



Rohitlal



# RUDRENDRA KUMAR PAL

(1902-1991)

Elected Fellow 1956

RUDRENDRA KUMAR PAL was born in Sylhet (now in Bangladesh) on 25 October, 1902. He was the eldest son in a middle-class family. His father was Radhika Ranjan Pal, a Lawyer in the District Judge's Court of Sylhet and his mother was Hemalata Devi (nee De Chaudhury). After his graduation in Arts and Law, Radhika Ranjan Pal served for some time as a teacher in Raja GC High School at Sylhet and because of his nationalistic attitude, he rejected the post of a Sub-Deputy Collector and preferred to join the District Bar as a Lawyer. In the days following the Bengal partition in 1905 and the boycott of foreign clothes and British Schools, a National School was established in Sylhet of which he was one of the Founders. Rudrendra's two uncles, Suresh Ranjan Pal and Dharani Ranjan Pal were also Lawyers of the Sylhet District Bar and men of independent spirit. They also participated in the freedom struggle. Since Bengal partition in 1905 and till 1947, Sylhet was a district of Assam.

## EARLY EDUCATION

In June, 1907, as a boy of five, his father got Rudrendra admitted to the National School where in a nationalist atmosphere he studied for four years, taking lessons in primary English, Bengali, arithmetic, rudimentary science, history of Indian heroes and geography of Assam and Bengal along with physical training, gardening and carpentry. With the annulment of the Bengal partition and unsettling of the settled facts, the school was abolished in 1912 and the young boy, Ruderendra, had to wait for several months before he was permitted by the Director of Education of Assam to join another school, Government or private. When this belated permission was available, his father preferred the private secondary school where some years ago he had served as a teacher. There Rudrendra studied for seven years, but he could never top the list, always invariably occupying the second position. A month before his Matriculation Examination in March, 1919, he fell victim to a serious attack of typhoid. He was ill for 28 days and was too weak to appear in the examination. Despite the disapproval of the attending physician and against the wishes of his parents and well-wishers, he gathered his will force to appear in that examination from his sick bed. But, even then, he earned the distinction of being the only candidate to be awarded a Second Grade Merit Scholarship.

Thereafter, he joined the Intermediate Science Course in the MC College of Sylhet and after two years, during the turbulent days of Non-Cooperation Movement, he appeared in the Intermediate Science Examination in 1921 and stood first in the scholarship list of all the successful candidates in Arts and Science in Assam.





## GRADUATE AND POST GRADUATE EDUCATION IN INDIA

Rudrendra was about to join the Presidency College, Calcutta with Honours in Chemistry, but the Government of Assam nominated him for a seat in the Calcutta Medical College, to which he was induced to join almost half-heartedly by his father and maternal uncles. He was unhappy at not being able to join the BSc course. However, while continuing his studies in the Calcutta Medical College, he gathered a group of 12 other friends and approached Sir Asutosh Mookherjee, the then Vice-Chancellor of the Calcutta University, with an application for permission to appear in the BSc Examination as non-collegiate students. Sir Asutosh finally yielded to the perseverance and the dogged tenacity of this group and granted permission on condition that they could do so only after passing the first MBBS Examination with Anthropology as one of the (then) recently introduced subjects in the BSc course for which the University agreed to arrange night classes for them. Accordingly, in 1925 he appeared and passed the BSc examination with high distinction. To fulfill his further ambition he got himself admitted to MSc Physiology class of the Presidency College, Calcutta. But alas, Sir Asutosh was no longer alive and Col Barnardo, the Principal of the Calcutta Medical College refused to forward and recommend his application, eventually leading to the rejection of his application for admission to MSc Physiology class. However, as a last resort, he approached Professor PC Mahalanobis Professor and Head of the Department of Physics of the Presidency College and an influential member of the Syndicate of the University of Calcutta. Professor Mahalanobis (who was later elected FRS and founded the Indian Statistical Institute, Calcutta) was convinced of his earnest desire for post-graduate studies and Rudrendra was finally permitted by the University to be admitted to the MSc course, for which an extra seat was arranged. It was in the laboratory of the Presidency College that he got the facility to investigate the therapeutic significance of cow's urine which was advocated by the Ayurvedic physicians for the cure of splenic hepatic megalosis. Near about this time he translated one of the big articles on "Infantile Cirrhosis" in the Indian Medical Gazette by Professor Green Armytage from English to Bengali and published the same in a well-reputed Bengali monthly journal "BHARATBARSHA". He also wrote some articles in Bengali and English in some magazines and quite naturally he became the first Editor of the Calcutta medical College Magazine in 1926.

