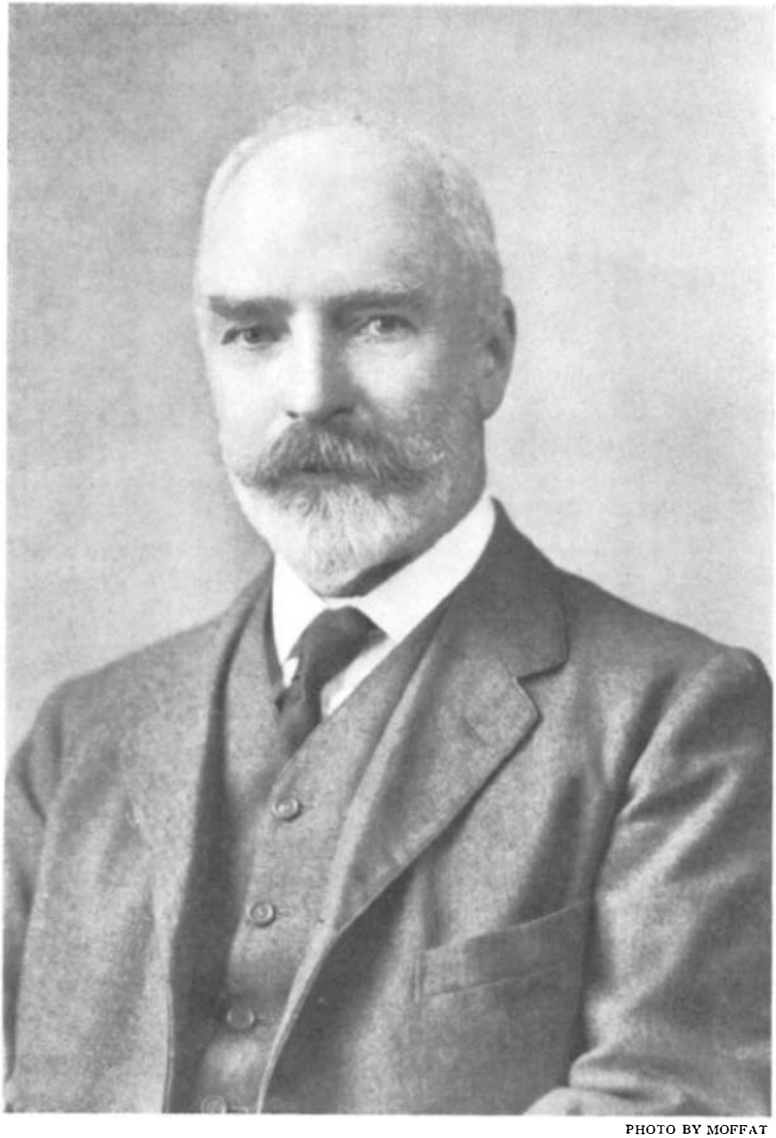

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ARTHUR ROBERTSON CUSHNY

A PERSONAL BIOGRAPHY OF ARTHUR ROBERTSON CUSHNY, 1866–1926

By His Daughter
Helen MacGillivray

Arthur Robertson Cushny would wish to be remembered by his work, which to the world is memorial enough. This, I am not qualified to assess. The many scientific papers and books he wrote, as well as the appreciation of his peers, are there to be read in scientific libraries. I have written this little account of my father as I knew him so that my grandchildren will be able to learn something of their remarkable great-grandfather. I have tried to follow the text he wrote in his scrap book, to "tell the truth with love."

In the family records, kept by my father with that enthusiasm for the remotest cousins shown by so many Scots, there appear many forceful characters, most of them worthy, but some less so as the lady who died "execrated by all her relations having blackmailed them for sixty-five years." One longs to know how. The Cushny (at first spelled Cushnie) family came from Morayshire and Aberdeenshire. The earliest ancestor mentioned in my father's records was James Cusnye (Cushnie), who was a reader at Aboyne in 1567. His salary was 20 lib. Of another forbear there was a ballad, one verse of which runs:

Sandy Cushny's nae for me
'Cause I'm but a drover's dochter.
So he's away to the parish of E'en
To seek for Miss Gray and her tocher.
He may go to Donside
And wash his dun hide.

The rest is lost, perhaps fortunately. "Sandy" was Alexander Cushny, minister of Oyne, and Arthur Cushny's great-grandfather. He married Ann Gray. The "dun hide" refers to his dark complexion. Many Cushnys are very dark.

Like many gifted Scots, Arthur Robertson Cushny was a son, a grandson, and great-grandson of the manse. His father, John Cushny, was born at Rayne in 1826. He was ordained minister at Speymouth in 1848. In 1856 he married Catherine Ogilvie Brown, daughter of the Procurator Fiscal of Elgin. They had seven children, one daughter and six sons, all born at Speymouth. Arthur, born 1866, was the fourth.

John Cushny was a very earnest preacher, but his chief interests lay in public life in which he took a leading part in the locality. The living from this parish was very small for his large family, and this limited him a great deal. In 1871, he was presented by the Duke of Richmond to the much better living of Huntly in Aberdeenshire, and he was just beginning to get on his feet when he died at the age of 48. Arthur was only nine then and had rather faint memories of his father; to his mother, he was devoted.

Catherine Ogilvie Cushny, with her seven children, returned to Fochabers near her much loved Speymouth. The minister's widow must have had a hard struggle to make ends meet. Letters to her sister-in-law speak of "the plight we are in, and things go from bad to worse." She also mentioned the bitter cold of the winters in Fochabers. Probably there was not overmuch to keep them warm. Later, writing to Arthur of her pleasure at his winning a bursary for Aberdeen University, she states how every little is a great help. However, it must not be thought that she was in any way plaintive, for her letters were gay and full of interest in her children and her friends.

My father's stories of his boyhood were always happy ones. The boys roamed the lovely countryside, and my father was always a countryman at heart, with a good knowledge of and curiosity for birds, beasts, and plants. The Spey was a personality rather than a river, changing its course frequently, and as I was told when I visited there, demanding a life every year. There was a family dog, Sneeshun, the local word for snuff, which hunted squirrels and anything else that ran. The boys collected enough squirrel pelts to make a rug for their mother. She mentioned its return from the rugmaker in a letter, adding wryly that the making up had yet to be paid for. The redoubtable Sneeshun played a leading part in many of my father's stories. He came to a sad end, and I found a letter written by the youngest brother, Robin, to Arthur, who by then was away at the University. "My dear Arthur, You will be very sorry to hear of the death of poor old Sneesh. I was in the kitchen with Annie [the children's nurse whom I remember as a very alarming old lady] on Tuesday night and heard him give a scrape and a whine. So I went ben to the scullery and found him lying panting. I immediately thought of poison." There followed a graphic account of attempting to administer an emetic, and then "We did not keep any part of the old dog but buried him whole. The shepherd wanted to open him, but I said I would rather not and Tom said the same when he came home. Tom bids me tell you Gillice got your arm alright but has not got Bissett's leg. [Was this for anatomy? It almost smacks of Burke and Hare.] My leg is all right now [he had acute tibial osteomylitis, which later became chronic] and I am going to get a pony to ride over to school as Minnie will not be well for a long time. I must stop now, with best love, Yours truly, R. S. Cushny." It was signed with elaborate curlicues.

Arthur was said to have been a delicate child, but in what way is not specified. He grew to be a tall, fine looking man and, except for occasional migraines, he was never ill. An admiring lady told him in my hearing he was "a fine Highlander," a statement which annoyed him considerably, as he was quite out of tune with Celtic romanticism and often said that Morayshire was not the Highlands but a part of the Lowlands extended into the Highlands.

