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Glimpses from History
Respiratory Medicine in India
From Antiquity to Future

Surinder K Jindal



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Pulmonary Stalwarts of Modern Era

A large number of physicians and surgeons have significantly contributed to the development of respiratory medicine and medical practices in India in the last 100 years or so. We are listing a few whose contributions are generally acknowledged. Some of these notes have been written by their students or friends who personally knew them, better than the authors of this book.



Bidhan Chandra Roy

Pre-Independence Era

Tuberculosis (TB) and other chest infections had dominated the scenario in the late 19th and early 20th centuries. The specialty of *respiratory medicine* was not separately recognized. Many physicians and surgeons had distinguished themselves with extensive clinical services in this area. Some of the early pioneers who made significant contributions to the understanding and treatment of TB in India included DN Palmer, GC Roy, ML Sarkar, KN Purohit, and BC Roy. They all worked on epidemiological and clinical spectrum as well as different treatment strategies. Dr Purohit also held leadership roles in various TB-related organizations including the Indian Tuberculosis Association and the National Tuberculosis Institute. Dr ML Sarkar established the Calcutta School of Tropical Medicine in 1920.

DN Palmer, a British physician who worked in India during the early 20th century, was a renowned expert on TB. He worked at the Tuberculosis Hospital in Madras where he conducted research on epidemiology of TB in India, studying the disease's prevalence, distribution, and transmission patterns. He also developed treatment protocols for TB that were tailored to the Indian context. These emphasized the importance of rest, nutrition, and sanitation in TB treatment. Palmer advocated for the establishment of TB sanatoria, the use of X-rays in diagnosis, and the implementation of public health measures to prevent TB transmission. His work on TB had a lasting impact on the country's approach to TB control and treatment.

Bidhan Chandra Roy (1882–1962) became a household name in the medical community. He was a renowned Indian physician, politician, and

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RN Cooper

later the Chief Minister of Bengal. He was also a social worker who made significant contributions to the field of TB. Dr Roy established several TB clinics in Kolkata (then Calcutta) and other parts of India, providing access to TB diagnosis and treatment for thousands of patients. He also raised awareness about the disease through public lectures, writings, and media campaigns. Dr Roy's contributions to TB control and treatment in India were recognized with several awards and honors, such as the *Padma Vibhushan*, India's second-highest civilian honor, in 1961.

Rustam Nusserwanji Cooper is another prominent name that stands out during this period. Cooper is credited with the introduction of modern rigid bronchoscopy techniques as an Honorary Surgeon and Head of the Department of Surgery at King Edward Memorial (KEM) Hospital, Mumbai (earlier Bombay). Besides being an accomplished surgeon, he was an extraordinary individual who was widely revered by patients and admired by the medical fraternity. He had also started the *Charak Clinic* for the poor. He possessed an eclectic collection of books on subjects ranging from comparative religious philosophies to biographies. He was a keen student of the history of medicine and felt strongly that we must remain aware of the trials of those who advanced medicine over the millennia underwent and applaud their achievements. The Bombay municipal authorities had commemorated his contributions with the RN Cooper Hospital in Juhu. He was a founder of the Indian Association of Surgeons and became the first Indian to be conferred membership of the American Association of Surgeons. He was a great surgeon and a greater gentleman who lived an extraordinary life with humility and kindness.

Other notable pioneers included AJS Mehta for research on TB control, MD Goyandka and SK Basu for pulmonary physiology research, RV Rajam for work on lung cancer, and ST Achar for pioneering pediatric pulmonology in India. Contributions by these pioneers helped the introduction of modern diagnostic and treatment techniques and lay foundations of medical research and education. They shaped India's health care system and inspired future generations of medical professionals.

Post-Independence Era—20th Century

Rapid strides were made in all fields in medicine after 1947 for several reasons, which have been discussed earlier. A number of pioneer clinicians, teachers, and research workers were now available in different fields. TB remained a dominant problem, and hence the focus of attention in respiratory medicine in the first few decades after India's independence. However, there were others who began taking interest in nontubercular diseases, especially asthma, chronic bronchitis, and nontubercular lung infections. The pool kept expanding as we progressed in time.

Autar Singh Paintal remains one of the most eminent scientist in basic sciences and a renowned physiologist who gained an international recognition for his discovery of J receptors in the juxtacapillary areas of the lung.

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AS Paintal

Prof SK Chhabra, a former Director-Professor of Pulmonary Medicine at Vallabhbhai Patel Chest Institute writes gloriously about Dr Paintal:

Born in 1925 in the small town of Mogok, Myanmar (erstwhile Burma), he moved to India during the World War II to pursue higher studies. With a love for research in basic sciences, he shunned a career in clinical medicine and opted for postgraduation in Physiology. Subsequently, he obtained his PhD from the University of Edinburgh. He joined the Vallabhbhai Patel Chest Institute as an Assistant Director where in 1954 he made the important discovery of J receptors. After a brief stint at the AIIMS, N. Delhi as a senior faculty, he returned to Vallabhbhai Patel Chest Institute in Delhi as Director. Later, he also served as the Director General of the Indian Council of Medical Research (ICMR) contributing to the promotion of medical research and guiding health policies in India.

