David Rennet – mathematical coach

David Rennet (1828 – 1914) was a renowned coach of students in Aberdeen from 1856 into the twentieth century, specialising in mathematics but not exclusively so. When he began, King’s College and Marischal College were separate Universities, each with its own set of classes, but in 1860 they amalgamated. He had attended the third year Natural Philosophy and Mathematics classes at Marischal College in 1851-52 as a private student. Rennet was awarded an LlD in 1885. His portrait by none other than Sir George Reid PRSA, presented by his past pupils in the 40th year of his work, hangs in the Picture Gallery at Marischal College. The David Rennet Gold Medal inaugurated in 1897 is the University’s premier prize for problem solving in mathematics and physics. The tributes below appeared in the Aberdeen University Review, vol. II, pp 20 – 32 [AUP, 1915]. They discuss his work as a coach and his character but not his personal history. Anecdotes suggest his instruction was in broad doric, or at least the version of his native Kincardineshire. In many ways David Rennet was the local equivalent of William Hopkins in Cambridge and, later, Edward Routh, though Rennet coached students of all abilities.

The first author, Hector Munro MacDonald FRS, graduate of the University in 1886, became Professor of Mathematics from 1905. He was well known for being awarded the Adams Prize at Cambridge for his work on Electric Waves (rumoured in my youth to contain an error!) and a mathematician of sufficient stature to be President of the London Mathematical Society from 1916 – 1918. The second author, John Harrower, graduated in 1876 and became a distinguished Professor of Greek at the University from 1886. The third author, John Malcolm Bulloch graduated in 1888 and is noted for his history of the University published in 1895 and other works pertaining to the NE of Scotland.

Dr David Rennet

By H. M. MACDONALD.

The position occupied by Dr Rennet in relation to Mathematical teaching in Aberdeen was probably unique. There have been successful coaches of honours men and also successful coaches of pass men, but a successful coach of both classes is certainly rare. The method of treatment which yields the best results with honours men is very different from the treatment required for pass men; yet Dr Rennet's success with both is unquestioned. For about forty years the greater number of Arts students at the University passed through his hands, and honours men and pass men were of one mind in recognizing how much they owed to his help. Attendance at 12 Golden Square in those days was almost as compulsory as attendance at King's College. The student who did not take advantage of the instruction provided there was considered to be neglectful of his best interests and of little account.
The reasons for this state of affairs were not far to seek. The student had not spent many hours at Golden Square before his character and ability were accurately gauged and the suitable treatment adopted. The stronger were thrown into the water to find out how to swim for themselves, with occasional assistance from a pole in the shape of a scrap of paper from the press beside the window. They were encouraged to work out numbers of examples both from the textbooks and from examination papers, and were only provided with a solution of an example when it had become quite clear that they were unable to do it for themselves. No treatment could be better for this type of student; to a great extent he conquered the subject for himself, as by solving such a large number of examples he got to know the central results from every point of view, and his knowledge became part of himself in a way that is impossible when he gets it from a book or meekly follows in the footsteps of someone who removes all his difficulties before he has felt them. They were also encouraged to try to discover a more elegant solution than the one produced from the press in cases of failure, and it was a red-letter day for the student whose solution was considered worthy of replacing one of the store. Healthy competition among these students was stimulated in various ways for Dr Rennet was a whole-hearted believer in the virtues of competition; he understood the young too well to think that they preferred being classified, or resented being beaten when the struggle was a fair one; as it has been expressed, no one would take an interest in the Derby if it was run in classes.

Probably the day in the year looked forward to with the greatest interest was the Monday following the first Saturday examination of second year students. The list which appeared on the blackboard on that afternoon was expected to be a pretty close approximation to the University prize list that would appear at the end of the session, and the expectation was generally justified. Occasionally there was a dark horse in the shape of a student who was supposed to be good but who did not come to Golden Square; the effect was to make the others work more earnestly to prevent the honour of the first places going to an outsider, and their efforts were always crowned with success.

It would be difficult to say how many students discovered their own abilities for the first time under Dr. Rennet’s treatment; he was always ready to encourage anyone that promised to go ahead, and advise them as to their career. But for his kindly interest and shrewd advice many of the Aberdeen students who found their way to Cambridge or into the list of successful competitors in the Civil Service Examinations would not have thought of aiming at such things. The long list of wranglerships and Civil Service successes that came to Aberdeen men during these years is evidence of the soundness of his judgment and the success of his teaching methods.