At school he was a good scholar and a very hard worker, and he remained so all his life. In October 1881, his mother wrote to her sister in Aberdeen to

ask if Arthur could stay with her "till the competition is over—Of course you know he is *not* to remain during the winter, merely going up to prepare for the *grand* trial next year if spared to go forward. I hope he will get into the merit list poor laddie, for he has been working *real* hard. But at the same time he has a *real* pleasure in study. May God grant him health and strength for whatever his future course may be, and *direct* his *heart* to *good*." He was then fifteen. When he was a very small boy someone asked him what he was going to be when he grew up. He replied, "A professor." When asked why, he said, "Because they have such long holidays."

The year after the competition, he did get the hoped-for bursary and entered Kings College, Aberdeen, to study Arts. He won some prizes and medals in Arts subjects and graduated M.A. in 1886. He had begun to study medicine the year before, and quickly showed he had found his bent. Medals and prizes were won each year, and in 1889, he graduated with Highest Honours, won the Murray medal and scholarship for the best man of his year, and was the George Thompson Fellow for Pathology, Physiology, and Gynaecology.

He did not spend all his time over his books, but enjoyed the student life. I have the notes he made for a speech to an undergraduate society, moving that the General Practitioner's life was better than that of a doctor in the services. Characteristically, an advantage of general practice, in his view, was that a doctor could follow a disease "from its beginning to its close, and if he does his duty and has a reasonable amount of luck, need have no fear of it being snatched from his hand." He was speaking more than 70 years ago.

He made numerous friends in his student years, and kept in touch with many of them. Years later when we went to Scotland for summer vacations, he played golf with some of them. Once, at Aboyne, to make a foursome, my father and two surgeons from Aberdeen permitted a girl, said to be a fair player, to join them. Three crestfallen medical men came in at the end of the round, defeated by a "wee bit lassie," who turned out to be the Scottish Ladies Champion.

The family left Fochabers one by one. Cath was married; Alexander went to Shanghai, where his uncle had large business interests; John became an electrical engineer and went to India and later to South Africa, finally giving up engineering and becoming one of the earliest settlers in what is now Kenya. James, the least scholarly of the family, went to ranch in Mexico and later to Kansas. Tom died in Shanghai, in 1893 of dysentery. My father wrote of him, "He was the best fellow I ever met and my favourite brother." Robin, the youngest, began to study medicine at Aberdeen, but gave it up and went out to John in Africa, where he died in 1905. He was a charming man, and my father wrote, "had a personal magnetism which won for him hosts of friends, not always of the most judicious kind."

In 1887, Arthur's mother died at the age of 54. She did not live to see Arthur graduate with such distinction, but she had faith in his ability, and

the day before she died, said to him, "Go on in your profession. Don't let anything discourage you."

Among Arthur Cushny's teachers at Aberdeen, J. T. Cash, Professor of Materia Medica, had a decisive influence. A colleague and fellow-student recalled years later that Arthur once said that Cash's teaching was an inspiration and made him feel he could give his life to pharmacology. So, when he was awarded the Thompson Fellowship, he went to Berne for a year to work in the laboratory of the physiologist, Hugo Kronecker, for further training in the methods of physiological research.

After the year in Berne, Cushny went to Strasbourg to work under the great Professor Schmiedeberg, the father of modern pharmacology. The following year, in 1892, when he was 26, he was appointed assistant to this man of genius.

While he was in Strasbourg, he met a 17-year-old English girl, Sarah Firbank. She was living with a French family and teaching the children English. I have always understood they met while skating. Having grown up in the North of Scotland, Arthur was quite proficient in the art, while Sarah was not. It was natural that the handsome young Scot should teach the pretty English girl to skate. A lighthearted friendship grew up. He was introduced to Monsieur and Madame Hatt, the French family with whom Sarah was living, and was presumably approved as a suitable escort for "Mees."

Subsequent to the transfer of Strasbourg to Germany, after the Franco-Prussian War, the German officers ruled the town arrogantly. Arthur's brothers, John and Robin, on a visit there, did not know that civilians had to step off the sidewalk for German officers. Robin was admiring some buildings and did not see the approaching officer. In a moment, a sword was being brandished over his head. The hot-tempered John immediately knocked the officer down. The brothers were led off to the police station, and they were released only because of Arthur's position with Schmiedeberg. In spite of international tensions, it was a pleasant town for young foreigners. There were expeditions to the Vosges and evenings at the opera. Public enthusiasm for Wagner was at its height; and Arthur and Sarah never lost their love of Wagner throughout their lives. They could sing all the "motifs," and Sarah played the scores on the piano. Years later, in London, although not strong at that time, Sarah would sit out the whole of the Ring when it came to Covent Garden, in far from expensive or comfortable seats. By that time, Arthur's enthusiasm must have waned slightly. I do not remember him going to the opera unless he could go in comfort.

During the year 1892, he returned to Aberdeen to receive his M.D., again with Highest Honours. He had already published several papers in English and German medical journals.

Under Schmiedeberg, the science of Materia Medica had undergone a change. Previously, it had been largely the study of the chemistry of substances used in medicine, with an alliance of the departments of chemistry and materia medica in medical schools, followed by clinical study. Schmiede-

berg, however, was a trained physiologist, and showed the importance of studying the effects of drugs on living tissues under laboratory conditions. Materia medica became allied with physiology, and so developed the modern science of pharmacology. The American pharmacologist, J. J. Abel, who had also studied under Schmiedeberg, had built up from nothing a small modern department of pharmacology in the University of Michigan at Ann Arbor. He was later appointed to Johns Hopkins Medical School, and since he was traveling to Europe before taking up the appointment, he was asked by the Dean of Medicine to look around for a suitable successor. He asked young Cushny if he would consider the appointment if it were offered him. Cushny had intended to return to Britain to become a consulting physician, combining clinical work with pharmacological research. However, Schmiedeberg advised him to accept this post, and in October 1893, he was installed in the Chair of Pharmacology of the University of Michigan. He was 27 and younger than many of his students.

Since he was never precipitate in anything he did, and he considered Sarah Firbank much too young to know her own mind, (added to the fact that neither of them had any money), he did not ask her to go with him, nor was there any understanding between them before he left.

Unfortunately, there appear to be no letters remaining to tell of his early impressions of America, although he formed some friendships that lasted for many years. He was a member of a society of 12 young men, who called themselves the Apostles. They were all bachelors and at marriage ceased to be members. He seems to have been very gay, and was known to some as the "Butterfly," a name which seems remarkably inappropriate for one who is remembered as a large, bearded man.

To his class, men and women of his own age, he was an object of awe and affection. I have met very elderly men who were his students in the early days, who still spoke of him in this way. The brilliant originality of his approach to his subject, his dry humour, and his good looks impressed them. He could be very aloof. A colleague tells of when a girl, who had been "ploughed," came weeping to his room, he had only to say, "Hush! I hear Cushny coming," to make her flee. When he left America 12 years later, the Detroit Medical Journal wrote, "His admirable scientific poise of mind in teaching a subject which had scarcely emerged from the mists of quackery and empiricism and his dry Scotch humour have made Professor Cushny a favourite with Medical students in Ann Arbor."

While working with Schmiedeberg, he had already begun his famous work on the action of digitalis on the heart. He must have continued this as soon as he was settled in Ann Arbor, in spite of the rudimentary laboratory conditions, as in 1894 he published a paper on the subject in the *Transactions of the Michigan Medical Society*.