Dr Paintal developed and perfected single-fiber recording techniques, which were a major advancement in electrophysiology in the 1950s. His most notable contribution is the discovery of type J receptors in the lungs and their role in exercise physiology and pulmonary edema. He described their location in the lungs just next to the alveoli and pulmonary capillaries (the name J stands for juxtacapillary). These receptors were found to be sensitive to pulmonary congestion and edema and played a crucial role in modulating changes in breathing patterns with afferent impulses travelling in nonmyelinated fibers of the vagus nerve. He also hypothesized their role in the mechanism of breathlessness in pulmonary congestion as well as in limitation of exercise.

His other major works included identification and description of sensory receptors such as atrial B receptors, ventricular pressure receptors, gastric stretch receptors, mucosal mechanoreceptors of the intestine sand muscle pain receptors. A little-known fact about him is that even without a formal degree or training in electronic engineering, he learnt to build small circuits and repair his equipment or improvise and build small instruments for his research.

The Government of India conferred the much-coveted Padma Vibhushan in 1981 for his contributions to medical science. One of the most distinguished scientists of the world in the field of Physiology, his contributions and impact on neurophysiology are sometimes discussed as "Pre-Paintal era" versus "Post-Paintal era".

Acutely concerned about the declining standards of scientific ethics, he and several others who were similarly alarmed by the situation in the country founded the Society for Scientific Values. Throughout his career, Dr Paintal was a mentor and inspiration to many young scientists. His dedication to teaching and research fostered a culture of inquiry and innovation. He supervised numerous doctoral students and postdoctoral researchers, many of whom have gone on to make significant contributions to physiology and medicine.

Paintal's legacy is one of excellence and pioneering contributions to physiology. His discoveries have shaped our understanding

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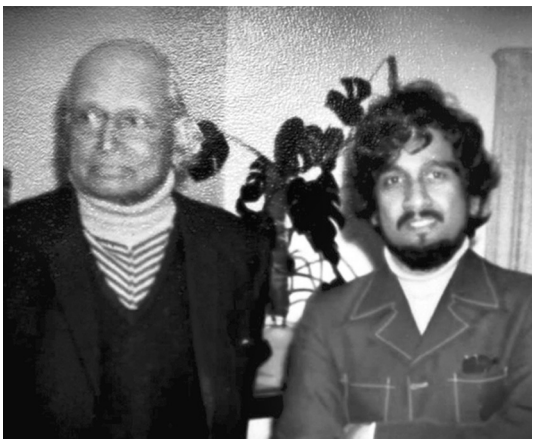

R Viswanathan

of neurophysiology and cardiorespiratory physiology.

Other stalwarts of Paintal's period included Surinder Pal Pamra, a renowned Indian pulmonologist and Founder-Director of National Institute of Tuberculosis and Respiratory Diseases, New Delhi. He had contributed significantly to India's national TB control programs. He was an exceptional clinician, researcher, and mentor who dedicated his life to advancing respiratory health care in India. Purushottam Kashinath Sen was a renowned Indian cardiothoracic surgeon and medical educator. He had pioneered modern cardiothoracic surgical techniques and established AIIMS Delhi's cardiothoracic department. Two eminent chest physicians and researchers born in Tamil Nadu included KV Thiruvengadam and R Viswanathan. They made significant contributions to the field of respiratory medicine including TB and nontubercular diseases in India. Raman Viswanathan was in several ways the lead pulmonary physician and teacher who remained as Director of the Vallabhbhai Patel Chest Institute at the University of Delhi and mentored a large number of students in chest diseases. Dr Basil Varkey, a Professor Emeritus in the USA shares his personal encounter with Professor Raman Viswanathan in following words:

"I met Dr Raman Viswanathan, for the first time at the XXIV World Congress of IUAT at Brussels, Belgium in September of 1978. He was one of the presenters on a half day oral presentations and his short paper was on the results of TB treatment. (I share with you the first thought that occurred to me on seeing Dr Viswanathan presenting his 15 minute (10 minute presentation and 5 minute for questions) at Brussels. Why was this professor of iconic status, nearly 80 years of age, presenting this paper instead of a junior colleague or a trainee/mentee?) During the break time I introduced myself to him and he advised me that he was planning a trip to the US in early 1979 and I gave him my contact information. In the spring of 1979 I got a call from him. I then invited him to speak our noon conference at the Matousek Auditorium. As I was then the Associate Director of the Medicine Residency Program I was able to secure an honorarium for his lecture. I also booked a hotel room at a nearby location but he expressed his desire to stay at my house. He stayed with us in our modest house the night before the lecture. Dr Viswanathan for all his fame and stature was a undemanding and charming guest.