With the student whose aim was to pass the ordinary degree examination his methods were entirely different. As he put it himself, sometimes illustrating the point with his well-known story of the drill sergeant, he had to lecture them. His short lectures on the calculus, astronomy, and optics, the chief stumbling-blocks, could not have been improved on. The subjects were treated in colloquial language with a wealth of homely illustration which made it difficult for the most inattentive to avoid carrying away some knowledge. He firmly believed that it was possible for everyone to acquire some mathematical knowledge if they would only try; he
insisted that a knowledge of mathematics only required a clear apprehension of the things to be discussed and the application of a little common-sense to the discussion. Mere descriptive knowledge he despised as tending to encourage slovenliness in thought and minister to the sense of wonder instead of inciting the learner to gain accurate knowledge. He used as bearing on this to relate the story of the student of mature years who was struggling with Euclid, and who, on being asked by a friend interested in his progress whether he could prove the fourth proposition of the first book, replied, "No, but I can make it look extremely probable".

As the ordinances made by the Commissioners under the 1889 Universities Act became fully operative, the number of students taking mathematics whose preliminary training in the subject was weak diminished considerably, and the classes in Golden Square were accordingly modified. For several years afterwards the mathematical students went there, and till within the last year or two Dr. Rennet taught a favoured few. That he was a great teacher, indeed one of the greatest, is beyond dispute, as also that he will always live in the memories of his pupils. How this came to be is perhaps best stated in his own words: —

"It was not my intention to become a teacher, and I felt at the outset and always have felt the difficulty that I was never taught to teach. But I first took an interest in the fellows and afterwards in the subject."

Rennet and the I.C.S. Examination.

By J. HARROWER

It was in 1856 that Rennet began as a private teacher of Mathematics and Natural Philosophy to prepare students of the University for the Indian Civil Service Examination. The next forty years saw many changes introduced by the authorities in the age and other conditions affecting candidates, but Rennet's work appears to have been continuous during all that time, and was certainly attended with astonishing success. Something like sixty of our men gained places between the years 1856 and 1900, and it is as certain as anything well can be that but for Rennet the number would have been nothing like so great.

To say this is in no way to disparage the teaching of the University, which would be subjected to an intolerable restriction if it were limited by the requirements of any particular examination. Indeed, King's College has no names of which it is prouder than those which are to be found among the occupants of the Arts Chairs after the "Fusion," but that very freedom, which is the soul and essence of the highest University work, was and is inconsistent with the idea of special preparation for a syllabus prescribed from without. It is here that the Coach comes in. It is his business to obey the limitations of subjects as laid down by examiners, and to determine the energies of his pupils into the proper channels.

There are no doubt many good people who still view this kind of work with suspicion. They think there is something immoral or illicit about it. They are obsessed by the old idea that coaching or cramming is an attempt to enable candidates with a minimum of real study to humbug examiners by a specious appearance of knowledge, the coach being in fact a tipster who spots likely winners in the form of questions. Nothing of course could be farther from the truth. If this type of man ever existed, it is very certain that he would find himself hard put to it to make a living to-day, at least out of examinations of the nature and compass of the Indian
Civil. Great coaching establishments like Wren's are better staffed than many a College, and depend for their success on the thoroughness with which they teach their subjects. The coach is an inevitable outgrowth of the examination system; he simply helps the student to do what in most cases he does less effectively for himself; if coaching is illicit or immoral, working for an examination is equally so, and accordingly we find that of those who succeed in getting into the list the vast majority have not been deterred by conscientious scruples from undergoing "special preparation ".

