certainly. If we were to attain a depth of only twenty-five miles, we would have reached the limit of the Earth's crust, for the temperature would already be more than 1,400°.'

'And you are afraid of melting?'

'I leave the question for you to decide,' I replied sharply.

'*Here* is what I decide,' said Professor Lidenbrock, assuming an important air. 'It is that neither you nor anyone else knows for certain what happens in the Earth's interior, given that scarcely a twelve-thousandth part of its radius is known. It is that science is eminently perfectible, and that each existing theory is constantly replaced by a new one. Was it not believed before Fourier that the temperature of interplanetary space

went down indefinitely, and is it not known now that the greatest cold in the ether does not go beyond 40 or 50° below zero? Why should it not be the same for the internal heat? Why should it not encounter at a certain depth a limit that cannot be crossed, instead of reaching the point where the most obdurate minerals liquefy?'

Since my uncle placed the question on the terrain of hypotheses, I had no reply to make.

'Well, Axel, I can tell you that real scientists, amongst them Poisson, have proved that if a temperature of 200,000° actually existed inside the globe, the white-hot gases produced by the fusion of the solids would acquire such force that the Earth's crust could not resist and would explode like the walls of a boiler under steam pressure.'

'Poisson's opinion, Uncle, that's all.'

'Agreed, but it is also the opinion of other distinguished geologists that the interior of the globe is not formed of gas, nor of water, nor of the heaviest rocks that we know. The reason is that, if it were, the Earth would only weigh half as much as it does.'

'Oh, you can prove anything you want with figures!'

'And can you, my boy, with facts? Is it not true that the number of volcanoes has considerably decreased since the first days of the world? And if there is indeed heat in the centre, can one not deduce that it is also tending to diminish?'

'Uncle, if you're entering the realm of suppositions, there is nothing more I can say.'

'And *I* have to say that my opinion is shared by highly competent figures. Do you remember a visit that the famous British chemist Sir Humphry Davy paid me in 1825?'

'Hardly, as I only came into the world nineteen years later.'

'Well, Sir Humphry came to see me as he was passing through Hamburg. Amongst other things, we had a long discussion about the hypothesis that the innermost core of the Earth was liquid. We both agreed that a molten state could not exist, for a reason to which science has never found a response.'

'What reason is that?' I said, slightly stunned.

'Because the liquid mass would be subject, like the ocean, to the moon's attraction, thus producing internal tides twice a day which would push up at the Earth's crust and cause regular earthquakes!'

'But it is none the less obvious that the surface of the globe was once exposed to combustion, and one can suppose that the outer crust cooled down first while the heat retreated to the centre.'

'Not so. The Earth heated up through combustion on its surface, not from any other cause. The surface was composed of a great quantity of metals such as potassium and sodium, which have the property of catching fire as soon as they are in contact with air and water. These metals started to burn when the water vapour in the atmosphere fell to the ground as rain. Little by little, as the water worked its way into the cracks in the Earth's crust, it produced further fires, explosion, and eruptions. Hence the large number of volcanoes during the first days of the world.'

'What an ingenious hypothesis!' I cried, rather in spite of myself.

'Which Sir Humphry brought to my notice by means of a highly simple experiment on this very spot. He constructed a ball made mainly of the metals I have just mentioned, and which perfectly represented our globe. When a fine dew was dropped on to its surface, it blistered, oxidised, and produced a tiny mountain. A crater opened at the summit; an eruption took place; and it transmitted so much warmth to the whole ball that it became too hot to hold.'

To tell the truth, I was beginning to be disturbed by the professor's arguments. What didn't help either was that he was presenting them with his usual verve and enthusiasm.

'You see, Axel, the state of the central core has produced various hypotheses amongst geologists; nothing is less proven than the idea of an internal heat. In my view it does not exist, could not possibly exist. In any case we shall see for ourselves and, like Arne Saknussemm, discover where we stand on this important question.'

'Yes, we shall!' I shouted, won over by his excitement. 'We'll see for ourselves, provided, that is, anything at all can be seen down there!'

'And why not? Can we not count on electrical phenomena to light the way, and even on the atmosphere, which the pressure may make more and more luminous as the centre approaches?'

'Yes. *Yes!* It is possible after all.'

'It is certain,' retorted my uncle in triumph. 'But it must be kept quiet, do you hear? All this must be maintained totally secret, so that no one else has the idea of discovering the centre of the Earth before us.'

7

Our memorable session ended here. The discussion had given me a fever. I left my uncle's study as if in a trance; there was not enough air to calm me down in all the streets of Hamburg put together. So I made for the banks of the Elbe, near the steamboat service connecting the town with the Harburg railway line.

Was I really convinced by what I'd just been told? Hadn't I been won over by Professor Lidenbrock's forceful manner? Could I take seriously his decision to go to the core of the terrestrial mass? Had I just heard the senseless speculations of a lunatic or the scientific analyses of a great genius? In all this, where did the truth end and illusion begin?

I drifted amongst a thousand contradictory hypotheses, without being able to seize hold of any of them.

However, I did remember being convinced, although my enthusiasm was now beginning to wane: I would in fact have preferred to set off immediately so as not to have time to think. Yes, I would easily have been able to pack my cases at that very moment. Yet I have to confess that an hour later my excitement had subsided; my nerves grew less tense and, from the deep chasms of the Earth, I slowly came back to the surface.

'It's all preposterous!' I exclaimed. 'Completely devoid of common sense. It's not the sort of proposal to put to a sensible boy. None of all that exists. I didn't sleep properly. I must have had a bad dream.'

I had meanwhile walked along the banks of the Elbe and reached the other side of the town. I had worked my way along the port and arrived at the Altona road. Inspiration had guided me, a justified intuition, for soon I caught sight of my little Gräuben walking nimbly back to Hamburg.

'Gräuben!' I shouted from afar.

The girl stopped, a little flustered, I imagine, to hear her name called on the public highway. Ten strides took me to her side.

'Axel!' she said in surprise. 'Oh, so you came to meet me—you can't deny it!'

But when she looked at me, Gräuben could not avoid noticing my worried, upset appearance.

'What's wrong?' she said, taking my hand.

'Wrong!' I cried.

In two seconds and three sentences my pretty Virland girl was up to date on everything. She remained silent for a few seconds. Was her heart pounding as hard as mine? I don't know, but the hand holding mine wasn't trembling. We continued for a hundred yards without a word.

'Axel,' she said at last.

'Darling Gräuben!'

'It'll be a wonderful journey.'

I jumped a mile.

'Yes, Axel. A journey worthy of a scholar's nephew. A man should try to prove himself by some great adventure!'

'What, Gräuben, you're not attempting to stop me going on such an expedition?'

'No, dear Axel, and I would gladly go with you and your uncle, but a poor girl would only be in the way.'

'Are you telling the truth?'

'Yes.'

O women, girls, feminine hearts, impossible to understand! When you are not the shyest of creatures, you are the most foolhardy. Reason has no influence over you. What, this child was encouraging me to take part in such an expedition! She wouldn't have been afraid to do the journey herself! She *wanted* me to do it, although she loved me!

I was put out and, I admit, a little ashamed.

'Gräuben,' I tried again, 'we'll see if you talk this way to-morrow.'

'Tomorrow, dear Axel, I'll be the same as today.'