In 1895, he visited Strasbourg and became engaged to Sarah Firbank, who was still living with Monsieur and Madame Hatt. She was the youngest daughter of the large family of Ralph Firbank, a railway engineer, who had

died when she was a child. Arthur and Sarah were married in London the following year.

When he took his bride to Ann Arbor, she was overwhelmed by kindness from all his colleagues and their wives. My mother often said that the nine years she lived in Ann Arbor were a particularly happy time, in what was an unusually happy life.

During 1896, Cushny was invited to collaborate in the *Journal of Experimental Medicine* in which he published three papers. He also received an invitation to be chairman of the Physiology and Pharmacology Section of the Twelfth International Congress of Medicine at Moscow in the following year. This, he evidently did not accept though we can only guess the reason. Probably, the distance was too great and he did not want to leave his young wife, and was not able to afford to take her with him. He was also elected to the Association of American Physicians.

In 1897, he published three more papers on the rhythm of the mammalian heart. My mother said that during these years he was possessed and driven by a passion for his work, and she did not see a great deal of him. His days were filled with his teaching and research; the evenings, taken up by writing. She had never before known a man to be so possessed by creative work, and said at first she felt resentful; but all her life she not only loved him, but admired him and moulded herself for him. In her eyes, he was always right. She quite sincerely regarded herself as a rather foolish person; but this was not so. She possessed gifts in her own right, her letters are witty and interesting; she was a pianist of more than average ability; and later, proved herself to be a queen amongst gardeners. She was much loved in the academic circles in which her life was spent.

In the summer of 1898, their only child, a daughter, was born. In terms of religion, my parents were, I believe, full of "honest doubt" a feeling prevalent among intellectuals of the period, in revolt against their fundamentalist upbringing, and they had not intended to have me christened. However, at this time, Arthur's brother, Alex, and his wife arrived on their way home from China, bringing with them the Cushny family christening robe and a silver mug. I think the robe must have brought out my father's strong Scottish family feeling, because I was christened after all. Characteristically, our stray mongrel dog, was observed to have followed us into the church and remained there quietly throughout the ceremony.

More papers were published in 1898, and at the same time, my father was working on his *Text Book of Pharmacology and Therapeutics* or the *Action of Drugs in Health and Disease.* The *British Medical Journal* said, in an appreciation after his death, "Pharmacology originated in Germany and the replacement of the old materia medica by the science of the mode of the action of drugs has been a slow process . . . . . but Cushny did more than any other person to bring about this change. His textbook . . . is recognized as the most trustworthy guide to the subject. His wide knowledge and exceptional powers of judgement made him one of the select number of persons who can

write a great text book. The first edition was a pioneer piece of work for it was the first general text book of pharmacology in the English speaking world. Cushny treated the mode of action of drugs as an exact science, and his book contains only those facts that have been established by carefully controlled observations on animals or man. Naturally his attitude appeared to some to be unduly sceptical, for he had no hesitation in rejecting cherished traditions as unproven when they lacked definite objective evidence for their support. Now, however, it is generally recognized this is the only manner by which a science can be built upon secure foundations." This large book of 730 pages was published in 1899 and was immediately successful. It was required reading for most English-speaking medical students for many years. The eighth edition was published just before his death. In 1899 he was also invited to be collaborator in the *Archives Internationales de Pharmacodynamie et de Thérapie.* He published three more papers on the contractions of the mammalian heart, and the interpretation of pulse tracings, and another paper with G. B. Wallace in the *Pflügers Archiv für die Gesamte Physiologie des Menschen und der Tiere.*

In 1901, "the book," as his textbook of pharmacology become known in family circles, went into its second edition. This always involved much revising as new knowledge became available, and I remember the great sheets of galley proofs that lay on his desk, When the seventh edition was coming out, I was a student at University College and I felt tremendously important when I helped him read the proofs.

My earliest recollection of my father must have been when I was about three. We went for a walk beside what I suppose was the river, Huron. There were some cages, kept I think by the old man who collected the garbage, in which were some racoons and owls. My father made the owls snap their beaks at him. I suppose it was this performance and their piercing gaze and general reputation for wisdom that in some way ever after connected owls with my father in my mind. I can also remember, I suppose about the same time, being spanked for scribbling in a book and covering it with vaseline. Omar Khayyâm, it was. I came across the disgraceful evidence years later when going through his books. My father had all the Scottish scholar's reverence for books and to maltreat one was a fearful crime. I have never since seen a book thrown face down or dog-eared without feeling distressed.

My parents were keen golfers, all the year round. In the winter they played on the packed snow with red balls. The winters were long and very cold, and the summers were equally hot. My father suffered from very bad migraine headaches, and I think the attacks came more often in the hot weather. We used to have rubber pillows filled with water from the ice box at night, and I can remember my mother refilling the rubber pillow with cold water and putting handkerchiefs wrung out in ice water on his forehead, while I crept about on my bare feet.

When I was two, we traveled to England and stayed with my father's Uncle Alex at Paines Hill. I remember nothing of this, but there is a splendid

photograph of the whole party of relations, some 20 to 30 of them, from the aged great-aunts in bonnets and cloaks, down to me and my cousins in starched white frills or sailor suits. The young matrons, like my mother, wore long braided skirts, and leg of mutton sleeves and boaters. The voyage across the Atlantic was made in a cattle boat, as these were supposed to be very steady, and my father was a bad sailor. It must have been an unpleasant journey. My mother said the cattle never ceased moaning, and every night dead cattle were thrown overboard. The boat was very slow and infested by the largest cockroaches my mother had ever seen.

My father was a great admirer of Rudyard Kipling, and bought all his books as they came out. As soon as I could follow a story at all, he had read the jungle books to me, and elephants, as well as owls, were connected in my mind with my father. Elephants were wise, and very large. A big man, who habitually wore loose fitting clothes, might well have an "elephant look" to a small child whose first view of an adult is legs. Also, in the jungle books, the elephant protected the boy Toomai and showed him wonderful things such as the elephants dancing. When we went for walks in the woods and found an open space, it was the place where the elephants danced. My father's admiration for Kipling was an important ingredient of family life, and I think I thought he was actually a friend of Kiplings', although, in fact, he did not meet Kipling till many years later at some official dinner in London. Father was a great believer in the Empire and a fierce conservative, nowadays an unusual creed for an intellectual, but I think he would have hated that epithet for himself, and I am jumping too far ahead.

From the numbers of papers that were published, 1902 must have been a very productive year. In 1903, the third edition of "the book" appeared. Professor Starling, who was soon to be a valued colleague at University College London, wrote, "It is a boon to us in England to have a Pharmacology written from the experimental standpoint. . . . All our own men are amateurs." Professor Cash wrote after a later edition still, "It is satisfactory to know that your book is being read not only by advanced students and juniors who wish to advance in their knowledge of this important side of medical science, but that practitioners are making use of it, and therefore acquiring information not available in their student days which will greatly enlighten their work."

Cushny had a great gift for encouraging young scientists in the usefulness of research and would give them a great deal of his time. I still have letters from former students asking and thanking him for help in papers. A number of holders of chairs in pharmacology throughout the English-speaking world had been his assistants in the different universities in which he held chairs. In 1903 there were four important papers published by men working in his laboratory, as well as further papers by himself, including one on atropine and hyoscyamines for the *Journal of Physiology*. He later wrote a monograph on this subject.

In 1904, there was another paper on kidney secretion. Towards the end of

his life, he published a monograph on kidney secretion, which aroused some controversy, but after his death he was proved to be right. In the same year, he was elected a member of the Society for Experimental Biology and Medicine of New York.