I first came alongside of Rennet when I taught in the University during the session 1881-82, the year before his annum mirabilis in which no fewer than six of his pupils were successful in gaining Indian Civil appointments. (These included by the way Sir James Meston, now Lieut-Governor of the United Provinces, and Sir Benjamin Robertson, Chief Commissioner of the Central Provinces.) It was the time when the upper age limit was 19, and when a good all-round man in Classics and Mathematics had the best chance of success. Practically everyone took up Mathematics because it counted 1000 marks or 200 more than Latin, the subject next in value. In addition to Classics and Mathematics Aberdeen men usually took up Natural Philosophy, English Composition and Literature, French, and Logic or Political Economy. Rennet of course made Mathematics his special care and equally of course taught the subject superbly. Colin Still in 1883 scored 819 out of 1000 possible, which must have been something like a record. But the other subjects were not left to themselves. About that time the Aberdeen School of Philosophy was out of favour with the Commissioners and the men were scoring poorly in Logic. I remember Rennet telling me that he had got hold of the Philosophy note books of an Aberdeen man then at Balliol and was tackling Hegelian Logic for the benefit of his pupils. This of itself is enough to show the indomitable spirit of the man. There is nothing more heroic in the history of Aberdeen education! He read French newspapers with them at odd times—Sunday mornings it is whispered—and is said to have practised them conversationally in French. In other subjects he saw that they read the proper books and had sensible courses of study mapped out for them. But fine teacher and admirable manager as he was, he had something far more valuable to give his men in the encouragement, the inspiration, the driving power, the stark determination to win which he transfused so lavishly from his own personality into theirs. What Rennet did for his I.C.S. men will never be known till the end of time. It is eloquent testimony to his clearness of vision and also to his firmness of purpose that in an examination, planned without relation to Scotch candidates and conducted by English scholars, he should have perceived that he had the raw material for success ready to his hands, and should have set himself with undeviating resolution to what might have seemed to many a hopeless task. In the event it falls to be recorded that for forty years, almost single-handed, he sent his pupils to compete with the best minds and the best training in England and that they did not prove wanting to themselves or their teacher.

What was the motive for all this recklessly generous expenditure of inner power on Rennet's part? It was probably not single but mixed. One thing it certainly was not—he had little to look for from the slender purses of his pupils. There is no doubt in the first place that he had the true teacher's love of the work for its own sake. It was a delight to him to make the very most of a fine brain. But there was besides, if I mistake not, what may without offence be called the Sporting Interest. These men were his racers entered for the I.C.S. Stakes. How was the betting? Many of his old pupils will remember how this spirit used to evince itself when at rare times he would discourse to us of the chances of the coming Mathematical Tripos. And in some
measure too there may have been what we may term a Dramatico-democratic Motive, the startling triumph of poor lads of ability over the best that wealth and other advantages could bring to secure success in the competition. There was no subject on which he talked more illuminatingly than the policy which underlay the seven changes of age restriction for candidates introduced by the Civil Service Commissioners at various times since 1856. He would have it that what they wanted was the Public School type of man at some stage or other of his career, and that they did not fancy greatly the often socially undeveloped product of the Scottish Universities. Rennet, believing in men before manners, was apparently determined that they should have that product whether they liked it or not.

His share of physical as well as of mental strength must have been amazing. Mr. Bulloch has sung of him as "a livin' Alma Mater". It might fairly be added that he was a complete system of national education with Wren's and Sturt's thrown into the bargain. It was after a long back-breaking day of school work that he came, in the late afternoon, to handle his University pupils, Pass-men and Honours men together, candidates for Woolwich and prospective Wranglers and Indian Civilians. He taught the Medical Prelim, candidate the principle of the common pump, and tried to eradicate from his mind the idea that "Pus" was an adequate definition of Matter mathematically considered. He struggled with the Classical man who remembered only, in the matter of Dynamics, that it was "something about twice the square of the distance". He stretched his best men with problems to the full limit of their capacity. And all the time he carried about with him an abundant cheerfulness and a fine clear-cut wit, like his mind, absolutely free from the peculiarly loathsome quality of "pawkiness". But to do justice to Rennet on this side would call for the co-operation of many pens. It is work for a syndicate. I must be content to add these notes as my tribute of affection for an old friend and of admiration for a life of long-continued hard unselfish work.

"Davie"

By J. M. BULLOCH

So Davie is dead.

When a man has reached his age, four score years and six [actually five], it may seem mere affectation to express surprise that he should go where all men must. And yet to those who knew him long and knew him well it does seem extraordinary that Davie has passed away, for they cannot readily associate old age with anyone so young at heart, so keen of head, so sure of himself, so little affected by time and tide and all the other chances that over-take lesser men. True, the little boyish figure had been growing littler of recent years; the fragile frame had become somewhat more fragile; the fine, delicate, porcelain-like features had been becoming finer and paler; but the spirit of which all this was but the casement was as young, as adventurous as ever: alive to all the advances in his immediate art—as he lay dying slowly he sent to the University Library within the last few weeks for the latest book on the tracing of curves; and
just as interested as before in those larger issues of the Nation's destiny of which he had always made a profound study.