The auditorium was packed with residents, interns and students, and faculty as well. For most in the audience it was the first time they were attending a lecture from a visiting Indian professor. Professor Viswanathan in his tailored dark suit and piercing eyes and confident posture cut an imposing figure. He opened his lecture on "Tropical Eosinophilia" with the lines "When I did this work and published on this subject most of you here were not born." and with a smile he added "you were just a gleam in your parents' eyes". With that he won over all of the audience who listened to him with rapt attention.

We received a very nice letter of thanks from Dr Viswanathan from Ohio and later after he had returned to New Delhi."

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HS Randhawa



OP Jaggi

During this period, there were several other eminent teachers and research workers at Vallabhbhai Patel Chest Institute at the University of Delhi who significantly contributed in different areas of chest medicine. HS Randhawa, regarded as the doyen of medical mycology in India, focused his research on the etiopathogenesis of invasive and hypersensitivity diseases of the respiratory tract due to fungi and actinomycetes for over five decades. He had a major interest in epidemiology, development of novel laboratory diagnostic techniques, and immuno-diagnosis of respiratory and systemic mycoses. He is globally known for the discovery of *Candida viswanathii* and several other fungi of clinical interest. A new environmental fungus, *Cryptococcus randhawai*, was named after him in view of his significant mycological contributions.

OP Jaggi who had been the Director of the Vallabhbhai Patel Chest Institute, Delhi was the author of over 70 books including an authoritative 18-volume series on History of Science and Technology in India. He wrote on a variety of subjects including the Healing Systems—Alternatives and Choices, Medicine in Medieval India, Yogic and Tantric Medicine, Indian System of Medicine, and Science in Modern India. SK Jain is another doyen who has made immense contributions to cardiorespiratory physiology offering integration of physiology into the clinical disciplines of pulmonary and critical care medicine. His research areas included lung receptor physiology and lung function testing. His research into various aspects of bronchial asthma, chronic obstructive pulmonary disease (COPD), interstitial lung diseases, and lung function tests has contributed immensely to the fields of epidemiology, pathophysiology, and pathogenesis of these diseases.

Professor Man Mohan Singh was a well-known figure and a much sought-after teacher. Dr Ashok Shah, a former Professor at Vallabhbhai Patel Chest Institute describes Dr Singh as a doyen in the field of TB to which he devoted more than half a century of his life. "*Dr Singh, who first worked as a Senior Medical Officer at the Tuberculosis Clinic, better known as "Pili Kothi" became Delhi's first State Tuberculosis Officer of Delhi. Later, he assumed charge of the Rajan Babu Tuberculosis Hospital, Delhi, the largest tuberculosis hospital in Asia as the Medical Superintendent and Senior Consultant in Chest Diseases. He took voluntary*

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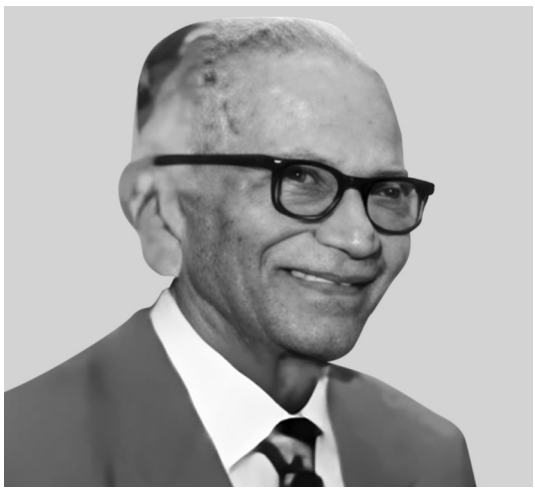
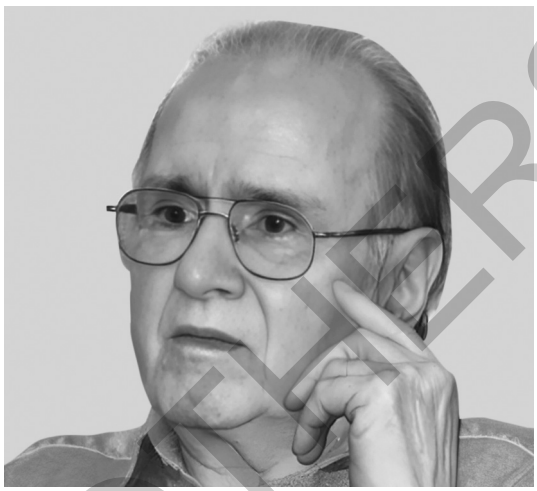


MM Singh



KV Thiruvengadam

retirement in 1985 to take charge as the Director of the renowned New Delhi Tuberculosis Centre, managed by the Tuberculosis Association of India.

