

On the Move

A Life

Oliver Sacks

PICADOR

Contents

On the Move	3
Leaving the Nest	43
San Francisco	67
Muscle Beach	97
Out of Reach	133
Awakenings	169
The Bull on the Mountain	209
A Matter of Identity	241
City Island	271
Voyages	313
A New Vision of the Mind	339
Home	371
<i>Acknowledgments</i>	387
<i>Index</i>	389

On the Move

When I was at boarding school, sent away during the war as a little boy, I had a sense of imprisonment and powerlessness, and I longed for movement and power, ease of movement and superhuman powers. I enjoyed these, briefly, in dreams of flying and, in a different way, when I went horse riding in the village near school. I loved the power and suppleness of my horse, and I can still evoke its easy and joyous movement, its warmth and sweet, hayey smell.

Most of all, I loved motorbikes. My father had had one before the war, a Scott Flying Squirrel with a big water-cooled engine and an exhaust like a scream, and I wanted a powerful bike, too. Images of bikes and planes and horses merged for me, as did images of bikers and cowboys and pilots, whom I imagined to be in precarious but jubilant control of their powerful mounts. My boyish imagination was fed by Westerns and films of heroic air combat, seeing pilots risking their lives in Hurricanes and Spitfires but lent protection by their thick flying jackets, as motorcyclists were by their leather jackets and helmets.

When I returned to London as a ten-year-old in 1943, I enjoyed sitting in the window seat of our front room, watching and trying to identify motorbikes as they sped by (after the war, when petrol was easier to get, they became much commoner). I could identify a dozen or more marques—AJS, Triumph, BSA, Norton, Matchless, Vincent, Velocette, Ariel, and Sunbeam, as well as rare foreign bikes like BMWs and Indians.

As a teenager, I would go regularly to Crystal Palace with a like-minded cousin to see the motorbike racing there. I often hitchhiked to Snowdonia to climb or to the Lake District to swim and sometimes got a lift on a motorbike. Riding pillion thrilled me and stimulated daydreams of the sleek, powerful bike I would get one day.

My first motorbike, when I was eighteen, was a secondhand BSA Bantam with a little two-stroke engine and, as it turned out, faulty brakes. I took it to Regent's Park on its maiden ride, which turned out to be fortunate, possibly lifesaving, because the throttle jammed when I was going flat out and the brakes were not strong enough to stop the bike or even slow it more than a little. Regent's Park is encircled by a road, and I found myself going round and round it, perched on a motorbike I had no way of stopping. I hooted or yelled to warn pedestrians out of my way, but after I had made two or three circuits, everyone gave me a free path and shouted encouragement as I passed by again and again. I knew the bike would have to stop eventually, when it ran out of gas, and finally, after dozens of involuntary circuits of the park, the engine sputtered and died.

My mother had been very much against my getting a bike in the first place. That I expected, but I was surprised by my father's opposition, since he had ridden a bike himself. They had tried to dissuade me from getting a bike by buying me a little car, a 1934 Standard that could barely do forty miles per hour. I had grown to hate the little car, and one day, impulsively, I sold it and used the proceeds to buy the Bantam. Now I had to explain to my parents that a feeble little car or bike was dangerous because one lacked the power to pull out of trouble and that I would be much safer with a larger, more powerful

bike. They acceded to this reluctantly and funded me for a Norton.

On my first Norton, a 250 cc machine, I had a couple of near accidents. The first came when I approached a red traffic light too fast and, realizing that I could not safely brake or turn, drove straight on and somehow—miraculously—passed between two lines of cars going in opposite directions. Reaction came a minute later: I rode another block, parked the bike in a side road—and fainted.

The second accident occurred at night in heavy rain on a winding country road. A car coming in the opposite direction did not dim its headlights, and I was blinded. I thought there would be a head-on collision, but at the last moment I stepped off the bike (an expression of ridiculous mildness for a potentially lifesaving but potentially fatal maneuver). I let the bike go in one direction (it missed the car but was totaled) and myself in another. Fortunately, I was wearing a helmet, boots, and gloves, as well as full leathers, and though I slid twenty yards or so on the rain-slicked road, I was so well protected by my clothing that I did not get a scratch.

My parents were shocked, but very glad I was in one piece, and raised strangely little objection to my getting another, more powerful bike—a 600 cc Norton Dominator. At this point, I had finished at Oxford, and I was about to go to Birmingham, where I had a job as a house surgeon for the first six months of 1960, and I was careful to say that with the newly opened M1 motorway between Birmingham and London and a fast bike, I would be able to come home every weekend. The motorway in those days had no speed limit, so I could be back in a little over an hour.

I met up with a motorcycle group in Birmingham and tasted the pleasure of being part of a group, sharing an enthusiasm; up to this point, I had always been a solitary rider. The countryside around Birmingham was quite unspoiled, and a special pleasure was riding to Stratford-on-Avon to see whatever Shakespeare play was on.

In June of 1960, I went to the TT, the great Tourist Trophy motorcycle race held annually on the Isle of Man. I managed to procure an Emergency Medical Service armband, which enabled me to visit the pits and see some of the riders. I kept careful notes and had plans to write a motorbike-racing novel set on the Isle of Man—I did a great deal of research for this—but it never got off the ground.¹

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The North Circular Road around London also had no speed limits in the 1950s—very inviting for those who loved speed—and there was a famous café, the Ace, which was basically a hangout for motorcyclists with fast machines. “Doing the ton”—a hundred miles per hour—was a minimum criterion for being one of the inner group, the Ton-Up Boys.

