

RUTH BERMAN\_\_\_\_\_.

## Professor and Colonel

*"‘Professor Robert Moriarty . . . had one of the great brains of the century.’"—Sherlock Holmes, "The Adventure of the Empty House"*

*"It is with a heavy heart that I take up my pen to write these the last words in which I shall ever record the singular gifts by which my friend Mr. Sherlock Holmes was distinguished. . . . It was my intention . . . to have said nothing of that event which has created a void in my life which the lapse of two years has done little to fill. My hand has been forced, however, by the recent letters in which Colonel James Moriarty defends the memory of his brother."—John H. Watson, M.D., "The Final Problem"*

*"Professor Robert Moriarty is . . . a man of great intellectual force."—William Gillette and Sir Arthur Conan Doyle, Sherlock Holmes, A Play*

*"The greatest schemer of all time, the organizer of every devilry, the controlling brain of the underworld, a brain which might have made or marred the destiny of nations,—that's the man! But so aloof is he from general suspicion, so immune from criticism, so admirable in his management and self-effacement, that for those very words that you have uttered [‘famous scientific criminal’] he could hale you to a court and emerge with your year's pension as a solatium for his wounded*

*character. Is he not the celebrated author of 'The Dynamics of an Asteroid,' a book which ascends to such rarefied heights of pure mathematics that it is said that there was no man in the scientific press capable of criticizing it? Is this a man to traduce?"—Sherlock Holmes, The Valley of Fear*

In the summer of 1890 James visited Europe for the first time in many years, as escort to a diplomatic conference. A colonel on the staff looked well, the minister told him. James simplified that to RHIP and left his Indian HQ in the care of a major with alacrity. He was not allowed time to go home to England itself, but he did not object. He did not much care to see the home of his youth, built by the wealth of his father's substandard concrete, and he did not have fond memories of the series of flats they had lived in after the business failed. His parents were dead. But he wired his brothers.

The youngest could not leave his job immediately, and promised to join them later in Paris. But Robert said he could put off his students and other affairs and turned up in Versailles, sweating in the heat, fanning himself with his top hat, and shining with the delight of their reunion.

"You're well?" he said anxiously.

James laughed and said he was. Robert could never forget that he was, as it were, a replacement by birth. The older James had fallen victim to an outbreak of the typhoid and had not been expected to survive. "And you?" said James. "I thought perhaps you might be married now, since you've been doing well at your business, I think?"

"Yes, but there's too much to do. I haven't thought about much besides. . . . But what about you? There must be women in India," said Robert.

"Not many of them are English."

Robert, with his infernal logic, started to say something comical about the physiological identity of the races, but James winced, and Robert gave it up. James was almost sorry. If Robert had forced him to talk about the impossible possibility of defying the Empire's opinion and marrying a native, he could have pressed Robert to talk more about his business, whatever it was. But then James

would have had to talk to his younger brother about love, a prospect that would doubtless have appalled them both.

They wandered a while in silence. Robert was not an entirely comfortable person for companionship in a formal garden. If you pointed out the beautiful sunflowers and then went on to the hollyhocks, you might go quite a distance before you realized that your companion was still transfixed by a sunflower, counting the florets in each spiral and charting the pattern of clockwise and withershins spirals, apparently blind to the gold color and the beautiful halo made by the petals, which he called the ligulate flowers. "Yes, it's symmetrical," he agreed enthusiastically, when James tried to call his attention to the petals, or ligulate flowers, as the case might be. James gave it up and asked if Robert had gone any further with his sequel to *The Dynamics of an Asteroid*.

Robert let the sunflower go and looked sidelong at his brother. "No."

"Oh," said James, feeling startled. He knew Robert had been delighted with his success at finding an equation for the problem of several bodies. James tried to think of something sensible yet consoling to say about not continuing. "Perhaps something with more practical applications would be better? Knowing where an asteroid will be doesn't shake the Earth, I suppose?"

"That isn't the point!" said Robert. Then he shrugged. "But no one else seemed to understand, either."

"What *is* the point?" said James.

"The point is precision. If you can calculate a path, you can even tell where atoms of matter, or light, or energy will be at any point in time. Not that an atom's orbit is an asteroid's. But if we could calculate the relationship between energy and matter, we could fuel engines to—" He stopped and laughed at James's confusion. "Never mind. But it's all a question of trajectories. Asteroids move, atoms move, we move. Perhaps if we knew enough," he added thoughtfully, "we could turn fortune telling into truth and trace the entire past and future of any object sufficiently well defined." He pointed at the lines of his hand. "We all have fates of our own, and the ideal reasoner, given enough data, could read them anywhere. Although as for mine—" He broke off and looked around the garden, admiring the pyramidal and spherical trees, the paths that led the eye up and down and trapped the shape of the space around

them, so that to glance in any direction was to know at once where one stood and how the surrounding landscape incorporated that point. "Do you know what they did, André Le Nôtre, and those other old seventeenth-century gardeners who planted the gardens of the Sun King?"

"Laid out Versailles," James suggested.

"They integrated space," Robert said, not bothering to acknowledge the simpler answer. "Look how those straight diagonals tell you where you are and where you can go. Look how the reflecting pools double the space, and define it, in those long straight edges. It's no wonder Descartes discovered at the same time how to define space numerically. The old medieval gardens, the kinds the monasteries cultivated, were only arithmetical, adding square to square, expanding in squares as far as their walls would let them, without any sight or sense of the whole. Here the paths give measure to the shape. What André felt is what old René learned to analyze."