The RBTB Hospital was a part of the training program of the DTCD students of the University of Delhi who were allotted to the Vallabhbhai Patel Chest Institute. When the Institute started the MD (Tuberculosis and Respiratory Diseases) of the University of Delhi in the late 70s Dr Singh and RBTB Hospital played a crucial role. He was also appointed as Honorary Professor by the University of Delhi. Dr Singh was the force behind the Delhi TB Association as well as the Tuberculosis Association of India (TAI). He was deeply involved with the Delhi TB Association for nearly half a century and was the Vice-Chairman of the TAI. Prof Singh was also a much published author. When he took over the Indian Journal of Tuberculosis, he made it his mission to get it indexed with the Index Medicus/ Medline. He succeeded in getting the more than 50-year-old Journal indexed which was a major feather in his cap. He remained the Editor until his demise.

For his distinguished contribution toward furthering Indo-Japan relations, Dr Singh was honored by the Government of Japan with the Order of the Rising Sun, Gold Rays with Rosette. It is the second most prestigious Japanese decoration after the Order of the Chrysanthemum. Dr MM Singh was a father figure to many respiratory physicians in India and will be remembered as a passionate teacher and researcher by all those associated with the specialty of pulmonology in India".

KV Thiruvengadam was an eminent chest physician and internist who mentored students in medicine and chest diseases such as asthma and allergies for over 40 years. He was honored with the "Distinguished Chest Physician" award by the Indian Chest Society.

Debabrata Sen was another legendary Professor from Kolkata who also served as Director of IPGMER, Kolkata from 1990 to 1996. Dr Aloke Ghoshal, Medical Director, National Allergy Asthma Bronchitis Institute and Past President, Indian Chest Society, pays tributes to Prof Sen:

"Those were the budding days of Pulmonology in India. The specialty and the department bore the name of tuberculosis and chest diseases. While tuberculosis was the immediate formidable

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Debabrata Sen

national menace, pulmonology had started to spread its wings to the future. Dr Sen seamlessly covered the fissure, if any, of the diverging interests and shaped the future of pulmonary medicine in Eastern India. Pulmonology was in search of an identity and here was the person to represent it. He was always conversant with the scopes and widening horizons of pulmonology but never undermined the importance of knowing tuberculosis and tuberculosis control. His students loved his magnetic personality, deep medical knowledge, and compassion for humanity.

Immensely popular among his patients, his brilliance in clinics and care for the ill earned him the nickname of "Devata Sen". But what he really imparted to his students and generations thereafter was the rational scientific approach in medicine. His history-taking was like following an Agatha Christie novel; his patient examination looked like drawing a picture. As a result he converted many potential internists, surgeons, and gynecologists to pulmonary medicine.

There were also some unexplained facets of his personality. He epitomized the old "gurukul" values—secrecy and aversion to publicity. In spite of constantly updating himself on advances, he espoused bedside clinics and had a distaste for an investigation-all approach. He was at his best among his patients and then, with his students. An avid reader of contemporary journals (NEJM, Thorax and Indian Journal of Tuberculosis were among his daily reads), he seldom attended conferences. He encouraged his students in seeking answers to their own clinical puzzles and introduced them to clinical research but was very reluctant in lending his name to publications.

Dr Debabrata Sen's contributions are difficult to fathom but may be summarized by saying that he made pulmonology stand on its feet in Bengal and Eastern India and attracted the best of successive generations of postgraduates to pulmonology".

The era of 1970s and 1980s saw emergence of several eminent medical and chest physicians who contributed immensely to the development of *pulmonary medicine* in both TB and nontubercular diseases from different parts of India.

Kishore Chandra Mohanty was a towering chest physician who actively fought against TB in his lifetime. Dr Nikhil Sarangdhar, one of his students remembers him in the following word:

"A doyen of and a leading light to many of the TB workers in India, he led the campaign against TB. Originally hailing from Orissa, he mostly served in Mumbai as Honorary TB specialist and Professor at the department of TB and Chest diseases at the Grant medical college and Sir J J Group of hospitals, Bombay, and later the K J Somaiya Medical College. He founded the Mumbai district anti-TB society and the TB clinics under the Bharatiya Arogya Nidhi and Muslim Ambulance Society trusts, Mumbai, offering free TB treatment services with second-line anti-TB drugs. He was a pillar of strength to the TB association of India for decades. In the battle against TB, he was a General who led from the front for five decades. He was also a dedicated environmentalist, educationist, social reformer, and a nationalist. He travelled 29 times to

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KC Mohanty



SK Malik

the North-East and established the TB associations of Arunachal Pradesh and Sikkim and the North-East TB association for 8 states.