In 1905 came an offer of the new Chair of Pharmacology at University College London. I have the cable containing the offer and the salary of £500 a year. The pound sterling was worth a great deal more in those days, but even so, it was evidently not for the money that he accepted the offer. Letters came from all over the United States expressing dismay at his resignation and congratulations on the appointment .At that time in America, it was still felt that the true seats of learning were in Europe.

Before leaving, he put the mimeographed notes used for his laboratory course into more permanent form. In the same year, he and his then assistant, Charles E. W. Edmunds, who succeeded to the Chair two years later, published *A Laboratory Guide in Experimental Pharmacology*, which ran to many editions.

An important aspect of his work at Ann Arbor concerned the biological assay of drugs. It was Cushny who first suggested making use of animals to test the relative activity of different preparations of the same drug, such as digitalis. In the late 1890's the method was introduced into commercial practice, and the principle has since been widely extended. It is not generally known that Cushny was the father of the idea.

My parents were sad to leave their friends in Ann Arbor. They had been a popular couple. My mother was pretty and gay and unassuming; my father had brought distinction to the medical school, and was a loved and admired character. A colleague wrote at the time he left, "Personally, Cushny is characterised by a rare combination of natural and unconscious dignity and bonhomie. Like so many educated Scotsmen he is the best type of cosmopolite, appreciating the good qualities of a strange country and its people, and overlooking the minor differences that so strongly affect the provincial."

We sailed for England in the White Star liner, Cedric, after spending one night in New York, where I can still remember the noise of the traffic. In my father's scrap book, there is a "portrait" of one of the sailors, drawn by me. On arrival we stayed with my father's widowed sister in Richmond, Surrey. She had three sons, the youngest a little older than myself. We met him coming from school in cricket flannels with a school cap, a costume very strange to me. He gave me an acid drop dipped in sherbert. It was not always so easy, however, as I was teased a great deal because of my "Middle-West" accent, and was told I would be put in prison because I did not know "God Save the King."

My parents looked for a house somewhere within easy reach of the University and within their means, and eventually took Number 8, Upper Park Road, off Haverstock Hill in Hampstead. It was a street of tall Victorian houses, with stone steps to the front doors, which were adorned with stucco pillars. The street was lined with trees and pleasant enough. There were long

narrow gardens behind the houses, but ours had been much neglected. I remember the walls were covered with ivy which was full of snails. I was put to work collecting these in a bucket. At the end of the garden was an old weeping red may tree, which was to be the setting for every sort of imaginative game. The neglected garden was soon transformed by my mother's green thumb.

My father naturally knew scientists from every part of the world, and these men and their wives frequently came to stay with us. In those days, even on a salary of £500 a year, it was not only possible to have two maids, but very necessary in that tall house with the kitchen in the basement. My parents were very unworldly. Ostentation or fashion really meant nothing to them. Once when my mother had been cajoled into buying quite a smart dress for some occasion, she proposed to wear her comfortable lace-up boots with it. After protesting vainly, a friend said, "Oh well Sarah, I suppose it doesn't matter, only a duchess would dare to wear boots like those." As I grew older and developed the adolescent's need to be exactly like everyone else, this unworldliness caused me much anxiety and heart-burning, but as a child it did not occur to me that our way of life was in any way different from that of my friends. Of course, amongst the families of professorial colleagues, it often was not different. My father belonged to the aristocracy of brains and was at ease with all men. My mother was naturally shy, but she was kind and gay, and because she sailed under his colours, she went everywhere with an easy manner, although she was always self-effacing. At a Buckingham Palace garden party, Queen Mary came across to speak to Father. "What did you do?" I asked Mother. "Oh I hid behind a tree." My father was not always perfect socially. He did not suffer fools with geniality. My mother, on the other hand, was so kind-hearted that she frequently invited the dull or unattractive to the house, because she thought no one else would. She tried to do this when Father would be away, but her kindness made them feel so at home that they tended to drop in after that, and so would find him there. Like other men, he liked women to be young and pretty, or very intelligent. When the silly or unattractive came to the house, he lapsed into complete silence. Often I have seen Mother making signals at him from the end of the table to exert himself. He would also sit in his armchair with a knee crossed, gazing intently at his foot which he waggled round and round. This was a bad sign, and very soon he would disappear into his study. The visitor would sometimes say, "Arthur seems very quiet," and Mother would reply, "Well, he's working *very* hard just now."

During those first days in Hampstead, while my mother tried to get the house into some order, my father was faced with a formidable task at the University. I quote from Professor Starling. "Cushny had already by his work at Ann Arbor achieved the leading position in his science . . . but at University College he was undertaking the creation of a department out of nothing. Previous to his appointment, materia medica and therapeutics were taught by a part-time lecturer, as was the custom in other medical schools.

The remuneration was meagre, and the department consisted simply of one ill-lit and badly furnished room. Nothing daunted, however, by these material disadvantages, Cushny set himself to the building up of the school in London with the calm optimism and the unfailing equanimity which characterised him in anything he undertook. His sane judgement of men and things made him at once a valued colleague, both in the college and in the laboratory; and there is no doubt that he fully appreciated the society into which he had fallen and the regard in which he was held by its members." This last sentence I think gives us the key. There was a fine medical faculty at University College—above all the two physiologists, Bayliss and Starling, who were well aware of his quality and who were almost certainly instrumental in getting him to accept the post. From the beginning the two departments worked in close collaboration. My father was skillful and ingenious at devising laboratory apparatus, which must have been particularly useful in these early days. He had to train his own "lab boys" and I remember a good deal of complaint, when he came home in the evenings, about those inept and careless people. After some time there arrived a young boy of intelligence called Condon. He became devoted to my father and showed great aptitude for laboratory work. When World War I began, he went into the army, but was soon seriously wounded and was discharged. He returned to work in the Pharmacology Department, and when my father went to Edinburgh in 1918, Condon went too. There, he became ruler over several "boys," and I suspect, of the graduate research workers too. He remained there with at least two of the professors who succeeded my father. No account of the later years in London or in Edinburgh would be complete without some mention of Condon, who was of such inestimable value to my father, and to my mother when father died so suddenly. Condon had at least two articles published in scientific journals concerning apparatus that he invented while working in the department. In 1956, Condon's fiftieth year of employment under Cushny and his successors was celebrated at the meeting of the Pharmacological Society in Edinburgh. He was introduced, I think, by Gunn, who told of Condon's first day of work under Cushny, as though he had been there. Gaddum was at that time Cushny's successor at Edinburgh.

On his appointment to London, my father was elected a member of the English branch of the Physiological Society. The annual conferences of the society were held abroad every two or three years, and my parents usually attended them. When the conferences were held in London, we always had some eminent foreign representative staying with us. The most beloved of these was Hans Meyer from Vienna. He not only was eminent, but rather unusually, looked eminent, with his bright eyes, acquiline nose, long pointed beard and thick hair enbrosse. I used to call him Herr Geheimrat, and he would shake his head and say, "Nein, nein, joost ze old Onkel." My parents were very fond of him, and were very anxious about him during and after the period of 1914 to 1918 when we heard the Viennese intellectuals were starving.

During these conferences there was a great deal of entertaining. I always enjoyed my mother's dinner parties from behind the scenes. I would go up to her bedroom to examine the ladies' evening cloaks, and then consume delicious left-over foods brought out to the kitchen. An extra waitress was engaged to help the rather inexperienced maids, who were all my parents could afford. On one occasion the cook knocked a box of matches into the creamed cauliflower which immediately turned bright red and doubtless poisonous. With great resource, I ran full-speed around the corner to where our great friends and distant relatives, the Wylies, lived. Fortunately, they were about to have stuffed tomatoes, and as they were a large family, there were plenty. I careered back with these in a silver entree dish. My mother said afterwards she was amazed when the hired waitress took this unexpected dish around the table, but etiquette, even in professorial homes, forbade the blinking of an eyelid.