A number of bikes, even then, could do the ton, especially if they were tuned up a little, relieved of surplus weight (including exhausts), and given high-octane fuel. More challenging was the “burn-up,” a race around secondary roads, and you risked a challenge as soon as you entered the café. “Playing chicken,” however, was discountenanced; the North Circular, even then, carried heavy traffic at times.

1. In a notebook I kept at the time, I indicated my intention to write five novels (including the motorcycle one), as well as a memoir on my chemical boyhood. I never wrote the novels, but forty-five years later I wrote the memoir, *Uncle Tungsten*.

I never played chicken, but I enjoyed a little road racing; my 600 cc "Dommie" had a slightly souped-up engine but could not match the 1000 cc Vincents favored by the inner circle at the Ace. I once tried a Vincent, but it seemed horribly unstable to me, especially at low speeds, very different from my Norton, which had a "feather bed" frame and was wonderfully stable, whatever one's speed. (I wondered if one could fit a Vincent engine in a Norton frame, and I was to find, years later, that such "Norvins" had been made.) When speed limits were introduced, there was no more doing the ton; the fun was over, and the Ace ceased to be the place it once was.

When I was twelve, a perceptive schoolmaster wrote in his report, "Sacks will go far, if he does not go too far," and this was often the case. As a boy, I often went too far in my chemical experiments, filling the house with noxious gases; luckily, I never burned the place down.

I liked to ski, and when I was sixteen, I went to Austria with a school group for some downhill skiing. The following year I traveled alone to do cross-country skiing in Telemark. The skiing went well, and before taking the ferry back to England, I bought two liters of aquavit in the duty-free shop and then went through Norwegian border control. As far as the Norwegian customs officers were concerned, I could have any number of bottles with me, but (they informed me) I could bring only one bottle *into* England; U.K. customs would confiscate the other. I got on board, clutching my two bottles, and made for the upper deck. It was a brilliantly clear, very cold day, but having all my warm ski clothes with me, I did not see this as a problem; everyone else stayed inside, and I had the entire upper deck to myself.

I had my book to read—I was reading *Ulysses*, very slowly—and my aquavit to sip: nothing like alcohol to warm one inside. Lulled by the gentle, hypnotic motion of the ship, taking a little aquavit from time to time, I sat on the upper deck, absorbed in my book. I was surprised to find, at one point, that I had drunk, in tiny increments, almost half the bottle. I noticed no effect, so I continued reading and sipping from the bottle, increasingly upended now it was half-empty. I was rather startled when I realized we were docking; I had been so absorbed by *Ulysses* that I failed to note the passage of time. The bottle was now empty. I still felt no effects; the stuff must be much weaker than they make out, I thought, even though it said “100 proof” on the label. I noticed nothing amiss, until I stood up and promptly fell flat on my face. I was extremely surprised by this—had the ship suddenly lurched? So I got up and immediately fell down once again.

Only now it began to dawn on me that I was drunk—very, very drunk—though the drink had apparently gone straight to my cerebellum, leaving the rest of my head alone. Coming up to make sure everyone was off the boat, a crewman found me endeavoring to walk, using my ski poles for support. He called an assistant, and the two of them, one on each side, escorted me off the boat. Though lurching badly and attracting (mostly amused) attention, I felt I had beaten the system, leaving Norway with two bottles but arriving with one. I had cheated the U.K. customs of a bottle which, I imagined, they would dearly have liked for themselves.

Nineteen fifty-one was an eventful, and in some ways painful, year. My Auntie Birdie, who had been a constant

presence in my life, died in March; she had lived with us for my entire lifetime and was unconditionally loving to us all. (Birdie was a tiny woman and of modest intelligence, the only one so handicapped among my mother's siblings. It was never quite clear to me what had happened to her in early life; there was talk of a head injury in infancy but also of a congenital thyroid deficiency. None of this mattered to us; she was simply Auntie Birdie, an essential part of the family.) I was greatly affected by Birdie's death and perhaps only then realized how deeply she was woven into my life, all our lives. When, a few months before, I got a scholarship to Oxford, it was Birdie who gave me the telegram and hugged and congratulated me—shedding some tears, too, because she knew this meant that I, the youngest of her nephews, would be leaving home.

I was due to go to Oxford in late summer. I had just turned eighteen, and my father thought this was the time for a serious man-to-man, father-to-son talk with me. We talked about allowances and money—not a big issue, for I was fairly frugal in my habits and my only extravagance was books. And then my father got on to what was really worrying him.

"You don't seem to have many girlfriends," he said. "Don't you like girls?"

"They're all right," I answered, wishing the conversation would stop.

"Perhaps you prefer boys?" he persisted.

"Yes, I do—but it's just a feeling—I have never 'done' anything," and then I added, fearfully, "Don't tell Ma—she won't be able to take it."

But my father did tell her, and the next morning she came down with a face of thunder, a face I had never seen before. "You are an abomination," she said. "I wish you had never

been born." Then she left and did not speak to me for several days. When she did speak, there was no reference to what she had said (nor did she ever refer to the matter again), but something had come between us. My mother, so open and supportive in most ways, was harsh and inflexible in this area. A Bible reader like my father, she loved the Psalms and the Song of Solomon but was haunted by the terrible verses in Leviticus: "Thou shall not lie with mankind, as with womankind: it is abomination."

My parents, as physicians, had many medical books, including several on "sexual pathology," and I had dipped into Krafft-Ebing, Magnus Hirschfeld, and Havelock Ellis by the age of twelve. But I found it difficult to feel that I had a "condition," that my identity could be reduced to a name or a diagnosis. My friends at school knew that I was "different," if only because I excused myself from parties which would end in petting and necking.