He was a strict disciplinarian but also gave many opportunities to his generations of students. He used to dress in a classical "bandh-gala" suit and was very fond of fountain pens, of which at least four could be found every time in his shirt pocket. Let me share a small anecdote which provides an interesting glimpse into his personality. On two occasions, once during a trip to the Mount Mary fair at Bandra, Mumbai, and the second during the Hornbill festival at Dimapur, Nagaland, we visited the local stalls and found everything a bit expensive. However, on both occasions he encouraged us to purchase the local products from the same stalls at the prices, saying that "Few rupees extra will not make much difference to us, the native citizens pay a lot for the stalls and often they have to live and support their families on their earnings from this one festival for the entire year, and, therefore, we should feel proud to support their livelihood.

Suresh Malik was another eminent chest physician at the Postgraduate Institute of Medical Education and Research, Chandigarh who pioneered a number of clinical studies on nontubercular lung diseases, in particular on tobacco smoking, domestic air pollution, and chronic bronchitis. He moved from the United States to India with a keen commitment to establish respiratory medicine at par with other sister superspecialties of general medicine. Unfortunately, his life was cut short due to a progressive illness, but he was an iconic pulmonologists for many of us from Chandigarh. I personally owe a lot to him for his guidance and support through thick and thin. In several ways, he laid the foundation for the *first* postdoctoral (DM) program in pulmonary medicine in India which we could subsequently start in 1989 after his demise.

Professor Jitendra Nath Pande was Dr Malik's contemporary colleague at the All India Institute of Medical Sciences, New Delhi who served as Professor and Head of the Department of Medicine. His areas of interest included pulmonary physiology, intensive care, clinical epidemiology, and clinical decision analysis. He contributed immensely to the investigation of

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JN Pande

Bhopal Gas Tragedy in 1986. Prof SK Sharma, who closely worked with Dr Pande, writes about his impressions:

"*I was closely associated with Professor Pande since the time I joined his Unit in the Department of Medicine. He was the epitome of a great teacher, clinician, and researcher. All these qualities made him very popular among his colleagues, students, and patients. He was a gifted teacher and had an art of abridging patient's clinical details and laboratory investigations and one used to relish his analytic power during clinical discussions in ward rounds, ICU rounds, and in the outpatient department. He always used to encourage his junior faculty and residents to make presentations in clinical combined rounds and clinical grand rounds at AIIMS, New Delhi and used to dominate discussion on any topic and used to contribute very constructively. Besides professional association with Prof Pande, I personally consider myself a lucky person to be mentored by him. He had a great influence in shaping my career. He trained me in pulmonary physiology especially lung mechanics and cardiopulmonary exercise physiology, fiberoptic bronchoscopy, and the technique of broncho-alveolar lavage. Once I had a great learning experience from Prof Pande when he got a referral from Cardiology ward. The patient was admitted in ICCU and was getting severely out of breath while lying down supine and both junior and senior residents on night duty injected several dosages of intravenous diuretics without any relief. After evaluating him based on simple bedside clinical examination, he said that the patient has bilateral diaphragmatic weakness and instructed me to arrange an esophageal catheter with an esophageal balloon and a gastric balloon in the afternoon after the OPD hours. We could confirm the diagnosis with this study. That was one moment when I was amazed to witness the Professor Pande's clinical acumen and quick responses in making a diagnosis. He often told me to develop skills to make a diagnosis the moment patient enters the room. Later, he entrusted me with the responsibility of establishing sleep laboratory in the department of Department of Medicine.*

Jointly working together we had several firsts to our credit, we described for the first time acute respiratory distress syndrome (ARDS) in miliary tuberculosis, recruitment of lymphocytes and its subsets from peripheral blood to the disease sites in tuberculosis and sarcoidosis, description of a comprehensive large series of sarcoidosis. Professor Pande was an enthusiastic researcher as well. After rounding in the OPD, wards, ICU in the forenoons, we used to work together in the afternoons performing lung mechanics, cardiopulmonary exercises in the respiratory research laboratory. Professor Pande was always a great support in academics and research for me. When I was senior resident, he was the one who helped me in writing my first publication. I must admit that Professor Pande had outstanding writing skills as well. Professor Pande will always be remembered for his commitment toward clinical care, teaching, and medical research".

P Ravindran stands as a towering figure in the history of pulmonary medicine in Kerala, where

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his contributions shaped the field profoundly. *Dr C Ravindran,* a Senior Consultant and Pulmonologist in Calicut, briefly writes about him as follows:

"P Ravindran spearheaded the initiative to establish Departments of TB and Chest Diseases as independent departments, which catalyzed the growth of similar departments across Kerala's medical colleges. His efforts led to the approval of the DTCD course in 1977, followed by the MD (TB and Respiratory Diseases) program in 1984 at Trivandrum and Calicut Medical Colleges, setting the stage for comprehensive pulmonary education state-wide. Under his leadership, Pulmonary Medicine departments across Kerala were equipped with advanced diagnostic and therapeutic tools. He also pioneered Kerala's first allergen manufacturing center and introduced an applied allergy and immunology clinic, significantly advancing the field. He established a Clinical Epidemiology Unit in Trivandrum. This was later upgraded to the Clinical Epidemiology Resource and Training Center (CERTC), which trained medical faculty and offered an MPhil program in clinical epidemiology. He served as the chief editor of Lung India, and his academic leadership extended to several different roles, including the Presidency of the Indian Chest Society, reflecting his influence on pulmonology".