My father retired to his study every evening at ten o'clock to work. He did his best writing, he said, from ten o'clock till about one in the morning. The study was a room on the first floor lined with shelves, which were filled not only with books but also with large quantities of scientific reprints, and unbound journals. The big desk was covered with papers in apparent confusion. Pipes and tobacco ash completed the air of cosy squalor. The housemaid was allowed in to clean the grate and light the fire, but otherwise nothing was touched. Once a year, however, my mother insisted on spring cleaning. She chose a time when my father would be away from home giving examinations or attending meetings. When he returned and found that this desecration had taken place, although he must have known it would happen, there was a tremendous outcry and declarations that hours of valuable time would be lost looking for misplaced books and papers. I found this clipping in his scrap book. I think it appeared in the Times.

I hear the steady thumping on the carpet on the line,
There are careless people dumping books and papers that are mine,
They are tossing them and mixing them, so I shall never more
Get them back in disorder as I had them fixed before.
They have gone in force and taken firm possession of my den,
They have swiped my scattered pamphlets and have burned them, Ne'er again
Shall I find the tracts containing things I'd marked to read sometime,
They are smoking in the alley, and the law permits the crime.
They have robbed me of the cushion that was matted in my chair,
They have put my pipe and ashtrays, well, I can't explain just where,
They are rubbing, they are scrubbing there with all their might and main,
And they shake their heads, assuming looks of sympathy and pain
Showing that they think I'm crazy for presuming to complain.

In 1906 "the book" went into its fourth edition. He became a member of the committee on pharmacy of the British Medical Association and of the committee on proprietory medicines and an honorary member of the Asso-

ciation of American Physicians. He was also made a member of the Medical Research Club.

My parents always had a dog of some variety that was always much loved, and I was encouraged to keep pets of every kind, which I had to properly look after myself. I had at different times guinea pigs, a great speciality which went on for years, dormice, tortoises, hedgehogs, and almost every creature that could be kept in a London house or garden. In all of these, my parents took a benevolent interest.

All this seemed to some people incompatible with the experiments on animals that my father's work entailed. However, granted that it is important, if possible, to save human life and to deliver mankind from many disabling and painful diseases, experiments on animals seem unavoidable. The Medical Research Club tried to keep this point of view before the public, and to reassure it that unnecessary suffering was avoided. On one occasion, there was a meeting for public discussion with prominent anti-vivisectionists. Whether converts were made on either side is now unknown, but the affair was not without drama. Professor Starling, lean and ascetic with piercing blue eyes, standing on the platform pointed a long forefinger at his audience said, "Do you know that one in five of you is going to die of cancer?" A lady antivivisectionist rose with a cry of, "I can't bear it," and rushed from the hall. An old lady from the "anti" group came across and said cosily to my mother, "I think I will come and sit with you, you all look so nice." Certainly the pharmacologists and physiologists whom I knew were kindly and upright men, dedicated to the truth as they saw it in their science. Sometimes animals themselves were saved in this way, as when my father found by experiments on rats that a sort of madness which seized cattle in Africa was caused by eating the senecio weed in times of drought. Before this, it was thought to be due to an infectious disease and whole herds were slaughtered.

In 1907, my father was invited to accept the Chair of Pharmacology at the University of Pennsylvania at what was for those days a munificent salary of £1200 a year. He declined. This was the fifth chair offered to him without his having applied for any.

On May 9, 1907, when he was 41, he had the honour of being elected a Fellow of the Royal Society. That summer my parents must have been abroad in Switzerland, Heidelberg, and Strasbourg, probably combining a physiological congress with a holiday. My father kept a number of badly written postcards and letters written by me while staying with an aunt.

It must have been about this time that work began with Dr. (later Sir) James Mackenzie. Mackenzie had been a general practitioner in Burnley and came to London to be a heart specialist. Through Mackenzie's clinical work and Cushny's pharmacological work on the effect of digitalis on certain heart conditions, particularly auricular fibrillation, important foundations were laid for the modern knowledge of diseases of the heart, notably the therapeutic effect of digitalis.

Mackenzie was a great bear of a man, with a bushy grey beard and a

broad Scottish accent. He was blunt in speech and said what he thought even to very exalted patients, a trait which they seemed to enjoy. Although he and my father were great friends, about politics, they could not agree; Father being a conservative and Mackenzie, a liberal. There were great arguments and, at the time of Lloyd George's Insurance Bill, I remember Mackenzie roaring and shaking his fist; but they remained good friends throughout.

Except when my parents went abroad, we always went to Scotland during the summer vacation, usually spending part of the time in the Highlands and then going to my father's boyhood home, Fochabers. I did not altogether enjoy these holidays, as they were usually spent at some fishing or climbing inn where there were no other children. I envied the more orthodox seaside holidays of my friends where there were lots of other children. My parents were great walkers, and at an early age, I tramped across the moors and climbed mountains.

When we were in Scotland we usually attended the "Red Kirk," the church at Speymouth where grandfather had been minister. Although as a descendant of a line of Scottish ministers my father knew a great deal about the church of Scotland and the Bible, particularly the Old Testament, his attitude to the church was one of affection for old associations and respect for the moral discipline of his Presbyterian upbringing. When I wrote to him from school asking him if I could give up Latin, I had this reply from him, "Latin is a good discipline to the mind. The people who learn Latin have generally better arranged minds than those who have not gone through that discipline . . . . They 'red up' their problems more. The same is true of those who have learned the Shorter Catechism. Those who survive this latter (and they are comparatively few) have an advantage over other men. They know that for them nothing is impossible in the way of learning, for have they not passed through the fiery furnace 'hetted seven times hetter' than ordinary souls can endure. You have not had the inestimable advantage of studying this terrible and wholly uninteresting compendium, but as a minor task have encountered the Latin declensions and I hope you are not going to show your back to the enemy." I did not. For the information of those of a softer age, the Shorter Catechism (it was not short) was the statement of faith and dogma which Scottish children used to learn.

My parents had decided that I should be taught no religion until I had reached a sufficiently mature age to decide for myself. In fact, this was impossible. When I went to a kindergarten presided over by two pious ladies, I was considerably embarrassed to find I knew nothing of these things so well-known to my companions. Later, Father began reading aloud to me the Old Testament, as literature with which I should be familiar. We did not get very far as it occurred to him that Noah must have allowed his aged relative, Methuselah, to drown. This involved so much research that the reading fell into abeyance, to my relief, and we continued later with Ivanhoe and Canterbury Tales, which were much more to my taste. Perhaps, nowadays he would

be called a Humanist, I do not know. During World War I, I was much shaken when he said it was useless to pray for the safety of any person. His respect for absolute honesty forbade the consolation of prayer to a personal God whose existence he had been unable to prove. However, with the Christian moral virtues, he was endowed more fully than most men.

In 1908, Father was appointed a member of the Royal Commission on Whisky and other potable spirits. Two or three years before there had been police court proceedings in Islington as to the nature of whisky. The distillers and others were forced to conclude that there must be a definition of "whisky." The chairman was Lord James of Hereford. There were four Fellows of the Royal Society on the commission and senior government officials. As most of the witnesses were Scottish or Irish, some sly remarks were included in the evidence. Potstill and patent-still became topics of family conversation. The Times of August 10, 1909, had a leader on the final report: ". . . It is much better reading than we are accustomed to find inside the well-known blue covers. . . There are all sorts of theories about the secondary products which give the flavour, but the Royal Commission does not find that any of them rests on scientific basis . . . . if anybody finds himself the worse for whisky drinking, he had better face the plain truth that he is imbibing too much ethylic alcohol and not try to excuse his excess by throwing the blame on the secondary products." Naturally, the medical students found their professor's service on a Whisky Commission a ripe subject for various verses and jokes in their magazine.