Buried in chemistry and then in biology, I was not too aware of what was going on all around me—or inside me—and I had no crushes on anyone at school (although I was turned on by a full-size reproduction, at the head of the stairway, of the famous statue of a beautifully muscled, naked Laocoön trying to save his sons from the serpents). I knew that the very idea of homosexuality aroused horror in some people; I suspected that this might be the case with my mother, which is why I said to my father, "Don't tell Ma—she won't be able to take it." I should not, perhaps, have told my father; in general, I regarded my sexuality as nobody's business but my own, not a secret, but not to be talked about. My closest friends, Eric and Jonathan, were aware of it, but we almost never discussed the subject. Jonathan said that he regarded me as "asexual."

We are all creatures of our upbringings, our cultures, our times. And I have needed to remind myself, repeatedly, that my mother was born in the 1890s and had an Orthodox upbringing and that in England in the 1950s homosexual behavior was treated not only as a perversion but as a criminal offense. I have to remember, too, that sex is one of those areas—like religion and politics—where otherwise decent and rational people may have intense, irrational feelings. My mother did not mean to be cruel, to wish me dead. She was suddenly overwhelmed, I now realize, and she probably regretted her words or perhaps partitioned them off in a closeted part of her mind.

But her words haunted me for much of my life and played a major part in inhibiting and injecting with guilt what should have been a free and joyous expression of sexuality.

My brother David and his wife, Lili, learning of my lack of sexual experience, felt it could be attributed to shyness and that a good woman, even a good fuck, could set me to rights. Around Christmas of 1951, after my first term at Oxford, they took me to Paris with the intention not only of seeing the sights—the Louvre, Notre Dame, the Eiffel Tower—but of taking me to a kindly whore who would put me through my paces, skillfully and patiently teaching me what sex was like.

A prostitute of suitable age and character was selected—David and Lili interviewed her first, explaining the situation—and I then went into her room. I was so frightened that my penis became limp with fear and my testicles tried to retreat into my abdominal cavity.

The prostitute, who resembled one of my aunts, saw the sit-

uation at a glance. She spoke good English (this had been one of the criteria for her selection), and she said, "Don't worry—we'll have a nice cup of tea instead." She pulled out tea things and petits fours, put on a kettle, and asked what sort of tea I liked. "Lapsang," I said. "I love the smoky smell." By this time, I had recovered my voice and my confidence and chatted easily with her as we enjoyed our smoky tea.

I stayed for half an hour, then left; my brother and his wife were waiting, expectantly, outside. "How was it, Oliver?" David demanded. "Terrific," I said, wiping crumbs off my beard.

By the time I was fourteen, it was "understood" that I was going to be a doctor. My mother and father were both physicians, and so were my two eldest brothers.

I was not sure, however, that I wanted to be a doctor. I could no longer nourish ambitions to be a chemist; chemistry itself had advanced beyond the eighteenth- and nineteenth-century inorganic chemistry I loved so much. But at fourteen or fifteen, inspired by my school biology teacher and by Steinbeck's *Cannery Row*, I thought I would like to become a marine biologist.

When I got my scholarship to Oxford, I faced a choice: Should I stick to zoology or become a pre-med student and do anatomy, biochemistry, and physiology? It was especially the physiology of the senses that fascinated me—how did we see color, depth, movement? How did we *recognize* anything? How did we make sense of the world, visually? I had developed these interests from an early age through having visual migraines, for besides the brilliant zigzags which heralded an attack, I might, during a migraine aura, lose the sense of color or depth

or movement or even the ability to recognize anything. My vision could be unmade, deconstructed, frighteningly but fascinatingly, in front of me, and then be remade, reconstructed, all in the space of a few minutes.

My little home chemistry lab had doubled as a photography darkroom, and I was especially drawn to color and stereophotography; these too made me wonder how the brain constructed color and depth. I had enjoyed marine biology much as I had enjoyed chemistry, but now I wanted to understand how the human brain worked.

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I never had much intellectual self-confidence, even though I was regarded as bright. Like my two closest school friends, Jonathan Miller and Eric Korn, I was obsessed with both science and literature. I was in awe of Jonathan's and Eric's intelligence and couldn't think why they hung around with me, but we all got scholarships to university. I then ran into some difficulties.

At Oxford, one had to take an exam called "prelims" for entry; it was considered a mere formality with me, because I already had an open scholarship. But I failed prelims; I took them a second time, and I failed again. I took the test a third time and failed yet again, and at this point Mr. Jones, the Provost, pulled me aside and said, "You did splendid scholarship papers, Sacks. Why are you failing this silly exam again and again?" I said I didn't know, and he said, "Well, this is your last chance." So I took the test a fourth time and finally passed.

At St. Paul's School, with Eric and Jonathan, I could enjoy an easy mix of arts and sciences. I was president of our literary society and secretary of the Field Club at the same time. Such a mix was more difficult at Oxford, for the anatomy department,

the science laboratories, and the Radcliffe Science Library were all clustered together in South Parks Road, at a distance from the university lecture halls and colleges. There was both a physical and a social separation between those of us doing science or pre-med degrees and the rest of the university.

I felt this sharply in my first term at Oxford. We had to write essays and present these to our tutors, and this entailed many hours in the Radcliffe Science Library, reading research and review papers, culling what seemed most important, and presenting it in an interesting and individual way. Spending a great deal of time reading neurophysiology was enjoyable, even thrilling—vast new areas seemed to be opening out—but I became more and more conscious of what was now missing from my life. I was doing almost no general reading other than Maynard Keynes's *Essays in Biography*, and I wanted to write my own "Essays in Biography," though with a clinical twist—essays presenting individuals with unusual weaknesses or strengths and showing the influence of these special features on their lives; they would, in short, be clinical biographies or case histories of a sort.