Lucknow was one important place which produced quite a few chest physicians and teachers in chest medicine. Professor BK Khanna was one such doyen who steered the department



P Ravindran



Prof BK Khanna (being felicitated by Dr Rajendra Prashad)

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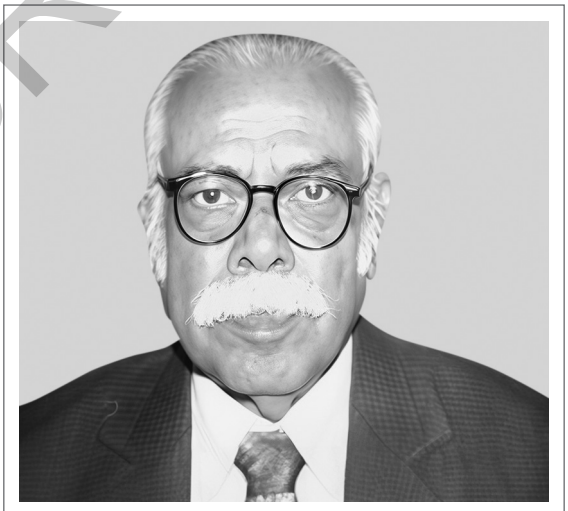
at King George's Medical College, Lucknow for about three decades. Prof Rajendra Prashad, the former Director of Vallabbhai Patel Chest Institute Delhi and Institute of Medical Sciences and Research, Saifai, who was one of his students informs that Dr Khanna was instrumental to start pulmonary function laboratory, allergy clinic, and rigid and flexible bronchoscopy in the department of TB for the first time in the state of Uttar Pradesh. "*He was a very knowledgeable teacher especially in tuberculosis. I have never come across such a brilliant teacher especially in tuberculosis. He laid down the foundation of short clinics for final year MBBS students; a novel idea for their training about tuberculosis, common respiratory diseases, and chest X-Ray. His chest X-Ray classes were very popular among students. He also laid down the foundation of nontubercular wards in the department of tuberculosis which ultimately lead to the transformation of the Tuberculosis Department to Department of Pulmonary Medicine. Apart from being a clinician par excellence, he was a passionate teacher and a very able administrator. It has been my privilege to be trained under his guidance for more than four decades. He will always remain in the hearts of all the students who were taught by him. While paying tribute to him one of his students wrote "Professor Khanna" was a legend in the field of tuberculosis and chest diseases. I do not find any genius of his stature in this subject. Whatever pulmonary radiology we know, all credit goes to him.*"

Prof Rajendra Prashad also writes about Professors PK Mukherji and MS Agnihotri who made significant contributions while at KG Medical College, Lucknow in the 1980s and 1990s. Mukherji was instrumental in starting Associations of Chest Physicians, Lucknow also called as Chest Club of Lucknow for academic and social activities which is still running. He was a thorough gentleman with a very pleasant personality. Dr Prashad has fondly recalled several instances of his very firm nature and remarkable decisions. Similarly, another doyen, MS Agnihotri had laid down foundation of Allergy Clinic as early as 1970 and is popularly known as father of Allergy in State of Uttar Pradesh. He was the first to think about oral immunotherapy, initiated the same for allergic patients, and popularized the subject of allergy in the state of Uttar Pradesh. He also developed a pollen calendar for North India. He



PK Mukherji



MS Agnihotri

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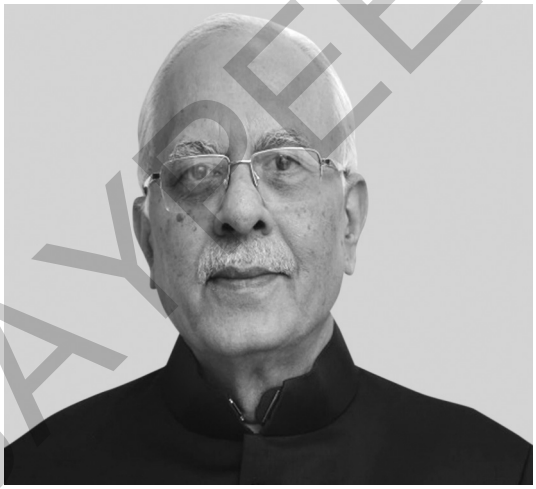
had also developed a lot of interest in Ayurveda in latter part of his career and propagated Ayurveda and Yoga in Bronchial Asthma and other Allergic diseases. All his students remember him for his teaching, administrative and managerial qualities.