My father was very abstemious. His one alcoholic indulgence was a glass of port after luncheon on Sundays. A favourite family quotation was Home's epigram:

> Firm and erect the Caledonian stood
> Old was his mutton, his claret good.
> Let him drink port the English statesman cried
> He drank the poison and his spirit died.

We had a tablemaid who always forgot to put out the port glass on Sunday. Father would recite the epigram, shouting fortissimo at the word "PORT". The tablemaid stood like a rock; never once did she catch the allusion.

The Royal Commission must have taken up a lot of time, but the research went on steadily, still concerned largely with the heart, and with optical isomers, though now there were some papers on alcohol as well.

In 1909, he was President of the Therapeutic Section of the Royal Society of Medicine, as well as a vice-president of the International Congress of Applied Chemistry and of the Physiological Section of the British Medical Association. In 1910 he was president of the Pharmacology and Therapeutics Section of the British Medical Association meeting in London. The fifth edition of "the book" was published. In that year, he received another call to the University of Pennsylvania, which now had a very fine pharmacology laboratory. In spite of the material disadvantages of University College, he

declined the call, and also one to St. Louis University. He delivered the Presidential address to the Section of Therapeutics of the Royal Society of Medicine under the title, "A Plea for the Study of Therapeutics." He went to New York in 1911, where he delivered the Herter Lectures, and the Harvey Lecture, all on different aspects of irregularities of the heart. He went on to Philadelphia where he delivered the Weir Mitchell Lecture. He also lectured in Baltimore. From the reading of old letters, it is evident that he was away for several months. He visited various other places besides those where he lectured, such as Ann Arbor, Winnipeg, and Toronto. I presume his hosts saw that he caught his trains on time. He was one of those people who preferred to arrive on the station platform just as the whistle blew. My mother, on the other hand, was always in very good time indeed. In the early days of our Scottish holidays, when we had to get to Euston by horse cab, Mother was always so sure that the horse would fall, or we would break a trace, or experience some other disaster that we usually started at least two hours before the train was due to depart. When taxi-cabs replaced horse cabs, she still insisted on this early start. On one occasion we had more than an hour to wait. Father stalked off to the University, which is very near Euston, while we sat among the luggage. He reappeared careering down the platform as the guard was waving his flag. This was quite a common occurrence. When we transferred to the Highland Railway, there were frequent long stops at wayside stations. Mistrusting, with reason, the acumen of the guard, father would walk down to see that the luggage had not been put off before our destination. He always stayed away too long, until, with the whistle blowing and the green flag fluttering, we would lean from the window to cheer on a dignified figure in tweeds and knickerbockers loping along the platform. After he had actually been left behind at some Highland Station, where only one train a day passed, while Mother, a cousin, dog Fru, and myself rattled away without any tickets, each member of the party always carried his own ticket.

At the end of 1911, he went to Aberdeen to receive an honorary LL.D. from his old university. This gave him immense pleasure. For this degree, there was a splendid scarlet gown and a square black velvet cap, in which he looked very resplendent on special academic occasions.

In 1912, at last, through the generosity of the Carnegie Trustees, a new pharmacology department was built at University College incorporating the things Father wanted.

It must have been during the summer holidays of 1913 that there was a Physiology Congress at Groningen in Holland. It was decided that attendance at this meeting would be combined with a holiday in Holland, and that I should also go. There was a large German contingent at the Congress. My father spoke fluent German and often wrote papers in this language, and during his years in Strasbourg, he came to know the German character well. After this Congress, he said he was quite certain that Germany was determined on war soon. The attitude of the Germans at the meeting was markedly unfriendly and aggressive, and even those whom he had known well

were uneasy in their attitude. Although he had many friends among German scientists, he greatly disliked the military type. After Groningen, we spent a few days on the windswept island of Ameland, one of the Frisian Islands. British visitors were very rare. In the evening when we sat in the glass-enclosed verandah of the small hotel, we saw a large part of the island's population with noses pressed against the glass studying the strange foreigners. The only other foreigners were a few German engineers. Perhaps when 1914 came, they thought we were spies.

That summer I went to St. Felix School. I realise now what financial sacrifices must have been made to send me there, although the meagre professorial salaries had by then been slightly increased. During my first term, my father was engaged on research concerned with senecio. Morbidly anxious to do the right thing and to remain inconspicuous, as a new girl should, I was horrified when he insisted on all of us gathering vast armfuls of ragwort and carrying it back to the hotel where we were staying, along with various parents of more exalted members of the school. I felt I was marked for the rest of my school life. In fact no comment was made, which shows perhaps how unnecessary it is for the young so often to feel shamed by their parents.

Collecting flora and fauna for scientific investigation often occupied a part of our holidays. Usually, it was for the purpose of extracting some special constituent, so large quantities had to be collected to yield a sufficient amount of the desired substance. Once a box of red spotted fungi was stored in the cupboard in the room where I was sleeping, and long before we went home the smell was horrible. Another time, the poison in a wasp's sting was the subject, and several nests were taken using chloroform. The stingers were removed with forceps, and partially anaesthetised wasps were later found crawling around in the most unexpected places.

The letters my father wrote to me at school had a turn of wit peculiarly his own, and usually ended with amusing messages to my friends, who still speak of him with affection and admiration. The following, written in reply to an idea I had of studying medicine, reveals something of his own view of his profession. ". . . Whether you have enough initiative to take up the research side of medicine I do not know and you do not know. It means in any case hard work and constant work, but there are moments of joy in it when an idea proves to be good and one feels that one has added a brick to the temple. But you can only find out your fitness by trying how far you have the necessary initiative, which is all in all . . . . I should be very joyful if you took up medicine and 'made good' as the Americans say, but I have no desire to see you make a bare pass into the profession and then lapse into a ruck. . . . . The first class there is always room for, the poor have to take what they can get and thank God. But the mediocre always expect more than they deserve and have to be repressed from treading on the skirts of the really first class. Ponder these things in your mind and we'll talk it over in the holidays."

Father's interests were far-flung, and 1914 rather surprisingly found him giving evidence before a Royal Commission on Sewage Disposal. During that

year he received a nomination for Fellowship of the Royal College of Physicians of London but declined.

In the summer of 1914 we went as usual to Scotland, this time to Dinnet in Aberdeenshire. My parents, like most people, were anxious about the international situation, but nothing could be achieved by remaining in London and Father was, as usual, very tired after the summer term. Near us on Deeside were Professor (later Sir Herbert) Grierson and his family. Mrs. Grierson was the daughter of Sir Alexander Ogston, who also had a house on Deeside. He had been professor of surgery at Aberdeen when my father was a student. My father had a book bound in calf, stamped in gold with the University arms, and inscribed by Professor Ogston, which he had won as best student of surgery. Sir Alexander was an alarming old man, who only received a chosen few at his house. Father, of course, was one of these, while a flock of young Griersons and I waited on the hillside.

We first knew that the country was mobilising when an army nurse came into the hotel lounge and told her mother she had been called back. After that there was no news at all. There was no BBC then. On Sunday we went to the church, which was crowded. The minister announced from his pulpit that he had news that our Expeditionary force had been driven back with fearful losses; he used the word 'decimated.'