He was in a dilemma when the dates fixed for the final MBBS and MSc Examinations were announced for the 12 June and 3 July respectively in 1927, the duration of the first being an uncertainly long one. So, he did not dare to pay fees for the second examination, lest it should clash with one of the dates for practical examination of the former. But luckily in case of the former, when the last day of the examination was announced for 28 June he rushed to the Presidency College office





to pay his fees for the MSc examination with the fine for delayed payment. This was not easy task and after a good deal of troubles and harassment his fees were accepted (without grace) by the cashier.

After the result of the first examination was announced, he got the chance to appear for Honours in two subjects- Medicine and Physiology; but before he could avail himself of these opportunities and even before his MSc result was announced, he was appointed as a lecturer in Physiology and Clinical Medicine in KE Hospital Medical School, Indore (Central India) and was asked to join there immediately. This he did and within a fortnight he got the information that he had got a first class in the MSc Examination with the University Silver Medal and a prize of Rs. 100/-.

At this time as ill luck would have it, his father's health deteriorated and he was obliged to suspend his legal practice. So the burden of the education of his next two brothers for BSc Physics Honours in the Presidency College Calcutta and ISc in the Bangabashi College, Calcutta fell upon his shoulders. Nevertheless he was ambitious enough to search for opportunities to get some extraneous help for going abroad for higher post graduate studies. Twice in 1928 and 1929 he applied for the Ghosh Travelling Fellowship of the Calcutta University, but he was baffled as six Ghosh Professors who were members of the Selection Committee, rejected his candidature on the plea that he had left Bengal to serve in another province. Three oldest members of the Committee, Professor Heramba Chandra Maitra, Professor SC Mahalanobis and Mr Stepleton, Director of Public Instruction of Bengal were in his favour, but were out-voted. So, he went back to Indore utterly disappointed and dejected, when one old motherly lady Miss Sarojini Das, BA (Oxon) came forward as a samaritan and consoled him by saying: never mind, I have some money, which I will lend you for your higher education. With tears in his eyes, he thanked her and said: I have some other problem and shall let you know after some time. His other problem was the education of his brothers who had just appeared in the BSc and ISc Examinations respectively of Calcutta University. Providence came to his help when within the next two months news came to him to his great relief that his second brother had been awarded a Post Graduate Scholarship and his third brother also had stood first in the University in the ISc Examination. Thus his problems were settled. He decided to accept lady Miss Sarojini Das's offer and wrote to Professor EA Schafer, Professor of Physiology of the Edinburgh University for a seat in his laboratory. But still, his departure was not easy, as he was refused a passport by the Calcutta police authorities for political reasons. So, he tried through the Principal Col Battye and through his recommendation he got a passport from the Central India Agency.





## POST GRADUATE STUDIES ABROAD

Rudrendra sailed by the Orient Liner SS Oronsay from Colombo and reached Tilbury Dock after 22 days on 26 September, 1929 and at once left for his destination, Edinburgh, by train from London. On reaching Edinburgh next morning at about 10 AM, he visited Sir EA Schafer with a letter of introduction from Professor SC Mahalanobis and MBBS and MSc diplomas. The octogenarian professor, after a hearty welcome enquired about the health of his old friend, Professor Mahalanobis, and expressing a little surprise said: 'Pal, I responded to your letter, saying that there is no room enough due to renovation of the departmental university building, and advised you to postpone your journey at least by another six months. Now, I am surprised that in spite of my advice you arrived so early'. Rudrendra was embarrassed and said: 'Sir, I am sorry, I did not receive your letter before my embarkation'. Professor Schafer then asked when Rudrendra had arrived in London. On hearing that it was only in the morning of the day before, Professor Schafer was astonished to know that Rudrendra did not take rest even for a day there and said: 'your earnestness impresses me and although the laboratory is short of space owing to renovation, I shall take you in'.

Thus, Rudrendra not only started his research work in the Physiology Department of the Edinburgh University, but also began to study medicine, surgery and midwifery for reappearing in the Conjoint Medical Board Examination of Edinburgh and Glasgow, as owing to dispute between the General Medical Council his Calcutta University's Medical degree of 1927 was not recognised in Great Britain. Within six months he appeared and passed in MRCP Examination of Edinburgh. He had to work very hard and sometimes remained in the laboratory till very late in the night. In 1930 an International Physiology Congress was to be held in Edinburgh and he was directed to show his work and also to deliver a lecture. But, unfortunately, two days before the session, while he was examining a slide under the microscope with his eye glasses on, all of a sudden the metallic chain of the big glass window over his head gave away and fell on his head. One of his broken eye glasses penetrated his left eye brow and eye lid covering him in a pool of blood. He was removed to the infirmary immediately and was detained there. His professor came to see him and said: In this condition you need not exhibit your work. But, Rudrendra said imploringly: Please do not let me miss this golden chance which I may not get again in my life. With great hesitation his professor agreed and lying on a stretcher with a bandage covering the left eye and forehead, when his turn came, Rudrendra took the floor to show his slides on the screen and explained the subject of his research. After he had his deliberation, he became the centre