My first (and, in the event, my only) subject here was Theodore Hook, whose name I had come across while reading a biography of Sydney Smith, the great early Victorian wit. Hook too was a great wit and conversationalist, a decade or two earlier than Sydney Smith; he also had, to an unrivaled degree, powers of musical invention. It was said that he had composed more than five hundred operas, sitting at a piano, improvising, and singing all of the parts. These were flowers of the moment—astonishing, beautiful, and ephemeral; they were improvised on the spot, never repeated, never written down, and soon for-

gotten. I was enthralled by descriptions of Hook's improvisational genius; what sort of brain could allow for this?

I started reading what I could about Hook, as well as some of the books he had written; they seemed oddly dull and labored, in contrast to descriptions of his lightning-quick, wildly inventive improvisations. I thought about Hook a good deal, and towards the end of the Michaelmas term I wrote an essay on him, an essay which ran to six closely typed foolscap pages, four or five thousand words in all.

I recently found this essay in a box, along with other early writings. Reading it, I am struck by its fluency, its erudition, its pomposity, and its pretentiousness. It does not seem like my writing. Could I have cribbed the entire thing or stitched it together from half a dozen sources, or was it in fact my own writing, couched in a learned, professorial style which I had adopted to counter the fact that I was a callow eighteen-year-old?

Hook was a diversion; most of my essays were on physiological subjects and were to be read weekly to my tutor. When I took on the subject of hearing, I got so excited by this, did so much reading and thinking, that I did not actually have time to write my essay. But on the day of my presentation, I brought in a pad of paper and pretended to read from it, turning over the pages as I extemporized on the subject. At one point, Carter (Dr. C. W. Carter, my tutor at Queen's) stopped me.

"I didn't quite follow that," he said. "Could you read it again?" A little nervously, I tried to repeat the last couple of sentences. Carter looked puzzled. "Let me see it," he said. I handed him the blank pad. "Remarkable, Sacks," he said. "Very remarkable. But in future, I want you to *write* your essays."

As a student at Oxford, I had access not only to the Radcliffe Science Library but to the Bodleian, a wonderful general library that could trace its origins back to 1602. It was in the Bodleian that I stumbled upon Hook's now obscure and forgotten works. No other library—apart from the British Museum Library—could have provided the materials I needed, and the tranquil atmosphere of the Bodleian was a perfect one in which to write.

But the library I most loved at Oxford was our own library at the Queen's College. The magnificent library building, we were told, had been designed by Christopher Wren, and beneath this, in an underground maze of heating pipes and shelves, were the vast subterranean holdings of the library.

To hold ancient books, incunabula, in my own hands was a new experience for me; I particularly adored Conrad Gesner's *Historiae animalium* (1551), richly illustrated (it had Albrecht Dürer's famous drawing of a rhinoceros), and Louis Agassiz's four-volume work on fossil fish. It was in the stacks that I saw all of Darwin's works in their original editions, and there, too, that I fell in love with all the works of Sir Thomas Browne—his *Religio Medici*, his *Hydriotaphia*, and *The Garden of Cyrus* (*The Quincunciall Lozenge*). How absurd some of these were, but how magnificent the language! And if Browne's classical magniloquence became too much at times, one could switch to the lapidary cut and thrust of Swift, all of whose works, of course, were there in their original editions. While I had grown up on the nineteenth-century works that my parents favored, it was the catacombs of the Queen's library that introduced me to seventeenth- and eighteenth-century literature—Johnson, Hume, Gibbon, and Pope. All of these books were freely available, not in some special, locked-away, rare books enclave, but just sitting on the shelves, as they had done, I imagined, since

their original publication. It was in the vaults of the Queen's College that I really gained a sense of history and of my own language.

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My mother, a surgeon and anatomist, while accepting that I was too clumsy to follow in her footsteps as a surgeon, expected me at least to excel in anatomy at Oxford. We dissected bodies and attended lectures and, a couple of years later, had to sit for a final anatomy exam. When the results were posted, I saw that I was ranked one from bottom in the class. I dreaded my mother's reaction and decided that, in the circumstances, a few drinks were called for. I made my way to a favorite pub, the White Horse in Broad Street, where I drank four or five pints of hard cider—stronger than most beer and cheaper, too.

Rolling out of the White Horse, liquored up, I was seized by a mad and impudent idea. I would try to compensate for my abysmal performance in the anatomy finals by having a go at a very prestigious university prize—the Theodore Williams Scholarship in Human Anatomy. The exam had already started, but I lurched in, drunkenly bold, sat down at a vacant desk, and looked at the exam paper.

There were seven questions to be answered; I pounced on one ("Does structural differentiation imply functional differentiation?") and wrote nonstop for two hours on the subject, bringing in whatever zoological and botanical knowledge I could muster to flesh out the discussion. Then I left, an hour before the exam ended, ignoring the other six questions.

The results were in *The Times* that weekend; I, Oliver Wolf Sacks, had won the prize. Everyone was dumbfounded—how could someone who had come one but last in the anatomy finals walk off with the Theodore Williams prize? I was not

entirely surprised, for it was a sort of repetition, in reverse, of what had happened when I took the Oxford prelims. I am very bad at factual exams, yes-or-no questions, but can spread my wings with essays.

Fifty pounds came with the Theodore Williams prize—£50! I had never had so much money at once. This time I went not to the White Horse but to Blackwell's bookshop (next door to the pub) and bought, for £44, the twelve volumes of the *Oxford English Dictionary*, for me the most coveted and desirable book in the world. I was to read the entire dictionary through when I went on to medical school, and I still like to take a volume off the shelf, now and then, for bedtime reading.