Prof Ashok Anant Mahashur was another leading figure from Mumbai who with SR Kamat was instrumental in establishing the first *intensive respiratory care unit* and transformed the department into a world-class center for respiratory medicine. He introduced several innovations such as bronchoscopy, advanced pulmonary function testing, the Environmental Pollution Research Centre, and several others. He was also instrumental in setting up the department of Chest diseases at T N Medical College and B Y L Nair hospital, Mumbai along with Dr G S Parihar during the 1980s. Dr Mahashur possessed a futuristic approach far ahead for his time and always believed that Respiratory Medicine should progress by leaps and bounds beyond the public health domain of TB.

Nikhil Sarangdhar, who had also seen Mahashur from close quarters, shares that he never allowed his illness to affect him and always faced life with great strength, enthusiasm, and an infectious smile. Abha Mahashur, daughter in law of Dr Mahashur, describes him "*as an ocean of knowledge which he kept expanding with his tireless efforts and eagerness to learn and stay updated. He was a voracious reader, keen observer, and a visionary in pulmonary medicine. He strongly believed that focus in life should be in being productive, progressive, and futuristic. He stayed relevant all across his life as he constantly evolved with time and generation. From an intense political conversation with elderly, an intelligent scientific discussion with medical personnel to a totally entertaining fun ride with kids, he was everyone's favorite. He was a selfless soul and "a true teacher" in all sense. His teaching skills were exceptional where he would go to an extra mile to teach his students, for which he is still remembered by all. A student achieving any accomplishment would fill his chest with pride. He took responsibility of his students. Those were the days when conventional teaching came with a lot of strictness and rules. He was passionate about the Respiratory ICU setup by him at the Seth G S Medical College and K E M Hospital, Mumbai. The evening hours at our*



Ashok Mahashur



Sudhakar Ramchandra Kamat

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residence were like a curfew situation where the whole house would maintain a pin drop silence for a phone call at our landline at sharp 9 PM. Those few minutes would be a strict no talking zone here and a super stress zones for his registrars on call there at ICU. He was a disciplinarian in working hours and a guardian round the clock, thus all his students bonded with him on different levels and kept touch with immense love and gratitude even after migrating from his gurukul. He was like a giant tree loaded with fruits which kept bending down with the weight of knowledge, life experiences, and humility who kept giving shade to all those who approached.

He was truly a "Bheeshma Pitamah" of pulmonary medicine who witnessed the evolution of our field, worked hard to excel in practice, and had an eye for future. He touched every soul he met, he inspired every mind he taught, and he loved every heart he was surrounded with."



CN Deivanayagam

CN Deivanayagam, was a veteran pulmonologist of India who was a Professor of Thoracic Medicine, Madras Medical College and later Dean of TAMARAI (now Sri Ramachandra Medical College and Research Institute, Chennai, Tamil Nadu). Vijayalakshmi Thanasekaran, Former Emeritus professor of TB and Chest Diseases, SRIHER, Chennai and a Senior Consultant Pulmonologist pays her tributes: "*CN Deivanayagam will be remembered forever, because in 1991 when many found HIV/AIDS as a social stigma, he was the first in South India to conduct an autopsy in an HIV/AIDS patient and publish it in Lung India. He created a ward at Government Hospital of Thoracic Medicine, Tambaram, Chennai in 1993, exclusively for PLHA (people living with HIV/AIDS). This has grown into a recognized center of excellence in patient care, training, and research in HIV/AIDS. It is the largest health care center for HIV/AIDS patients in Asia. Even before antiretroviral drugs were available free of cost for AIDS patients in government hospitals, Dr Deivanayagam treated these patients with non-antiretroviral allopathic medicines along with alternative medicines and presented his work at XIII International AIDS Conference in Durban, South Africa. In 1980, Dr Deivanayagam initiated the indigenous preparation of sweat chloride analyzer, iontophoresis equipment, along with engineers of IIT Madras and used it for pilocarpine iontophoresis sweat chloride test for the diagnosis of cystic fibrosis. He was a disciplinarian, clinician par excellence, passionate teacher, researcher, scholar, and prolific writer.*

He was one of the founder members of Indian Chest Society, President of Indian Chest Society, National Consultant in HIV and AIDS, Member of National Council on AIDS, Ministry of Health and Family Welfare, and Government of India and Editor of Lung India (Official Journal of Indian Chest Society). He also received the Lifetime Achievement Award of Indian Chest Society in 2012.

He also contributed to Tamil Literature and Peace initiatives. Infinite patience, infinite purity, and infinite perseverance were the secret of his success with regard to the patient care".