Of his professional attainments as a mathematician it would be sheer supererogation on my part, as his greatest contemporary contrast would have said, to offer any opinion. They have long been taken for granted by everyone competent to speak, not least by those fellow-professionals, men like Chrystal, whose greater opportunities had made them unimpeachable witnesses to his high talent. As for myself, few more inapt pupils can have sat before his blackboard. Nor do I regret this, for the merely professional was after all only a small part of his strenuous life—it was only the hard economic road which he had to travel daily in order to reach those mountain tops of his limited leisure, from which he could make that survey of affairs which were the breath of life to him. It was even an advantage that I knew him not as a pupil or acquaintance of his younger manhood, but rather as an observer on the fringe of a circle of older men who had made their mark academically and who remained devoted to the man as they had been devoted to the master. Nothing, perhaps, is so disillusionizing as for a second person to come into contact with another's first-hand admiration. That my own second-hand appreciation should have corroborated the first-hand estimate of older men who knew Davie in his prime, is surely all the greater tribute to his great qualities.

Davie Rennet was a man of brilliant individualities. To evaluate him merely as a “coach” would be to underestimate him. He was not only the “coach” but the wheelers and leaders and driver and guard. To put it more prosaically, the teaching of mathematics was only a small part of his influence. There could be no fitter appreciation of that influence than the fact that everybody knew him as Davie; and yet nobody ever took a liberty in his presence, for he possessed immense innate dignity. Never could one have called him “Dauvid”; that portends a certain ponderous pomposity which was entirely foreign to his character. He was just Davie, the diminutive connoting finely the small, almost elfin figure, and the entire homeliness of his nature, symbolized by his slippers and smoking-cap and the old-fashioned teaching room in his dwelling-house in Golden Square, which he had paced patiently for so many years that the knots stood out in the plain deal boards. Anything more unlike a Professor could scarcely be imagined. A Professor must always be a thing apart, set up, in a special gown, in a sort of pulpit, talking at his students, and regarded by the outside public—at least until the Great War of 1914—as a sort of Oracle. Davie, on the other hand, talked with his pupils, coming round to each man's table and taking the learner's “skylie” and slate in his own hands to perform miracles with them. Instead of a Professor, he resembled, I imagine, the old-fashioned Dominie—not that I ever saw one, though I am descended from one; only, he was a man of more breadth of knowledge and outlook, just as his pupils were of a larger growth.

And those pupils—what a curious medley they were! There was, of course, the usual mathematic muddle-head, who was always more or less incredible to him. There were the "clever lads from the North," who so frequently, alas! seem to leave all their cleverness behind when they go South or advance in years. There was the would-be cadet for Sandhurst or Woolwich, as often as not an Englishman, sorely puzzled by Davie's Doric (in which the master anticipated a great modern movement), and usually better off and better dressed than the local loons, for whom he had more or less an ill-concealed social contempt; and at one time there were stalwart commissioned officers, brushing up their knowledge for a trial at the Staff College. Not that their bank or rank affected Davie; he judged them all by the standard of their intelligence, bringing to bear a philosophical causticity with a genius for the homely word of
counsel—sometimes a word that the Church does not countenance—which not only solved the particular problem under discussion but was a lasting contribution to the pupil's mental equipment. His greatest contributions to character building were his own clearness of vision, his intense honesty, and his unerring detection of, and withering contempt for, all quacks and quackeries. No deceiver, boy or man, could for long run the gauntlet of his perception, however much they might manage to take in other people. His method, in any case, was inimitable, instinct with an individuality which never degenerated into eccentricity, either natural or assumed; and he practised it with extraordinary success, so that life became for many of his pupils in after years a real golden square and a very solid silver street; and that largely, I think, because he never ceased to regard mathematics for himself and for his disciples not as an end but only as a means to an end.

I fancy that his situation gave him a certain feeling of loneliness, for he was not only ahead of his pupils, he was far in front of the majority of his fellow-townsmen in point of knowledge and of sympathy with the great outside world, symbolised, as it were, by the circle in the middle of the severe old square on which he looked from the small-paned windows of that much-paced room of his. Indeed, I might suggest—not that he ever ventured to express it himself—that there was a touch of tragedy in his imprisonment, not merely because his professional capacity was not sufficiently recognized by those in authority who had the chance to do so; but because he could have done far more in a wider sphere and would have appreciated greater leisure to pursue his survey of affairs.