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My closest friend at Oxford was a Rhodes scholar, a young mathematical logician called Kalman Cohen. I had never met a logician before, and I was fascinated by Kalman's power of intellectual focus. He seemed able to fix his mind on a problem nonstop for weeks on end, and he had a passion for thinking; the very act of thinking seemed to excite him, irrespective of the thoughts he arrived at.

Though we were so different, we got on very well. He was attracted by my sometimes wildly associative mind, as I was by his highly focused mind. He introduced me to Hilbert and Brouwer, the giants of mathematical logic, and I introduced him to Darwin and the great nineteenth-century naturalists.

We think of science as discovery, art as invention, but is there a "third world" of mathematics, which is somehow, mysteriously, both? Do numbers—primes, for example—exist in some eternal Platonic realm? Or were they invented, as Aristotle thought? What is one to make of irrational numbers, like π ? Or imaginary numbers, like the square root of -2 ? Such

questions exercised me, fruitlessly, from time to time, but they were almost a life-and-death matter for Kalman. His hope was to somehow reconcile Brouwer's Platonic intuitionism with Hilbert's Aristotelian formalism, their so different yet complementary views of mathematical reality.

When I spoke of Kal to my parents, they immediately thought of how far he was from home and invited him to spend a relaxed weekend, with home cooking, in our house in London. My parents enjoyed meeting him, but my mother was indignant the next morning when she found one of Kal's bedsheets covered with inky writing. When I explained that he was a genius and that he had used the sheet to work out a new theory in mathematical logic (here I exaggerated a little), her indignation changed to awe, and she insisted on keeping the sheet, unwashed, uneraser, in case, on a future visit, Kalman might want to consult it again. She also showed it proudly to Selig Brodetsky, a former Senior Wrangler at Cambridge (and an ardent Zionist), the only mathematician she knew.

Kalman had been at Reed College in Oregon—this, he told me, was known for its brilliant students—and he had been its highest-ranking graduate in many years. He said this simply, unaffectedly, as one might speak of the weather. It was simply a matter of fact. He seemed to think I was bright, too, despite the manifest disorder and illogic of my mind. He felt that bright people should marry each other and have bright children, and with this in mind he arranged for me to meet another Rhodes scholar from America, a Miss Isaac. Rael Jean was quiet, self-effacing, but (as Kal had said) diamond sharp, and we talked high abstractions all through our dinner together. We parted amicably but never saw each other again, nor did Kalman attempt to find me a mate again.

In the summer of 1952, our first long vac, Kalman and I hitchhiked through France to Germany, sleeping at youth hostels on the way. Somewhere we picked up head lice and had to have our heads shaved. A rather elegant friend at Queen's College, Gerhart Sinzheimer, had invited us to stop by; he was summering with his parents in their house on the Titi-see in the Black Forest. When Kalman and I arrived, filthy and bald-headed with a story of catching lice, they ordered us both to have a bath, and they had our clothes fumigated. After a short, awkward stay with the elegant Sinzheimers, we made our way to Vienna (then very much, we thought, the Vienna of *The Third Man*), and there we sampled every liqueur known to man.

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Although I was not taking my degree in psychology, I sometimes went to lectures in the psychology department. It was there that I saw J. J. Gibson, a bold theorist and experimenter in visual psychology who had come to Oxford on a sabbatical from Cornell. Gibson had recently published his first book, *The Perception of the Visual World*, and was happy to let us experiment with special glasses that inverted (in one eye or both) what one normally saw. Nothing was more bizarre than seeing the world upside down, and yet, within days, the brain would adapt to this and reorient the visual world (only to have it appear upside down again when one took off the spectacles).

Visual illusions, too, fascinated me; they showed how intellectual understanding, insight, and even common sense were powerless against the force of perceptual distortions. Gibson's inverting glasses showed the power of the mind to rectify optical distortions, where visual illusions showed its inability to correct perceptual ones.

Richard Selig. It has been sixty years, but I can still see Richard's face, his bearing—he bore himself like a lion—as I first saw him outside Magdalen College in Oxford in 1953. We got talking; I suspect that it was he who started a conversation, for I was always too shy to initiate any contact and his great beauty made me even shyer. I learned in that first conversation that he was a Rhodes scholar and a poet and had worked at a variety of odd jobs all over the States. His knowledge of the world was far greater than mine, even given the disparity of age (he was twenty-four; I was twenty), far greater than that of most undergraduates who had gone straight from school to university with no experience of real life in between. He found something interesting in me, and we soon became friends—and more, for I fell in love with him. It was the first time in my life I had fallen in love.

I fell in love with his face, his body, his mind, his poetry, everything about him. He would often bring me just-written poems, and I would give him some of my physiology essays in return. I was not, I think, the only one to fall in love with him; there were others, both men and women—his great beauty, his great gifts, his vitality and love of life, ensured this. He talked freely of himself—about his apprenticeship with the poet Theodore Roethke, his friendships with many painters, and the year he himself had spent as a painter before realizing that whatever his talents were, his real passion was for poetry. He would often carry images, words, lines of poetry, in his head, working on them consciously and unconsciously for months on end until they were born as finished poems or abandoned. He had had poems published in *Encounter*, *The Times Literary Supplement*, *Isis*, and *Granta* and had a great supporter in

Stephen Spender. I thought he was a genius, or a genius in the making.