It is well known that at that time everybody seemed swayed by a tremendous demonstrative patriotism and a fierce hatred of the Germans, that belongs to a younger age than ours. My father for all his balanced intellect was not immune from this war fever. Perhaps because he knew the Germans so well, his hatred was the more intense. Like all teachers of young men, it was a bitter experience to see his students and assistants going off, so often never to return. He also had eight nephews, four already in the army. He himself was only 48 and it irked him not to be in it all the more directly. He hated the thought of young men dying while he lived.

By 1915 the Royal Society had formed a War Physiological Committee. Father served on this as well as on the Poison Gas Committee at the War Office, and when it was formed later, the Antigas Committee, a section of the Chemical Warfare Committee. When, by his special gifts and training, he could help the fighting men more directly, he felt easier. The research on poison gases had its dangers and it was impossible not to come in contact with the gases to a certain extent. He was what is called nowadays a 'Boffin'. He was pleased when he was allowed to go to the front for a few days to study the work at the scene of action.

Even the blackest days had moments of humour. A corps of Defence Volunteers was formed at University College and the professors as well as other members of the teaching and administrative staff joined. Some were old and none of them military types. In a letter to me at school he says, "We have begun target shooting with great zeal and some of us hit the target pretty often but some of us don't. And a good many of us cannot see the bull's eye at all and hope that a German is bigger, or that only the very fat

ones will come over. Given a very fat one at twenty-five yards we could make great practice if he stood still long enough for the united corps to play upon him. . . Drill is getting fiercer and fiercer and to see the corps doubling up and down the playground would make you want some of them for your hockey-team." The corps went to Blakeney Point off the Norfolk coast over the 1915 Easter holiday. "The air is fresh and keen and makes us feel very fierce. This afternoon we 'advanced in rushes' it seemed for several miles before we got in for tea."

Zeppelin raids were taking place now and Father insisted on going outside to watch the thing caught in the searchlights, looking like an incandescent cigar. Mother was afraid that he would he hit by shell splinters, that rattled on the roof from guns on Hampstead Hill. On one of his journeys to Scotland to examine, he stayed with an old schoolfellow, a doctor near Stirling. He wrote, "A local manufacturer was here and received a telephone from the police to hurry off and put out his lights as a Zepp was near and this caused general alarm and discomfort in the household. I tried to reassure them and it never got this length. About eleven pm a hushed footstep came to the door and a very slight pull at the bell and on John going to the door a special constable whispered to him that there was 'a wee thing ower much licht in the kitchen.' John replied in similar tones and a whispered conversation went on for some minutes in case the Zeppelin should hear them. You may imagine my joy in listening to this from the study."

Father had a great interest in the history of drugs, and was an authority on William Withering, physician and botanist, early member of the Royal Society, and discoverer of digitalis. A paper on Withering was read to the History of Medicine Section of the Royal Society of Medicine in 1915. In that year, the sixth edition of "the book" came out.

In 1916, he gave the presidential address to his section of the British Association on the analysis of living matter through its reaction to poisons, and he was appointed to the Alcohol Committee of the Liquor Control Board. He was elected to the Council of the Royal Society, and also to its Sectional Committee of Physiology and the Government Grants Committee. There was at that time some concern over the increase of cocaine addiction in the country, probably due to war strain and a loosening of moral restraint. Father had a letter on the subject published in the Times, and gave evidence before the Parliamentary Committee on Cocaine. The following year, he published a book on the Secretion of Urine.

I was by then a student at University College. I observed my parent at the high table in the refectory and occasionally met him in his department where I had gone to seek Condon's advice about some chemical problem, which he understood a great deal better than I did. Otherwise, I naturally tried to avoid being marked down as the daughter of one of the professors.

Although my parents were quite unconcerned with the conventions involved with what, in present jargon, is called 'keeping up with the Joneses,' I felt that my father had very outmoded ideas about how I should behave,

just at the time that war had exploded so many ideas about sheltered girlhood. When I had tea in the extremely public restaurant of a large shop near the college with a young doctor from the hospital, I was in agony lest my father should walk in. There was trouble when he looked from the cloister windows and saw me playing tennis with some students of whom he did not approve. Lipstick he regarded as the mark of a fallen woman. Even scented soap was anathema to him, and only Pears unscented clear soap was allowed in the home. If one had had to use some other when not at home, immediately would come the command, "Go and wash off that stink." He was quite a formidable and almost Victorian parent for a rebellious adolescent.

Early in 1918, we learned that Sir Thomas Fraser, who for 41 years had held the Chair of Materia Medica in Edinburgh, was to retire, and that the post would certainly be offered to my father. He wrote to my mother that he was not certain he should accept it if it was offered and that they would have to talk it over carefully. For years almost no research had been done in the department, and it had fallen into a state in which research was hardly possible. Until then the professor of Materia Medica had charge of beds in the Royal Infirmary. With private practice and hospital beds as well as teaching to occupy the holder of the chair, laboratory research had gradually died. There was now to be a new Chair of Therapeutics so that the professor of Materia Medica would be relieved of clinical duties. At the same time, another new Chair of Chemistry in relation to medicine was established.

A chair in the University of Edinburgh was looked upon as the climax of achievement for a Scotsman, even such a cosmopolitan one as my father, and eventually he accepted the offer. During the summer vacation of 1918, we left London for Edinburgh. Once again, he had the task of completely reorganizing and refitting his department. A large part of the course in Edinburgh had consisted of the recognition of the natural origins of therapeutic principles and of memorising the appearance of roots and leaves. The department was full of jars of these substances. Out they went to the dustbin. "Gone was the host of time-honoured drugs whose only qualification was founded on a hazy empiricism," as a writer in the university magazine put it. After this holocaust and the painting and cleaning, apparatus had to be set up. Condon did invaluable work. In October, term began and Father gave his inaugural address on "Progress in Materia Medica." The imposing figure in his red LL.D. robes, surrounded by members of the faculty, appeared on the platform. I had heard that his delivery was bad, but I had never before heard him lecture. He never learned to project his voice even after years of practice. I heard a girl behind me say, "Gosh, what a rotten voice." Those at the back of of the hall could have heard very little. I remember once in the large McEwan hall, whose acoustics were notoriously bad, I sat at the back when Father introduced the speaker. I saw his mouth open and shut, but heard no sound at all, let alone words. However, for those who sat in the front for his lectures, there was solid information salted with a dry humour that always

pleased his audience. The following account of him taken from The Student, the undergraduate magazine, gives his students' view of him.

"It was mainly in his role as lecturer that the student came in contact with Cushny. His critical attitude will remain in the mind long after much of the solid matter of the orthodox lecture has faded into oblivion. Not that he was a brilliant lecturer in the ordinary sense. He was often inaudible and the ground he covered was never extensive. But he always illuminated any subject he touched, though following his book closely, he said many things that the dignity of print or perhaps the law of libel would not allow; made historical and literary references that were never pedantic; told tales of Dover who was buccaneer and physician, and of the Borgias, of worthy Germans who patented other men's discoveries, of osmotic pressure being a Mesopotamian word that should not be used if it could be avoided, of the whereabouts of the cockles of the heart and of the practice of hocus pocus. His lectures on alcohol will always be memorable; they were always humorous, but their humour never obscured their dignity.

"Occasionally he would adopt the Socratic method of teaching. Approaching a card box, he would lift a card, and looking at a name, enquire, 'Is Mr. So-and-So here?' If no answer were forthcoming, he would say, 'Perhaps it is Miss So-and-So, then?' If still no answer was forthcoming, he would say, with a twinkle in his eye, 'Ah, I see Mr. So-and-So has sent in his card by mistake', and try the next card, whose owner would be asked for his opinion on some subject. If no opinion were offered, the Mr. So-and-So in question would be told to think the matter over, and later on in the lecture would again be questioned. This process of questioning he never carried to extremes and he never allowed it to interfere seriously with a lecture. He always good-naturedly realised that a question and answer class is mainly question and little answer.