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Current Era

A number of medical teachers and eminent clinicians have continued to make headlines in their respective areas of pulmonary and critical care practice for their contributions in the current era since the last part of the 20th century to date. They have adopted the latest medical techniques and interventions in respective fields. It is futile to make a list of the stalwarts of the present era which we leave for the authors of the future to reminisce. Undoubtedly, a long innings of Jagdev Singh Guleria, a former Dean and Professor of the All India Institute of Medical Sciences, New Delhi, is highly significant for his continued commitment to chest medicine through mentoring a large number of students as an eminent general physician, cardiologist, and pulmonologist. Farokh Udwadia is another renowned physician who established critical care as a model service in Mumbai and promoted bedside medicine.

Udwadia is more known for his stress on bedside medicine. As an Emeritus Professor of Medicine at Grant Medical College and the JJ Group of Hospitals, he has taught medical students for over five decades. Besides critical care medicine and respiratory disease, Udwadia has addressed other critical issues related to medical, social, and cultural history. He has written several books on medicine and allied subjects. His book "Man and Medicine" is like an epic on history of medicine. Another publication, "*Tabiyat*—Medicine and Healing in India" was another masterpiece. His research and interpretation has always been guided by history, tradition, art, literature, and science.

The last half a century has also seen the emergence of women pulmonary physicians in India even though only a fewer women had opted for respiratory medicine in the past. Sivaramakrishna Iyer Padmavati, who passed away in 2020, was among the first few women cardiologists in India. Her work on chronic bronchitis and cardiopulmonary disease in Indian women due to long-term exposures to smoke from domestic fuel combustion of solid fuels was well ahead of time. Now, a number of pulmonary medicine departments have a significant number of female faculty members. Uma Mohan K, one of my own former students and now Professor at St



JS Guleria



Farokh E Udwadia

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John's Medical College, Bengaluru, writes about her journey:

"*When I ponder about the origin of my fascination for pulmonary medicine, the carousel of memories stops at this photograph shot during my residency; I am fortunate to be in the same frame as these titans in pulmonology, SK Jindal, D Behera, D Gupta, and AN Aggarwal. They have accomplished the daunting task of starting the first superspecialty program in pulmonary medicine in India. Each of our four mentors was immersed in impactful research in important fields like airway diseases, sarcoidosis, and lung cancer. We flourished in the warm glow of their tutelage during our stint in PGI as the rock-solid foundations for lifelong learning and research were laid!*"

The number of women members of Indian Chest Society has almost doubled from 14% in the past to 27% for the present. We also see an increased presence of women in the intervention and critical care areas. Undoubtedly, the trend is likely to continue in the future. Sooner than later, we are likely to see their greater participation in teaching and research fields.

There are several eminent contemporary pulmonologists, physicians, surgeons, and basic scientists who continue to significantly advance the developments in different fields of respiratory medicine. It is difficult for me to summarize their contributions for the present. I, therefore, leave it for the future authors of history on the subject.

The gaps in technology between the Indian and Western medical practices are practically reduced to negligible. Undoubtedly however, there remains a significant nonuniformity of medical services attributed to regional, political, and economic differences and disparities. There are also significant gaps in original and basic research in different fields. Translational research directed to the issues, problems, and solutions of problems relevant to the country are lacking. There is also an inadequate attention given to general medical perspectives. Most of these gaps require greater inputs at different levels of health care. It is for the future to judge the ongoing developments, contributions of pulmonologists of different hues, and the role of the current leadership.



S Padmavati



Dheeraj Gupta

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Faculty of Pulmonary Medicine (PGIMER, Chandigarh) 1999–2002
Sitting (left to right): Ashutosh Nath Aggarwal, Dheeraj Gupta, Surinder Kumar Jindal, Digamber Behera
Standing (left to right): Surinder Kumar, Balamugesh T, Uma Maheswari K, Ashutosh Ghosh, Rajesh Gupta, Mahendran Chetty, Pralay Sarkar

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Personal notes by:

SK Chhabra on Autar Singh Paintal
Basil Varkey on R Viswanathan
Ashok Shah on MM Singh
Aloke Ghoshal in Debabrata Sen
SK Sharma on JN Pande
Rajendra Prashad on BK Khanna, PK Mukherji and MS Agnihori
Nikhil Sarangdhar on K.C. Mohanty
Abha Mahashur and Niknil Sarangdhar on AA Mahashur
V Thanasekaraan on CN Deivanayagam
C Ravindran on P Ravindran
Uma Mohan K on her Residency days

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Surinder K Jindal is a Professor Emeritus and former Head, Department of Pulmonary Medicine at the premier Postgraduate Institute of Medical Education and Research, Chandigarh, India, is a man with an extensive experience of over 45 years. He has occupied several academic, administrative, and research positions during his career. Besides extensively writing scientific papers, chapters, and books on various issues, he has also served on Editorial Boards of different professional journals. He was the first in the country to introduce the Postdoctoral Fellowship Program in India in 1989 and mentored a whole lot of pulmonologists spread all over India and abroad. He has been bestowed with several different honors which include Lifetime Achievement Awards of Indian Societies as well as the Outstanding International Educator Award of the American Thoracic Society.

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