As it was, he was compelled to begin his real life only when other men were so exhausted with their economic day that they betook themselves to their firesides, varying their dull evenings there with an occasional ponderous dinner-party at a neighbour's house; a ward or political meeting; or in recent years (for money everywhere is mimetic) with a game of billiards on a half-size Burroughs and Watts, stuck in an ill-adapted room, with the view of "keeping the boys at home" and out of mischief. But as evening came, Davie, who never seemed to get tired, became livelier and more intent than ever. Every night he would sally forth to the News-room in Exchange Street in the old days and latterly to the University Club, as keen as a boy setting forth to read a new instalment of a serial story. Who that has seen him can ever forget that brisk figure, in the broadcloth frock-coat and tall-hat, occasionally in a "jacketty" and a hat of sombrero affinities, threading his way along Union Street, a white-bearded Harounal-Raschid, out in search of knowledge among the thousand-and-one Nights of the world's affairs—while other men were either immersing themselves in dull domesticities, in acrimonious educational wrangles, in heresy hunts, in fierce struggles over the water-supply or the Torry Farm, or else in home-politics, unable to see an inch beyond what Mr. Gladstone, or Lord Salisbury, or Mr. Chamberlain was doling out for them? With his unquenchable individuality Davie thought out all these things for himself, and thought far beyond them, imbued by a splendid sense of proportion which kept him free from all sorts of localisms. It was not merely that he was not an Aberdonian by birth; he was naturally a clear, accurate thinker, a real citizen of the world, intent on tackling big problems and making his own solutions of them. Euclid had taught him that the whole is greater than the part, and so he felt the immense importance of understanding the relation of Britain not merely to internal divisions, but to the outside world which he saw beating up against her former insularity. It is not too much to say that Dr. Rennet had probably a greater knowledge of foreign affairs than any of his contemporaries in the North. When other men were satisfied with the curtailed Reuter telegrams which once did service, he
supplemented these by a nightly study of the London papers of the day before. Then he built on that foundation by studying the monthly reviews; he checked and rectified all these impressions by his continuous contact with men whom he had trained and who were at the very heart of affairs all over the world; till at last he had a firm grasp of the subject for himself, coming to his conclusions with an inevitable common sense which was rare and refreshing.

In nothing was he more right and more courageous than in his life-long championship of France and French ideals. When the majority of his countrymen were still worshipping at the shrine of Germanism, fed on Carlyle and encouraged by the dynastic tendencies of Victorianism, Davie was all for France. When Jingoes shouted Fashoda, Davie was one of the few who kept their heads, and he saw across the mists of Dreyfusism and the annoyance of the old pin-pricks, the shining figure of the Entente. To few indeed did that policy bring greater pleasure, and I am glad to think he lived to see France putting her best foot forward with her own nation to rid the world of the greatest incubus of our time. His knowledge of the situation had been increased of recent years by his acquaintance with Russian affairs, and it must have been a keen pleasure to him to know that one of his sons was helping to enlighten the world from Petrograd as to what "Byzantine culture" really meant. I cite his love of France not merely as a political episode. It was really a symbol of his spiritual equipment, for Davie had the authentic Gallic touch in every fibre, with its penetrating vision and individuality, its irreverence if you will; its general consignment of the Herr Professor to the "compound" where he is now languishing with the sheep—like Hans whom he has argued into the self-immolation of kanonenfutter—advice that Davie was quite incapable of either giving or following. Last of all, he shared with the French all those qualities which are summed up in the word Camaraderie—that untranslatable term which explains his staunch heart, his clear head, the something in him that made his conversation so communicable of ideas, that made him, most of all, the centre of devotion to those who knew him, especially to men who led a similarly strenuous life of plain living and high thinking.

There can be no "storied urn" over such a man: the urn (even in a town that lives by chiselling it) stands for everything that is expansive and pompous, and pragmatic and professorial—and Davie was none of these things. Rather let it be a simple granite column, with a little grassy plot where those whom he moved, and who will sorely miss him, may lay little wreaths of rosemary for remembrance.

*The similarity of certain views and phrases in this inadequate appreciation with those in an impression in the "Free Press" of Oct. 6 is explained by the fact that both are by the same writer.

John S. Reid