of attraction, sympathy and good wishes of most of the prominent Physiologists such as Sherrington, Hill, Starling, Samson Wright and others. Needless to say that Schafer was so impressed with his work that he was permitted to submit his thesis only after 15 months (including the Summer vacation). The practical and viva voce parts of the examination were over within a month when he sought permission of the professor to visit the continental research centres, which was granted on condition that he should come back to attend the convocation next April. With his friend Dr SK Mukherjee, he visited France, Belgium, Germany, Austria, Switzerland and Italy for a month and a half and returned on the eve of the convocation in April to be capped as a Doctor of Science (DSc) of the Edinburgh University. Next day he left Edinburgh enroute London and Paris to catch the Anchor Liner SS Britannia at Marselles leaving for Bombay.

From Bombay he undertook a journey by train for 2000 miles to reach his native town, Sylhet, to meet his parents and other relatives. But, soon after his arrival his father fell seriously ill and the civil surgeon of Sylhet was called. The latter diagnosed the case as malignant malaria with which the young MRCP did not agree. So, the arrogant civil surgeon said, 'Well, Then I am off, you better take care yourself the charge of the treatment of your father'. He did it much against the wishes of his relatives. Thus, by a quirk of fate his own father was the first patient of the young doctor, who undertook the burden of not only the treatment but also the nursing of the serious typhoid case. By the grace of God, after a strenuous fight with the disease for sixty five days and nights, his father's life was saved.

### SCIENTIFIC CONTRIBUTIONS

His research works, encompassing various domains of physiology, brought him international acclaims. His pioneering works on (1) action of insulin on heart and blood pressure, (2) effects of vitamins A, B, C, D and E on the thyroid and suprarenals, (3) action of sulphonamides on heart and blood pressure, (4) effects of radio-iodine on blood and some important organs, and (5) structural changes in the parathyroid in vitamin deficiencies are among significant major contributions in the field of physiology.

In India, he initiated researches on application of radio-isotope in medicine and isotope technique in physiology.

Besides, his wide-ranging scholarships in History of Sciences also amply reflected in his papers—(1) Conception of health and diseases in the Rig Veda, and (2) Conception of health and diseases in Atharva Veda.)





## APPOINTMENTS

Rudrendra stayed at home for another month after his father's recovery and came to Calcutta in June to be appointed as a junior Visiting Physician to the Carmichael Medical College Hospital and at the same time as an Associate Professor of Physiology of the Ayurbijnan Parishad.

After one year, in 1932, he succeeded Professor Reid as Professor of Physiology at the Patna Medical Board College. Here he started his research work in right earnest, became the Editor of the Patna Medical Journal and with Dr AK Chakraborty, MRCP as co-author, he published his Handbook of Modern Physiology. In April, 1933 he married Srimati Pratima (nee Ghosh).

In 1935, after completion of his term for three years and despite his good work in teaching and research, he had to leave Patna owing to the sinister provincialism of the then Bihar Government. He returned to Calcutta a disappointed man and soon fell victim to a severe ailmentary disease, lasting about a year and was ultimately saved by the treatment of two most renowned physicians i.e. Sir Nilratan Sircar and Dr BC Roy. In fact, despite several skiagrams after barium meal, the disease could not be diagnosed and the prognosis was so bad for the patient that his survival beyond six months became doubtful. But the patient with a strong will force was undaunted and as God willed it, he survived. But due to this malady his body weight was reduced from 11 stones and half to six stones only and he had to take rest for more than six months to become fit for any job again. Even so, he needed rest or some job in a good climate. Luckily, at this time, he was appointed to a scheme of the Indian Research Fund Association as the Liaison Officer between Human Nutrition and Agricultural Research at the Nutrition Laboratory, Coonoor, whose bracing climate improved his health and he regained his energy and vigour for research work. After six months he was transferred to the Pusa Agricultural Research Institute, New Delhi. For three years, he was there and in 1940, owing to the war conditions, he was thrown out of employment again due to the abolition of the scheme.