We would go on long walks together, talking about poetry and science. Richard loved to hear me wax enthusiastic about chemistry and biology, and I lost my shyness when I did so. While I knew that I was in love with Richard, I was very apprehensive of admitting this; my mother's words about "abomination" had made me feel that I must not say what I was. But, mysteriously, wonderfully, being *in* love, and in love with a being like Richard, was a source of joy and pride to me, and one day, with my heart in my mouth, I told Richard that I was in love with him, not knowing how he would react. He hugged me, gripped my shoulders, and said, "I know. I am not that way, but I appreciate your love and love you too, in my own way." I did not feel rebuffed or brokenhearted. He had said what he had to say in the most sensitive way, and our friendship continued, made easier now by my relinquishing certain painful and hopeless longings.

I thought we might be lifelong friends, as perhaps he did, too. But one day he came to my digs, looking disturbed. He had noticed a swelling in one of his groins; he had paid no attention to it at first, thinking it would disappear, but it had grown larger and was getting uncomfortable. I was a pre-med student, he said, could I look at it? He pulled his trousers and underpants down, and there it was, the size of an egg, in his left groin. It was fixed and hard to the touch. Cancer was my immediate thought. I said to Richard, "You must see a doctor—it may need a biopsy—don't delay."

The gland was biopsied and diagnosed as lymphosarcoma; Richard was told that he could expect no more than two years of life. After telling me this, he never spoke to me again; I was

the first to recognize the deadly import of his tumor, and perhaps he saw me now as a sort of messenger or symbol of death.

But he was determined to live as fully as he could in the time remaining to him; he married the Irish harpist and singer Mary O'Hara, went with her to New York, and died fifteen months later. He wrote much of his finest poetry in these last months.

One takes one's finals at Oxford after three years. I stayed on to do research, and for the first time at Oxford I found myself rather isolated, for almost all my contemporaries had left.

I had been offered a research position in the anatomy department after being awarded the Theodore Williams Scholarship but declined the offer, despite my admiration for the professor of anatomy, the very eminent and eminently approachable Wilfrid Le Gros Clark.

Le Gros Clark was a wonderful teacher who portrayed all of human anatomy from an evolutionary perspective and was known, at the time, for his role in exposing the Piltdown hoax. But I declined his offer because I had been seduced by a series of vivid lectures on the history of medicine given by the university reader in human nutrition, H. M. Sinclair.

I had always loved history and even in my boyhood chemical days wanted to know about the lives and personalities of chemists, the controversies and conflicts that sometimes accompanied new discoveries or theories. I wanted to see how chemistry unfolded as a human enterprise. And now, in Sinclair's lectures, it was the history of physiology, the ideas and personalities of physiologists, which came to life.

Friends, and even my own tutor at Queen's, tried to warn

me, to dissuade me from what they felt would be a mistake. But though I had heard rumors about Sinclair—nothing too specific, merely comments on his being a “peculiar” and somewhat isolated figure in the university; rumors, too, that the university was going to close down his lab—I was not to be dissuaded.

I realized my mistake as soon as I started at the LHN, the Laboratory of Human Nutrition.

Sinclair’s knowledge, at least his historical knowledge, was encyclopedic, and he guided me to work on something I had only vaguely heard about. The jake paralysis, so-called, had caused crippling neurological damage during Prohibition, when drinkers, denied legal forms of alcohol, turned to a very strong alcoholic extract of Jamaica ginger, or “jake,” which was freely available then as a “nerve tonic.” When its potential for abuse became apparent, the government had it doctored with a very unpleasant-tasting compound, triorthocresyl phosphate, or TOCP. But this hardly deterred drinkers, and it soon became apparent that TOCP was in fact a grave, albeit slow-acting, nerve poison. By the time this was realized, more than fifty thousand Americans had suffered extensive and often irreversible nerve damage. Those affected showed a distinctive paralysis of the arms and legs and developed a peculiar, easily recognized gait, the “jake walk.”

Exactly how TOCP caused nerve damage was still unknown, though there had been some suggestion that it especially affected the myelin sheaths of the nerves, and, Sinclair said, there were no known antidotes. He challenged me to develop an animal model of the disease. Here, with my love of invertebrates, I thought immediately of earthworms: they had giant myelinated nerve fibers, which mediated the worms’ ability

to curl up suddenly when they were hurt or threatened. These nerve fibers were relatively easy to study, and there would never be any problem getting as many worms as I wanted. I could supplement the earthworms, I thought, with chickens and frogs.

Once we had discussed my project, Sinclair secreted himself in his book-lined office and became virtually inaccessible—not only to me, but to everyone in the Laboratory of Human Nutrition. The other researchers were senior men, happy to be left alone, free to do their own work. I, in contrast, was a novice, badly in need of advice and guidance; I tried to see Sinclair but after half a dozen attempts realized it was a hopeless business.

The work went badly from the start. I did not know what strength the TOCP should be, in what medium it should be given, or whether it should be sweetened to disguise its bitter taste. The worms and frogs at first refused the TOCP delicacies I concocted. The chickens, it seemed, would gobble anything—an unlovely sight. Despite their gobbling and pecking and squawking, I started to grow fond of my chickens, to take a certain pride in their noisiness and vigor, and to appreciate their distinctive behaviors and characteristics. In a few weeks, the TOCP took effect, and the chickens' legs started to weaken. At this point, thinking that TOCP might have some similarity to nerve gases (which disrupt the neurotransmitter acetylcholine), I gave anticholinergic drugs as an antidote to half of the semi-paralyzed birds. Misjudging the dose, I managed to kill them all. Meanwhile, the hens which had been spared the antidote grew weaker and weaker, a sight I could hardly bear to watch. The end, for me and for my research, was seeing my favorite hen—she had no name, but number 4304

was an animal of unusually docile and sweet disposition—sink to the ground on her paralyzed legs, chirping piteously. When I sacrificed her (using chloroform), I found she had damage to the myelin sheaths of peripheral nerves and nerve axons in the spinal cord, like the human victims who had come to autopsy.