"In examinations his standard was high but an oral was always a friendly meeting and never an ordeal. It was not the appearance of an inquisitor that he presented as he sat on the other side of the table, glancing at one's paper, and then looking over his glasses and asking, 'Tell me, have you ever measured out ninety drops of anything?' It was rather the appearance of a benevolent uncle, still young in mind, half heartedly pretending to be a bogeyman.

"The writer has vivid memories of his journey home at the end of his first term of medicine. In the train there was an American whose extensive travels were indicated by the labels on his bags. In the course of conversation it appeared that he was a doctor of medicine, and much regretted having been able to make only a short stay in Edinburgh. His enquiries about professors in Edinburgh were met with much youthful enthusiasm and information, and at the name of Cushny his face lit up, and he eagerly asked about him. He said he had been one of his students when he was a professor in America, and had he known he was in Edinburgh, his one act would have

been to go and see him once more. Such is typical of the place that Professor Cushny occupies in the feelings of his students, both here and in America."

In Edinburgh he gave nearly all the lectures, leaving his assistants free to carry on research in which he was always ready to give advice and help, and to suggest new lines. Young men from all over the world competed for the opportunity to work in his laboratory.

While my father was organizing his department, we were looking for a house. My parents were determined, to the surprise of their more conservative colleagues and their wives, to live outside Edinburgh and to have a large garden. At last, they found Peffermill House, a typical ancient Scottish mansion, said to have been the original Dumbie Dykes of Scott's "Heart of Midlothian." In one old edition of the Waverley novels, there is a picture of the house on the frontispiece. It had walls nearly three feet thick; two of the ground floor rooms had barrel-shaped ceilings. There was a spiral stone staircase, a source of great anxiety to my mother when the first grandchild came. At one corner of the house was a tower which made a little round closet to the adjoining rooms. The house stood in a large garden that had a stream running through it, and an uninterrupted view of Arthur's Seat. The garden was an absorbing interest and pleasure to my parents. Father had a water garden by the stream, and spent the weekends splashing round in rubber boots, heaving great stones about. There was a gardener already there. I think his life became considerably more busy, but also more interesting with mother working beside him, showing what he evidently regarded as an unladylike enthusiasm for digging. This, one must remember was only just after the World War I, and ladies were still supposed to be fairly ladylike, especially in Edinburgh. There were two cottages at the far side of the garden. The gardener lived in one and later, Condon and his Scottish wife were established in the other. Two geese, named Castor and Pollux, grazed on the green. In a field next to the garden, we installed two sheep to eat the grass. They had to be ewes so that there would be no agonizing over their eventual fate. Once, when Professor Barger, the biochemist, and his wife brought the author, E. M. Forster, to tea, the sheep escaped into the garden. Now whenever I see the name of that great writer I have a vision of him pursuing two sheep round the rose beds.

It must have been about 1921 when my mother began to have occasional but alarming heart attacks. She did not know how serious these were, nor did she know when they were impending, although we did. She, to the end of her life, talked of her "silly faints." My father with his knowledge of cardiac conditions must have known that any one of them could have been fatal, but he never told me this, and it was not till after his death that I was told what to expect. There was no treatment, and she would never have consented to live a restricted life, even if it would have done any good, which it probably would not have, so everything continued as usual. About that time too, through a chance observation in the classroom, Father found he had an abnormally high blood pressure. He must have known then that their time to-

gether could not be very long, but they were deeply happy at Peffermill. The house and garden seemed to fulfill everything they wanted in a home. There was a devotion between them that I cannot convey.

I was by then married to a former student of father's, the son of Dr. Charles Watson MacGillivray, who was one of the last surgeon physicians, and who had been a 'chief' at the Royal Infirmary of Edinburgh. Our son was christened Patrick Cushny by Dr. Peter Dunn, who had married my father and mother, and my husband and myself. The ceremony was performed in the Scottish custom at Peffermill House, and the baby wore the robe in which my father and his sister and brothers had been christened and which had travelled around the world for the christenings of my cousins and myself.

In Edinburgh, as in London, distinguished scientists were frequent visitors. In 1923 there was an International Congress of Physiology there. Since he held the view that science should know no frontiers, my father was strongly in favour of inviting members from former enemy countries. He persuaded the beloved Hans Meyer to come from Vienna. He came diffidently, fearing that some of his former friends would not welcome him, but my parents looked after him with affectionate care, and he found he still had many friends in England. My mother gave a garden party. The guests, especially those from the New World, were interested in the ancient house. Some of my friends, acted as guides, taking the visitors into the attics and telling them bloodcurdling ghost stories, made up on the spur of the moment.

In 1925, the University of Michigan conferred an honorary degree on their former professor of pharmacology. Both my parents went to America in the spring, and saw many old friends, and my mother was able to visit her sister in Cincinnati. The citation for the degree conferred on the University Commencement Day was as follows:

"Dr. Arthur Robertson Cushny, Fellow of the Royal Society and Professor of Materia Medica in the University of Edinburgh. Coming to Michigan after a brilliant career abroad, he filled with distinction his professorship here from 1893 to 1905 and contributed greatly by his teachings and publications in the field of Pharmacology to the eminence of the Medical School. When he returned to the Old World he carried with him the affection of the New, which has followed with deepening satisfaction a reputation growing in fame from year to year."

The eighth edition of "the book" appeared in 1924 and the following year Longman Green & Company published *Action and Uses in Medicine of Digitalis and its Allies*, his second monograph on the subject. In the press was his *Biological Relations of Isomeric Substances*.

Professors are expected to take part in the administration of their universities in an advisory capacity. Father found time taken off from his proper work of research irksome, but he conscientiously attended all the Faculty meetings, where a colleague recalled he said little: "In controversy, his criticism was all the more effective because it was tempered by humour." He

was interested in the rearrangements of the University Library and the administration of the Moray Research Fund. He also had to attend various meetings in London where he made the Athenaeum his headquarters, sleeping at the nearby Garlands Hotel, where they knew him well and gave him a ground floor room 'to save the stairs.' They would have been surprised to have seen him labouring in his water garden. The generally ordered atmosphere of an age gone by, which still prevailed at these places, pleased him. On one occasion he wrote to my mother: "I suppose you have rarely or never received a letter written with a quill. Now I am going to give you that pleasure." There followed a rather spluttery letter which ended: "Quills are not all they are cracked up to be."

As may be imagined from his revolutionary teaching of pharmacology, he had strong views on the revision of the British Pharmacopoeia. He went to London to attend a meeting about this in February 1926. Dr. Dale (now Sir Henry Dale) said of my father on this visit to London: "All who came in touch with him had remarked on his mental vigour and good spirits. I had a long talk with him on the Monday evening when he spoke with quiet optimism of plans for a well earned leisure after another five years of the work he loved and enjoyed." On February 24, he returned home and was talking to my mother when he suddenly had a cerebral haemorrhage and died early on the morning of the next day. He would have been 60 in nine days' time.

Perhaps no tribute is greater than one from a professor's own students. This is from The Student, the undergraduate magazine of the University of Edinburgh.

"Long after doses and actions have faded from the memory, will there remain in the mind the vision of a true scientist, of an experimenter and a lover of animals, of a sceptic and a healer, of one who founded the modern science of Pharmacology and filled his students with his own enthusiasm for it. Our seniors often talk of the 'giants' of their student days. We too have our giants and in days to come will look back upon Cushny as one of the greatest of them all."

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