He came back to Calcutta and as he had built a small house at Ballyganj Place Calcutta, he was not very worse off. Calcutta greeted him with an offer of a Part-time lecturership in Post Graduate Physiology Department of the Calcutta University and then at the RG Kar Medical College Calcutta as its Professor of Physiology with facilities for research again in Physiology and Medicine. He was attached to the RG Kar Medical College Calcutta between 1942 to 1964 as Professor of Physiology and since 1955, in addition, as its Vice-Principal. He was also the Principal of the RG Kar Medical College for a considerable period. He then retired. During this period, he was offered the post





of Professor of Physiology from Medical Colleges at Dibrugarh (Assam), Cuttack (Orissa), Nagpur (MH), Agra (UP) and Indore which he refused.

Rudrendra was an uncompromising personality and a man of independent spirit. He never accepted any Government job. He was very fond of his students and he was always helpful to them whenever they faced any trouble.

His services were also requisitioned by various learned institutions and societies such as Nutrition Advisory Committee of Bengal, Assam Medical College Advisory Committee, Managing Committee of the RG Kar Medical College, Calcutta, Bengal Veterinary College, Senate of the Calcutta University, Council of the Asiatic Society, Calcutta, Board of Studies of the Vikram University and Governing Body of the Alipore Zoological Gardens, Calcutta.

(He was also elected President of the Physiological Society of India, Chakra Baithak Club, a number of educational institutions and Vice-President of the Asiatic Society. He became the President of the Asiatic Society in 1984, the Bi-Centenary year of the society and also a member of the Council of the Rabindra Bharati University, Calcutta.)

He went on delegation to several international conferences abroad and also in India, viz. First World Medical Conference in Paris, 1947; World Peace Conference in Helsinki, May, 1955; International Conference for Atom for Peace in Moscow, May, 1955; Fourth International Congress against Atom and Hydrogen Bombs in Tokyo, August, 1960; Tenth International Congress on History of Sciences in Ithaca and Philadelphia, August, 1962; Eleventh International Congress on History of Sciences, Warsaw and Crackow, August, 1965; and International Congress on Diabetes in Bombay, 1966.

While in Paris with his wife in 1947, he visited the Curie Laboratory where Madam Irene Curie and Professor Julio Curie showed their radio-isotope work and induced him to take up in his profession for the treatment of various diseases with radio-isotopes. On return to India he did treat some cases of Groves disease and Leukaemia with I (131) and P (32) respectively. In Moscow in May, 1955, he was introduced to Nemosnov, Tocheechov, Peter Kapitza, Bykov, Engelhardt and other scientists of international fame. In Tokyo in August, 1960, he also had the privilege of meeting distinguished scientists like Simitro, Tomonago, Fuzicka and others.

In India too, he was very close to great scientists such as Professor Meghnad Saha, with whom he was a co-delegate to the Helsinki and Moscow Conferences in 1955, Professor Sisir Kumar Mitra and since the foundation of Bangiya Vijnan Parishad, founded in 1948 by Professor Satyendranath Bose, Rudrendra was also very close to him. Like Professor Bose, he was also ardent campaigner in favour of science education in mother tongue.





He was also closely associated with distinguished scientists like Sir Jnan Chandra Ghosh, Professor Priyada Ranjan Ray, Professor Jnanendranath Mukherjee and Col RN Chopra.

### HONOURS

The following medals and prizes were awarded and Fellowships conferred on Professor Rudrendra Kumar Pal by several learned societies in recognition of his merit as a student, teacher, research worker and also as author of books:

- (1) Calcutta University Silver Medal and Prize, 1927
- (2) Nilmony Brahmachari Gold Medal for best research work (1932-35) by Calcutta University.
- (3) Narsinghadas Agarwalla Prize for best science book, "SARIR BRITTA" (published by the Calcutta University) by Delhi University in 1951.
- (4) Silver Jubilee Medal by Indian National Science Academy in 1960.
- (5) Golden Jubilee Medal by the Nikhil Banga Sahitya Sammelan in 1970.
- (6) Narasinghdas Agarwalla Prize for text book on science, "NURSING SHIKSHA- Part II" by Delhi University in 1985.
- (7) Golden Jubilee plaque by Indian National Science Academy and also a Medal as a Senior Fellow in 1984.
- (8) The Fellowships awarded by (i) Royal Society of Edinburgh in 1934, (ii) National Institute of Science in 1956, (iii) Asiatic Society in 1966, (iv) Royal College of Physicians Edinburgh in 1972, and (v) Hony Fellowship of the Asiatic Society in 1985.

For nine years he was a Council Member of Indian National Science Academy (regular member, 1964-66 and as representative of the Asiatic Society, 1962-63, 1972-73 and 1984-85.) He also served Indian National Science Academy as a member of the Sectional Committee VIII for nine years and Research Fellowship Committee for three years.

Dr Rudrendra Kumar Pal died on 12th February, 1991

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