I also found that TOCP knocked out the sudden curling reflex in earthworms, though not their other movements, that it damaged their myelinated nerve fibers but not their unmyelinated ones. But I felt that my research as a whole was a failure and that I could never hope to be a research scientist. I wrote up a colorful and rather personal account of the work and, with this, tried to dismiss the whole wretched episode from my mind.

Depressed by this and isolated because all my friends had left the university, I felt myself sinking into a state of quiet but in some ways agitated despair. I could find no relief except in physical exercise, and every evening I went for a long run on the towpath along the Isis. After running for an hour or so, I would dive in and swim and then, wet and a little chilled, run back to my mean digs opposite Christ Church. I would gobble some cold dinner (I could no longer bear to eat chicken) and then write far into the night. These writings, titled “Night-caps,” were frenzied, unsuccessful efforts to forge some sort of philosophy, some recipe for living, some reason to go on.

My tutor at Queen’s, who had tried to warn me against working for Sinclair, perceived my condition (I found this surprising and reassuring; I was not sure that he even knew of my existence at this point) and voiced his concern to my parents.

Between them, they decided I needed to be extricated from Oxford and put in a friendly and supportive community with hard physical work from dawn till dusk. My parents thought that a kibbutz would fill the bill, and I too, though devoid of any religious or Zionist feeling, liked the idea. And so I departed for Ein HaShofet, an "Anglo-Saxon" kibbutz near Haifa where English would be spoken until, it was hoped, I became fluent in Hebrew.

I spent the summer of 1955 in the kibbutz. I was given a choice: I could work in the tree nursery or with chickens. I had a horror of chickens now and opted for the tree nursery. We got up before dawn, had a large communal breakfast, and then set off for our work.

I was amazed at the huge bowls of chopped liver at every meal, including breakfast. There were no cattle on the kibbutz, and I did not see how its chickens alone could provide the hundred pounds or so of chopped liver we consumed every day. When I enquired, there was laughter, and I was told that what I had taken for liver was chopped eggplant, something I had never tasted in England.

I was on good, at least conversational, terms with everybody but on close terms with nobody. The kibbutz was full of families or, rather, constituted a single super-family in which all the parents looked after all the children. I stood out as a single person with no intention of making my life in Israel (as so many of my cousins planned to do). I was not good at small talk, and in my first two months, despite intensive immersion in the *ulpan*, I learned very little Hebrew, though in my tenth week I suddenly started to understand and utter Hebrew phrases. But the hardworking physical life and the presence of

friendly, thoughtful people around me served as an anodyne to the lonely, torturing months in Sinclair's lab, when I was so shut up in my own head.

And there were great physical effects, too; I had gone to the kibbutz as a pallid, unfit 250 pounds, but when I left it three months later, I had lost nearly 60 pounds and, in some deep sense, felt more at home in my own body.

After I left the kibbutz, I spent a few weeks traveling to other parts of Israel to get a feeling of the young, idealistic, beleaguered state. In the Passover service, recalling the exodus of the Jews from Egypt, we would always say, "Next year in Jerusalem," and now, finally, I saw the city where Solomon had built his temple a thousand years before Christ. But Jerusalem was divided at this time, and one could not go into the old city.

I explored other parts of Israel: the old port of Haifa, which I loved; Tel Aviv; and the copper mines, reputedly King Solomon's mines, in the Negev. I had been fascinated by what I had read of kabbalistic Judaism—especially its cosmogony—and so I made my first journey, a pilgrimage in a way, to Safed, where the great Isaac Luria had lived and taught in the sixteenth century.

And then I made for my real destination, the Red Sea. Eilat had a population of a few hundred at this time, with little more than tents and shacks (it is now a glittering seafront of hotels, with a population of fifty thousand). I snorkeled practically all day and had my first experiences of scuba diving, still relatively primitive at this time. (It had become far easier and more streamlined by the time I got my certification as a scuba diver in California a few years later.)

I wondered again, as I had wondered when I first went to

Oxford, whether I really wanted to become a doctor. I had become very interested in neurophysiology, but I also loved marine biology, especially marine invertebrates. Could one combine them, perhaps, by doing invertebrate neurophysiology, especially studying the nervous systems and behaviors of cephalopods, those geniuses among invertebrates?²

A part of me would have liked to stay at Eilat for the rest of my life, swimming, snorkeling, scuba diving, doing marine biology and invertebrate neurophysiology. But my parents were getting impatient; I had idled long enough in Israel; I was “cured” now; it was time to return to medicine, to start clinical work, seeing patients in London. But I had one more thing I needed to do—something which had been unthinkable before. I was twenty-two, I now thought, good-looking, tanned, lean, and still a virgin.

I had been to Amsterdam a couple of times with Eric; we loved the museums and the Concertgebouw (it was here that I first heard Benjamin Britten’s *Peter Grimes*, in Dutch). We loved the canals lined with tall, stepped houses; the old Hortus Botanicus and the beautiful seventeenth-century Portuguese synagogue; the Rembrandtplein with its open-air cafés; the fresh herrings sold in the streets and eaten on the spot; and the

2. My examiner in zoology when I had taken the Higher School Certificate exam in 1949 was the great zoologist J. Z. Young, who had discovered the giant nerve axons of squids; it was investigation of these giant axons a few years later which led to our first real understanding of the electrical and chemical basis of nerve conduction. Young himself spent every summer in Naples, studying the behavior and brain of the octopus. I wondered whether I should try to work with him, as Stuart Sutherland, my contemporary at Oxford, was now doing.

general atmosphere of cordiality and openness which seemed peculiar to the city.