"I like an English garden better," said James. "It's more natural."

"But the shapes—!" Robert stopped again. "Well, they integrated space, the seventeenth-century gardeners and mathematicians. I should like to integrate time. Who knows? Perhaps if I really knew how, I could wander in time as we wander in this garden."

"Surely not!" said James.

Robert grinned at him. "Well, probably not. But I'm not promising."

They leaned against a fountain of pink marble, for the coolness of the shade and the wind in the water. The jets lofted high over their heads like swords above the central goddess. Circles of little bronze frogs and lizards spat into the lake around her.

"But why aren't you trying?" said James at length. "If you feel that way about your work, your real work, I mean, shouldn't you be getting out of business? I can live on my pay now, you know. I've been able to for some time."

"In fact, you save everything I send you?" said Robert.

"Well . . . no. But I could, I think. I know the costs of my commission and the promotions—well, until the reforms in '71, anyhow—and supplementing my pay, it all held you back, and I regret more than I can—"

Robert brushed away this attempt to show gratitude for the long



sacrifice. "Oh, it could have been worse," he said. "After all, all we got you was a place in the Indian Army. You were the one who had to go into exile. Anyhow, the business does better than you think, and I haven't been doing it just for you. Indeed, I enjoy it. The challenge is invigorating. And there would be certain practical difficulties entailed if I were to attempt to dispose of the concern. But eventually I mean to get back what I gave up for it, with interest, too."

"I don't understand."

"Research takes money. Even if it takes nothing else, just the time to sit quietly and think, it takes the money to live on while you sit and think. Most things take a deal more. Such great things are doing, and there's so little help given! That mad American, Michelson, who keeps measuring the speed of light and confounding himself and everyone else by proving there's no ether out there for it to push through—do you know how he does that?"

"With mirrors, I suppose."

"Of course," said Robert. "But then the mirrors must remain steady. Nine years back, when he tried in Potsdam, he was worrying that the footsteps on pavement a block away might be interfering with the results. It took him six years to get funding and support to try again. In '87 he set his contraption on a stone—and floated the stone in a trough of liquid mercury set on a bed of cement set on a pier set on bedrock. Digging and building cost money. So does mercury—especially if your hands happen to know that the stuff's poisonous. Or there's Mach with his air waves faster than sound, and Hertz just as interesting with his Maxwell waves. You know, the Austrian Navy turned over a cannon for the study of Mach waves, but the results aren't entirely satisfactory. Mach says what he really needs is a full laboratory set up especially for the work."

"No, I didn't know," James was starting to say, but his brother went rushing on.

"Then there's the younger generation to consider. I stopped at the Sorbonne, coming down, and met an interesting pair of Polish medical students—Poles come here to study, because the Russian government doesn't give them much chance at home."

"And they're good?"

"So-so. But the girl claims that her little sister Marie is a genius, if only she had the money to come here and go on with her educa-

tion properly." He pursed his lips. "It sounds unlikely, but it could be so. Or I have a colleague teaching maths out in the wilds of New Zealand. He thinks highly of a boy named Eve, and another one, Rutherford, just behind. They're cropping up all around us. I tell you, man, the world's about to explode with new inventions and new theories. If Britain wants to keep her standing as a world power, she has to stay ahead in knowledge."

"You want to give money to foreigners to help Britain keep up?"

"I want to found a British institute of sciences with worldwide influence. I may even be able to do a little of my own research there, too, if I can get it set up in time. In any event, it will build on my earlier work, so that the work won't be forgotten and have to be done again. And my institute will see to that and much besides."

"Your institute," said James slowly. "Your name, I suppose."

"Yes. Why not?"

"You don't think it's a trifle vainglorious?"

"Oh, it wouldn't have to be called after me. The official name could be something more lofty. But it would be mine, just the same. It's a simple question of funding."

"Couldn't you do the same thing at a lower cost by donating to the Cavendish?"

"I may have to, if I don't raise enough for a competing institute. But I think the Cavendish would be the better for some competition, and I trust my own judgment of what most urgently needs funding more than I do theirs, anyway."

"And the profits of your business will do all that? Robert, I . . . forgive me, but . . . is it honest? It's not like father, is it?"

"It is not!"

"I'm sorry, but—"

"No, I understand. But you see, James, I'm in trade. I find things that people want, and I sell them to them. I traffic in a good many commodities. If it's wanted, it's worth selling. But, as any gentleman will tell you, if an officer and a gentleman needs telling, trade is ungentlemanly. I am not bound by gentlemanly ethics in it. I admit. . . ." He stopped, and eyed his brother, then he took off his hat to dabble a little water from a lizard on his brow. "I admit to sharp practices," he said at last. "But I give value for money. My customers get what they bargain for, I do assure you."

"I *am* sorry."

Robert leaned over, a little awkwardly, and hugged his brother. "Your turn," he said. "Tell me about India."

They loitered down the perspective, between the lines of flowers. At home in England, Sherlock Holmes was studying the daily newspapers and calculating patterns of crime. In Switzerland, the waters of the Reichenbach Falls plunged down the face of the mountain and into the deadly cauldron beneath, waiting for another summer, and Professor Moriarty.