But now, fresh from the Red Sea, I decided to go to Amsterdam alone, to lose myself there—specifically, to lose my virginity. But how does one go about doing this? There are no textbooks on the subject. Perhaps I needed a drink, several drinks, to damp down my shyness, my anxieties, my frontal lobes.

There was a very pleasant bar on Warmoesstraat, near the railway station; Eric and I had often been there for a drink together. But now, by myself, I drank hard—Dutch gin for Dutch courage. I drank till the bar went in and out of focus and sounds seemed to swell and retreat. I did not realize until I stood up that I was unsteady on my feet, so unsteady that the barman said, "*Genoeg!* Enough!" and asked if I needed any help getting back to my hotel. I said no, my hotel was just across the street, and staggered out.

I must have blacked out, for when I came to the next morning, I was in not my own bed but someone else's. There was the friendly smell of coffee brewing, followed by the appearance of my host, my rescuer, in a dressing gown, with a cup of coffee in each hand.

He had seen me lying dead drunk in the gutter, he said, had taken me home . . . and buggered me. "Was it nice?" I asked.

"Yes," he answered. Very nice—he was sorry I was too out of it to enjoy it as well.

We talked more over breakfast—about my sexual fears and inhibitions and the forbidding and dangerous atmosphere in England, where homosexual activity was treated as a crime. It was quite different in Amsterdam, he said. Homosexual activity between consenting adults was accepted, not illegal, not

regarded as reprehensible or pathological. There were many bars, cafés, and clubs where one could meet other gay people (I had never heard the word “gay” in this connection before). He would be happy to take me to some of them or just give me their names and whereabouts and let me fend for myself.

“There is no need,” he said, suddenly getting serious, “to get dead drunk, pass out, and lie in the gutter. This is a very sad—even dangerous—thing to do. I hope you will never do it again.”

I cried with relief when we spoke and felt that some huge burden, a burden above all of self-accusation, had been lifted or at least much lightened.

In 1956, after my four years in Oxford and my adventures in Israel and Holland, I moved back home and started as a medical student. In those thirty months or so, I rotated through medicine, surgery, orthopedics, pediatrics, neurology, psychiatry, dermatology, infectious diseases, and other specialties denoted only by letters—GI, GU, ENT, OB/GYN.

To my surprise (but my mother’s gratification), I had a special feeling for obstetrics. In those days, babies were delivered at home (I myself had been born at home, as were all my brothers). Deliveries were largely in the hands of midwives, and we, as medical students, would assist the midwives. A phone call would come, often in the middle of the night; the hospital operator would give me a name and an address, and sometimes she would add, “Hurry!”

The midwife and I, on our bicycles, would converge on the house, go to the bedroom or occasionally the kitchen; it was sometimes easier to deliver on a kitchen table. The husband

and family would be waiting in the next room, their expectant ears tuned for the baby's first cry. It was the human drama of all this which excited me; it was real in a way that hospital work was not and our only chance to *do* something, to play a role, outside the hospital.

As medical students, we were not overloaded with lectures or formal instruction; the essential teaching was done at a patient's bedside, and the essential lesson was to listen, to get the "history of the present condition" from the patient and ask the right questions to fill in the details. We were taught to use our eyes and ears, to touch, to feel, even to smell. Listening to a heartbeat, percussing the chest, feeling the abdomen, and other forms of physical contact were no less important than listening and talking. They could establish a bond of a deep, physical sort; one's hands could themselves become therapeutic tools.

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I qualified on December 13, 1958, and I had a couple of weeks in hand; my house job at the Middlesex was not due to start until the first of January.³ I was excited—and amazed—to find myself a doctor, to have made it finally (I never thought I would, and sometimes even now, in my dreams, I am still stuck in an eternal studenthood). I was excited, but I was terrified too. I felt sure I would do everything wrong, make a fool of myself, be seen as an incurable, even dangerous bungler. I thought a temporary house job in the weeks before I started at the Middlesex might give me needed confidence and competence, and I managed to get such a job a few miles outside London, at a hospital

3. In the United States, this would have been called an internship; in England, interns are referred to as housemen, and residents as registrars.

in St. Albans where my mother had worked as an emergency surgeon during the war.

On my first night, I was called at 1:00 a.m.; a baby had been admitted with bronchiolitis. I hurried down to the ward to see my first patient—a four-month-old infant, blue around the lips, with a high fever, rapid breathing, and wheezing. Could we—the nursing sister and I—save him? Was there any hope? Sister, seeing that I was terrified, gave me the support and guidance I needed. The little boy's name was Dean Hope, and absurdly, superstitiously, we took this as a good omen, as if his very name could sweeten the Fates. We worked hard all night, and when the pale grey winter day dawned, Dean was out of danger.

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On January 1, I started working at the Middlesex Hospital. The Middlesex had a very high reputation, even though it lacked the antiquity of "Barts"—St. Bartholomew's, a hospital dating back to the twelfth century. My older brother David had been a medical student at Barts. The Middlesex, a relative newcomer founded in 1745, was housed, in my day, in a modern building from the late 1920s. My eldest brother, Marcus, had trained at the Middlesex, and now I was following in his footsteps.

I did a six-month house job on the medical unit at the Middlesex and then another six months on the neurological unit, where my chiefs were Michael Kremer and Roger Gilliatt, a brilliant but almost comically incongruous pair.

Kremer was genial, affable, suave. He had an odd, slightly twisted smile, whether from a habitually ironical view of the world or the residue of an old Bell's palsy, I was never sure. He seemed to have all the time in the world for his housemen and his patients.